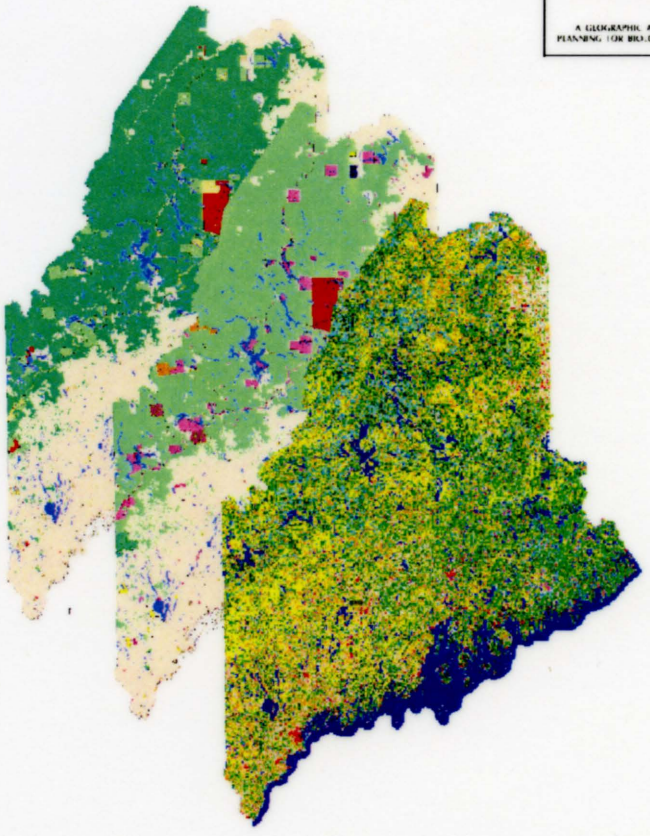
MAINE GAP ANALYSIS VERTEBRATE DATA - PART II:

DISTRIBUTION, HABITAT RELATIONS, AND STATUS OF BREEDING BIRDS IN MAINE

USGS
science for a changing world

GAP



Maine Cooperative Fish and Wildlife Research Unit
Department of Wildlife Ecology
5755 Nutting Hall
University of Maine
Orono, Maine 04469-5755

October 1998

MAINE GAP ANALYSIS VERTEBRATE DATA - PART II:

DISTRIBUTION, HABITAT RELATIONS, AND STATUS OF BREEDING BIRDS IN MAINE

Randall B. Boone[a]
Department of Wildlife Ecology and
Maine Cooperative Fish and Wildlife Research Unit
University of Maine, Orono, ME 04469-5755

and

William B. Krohn
USGS Biological Resources Division
Maine Cooperative Fish and Wildlife Research Unit
University of Maine, Orono, ME 04469-5755

Contract Administration Through:
Maine Cooperative Fish and Wildlife Research Unit
University of Maine, Orono, ME 04469-5755

Research Performed Under:
Cooperative Agreement No. 14-16-0009-1557
Research Work Orders Nos. 28, 33 and 39

---

[a] - Present address: Natural Resource Ecology Laboratory, Colorado State University, Fort Collins, CO 80523-1499.

Table of Contents

Page

Introduction i

Information Provided i

First Page i
Common and scientific names i
Element code i
ME-GAP code i
Order/Family i
Breeding range change i
Listing status ii
Migratory status ii
Game species ii
Population level ii
Population trend ii
Heritage ranks ii
Knowledge iii
General habitats used iv
Specific habitats used iv
Comments iii
Predicted habitat quantities iv
Second Page iv
Species ranges v
Predicted distributions v

Disclaimer vi
Obtaining GAP Data vii
References vii
Literature Cited vii
Species Information 1
Loon, Grebe
Common Loon (*Gavia immer*) 2
Pied-billed Grebe (*Podilymbus podiceps*) 4

Wading Birds
American Bittern (*Botaurus lentiginosus*) 6
Least Bittern (*Ixobrychus exilis*) 8
Great Blue Heron (*Ardea herodias*) 10
Snowy Egret (*Egretta thula*) 12
Little Blue Heron (*Hydranassa caerulea*) 14

Cattle Egret (*Bubulcus ibis*) 16
Green Heron (*Butorides virescens*) 18
Black-crowned Night Heron (*Nycticorax nycticorax*) 20
Glossy Ibis (*Plegadis falcinellus*) 22

Waterfowl
Canada Goose (*Branta canadensis*) 24
Wood Duck (*Aix sponsa*) 26
Green-winged Teal (*Anas crecca*) 28
Mallard (*Anas platyrhynchos*) 30
American Black Duck (*Anas rubripes*) 32
Blue-winged Teal (*Anas discors*) 34
American Wigeon (*Anas americana*) 36
Ring-necked Duck (*Aythya collaris*) 38
Common Goldeneye (*Bucephala clangula)* 40
Hooded Merganser (*Lophodytes cucullatus*) 42
Common Merganser (*Mergus merganser*) 44
Red-breasted Merganser (*Mergus serrator*) 46

Vulture, Eagles, Hawks, Falcons
Turkey Vulture (*Cathartes aura*) 48
Osprey (*Pandion haliaetus*) 50
Bald Eagle (*Haliaeetus leucocephalus*) 52
Northern Harrier (*Circus cyaneus*) 54
Sharp-shinned Hawk (*Accipiter striatus*) 56
Cooper's Hawk (*Accipiter cooperii*) 58
Northern Goshawk (*Accipiter gentilis*)47 60
Red-shouldered Hawk (*Buteo lineatus*) 62
Broad-winged Hawk (*Buteo platypterus*) 64
Red-tailed Hawk (*Buteo jamaicensis*) 66
Golden Eagle (*Aquila chrysaetos)* 68
American Kestrel (*Falco sparverius*) 70
Merlin (*Falco columbarius*) 72
Peregrine Falcon (*Falco peregrinus*) 74

Gamebirds
Spruce Grouse[a] (*Dendragapus canadensis*) 76
Ruffed Grouse (*Bonasa umbellus*) 78
Wild Turkey (*Meleagris gallopavo*) 80

[a] - Hunting currently not permitted.

Rails, Coots
Virginia Rail (*Rallus limicola*) 82
Sora (*Porzana carolina*) 84
Yellow Rail (*Coturnicops noveboracensis*) 86
Common Moorhen (*Gallinula chloropus*) 88
American Coot (*Fulica americana*) 90

Shorebirds
Killdeer (*Charadrius vociferus*) 92
Spotted Sandpiper (*Actitis macularia*) 94
Upland Sandpiper (*Bartramia longicauda*) 96
Common Snipe (*Gallinago gallinago*) 98
American Woodcock (*Scolopax minor*) 100

Inland Gulls and Terns
Herring Gull (*Larus argentatus*) 102
Great Black-backed Gull (*Larus marinus*) 105
Common Tern (*Sterna hirundo*) 106
Black Tern (*Chlidonias niger*) 108

Dove
Mourning Dove (*Zenaida macroura*) 110

Cuckoos
Black-billed Cuckoo (*Coccyzus erythropthalmus*) 112
Yellow-billed Cuckoo (*Coccyzus americanus*) 114

Owls, Nightjars
Great Horned Owl (*Bubo virginianus*) 116
Barred Owl (*Strix varia*) 118
Long-eared Owl (*Asio otus*) 120
Short-eared Owl (*Asio flammeus*) 122
Northern Saw-whet Owl (*Aegolius acadicus*) 124
Common Nighthawk (*Chordeiles minor*) 126
Whip-poor-will (*Caprimulgus vociferus*) 128

Swift, Hummingbird
Chimney Swift (*Chaetura pelagica*) 130
Ruby-throated Hummingbird (*Archilochus colubris*) 132

Kingfisher
Belted Kingfisher (*Ceryle alcyon*) 134

Woodpeckers
Yellow-bellied Sapsucker (*Sphyrapicus varius*) 136
Downy Woodpecker (*Picoides pubescens*) 138
Hairy Woodpecker (*Picoides villosus*) 140
Three-toed Woodpecker (*Picoides tridactylus*) 142
Black-backed Woodpecker (*Picoides arcticus*) 144
Northern Flicker (*Colaptes auratus*) 146
Pileated Woodpecker (*Dryocopus pileatus*) 148

Flycatchers, Lark, Swallows
Olive-sided Flycatcher (*Contopus borealis*) 150
Eastern Wood-pewee (*Contopus virens*) 152
Yellow-bellied Flycatcher (*Empidonax flaviventris*) 154
Alder Flycatcher (*Empidonax alnorum*) 156
Willow Flycatcher (*Empidonax traillii*) 158
Least Flycatcher (*Empidonx minimus*) 160
Eastern Phoebe (*Sayornis phoebe*) 162
Great crested Flycatcher (*Myiarchus crinitus*) 164
Eastern Kingbird (*Tyrannus tyrannus*) 166
Horned Lark (*Eremophila alpestris*) 168
Purple Martin (*Progne subis*) 170
Tree Swallow (*Tachycineta bicolor*) 172
Northern Rough-winged Swallow (*Stelgidopteryx serripennis*) 174
Bank Swallow (*Riparia riparia*) 176
Cliff Swallow (*Hirundo pyrrhonata*) 178
Barn Swallow (*Hirundo rustica*) 180

Jays, Crows
Gray Jay (*Perisoreus canadensis*) 182
Blue Jay (*Cyanocitta cristata*) 184
American Crow (*Corvus brachyrhynchos*) 186
Common Raven (*Corvus corax*) 188

Chickadees, Titmouse, Nuthatches
Black-capped Chickadee (*Parus atricapillus*) 190
Boreal Chickadee (*Parus hudsonicus*) 192
Tufted Titmouse (*Parus bicolor*) 194
Red-breasted Nuthatch (*Sitta canadensis*) 196
White-breasted Nuthatch (*Sitta carolinensis*) 198
Brown Creeper (*Certhia americana*) 200

Wrens
House Wren (*Troglodytes aedon*) 202
Winter Wren (*Troglodytes troglodytes*) 204
Marsh Wren (*Cistothorus palustris*) 206

Sedge Wren (*Cistothorus platensis*) 208
Carolina Wren (*Thryothorus ludovicianus*) 210

Kinglets, Thrushes
Golden-crowned Kinglet (*Regulus satrapa*) 212
Ruby-crowned Kinglet (*Regulus calendula*) 214
Blue-gray Gnatcatcher (*Polioptila caerulea*) 216
Eastern Bluebird (*Sialia sialia*) 218
Veery (*Catharus fuscescens*) 220
Bicknell's Thrush (*Catharus bicknelli*) 222
Swainson's Thrush (*Catharus ustulatus*) 224
Hermit Thrush (*Catharus guttatus*) 226
Wood Thrush (*Hylocichla mustelina*) 228
American Robin (*Turdus migratorius*) 230
Gray Catbird (*Dumetella carolinensis*) 232
Northern Mockingbird (*Mimus polyglottus*) 234
Brown Thrasher (*Toxostoma rufum*) 236

Pipit
American Pipit (*Anthus rubescens*) 238

Waxwing
Cedar Waxwing (*Bombycilla cedrorum*) 240

Vireos
Blue-headed Vireo (*Vireo solitarius*) 242
Yellow-throated Vireo (*Vireo flavifrons*) 244
Warbling Vireo (*Vireo gilvus*) 246
Philadelphia Vireo (*Vireo philadelphicus*) 248
Red-eyed Vireo (*Vireo olivaceus*) 250

Warblers
Blue-winged Warbler (*Vermivora pinus*) 252
Tennessee Warbler (*Vermivora peregrina*) 254
Nashville Warbler (*Vermivora ruficapilla*) 256
Northern Parula (*Parula americana*) 258
Yellow Warbler (*Dendroica petechia*) 260
Chestnut-sided Warbler (*Dendroica pensylvanica*) 262
Magnolia Warbler (*Dendroica magnolia*) 264
Cape May Warbler (*Dendroica tigrina*) 266
Black-throated Blue Warbler (*Dendroica caerulescens*) 268
Yellow-rumped Warbler (*Dendroica coronata*) 270
Black-throated Green Warbler (*Dendroica virens*) 272
Blackburnian Warbler (*Dendroica fusca*) 274
Pine Warbler (*Dendroica pinus*) 276

Prairie Warbler (*Dendroica discolor*) 278
Palm Warbler (*Dendroica palmarum*) 280
Bay-breasted Warbler (*Dendroica castanea*) 282
Blackpoll Warbler (*Dendroica striata*) 284
Black-and-white Warbler (*Mniotilta varia*) 286
American Redstart (*Setophaga ruticilla*) 288
Ovenbird (*Seiurus aurocapillus*) 290
Northern Waterthrush (*Seiurus noveboracensis*) 292
Louisiana Waterthrush (*Seiurus motacilla*) 294
Mourning Warbler (*Oporornis philadelphia*) 296
Common Yellowthroat (*Geothlypis trichas*) 298
Wilson's Warbler (*Wilsonia pusilla*) 300
Canada Warbler (*Wilsonia canadensis*) 302
Scarlet Tanager (*Piranga olivacea*) 304
Northern Cardinal (*Cardinalis cardinalis*) 306

Grosbeak, Bunting, Towhee
Rose-breasted Grosbeak (*Pheucticus ludovicianus*) 308
Indigo Bunting (*Passerina cyanea*) 310
Eastern Towhee (*Pipilo erythrophthalmus*) 312

Sparrows
Chipping Sparrow (*Spizella passerina*) 314
Field Sparrow (*Spizella pusilla*) 316
Vesper Sparrow (*Pooecetes gramineus*) 318
Savannah Sparrow (*Passerculus sandwichensis*) 320
Grasshopper Sparrow (*Ammodramus savannarum*) 322
Saltmarsh Sharp-tailed Sparrow (*Ammodramus caudacutus*) 324
Nelson's Sharp-tailed Sparrow (*Ammodramus nelsoni*) 326
Fox Sparrow (*Passerella iliaca*) 328
Song Sparrow (*Melospiza melodia*) 330
Lincoln's Sparrow (*Melospiza lincolnii*) 332
Swamp Sparrow (*Melospiza georgiana*) 334
White-throated Sparrow (*Zonotrichia albicollis*) 336
Dark-eyed Junco (*Junco hyemalis*) 338
Bobolink (*Dolichonyx oryzivorus*) 340

Blackbirds and Oriole
Red-winged Blackbird (*Agelaius phoeniceus*) 342
Eastern Meadowlark (*Sturnella magna*) 344
Rusty Blackbird (*Euphagus carolinus*) 346
Common Grackle (*Quiscalus quiscala*) 348
Brown-headed Cowbird (*Molothrus ater*) 350
Baltimore Oriole (*Icterus galbula*) 352

Finches
Pine Grosbeak (*Pinicola enucleator*) 354
Purple Finch (*Carpodacus purpureus*) 356
Red Crossbill (*Loxia curvirostra*) 358
White-winged Crossbill (*Loxia leucoptera*) 360
Pine Siskin (*Carduelis pinus*) 362
American Goldfinch (*Carduelis tristis*) 364
Evening Grosbeak (*Coccothraustes vespertinus*) 366

Appendices

Appendix 1. General, forest management, and group-specific literature reviewed for determining the habitat relations of birds in Maine ..... A1-1 thru A1-9

Appendix 2. Species-specific literature reviewed for determining the habitat relations of birds in Maine ..... A2-1 thru A2-46

Introduction

A major component of gap analysis (Scott *et al.* 1993) is the predicted distributions of vertebrates occurring in a state. This is one of two volumes that documents the predicted distributions, habitat relations, and status of terrestrial (i.e., non-fish, non-marine) native vertebrates that regularly bred in Maine during the late 1980s-early 1990s. Regular breeding was defined as known, or likely, to have produced offspring in the state in at least five of the last 10 years (1984-1993). These two volumes detail the data used to define habitat relationships for the 270 vertebrate species that regularly breed in Maine, and are an integral part of the final contract report for Maine Gap Analysis (ME-GAP) (Krohn *et al.* 1998). This volume, Part II, documents the habitat and status information for the 183 species of birds. Part I covers the 17 species of amphibians, 16 reptiles, and 54 species of mammals analyzed in ME-GAP.

It is important to note that these data were assembled to conduct statewide and regional analyses of biodiversity in terms of the presence and absence of species. This information was not intended for estimating abundance or the health or condition of populations. Emphasis was placed on synthesizing information on species-habitat relations from studies conducted in (by order of priority) Maine, New England and eastern Canada, the Great Lakes region, and anywhere in North American within the species' range. We believe the studies from Maine and eastern North America to be reasonably complete, with some exceptions (e.g., habitat relations of raptors are poorly known), but given the rapidly expanding literature on species-habitat relations, we undoubtedly missed some studies, especially more recent ones.

Information Provided

The information is arranged in two volumes (Part I = amphibians, reptiles, and mammals; Part II = breeding birds), with species arranged in taxonomic order. Information for each species is presented on two pages as follows:

First Page

Common and scientific names: Names for birds came from a list maintained by The Nature Conservancy (TNC) (see *http://www.consci.tnc.org/src/zoodata.htm).*

Element code: A unique letter and number code, adapted from TNC.

ME-GAP code: A four letter code used by ME-GAP; developed before **Element codes**.

Order/ Family: Standard taxonomic groupings that show evolutionary relatedness.

Breeding range change: The overall distribution of a species, known as its range, does change. Sometimes these changes are slow, in some cases changes can be rapid. Ranges can expand, contract, and even vary between expansion and contractions. We used a descriptor as to

whether the species breeding range in Maine was increasing, decreasing, stable, or unknown from the mid-1980s through the mid-1990s. Because birds are visible and relatively well studied, a fair amount is known about range changes in birds, although the underlying causes of these changes is often uncertain (e.g., are Northern Cardinals[a] expanding their range in Maine because of winter feeding, climate change, or a combination?).

Listing status: Listed as Endangered or Threatened with extinction by the US Fish and Wildlife Service (**F** = Federal), Maine Department of Inland Fisheries and Wildlife (MDIFW) (**S** = State), or both (**F,S**).

Migratory status: Seasonal movements between breeding and wintering ranges are characterized as follow: Neotropical Migrant = nests in Maine, winters in Central and/or South America; US Migrant = nests in Maine, winters in the southern USA; Local Migrant = nests in Maine and winters in a different location in Maine (e.g., nests in freshwater wetlands and winters along the coast); and Resident = nests and winters in generally the same areas within Maine. Some species have more than one status as migratory behavior can differ among individuals within a species.

Game species: This was a "Yes" or "No" depending upon whether or not hunting of the species is allowed.

Population level: This descriptor was an attempt to qualitatively represent a species relative abundance, comparing abundances of species within general groups within Maine (i.e., birds of prey, song birds, water birds). For example, we consider the Great-horned Owl to be "common" relative to other large birds even though their absolute numbers are much lower than, say, Black-capped Chickadees.

Population trend: Population trends (i.e., increasing, decreasing, or stable) are fairly well known for birds, especially game species and those species well sampled by the USGS Biological Resources Division's Breeding Bird Survey (BBS) (Robbins *et al.* 1986).

Heritage ranks: Originally from TNC, these ranks are used by state Heritage Programs to indicate conservation concern. In Maine, ranks for animals are assigned by the MDIFW (The Maine Natural Areas Program, Department of Conservation, assigns ranks for plants). Ranks represent the level of risk of extinction for each species in terms of rangewide (i.e., global) and statewide distributions. Scores may begin with a **G**, representing a **global** rank, or an **S**, representing a **statewide** code. To these are added "element ranks," with definitions as follows:

1 = Critically imperiled in Maine because of extreme rarity (five or fewer occurrences of very few remaining individuals), or because some aspect of its biology makes it especially vulnerable to extirpation from the state of Maine.

---

[a] - See Species Information for scientific names.

2 = Imperiled in Maine because of rarity (6-20 occurrences or few remaining individuals), or because of other factors making it vulnerable to further decline.

3 = Rare in Maine (on the order of 20-100 occurrences).

4 = Apparently secure in Maine.

5 = Demonstrably secure in Maine.

S? = Element is not yet ranked in the state. ["**?**" is also used as a qualifier after a numeric rank (i.e., **S1?**) to denote inexactness or uncertainty of the numeric value (status); the "**?**" always qualifies the character immediately preceding it in the **S**rank.]

A = Accidental in Maine, including species that only sporadically breed in Maine.

B* = Qualifier that notes the species breeds in Maine.

E = An exotic species established in Maine; may be native elsewhere in North America.

N* = Qualifier that notes the species does not breed in Maine.

PB = Potential breeder in Maine but no occurrences reported.

U = Possibly in peril in Maine, but status uncertain; need more information.

Z = Regularly passes through Maine but enduring, mappable occurrences cannot be defined; this rank pertains only to migrant animals.

* - Two "**S**-ranks" are given for some species (e.g., S4N,S5B). One rank represents the status of the migratory population that uses Maine for a significant portion of its life history, but does not breed in Maine. The other rank reflects the status of the population that breeds in Maine. Codes are listed in numeric order (i.e., S4B before S5N).

Knowledge: A subjective statement by us as to how adequate we believed available information to be for modeling the habitat relations of a species. A high rank does not imply our overall knowledge of a species is high, only that the information used in this document is reasonably good. Even for the most common species such as the American Crow or Ruffed Grouse, many questions remain about their ecology.

General habitats used: A written description of the habitats used by a species. Special attention was given to including habitats used for breeding (i.e., critical to the species' survival) and feeding (i.e., critical to the individual's survival).

Specific habitats used: Habitats that were known to be needed for a particular part of a species' life cycle (i.e., cavities to raise young) are mentioned here.

Comments: Included here are notes on those biological issues unique to a species that may relate as to whether or not a species should be included in ME-GAP (e.g., questions as to taxonomic uniqueness, introductions versus re-introductions), and special features of habitat models (i.e., predicted Bald Eagle habitats centered on known nest locations).

Predicted habitat quantities: A table that shows habitat amounts (ha) for the 37 habitats and land cover classes used in ME-GAP, regardless of use (for definitions of habitat and land use classes, see Appendix 1 in Krohn *et al.* [1998]). Habitats that we considered the species to use are shown as a normal font, whereas those habitats we considered unlikely to be used by the species are shown in a smaller italic font. Having areas included in predicted distribution for habitats that were considered unsuitable may seem inappropriate, but consider how the maps were produced. We believe that modeling species at 30 m resolution (the full resolution of the habitat map) would use excessive computer time without helping to improve our understanding of species statewide distributions in Maine. The accuracy of the habitat map increases at coarser resolutions, to a point (Hepinstall *et al.*, In Preparation), our knowledge of the spatial relations of species is not refined enough to warrant such precision, and finally, almost all species we modeled are sufficiently mobile that their home range would include more than one 30 x 30 m cell. We therefore generalized the predicted distributions to 90 x 90 m, reducing the computer time to process species approximately 9-fold. Habitats were rated as to their value to species at 30 m resolution, and only after habitats had been scored as used or unused, the predicted distribution of the species was generalized to 90 m cells. During subsequent analyses conducted to create the tables shown, the predicted distribution grids were overlaid upon the original habitat map. Each 90 x 90 m cell overlaid nine 30 x 30 m cells, including some cell that were *not habitats used by the species*. The algorithms used ensure that the majority of the 9 cells (i.e., a BLOCKMAJORITY command in GRID) are used by the species, but some may not be. The non-used habitats that fall within these 90 m cells yields area estimates for the habitats shown in italics. Most of the areas for habitats shown as non-used are small relative to the quantities of habitat judged used, as expected from an artifact of generalizing the edges of landscape patches. For habitat types that are extremely fragmented, however, the quantity may be large. As an example, the values for individual patches of grasslands in Maine are typically very small. While grassland patches may be small, with much of their relative area near a forest or other used habitat, the total area estimated to be used can be high.

Second Page

This page consists of three maps, two smaller maps showing the range (i.e., general) distribution of a species in Maine (lower right) and the region (upper left), and a page-sized map showing the prediction distribution in Maine (i.e., black = presence, white = absence). General descriptions as to how these predictions were made follow.

Species ranges

Ranges were initially defined by township boundaries using DeGraaf and Rudis (1986) to place the initial line of occupied versus unoccupied geographic areas. Atlas data from Adamus (1987) and observation data from the Maine Department of Inland Fisheries and Wildlife, were used to modify these initial lines. Literature from Maine, as well as atlas data from New Hampshire (Foss 1994), New Brunswick (Erskine 1992), and Quebec (Gauthier and Aubry 1996), were especially useful in determining how range limits from Maine fit into the regional picture. Once the readily available sources of information were exhausted, the range limits from townships were turned into smooth lines. Range maps for each vertebrate species (as well as the habitat relationships information we had synthesized) were sent-out for review. Review comments were incorporated and final range maps stored as raster ARC/INFO grids. The accuracy of our range limits was tested against ranges calculated from BBS data (Boone 1996). Of 80 species with range limits in Maine, 47 had adequate BBS data. The median error between observed and calculated ranges was 8 %; when disagreement (i.e., under and over estimates averaged together) was considered, the error was only 4 % (Boone 1996). Because we realize that range limits are dynamic (Hengeveld 1992), but had no way to map this variation, we tried to capture this variation of a species' range with a statement in **Breeding range change** (see above), and by blurring the range edge in the predicted distributions (see below).

Predicted distributions

Our first task in predicting the distributions of Maine's terrestrial vertebrates was to build a database that defined for each species what habitats were and were not used (i.e., species-habitat relations). The database that was developed considered breeding and feeding habitats and assigned a level of use by each vertebrate species to 47 habitat types. The database was constructed as species-specific matrices based on technical literature (Appendices 1 and 2) and expert review of the species-habitat matrices. As in the case of range delineation, DeGraaf and Rudis (1986) was the starting point for our species-habitat relations database. In addition to relating the occurrence of terrestrial vertebrates to habitats, we also used elevation, hydrology, and National Wetlands Inventory wetland types as ancillary data when appropriate. These data were available in digital form, were statewide coverages, and were variables commonly referred to in species-habitat studies.

The goal of each species-habitat model was to identify areas of Maine where a given vertebrate species had a reasonable chance of occurring. Thus, we selected for the model those habitat considered to be suitable for each species, than where appropriate reduced the habitats potentially used with ancillary data. For example, the Wood Duck uses tree cavities for nest sites although they are essentially a wetland specialist. Thus, forests $\geq$ 200 m from rivers, lakes, and ponds, and $\geq$ 50 m from streams, were excluded as potential breeding habitat. An example species-habitat model, in computer form, is shown in Appendix 5 of Krohn *et al.* (1998), and the modeling procedure in general is discussed in more detail in Methods under Predicted Animal Species Distributions and Species Richness in Krohn *et al.* (1998).

Range limits were defined as lines whereas in reality the abundances of species across a landscape, given the way animal populations reproduce and die, function as an ever changing set of probabilities of occurrences (and not merely as simple "0s" [absent] and "1s" [present]). To keep our predicted vertebrate distributions from having sharp range edges, we blurred the predicted distributions 3 to 50 km from the range limit, depending upon rarity and mobility of species. For example, a rare species with a patchy distribution may have had only a large enough range where 3 km could be blurred. In contrast, more mobile species that were widely distributed across Maine may have their range edges blurred along a 50 km buffer. Habitat patches that were deleted in the buffer (i.e., blurr) zone at the edge of a species' range were randomly selected, with the selection probability stratified by the quality of the habitat for the species (see Krohn *et al.* 1998).

To test our predicted vertebrate distributions, we compared our results to those obtained from field inventories. We had 10 test sites distributed statewide, five with long-term (>> 10 years), and five with short-term (= 5 years) field observations. On the five checklist sites, rates of omission, the percentage of bird species present in field data but not in the ME-GAP predictions, had a median (range) of only 0.7 % (0-3 %). Commission errors, the percentage of species predicted to be present but not occurring in the field data, on the checklist sites were considerably higher, being 34 % (17-70 %). Because commission errors were higher on test sites with short- versus long-term field data, and rates were higher for species with low versus high Likelihood of Occurrence Ranks (Boone and Krohn, In Press), we suspect more of this error to be due to incomplete field inventories (i.e., sites not inventoried long enough, inadequate methods used for some species [e.g., waterbirds, raptors]) and a restrictive definition of "confirmed breeder" on the checklists than to over-prediction of the ME-GAP species-habitat models (although some over-prediction did occur). For additional details on testing the predicted vertebrate occurrences, see Accuracy Assessment under Predicted Animal Distributions and Species Richness in Krohn *et al.* (1998).

Disclaimer

Although these data have been processed successfully on a computer system at the USGS Biological Resources Division (BRD), no warranty expressed or implied is made regarding the accuracy or utility of the data on any other system or for general or scientific purposes, nor shall the act of distribution constitute any such warranty. This disclaimer applies to individual use of the data and aggregate use with other data. It is strongly recommended that these data are directly acquired from a BRD server (see **Obtaining GAP Data** below) and not indirectly through other sources which may have changed the data in some way. It is also strongly recommended that careful attention be paid to the content of the metadata file associated with these data. The USGS BRD shall not be held liable for improper or incorrect use of the data described and/or contained herein.

These data were complied with regard to the following standards. Please be aware of the limitations of the data. These data are meant to be used at a scale of 1:100,000 or smaller (such

as 1:250,000 or 1:500,000) for the purpose of assessing the conservation status of animals and vegetation types over large geographic regions. The data may or may not have been assessed for statistical accuracy. Data evaluation and improvement may be ongoing. The USGS Biological Resources Division makes no claim as to the data's suitability for other purposes. This is a writable data which may have been altered from the original product if not obtained from a designated data distributor identified above.

Obtaining GAP data

The National Gap Analysis Program has a Gap Analysis home page which can be accessed through the following address: *http://www.gap.uidaho.edu/gap.* ME-GAP data, as well as data from Gap Analysis projects of other states, is available from this web site.

References

Appendix 1 contains the general (i.e., covers multipile species), forest management, and group-specific references used to determine the habitat relations of breeding birds in Maine. Appendix 2 contains the species-specific references used in ME-GAP. Readers can judge for themselves the adequacy of this information for the purposes at hand (i.e., defining status and species-habitat relations) by studying those references cited here for the species, or species groups, of interest.

Literature cited

Boone, R.B. 1996. An assessment of vertebrate diversity in Maine. Ph D. Dissertation, University of Maine, Orono, Maine. 222 pp.

Boone, R.B., W.B. Krohn. In Press. Modeling the occurrence of bird species - are the errors predictable? *Ecological Applications.*

DeGraaf, R M., and D.D. Rudis. 1986. New England wildlife: habitat, natural history, and distribution. USDA Forest Service, Northeastern Forest Experiment Station, General Technical Report NE-108. Amherst, Massachusetts. 491 pp.

Erskine, A.J. 1992. Atlas of breeding birds of the Maritime Provinces. Nova Scotia Museum, Halifax, Nova Scotia, Canada. 270 pp. plus maps.

Foss, C.R. (editor). 1994. Atlas of breeding birds in New Hampshire. Audubon Society of New Hampshire, Concord, New Hampshire. 414 pp.

Gauthier, J., and Y. Aubry (editors). 1996. The breeding birds of Québec: atlas of the breeding birds of southern Quebec. Province of Quebec Society for the Protection of Birds and the Canadian Wildlife Service, Montreal, Quebec, Canada. 1,302 pp.

Hengeveld, R. 1992. Dynamic biogeography. Cambridge University Press, Cambridge, Great Britain. 249 pp.

Hepinstall, J.A., S.A. Sader, W.B. Krohn, and R.B. Boone. In Review. Development and testing of a vegetation and land cover map of Maine. Maine Agricultural and Forest Experiment Station, University of Maine, Orono.

Krohn, W.B., R.B. Boone, S.A. Sader, J.A. Hepinstall, S.M. Scheafer, and S.L. Painton. 1998. Maine Gap Analysis - a geographic analysis of biodiversity. Final contract report to the USGS Biological Resources Division, Gap Analysis Program, Moscow, Idaho.

Robbins, C.S., D. Bystrak, and P.H. Geissler. 1986. The Breeding Bird Survey: its first fifteen years, 1965-1979. US Fish and Wildlife Service, Resource Publication 157, Washington. 196 pp.

Scott, J.M., F. Davis, B. Csuti, R. Noss, B. Butterfield, C. Groves, H. Anderson, S. Caicco, F. D'Erchia, T.C. Edwards, Jr., J. Ulliman, and R. Wright. 1993. Gap analysis: a geographic approach to protection of biological diversity. *Wildlife Monographs* 123: 1-41.

Species Information

COMMON LOON (*Gavia immer*)

Element code: BNBA0103 **ME-GAP code:** GAIM

Order: Gaviiformes **Family:** Gaviidae

Breeding range change: Stable **Listing status**: Not listed

Migratory status: Local migrant **Game species**: No

Population level: Common **Population trend**: Stable

Heritage ranks: G5 . . S4S5B,S4S5N **Knowledge**: Good

General habitats used: Common Loons are most common on large lakes, rivers, and marshes, but usually only one pair per water body, unless it is very large, with several bays. Although associated with deep, less productive lakes (likely the clear water helps in catching fish), loons and broods tend to feed in the shallow water (1.1 to 2 m). Nests are placed in marshy coves, wetlands at inlets or outlets, deadwaters of streams up to 800 m from lakes, or on lake islands. Subadults summer, and adults winter, along the coast.

Specific habitats used: A long stretch of open water is required by loons to become airborne. Lakes or rivers with minimum human disturbance are selected by Common Loons.

Comments:

Predicted habitat quantities:

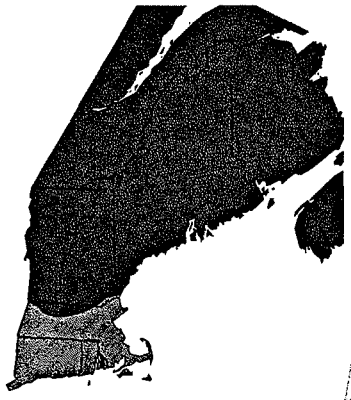
COMMON LOON					Total in ha:	565,617
Habitat	**ha**	**Habitat**	**ha**	**Habitat**		**ha**
Agricultural lands		Light partial cut	*1,562*	Fresh emergent		25,528
Abandoned field	*579*	Heavy partial cut	*1,806*	Peatland		*2,186*
Blueberry field	*372*	Deciduous forest	*9,910*	Wet meadow		*2,913*
Grassland	*8,314*	Decid./Conif. forest	*18,010*	Salt aquatic bed		1,227
Crops/Ground	*1,741*	Conif./Decid. forest	*41,039*	Salt emergent		4,663
Developed lands		Coniferous forest	*23,215*	Mudflat		1,996
Sparse residential	*2,112*	**Wetlands**		Sand shore		152
Dense residential	*995*	Deciduous forested	*4,747*	Gravel shore		2,769
Urban/Industrial	*47*	Coniferous forested	*12,971*	Rock shore		2,552
Highways/Runways	*29*	Dead-forested	*211*	Shallow water		3,958
Forestlands		Decid. shrub-scrub	*15,004*	Open water		359,966
Clearcut	*2,065*	Conifer. shrub-scrub	*1,487*	**Other**		
Early regeneration	*7,191*	Dead shrub-scrub	*10*	Alpine tundra		*12*
Late regeneration	*4,151*	Fresh aquatic bed	55	Exposed rock/Talus		*72*

For definitions of field contents see the Introduction. Items in *italics* in the table of habitat quantities show habitats not used by the species, but included in the predicted distribution because of generalization (see the Introduction for details).

COMMON LOON

GAIM

June 1998



Regional range

Predicted distribution



Maine range

PIED-BILLED GREBE (*Podilymbus podiceps*)

Element code: BNCA0201

ME-GAP code: POPO

Order: Podicipediformes

Family: Podicipedidae

Breeding range change: Stable

Listing status: Not listed

Migratory status: Resident; Local migrant

Game species: No

Population level: Common

Population trend: Stable

Heritage ranks: G5 . . S4B

Knowledge: Adequate

General habitats used: Pied-billed Grebes inhabit fertile wetlands, heavy vegetated ponds, marshes, marshy inlets, slow moving streams with vegetation, farm ponds, and flooded queries. The type of vegetation present appears not important, only that aquatic or emergent vegetation be present, with a diverse mixture selected. Grebes are rare on ponds that are less than 5 ha (12.4 acres).

Specific habitats used: Some open water is needed by Pied-billed Grebes to take flight, and some vegetation is required for food and cover.

Comments:

Predicted habitat quantities:

PIED-BILLED GREBE					Total in ha:	531,767
Habitat	**ha**	**Habitat**	**ha**	**Habitat**		**ha**
Agricultural lands		Light partial cut	*1,836*	Fresh emergent		26,059
Abandoned field	*671*	Heavy partial cut	*2,230*	Peatland		*2,296*
Blueberry field	*411*	Deciduous forest	*10,906*	Wet meadow		7,736
Grassland	*9,735*	Decid./Conif. forest	*19,975*	Salt aquatic bed		1,183
Crops/Ground	*2,182*	Conif./Decid. forest	*46,746*	Salt emergent		4,629
Developed lands		Coniferous forest	*25,752*	Mudflat		1,939
Sparse residential	*2,203*	**Wetlands**		Sand shore		137
Dense residential	*1,046*	Deciduous forested	*5,490*	Gravel shore		*917*
Urban/Industrial	*45*	Coniferous forested	*14,732*	Rock shore		*1,289*
Highways/Runways	*33*	Dead-forested	*239*	Shallow water		4,825
Forestlands		Decid. shrub-scrub	*18,713*	Open water		300,905
Clearcut	*2,453*	Conifer. shrub-scrub	*1,523*	**Other**		
Early regeneration	*7,943*	Dead shrub-scrub	*10*	Alpine tundra		*16*
Late regeneration	*4,828*	Fresh aquatic bed	57	Exposed rock/Talus		*78*

For definitions of field contents see the Introduction. Items in *italics* in the table of habitat quantities show habitats not used by the species, but included in the predicted distribution because of generalization (see the Introduction for details).

PIED-BILLED GREBE

POPO

June 1998



Regional range

Predicted distribution



Maine range

AMERICAN BITTERN (*Botaurus lentiginosus*)

Element code: BNGA0102

ME-GAP code: BOLE

Order: Ciconiiformes

Family: Ardeidae

Breeding range change: Stable

Listing status: Not listed

Migratory status: Local migrant

Game species: No

Population level: Common

Population trend: Unknown, but probably stable

Heritage ranks: G4 . . S4B

Knowledge: Adequate

General habitats used: American Bitterns are shoreline waders, most common on fresh water marshes that have broad-leaved emergent, and aquatic bed vegetation. Marshes, swamps, or bogs with tall vegetation (esp. cattails) and relatively little human disturbance are used. Although bittern densities are positively related to wetland size, bitterns will use small wetlands. American Bitterns will also occur in drier fields, such as hay fields, and in wet willow or alder thickets.

Specific habitats used: Tall wetland vegetation and low levels of human disturbance are used by American Bitterns.

Comments:

Predicted habitat quantities:

AMERICAN BITTERN					Total in ha:	369,297
Habitat	ha	Habitat	ha	Habitat		ha
Agricultural lands		Light partial cut	*2,709*	Fresh emergent		28,812
Abandoned field	*863*	Heavy partial cut	*3,416*	Peatland		*2,564*
Blueberry field	*444*	Deciduous forest	*16,397*	Wet meadow		8,230
Grassland	*13,207*	Decid./Conif. forest	*30,375*	Salt aquatic bed		1,164
Crops/Ground	*2,848*	Conif./Decid. forest	*64,270*	Salt emergent		4,727
Developed lands		Coniferous forest	*31,842*	Mudflat		1,939
Sparse residential	*2,547*	**Wetlands**		Sand shore		135
Dense residential	*1,160*	Deciduous forested	*7,480*	Gravel shore		*963*
Urban/Industrial	*43*	Coniferous forested	*23,082*	Rock shore		*1,290*
Highways/Runways	*41*	Dead-forested	*382*	Shallow water		4,291
Forestlands		Decid. shrub-scrub	*24,952*	Open water		64,762
Clearcut	*3,395*	Conifer. shrub-scrub	*1,925*	**Other**		
Early regeneration	*11,803*	Dead shrub-scrub	*10*	Alpine tundra		*44*
Late regeneration	*7,015*	Fresh aquatic bed	66	Exposed rock/Talus		*104*

For definitions of field contents see the Introduction. Items in *italics* in the table of habitat quantities show habitats not used by the species, but included in the predicted distribution because of generalization (see the Introduction for details).

AMERICAN BITTERN

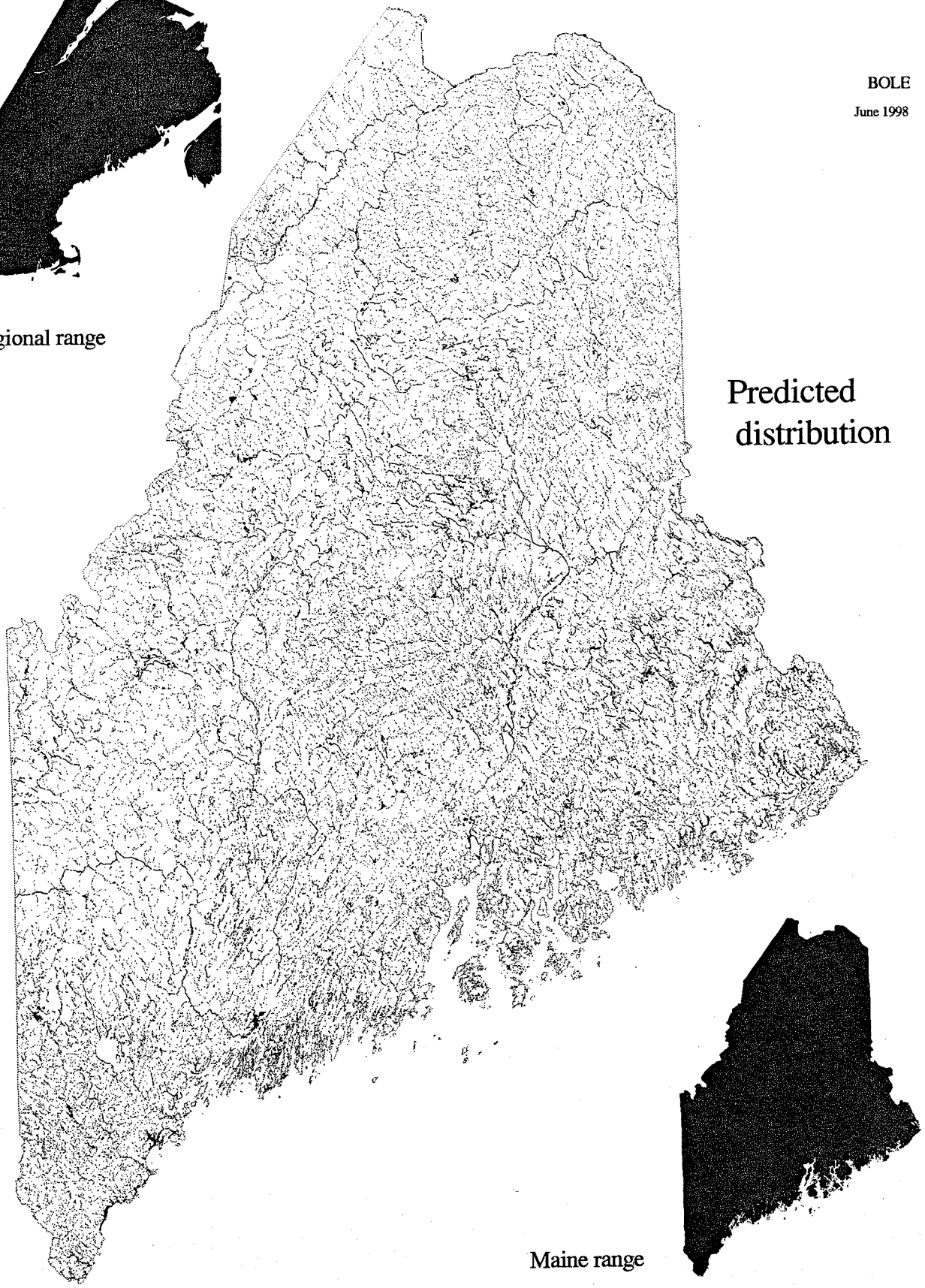
BOLE

June 1998



Regional range

Predicted distribution



Maine range

LEAST BITTERN (*Ixobrychus exilis*)

Element code: BNGA0201

ME-GAP code: IXEX

Order: Ciconiiformes

Family: Ardeidae

Breeding range change: Unknown

Listing status: Not listed

Migratory status: US Migrant

Game species: No

Population level: Rare

Population trend: Unknown

Heritage ranks: G5 . . S2B

Knowledge: Best guess

General habitats used: Least Bitterns inhabit densely vegetated marshes, ponds, rivers, swamps, bogs, and slow moving streams with marshy vegetation. Brackish marshes may be used. Dense cattail marshes may be selected. Large cattail marshes may be selected, but wetlands of any size will be used. Least Bitterns nest over water, usually singly but sometimes in small groups. Bitterns may be more common than surveys suggest.

Specific habitats used: Water levels within marshes or ponds must be relatively stable during the nesting season for Least Bitterns to successfully nest. With rapidly changing water levels, nests are flooded.

Comments:

Predicted habitat quantities:

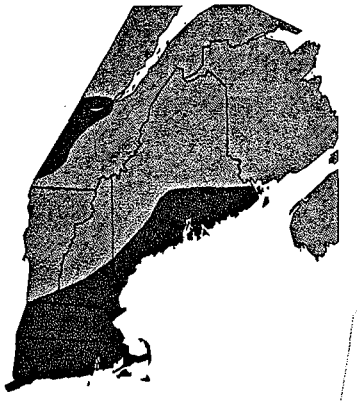
LEAST BITTERN					Total in ha:	77,671
Habitat	**ha**	**Habitat**	**ha**	**Habitat**		**ha**
Agricultural lands		Light partial cut	*497*	Fresh emergent		14,588
Abandoned field	*296*	Heavy partial cut	*624*	Peatland		*343*
Blueberry field	*235*	Deciduous forest	*2,389*	Wet meadow		*419*
Grassland	*5,781*	Decid./Conif. forest	*6,212*	Salt aquatic bed		2,283
Crops/Ground	*829*	Conif./Decid. forest	*13,741*	Salt emergent		5,321
Developed lands		Coniferous forest	*4,755*	Mudflat		3,403
Sparse residential	*719*	**Wetlands**		Sand shore		415
Dense residential	*373*	Deciduous forested	*1,843*	Gravel shore		*2*
Urban/Industrial	*20*	Coniferous forested	*1,882*	Rock shore		*52*
Highways/Runways	*10*	Dead-forested	*90*	Shallow water		2,125
Forestlands		Decid. shrub-scrub	*3,462*	Open water		*1,163*
Clearcut	*945*	Conifer. shrub-scrub	*143*	**Other**		
Early regeneration	*1,116*	Dead shrub-scrub	*0*	Alpine tundra		*0*
Late regeneration	*1,517*	Fresh aquatic bed	53	Exposed rock/Talus		*26*

For definitions of field contents see the Introduction. Items in *italics* in the table of habitat quantities show habitats not used by the species, but included in the predicted distribution because of generalization (see the Introduction for details).

LEAST BITTERN

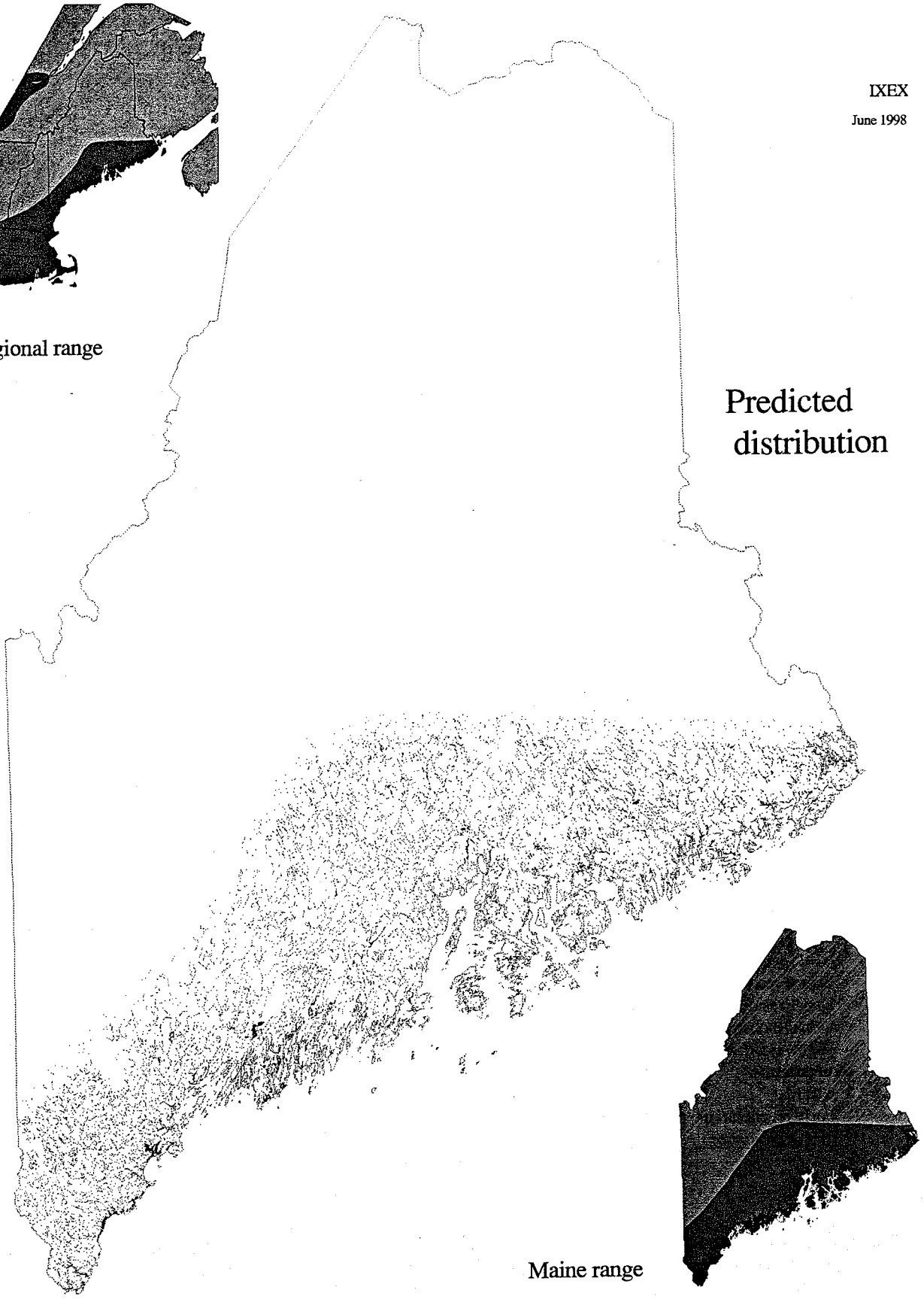
IXEX

June 1998



Regional range

Predicted distribution



Maine range

GREAT BLUE HERON (*Ardea herodias*)

Element code: BNGA0401 **ME-GAP code:** ARHE

Order: Ciconiiformes **Family:** Ardeidae

Breeding range change: Stable **Listing status**: Not listed

Migratory status: US migrant; Local migrant **Game species**: No

Population level: Common **Population trend**: Gradual decline

Heritage ranks: G5 . . S4B **Knowledge**: Good

General habitats used: Great Blue Herons are shallow water waders, feeding in wetlands and aquatic habitats, including marshes, streams, ponds, lakes, and bays. In Maine, herons are more likely to use large wetlands than small, and with more open water and vegetation. Herons will also feed in wet meadows or pastures. Herons nest in large trees, often in colonies, up to 30 km from feeding sites. Coastal colonies are more distant from towns and other colonies than might be expected by chance. The coastal colony size (i.e., number of nests) correlates with acres of wetlands within feeding radius.

Specific habitats used: Tall trees are required for nesting by Great Blue Herons. However, nest trees may be distant (30 km) from feeding sites.

Comments:

Predicted habitat quantities:

GREAT BLUE HERON					Total in ha: 2,155,649
Habitat	**ha**	**Habitat**	**ha**	**Habitat**	**ha**
Agricultural lands		Light partial cut	22,087	Fresh emergent	61,052
Abandoned field	5,521	Heavy partial cut	*20,143*	Peatland	42,276
Blueberry field	*1,845*	Deciduous forest	117,123	Wet meadow	13,850
Grassland	100,421	Decid./Conif. forest	220,933	Salt aquatic bed	3,178
Crops/Ground	*13,273*	Conif./Decid. forest	486,565	Salt emergent	6,236
Developed lands		Coniferous forest	271,874	Mudflat	3,340
Sparse residential	*11,393*	**Wetlands**		Sand shore	407
Dense residential	*2,901*	Deciduous forested	63,301	Gravel shore	2,536
Urban/Industrial	*109*	Coniferous forested	342,286	Rock shore	2,884
Highways/Runways	*104*	Dead-forested	2,379	Shallow water	12,186
Forestlands		Decid. shrub-scrub	118,897	Open water	*60,356*
Clearcut	*21,384*	Conifer. shrub-scrub	13,838	**Other**	
Early regeneration	*63,412*	Dead shrub-scrub	40	Alpine tundra	*69*
Late regeneration	*47,063*	Fresh aquatic bed	115	Exposed rock/Talus	*272*

For definitions of field contents see the Introduction. Items in *italics* in the table of habitat quantities show habitats not used by the species, but included in the predicted distribution because of generalization (see the Introduction for details).

GREAT BLUE HERON

ARHE

June 1998



Regional range

Predicted distribution



Maine range

SNOWY EGRET (*Egretta thula*)

Element code: BNGA0603 **ME-GAP code:** EGTH

Order: Ciconiiformes **Family:** Ardeidae

Breeding range change: Expanding **Listing status**: Not listed

Migratory status: US and Neotropical migrant **Game species**: No

Population level: Rare **Population trend**: Gradual increase, due to range expansion

Heritage ranks: G5 . . S3B **Knowledge**: Adequate

General habitats used: Snowy Egrets feed along the edges of marshes, meadows, ponds, lakes, and shallow bays and coves. Egrets will sometimes feed in fields and on beaches. These birds are colonial breeders, nesting in trees near feeding sites. Nesting colonies are often associated with existing colonies of other species (e.g., Great Blue Herons).

Specific habitats used: Trees are generally required for nesting colonies of Snowy Egrets.

Comments:

Predicted habitat quantities:

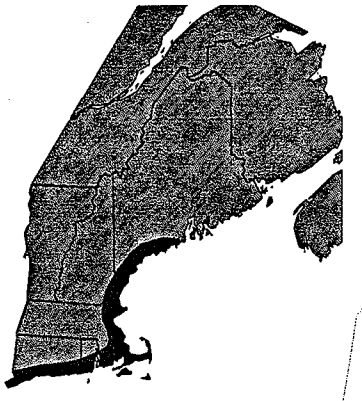
SNOWY EGRET					Total in ha: 93,631
Habitat	**ha**	**Habitat**	**ha**	**Habitat**	**ha**
Agricultural lands		Light partial cut	*168*	Fresh emergent	2,084
Abandoned field	81	Heavy partial cut	*86*	Peatland	164
Blueberry field	*1*	Deciduous forest	2,610	Wet meadow	279
Grassland	16,443	Decid./Conif. forest	12,019	Salt aquatic bed	902
Crops/Ground	*490*	Conif./Decid. forest	15,631	Salt emergent	4,616
Developed lands		Coniferous forest	10,561	Mudflat	6,947
Sparse residential	*593*	**Wetlands**		Sand shore	110
Dense residential	*175*	Deciduous forested	4,889	Gravel shore	15
Urban/Industrial	*13*	Coniferous forested	3,812	Rock shore	138
Highways/Runways	*2*	Dead-forested	81	Shallow water	625
Forestlands		Decid. shrub-scrub	2,172	Open water	6,994
Clearcut	*192*	Conifer. shrub-scrub	134	**Other**	
Early regeneration	*261*	Dead shrub-scrub	0	Alpine tundra	*0*
Late regeneration	*306*	Fresh aquatic bed	11	Exposed rock/Talus	*26*

For definitions of field contents see the Introduction. Items in *italics* in the table of habitat quantities show habitats not used by the species, but included in the predicted distribution because of generalization (see the Introduction for details).

SNOWY EGRET

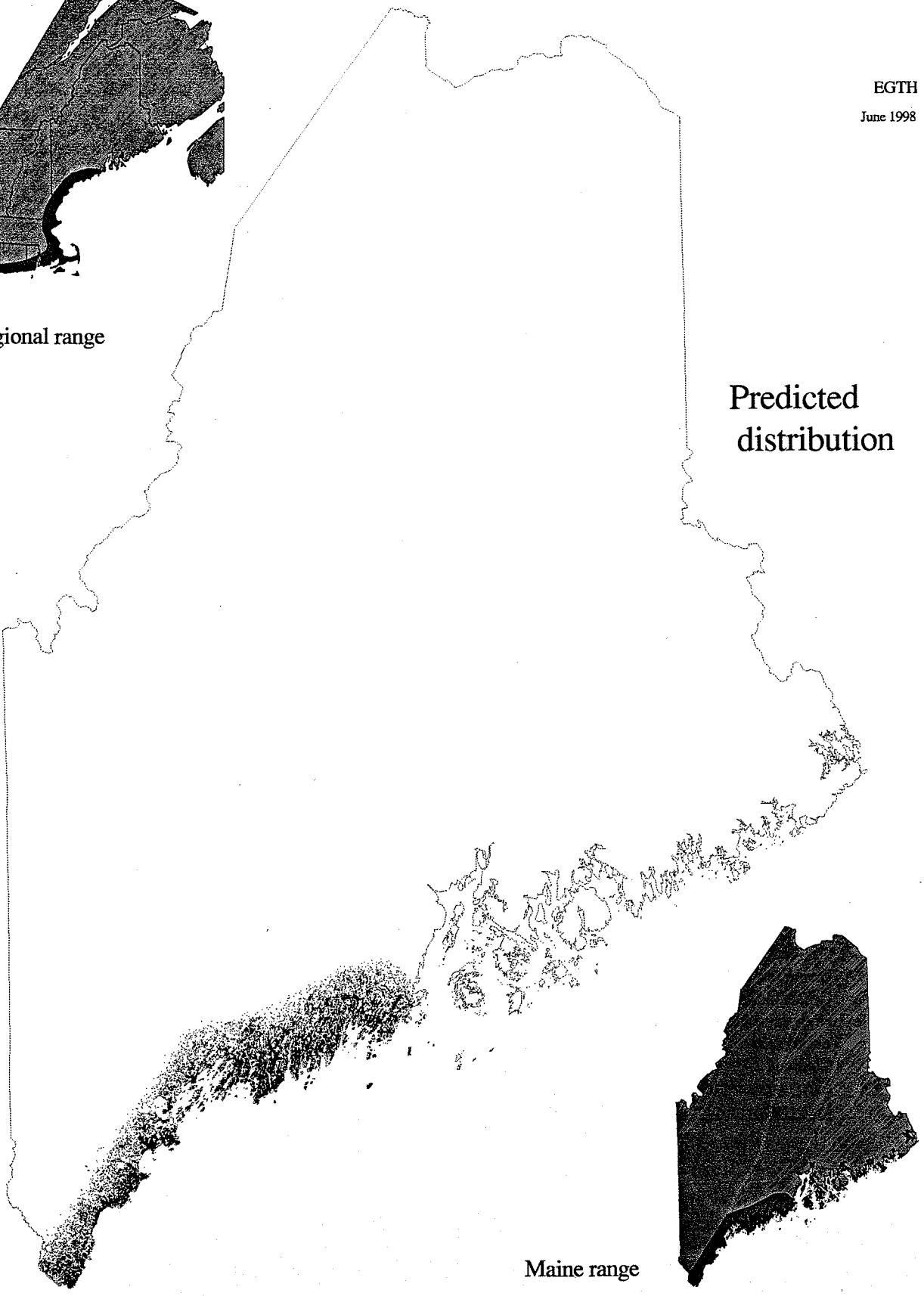
EGTH

June 1998



Regional range

Predicted distribution



Maine range

LITTLE BLUE HERON (*Egretta caerulea*)

Element code: BNGA0604

ME-GAP code: HYCA

Order: Ciconiiformes

Family: Ardeidae

Breeding range change: Unknown

Listing status: Not listed

Migratory status: US migrant

Game species: No

Population level: Rare

Population trend: Unknown

Heritage ranks: G5 . . S1B

Knowledge: Best guess

General habitats used: Little Blue Herons nest in small trees or shrubs, usually over or near water. Little Blue Herons feed at the edges of marshes, meadows, ponds, or lakes, and along the vegetated shores of streams. They also will feed in pastures and fields. These herons are more common at sites with fresh or brackish water than salt water.

Specific habitats used:

Comments:

Predicted habitat quantities:

LITTLE BLUE HERON					Total in ha:	67,505
Habitat	**ha**	**Habitat**	**ha**	**Habitat**		**ha**
Agricultural lands		Light partial cut	*352*	Fresh emergent		1,323
Abandoned field	0	Heavy partial cut	*61*	Peatland		254
Blueberry field	*2*	Deciduous forest	1,128	Wet meadow		125
Grassland	10,101	Decid./Conif. forest	14,118	Salt aquatic bed		107
Crops/Ground	*160*	Conif./Decid. forest	13,091	Salt emergent		2,163
Developed lands		Coniferous forest	3,617	Mudflat		1,034
Sparse residential	*304*	**Wetlands**		Sand shore		83
Dense residential	*213*	Deciduous forested	8,435	Gravel shore		*1*
Urban/Industrial	*22*	Coniferous forested	5,229	Rock shore		*2*
Highways/Runways	*0*	Dead-forested	48	Shallow water		428
Forestlands		Decid. shrub-scrub	2,299	Open water		1,682
Clearcut	*235*	Conifer. shrub-scrub	246	**Other**		
Early regeneration	*461*	Dead shrub-scrub	0	Alpine tundra		*0*
Late regeneration	*155*	Fresh aquatic bed	2	Exposed rock/Talus		*23*

For definitions of field contents see the Introduction. Items in *italics* in the table of habitat quantities show habitats not used by the species, but included in the predicted distribution because of generalization (see the Introduction for details).

LITTLE BLUE HERON

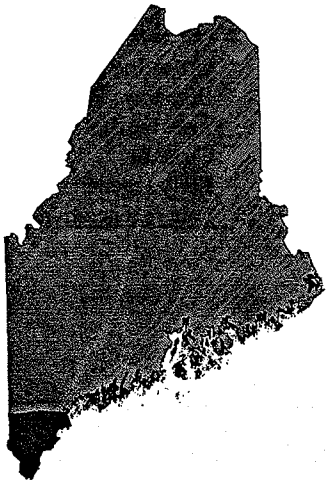
HYCA

June 1998



Regional range

Predicted distribution



Maine range

CATTLE EGRET (*Bubulcus ibis*)

Element code: BNGA0701 **ME-GAP code:** ARIB

Order: Ciconiiformes **Family:** Ardeidae

Breeding range change: Expanding **Listing status**: Not listed

Migratory status: Neotropical migrant **Game species**: No

Population level: Rare **Population trend**: Gradual increase, due to range expansion

Heritage ranks: G5 . . S1B **Knowledge**: Adequate

General habitats used: Cattle Egrets immigrated naturally to Maine in the early 1980's, but are limited to the extreme southern part of Maine. Egrets feed in wet fields (often associated with cattle), marshes, damp pastures, lawns, and meadows. These colony nesters generally nest on islands containing deciduous or coniferous shrubs and trees that are near, or overhanging, water or wetlands.

Specific habitats used:

Comments: Cattle Egrets moved naturally from Africa to South America, and then moved rapidly northward.

Predicted habitat quantities:

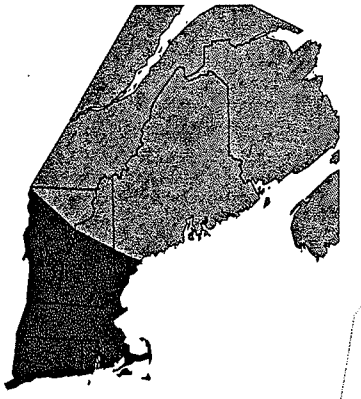
CATTLE EGRET					Total in ha: 130,398
Habitat	**ha**	**Habitat**	**ha**	**Habitat**	**ha**
Agricultural lands		Light partial cut	*835*	Fresh emergent	1,437
Abandoned field	0	Heavy partial cut	*142*	Peatland	259
Blueberry field	*20*	Deciduous forest	4,875	Wet meadow	141
Grassland	32,730	Decid./Conif. forest	30,049	Salt aquatic bed	163
Crops/Ground	1,291	Conif./Decid. forest	24,193	Salt emergent	1,699
Developed lands		Coniferous forest	6,834	Mudflat	859
Sparse residential	1,762	**Wetlands**		Sand shore	103
Dense residential	*514*	Deciduous forested	9,288	Gravel shore	*2*
Urban/Industrial	*84*	Coniferous forested	5,448	Rock shore	*2*
Highways/Runways	0	Dead-forested	58	Shallow water	460
Forestlands		Decid. shrub-scrub	2,431	Open water	2,468
Clearcut	*562*	Conifer. shrub-scrub	265	**Other**	
Early regeneration	*864*	Dead shrub-scrub	0	Alpine tundra	*0*
Late regeneration	*477*	Fresh aquatic bed	4	Exposed rock/Talus	*79*

For definitions of field contents see the Introduction. Items in *italics* in the table of habitat quantities show habitats not used by the species, but included in the predicted distribution because of generalization (see the Introduction for details).

CATTLE EGRET

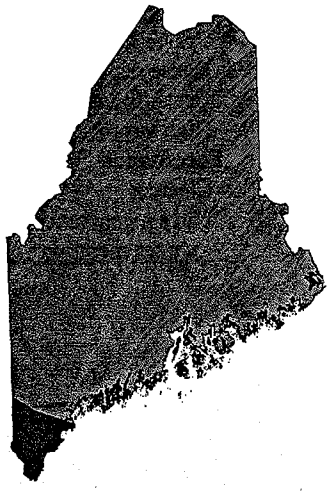
ARIB

June 1998



Regional range

Predicted distribution



Maine range

GREEN HERON (*Butorides virescens*)

Element code: BNGA0801

ME-GAP code: BUST

Order: Ciconiiformes

Family: Ardeidae

Breeding range change: Unknown

Listing status: Not listed

Migratory status: US migrant

Game species: No

Population level: Uncommon

Population trend: Gradual decline

Heritage ranks: G5 . . S3S4B

Knowledge: Adequate

General habitats used: Green Herons breed along the forested edges of slow moving streams and ponds, marshes, wooded swamps, wet meadows, and flooded alder thickets. These herons will nest either singly or in small colonies, usually in conifer shrubs, but all types of shrubs may be used. Nests are usually near water, but not always. Submerged logs or tussock patches are used for hunting and perching. Green Herons use larger wetlands than would be expected by chance.

Specific habitats used:

Comments:

Predicted habitat quantities:

GREEN HERON					Total in ha: 1,344,503
Habitat	**ha**	**Habitat**	**ha**	**Habitat**	**ha**
Agricultural lands		Light partial cut	*7,579*	Fresh emergent	27,022
Abandoned field	*2,025*	Heavy partial cut	*6,570*	Peatland	17,878
Blueberry field	*1,264*	Deciduous forest	109,791	Wet meadow	6,838
Grassland	*33,180*	Decid./Conif. forest	209,870	Salt aquatic bed	6,141
Crops/Ground	*4,824*	Conif./Decid. forest	443,992	Salt emergent	7,128
Developed lands		Coniferous forest	188,268	Mudflat	16,804
Sparse residential	*5,126*	**Wetlands**		Sand shore	1,072
Dense residential	*1,524*	Deciduous forested	38,145	Gravel shore	265
Urban/Industrial	*34*	Coniferous forested	107,869	Rock shore	866
Highways/Runways	*42*	Dead-forested	1,337	Shallow water	4,770
Forestlands		Decid. shrub-scrub	44,830	Open water	*9,899*
Clearcut	*5,877*	Conifer. shrub-scrub	4,516	**Other**	
Early regeneration	*11,292*	Dead shrub-scrub	15	Alpine tundra	*0*
Late regeneration	*17,669*	Fresh aquatic bed	82	Exposed rock/Talus	*97*

For definitions of field contents see the Introduction. Items in *italics* in the table of habitat quantities show habitats not used by the species, but included in the predicted distribution because of generalization (see the Introduction for details).

GREEN HERON

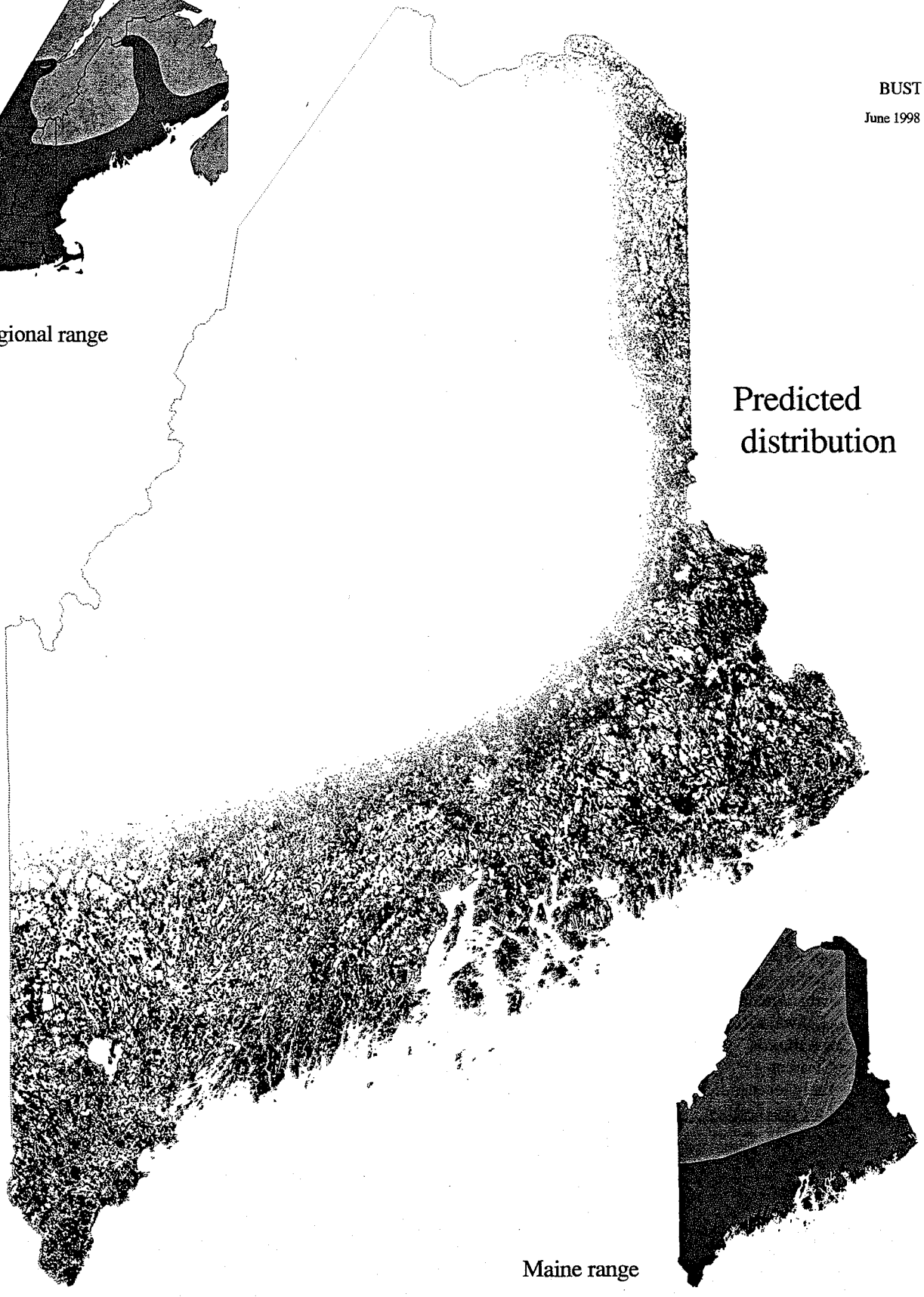
BUST

June 1998



Regional range

Predicted distribution



Maine range

BLACK-CROWNED NIGHT HERON (*Nycticorax nycticorax*)

Element code: BNGA1101

ME-GAP code: NYNY

Order: Ciconiiformes

Family: Ardeidae

Breeding range change: Unknown

Listing status: Not listed

Migratory status: Local migrant; US migrant

Game species: No

Population level: Uncommon

Population trend: Rapid increase, perhaps from DDT recovery

Heritage ranks: G5 . . S2B

Knowledge: Adequate

General habitats used: Black-crowned Night Herons nest in coniferous or deciduous trees, such as oaks, larches, spruce, cherries, maples, and white pines, usually near water but sometimes well away from it. They also will nest in cattail marshes or among reeds. Black-crowned Night Herons feed in salt or freshwater marshes, estuaries, tidal mud flats, or on streams, ponds, and lakes. Fields and meadows are occasionally used for feeding.

Specific habitats used:

Comments:

Predicted habitat quantities:

BLACK-CROWNED NIGHT-HERON					Total in ha:	518,878
Habitat	**ha**	**Habitat**	**ha**	**Habitat**		**ha**
Agricultural lands		Light partial cut	3,956	Fresh emergent		8,719
Abandoned field	*542*	Heavy partial cut	*1,890*	Peatland		4,004
Blueberry field	*362*	Deciduous forest	35,178	Wet meadow		1,239
Grassland	*14,123*	Decid./Conif. forest	91,374	Salt aquatic bed		4,913
Crops/Ground	*3,366*	Conif./Decid. forest	150,675	Salt emergent		6,292
Developed lands		Coniferous forest	88,662	Mudflat		14,152
Sparse residential	*2,709*	**Wetlands**		Sand shore		813
Dense residential	*804*	Deciduous forested	15,426	Gravel shore		*10*
Urban/Industrial	*28*	Coniferous forested	37,189	Rock shore		*260*
Highways/Runways	*11*	Dead-forested	557	Shallow water		1,949
Forestlands		Decid. shrub-scrub	14,348	Open water		*3,385*
Clearcut	*1,502*	Conifer. shrub-scrub	972	**Other**		
Early regeneration	*4,395*	Dead shrub-scrub	0	Alpine tundra		*0*
Late regeneration	*4,873*	Fresh aquatic bed	74	Exposed rock/Talus		*126*

For definitions of field contents see the Introduction. Items in *italics* in the table of habitat quantities show habitats not used by the species, but included in the predicted distribution because of generalization (see the Introduction for details).

BLACK-CROWNED NIGHT-HERON

NYNY

June 1998



Regional range

Predicted distribution



Maine range

GLOSSY IBIS (*Plegadis falcinellus*)

Element code: BNGE0201 **ME-GAP code:** PLFA

Order: Ciconiiformes **Family:** Threskiornithidae

Breeding range change: Expanding **Listing status**: Not listed

Migratory status: Neotropical migrant **Game species**: No

Population level: Uncommon **Population trend**: Stable

Heritage ranks: G5 . . S2B **Knowledge**: Best guess

General habitats used: Glossy Ibises feed in flooded fields, the shallow water of ponds, in shallow brackish water, or on mud flats. These ibises are colonial nesters, nesting in mixes of shrubs within marshes and swamps. Sometimes the nests are overhanging water.

Specific habitats used:

Comments:

Predicted habitat quantities:

GLOSSY IBIS					Total in ha:	16,338
Habitat	**ha**	**Habitat**	**ha**	**Habitat**		**ha**
Agricultural lands		Light partial cut	*43*	Fresh emergent		549
Abandoned field	*0*	Heavy partial cut	*3*	Peatland		109
Blueberry field	*0*	Deciduous forest	*19*	Wet meadow		60
Grassland	*699*	Decid./Conif. forest	*855*	Salt aquatic bed		113
Crops/Ground	*17*	Conif./Decid. forest	*972*	Salt emergent		1,895
Developed lands		Coniferous forest	*302*	Mudflat		952
Sparse residential	*95*	**Wetlands**		Sand shore		91
Dense residential	*49*	Deciduous forested	3,870	Gravel shore		2
Urban/Industrial	*11*	Coniferous forested	2,902	Rock shore		6
Highways/Runways	*0*	Dead-forested	28	Shallow water		215
Forestlands		Decid. shrub-scrub	1,047	Open water		1,175
Clearcut	*46*	Conifer. shrub-scrub	95	**Other**		
Early regeneration	*99*	Dead shrub-scrub	0	Alpine tundra		*0*
Late regeneration	*9*	Fresh aquatic bed	2	Exposed rock/Talus		*6*

For definitions of field contents see the Introduction. Items in *italics* in the table of habitat quantities show habitats not used by the species, but included in the predicted distribution because of generalization (see the Introduction for details).

GLOSSY IBIS

PLFA

June 1998



Regional range

Predicted distribution



Maine range

CANADA GOOSE (*Branta canadensis*)

Element code: BNJB0503 **ME-GAP code:** BRCA

Order: Anseriformes **Family:** Anatidae

Breeding range change: Expanding **Listing status**: Not listed

Migratory status: Local migrant; US migrant **Game species**: No

Population level: Uncommon **Population trend**: Stable, after being introduced

Heritage ranks: G5 . . S4N,S5B **Knowledge**: Good

General habitats used: In Maine, Canada Geese generally nest on the ground (rarely in elevated perches) on islands in lakes, lake shores, ponds, and estuaries, usually within 3 m of water. They feed on vegetation and fruits in many habitats, including in salt marshes, fields, pastures, residential areas, and on the submerged vegetation in lakes, ponds, and shallow bays. Heavily forested areas, and small fields, are not used.

Specific habitats used: Canada Geese select isolated nest sites, with grassy areas nearby for raising broods.

Comments: Canada Geese are not native to Maine, although they are to nearby regions. They were introduced into the state in the 1960's as a breeding species by the Maine Department of Inland Fisheries and Wildlife.

Predicted habitat quantities:

CANADA GOOSE					**Total in ha:** 1,582,193
Habitat	**ha**	**Habitat**	**ha**	**Habitat**	**ha**
Agricultural lands		Light partial cut	*8,805*	Fresh emergent	39,095
Abandoned field	8,720	Heavy partial cut	*10,869*	Peatland	37,891
Blueberry field	*2,446*	Deciduous forest	*53,350*	Wet meadow	9,871
Grassland	280,979	Decid./Conif. forest	*97,851*	Salt aquatic bed	3,350
Crops/Ground	75,360	Conif./Decid. forest	*166,389*	Salt emergent	5,722
Developed lands		Coniferous forest	*85,162*	Mudflat	13,555
Sparse residential	34,663	**Wetlands**		Sand shore	625
Dense residential	*6,974*	Deciduous forested	39,220	Gravel shore	2,327
Urban/Industrial	*353*	Coniferous forested	221,068	Rock shore	2,390
Highways/Runways	*250*	Dead-forested	1,301	Shallow water	10,910
Forestlands		Decid. shrub-scrub	79,645	Open water	*186,513*
Clearcut	*16,691*	Conifer. shrub-scrub	10,272	**Other**	
Early regeneration	*44,586*	Dead shrub-scrub	54	Alpine tundra	*20*
Late regeneration	*24,277*	Fresh aquatic bed	78	Exposed rock/Talus	*560*

For definitions of field contents see the Introduction. Items in *italics* in the table of habitat quantities show habitats not used by the species, but included in the predicted distribution because of generalization (see the Introduction for details).

CANADA GOOSE

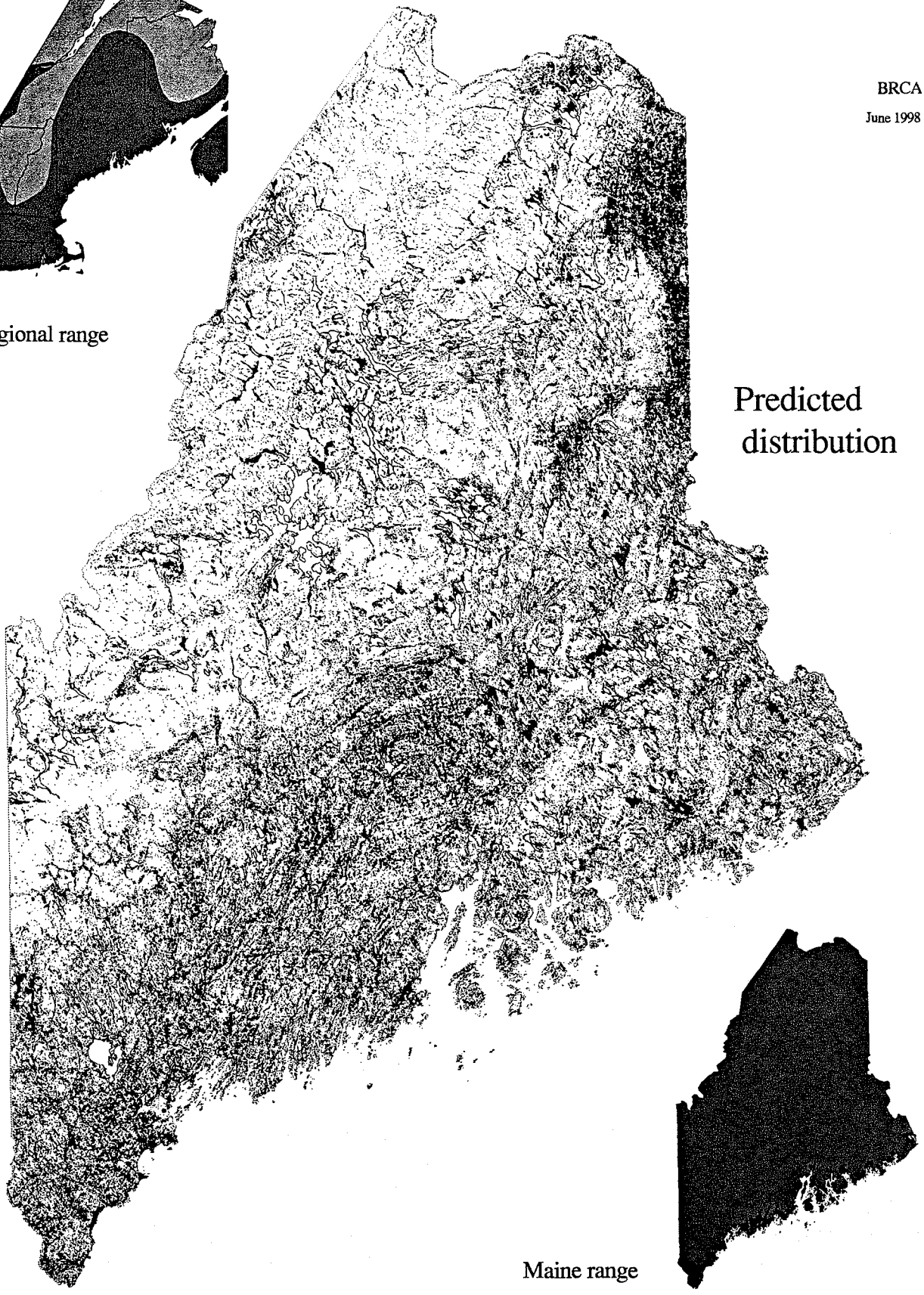
BRCA

June 1998



Regional range

Predicted distribution



Maine range

WOOD DUCK (*Aix sponsa*)

Element code: BNJB0901 **ME-GAP code:** AISP

Order: Anseriformes **Family:** Anatidae

Breeding range change: Stable **Listing status**: Not listed

Migratory status: US migrant **Game species**: Yes

Population level: Common **Population trend**: Stable

Heritage ranks: G5 . . S5B **Knowledge**: Good

General habitats used: Wood ducks breed in wooded areas of creeks, swamps, lakes, and beaver ponds. Optimum habitat appears to be areas with about 25% open water (7 to 45 cm deep), with shrubs and emergent vegetation present, and up to 10% coverage of trees. Areas with vegetation overhanging about 60 cm above the water are ideal. Wood Duck use large trees (maples and oak trees are common selection) for cavity nesting, and stumps, tussocks, and muskrat lodges for perches.

Specific habitats used: Large nesting trees 40 cm diameter-at-breast-height or greater, with cavities, and fairly close to water, are required for breeding by Wood Ducks. Areas without large trees may be used if proper size nest boxes are present.

Comments:

Predicted habitat quantities:

WOOD DUCK					**Total in ha:** 2,933,033
Habitat	**ha**	**Habitat**	**ha**	**Habitat**	**ha**
Agricultural lands		Light partial cut	*26,786*	Fresh emergent	60,251
Abandoned field	*4,753*	Heavy partial cut	*27,937*	Peatland	42,813
Blueberry field	*2,288*	Deciduous forest	210,667	Wet meadow	*9,987*
Grassland	*73,542*	Decid./Conif. forest	346,958	Salt aquatic bed	2,790
Crops/Ground	*13,913*	Conif./Decid. forest	731,285	Salt emergent	2,080
Developed lands		Coniferous forest	399,888	Mudflat	1,620
Sparse residential	*13,883*	**Wetlands**		Sand shore	292
Dense residential	*3,420*	Deciduous forested	60,718	Gravel shore	*1,454*
Urban/Industrial	*80*	Coniferous forested	340,549	Rock shore	*2,561*
Highways/Runways	*120*	Dead-forested	2,298	Shallow water	11,996
Forestlands		Decid. shrub-scrub	116,119	Open water	230,603
Clearcut	*26,024*	Conifer. shrub-scrub	13,512	**Other**	
Early regeneration	*83,914*	Dead shrub-scrub	54	Alpine tundra	*60*
Late regeneration	*67,449*	Fresh aquatic bed	108	Exposed rock/Talus	*262*

For definitions of field contents see the Introduction. Items in *italics* in the table of habitat quantities show habitats not used by the species, but included in the predicted distribution because of generalization (see the Introduction for details).

WOOD DUCK

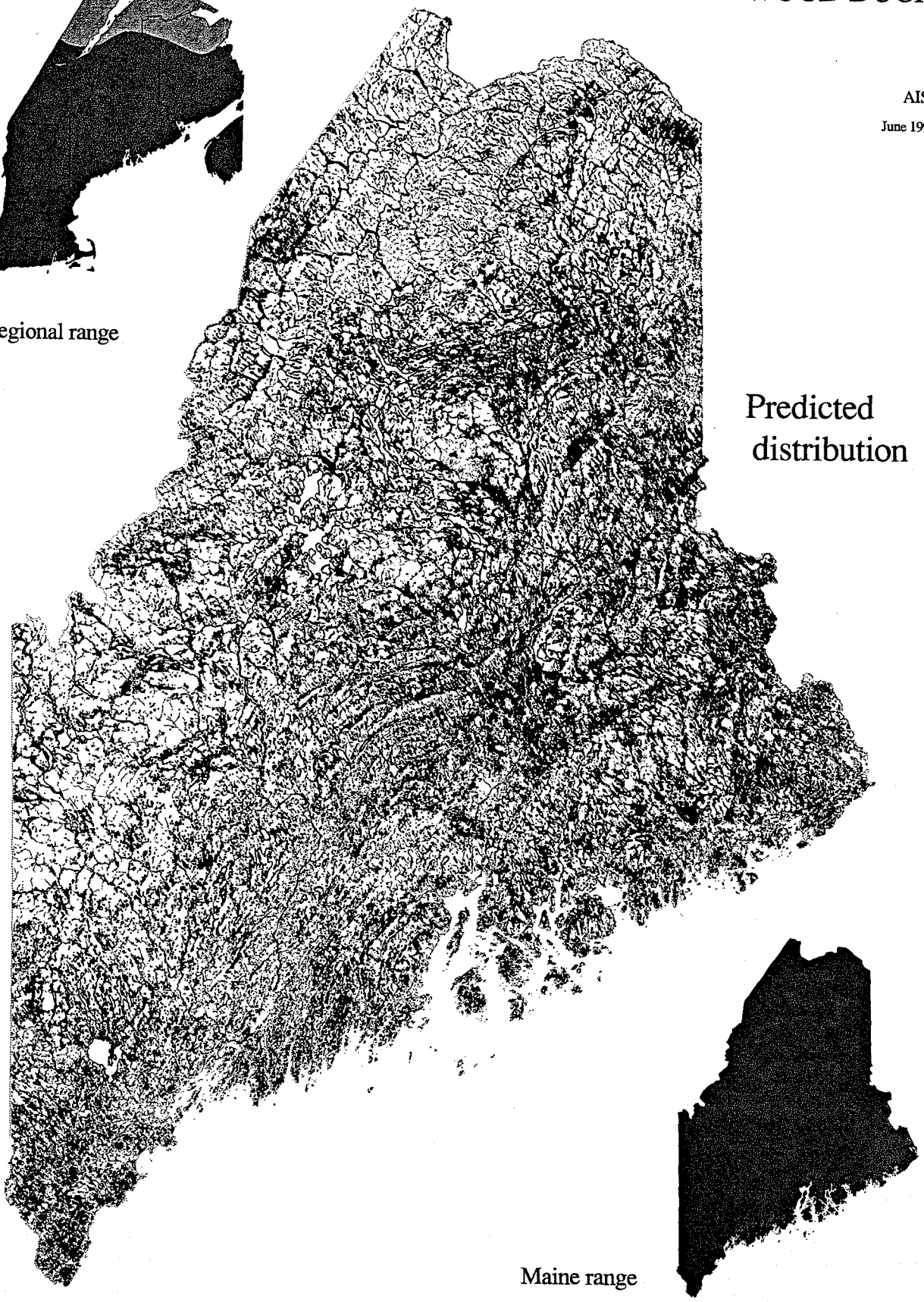
AISP

June 1998



Regional range

Predicted distribution



Maine range

GREEN-WINGED TEAL (*Anas crecca*)

Element code: BNJB1001 **ME-GAP code:** ANCR

Order: Anseriformes **Family:** Anatidae

Breeding range change: Stable **Listing status**: Not listed

Migratory status: Local migrant; US migrant **Game species**: Yes

Population level: Common **Population trend**: Stable, perhaps a gradual decline

Heritage ranks: G5 . . S5B **Knowledge**: Adequate

General habitats used: Green-winged Teal feed and take shelter in emergent marshes, sedge meadows, on ponds, lakes, or beaver flowages. They will also feed in mudflats and flooded fields, and sometimes on dry fields. Green-winged Teal usually nest well away from water, on the ground, in patches of dense grass or brush.

Specific habitats used:

Comments: Green-winged Teals are one of our smallest ducks, with very rapid wingbeats in flight.

Predicted habitat quantities:

GREEN-WINGED TEAL					Total in ha: 1,374,854
Habitat	**ha**	**Habitat**	**ha**	**Habitat**	**ha**
Agricultural lands		Light partial cut	20,450	Fresh emergent	46,229
Abandoned field	5,429	Heavy partial cut	25,756	Peatland	38,833
Blueberry field	*1,972*	Deciduous forest	*40,688*	Wet meadow	10,767
Grassland	103,847	Decid./Conif. forest	*92,891*	Salt aquatic bed	1,497
Crops/Ground	*12,293*	Conif./Decid. forest	*194,024*	Salt emergent	2,463
Developed lands		Coniferous forest	*104,249*	Mudflat	1,343
Sparse residential	*9,943*	**Wetlands**		Sand shore	238
Dense residential	*2,807*	Deciduous forested	44,372	Gravel shore	*437*
Urban/Industrial	*133*	Coniferous forested	256,060	Rock shore	*497*
Highways/Runways	*104*	Dead-forested	1,589	Shallow water	8,547
Forestlands		Decid. shrub-scrub	93,864	Open water	*23,673*
Clearcut	31,865	Conifer. shrub-scrub	11,035	**Other**	
Early regeneration	127,156	Dead shrub-scrub	25	Alpine tundra	*45*
Late regeneration	59,364	Fresh aquatic bed	81	Exposed rock/Talus	*287*

For definitions of field contents see the Introduction. Items in *italics* in the table of habitat quantities show habitats not used by the species, but included in the predicted distribution because of generalization (see the Introduction for details).

GREEN-WINGED TEAL

ANCR

June 1998



Regional range

Predicted distribution



Maine range

MALLARD (*Anas platyrhynchos*)

Element code: BNJB1006 **ME-GAP code:** ANPL

Order: Anseriformes **Family:** Anatidae

Breeding range change: Stable **Listing status**: Not listed

Migratory status: Local migrant **Game species**: Yes

Population level: Common **Population trend**: Stable, perhaps a gradual increase

Heritage ranks: G5 . . S5B,S5N **Knowledge**: Good

General habitats used: Mallards feed and take shelter on ponds, lakes, streams, rivers, marshes, and swamps with shallow water (< 40 cm); salt water habitat are not used during the breeding season. Most wetland habitats (most often man-made impoundments), grain crops, and meadows are suitable feeding habitats. In general, Mallards tend to be associated with urban areas and farmland. Mallards nest up to 100 m from water, in dense vegetation perhaps 60 cm high, such as in hay fields. Areas with an interspersion of farmland, slow streams, and marshes are ideal.

Specific habitats used: In Maine, mallards are associated with human altered habitats, and are most commonly found on lakes, ponds, and rivers near cities, towns, and extensive agricultural areas.

Comments: Mallards were rare in Maine prior to 1960's and today are common nesting species especially around towns and cities. In fact the Mallard population may be increasing gradually because of winter feeding by residents.

Predicted habitat quantities:

MALLARD					Total in ha: 1,938,827
Habitat	**ha**	**Habitat**	**ha**	**Habitat**	**ha**
Agricultural lands		Light partial cut	*14,916*	Fresh emergent	45,125
Abandoned field	9,964	Heavy partial cut	43,467	Peatland	39,059
Blueberry field	7,595	Deciduous forest	*72,212*	Wet meadow	11,568
Grassland	261,573	Decid./Conif. forest	*131,706*	Salt aquatic bed	2,676
Crops/Ground	64,236	Conif./Decid. forest	*231,562*	Salt emergent	5,859
Developed lands		Coniferous forest	*114,153*	Mudflat	4,569
Sparse residential	35,770	**Wetlands**		Sand shore	710
Dense residential	23,959	Deciduous forested	43,922	Gravel shore	3,020
Urban/Industrial	*688*	Coniferous forested	236,121	Rock shore	2,965
Highways/Runways	*433*	Dead-forested	1,487	Shallow water	8,186
Forestlands		Decid. shrub-scrub	91,077	Open water	260,939
Clearcut	52,777	Conifer. shrub-scrub	10,989	**Other**	
Early regeneration	*67,726*	Dead shrub-scrub	60	Alpine tundra	*45*
Late regeneration	*36,849*	Fresh aquatic bed	89	Exposed rock/Talus	*770*

For definitions of field contents see the Introduction. Items in *italics* in the table of habitat quantities show habitats not used by the species, but included in the predicted distribution because of generalization (see the Introduction for details).

MALLARD

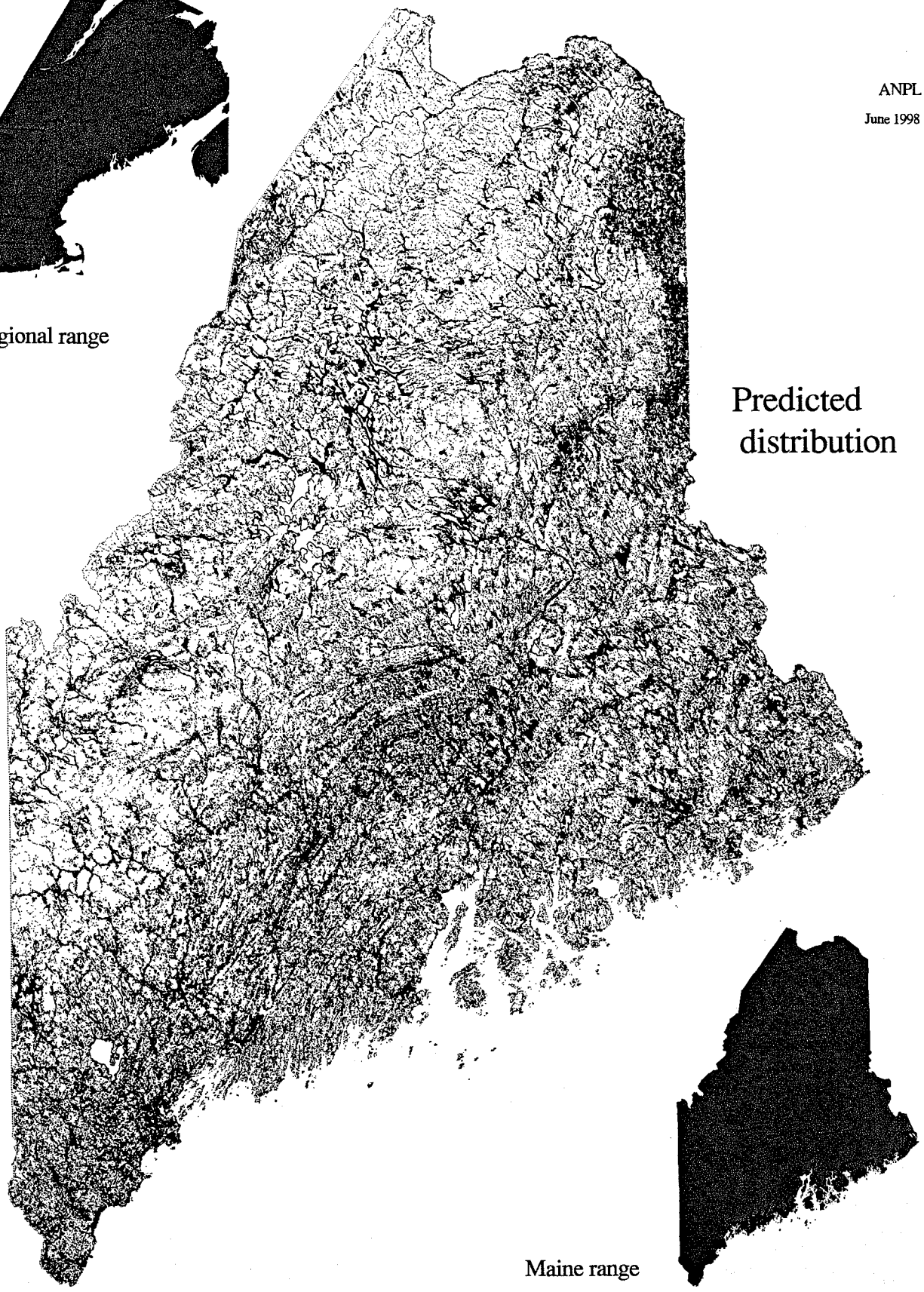
ANPL

June 1998



Regional range

Predicted distribution



Maine range

AMERICAN BLACK DUCK (*Anas rubripes*)

Element code: BNJB1004 **ME-GAP code:** ANRU

Order: Anseriformes **Family:** Anatidae

Breeding range change: Stable **Listing status**: Not listed

Migratory status: Local migrant; US migrant **Game species**: Yes

Population level: Abundant **Population trend**: Moderate increase

Heritage ranks: G5 . . S5B,S5N **Knowledge**: Good

General habitats used: American Black Ducks will use a variety of wet areas as brooding habitat, including brushy or wooded wetlands within upland forests, emergent marshes, sluggish streams, beaver flowages, the margins of ponds, and more rarely, slow moving rivers, and brackish water. Areas less disturbed by people are selected. Most American Black Ducks nest close to water, on the ground under dense vegetation, but some individuals may nest up to 1 km from their brooding site.

Specific habitats used:

Comments: Like many duck species, American Black Ducks will interbreed with other species, principally the Mallard. The purity of the genetic pool within the American Black Duck population is debated.

Predicted habitat quantities:

AMERICAN BLACK DUCK					Total in ha: 1,356,826
Habitat	**ha**	**Habitat**	**ha**	**Habitat**	**ha**
Agricultural lands		Light partial cut	*11,176*	Fresh emergent	41,978
Abandoned field	7,113	Heavy partial cut	38,354	Peatland	38,072
Blueberry field	6,457	Deciduous forest	*41,875*	Wet meadow	10,815
Grassland	*33,503*	Decid./Conif. forest	*79,297*	Salt aquatic bed	1,876
Crops/Ground	*7,396*	Conif./Decid. forest	*175,117*	Salt emergent	5,258
Developed lands		Coniferous forest	*97,573*	Mudflat	3,886
Sparse residential	*6,496*	**Wetlands**		Sand shore	544
Dense residential	*2,210*	Deciduous forested	38,471	Gravel shore	*1,126*
Urban/Industrial	*92*	Coniferous forested	227,721	Rock shore	*1,460*
Highways/Runways	*76*	Dead-forested	1,384	Shallow water	7,322
Forestlands		Decid. shrub-scrub	84,304	Open water	252,137
Clearcut	44,984	Conifer. shrub-scrub	10,218	**Other**	
Early regeneration	*51,693*	Dead shrub-scrub	39	Alpine tundra	*45*
Late regeneration	*26,512*	Fresh aquatic bed	74	Exposed rock/Talus	*176*

For definitions of field contents see the Introduction. Items in *italics* in the table of habitat quantities show habitats not used by the species, but included in the predicted distribution because of generalization (see the Introduction for details).

AMERICAN BLACK DUCK

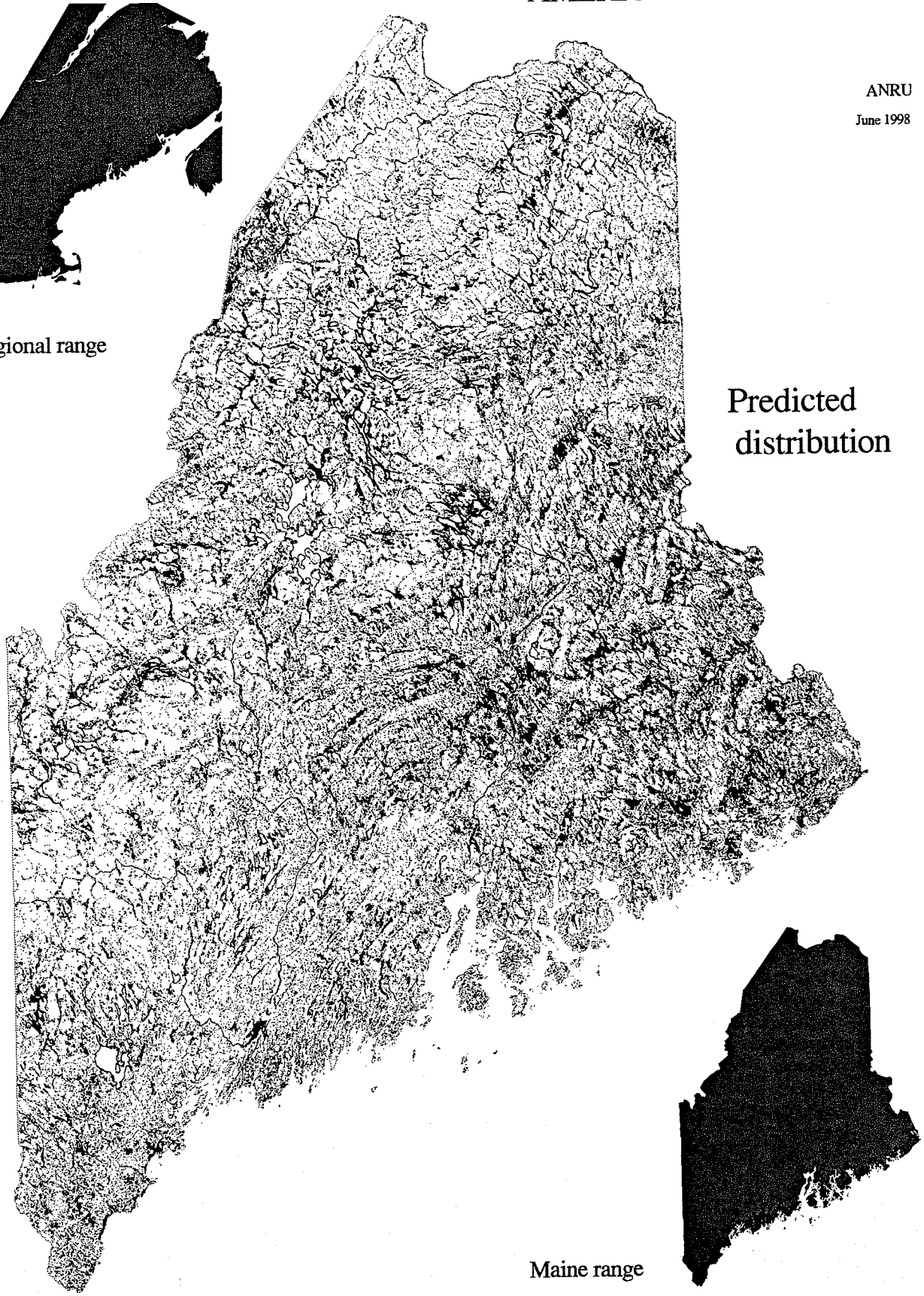
ANRU

June 1998



Regional range

Predicted distribution



Maine range

BLUE-WINGED TEAL (*Anas discors*)

Element code: BNJB1013 **ME-GAP code:** ANDI

Order: Anseriformes **Family:** Anatidae

Breeding range change: Unknown **Listing status**: Not listed

Migratory status: US migrant **Game species**: Yes

Population level: Uncommon **Population trend**: Stable, perhaps a gradual increase

Heritage ranks: G5 . . S4S5B **Knowledge**: Adequate

General habitats used: Blue-winged Teal breed in open, freshwater marshes, in ponds, lakes, slow moving rivers, and sluggish streams. These teal select shorelines and mudflats, areas with emergent vegetation, and meadows with short grasses. Blue-winged Teal usually nest near water, in emergent vegetation, or in grassy areas such as idle hayfields and grazed pastures. Marshes with nearby pastures are selected habitats.

Specific habitats used:

Comments:

Predicted habitat quantities:

BLUE-WINGED TEAL					Total in ha: 814,793
Habitat	**ha**	**Habitat**	**ha**	**Habitat**	**ha**
Agricultural lands		Light partial cut	*2,012*	Fresh emergent	33,865
Abandoned field	7,139	Heavy partial cut	*2,715*	Peatland	28,006
Blueberry field	5,533	Deciduous forest	*8,738*	Wet meadow	9,459
Grassland	155,025	Decid./Conif. forest	*24,153*	Salt aquatic bed	*662*
Crops/Ground	29,648	Conif./Decid. forest	*51,712*	Salt emergent	6,129
Developed lands		Coniferous forest	*20,027*	Mudflat	4,479
Sparse residential	*5,025*	**Wetlands**		Sand shore	621
Dense residential	*1,703*	Deciduous forested	43,337	Gravel shore	288
Urban/Industrial	*80*	Coniferous forested	149,834	Rock shore	693
Highways/Runways	*53*	Dead-forested	1,528	Shallow water	5,463
Forestlands		Decid. shrub-scrub	66,254	Open water	124,725
Clearcut	*5,035*	Conifer. shrub-scrub	6,878	**Other**	
Early regeneration	*7,434*	Dead shrub-scrub	19	Alpine tundra	*0*
Late regeneration	*6,255*	Fresh aquatic bed	99	Exposed rock/Talus	*164*

For definitions of field contents see the Introduction. Items in *italics* in the table of habitat quantities show habitats not used by the species, but included in the predicted distribution because of generalization (see the Introduction for details).

BLUE-WINGED TEAL

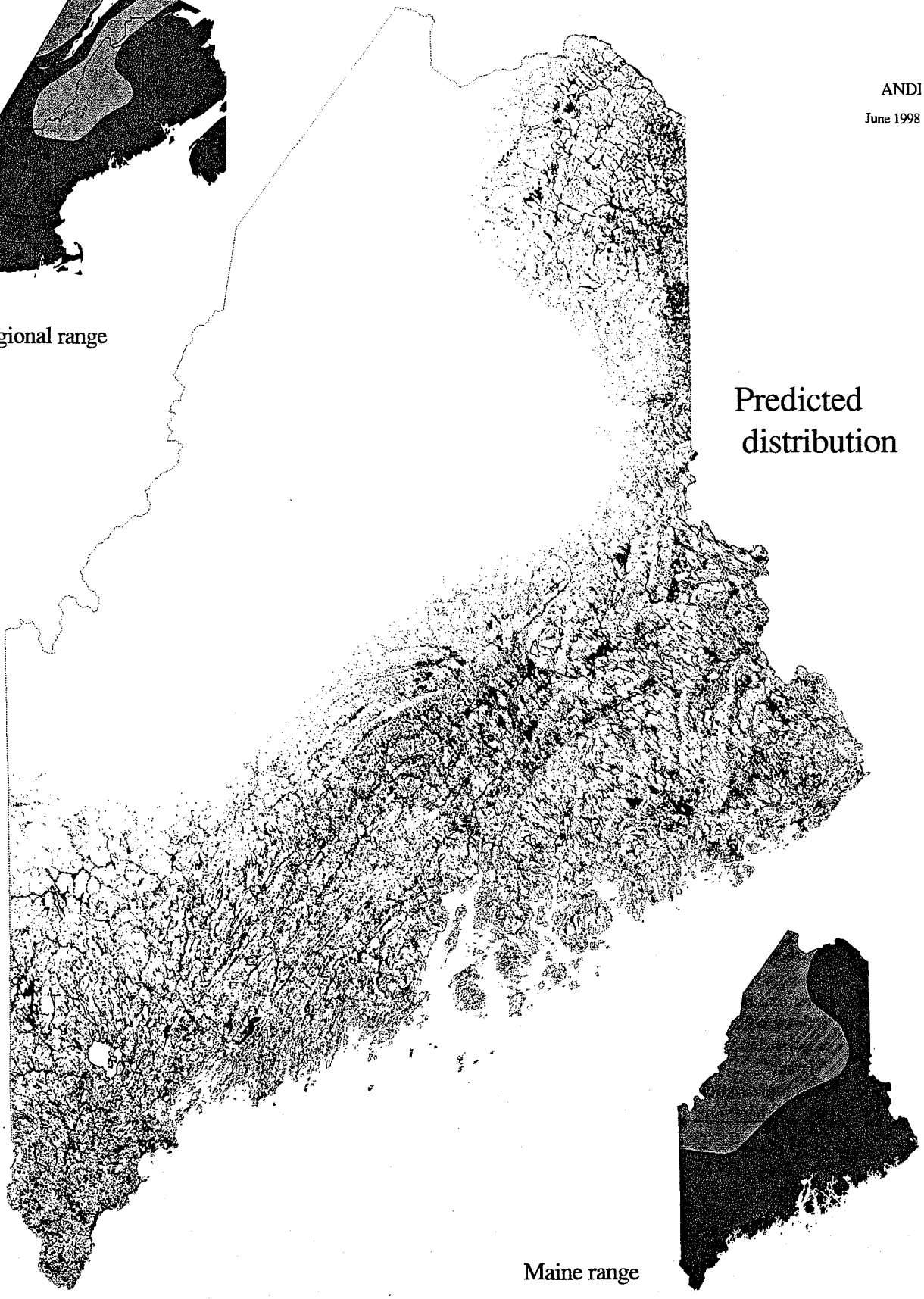
ANDI

June 1998



Regional range

Predicted distribution



Maine range

AMERICAN WIGEON (*Anas americana*)

Element code: BNJB1018 **ME-GAP code:** ANAM

Order: Anseriformes **Family:** Anatidae

Breeding range change: Unknown **Listing status**: Not listed

Migratory status: Local migrant; US migrant **Game species**: No

Population level: Rare **Population trend**: Unknown

Heritage ranks: G5 . . S1S2B,S3N **Knowledge**: Adequate

General habitats used: American Wigeon feed in large marshes and lakes - areas with shallow water and emergent vegetation. The shorelines of lakes and islands will be used for feeding. American Wigeon will nest up to 400 m from water, on dry ground, in meadows, grasslands, or in open forest. Dense forest is not used for nesting.

Specific habitats used:

Comments: Very few American Wigeons breed in Maine, but each year a few pairs are observed.

Predicted habitat quantities:

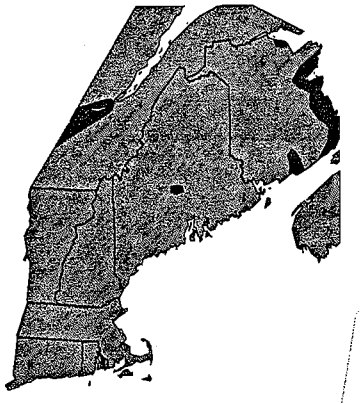
AMERICAN WIGEON					Total in ha:	18,132
Habitat	**ha**	**Habitat**	**ha**	**Habitat**		**ha**
Agricultural lands		Light partial cut	*28*	Fresh emergent		114
Abandoned field	50	Heavy partial cut	*42*	Peatland		194
Blueberry field	*0*	Deciduous forest	*213*	Wet meadow		40
Grassland	9,139	Decid./Conif. forest	*671*	Salt aquatic bed		6
Crops/Ground	*1,012*	Conif./Decid. forest	*961*	Salt emergent		0
Developed lands		Coniferous forest	*174*	Mudflat		0
Sparse residential	*201*	**Wetlands**		Sand shore		0
Dense residential	*46*	Deciduous forested	*96*	Gravel shore		*0*
Urban/Industrial	*0*	Coniferous forested	*173*	Rock shore		*0*
Highways/Runways	3	Dead-forested	*2*	Shallow water		28
Forestlands		Decid. shrub-scrub	1,732	Open water		3,036
Clearcut	*14*	Conifer. shrub-scrub	23	**Other**		
Early regeneration	*77*	Dead shrub-scrub	0	Alpine tundra		*0*
Late regeneration	*56*	Fresh aquatic bed	2	Exposed rock/Talus		*0*

For definitions of field contents see the Introduction. Items in *italics* in the table of habitat quantities show habitats not used by the species, but included in the predicted distribution because of generalization (see the Introduction for details).

AMERICAN WIGEON

ANAM

June 1998



Regional range

Predicted distribution



Maine range

RING-NECKED DUCK (*Aythya collaris*)

Element code: BNJB1104 **ME-GAP code:** AYCO

Order: Anseriformes **Family:** Anatidae

Breeding range change: Stable **Listing status**: Not listed

Migratory status: US migrant **Game species**: Yes

Population level: Common **Population trend**: Stable, perhaps a gradual increase

Heritage ranks: G5 . . S5B **Knowledge**: Good

General habitats used: Ring-necked Ducks select beaver flowages, marshes, bogs, lakes, ponds, and still-waters, especially those near heavily forested areas. Sedge meadows and fresh water marshes with emergent vegetation are selected, as are waterbodies with mud bottoms.

Specific habitats used: Ring-necked Ducks require some open water to take flight.

Comments: Ring-necks are primarily a nesting species of the mid-continental parries. They pioneered into Maine during the 1930's-1950's and today are a common nester on lakes and larger ponds.

Predicted habitat quantities:

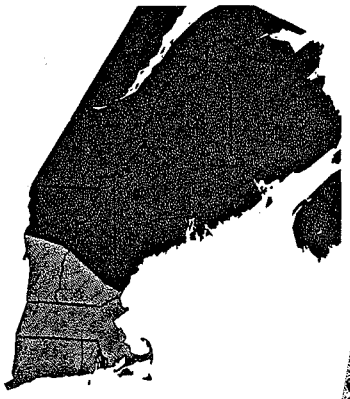
RING-NECKED DUCK					Total in ha: 901,954
Habitat	**ha**	**Habitat**	**ha**	**Habitat**	**ha**
Agricultural lands		Light partial cut	*4,445*	Fresh emergent	37,795
Abandoned field	*1,026*	Heavy partial cut	*4,877*	Peatland	37,268
Blueberry field	*642*	Deciduous forest	*14,966*	Wet meadow	9,859
Grassland	*15,277*	Decid./Conif. forest	*35,053*	Salt aquatic bed	*354*
Crops/Ground	*3,343*	Conif./Decid. forest	*94,555*	Salt emergent	*131*
Developed lands		Coniferous forest	*60,963*	Mudflat	670
Sparse residential	*2,812*	**Wetlands**		Sand shore	96
Dense residential	*1,055*	Deciduous forested	34,707	Gravel shore	2,908
Urban/Industrial	*35*	Coniferous forested	212,849	Rock shore	2,555
Highways/Runways	*35*	Dead-forested	1,209	Shallow water	6,703
Forestlands		Decid. shrub-scrub	74,582	Open water	190,361
Clearcut	*7,160*	Conifer. shrub-scrub	9,736	**Other**	
Early regeneration	*22,156*	Dead shrub-scrub	24	Alpine tundra	*1*
Late regeneration	*11,605*	Fresh aquatic bed	64	Exposed rock/Talus	*75*

For definitions of field contents see the Introduction. Items in *italics* in the table of habitat quantities show habitats not used by the species, but included in the predicted distribution because of generalization (see the Introduction for details).

RING-NECKED DUCK

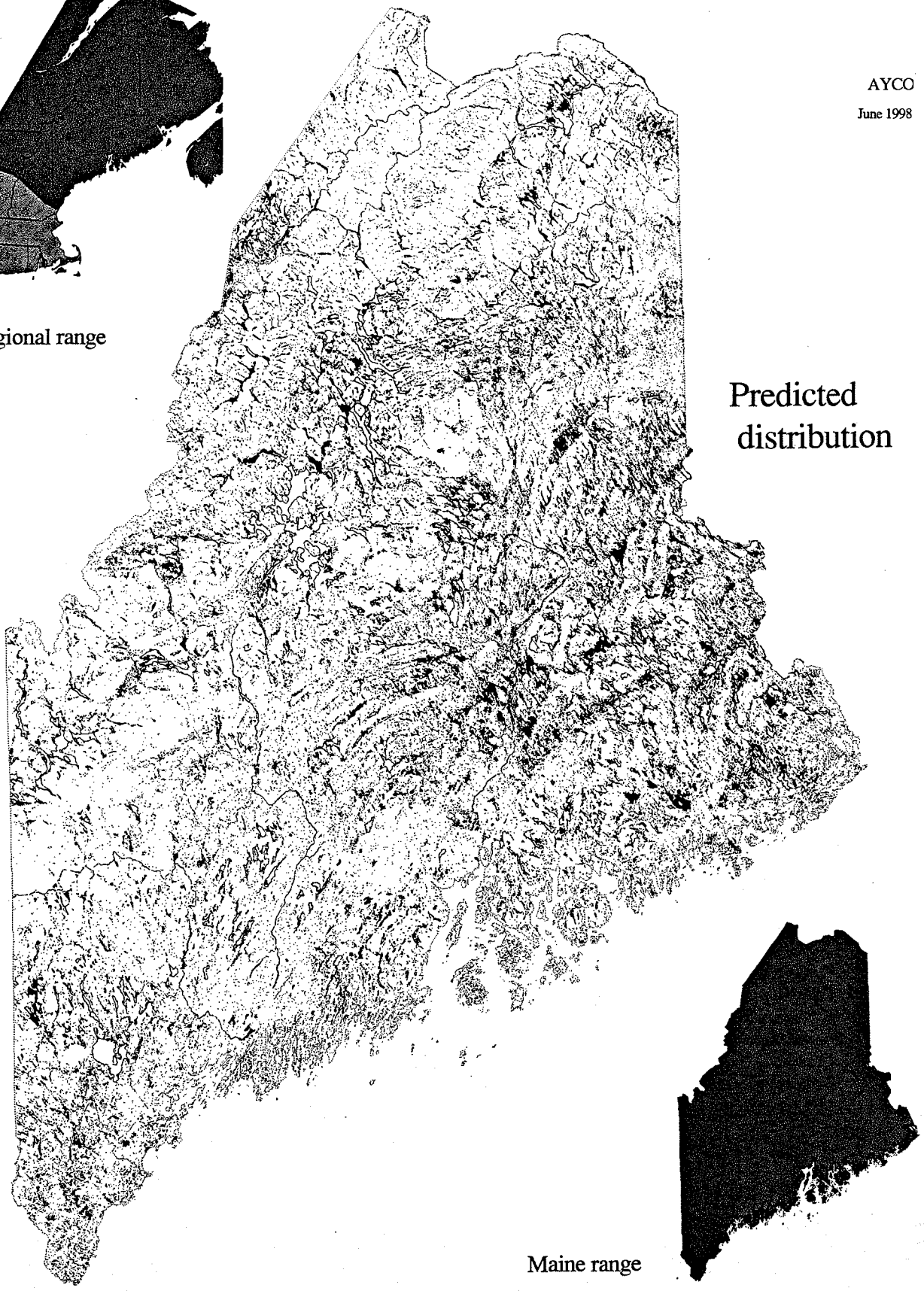
AYCO

June 1998



Regional range

Predicted distribution



Maine range

COMMON GOLDENEYE (*Bucephala clangula*)

Element code: BNJB1801 **ME-GAP code:** BUCL

Order: Anseriformes **Family:** Anatidae

Breeding range change: Stable **Listing status**: Not listed

Migratory status: Local migrant; US migrant **Game species**: Yes

Population level: Common **Population trend**: Stable

Heritage ranks: G5 . . S5B,S5N **Knowledge**: Good

General habitats used: Common Goldeneyes select ponds or slow flowing rivers and streams within open forests with mature trees. Shallow waterbodies (< 3.7 m) with clear water and vegetation along the shorelines are selected. Common Goldeneyes also occur in forested wetlands and bogs. Goldeneyes are cavity nesters, most often using large hardwoods with existing cavities as nest sites.

Specific habitats used: Common Goldeneyes use large trees (> 50 cm diameter at breast height) or nest boxes for nesting sites, which are near water.

Comments:

Predicted habitat quantities:

COMMON GOLDENEYE					Total in ha: 1,962,278
Habitat	**ha**	**Habitat**	**ha**	**Habitat**	**ha**
Agricultural lands		Light partial cut	*10,090*	Fresh emergent	58,706
Abandoned field	*1,624*	Heavy partial cut	*11,333*	Peatland	43,168
Blueberry field	*726*	Deciduous forest	107,907	Wet meadow	*4,108*
Grassland	*16,756*	Decid./Conif. forest	191,733	Salt aquatic bed	3,901
Crops/Ground	*4,930*	Conif./Decid. forest	474,335	Salt emergent	1,017
Developed lands		Coniferous forest	272,572	Mudflat	2,196
Sparse residential	*3,867*	**Wetlands**		Sand shore	535
Dense residential	*561*	Deciduous forested	46,100	Gravel shore	3,344
Urban/Industrial	*0*	Coniferous forested	347,339	Rock shore	3,971
Highways/Runways	*30*	Dead-forested	2,351	Shallow water	11,249
Forestlands		Decid. shrub-scrub	116,395	Open water	142,836
Clearcut	*9,726*	Conifer. shrub-scrub	13,439	**Other**	
Early regeneration	*30,353*	Dead shrub-scrub	51	Alpine tundra	*40*
Late regeneration	*24,808*	Fresh aquatic bed	99	Exposed rock/Talus	*82*

For definitions of field contents see the Introduction. Items in *italics* in the table of habitat quantities show habitats not used by the species, but included in the predicted distribution because of generalization (see the Introduction for details).

COMMON GOLDENEYE

BUCL

June 1998



Regional range

Predicted distribution



Maine range

HOODED MERGANSER (*Lophodytes cucullatus*)

Element code: BNJB2001 **ME-GAP code:** LOCU

Order: Anseriformes **Family:** Anatidae

Breeding range change: Stable **Listing status**: Not listed

Migratory status: Local migrant; US migrant **Game species**: Yes

Population level: Common **Population trend**: Moderate increase

Heritage ranks: G5 . . S5 **Knowledge**: Adequate

General habitats used: Hooded Mergansers are most common in lakes and rivers that have clear water, and are surrounded with dense forest. Lakes, ponds, and streams with flooded trees are selected. Hooded Mergansers feed on fish, with wide, deep, fast flowing rivers with cobble-stone bottoms important for feeding broods. These mergansers nest in cavities in trees near their brooding habitats. Wood Duck nest boxes are also used by Hooded Mergansers.

Specific habitats used: Moderately large trees (> 38 cm diameter at breast height) that are near water are required for nesting by Hooded Mergansers. Wood Duck boxes may substitute for large trees. Ponds must have fish present (or a source nearby) to be used by Hooded Mergansers.

Comments:

Predicted habitat quantities:

HOODED MERGANSER					Total in ha: 2,128,382
Habitat	ha	Habitat	ha	Habitat	ha
Agricultural lands		Light partial cut	20,495	Fresh emergent	60,182
Abandoned field	*2,975*	Heavy partial cut	*16,846*	Peatland	42,634
Blueberry field	*1,456*	Deciduous forest	92,912	Wet meadow	*9,846*
Grassland	*47,440*	Decid./Conif. forest	184,699	Salt aquatic bed	4,750
Crops/Ground	*9,709*	Conif./Decid. forest	440,785	Salt emergent	6,235
Developed lands		Coniferous forest	261,443	Mudflat	*4,919*
Sparse residential	*8,972*	**Wetlands**		Sand shore	*407*
Dense residential	*2,487*	Deciduous forested	60,951	Gravel shore	*1,472*
Urban/Industrial	*70*	Coniferous forested	341,277	Rock shore	*2,709*
Highways/Runways	*92*	Dead-forested	2,294	Shallow water	12,122
Forestlands		Decid. shrub-scrub	116,542	Open water	240,611
Clearcut	*18,408*	Conifer. shrub-scrub	13,616	**Other**	
Early regeneration	*57,022*	Dead shrub-scrub	45	Alpine tundra	*25*
Late regeneration	*41,637*	Fresh aquatic bed	106	Exposed rock/Talus	*187*

For definitions of field contents see the Introduction. Items in *italics* in the table of habitat quantities show habitats not used by the species, but included in the predicted distribution because of generalization (see the Introduction for details).

HOODED MERGANSER

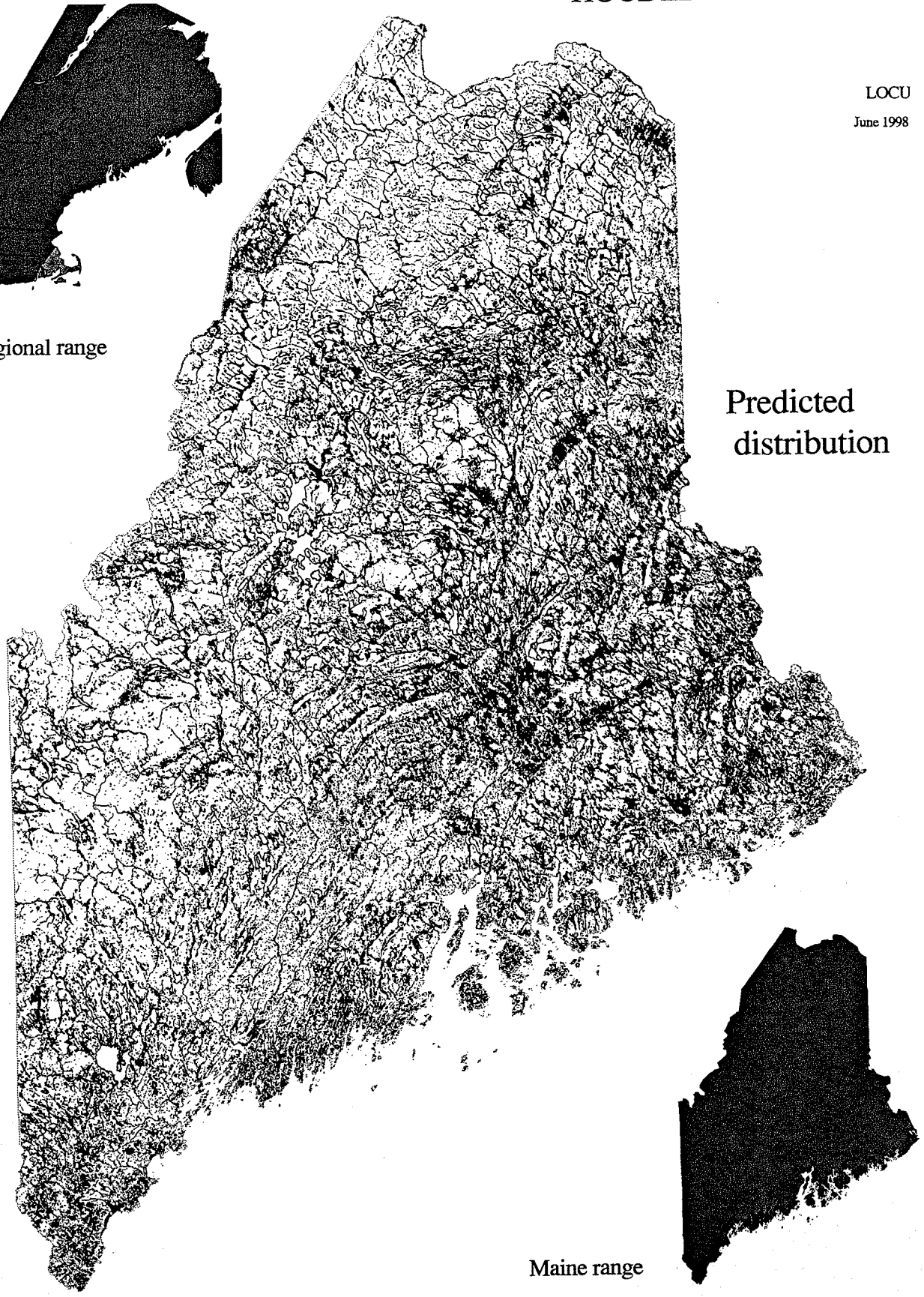
LOCU

June 1998



Regional range

Predicted distribution



Maine range

COMMON MERGANSER (*Mergus merganser*)

Element code: BNJB2101 **ME-GAP code:** MEME

Order: Anseriformes **Family:** Anatidae

Breeding range change: Unknown **Listing status**: Not listed

Migratory status: Local migrant; US migrant **Game species**: Yes

Population level: Common **Population trend**: Stable, perhaps a slow increase after DDT

Heritage ranks: G5 . . S5 **Knowledge**: Good

General habitats used: Common Mergansers feed in streams, rivers, ponds, and lakes that have clear water. Shallow waterbodies (< 1.9 m) are selected, but these may be still or rapidly flowing, and streams may be narrow (down to 1.5 m). Common Mergansers generally nest in tree cavities, and select areas that have little human disturbance.

Specific habitats used: Large trees (> 50 cm diameter at breast height) are used for nesting by Common Goldeneyes, although some individuals will nest on the ground.

Comments:

Predicted habitat quantities:

COMMON MERGANSER					Total in ha: 2,676,182
Habitat	**ha**	**Habitat**	**ha**	**Habitat**	**ha**
Agricultural lands		Light partial cut	*12,686*	Fresh emergent	54,532
Abandoned field	*1,534*	Heavy partial cut	*13,726*	Peatland	41,503
Blueberry field	*804*	Deciduous forest	200,397	Wet meadow	13,431
Grassland	*12,552*	Decid./Conif. forest	302,225	Salt aquatic bed	2,070
Crops/Ground	*3,699*	Conif./Decid. forest	688,506	Salt emergent	1,350
Developed lands		Coniferous forest	369,891	Mudflat	*574*
Sparse residential	*3,281*	**Wetlands**		Sand shore	*36*
Dense residential	*337*	Deciduous forested	41,550	Gravel shore	*567*
Urban/Industrial	*0*	Coniferous forested	338,881	Rock shore	*885*
Highways/Runways	*17*	Dead-forested	2,060	Shallow water	11,091
Forestlands		Decid. shrub-scrub	108,448	Open water	362,965
Clearcut	*10,337*	Conifer. shrub-scrub	12,527	**Other**	
Early regeneration	*34,438*	Dead shrub-scrub	55	Alpine tundra	*23*
Late regeneration	*29,128*	Fresh aquatic bed	56	Exposed rock/Talus	*19*

For definitions of field contents see the Introduction. Items in *italics* in the table of habitat quantities show habitats not used by the species, but included in the predicted distribution because of generalization (see the Introduction for details).

COMMON MERGANSER

MEME

June 1998



Regional range

Predicted distribution



Maine range

RED-BREASTED MERGANSER (*Mergus serrator*)

Element code: BNJB2102 **ME-GAP code:** MESE

Order: Anseriformes **Family:** Anatidae

Breeding range change: Unknown **Listing status:** Not listed

Migratory status: Local migrant; US migrant **Game species:** Yes

Population level: Uncommon **Population trend:** Unknown, but probably stable

Heritage ranks: G5 . . S3B,S5N **Knowledge:** Adequate

General habitats used: Red-breasted Mergansers feed in rivers, streams, ponds, and lakes, and along the shores of coastal islands. Occupied ponds have fish present, and the water is clear enough to allow fish to be spotted. Water bodies with surrounding or overhanging trees are favored. Red-breasted Mergansers nest in a variety of sites, including within low, dense brush, under boulders on coastal islands, and on sand bars; usually within 7.5 meters of water. Nest boxes also may be used. Inland birds move toward the coast after the breeding season.

Specific habitats used: Red-breasted Mergansers require a long stretch of open water, to use as a runway to become airborne.

Comments:

Predicted habitat quantities:

RED-BREASTED MERGANSER					Total in ha:	392,980
Habitat	**ha**	**Habitat**	**ha**	**Habitat**		**ha**
Agricultural lands		Light partial cut	*1,118*	Fresh emergent		18,912
Abandoned field	1,180	Heavy partial cut	*1,268*	Peatland		*1,818*
Blueberry field	*271*	Deciduous forest	*931*	Wet meadow		3,216
Grassland	*1,240*	Decid./Conif. forest	*3,459*	Salt aquatic bed		14,979
Crops/Ground	*294*	Conif./Decid. forest	*14,835*	Salt emergent		1,944
Developed lands		Coniferous forest	*15,906*	Mudflat		12,824
Sparse residential	*924*	**Wetlands**		Sand shore		1,957
Dense residential	*72*	Deciduous forested	7,740	Gravel shore		2,794
Urban/Industrial	*1*	Coniferous forested	98,355	Rock shore		3,502
Highways/Runways	6	Dead-forested	696	Shallow water		3,896
Forestlands		Decid. shrub-scrub	32,423	Open water		131,875
Clearcut	*1,473*	Conifer. shrub-scrub	3,151	**Other**		
Early regeneration	*6,503*	Dead shrub-scrub	13	Alpine tundra		*0*
Late regeneration	*3,263*	Fresh aquatic bed	50	Exposed rock/Talus		92

For definitions of field contents see the Introduction. Items in *italics* in the table of habitat quantities show habitats not used by the species, but included in the predicted distribution because of generalization (see the Introduction for details).

RED-BREASTED MERGANSER

MESE

June 1998



Regional range

Predicted distribution



Maine range

TURKEY VULTURE (*Cathartes aura*)

Element code: BNKA0201 **ME-GAP code:** CAAU

Order: Ciconiiformes **Family:** Cathartidae

Breeding range change: Expanding **Listing status**: Not listed

Migratory status: US migrant **Game species**: No

Population level: Uncommon **Population trend**: Rapid increase, due to range expansion

Heritage ranks: G5 . . S4B **Knowledge**: Adequate

General habitats used: Turkey Vultures occur where there is an interspersion of forests and open fields, but otherwise they tend to be habitat generalists using open habitats more frequently then forested areas. Vultures appear most common in deciduous or mixed forests, but will occur within coniferous forests. Openings, such as fields, bogs, and roadways are searched for carrion by vultures. Turkey Vultures are typically cavity nesters, nesting in the broken tops of large trees, but they also will nest on rock ledges, cliffs, and within blow downs or slash piles.

Specific habitats used: Large trees, or large snags, within deciduous forests, are generally required for nesting by Turkey Vultures. Cliffs, ledges, or slash piles may be used if available. Road kills are probably a major food item in Maine.

Comments: Nesting vultures are new to Maine, first being observed during the 1970's-1980's.

Predicted habitat quantities:

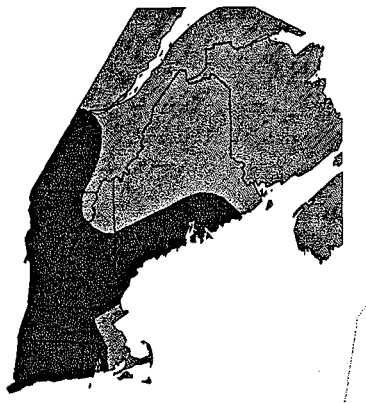
TURKEY VULTURE					Total in ha: 1,396,906
Habitat	ha	Habitat	ha	Habitat	ha
Agricultural lands		Light partial cut	*6,020*	Fresh emergent	12,513
Abandoned field	3,083	Heavy partial cut	11,385	Peatland	4,296
Blueberry field	2,471	Deciduous forest	178,216	Wet meadow	2,453
Grassland	218,400	Decid./Conif. forest	291,180	Salt aquatic bed	*1,718*
Crops/Ground	17,977	Conif./Decid. forest	342,368	Salt emergent	6,316
Developed lands		Coniferous forest	156,834	Mudflat	14,259
Sparse residential	24,781	**Wetlands**		Sand shore	2,223
Dense residential	*2,668*	Deciduous forested	26,608	Gravel shore	82
Urban/Industrial	*163*	Coniferous forested	*6,712*	Rock shore	1,386
Highways/Runways	214	Dead-forested	567	Shallow water	*672*
Forestlands		Decid. shrub-scrub	18,980	Open water	*4,447*
Clearcut	15,599	Conifer. shrub-scrub	2,023	**Other**	
Early regeneration	*6,260*	Dead shrub-scrub	11	Alpine tundra	*0*
Late regeneration	*12,007*	Fresh aquatic bed	*16*	Exposed rock/Talus	1,997

For definitions of field contents see the Introduction. Items in *italics* in the table of habitat quantities show habitats not used by the species, but included in the predicted distribution because of generalization (see the Introduction for details).

TURKEY VULTURE

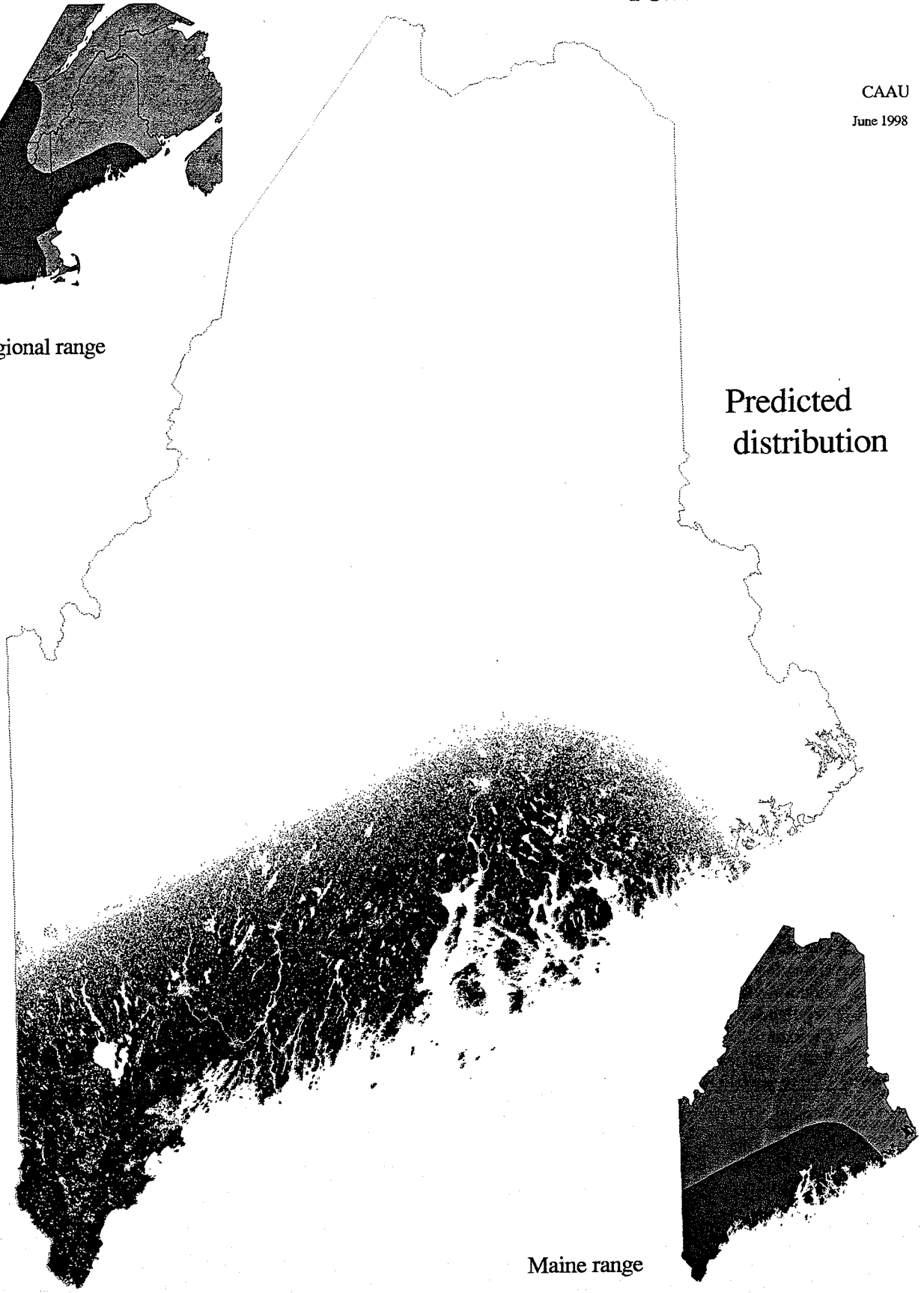
CAAU

June 1998



Regional range

Predicted distribution



Maine range

OSPREY (*Pandion haliaetus*)

Element code: BNKC0101

ME-GAP code: PAHA

Order: Falconiformes

Family: Accipitridae

Breeding range change: Stable

Listing status: Not listed

Migratory status: US migrant

Game species: No

Population level: Common

Population trend: Stable, perhaps a gradual increase

Heritage ranks: G5 . . S5B

Knowledge: Good

General habitats used: Ospreys are most common along the coast, feeding in estuaries and bays, but they will also occur at large lakes, rivers, and the shallows of streams; any waterbody with abundant fish. Ospreys will tolerate human disturbance. This species nests in large dead trees, ledges or dunes, or on man-made structures such as platforms and telephone poles.

Specific habitats used: Elevated nest sites are generally used by nesting Ospreys.

Comments: Ospreys capture fish by spying them from far above, then diving at high speeds. They fold their wings as they splash into the water and capture the fish in their talons.

Predicted habitat quantities:

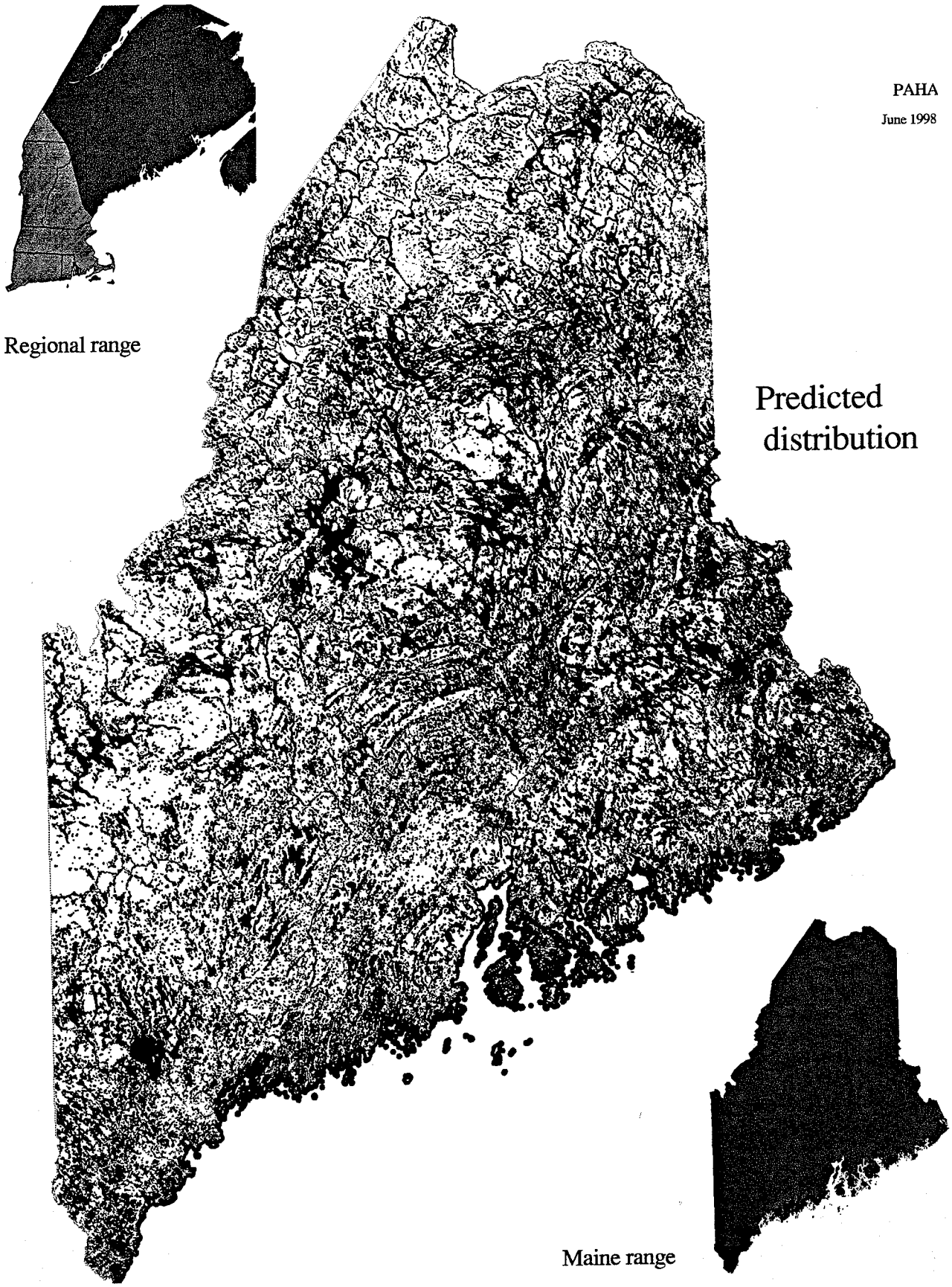
OSPREY					**Total in ha:** 3,858,083
Habitat	ha	Habitat	ha	Habitat	ha
Agricultural lands		Light partial cut	41,836	Fresh emergent	60,802
Abandoned field	9,094	Heavy partial cut	*34,313*	Peatland	*17,784*
Blueberry field	*3,003*	Deciduous forest	280,377	Wet meadow	14,726
Grassland	*91,756*	Decid./Conif. forest	436,243	Salt aquatic bed	18,159
Crops/Ground	*17,031*	Conif./Decid. forest	857,451	Salt emergent	6,428
Developed lands		Coniferous forest	454,143	Mudflat	*10,724*
Sparse residential	27,461	**Wetlands**		Sand shore	*2,644*
Dense residential	*4,432*	Deciduous forested	62,007	Gravel shore	*1,641*
Urban/Industrial	*130*	Coniferous forested	338,557	Rock shore	*4,614*
Highways/Runways	*194*	Dead-forested	2,372	Shallow water	12,296
Forestlands		Decid. shrub-scrub	116,316	Open water	707,308
Clearcut	*30,569*	Conifer. shrub-scrub	13,485	**Other**	
Early regeneration	*97,202*	Dead shrub-scrub	61	Alpine tundra	*34*
Late regeneration	*82,092*	Fresh aquatic bed	113	Exposed rock/Talus	685

For definitions of field contents see the Introduction. Items in *italics* in the table of habitat quantities show habitats not used by the species, but included in the predicted distribution because of generalization (see the Introduction for details).

OSPREY

PAHA

June 1998



BALD EAGLE (*Haliaeetus leucocephalus*)

Element code: BNKC1001 **ME-GAP code:** HALE

Order: Falconiformes **Family:** Accipitridae

Breeding range change: Expanding **Listing status**: Threatened (S, F)

Migratory status: Local migrant; Resident **Game species**: No

Population level: Uncommon **Population trend**: Gradual increase, after DDT losses

Heritage ranks: G4 . . S4B,S4N **Knowledge**: Good

General habitats used: Bald Eagles feed primarily on fish taken from large rivers, lakes, coastal bays, and inlets. Eagles nest in tall, living trees (e.g., white pine, red oak, red maple) that provide a view of the surrounding area. On the coast, areas with a higher than average number of fish species and shallow water were associated with higher densities of Bald Eagles. Inland, warm water lakes are used more frequently than cold water lakes (i.e., lakes supporting bass and perch vs. trout and salmon). Eagles are sensitive to human disturbance, and will avoid heavily disturbed areas.

Specific habitats used: Large trees for nesting and perching, and relatively little human disturbance, are required for Bald Eagles to breed successfully. Sites that are productive, providing a diversity of foods, are selected.

Comments: Predicted distributions based on those habitats used by Eagles within a 0.40 km (0.25 mi) radius of known nest sites.

Predicted habitat quantities:

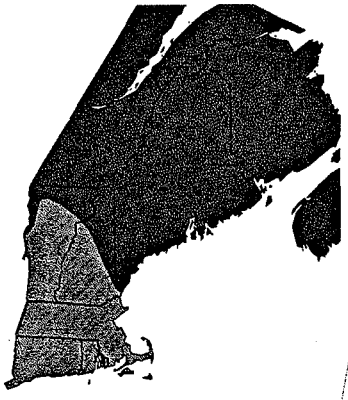
BALD EAGLE					Total in ha: 107,320
Habitat	ha	Habitat	ha	Habitat	ha
Agricultural lands		Light partial cut	396	Fresh emergent	1,635
Abandoned field	415	Heavy partial cut	*326*	Peatland	*370*
Blueberry field	*166*	Deciduous forest	2,321	Wet meadow	923
Grassland	2,704	Decid./Conif. forest	4,163	Salt aquatic bed	3,694
Crops/Ground	*460*	Conif./Decid. forest	16,208	Salt emergent	680
Developed lands		Coniferous forest	10,826	Mudflat	4,402
Sparse residential	1,285	**Wetlands**		Sand shore	383
Dense residential	*66*	Deciduous forested	881	Gravel shore	403
Urban/Industrial	*0*	Coniferous forested	3,692	Rock shore	784
Highways/Runways	3	Dead-forested	92	Shallow water	192
Forestlands		Decid. shrub-scrub	2,198	Open water	43,649
Clearcut	703	Conifer. shrub-scrub	301	**Other**	
Early regeneration	*1,553*	Dead shrub-scrub	0	Alpine tundra	*0*
Late regeneration	*1,430*	Fresh aquatic bed	12	Exposed rock/Talus	*6*

For definitions of field contents see the Introduction. Items in *italics* in the table of habitat quantities show habitats not used by the species, but included in the predicted distribution because of generalization (see the Introduction for details).

BALD EAGLE

HALE

June 1998



Regional range

Predicted distribution



Maine range

NORTHERN HARRIER (*Circus cyaneus*)

Element code: BNKC1101

ME-GAP code: CICY

Order: Falconiformes

Family: Accipitridae

Breeding range change: Stable

Listing status: Not listed

Migratory status: Local migrant; US migrant

Game species: No

Population level: Uncommon

Population trend: Stable, perhaps a gradual decline

Heritage ranks: G5 . . S4B

Knowledge: Adequate

General habitats used: Northern Harriers soar low over abandoned fields, wet meadows, moist hayfields, salt and cattail marshes, bogs, and dwarf conifer forests, searching for small mammals. Drier habitats, such as clearcuts and dry fields also may be used. Northern Harriers are ground-nesters, nesting in open areas amongst dense non-forested vegetation, such as shrubs, sedge tussocks, or grasses.

Specific habitats used:

Comments: Northern Harriers are the only large raptors in Maine with strong sexual dimorphism, meaning that the sexes look very different. Male harriers are gray, whereas females are brown. Both have characteristic white rump patches.

Predicted habitat quantities:

NORTHERN HARRIER					Total in ha: 1,090,228
Habitat	**ha**	**Habitat**	**ha**	**Habitat**	**ha**
Agricultural lands		Light partial cut	*10,467*	Fresh emergent	32,360
Abandoned field	8,837	Heavy partial cut	48,292	Peatland	29,402
Blueberry field	7,825	Deciduous forest	*59,843*	Wet meadow	8,211
Grassland	269,269	Decid./Conif. forest	*90,829*	Salt aquatic bed	*671*
Crops/Ground	72,608	Conif./Decid. forest	*118,764*	Salt emergent	516
Developed lands		Coniferous forest	*43,107*	Mudflat	1,127
Sparse residential	*17,220*	**Wetlands**		Sand shore	212
Dense residential	*5,817*	Deciduous forested	*11,026*	Gravel shore	2,104
Urban/Industrial	*263*	Coniferous forested	*39,206*	Rock shore	1,533
Highways/Runways	245	Dead-forested	*337*	Shallow water	*2,482*
Forestlands		Decid. shrub-scrub	62,476	Open water	*15,680*
Clearcut	52,221	Conifer. shrub-scrub	7,878	**Other**	
Early regeneration	*45,637*	Dead shrub-scrub	52	Alpine tundra	*18*
Late regeneration	*23,186*	Fresh aquatic bed	*26*	Exposed rock/Talus	*482*

For definitions of field contents see the Introduction. Items in *italics* in the table of habitat quantities show habitats not used by the species, but included in the predicted distribution because of generalization (see the Introduction for details).

NORTHERN HARRIER

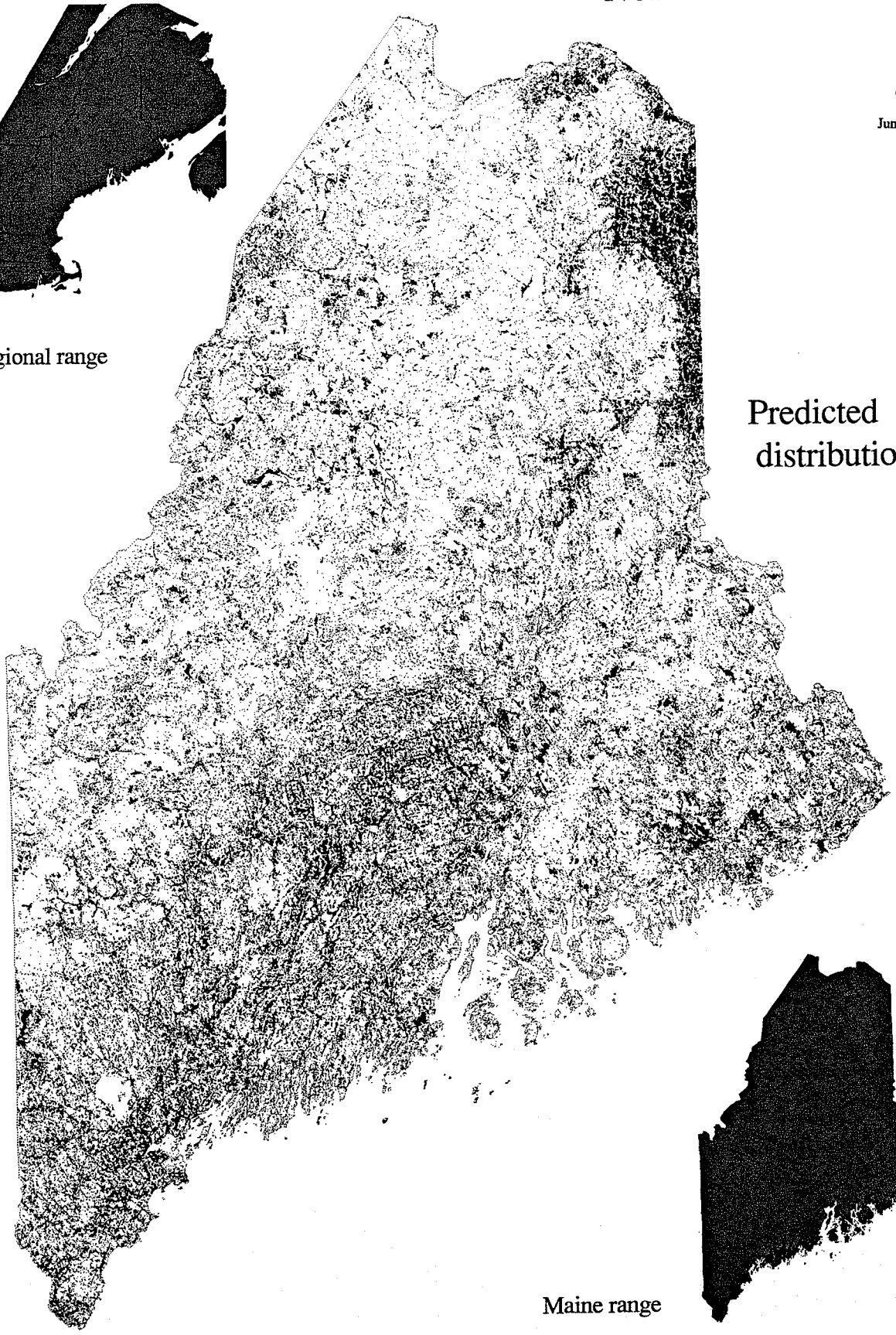
CICY

June 1998



Regional range

Predicted distribution





Maine range

SHARP-SHINNED HAWK (*Accipiter striatus*)

Element code: BNKC1202

ME-GAP code: ACST

Order: Falconiformes

Family: Accipitridae

Breeding range change: Stable

Listing status: Not listed

Migratory status: Local migrant; US migrant

Game species: No

Population level: Uncommon

Population trend: Stable, although not well surveyed

Heritage ranks: G5 . . S2S3N,S3S4B

Knowledge: Adequate

General habitats used: Sharp-shinned Hawks inhabit mixed or coniferous forests that are relatively open. These hawks will hunt along the edges of forests, and in open forests. Sharp-shinned Hawks usually nest in conifer trees, with spruce trees being commonly selected. Sharp-shinned Hawks are excluded from areas with high human disturbance, and so use the brushy margins of forests.

Specific habitats used: Open areas or edges of extensive forests with little human disturbance are required by breeding Sharp-shinned Hawks.

Comments: These hawks are sometimes seen hunting songbirds at backyard bird feeders.

Predicted habitat quantities:

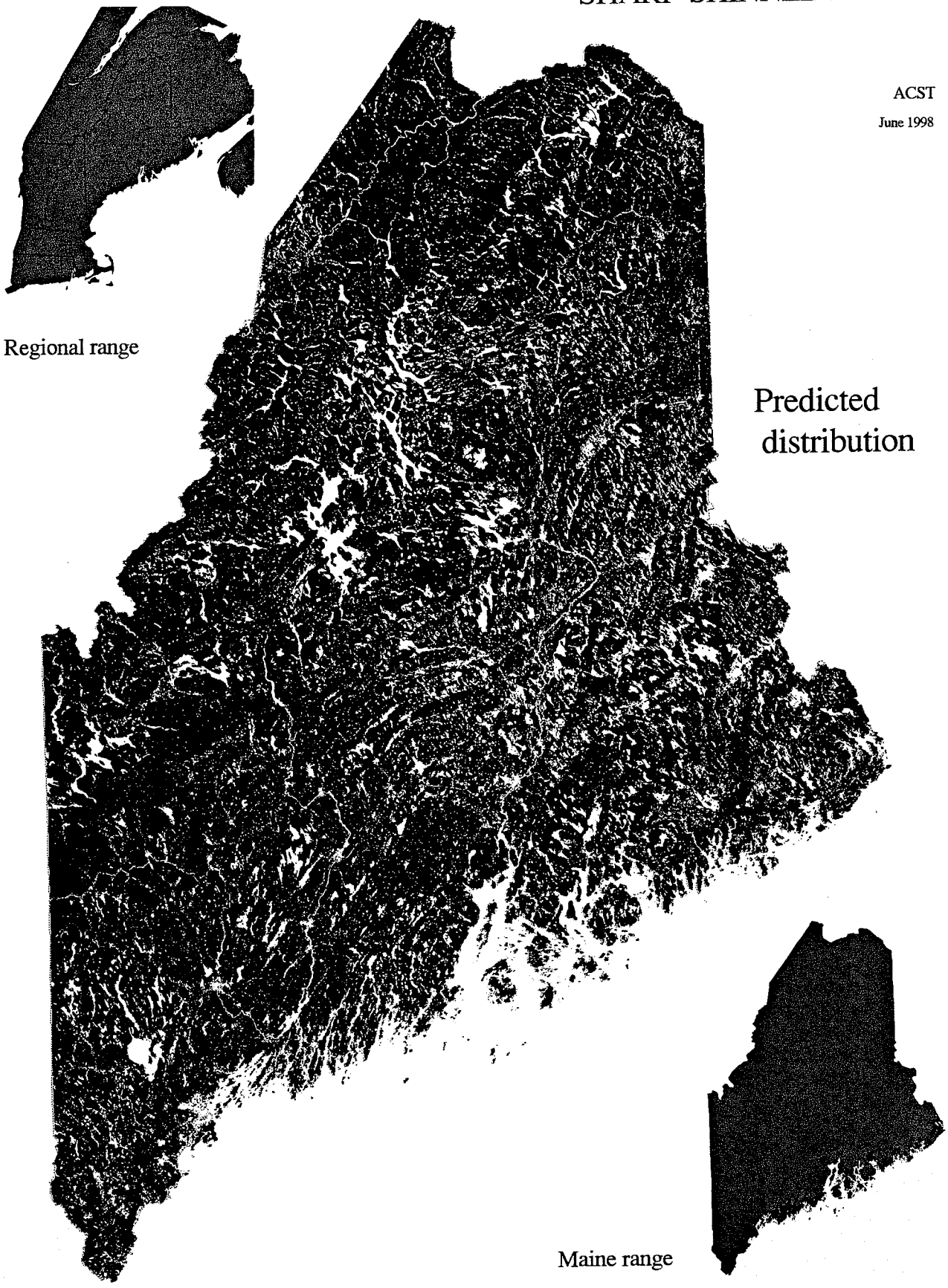
SHARP-SHINNED HAWK					Total in ha: 6,886,089
Habitat	**ha**	**Habitat**	**ha**	**Habitat**	**ha**
Agricultural lands		Light partial cut	103,778	Fresh emergent	*31,697*
Abandoned field	16,615	Heavy partial cut	138,531	Peatland	*8,767*
Blueberry field	*6,256*	Deciduous forest	1,224,228	Wet meadow	11,751
Grassland	418,313	Decid./Conif. forest	1,249,474	Salt aquatic bed	*3,012*
Crops/Ground	98,399	Conif./Decid. forest	1,622,246	Salt emergent	*1,068*
Developed lands		Coniferous forest	700,032	Mudflat	*1,442*
Sparse residential	*42,526*	**Wetlands**		Sand shore	*306*
Dense residential	*10,224*	Deciduous forested	*35,045*	Gravel shore	*492*
Urban/Industrial	*279*	Coniferous forested	*164,999*	Rock shore	*1,537*
Highways/Runways	407	Dead-forested	*1,520*	Shallow water	11,121
Forestlands		Decid. shrub-scrub	*58,574*	Open water	*53,460*
Clearcut	111,543	Conifer. shrub-scrub	*5,567*	**Other**	
Early regeneration	488,126	Dead shrub-scrub	*78*	Alpine tundra	*443*
Late regeneration	263,080	Fresh aquatic bed	*70*	Exposed rock/Talus	*1,081*

For definitions of field contents see the Introduction. Items in *italics* in the table of habitat quantities show habitats not used by the species, but included in the predicted distribution because of generalization (see the Introduction for details).

SHARP-SHINNED HAWK

ACST

June 1998



COOPER'S HAWK (*Accipiter cooperii*)

Element code: BNKC1204

ME-GAP code: ACCO

Order: Falconiformes

Family: Accipitridae

Breeding range change: Unknown

Listing status: Not listed

Migratory status: Local migrant; US migrant

Game species: No

Population level: Rare

Population trend: Stable, although not well surveyed

Heritage ranks: G5 . . S3S4B,S3?N

Knowledge: Adequate

General habitats used: Cooper's Hawks nest in mature deciduous and mixed forests, with a well developed under story and ground cover. These hawks will use lowland forests that are dense or open, will nest within the forests near edges, and will hunt within openings (forest openings and agricultural areas) near forest edges. Cooper's Hawks usually nest in deciduous trees, although white pines also are commonly used.

Specific habitats used:

Comments: This species is far less common than the predicted habitat suggests.

Predicted habitat quantities:

COOPER'S HAWK					Total in ha: 5,385,159
Habitat	ha	Habitat	ha	Habitat	ha
Agricultural lands		Light partial cut	85,388	Fresh emergent	*10,786*
Abandoned field	17,248	Heavy partial cut	114,936	Peatland	*2,115*
Blueberry field	12,435	Deciduous forest	1,017,550	Wet meadow	11,517
Grassland	391,197	Decid./Conif. forest	972,005	Salt aquatic bed	*1,552*
Crops/Ground	46,496	Conif./Decid. forest	1,374,709	Salt emergent	*655*
Developed lands		Coniferous forest	569,515	Mudflat	*864*
Sparse residential	*18,908*	**Wetlands**		Sand shore	*156*
Dense residential	*4,236*	Deciduous forested	*13,621*	Gravel shore	*158*
Urban/Industrial	*117*	Coniferous forested	*47,280*	Rock shore	*610*
Highways/Runways	507	Dead-forested	*438*	Shallow water	*2,101*
Forestlands		Decid. shrub-scrub	*18,009*	Open water	*14,261*
Clearcut	96,539	Conifer. shrub-scrub	*1,810*	**Other**	
Early regeneration	323,362	Dead shrub-scrub	*37*	Alpine tundra	*157*
Late regeneration	213,350	Fresh aquatic bed	*22*	Exposed rock/Talus	*514*

For definitions of field contents see the Introduction. Items in *italics* in the table of habitat quantities show habitats not used by the species, but included in the predicted distribution because of generalization (see the Introduction for details).

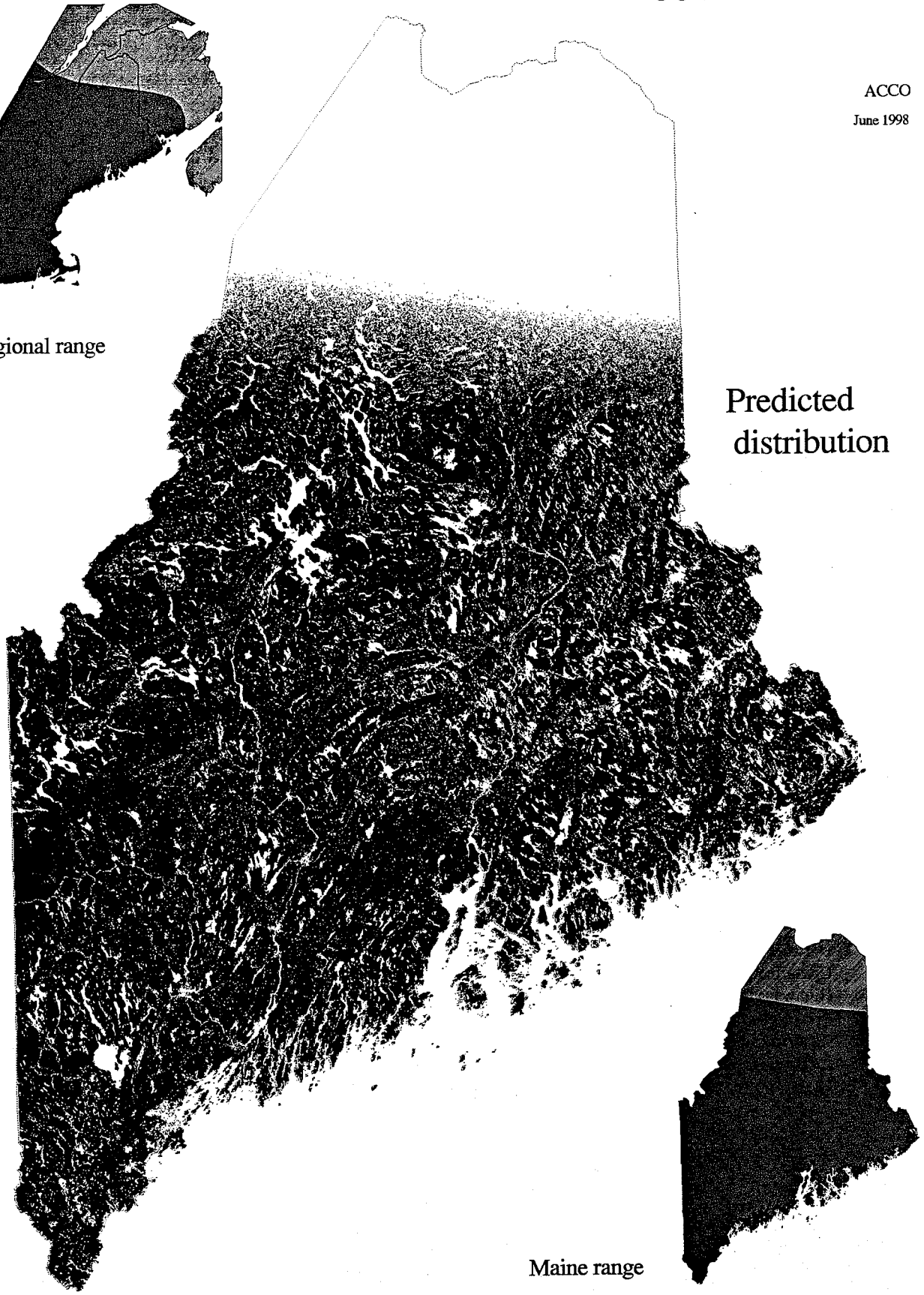
COOPER'S HAWK

ACCO

June 1998



Regional range



Predicted distribution

Maine range

NORTHERN GOSHAWK (*Accipiter gentilis*)

Element code: BNKC1206

ME-GAP code: ACGE

Order: Falconiformes

Family: Accipitridae

Breeding range change: Stable

Listing status: Not listed

Migratory status: Resident; Local migrant

Game species: No

Population level: Rare

Population trend: May be declining, but uncertain

Heritage ranks: G5 . . S3?B, S3?N

Knowledge: Adequate

General habitats used: Northern Goshawks nest in the interiors of extensive, remote coniferous and mixed forests. Large stands of mature timber are selected, and cool north-facing slopes also may be selected. Goshawks feed with forest interiors, and within small openings, such as over streams and trails. Northern Goshawks usually nest within a deciduous tree, such as beech, birch, or poplar, but sometimes use pine or hemlock.

Specific habitats used: Large forest stands with little human disturbance are used by breeding Northern Goshawks for nesting.

Comments: Northern Goshawks are poorly surveyed using standard methods and are rarer than suggested here by the predicted habitat.

Predicted habitat quantities:

NORTHERN GOSHAWK					Total in ha: 5,865,598
Habitat	**ha**	**Habitat**	**ha**	**Habitat**	**ha**
Agricultural lands		Light partial cut	*63,924*	Fresh emergent	*25,028*
Abandoned field	14,470	Heavy partial cut	114,259	Peatland	*6,261*
Blueberry field	*4,683*	Deciduous forest	1,195,809	Wet meadow	*5,108*
Grassland	383,525	Decid./Conif. forest	1,170,722	Salt aquatic bed	*2,679*
Crops/Ground	*41,368*	Conif./Decid. forest	1,489,520	Salt emergent	*974*
Developed lands		Coniferous forest	636,556	Mudflat	*1,287*
Sparse residential	*34,288*	**Wetlands**		Sand shore	*276*
Dense residential	*8,602*	Deciduous forested	*29,993*	Gravel shore	*403*
Urban/Industrial	*258*	Coniferous forested	*130,887*	Rock shore	*1,351*
Highways/Runways	*239*	Dead-forested	*1,164*	Shallow water	*5,834*
Forestlands		Decid. shrub-scrub	*45,455*	Open water	*45,234*
Clearcut	90,480	Conifer. shrub-scrub	*4,460*	**Other**	
Early regeneration	*167,384*	Dead shrub-scrub	*65*	Alpine tundra	*382*
Late regeneration	*141,671*	Fresh aquatic bed	*54*	Exposed rock/Talus	*943*

For definitions of field contents see the Introduction. Items in *italics* in the table of habitat quantities show habitats not used by the species, but included in the predicted distribution because of generalization (see the Introduction for details).

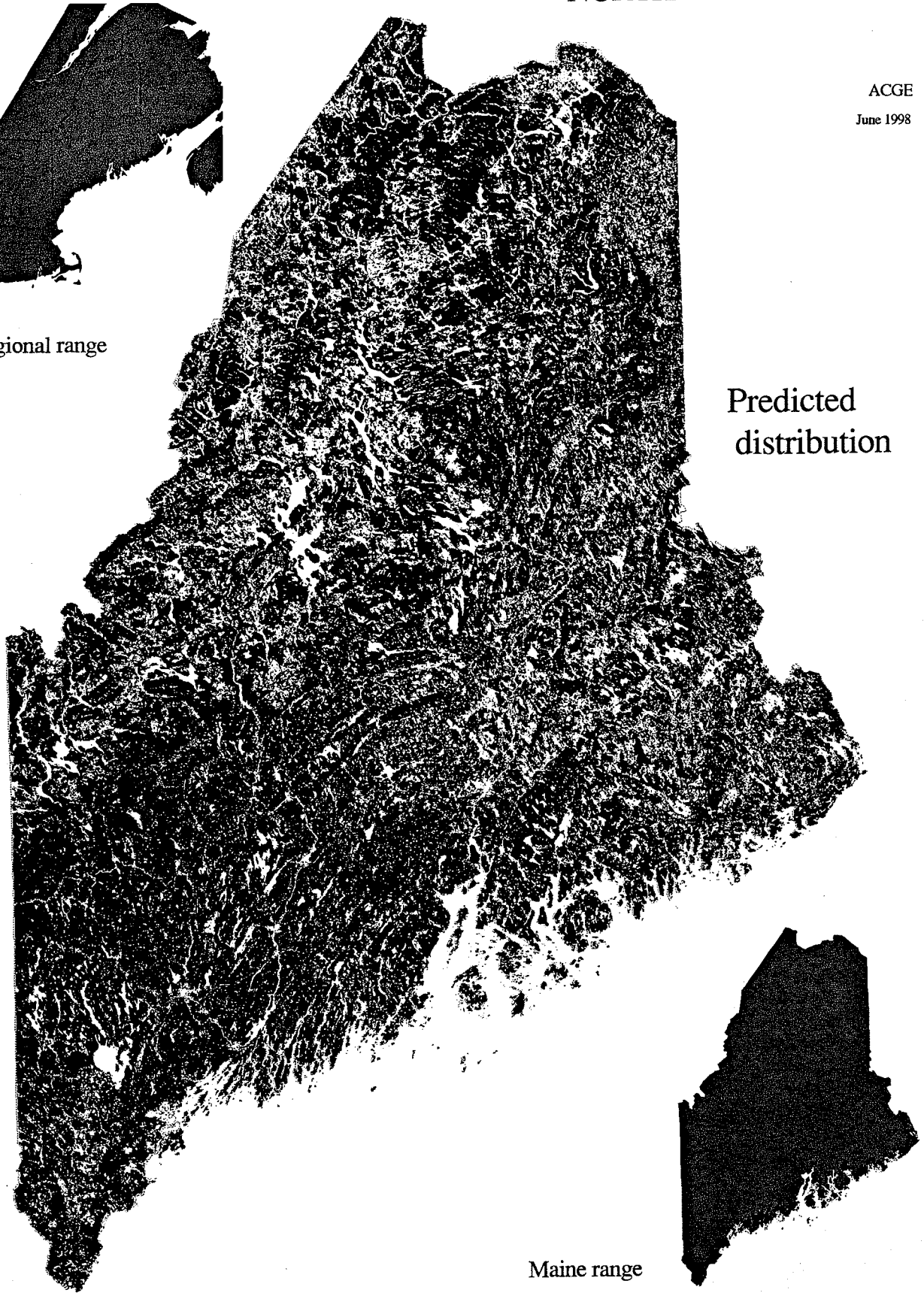
NORTHERN GOSHAWK

ACGE

June 1998



Regional range



Predicted distribution

Maine range

RED-SHOULDERED HAWK (*Buteo lineatus*)

Element code: BNKC1903

ME-GAP code: BULI

Order: Falconiformes

Family: Accipitridae

Breeding range change: Unknown

Listing status: Not listed

Migratory status: Resident; Local migrant

Game species: No

Population level: Uncommon

Population trend: Moderate decline, but not well surveyed

Heritage ranks: G5 . . S3N,S4B

Knowledge: Adequate

General habitats used: Red-shouldered Hawks are most common in mature, dense, lowland deciduous or mixed forests. Stands with sparse subcanopies are selected. These hawks also will hunt in wetlands, fields, and forest openings. Red-shouldered Hawks nest in tall trees, within mature stands, and generally near water. Forest harvesting and agricultural clearing seem to lead to the Red-tailed Hawks replacing Red-shouldered Hawks.

Specific habitats used: Large trees are used by Red-Shouldered Hawks for nesting.

Comments: This species is far less common than suggested by the predicted habitat.

Predicted habitat quantities:

RED-SHOULDERED HAWK					Total in ha: 5,329,093
Habitat	**ha**	**Habitat**	**ha**	**Habitat**	**ha**
Agricultural lands		Light partial cut	78,723	Fresh emergent	56,333
Abandoned field	17,642	Heavy partial cut	101,152	Peatland	36,578
Blueberry field	12,328	Deciduous forest	991,421	Wet meadow	13,948
Grassland	396,981	Decid./Conif. forest	928,948	Salt aquatic bed	5,394
Crops/Ground	51,254	Conif./Decid. forest	1,357,166	Salt emergent	2,044
Developed lands		Coniferous forest	557,759	Mudflat	3,907
Sparse residential	*18,457*	**Wetlands**		Sand shore	765
Dense residential	*4,466*	Deciduous forested	62,970	Gravel shore	*158*
Urban/Industrial	*124*	Coniferous forested	269,976	Rock shore	*581*
Highways/Runways	*156*	Dead-forested	2,139	Shallow water	*3,044*
Forestlands		Decid. shrub-scrub	106,186	Open water	*18,362*
Clearcut	88,001	Conifer. shrub-scrub	12,412	**Other**	
Early regeneration	*60,961*	Dead shrub-scrub	103	Alpine tundra	*66*
Late regeneration	*68,015*	Fresh aquatic bed	110	Exposed rock/Talus	*463*

For definitions of field contents see the Introduction. Items in *italics* in the table of habitat quantities show habitats not used by the species, but included in the predicted distribution because of generalization (see the Introduction for details).

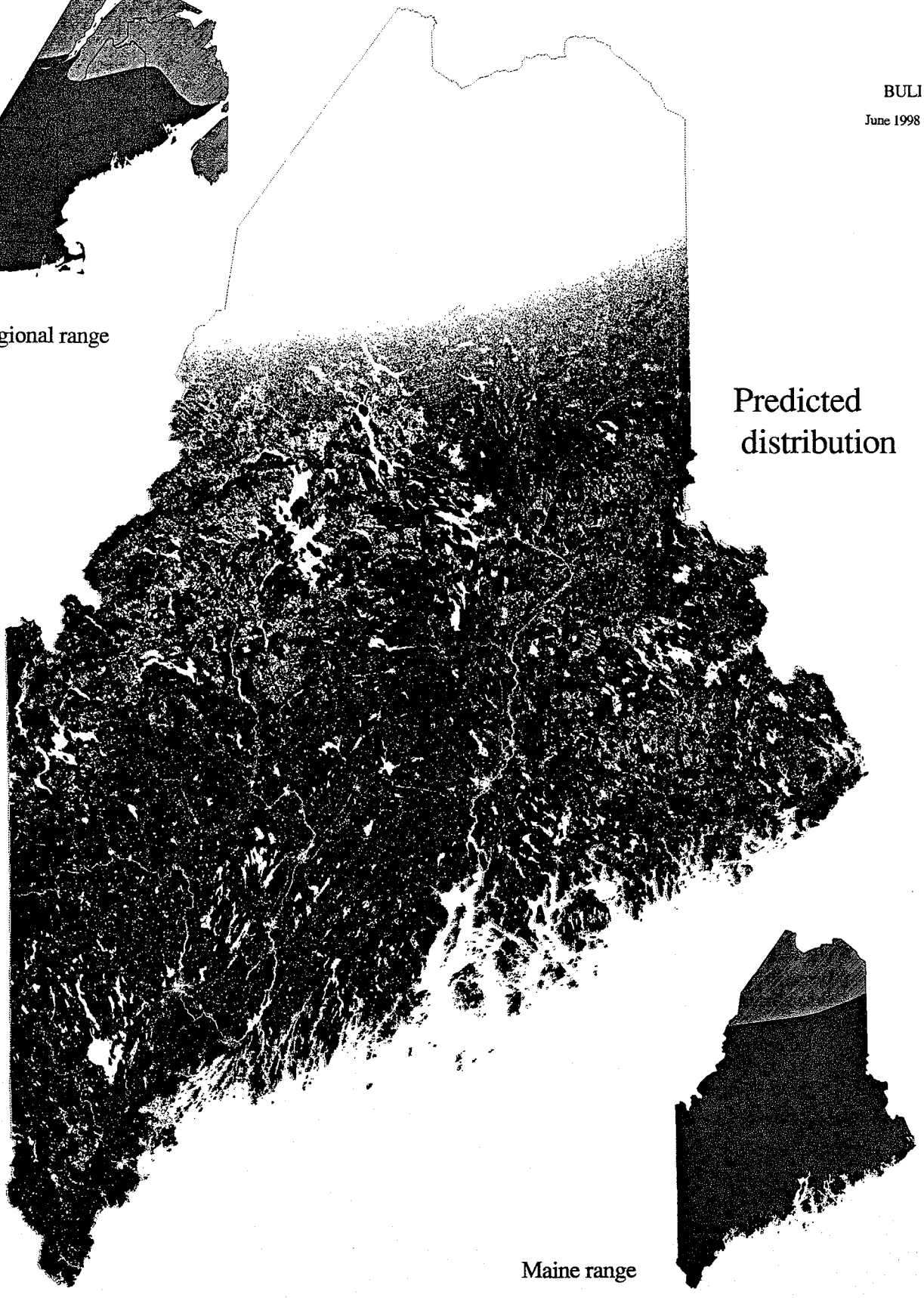
RED-SHOULDERED HAWK

BULI

June 1998



Regional range



Predicted distribution

Maine range

BROAD-WINGED HAWK (*Buteo platypterus*)

Element code: BNKC1905

ME-GAP code: BUPL

Order: Falconiformes

Family: Accipitridae

Breeding range change: Stable

Listing status: Not listed

Migratory status: Neotropical and US migrant

Game species: No

Population level: Common

Population trend: Stable, but not well surveyed

Heritage ranks: G5 . . S5B

Knowledge: Adequate

General habitats used: Broad-winged Hawks occur most often in extensive, closed deciduous and mixed forests, and they select against open areas. Mature and immature deciduous dominated stands are used. These hawks hunt in deep, shady forests, sometimes over meadows. Broad-winged Hawks nest in large trees (yellow birch may be selected), often in poorly drained sites near water or the edges of clearings, such as along wooded roadsides.

Specific habitats used: Large patches of forest, with an interspersion of openings, are used by Broad-winged Hawks during the breeding season.

Comments:

Predicted habitat quantities:

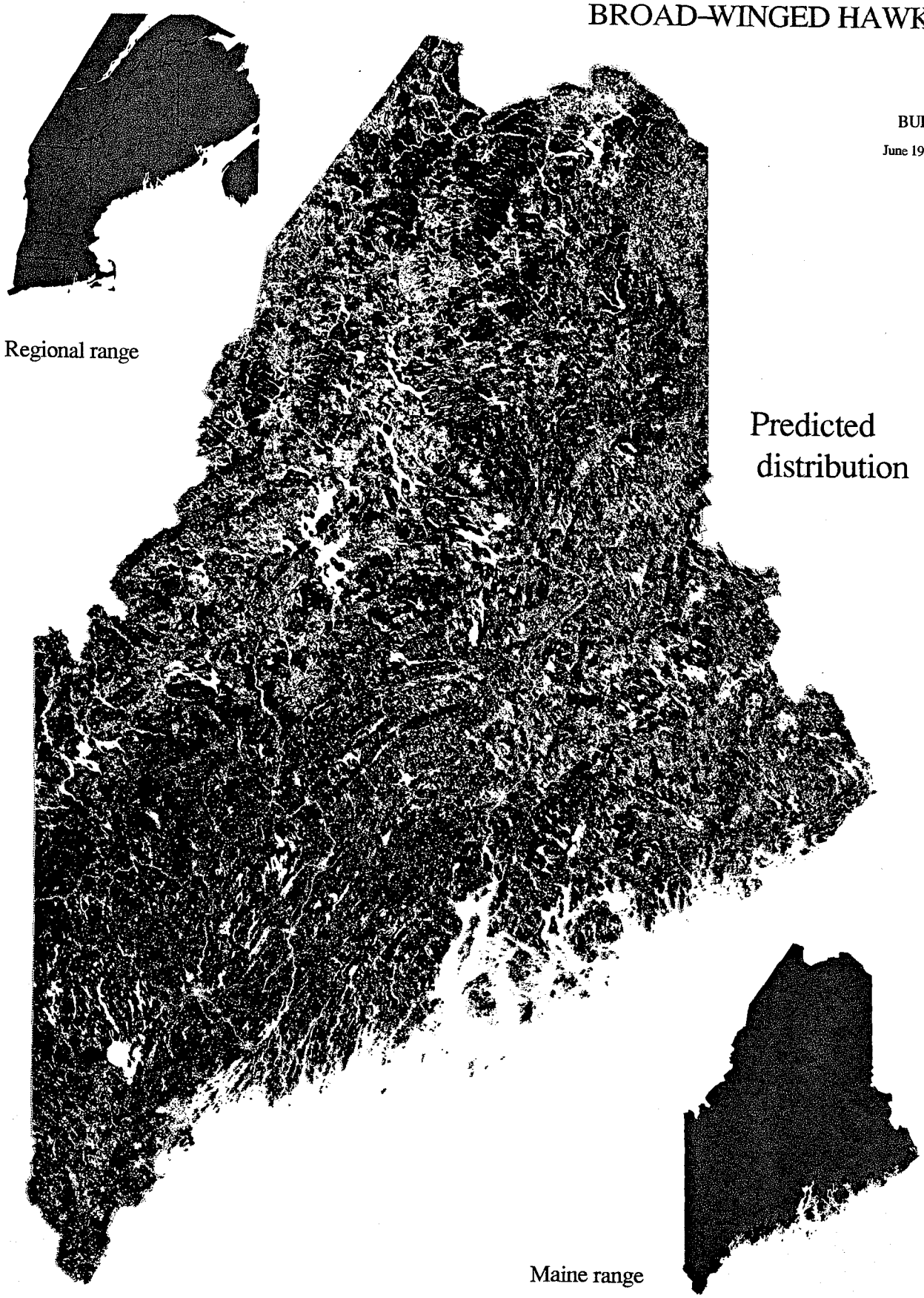
BROAD-WINGED HAWK					Total in ha: 5,894,989
Habitat	**ha**	**Habitat**	**ha**	**Habitat**	**ha**
Agricultural lands		Light partial cut	85,153	Fresh emergent	*25,461*
Abandoned field	14,631	Heavy partial cut	115,992	Peatland	*6,520*
Blueberry field	*4,809*	Deciduous forest	1,178,807	Wet meadow	*5,202*
Grassland	383,487	Decid./Conif. forest	1,160,337	Salt aquatic bed	*2,802*
Crops/Ground	*41,873*	Conif./Decid. forest	1,496,072	Salt emergent	*1,025*
Developed lands		Coniferous forest	644,899	Mudflat	1,965
Sparse residential	*34,838*	**Wetlands**		Sand shore	396
Dense residential	*8,754*	Deciduous forested	*30,364*	Gravel shore	*424*
Urban/Industrial	*279*	Coniferous forested	*133,238*	Rock shore	*1,369*
Highways/Runways	*235*	Dead-forested	*1,188*	Shallow water	*5,924*
Forestlands		Decid. shrub-scrub	*46,593*	Open water	*45,579*
Clearcut	92,563	Conifer. shrub-scrub	*4,562*	**Other**	
Early regeneration	*172,344*	Dead shrub-scrub	*66*	Alpine tundra	*389*
Late regeneration	*145,835*	Fresh aquatic bed	*53*	Exposed rock/Talus	*961*

For definitions of field contents see the Introduction. Items in *italics* in the table of habitat quantities show habitats not used by the species, but included in the predicted distribution because of generalization (see the Introduction for details).

BROAD-WINGED HAWK

BUPL

June 1998



RED-TAILED HAWK (*Buteo jamaicensis*)

Element code: BNKC1911

ME-GAP code: BUJA

Order: Falconiformes

Family: Accipitridae

Breeding range change: Stable

Listing status: Not listed

Migratory status: Local migrant; Resident

Game species: No

Population level: Common

Population trend: Stable, but not well surveyed

Heritage ranks: G5 . . S3N,S5B

Knowledge: Adequate

General habitats used: Red-tailed Hawks are most common in deciduous and mixed forests, interspersed with pastures, fields, meadows, bogs, or clearcuts. They will also use coniferous stands. These hawks forage in the open areas listed. Red-tailed Hawks generally nest in the tallest trees available, usually in deciduous trees or white pines. Red-tailed Hawks use large trees for hunting perches.

Specific habitats used: Large trees are required by Red-tailed Hawks for nest sites and hunting perches. They hunt mostly in non-forested, relatively open habitats.

Comments:

Predicted habitat quantities:

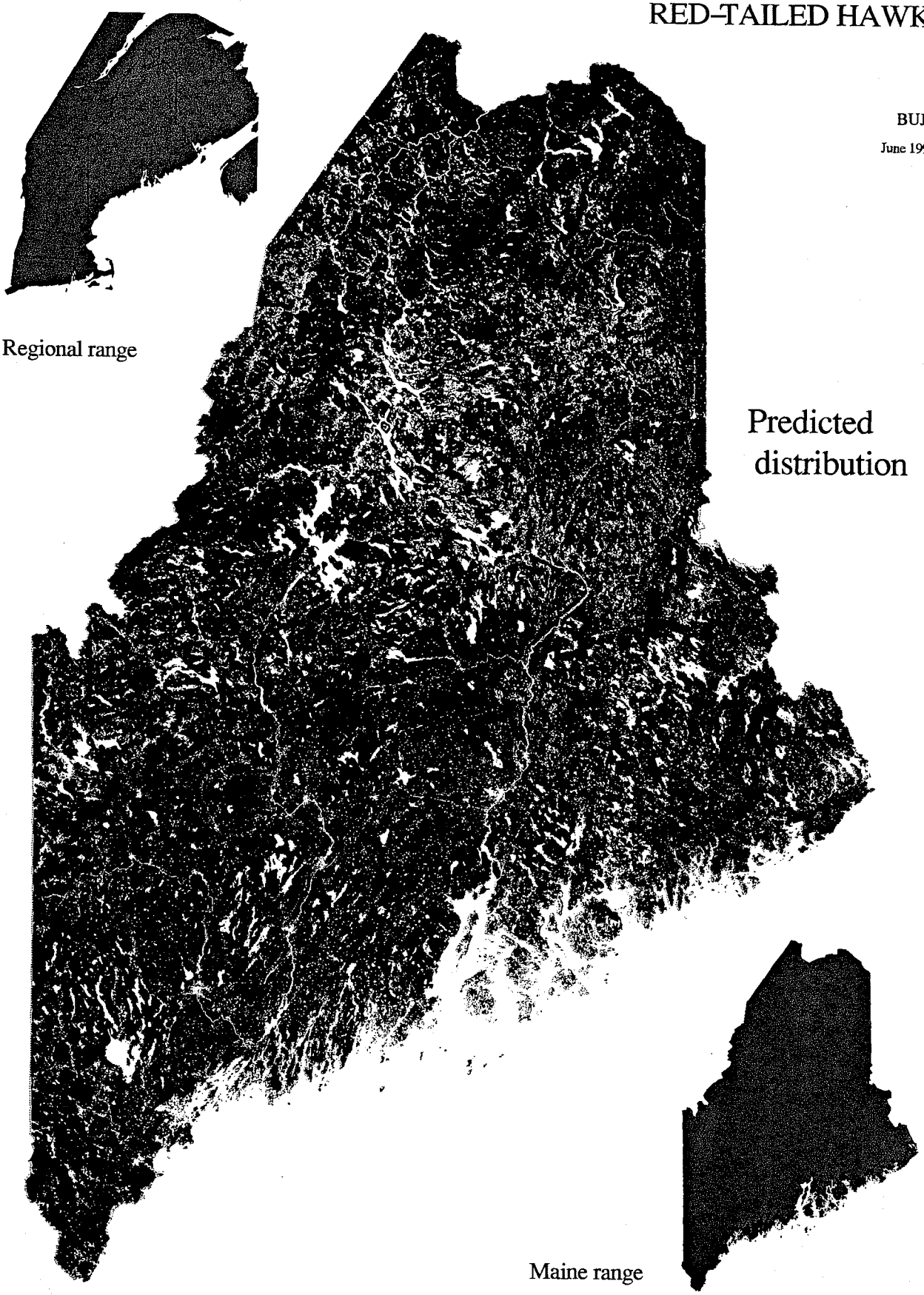
RED-TAILED HAWK					Total in ha: 6,997,844
Habitat	**ha**	**Habitat**	**ha**	**Habitat**	**ha**
Agricultural lands		Light partial cut	100,904	Fresh emergent	61,988
Abandoned field	18,010	Heavy partial cut	144,057	Peatland	42,964
Blueberry field	12,632	Deciduous forest	1,255,460	Wet meadow	14,091
Grassland	432,534	Decid./Conif. forest	1,290,862	Salt aquatic bed	*1,840*
Crops/Ground	101,615	Conif./Decid. forest	1,576,190	Salt emergent	1,211
Developed lands		Coniferous forest	*392,115*	Mudflat	1,844
Sparse residential	*42,493*	**Wetlands**		Sand shore	294
Dense residential	*10,694*	Deciduous forested	65,625	Gravel shore	*643*
Urban/Industrial	*314*	Coniferous forested	335,624	Rock shore	*1,238*
Highways/Runways	445	Dead-forested	2,420	Shallow water	*8,514*
Forestlands		Decid. shrub-scrub	121,660	Open water	*55,423*
Clearcut	113,428	Conifer. shrub-scrub	13,757	**Other**	
Early regeneration	505,435	Dead shrub-scrub	101	Alpine tundra	*163*
Late regeneration	270,167	Fresh aquatic bed	*68*	Exposed rock/Talus	*1,018*

For definitions of field contents see the Introduction. Items in *italics* in the table of habitat quantities show habitats not used by the species, but included in the predicted distribution because of generalization (see the Introduction for details).

RED-TAILED HAWK

BUJA

June 1998



GOLDEN EAGLE (*Aquila chrysaetos*)

Element code: BNKC2201

ME-GAP code: AQCH

Order: Falconiformes

Family: Accipitridae

Breeding range change: Stable

Listing status: Threatened (S)

Migratory status: Local migrant; Resident

Game species: No

Population level: Rare

Population trend: Gradual decline, probably disturbance

Heritage ranks: G5 . . S1B,S1N

Knowledge: Best guess

General habitats used: Golden Eagles nest on the mountain cliffs of Maine, far from human disturbance, and typically associated with coniferous forests (paries and tundra in other areas). They will also nest in large trees. Golden Eagles hunt within open areas, such as bogs, meadows, marshes, pastures, clearcuts, and burns.

Specific habitats used:

Comments: Maine has the only pair of breeding Golden Eagles in the northeast, but this single pair does not appear to be reproducing regularly. Appropriate habitats within townships with historical and current nesting records are shown as potential habitat.

Predicted habitat quantities:

GOLDEN EAGLE					Total in ha: 46,105
Habitat	**ha**	**Habitat**	**ha**	**Habitat**	**ha**
Agricultural lands		Light partial cut	2,147	Fresh emergent	895
Abandoned field	31	Heavy partial cut	3,585	Peatland	260
Blueberry field	0	Deciduous forest	*897*	Wet meadow	454
Grassland	5,666	Decid./Conif. forest	*1,884*	Salt aquatic bed	*1*
Crops/Ground	177	Conif./Decid. forest	*1,994*	Salt emergent	0
Developed lands		Coniferous forest	12,382	Mudflat	0
Sparse residential	*72*	**Wetlands**		Sand shore	0
Dense residential	*62*	Deciduous forested	*159*	Gravel shore	217
Urban/Industrial	*0*	Coniferous forested	*416*	Rock shore	10
Highways/Runways	0	Dead-forested	*3*	Shallow water	*36*
Forestlands		Decid. shrub-scrub	1,715	Open water	*119*
Clearcut	1,014	Conifer. shrub-scrub	202	**Other**	
Early regeneration	8,169	Dead shrub-scrub	2	Alpine tundra	0
Late regeneration	3,535	Fresh aquatic bed	*0*	Exposed rock/Talus	2

For definitions of field contents see the Introduction. Items in *italics* in the table of habitat quantities show habitats not used by the species, but included in the predicted distribution because of generalization (see the Introduction for details).

GOLDEN EAGLE

AQCH

June 1998



Regional range

Predicted distribution



Maine range

AMERICAN KESTREL (*Falco sparverius*)

Element code: BNKD0602

ME-GAP code: FASP

Order: Falconiformes

Family: Falconidae

Breeding range change: Stable

Listing status: Not listed

Migratory status: Local migrant; Resident

Game species: No

Population level: Common

Population trend: Stable, not well surveyed

Heritage ranks: G5 . . S3N,S5B

Knowledge: Good

General habitats used: American Kestrels use a variety of open habitats, including agricultural areas, pastures, abandoned fields, meadows, clearcuts, burns, and roadside edges. American Kestrels are cavity nesters, nesting in a variety of tree species, in areas with low vegetation and scattered trees. Kestrels will also nest in buildings within urban areas, farm buildings, cliffs, and nest boxes.

Specific habitats used: Trees (snags) over 30 cm diameter-at-breast-height, or substitute cavities for nesting sites, are used by American Kestrels during the breeding season.

Comments: American Kestrels may sometimes be seen in clearings hoovering in place, preparing to capture an insect or small animal.

Predicted habitat quantities:

AMERICAN KESTREL					Total in ha: 1,663,127
Habitat	ha	Habitat	ha	Habitat	ha
Agricultural lands		Light partial cut	*19,417*	Fresh emergent	35,393
Abandoned field	10,063	Heavy partial cut	62,197	Peatland	30,570
Blueberry field	9,040	Deciduous forest	*83,756*	Wet meadow	8,806
Grassland	289,877	Decid./Conif. forest	*135,766*	Salt aquatic bed	1,942
Crops/Ground	79,092	Conif./Decid. forest	*167,437*	Salt emergent	620
Developed lands		Coniferous forest	*68,137*	Mudflat	1,282
Sparse residential	37,471	**Wetlands**		Sand shore	276
Dense residential	*6,786*	Deciduous forested	*13,047*	Gravel shore	*326*
Urban/Industrial	*322*	Coniferous forested	*56,070*	Rock shore	*450*
Highways/Runways	356	Dead-forested	*454*	Shallow water	*3,184*
Forestlands		Decid. shrub-scrub	68,489	Open water	*18,166*
Clearcut	66,558	Conifer. shrub-scrub	8,264	**Other**	
Early regeneration	319,155	Dead shrub-scrub	58	Alpine tundra	1,510
Late regeneration	*57,968*	Fresh aquatic bed	66	Exposed rock/Talus	*754*

For definitions of field contents see the Introduction. Items in *italics* in the table of habitat quantities show habitats not used by the species, but included in the predicted distribution because of generalization (see the Introduction for details).

AMERICAN KESTREL

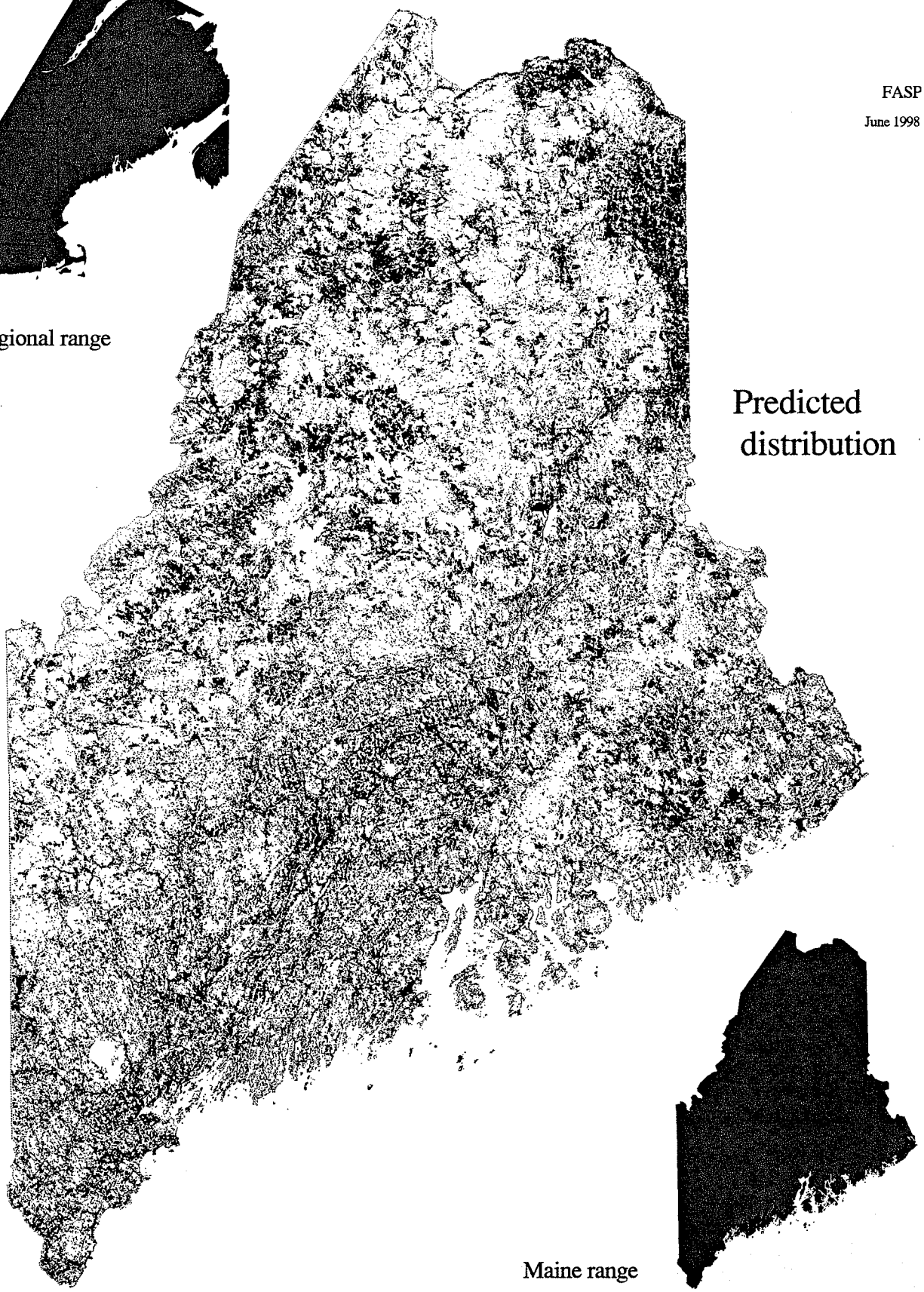
FASP

June 1998



Regional range

Predicted distribution



Maine range

MERLIN (*Falco columbarius*)

Element code: BNKD0603

ME-GAP code: FACO

Order: Falconiformes

Family: Falconidae

Breeding range change: Unknown

Listing status: Not listed

Migratory status: US and Neotropical migrant

Game species: No

Population level: Rare

Population trend: Stable, but not well surveyed

Heritage ranks: G5 . . S3B,SZN

Knowledge: Adequate

General habitats used: Merlins inhabit open mixed or coniferous (and sometimes deciduous) forests, with marshes, pastures, fields, and mudflats nearby. Merlins nest in a variety of sites, including abandoned nests of other species, within cavities in trees, cliff ledges, or on the ground. Nest sites are typically completely or partially enclosed.

Specific habitats used:

Comments: Merlins are more of a boreal and tundra species, and are rare in more southern habitats in Maine.

Predicted habitat quantities:

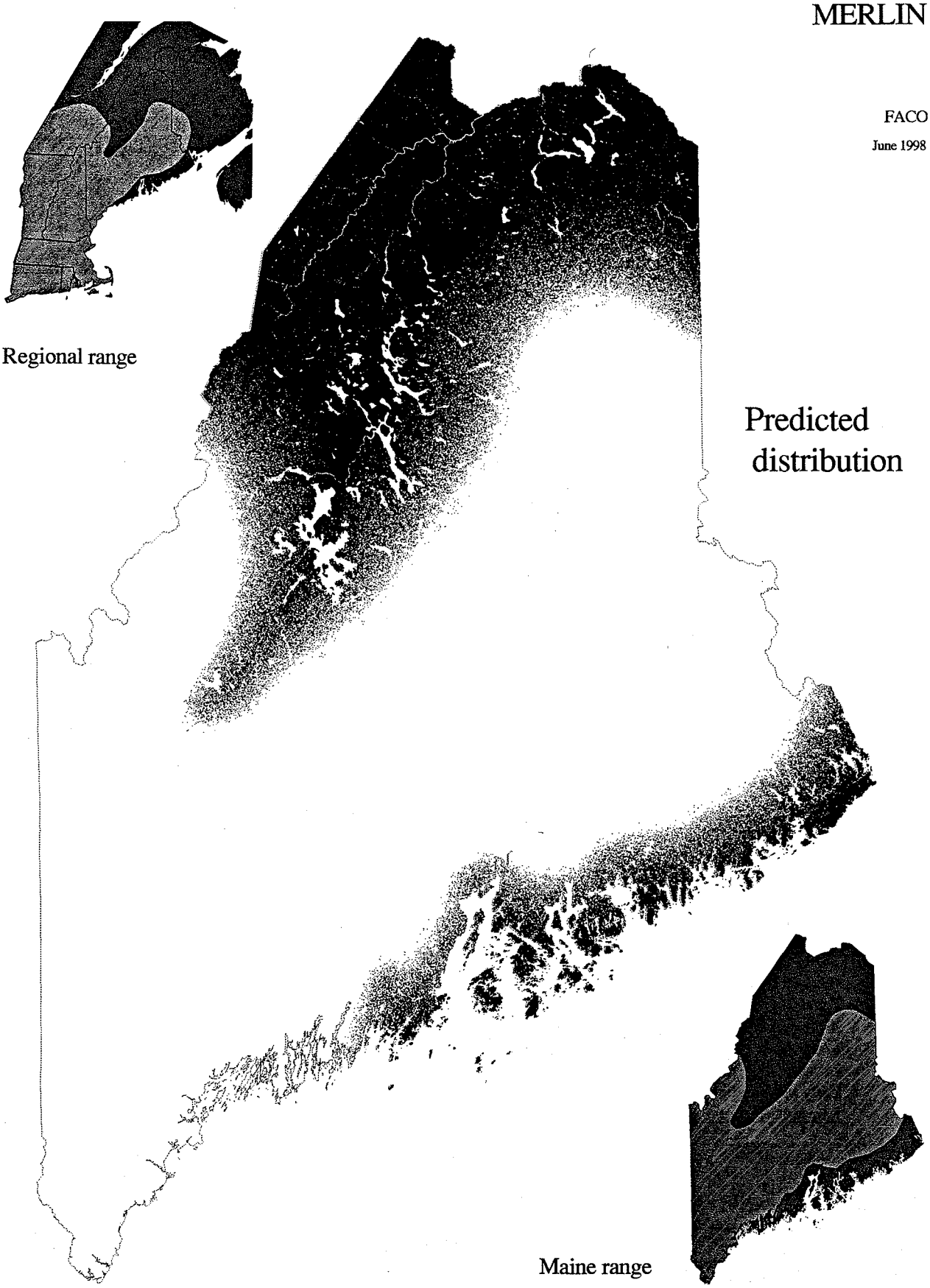
MERLIN					Total in ha: 2,030,177
Habitat	ha	Habitat	ha	Habitat	ha
Agricultural lands		Light partial cut	26,323	Fresh emergent	14,953
Abandoned field	5,037	Heavy partial cut	40,076	Peatland	11,696
Blueberry field	3,069	Deciduous forest	264,266	Wet meadow	2,157
Grassland	46,637	Decid./Conif. forest	357,125	Salt aquatic bed	7,113
Crops/Ground	44,504	Conif./Decid. forest	418,488	Salt emergent	1,070
Developed lands		Coniferous forest	259,110	Mudflat	6,998
Sparse residential	*1,995*	**Wetlands**		Sand shore	1,219
Dense residential	*275*	Deciduous forested	7,288	Gravel shore	*177*
Urban/Industrial	*0*	Coniferous forested	112,410	Rock shore	*597*
Highways/Runways	24	Dead-forested	637	Shallow water	*763*
Forestlands		Decid. shrub-scrub	28,975	Open water	*3,221*
Clearcut	34,808	Conifer. shrub-scrub	2,921	**Other**	
Early regeneration	239,458	Dead shrub-scrub	11	Alpine tundra	*13*
Late regeneration	86,603	Fresh aquatic bed	29	Exposed rock/Talus	*130*

For definitions of field contents see the Introduction. Items in *italics* in the table of habitat quantities show habitats not used by the species, but included in the predicted distribution because of generalization (see the Introduction for details).

MERLIN

FACO

June 1998



PEREGRINE FALCON (*Falco peregrinus*)

Element code: **ME-GAP code:** FAPE

Order: Falconiformes **Family:** Falconidae

Breeding range change: Expanding **Listing status:** Endangered (S, F)

Migratory status: US and Neotropical migrant **Game species:** No

Population level: Rare **Population trend:** Gradual increase, in part to re-introductions

Heritage ranks: G4 . . S1S2N,S2B **Knowledge:** Adequate

General habitats used: Peregrine Falcons nest on high, rocky cliffs and bluffs, tall trees, or on man-made structures such as bridges and tall skyscrapers. Nests tend to be overlooking rivers, streams, or lakes, and allow for a wide view. As predators of small birds, Peregrine Falcons will feed over a variety of habitats, including the ocean, agricultural areas, clearcuts, and wetlands.

Specific habitats used: Tall cliffs or other elevated and isolated sites are used by Peregrine Falcons for nesting.

Comments: Peregrine Falcons were extirpated (that is locally extinct) from Maine during the DDT use (1940's-1970). Falcons have been reintroduced by the Department of Inland Fisheries and Wildlife. Because Peregrines may hunt over many habitat types, we included this variety as potential habitats within townships having nesting Peregrines.

Predicted habitat quantities:

PEREGRINE FALCON					Total in ha: 240,378
Habitat	ha	Habitat	ha	Habitat	ha
Agricultural lands		Light partial cut	2,245	Fresh emergent	1,682
Abandoned field	460	Heavy partial cut	3,929	Peatland	842
Blueberry field	1,070	Deciduous forest	51,365	Wet meadow	403
Grassland	8,431	Decid./Conif. forest	48,477	Salt aquatic bed	307
Crops/Ground	757	Conif./Decid. forest	47,302	Salt emergent	189
Developed lands		Coniferous forest	29,300	Mudflat	400
Sparse residential	*596*	**Wetlands**		Sand shore	33
Dense residential	*138*	Deciduous forested	2,247	Gravel shore	52
Urban/Industrial	0	Coniferous forested	4,501	Rock shore	42
Highways/Runways	4	Dead-forested	24	Shallow water	550
Forestlands		Decid. shrub-scrub	3,046	Open water	11,215
Clearcut	2,027	Conifer. shrub-scrub	440	**Other**	
Early regeneration	9,154	Dead shrub-scrub	11	Alpine tundra	1,801
Late regeneration	4,036	Fresh aquatic bed	52	Exposed rock/Talus	3,252

For definitions of field contents see the Introduction. Items in *italics* in the table of habitat quantities show habitats not used by the species, but included in the predicted distribution because of generalization (see the Introduction for details).

PEREGRINE FALCON

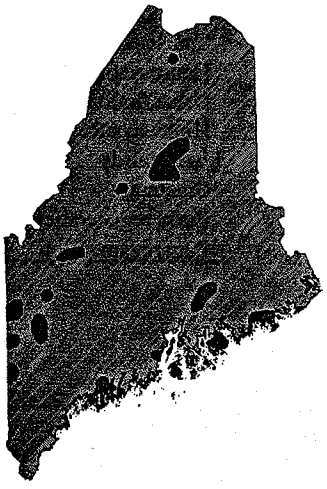
FAPE

June 1998



Regional range

Predicted distribution



Maine range

SPRUCE GROUSE (*Falcipennis canadensis*)

Element code: BNLC0901

ME-GAP code: DECN

Order: Galliformes

Family: Phasianidae

Breeding range change: Unknown

Listing status: Not listed

Migratory status: Resident

Game species: No

Population level: Uncommon

Population trend: Stable, may be gradually increasing

Heritage ranks: G5 . . S4S5

Knowledge: Adequate

General habitats used: Spruce Grouse inhabit wet, coniferous forests, such as tamarack swamps, cedar bogs, and black spruce stands, selecting larger patches over small. Ideally these habitats would be in a interspersed with spruce-fir and northern hardwood forests. Floodplain coniferous forests bordering sluggish streams are frequently used, as are open conifer woodlands and peatlands. More open stands are inhabited in the breeding season than in fall or winter. These grouse also will use mixed forests, blueberry barrens, and burns. Spruce Grouse nest on the ground, in a shallow depression usually with some overhead cover (i.e., low-hanging conifer branches).

Specific habitats used: Large patches of black spruce/tamarack seem to be the key habitats for Spruce Grouse in Maine.

Comments: Hunting of this species is currently not permitted in Maine.

Predicted habitat quantities:

SPRUCE GROUSE					Total in ha: 3,502,976
Habitat	ha	Habitat	ha	Habitat	ha
Agricultural lands		Light partial cut	77,344	Fresh emergent	*11,503*
Abandoned field	*2,910*	Heavy partial cut	103,087	Peatland	41,858
Blueberry field	10,212	Deciduous forest	*48,937*	Wet meadow	*2,197*
Grassland	*15,852*	Decid./Conif. forest	*151,120*	Salt aquatic bed	*556*
Crops/Ground	*5,919*	Conif./Decid. forest	1,264,668	Salt emergent	*160*
Developed lands		Coniferous forest	597,685	Mudflat	*189*
Sparse residential	*6,451*	**Wetlands**		Sand shore	*30*
Dense residential	*314*	Deciduous forested	*7,566*	Gravel shore	*185*
Urban/Industrial	*0*	Coniferous forested	330,907	Rock shore	*275*
Highways/Runways	*26*	Dead-forested	1,852	Shallow water	*2,170*
Forestlands		Decid. shrub-scrub	104,932	Open water	*10,652*
Clearcut	*22,566*	Conifer. shrub-scrub	11,717	**Other**	
Early regeneration	460,150	Dead shrub-scrub	66	Alpine tundra	*122*
Late regeneration	208,675	Fresh aquatic bed	*5*	Exposed rock/Talus	*120*

For definitions of field contents see the Introduction. Items in *italics* in the table of habitat quantities show habitats not used by the species, but included in the predicted distribution because of generalization (see the Introduction for details).

SPRUCE GROUSE

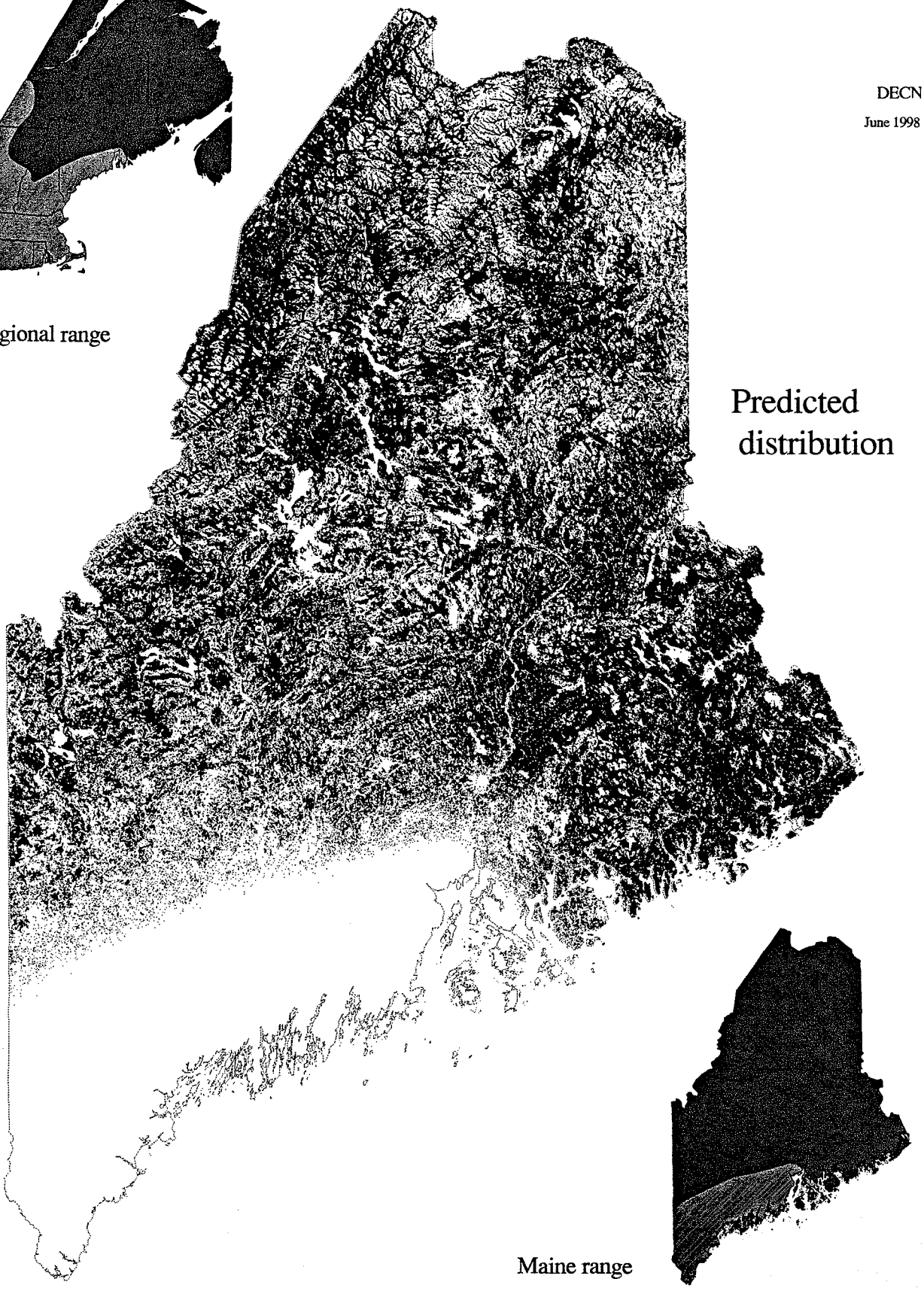
DECN

June 1998



Regional range

Predicted distribution



Maine range

RUFFED GROUSE (*Bonasa umbellus*)

Element code: BNLC1101

ME-GAP code: BOUM

Order: Galliformes

Family: Phasianidae

Breeding range change: Stable

Listing status: Not listed

Migratory status: Resident

Game species: Yes

Population level: Common

Population trend: Stable, but cyclic over many years

Heritage ranks: G5 . . S5

Knowledge: Good

General habitats used: Ruffed Grouse are most common in young (brush to pole size), extensive stands of deciduous and mixed forests with an interspersion of openings. These grouse use open areas and brushy habitats, with habitat relations more closely tied to patch age and structure than to shrub species. That said, aspen thickets are selected by grouse, as are birch stands, abandoned orchards, and harvested areas near wetlands. Logging roads and select-cut stands are used by Ruffed Grouse. Ruffed Grouse nest on the ground.

Specific habitats used: Elevated sites such as logs, stumps and boulders, and brushy cover are used by male Ruffed Grouse during the breeding season.

Comments:

Predicted habitat quantities:

RUFFED GROUSE					Total in ha: 4,457,016
Habitat	ha	Habitat	ha	Habitat	ha
Agricultural lands		Light partial cut	75,749	Fresh emergent	*20,103*
Abandoned field	13,042	Heavy partial cut	113,724	Peatland	*5,530*
Blueberry field	10,181	Deciduous forest	1,137,950	Wet meadow	9,308
Grassland	366,276	Decid./Conif. forest	997,960	Salt aquatic bed	*1,108*
Crops/Ground	*41,440*	Conif./Decid. forest	*553,486*	Salt emergent	*588*
Developed lands		Coniferous forest	*129,744*	Mudflat	*716*
Sparse residential	44,831	**Wetlands**		Sand shore	*143*
Dense residential	*8,307*	Deciduous forested	*21,729*	Gravel shore	*317*
Urban/Industrial	*305*	Coniferous forested	*75,048*	Rock shore	*737*
Highways/Runways	423	Dead-forested	*734*	Shallow water	*4,041*
Forestlands		Decid. shrub-scrub	74,161	Open water	*27,383*
Clearcut	91,049	Conifer. shrub-scrub	8,631	**Other**	
Early regeneration	429,681	Dead shrub-scrub	78	Alpine tundra	*102*
Late regeneration	191,531	Fresh aquatic bed	*43*	Exposed rock/Talus	*840*

For definitions of field contents see the Introduction. Items in *italics* in the table of habitat quantities show habitats not used by the species, but included in the predicted distribution because of generalization (see the Introduction for details).

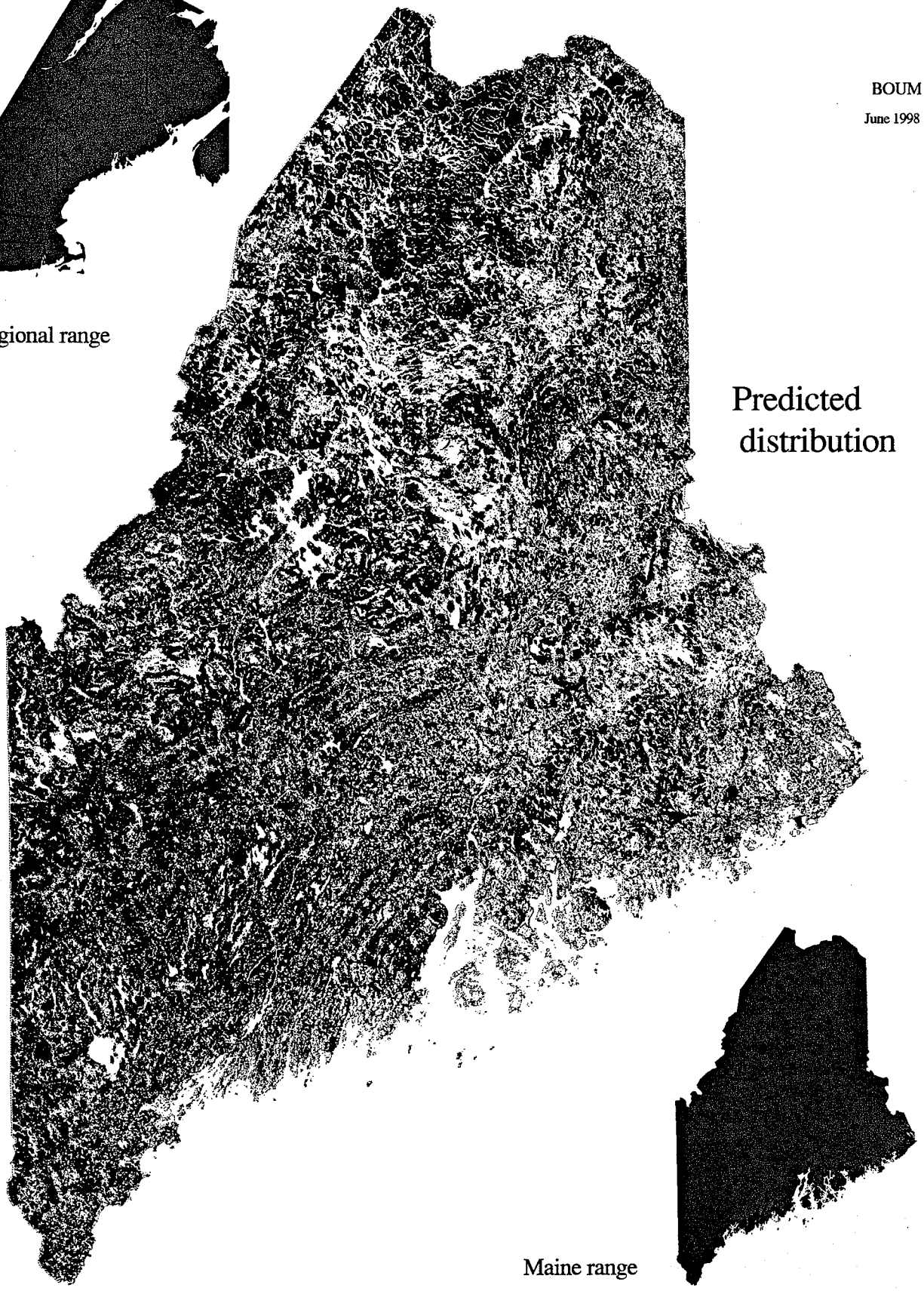
RUFFED GROUSE

BOUM

June 1998



Regional range



Predicted distribution

Maine range

WILD TURKEY (*Meleagris gallopavo*)

Element code: BNLC1401 **ME-GAP code:** MEGA

Order: Galliformes **Family:** Phasianidae

Breeding range change: Expanding **Listing status**: Not listed

Migratory status: Resident **Game species**: Yes

Population level: Uncommon **Population trend**: Gradual increase, after re-introductions

Heritage ranks: G5 . . S5 **Knowledge**: Adequate

General habitats used: Wild Turkeys are most common in the breeding season where there is an interspersion of habitats, including mast producing forests, open woodlands, and crop fields, grassland, or brushland. Female turkeys select areas with dense understory vegetation, often along field edges and stands. Large conifer trees are used as roost sites. In general, forest type does not appear as important in habitat relations as habitat structure (open and dense) and interspersion (farms and forests).

Specific habitats used: Relatively large trees are required by Wild Turkey for roosting. In Maine (the northern limit of their range) winter food availability determines, in part, breeding distribution. Agricultural sites (e.g., manure spread at dairies) provide winter food for Wild Turkeys.

Comments: Turkeys were native to Maine but extirpated in the 1800's. Thanks to stocking by the Department of Inland Fisheries and Wildlife, this species is becoming increasingly common in southern and central Maine.

Predicted habitat quantities:

WILD TURKEY					Total in ha:	773,834
Habitat	**ha**	**Habitat**	**ha**	**Habitat**		**ha**
Agricultural lands		Light partial cut	11,696	Fresh emergent		*1,342*
Abandoned field	1,212	Heavy partial cut	6,487	Peatland		*157*
Blueberry field	683	Deciduous forest	102,880	Wet meadow		1,160
Grassland	156,778	Decid./Conif. forest	181,312	Salt aquatic bed		*149*
Crops/Ground	9,936	Conif./Decid. forest	162,000	Salt emergent		*358*
Developed lands		Coniferous forest	66,404	Mudflat		*418*
Sparse residential	10,826	**Wetlands**		Sand shore		*42*
Dense residential	*2,038*	Deciduous forested	*4,815*	Gravel shore		*0*
Urban/Industrial	*137*	Coniferous forested	*3,084*	Rock shore		*48*
Highways/Runways	49	Dead-forested	*66*	Shallow water		*425*
Forestlands		Decid. shrub-scrub	10,566	Open water		*1,698*
Clearcut	8,422	Conifer. shrub-scrub	1,181	**Other**		
Early regeneration	10,421	Dead shrub-scrub	9	Alpine tundra		*0*
Late regeneration	16,807	Fresh aquatic bed	*6*	Exposed rock/Talus		*222*

For definitions of field contents see the Introduction. Items in *italics* in the table of habitat quantities show habitats not used by the species, but included in the predicted distribution because of generalization (see the Introduction for details).

WILD TURKEY

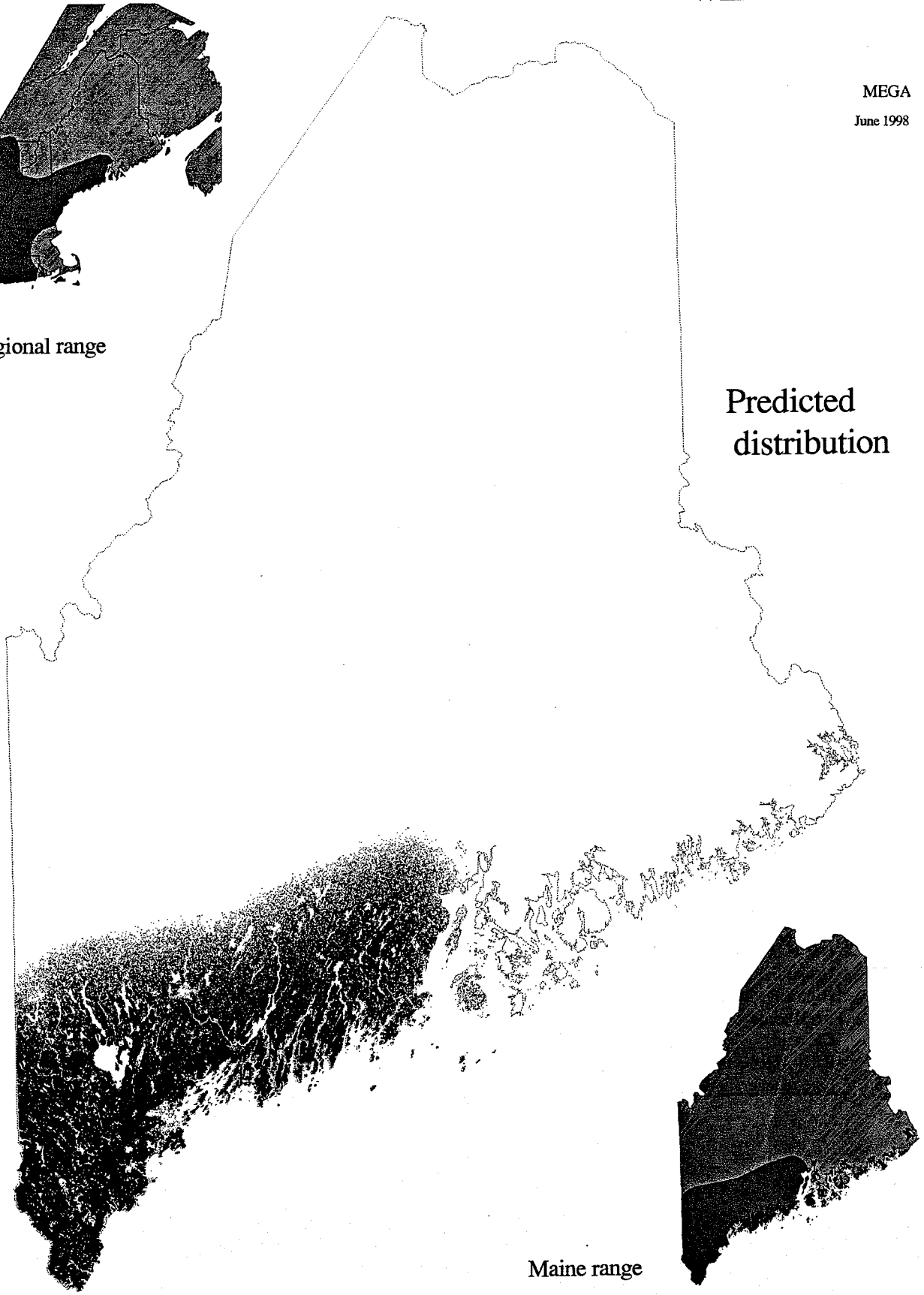
MEGA

June 1998



Regional range

Predicted distribution



Maine range

VIRGINIA RAIL (*Rallus limicola*)

Element code: BNME0503

ME-GAP code: RALI

Order: Gruiformes

Family: Rallidae

Breeding range change: Unknown

Listing status: Not listed

Migratory status: Local migrant; Resident

Game species: Yes

Population level: Common

Population trend: Moderate decline, but not well surveyed

Heritage ranks: G5 . . S4B

Knowledge: Adequate

General habitats used: Virginia Rails are most common in large sedge or cattail marshes, with an interspersion of emergent vegetation and open water. Wetlands with diverse vegetation, high invertebrate abundances, and low nearby urbanization are selected by these rails. Mudflats in open water within wetlands, beaver flowages, and weedy fields near wetlands are used. Virginia Rails build nests within emergent vegetation, suspended a few centimeters over water, and also will nest in drier areas of marshes.

Specific habitats used:

Comments:

Predicted habitat quantities:

VIRGINIA RAIL					Total in ha:	186,385
Habitat	**ha**	**Habitat**	**ha**	**Habitat**		**ha**
Agricultural lands		Light partial cut	*361*	Fresh emergent		32,856
Abandoned field	*164*	Heavy partial cut	*436*	Peatland		33,020
Blueberry field	*104*	Deciduous forest	*488*	Wet meadow		8,844
Grassland	*1,410*	Decid./Conif. forest	*1,959*	Salt aquatic bed		*7*
Crops/Ground	*313*	Conif./Decid. forest	*7,090*	Salt emergent		250
Developed lands		Coniferous forest	*4,405*	Mudflat		*25*
Sparse residential	*203*	**Wetlands**		Sand shore		*6*
Dense residential	*64*	Deciduous forested	*1,699*	Gravel shore		*46*
Urban/Industrial	*2*	Coniferous forested	*8,440*	Rock shore		*35*
Highways/Runways	*4*	Dead-forested	*77*	Shallow water		5,621
Forestlands		Decid. shrub-scrub	63,317	Open water		*3,067*
Clearcut	*845*	Conifer. shrub-scrub	8,497	**Other**		
Early regeneration	*1,642*	Dead shrub-scrub	17	Alpine tundra		*0*
Late regeneration	*997*	Fresh aquatic bed	63	Exposed rock/Talus		*7*

For definitions of field contents see the Introduction. Items in *italics* in the table of habitat quantities show habitats not used by the species, but included in the predicted distribution because of generalization (see the Introduction for details).

VIRGINIA RAIL

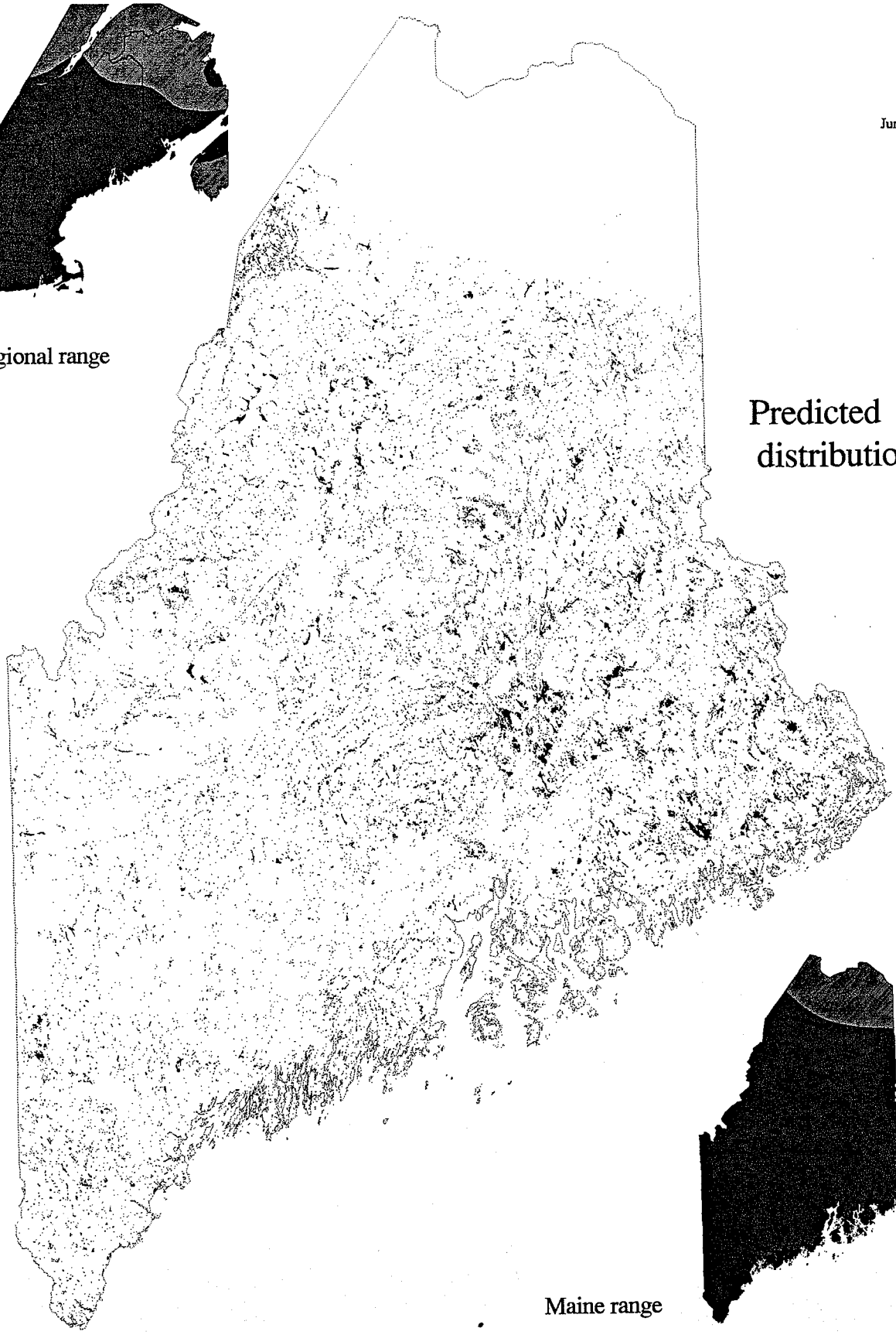
RALI

June 1998



Regional range

Predicted distribution





Maine range

SORA (*Porzana carolina*)

Element code: BNME0802

ME-GAP code: POCR

Order: Gruiformes

Family: Rallidae

Breeding range change: Stable

Listing status: Not listed

Migratory status: Local migrant; Resident

Game species: Yes

Population level: Common

Population trend: Stable, but not well surveyed

Heritage ranks: G5 . . S4B

Knowledge: Good

General habitats used: Soras are most common on fresh water, fertile wetlands, swamps, bogs, and ponds. Shallow marshes (but deeper than most used by Virginia Rails) with an interspersion of emergent vegetation, flooded herbaceous plants, and open water are good habitat. Soras are less common on scrub-shrub wetlands, and are more common in larger wetlands. Soras will infrequently feed in agricultural areas. Nests are constructed in sedges, suspended over water.

Specific habitats used: Wet habitats with fairly stable water levels during the breeding season are used by nesting Soras.

Comments:

Predicted habitat quantities:

SORA					Total in ha:	201,325
Habitat	ha	Habitat	ha	Habitat		ha
Agricultural lands		Light partial cut	*670*	Fresh emergent		26,012
Abandoned field	*262*	Heavy partial cut	*869*	Peatland		27,726
Blueberry field	*176*	Deciduous forest	*1,570*	Wet meadow		7,019
Grassland	*2,893*	Decid./Conif. forest	*3,916*	Salt aquatic bed		617
Crops/Ground	*640*	Conif./Decid. forest	*12,387*	Salt emergent		104
Developed lands		Coniferous forest	*6,680*	Mudflat		*89*
Sparse residential	*360*	**Wetlands**		Sand shore		*21*
Dense residential	*87*	Deciduous forested	*4,891*	Gravel shore		*190*
Urban/Industrial	*2*	Coniferous forested	*26,255*	Rock shore		*107*
Highways/Runways	*2*	Dead-forested	*215*	Shallow water		4,491
Forestlands		Decid. shrub-scrub	51,271	Open water		*8,390*
Clearcut	*1,444*	Conifer. shrub-scrub	6,786	**Other**		
Early regeneration	*3,398*	Dead shrub-scrub	7	Alpine tundra		*0*
Late regeneration	*1,716*	Fresh aquatic bed	48	Exposed rock/Talus		*13*

For definitions of field contents see the Introduction. Items in *italics* in the table of habitat quantities show habitats not used by the species, but included in the predicted distribution because of generalization (see the Introduction for details).



Regional range

Predicted distribution



Maine range

YELLOW RAIL (*Coturnicops noveboracensis*)

Element code: BNME0101

ME-GAP code: CONO

Order: Gruiformes

Family: Rallidae

Breeding range change: Unknown

Listing status: Not listed

Migratory status: Local migrant; Resident

Game species: No

Population level: Rare

Population trend: Unknown, not well surveyed

Heritage ranks: G4 . . SPB

Knowledge: Best guess

General habitats used: Yellow Rails inhabit moist, low lying areas with senescent vegetation (sedges and grasses) that are adjacent to flowing third or fourth order streams. Meadows and marshes that are large (> 40 ha) are selected. Yellow Rails build nests that are on bare ground, or within sedges and grasses, often suspended over water.

Specific habitats used:

Comments: Yellow Rails have an interesting call; it can be imitated very well by clicking small stones together. This species is rarer than the predicted habitat suggests.

Predicted habitat quantities:

YELLOW RAIL					Total in ha:	94,851
Habitat	**ha**	**Habitat**	**ha**	**Habitat**		**ha**
Agricultural lands		Light partial cut	*224*	Fresh emergent		20,636
Abandoned field	*91*	Heavy partial cut	*324*	Peatland		25,658
Blueberry field	*85*	Deciduous forest	*621*	Wet meadow		5,651
Grassland	*1,004*	Decid./Conif. forest	*1,544*	Salt aquatic bed		612
Crops/Ground	*234*	Conif./Decid. forest	*5,072*	Salt emergent		79
Developed lands		Coniferous forest	*2,934*	Mudflat		*82*
Sparse residential	*152*	**Wetlands**		Sand shore		*19*
Dense residential	*40*	Deciduous forested	*1,879*	Gravel shore		*115*
Urban/Industrial	*2*	Coniferous forested	*11,942*	Rock shore		*63*
Highways/Runways	*0*	Dead-forested	*118*	Shallow water		*888*
Forestlands		Decid. shrub-scrub	*6,972*	Open water		*4,322*
Clearcut	*637*	Conifer. shrub-scrub	*904*	**Other**		
Early regeneration	*1,204*	Dead shrub-scrub	*1*	Alpine tundra		*0*
Late regeneration	*698*	Fresh aquatic bed	42	Exposed rock/Talus		*4*

For definitions of field contents see the Introduction. Items in *italics* in the table of habitat quantities show habitats not used by the species, but included in the predicted distribution because of generalization (see the Introduction for details).

YELLOW RAIL

CONO

June 1998



Regional range

Predicted distribution



Maine range

COMMON MOORHEN (*Gallinula chloropus*)

Element code: BNME1301

ME-GAP code: GACH

Order: Gruiformes

Family: Rallidae

Breeding range change: Unknown

Listing status: Not listed

Migratory status: US migrant

Game species: Yes

Population level: Rare

Population trend: Stable, but not well surveyed

Heritage ranks: G5 . . S2?B

Knowledge: Adequate

General habitats used: Common Moorhens inhabit freshwater marshes, and the margins of lakes, ponds, and rivers, if emergent vegetation is present. Aquatic habitats that are between 30 cm and 90 cm deep, with emergent vegetation in equal proportion to open water, are good habitats for moorhens. In addition, Common Moorhens may occur in willow or alder swamps, sewage treatment lagoons, and mud flats (for feeding).

Specific habitats used:

Comments: Although this species is a game bird in Maine, few are shot.

Predicted habitat quantities:

COMMON MOORHEN					Total in ha:	44,294
Habitat	**ha**	**Habitat**	**ha**	**Habitat**		**ha**
Agricultural lands		Light partial cut	*52*	Fresh emergent		7,122
Abandoned field	*66*	Heavy partial cut	*99*	Peatland		3,899
Blueberry field	*2*	Deciduous forest	*177*	Wet meadow		1,758
Grassland	*886*	Decid./Conif. forest	*654*	Salt aquatic bed		288
Crops/Ground	*258*	Conif./Decid. forest	*1,918*	Salt emergent		2,932
Developed lands		Coniferous forest	*726*	Mudflat		4,935
Sparse residential	*100*	**Wetlands**		Sand shore		27
Dense residential	*23*	Deciduous forested	*479*	Gravel shore		*0*
Urban/Industrial	*4*	Coniferous forested	*1,275*	Rock shore		*6*
Highways/Runways	*3*	Dead-forested	*21*	Shallow water		794
Forestlands		Decid. shrub-scrub	12,878	Open water		*743*
Clearcut	*270*	Conifer. shrub-scrub	1,388	**Other**		
Early regeneration	*254*	Dead shrub-scrub	0	Alpine tundra		*0*
Late regeneration	*241*	Fresh aquatic bed	14	Exposed rock/Talus		*3*

For definitions of field contents see the Introduction. Items in *italics* in the table of habitat quantities show habitats not used by the species, but included in the predicted distribution because of generalization (see the Introduction for details).

COMMON MOORHEN

GACH

June 1998



Regional range

Predicted distribution



Maine range

AMERICAN COOT (*Fulica americana*)

Element code: BNME1402

ME-GAP code: FUAM

Order: Gruiformes

Family: Rallidae

Breeding range change: Unknown

Listing status: Not listed

Migratory status: US migrant

Game species: Yes

Population level: Rare

Population trend: Stable, but not well surveyed

Heritage ranks: G5 . . S2?B

Knowledge: Adequate

General habitats used: American Coots inhabit aquatic habitats with an interspersion of open water and emergent vegetation (cattails are selected, but sedges and willows also are used). Coots will use marshes, stream margins, rivers, ponds, lakes, sewage treatment lagoons; any aquatic habitat with abundant emergent vegetation. Nests are constructed within emergent vegetation, forming a floating platform.

Specific habitats used:

Comments: Although classifies as a game species in Maine, few are actually taken by hunters.

Predicted habitat quantities:

AMERICAN COOT					Total in ha:	15,950
Habitat	**ha**	**Habitat**	**ha**	**Habitat**		**ha**
Agricultural lands		Light partial cut	*28*	Fresh emergent		3,711
Abandoned field	*10*	Heavy partial cut	*19*	Peatland		1,153
Blueberry field	*1*	Deciduous forest	*41*	Wet meadow		836
Grassland	*369*	Decid./Conif. forest	*262*	Salt aquatic bed		126
Crops/Ground	*69*	Conif./Decid. forest	*492*	Salt emergent		3,566
Developed lands		Coniferous forest	*232*	Mudflat		3,042
Sparse residential	*73*	**Wetlands**		Sand shore		73
Dense residential	*46*	Deciduous forested	*154*	Gravel shore		*0*
Urban/Industrial	*9*	Coniferous forested	*151*	Rock shore		*1*
Highways/Runways	*0*	Dead-forested	*6*	Shallow water		595
Forestlands		Decid. shrub-scrub	*220*	Open water		*415*
Clearcut	*101*	Conifer. shrub-scrub	*32*	**Other**		
Early regeneration	*42*	Dead shrub-scrub	*0*	Alpine tundra		*0*
Late regeneration	*53*	Fresh aquatic bed	16	Exposed rock/Talus		*5*

For definitions of field contents see the Introduction. Items in *italics* in the table of habitat quantities show habitats not used by the species, but included in the predicted distribution because of generalization (see the Introduction for details).

AMERICAN COOT

FUAM

June 1998



Regional range

Predicted distribution



Maine range

KILLDEER (*Charadrius vociferus*)

Element code: BNNB0309 **ME-GAP code:** CHVO

Order: Charadriiformes **Family:** Charadriidae

Breeding range change: Stable **Listing status:** Not listed

Migratory status: Local migrant; Resident **Game species:** No

Population level: Common **Population trend:** Stable

Heritage ranks: G5 . . S3N,S5B **Knowledge:** Good

General habitats used: Killdeer occur in somewhat dry, open habitats with sparse vegetation, such as pastures, road margins, and grazed meadows. Clearing within forests have allowed Killdeer to use new areas. Killdeer are not readily disturbed by human activities, and will occur at airports, residential lawns, golf courses, paved and gravel parking lots, cultivated fields, and baseball diamonds. Nests are constructed on the ground, usually within patches of gravel and in gravel pits, and also are placed on flat-roofed buildings (without parapets).

Specific habitats used:

Comments: Killdeer have a characteristic alarm call, screaming "kill deer, kill deer" when a threat approaches.

Predicted habitat quantities:

KILLDEER					Total in ha: 1,492,150
Habitat	ha	Habitat	ha	Habitat	ha
Agricultural lands		Light partial cut	*18,228*	Fresh emergent	*7,572*
Abandoned field	9,532	Heavy partial cut	62,217	Peatland	*2,475*
Blueberry field	8,546	Deciduous forest	*81,164*	Wet meadow	6,657
Grassland	287,317	Decid./Conif. forest	*128,498*	Salt aquatic bed	*3,294*
Crops/Ground	79,008	Conif./Decid. forest	*139,342*	Salt emergent	*1,516*
Developed lands		Coniferous forest	*52,216*	Mudflat	16,825
Sparse residential	37,977	**Wetlands**		Sand shore	1,949
Dense residential	28,096	Deciduous forested	*8,522*	Gravel shore	2,127
Urban/Industrial	1,396	Coniferous forested	*30,722*	Rock shore	2,082
Highways/Runways	521	Dead-forested	*322*	Shallow water	*1,766*
Forestlands		Decid. shrub-scrub	*15,567*	Open water	*17,315*
Clearcut	64,122	Conifer. shrub-scrub	*1,431*	**Other**	
Early regeneration	314,048	Dead shrub-scrub	*34*	Alpine tundra	1,677
Late regeneration	*54,264*	Fresh aquatic bed	*23*	Exposed rock/Talus	3,781

For definitions of field contents see the Introduction. Items in *italics* in the table of habitat quantities show habitats not used by the species, but included in the predicted distribution because of generalization (see the Introduction for details).

KILLDEER

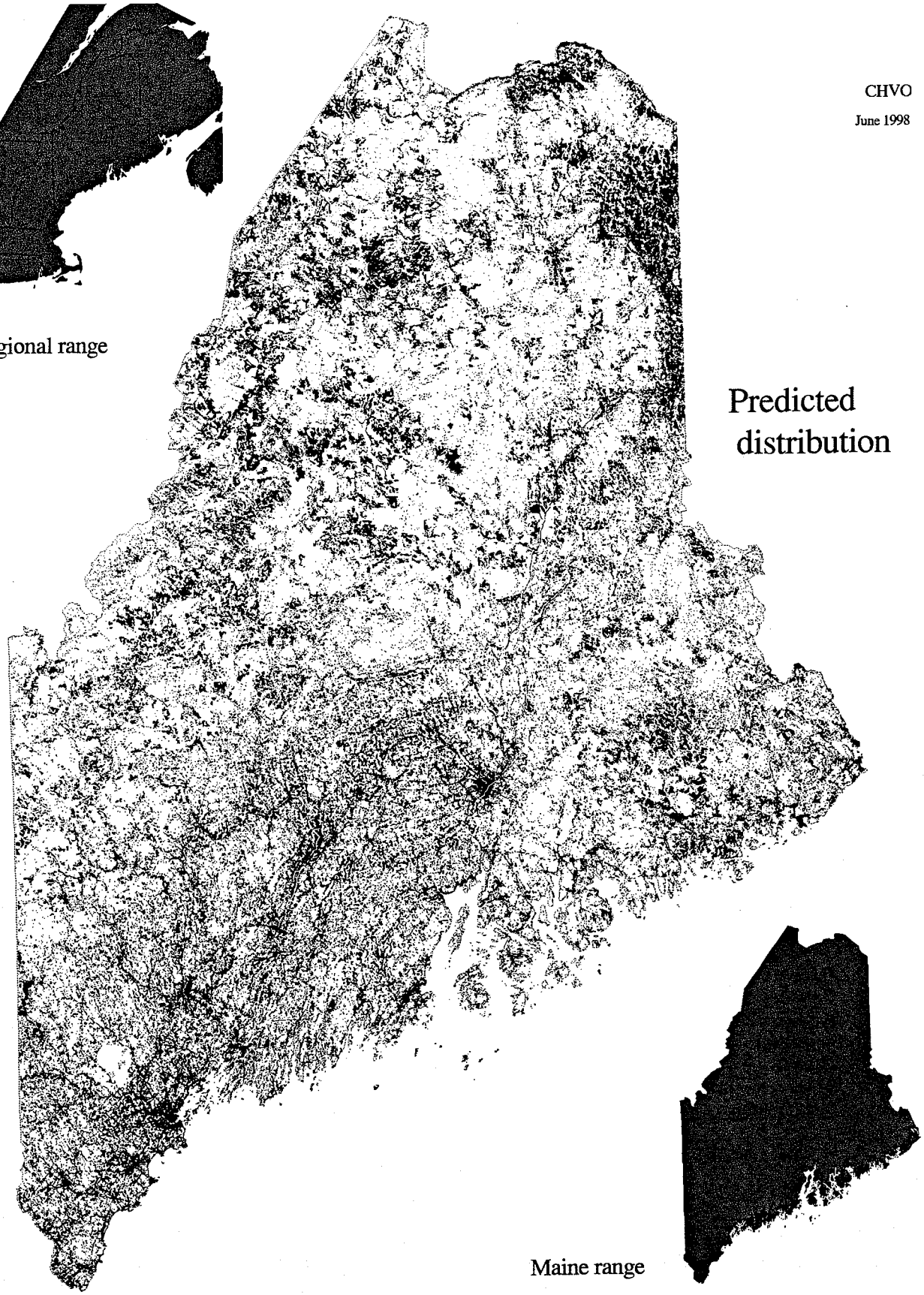
CHVO

June 1998



Regional range

Predicted distribution



Maine range

SPOTTED SANDPIPER (*Actitis macularia*)

Element code: BNNF0402

ME-GAP code: ACMA

Order: Charadriiformes

Family: Scolopacidae

Breeding range change: Stable

Listing status: Not listed

Migratory status: US migrant

Game species: No

Population level: Common

Population trend: Stable

Heritage ranks: G5 . . S5B

Knowledge: Good

General habitats used: Spotted Sandpipers occur most commonly along the gravelly margins of streams, rivers, ponds, and lakes. These sandpipers use areas with short dry grasses, such as grazed pastures, fields, and road shoulders. Sometimes these areas are far from water. Barren areas, such as beaches and dunes, may be used. Spotted Sandpipers build nests in grasses or shrubs, and feed in short grasses or the mud along waterbodies.

Specific habitats used:

Comments:

Predicted habitat quantities:

SPOTTED SANDPIPER					Total in ha:	853,226
Habitat	**ha**	**Habitat**	**ha**	**Habitat**		**ha**
Agricultural lands		Light partial cut	*4,511*	Fresh emergent		34,971
Abandoned field	6,401	Heavy partial cut	*6,126*	Peatland		29,269
Blueberry field	6,369	Deciduous forest	*26,940*	Wet meadow		8,760
Grassland	248,493	Decid./Conif. forest	*51,702*	Salt aquatic bed		*701*
Crops/Ground	70,671	Conif./Decid. forest	*83,965*	Salt emergent		1,584
Developed lands		Coniferous forest	*34,864*	Mudflat		1,128
Sparse residential	28,698	**Wetlands**		Sand shore		197
Dense residential	*4,924*	Deciduous forested	*13,866*	Gravel shore		2,117
Urban/Industrial	*200*	Coniferous forested	*47,302*	Rock shore		1,527
Highways/Runways	297	Dead-forested	*501*	Shallow water		3,178
Forestlands		Decid. shrub-scrub	69,298	Open water		*13,051*
Clearcut	*8,122*	Conifer. shrub-scrub	8,122	**Other**		
Early regeneration	*22,917*	Dead shrub-scrub	27	Alpine tundra		104
Late regeneration	*11,782*	Fresh aquatic bed	*37*	Exposed rock/Talus		*506*

For definitions of field contents see the Introduction. Items in *italics* in the table of habitat quantities show habitats not used by the species, but included in the predicted distribution because of generalization (see the Introduction for details).

SPOTTED SANDPIPER

ACMA

June 1998



Regional range

Predicted distribution



Maine range

UPLAND SANDPIPER (*Bartramia longicauda*)

Element code: BNNF0601

ME-GAP code: BALO

Order: Charadriiformes

Family: Scolopacidae

Breeding range change: Unknown

Listing status: Threatened (S)

Migratory status: Neotropical migrant

Game species: No

Population level: Uncommon

Population trend: Unknown

Heritage ranks: G5 . . S3B

Knowledge: Adequate

General habitats used: Upland Sandpipers are most common in large areas (> 20 ha) with a mixture of short and tall grasses. These sandpipers occur in large pastures and grassy fields, agricultural areas (e.g., clover and alfalfa fields, blueberry barrens), and in urban areas, such as airports and golf courses. Openings within forests are sometimes used. Upland Sandpipers are ground nesters, nesting in grasses, and they are loosely colonial.

Specific habitats used: In eastern Maine, large blueberry fields are the most important habitats for this species, although recent research suggests that they could also be breeding in peatlands and grasslands in northern Maine.

Comments:

Predicted habitat quantities:

UPLAND SANDPIPER					Total in ha:	412,701
Habitat	ha	Habitat	ha	Habitat		ha
Agricultural lands		Light partial cut	*1,039*	Fresh emergent		27,376
Abandoned field	*1,149*	Heavy partial cut	*1,246*	Peatland		23,578
Blueberry field	10,071	Deciduous forest	*6,323*	Wet meadow		7,668
Grassland	215,356	Decid./Conif. forest	*12,898*	Salt aquatic bed		*194*
Crops/Ground	*4,133*	Conif./Decid. forest	*15,497*	Salt emergent		1,493
Developed lands		Coniferous forest	*4,169*	Mudflat		*229*
Sparse residential	*4,477*	**Wetlands**		Sand shore		*55*
Dense residential	*1,172*	Deciduous forested	*2,058*	Gravel shore		*3*
Urban/Industrial	*106*	Coniferous forested	*4,231*	Rock shore		*75*
Highways/Runways	*37*	Dead-forested	*64*	Shallow water		*539*
Forestlands		Decid. shrub-scrub	49,155	Open water		*2,104*
Clearcut	*2,889*	Conifer. shrub-scrub	5,277	**Other**		
Early regeneration	*4,498*	Dead shrub-scrub	8	Alpine tundra		*0*
Late regeneration	*3,317*	Fresh aquatic bed	*4*	Exposed rock/Talus		*211*

For definitions of field contents see the Introduction. Items in *italics* in the table of habitat quantities show habitats not used by the species, but included in the predicted distribution because of generalization (see the Introduction for details).

UPLAND SANDPIPER

BALO

June 1998



Regional range

Predicted distribution



Maine range

COMMON SNIPE (*Gallinago gallinago*)

Element code: BNNF1801 **ME-GAP code:** GAGA

Order: Charadriiformes **Family:** Scolopacidae

Breeding range change: Stable **Listing status**: Not listed

Migratory status: US migrant; Local migrant **Game species**: Yes

Population level: Common **Population trend**: Stable

Heritage ranks: G5 . . S5B,S5N **Knowledge**: Good

General habitats used: Common Snipe are common in grazed marshes, with low sparse vegetation and wet organic soils. Bogs, swamps, wet meadows, willow and alder swamps, shrub wetlands, and wet lowlands near streams and rivers are selected by snipe. The edges and shallow portions of deep water marshes will be used by Common Snipe. Large open areas are used by snipe for courtship displays. Nests are constructed on the ground, on tussocks of grass, moss, or sunken logs.

Specific habitats used:

Comments: Some believe snipe hunting to be an aimless chase after a fictitious bird. Common snipe, however, are indeed a type of shorebird, and are a popular quarry with hunters.

Predicted habitat quantities:

COMMON SNIPE					Total in ha:	858,780
Habitat	**ha**	**Habitat**	**ha**	**Habitat**		**ha**
Agricultural lands		Light partial cut	*2,777*	Fresh emergent		35,344
Abandoned field	5,160	Heavy partial cut	*3,767*	Peatland		36,022
Blueberry field	*1,754*	Deciduous forest	*16,032*	Wet meadow		8,305
Grassland	221,170	Decid./Conif. forest	*31,339*	Salt aquatic bed		*1,109*
Crops/Ground	*20,465*	Conif./Decid. forest	*50,347*	Salt emergent		5,426
Developed lands		Coniferous forest	*26,921*	Mudflat		12,489
Sparse residential	*5,906*	**Wetlands**		Sand shore		455
Dense residential	*2,366*	Deciduous forested	33,472	Gravel shore		2,146
Urban/Industrial	*122*	Coniferous forested	199,133	Rock shore		1,502
Highways/Runways	*74*	Dead-forested	1,140	Shallow water		*3,172*
Forestlands		Decid. shrub-scrub	72,929	Open water		*18,216*
Clearcut	7,795	Conifer. shrub-scrub	9,620	**Other**		
Early regeneration	*14,646*	Dead shrub-scrub	25	Alpine tundra		*3*
Late regeneration	*7,160*	Fresh aquatic bed	*27*	Exposed rock/Talus		*444*

For definitions of field contents see the Introduction. Items in *italics* in the table of habitat quantities show habitats not used by the species, but included in the predicted distribution because of generalization (see the Introduction for details).

COMMON SNIPE

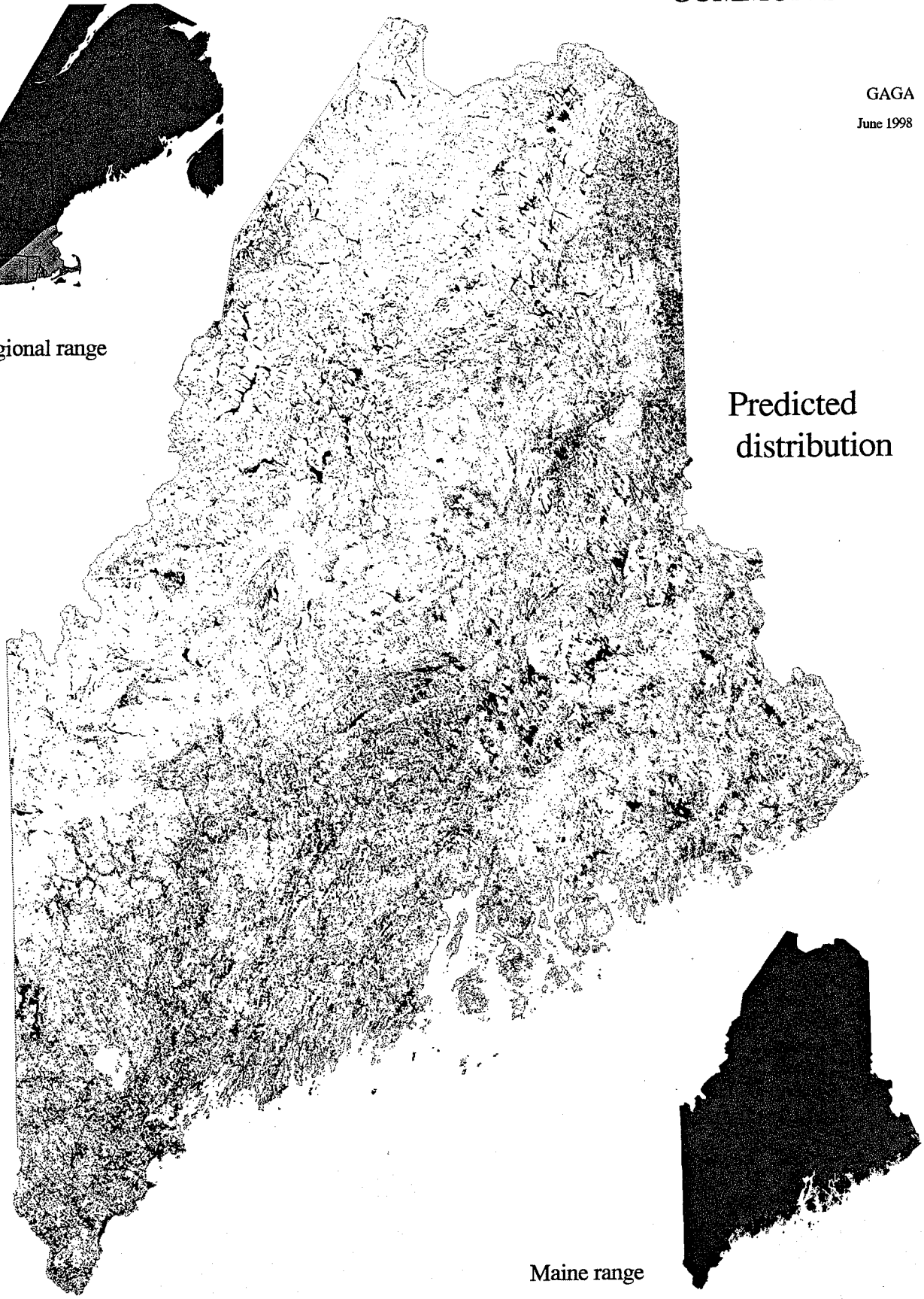
GAGA

June 1998



Regional range

Predicted distribution



Maine range

AMERICAN WOODCOCK (*Scolopax minor*)

Element code: BNNF1902

ME-GAP code: SCMI

Order: Charadriiformes

Family: Scolopacidae

Breeding range change: Stable

Listing status: Not listed

Migratory status: US migrant

Game species: Yes

Population level: Common

Population trend: Declining

Heritage ranks: G5 . . S5B,S5N

Knowledge: Good

General habitats used: American Woodcock are a brushland species, most common where there is an interspersion of early successional hardwood stands, alder thickets, and clearings such as abandoned farmland or blueberry barrens, and regenerating forest edges. Fertile, moist habitats such as swamps, margins of streams and ponds, and bogs are also used. Abandoned farmlands, with high densities of earthworms and moist, soft soils, are high quality woodcock habitat.

Specific habitats used:

Comments: Compared to 20 years ago, population levels are down and concern over the status of this important migratory game bird is increasing.

Predicted habitat quantities:

AMERICAN WOODCOCK					Total in ha: 1,458,573
Habitat	**ha**	**Habitat**	**ha**	**Habitat**	**ha**
Agricultural lands		Light partial cut	45,713	Fresh emergent	*14,108*
Abandoned field	8,857	Heavy partial cut	68,312	Peatland	30,312
Blueberry field	8,281	Deciduous forest	*67,777*	Wet meadow	8,001
Grassland	*45,290*	Decid./Conif. forest	*121,127*	Salt aquatic bed	*2,040*
Crops/Ground	*11,991*	Conif./Decid. forest	*178,140*	Salt emergent	*1,128*
Developed lands		Coniferous forest	*76,328*	Mudflat	16,151
Sparse residential	26,279	**Wetlands**		Sand shore	*181*
Dense residential	*2,402*	Deciduous forested	33,016	Gravel shore	*252*
Urban/Industrial	*89*	Coniferous forested	*59,765*	Rock shore	*430*
Highways/Runways	279	Dead-forested	*458*	Shallow water	*2,556*
Forestlands		Decid. shrub-scrub	64,498	Open water	*17,360*
Clearcut	66,475	Conifer. shrub-scrub	7,587	**Other**	
Early regeneration	342,709	Dead shrub-scrub	41	Alpine tundra	*46*
Late regeneration	130,399	Fresh aquatic bed	*11*	Exposed rock/Talus	*183*

For definitions of field contents see the Introduction. Items in *italics* in the table of habitat quantities show habitats not used by the species, but included in the predicted distribution because of generalization (see the Introduction for details).

AMERICAN WOODCOCK

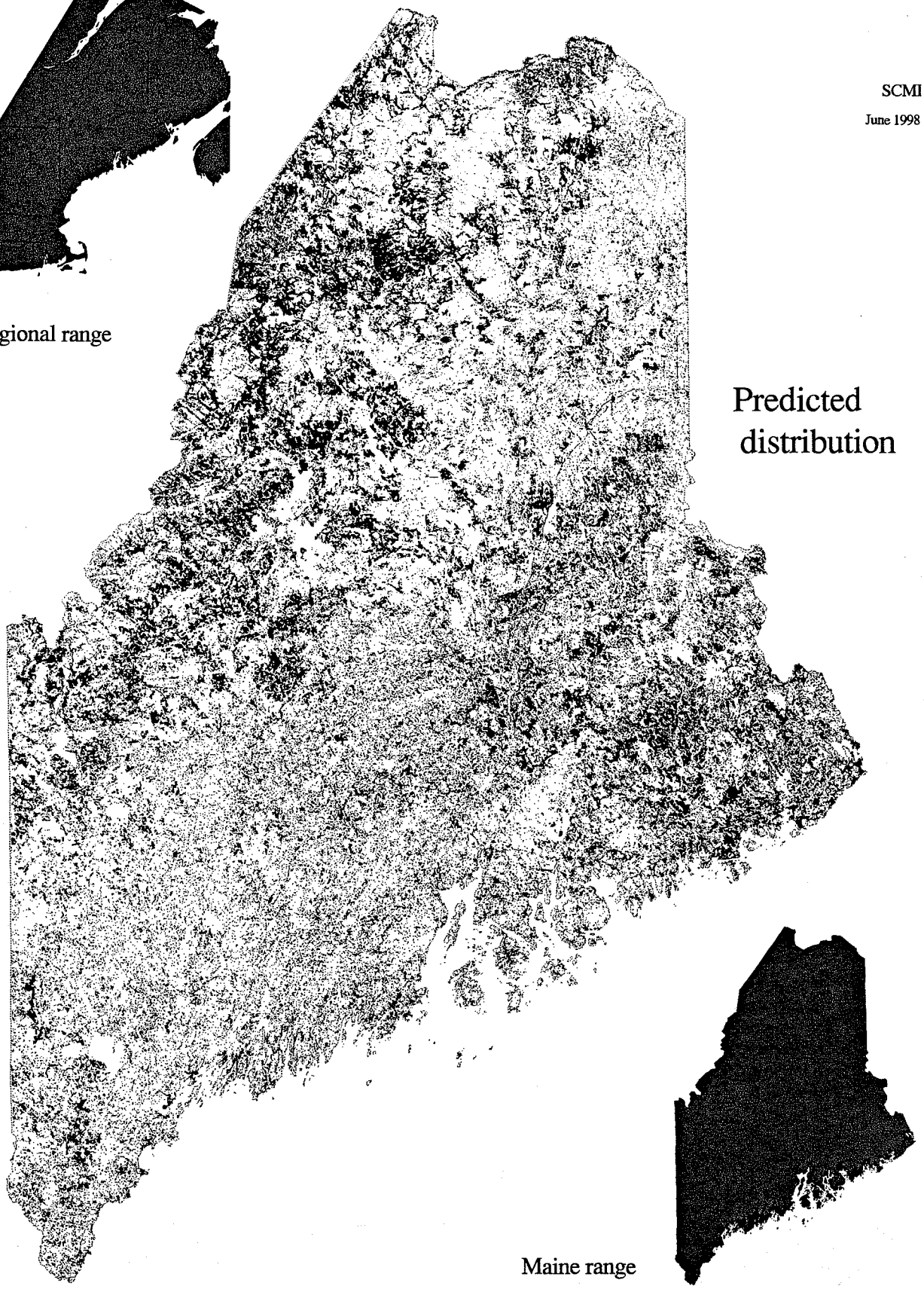
SCMI

June 1998



Regional range

Predicted distribution



Maine range

HERRING GULL (*Larus argentatus*)

Element code: BNNM0312

ME-GAP code: LAAR

Order: Charadriiformes

Family: Laridae

Breeding range change: Stable

Listing status: Not listed

Migratory status: Local migrant; Resident

Game species: No

Population level: Common

Population trend: Stable, possibly decreasing

Heritage ranks: G5 . . S5B,S5N

Knowledge: Adequate

General habitats used: Herring Gulls breed along the main coast and on coastal islands, as well as on islands in lakes and rivers, and occasionally in salt marshes. In these areas, Herring Gulls nest on grassy patches, rock terraces, lakeside cliffs, and the margins of salt marshes. Herring Gulls feed in fields, on lakes, and rivers. They are not disturbed by human activity, and feed in garbage dumps and at fish processing stations, and by fishing boats processing their catch.

Specific habitats used:

Comments: Herring Gulls may be decreasing along Maine's coastline because of competition with the more aggressive Great Black-backed Gulls. Gulls will feed in the ocean well beyond the edge of the area shown here.

Predicted habitat quantities:

HERRING GULL					Total in ha: 973,616
Habitat	**ha**	**Habitat**	**ha**	**Habitat**	**ha**
Agricultural lands		Light partial cut	*123*	Fresh emergent	1,818
Abandoned field	100	Heavy partial cut	*109*	Peatland	*205*
Blueberry field	*11*	Deciduous forest	*488*	Wet meadow	1,221
Grassland	2,033	Decid./Conif. forest	*1,260*	Salt aquatic bed	*2,573*
Crops/Ground	*346*	Conif./Decid. forest	*4,813*	Salt emergent	390
Developed lands		Coniferous forest	*4,829*	Mudflat	1,989
Sparse residential	813	**Wetlands**		Sand shore	341
Dense residential	*92*	Deciduous forested	*277*	Gravel shore	594
Urban/Industrial	31	Coniferous forested	*513*	Rock shore	1,584
Highways/Runways	2	Dead-forested	*17*	Shallow water	2,377
Forestlands		Decid. shrub-scrub	*1,007*	Open water	942,526
Clearcut	*141*	Conifer. shrub-scrub	*92*	**Other**	
Early regeneration	*467*	Dead shrub-scrub	*5*	Alpine tundra	*0*
Late regeneration	*404*	Fresh aquatic bed	*2*	Exposed rock/Talus	23

For definitions of field contents see the Introduction. Items in *italics* in the table of habitat quantities show habitats not used by the species, but included in the predicted distribution because of generalization (see the Introduction for details).

HERRING GULL

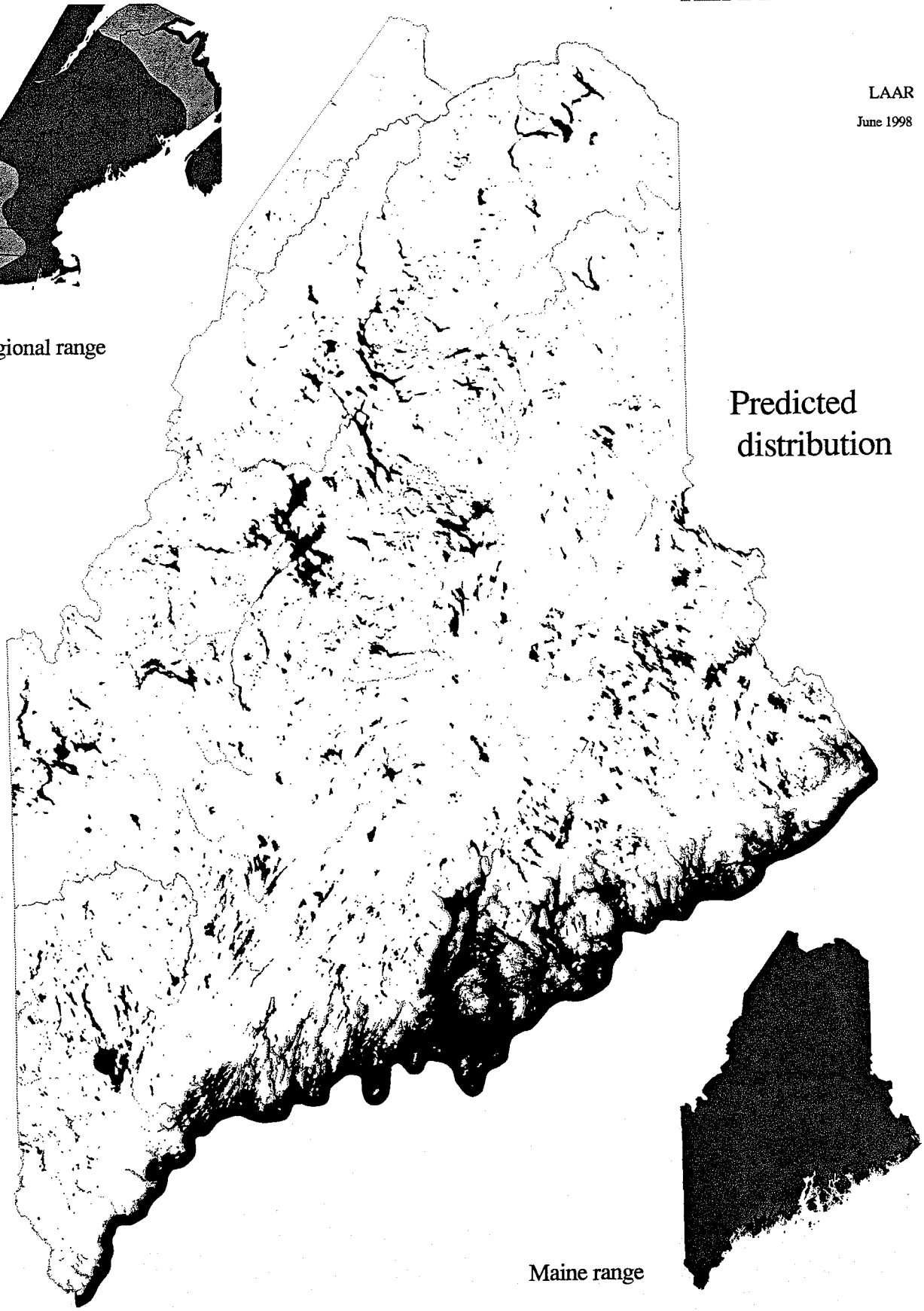
LAAR

June 1998



Regional range

Predicted distribution



Maine range

GREAT BLACK-BACKED GULL (*Larus marinus*)

Element code: BNNM0321

ME-GAP code: LAMA

Order: Charadriiformes

Family: Laridae

Breeding range change: Stable

Listing status: Not listed

Migratory status: Local migrant; US migrant

Game species: No

Population level: Common

Population trend: Stable, possibly increasing

Heritage ranks: G5 . . S5B,S5N

Knowledge: Adequate

General habitats used: Great Black-backed Gulls nest along the coast and on coastal islands, on islands within lakes and rivers, and rarely on salt marshes. Portions of the coast with steep cliffs and no islands are without gulls. At breeding sites, nests are built in grassy areas, bare patches, rocky outcrops, or on tussocks.

Specific habitats used:

Comments: Gulls breed far out to sea, and the edge shown here is only an arbitrary study area boundary.

Predicted habitat quantities:

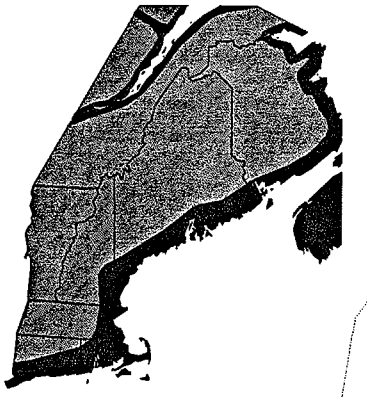
GREAT BLACK-BACKED GULL					Total in ha:	685,778
Habitat	**ha**	**Habitat**	**ha**	**Habitat**		**ha**
Agricultural lands		Light partial cut	*58*	Fresh emergent		5,364
Abandoned field	*154*	Heavy partial cut	*42*	Peatland		*81*
Blueberry field	*72*	Deciduous forest	*197*	Wet meadow		1,214
Grassland	*1,123*	Decid./Conif. forest	*646*	Salt aquatic bed		16,607
Crops/Ground	*173*	Conif./Decid. forest	*2,702*	Salt emergent		5,556
Developed lands		Coniferous forest	*3,076*	Mudflat		20,112
Sparse residential	*563*	**Wetlands**		Sand shore		2,697
Dense residential	*133*	Deciduous forested	*207*	Gravel shore		285
Urban/Industrial	*26*	Coniferous forested	*156*	Rock shore		2,104
Highways/Runways	*0*	Dead-forested	*15*	Shallow water		1,701
Forestlands		Decid. shrub-scrub	*460*	Open water		618,160
Clearcut	*123*	Conifer. shrub-scrub	*26*	**Other**		
Early regeneration	*274*	Dead shrub-scrub	*0*	Alpine tundra		*0*
Late regeneration	*296*	Fresh aquatic bed	58	Exposed rock/Talus		1,319

For definitions of field contents see the Introduction. Items in *italics* in the table of habitat quantities show habitats not used by the species, but included in the predicted distribution because of generalization (see the Introduction for details).

GREAT BLACK-BACKED GULL

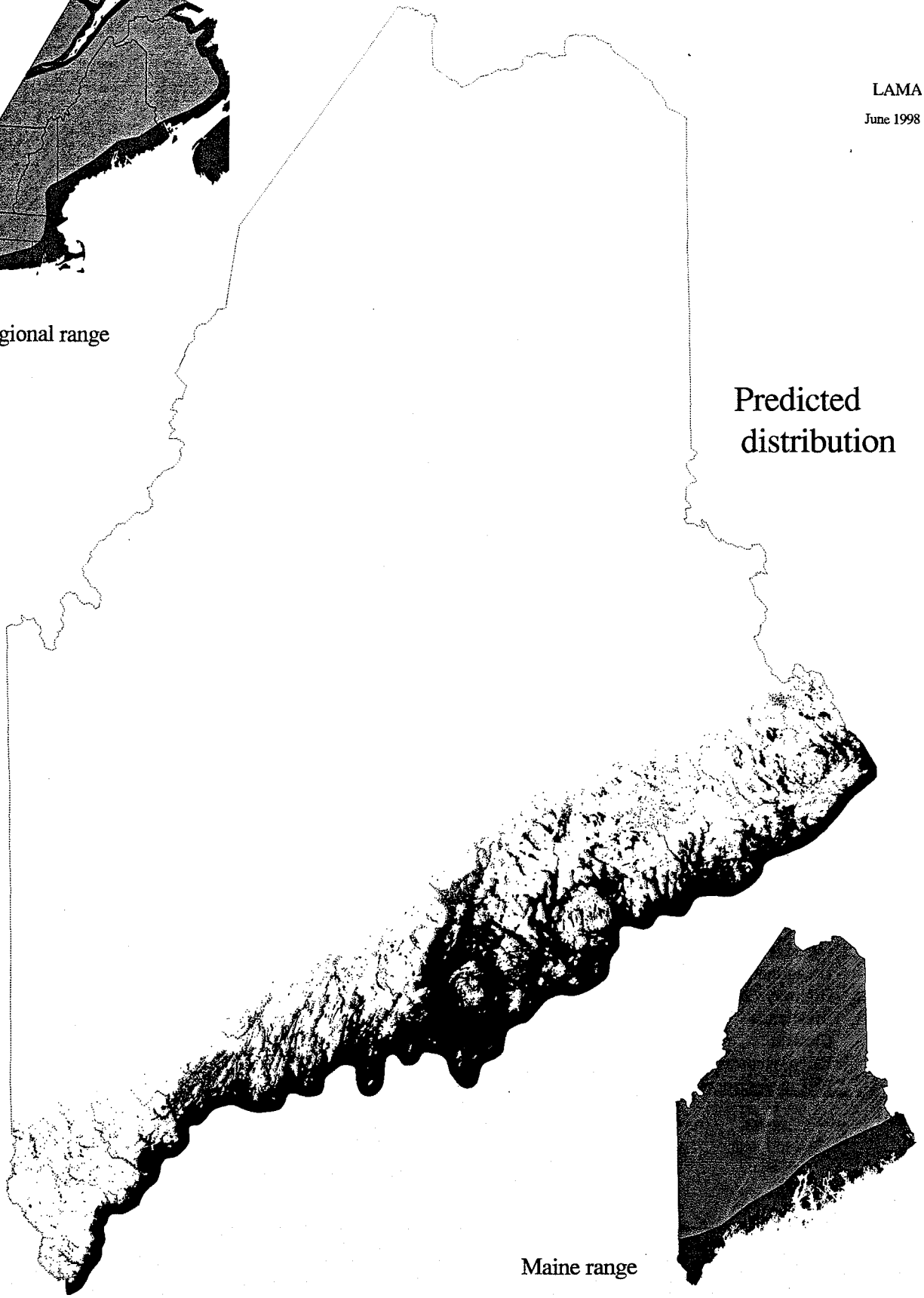
LAMA

June 1998



Regional range

Predicted distribution



Maine range

COMMON TERN (*Sterna hirundo*)

Element code: BNNM0807 **ME-GAP code:** STHI

Order: Charadriiformes **Family:** Laridae

Breeding range change: Unknown **Listing status**: Not listed

Migratory status: US migrant **Game species**: No

Population level: Common **Population trend**: Stable, to increasing

Heritage ranks: G5 . . S4B **Knowledge**: Adequate

General habitats used: Common Terns nest on the sandy, gravelly, and grassy shores of coastal and inland islands. Areas with sparse (or no) vegetation are selected for nest sites. Common Terns feed in shallow fresh or salt water. Sites without shallow water, or with steep cliffs leading to the water's edge, will not support terns. Muddy water also will deter terns from using an area, because fish cannot be readily located.

Specific habitats used:

Comments: Increases in populations on some coastal nesting islands are due to management of Gull populations.

Predicted habitat quantities:

COMMON TERN					Total in ha:	82,716
Habitat	**ha**	**Habitat**	**ha**	**Habitat**		**ha**
Agricultural lands		Light partial cut	*52*	Fresh emergent		1,204
Abandoned field	96	Heavy partial cut	*46*	Peatland		*134*
Blueberry field	*8*	Deciduous forest	*158*	Wet meadow		*211*
Grassland	751	Decid./Conif. forest	*366*	Salt aquatic bed		5,744
Crops/Ground	*101*	Conif./Decid. forest	*1,964*	Salt emergent		193
Developed lands		Coniferous forest	*2,210*	Mudflat		*539*
Sparse residential	*224*	**Wetlands**		Sand shore		268
Dense residential	*22*	Deciduous forested	*147*	Gravel shore		297
Urban/Industrial	*2*	Coniferous forested	*353*	Rock shore		1,403
Highways/Runways	*0*	Dead-forested	*9*	Shallow water		1,885
Forestlands		Decid. shrub-scrub	*602*	Open water		63,194
Clearcut	*80*	Conifer. shrub-scrub	*41*	**Other**		
Early regeneration	*224*	Dead shrub-scrub	*2*	Alpine tundra		*0*
Late regeneration	*163*	Fresh aquatic bed	10	Exposed rock/Talus		11

For definitions of field contents see the Introduction. Items in *italics* in the table of habitat quantities show habitats not used by the species, but included in the predicted distribution because of generalization (see the Introduction for details).

COMMON TERN

STHI

June 1998



Regional range

Predicted distribution



Maine range

BLACK TERN (*Chlidonias niger*)

Element code: BNNM1002

ME-GAP code: CHNI

Order: Charadriiformes

Family: Laridae

Breeding range change: Unknown

Listing status: Endangered (S)

Migratory status: Neotropical migrant

Game species: No

Population level: Rare

Population trend: Stable, but erratic breeding in Maine

Heritage ranks: G4 . . S2B

Knowledge: Best guess

General habitats used: Black Terns breed in deepwater marshes that have up to 75% of the wetland in emergent vegetation, usually cattails in Maine. Marshes that have a high interspersion of open water (e.g., channels, at 50%) and emergent plants (50%), that are > 25 ha are good Black Tern habitat. Black Terns will use wet meadows, and will inhabit new impoundments for a few years. These terns build nests on floating mats of vegetation, and on muskrat lodges.

Specific habitats used:

Comments: Townships with known colonies shown as range, and the appropriate habitats within the range are shown as potential habitats. On-going research will probably find more colonies of Black Terns in Maine then those shown here.

Predicted habitat quantities:

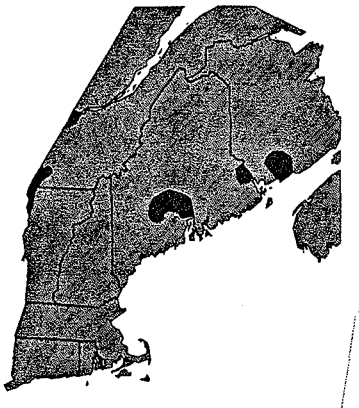
BLACK TERN					Total in ha:	5,786
Habitat	**ha**	**Habitat**	**ha**	**Habitat**		**ha**
Agricultural lands		Light partial cut	*4*	Fresh emergent		862
Abandoned field	*8*	Heavy partial cut	*10*	Peatland		559
Blueberry field	*0*	Deciduous forest	*21*	Wet meadow		560
Grassland	*32*	Decid./Conif. forest	*44*	Salt aquatic bed		0
Crops/Ground	*50*	Conif./Decid. forest	*246*	Salt emergent		0
Developed lands		Coniferous forest	*162*	Mudflat		*0*
Sparse residential	*17*	**Wetlands**		Sand shore		*0*
Dense residential	*2*	Deciduous forested	*26*	Gravel shore		*0*
Urban/Industrial	*0*	Coniferous forested	*58*	Rock shore		*0*
Highways/Runways	*0*	Dead-forested	*2*	Shallow water		85
Forestlands		Decid. shrub-scrub	*84*	Open water		2,863
Clearcut	*23*	Conifer. shrub-scrub	*17*	**Other**		
Early regeneration	*17*	Dead shrub-scrub	*0*	Alpine tundra		*0*
Late regeneration	*32*	Fresh aquatic bed	1	Exposed rock/Talus		*0*

For definitions of field contents see the Introduction. Items in *italics* in the table of habitat quantities show habitats not used by the species, but included in the predicted distribution because of generalization (see the Introduction for details).

BLACK TERN

CHNI

June 1998



Regional range

Predicted distribution



Maine range

MOURNING DOVE (*Zenaida macroura*)

Element code: BNPB0404

ME-GAP code: ZEMA

Order: Columbiformes

Family: Columbidae

Breeding range change: Stable

Listing status: Not listed

Migratory status: Local migrant; Resident

Game species: No

Population level: Common

Population trend: Rapid increase, due to range expansion

Heritage ranks: G5 . . S5B,S5N

Knowledge: Good

General habitats used: Mourning Doves inhabit open forests of all types, as well as forest edges, but tend to nest in open crowned conifers and pine plantations. Heavily forested areas are avoided. Doves are common in agricultural and urban areas, including orchards, farmlands, residential areas, and cities. High abundance within urban areas may be related, in part, to increased winter survival at feeding stations. Mourning Doves build nests on the ground, or in buildings, ledges, roof gutters, and trees.

Specific habitats used:

Comments: In the 1960's, this species was uncommon in Maine and today the species breeds as far north as the St. Lawrence River in Quebec. Mourning Doves, as the spelling of their name implies, were named so after their plaintive song.

Predicted habitat quantities:

MOURNING DOVE					Total in ha: 1,831,945
Habitat	**ha**	**Habitat**	**ha**	**Habitat**	**ha**
Agricultural lands		Light partial cut	46,100	Fresh emergent	*9,739*
Abandoned field	10,460	Heavy partial cut	70,993	Peatland	*3,144*
Blueberry field	8,793	Deciduous forest	*99,803*	Wet meadow	6,998
Grassland	297,738	Decid./Conif. forest	*166,726*	Salt aquatic bed	*3,061*
Crops/Ground	82,674	Conif./Decid. forest	*202,315*	Salt emergent	*1,584*
Developed lands		Coniferous forest	*74,938*	Mudflat	16,925
Sparse residential	40,084	**Wetlands**		Sand shore	1,935
Dense residential	28,321	Deciduous forested	*10,478*	Gravel shore	*197*
Urban/Industrial	1,382	Coniferous forested	*41,522*	Rock shore	*574*
Highways/Runways	531	Dead-forested	*418*	Shallow water	*2,140*
Forestlands		Decid. shrub-scrub	*19,736*	Open water	*17,229*
Clearcut	70,365	Conifer. shrub-scrub	*1,753*	**Other**	
Early regeneration	354,911	Dead shrub-scrub	*43*	Alpine tundra	*61*
Late regeneration	137,447	Fresh aquatic bed	*23*	Exposed rock/Talus	*804*

For definitions of field contents see the Introduction. Items in *italics* in the table of habitat quantities show habitats not used by the species, but included in the predicted distribution because of generalization (see the Introduction for details).

MOURNING DOVE

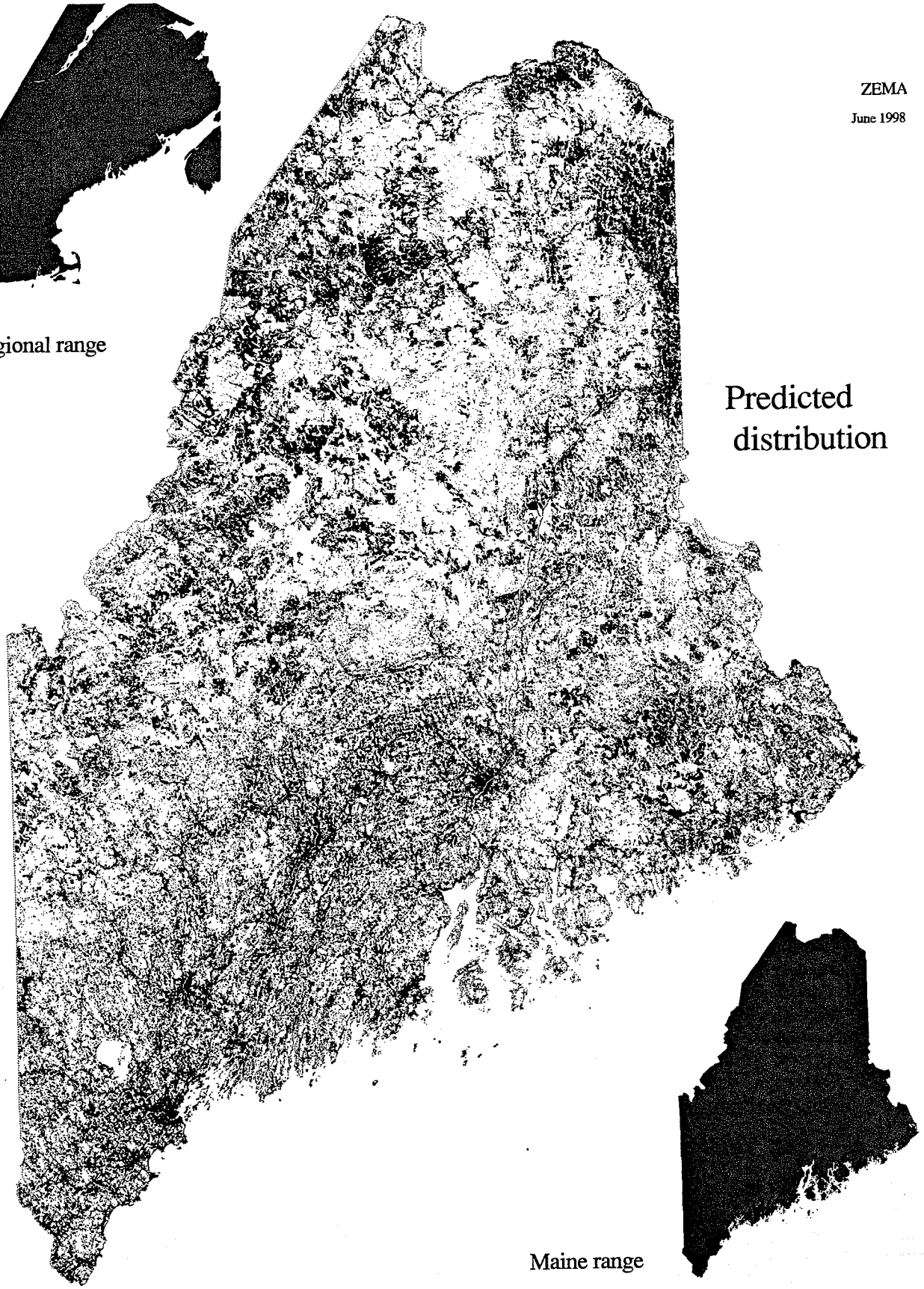
ZEMA

June 1998



Regional range

Predicted distribution



Maine range

BLACK-BILLED CUCKOO (*Coccyzus erythropthalmus*)

Element code: BNRB0201 **ME-GAP code:** COER

Order: Cuculiformes **Family:** Cuculidae

Breeding range change: Stable **Listing status**: Not listed

Migratory status: Neotropical migrant **Game species**: No

Population level: Uncommon **Population trend**: Stable, but erratic, responding to insects

Heritage ranks: G5 . . S4S5B **Knowledge**: Adequate

General habitats used: Black-billed Cuckoos inhabit open forests (more than Yellow-billed Cuckoos) and forest edges, willow groves, moist thickets, hedgerows, brushy pastures, and the edges of fields. Cuckoos will use roadside shrubby areas, clearcuts, and regenerating areas (although hardwood replacement by conifers decreases habitat quality for Black-billed Cuckoos). Cuckoos nest in shrubs or low in trees. Cuckoo populations tend to vary in response to tent caterpillar densities.

Specific habitats used:

Comments:

Predicted habitat quantities:

BLACK-BILLED CUCKOO					Total in ha: 6,966,064
Habitat	**ha**	**Habitat**	**ha**	**Habitat**	**ha**
Agricultural lands		Light partial cut	104,222	Fresh emergent	*36,561*
Abandoned field	17,026	Heavy partial cut	140,326	Peatland	*10,100*
Blueberry field	11,869	Deciduous forest	1,238,189	Wet meadow	*7,531*
Grassland	407,053	Decid./Conif. forest	1,260,387	Salt aquatic bed	*2,961*
Crops/Ground	*48,827*	Conif./Decid. forest	1,645,188	Salt emergent	*1,087*
Developed lands		Coniferous forest	709,090	Mudflat	*1,443*
Sparse residential	*40,762*	**Wetlands**		Sand shore	*297*
Dense residential	*9,533*	Deciduous forested	*37,557*	Gravel shore	*572*
Urban/Industrial	*265*	Coniferous forested	*178,506*	Rock shore	*1,582*
Highways/Runways	365	Dead-forested	*1,488*	Shallow water	*7,697*
Forestlands		Decid. shrub-scrub	105,554	Open water	*56,181*
Clearcut	111,787	Conifer. shrub-scrub	11,532	**Other**	
Early regeneration	492,751	Dead shrub-scrub	100	Alpine tundra	*441*
Late regeneration	266,111	Fresh aquatic bed	*60*	Exposed rock/Talus	*1,064*

For definitions of field contents see the Introduction. Items in *italics* in the table of habitat quantities show habitats not used by the species, but included in the predicted distribution because of generalization (see the Introduction for details).

BLACK-BILLED CUCKOO

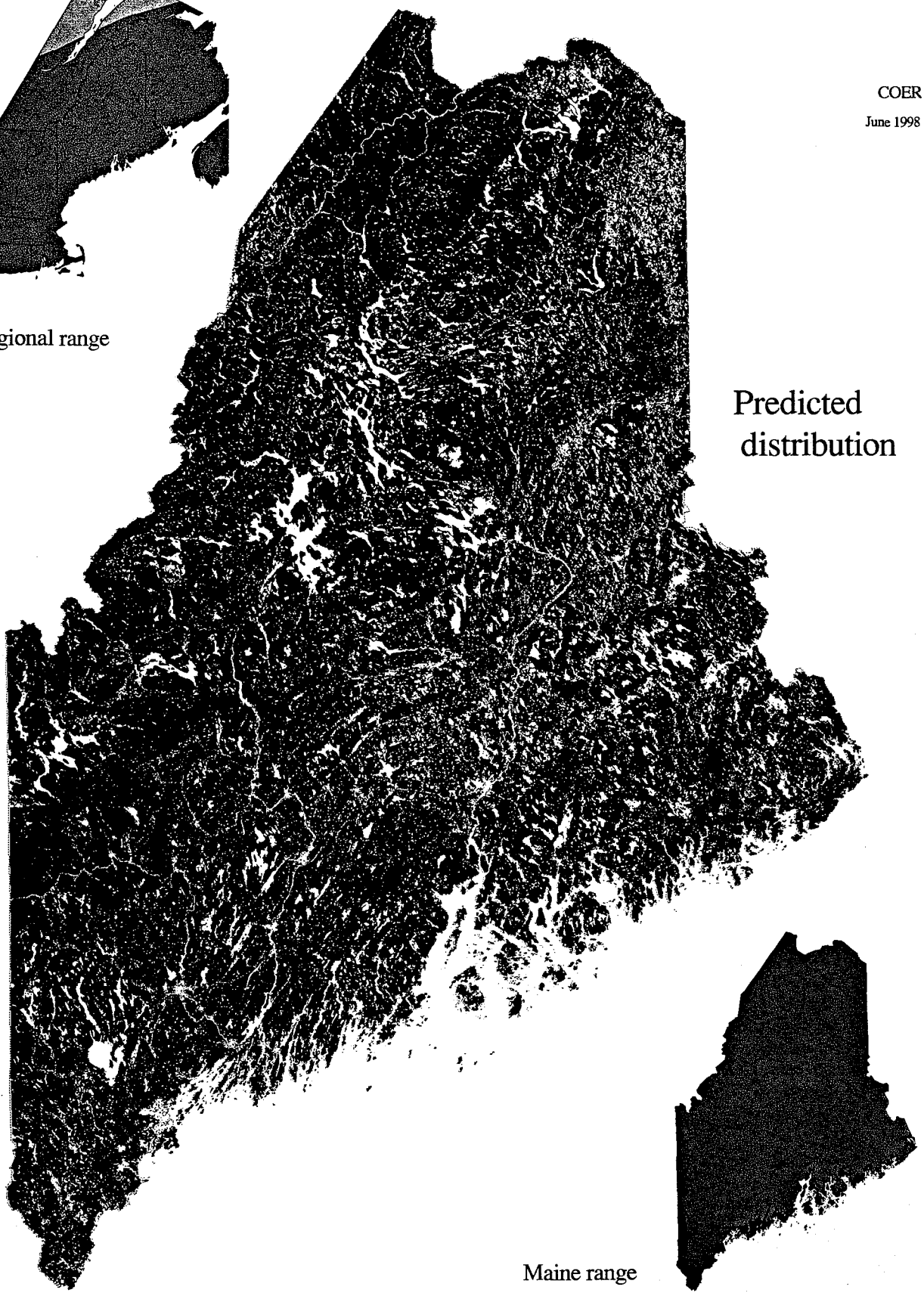
COER

June 1998



Regional range

Predicted distribution



Maine range

YELLOW-BILLED CUCKOO (*Coccyzus americanus*)

Element code: BNRB0202 **ME-GAP code:** COAM

Order: Cuculiformes **Family:** Cuculidae

Breeding range change: Unknown **Listing status**: Not listed

Migratory status: Neotropical migrant **Game species**: No

Population level: Uncommon **Population trend**: Stable, but erratic, responding to insects

Heritage ranks: G5 . . S3?B **Knowledge**: Adequate

General habitats used: Yellow-billed Cuckoos occur in dense, low, brushy vegetation. Cuckoos will occur in open woods, shrublands, brushy fields, and streamsides with dense shrubs. Modified habitats, such as clearcuts, regenerating areas, abandoned orchards, pastures, roadsides, and residential areas are used. Nests are constructed in dense vegetation, low in small trees or shrubs. Cuckoo populations can vary depending upon tent caterpillar densities.

Specific habitats used:

Comments:

Predicted habitat quantities:

YELLOW-BILLED CUCKOO					Total in ha: 1,169,750
Habitat	**ha**	**Habitat**	**ha**	**Habitat**	**ha**
Agricultural lands		Light partial cut	22,663	Fresh emergent	*2,641*
Abandoned field	10,677	Heavy partial cut	20,569	Peatland	*512*
Blueberry field	11,724	Deciduous forest	234,465	Wet meadow	*539*
Grassland	226,881	Decid./Conif. forest	308,351	Salt aquatic bed	*761*
Crops/Ground	*6,576*	Conif./Decid. forest	*70,722*	Salt emergent	*510*
Developed lands		Coniferous forest	*11,581*	Mudflat	*571*
Sparse residential	30,160	**Wetlands**		Sand shore	*119*
Dense residential	21,693	Deciduous forested	*4,958*	Gravel shore	*23*
Urban/Industrial	*326*	Coniferous forested	*4,220*	Rock shore	*217*
Highways/Runways	*141*	Dead-forested	*90*	Shallow water	*612*
Forestlands		Decid. shrub-scrub	33,577	Open water	*2,743*
Clearcut	27,246	Conifer. shrub-scrub	*407*	**Other**	
Early regeneration	58,146	Dead shrub-scrub	25	Alpine tundra	*0*
Late regeneration	54,793	Fresh aquatic bed	*7*	Exposed rock/Talus	*501*

For definitions of field contents see the Introduction. Items in *italics* in the table of habitat quantities show habitats not used by the species, but included in the predicted distribution because of generalization (see the Introduction for details).

YELLOW-BILLED CUCKOO

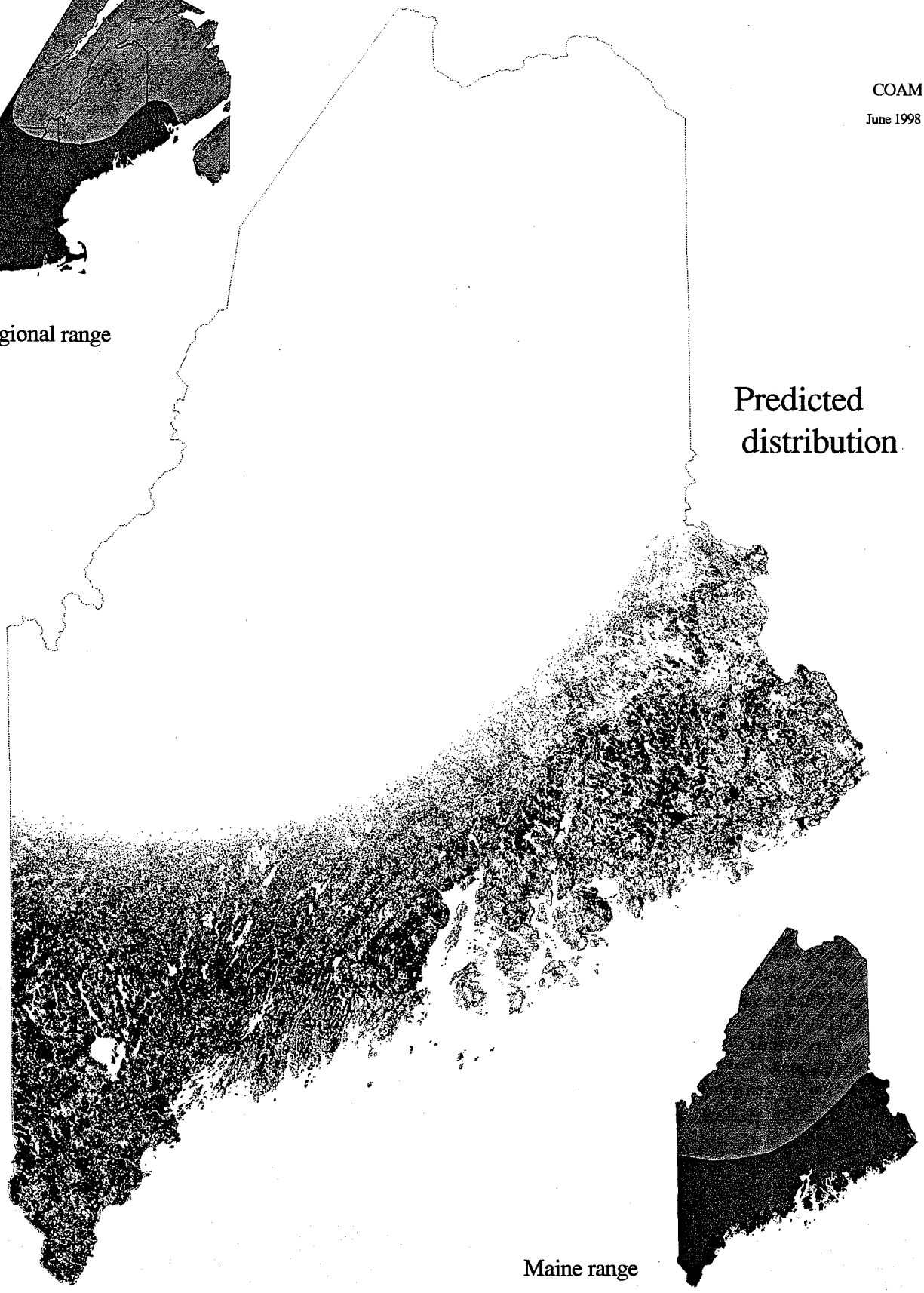
COAM

June 1998



Regional range

Predicted distribution



Maine range

GREAT HORNED OWL (*Bubo virginianus*)

Element code: BNSB0501

ME-GAP code: BUVI

Order: Strigiformes

Family: Strigidae

Breeding range change: Stable

Listing status: Not listed

Migratory status: Resident

Game species: No

Population level: Common

Population trend: Stable, but not well surveyed

Heritage ranks: G5 . . S5

Knowledge: Adequate

General habitats used: Great Horned Owls are most common in large forests of mixed hardwoods (e.g., beech and sugar maple, with scattered hemlock) that are near farmlands. Forests that are far from human populated areas are selected. Forested wetlands near rivers or ponds are used. Great Horned Owls will nest in large cavities, but they are not required; these owls will nest in abandoned open nests of other species (i.e., crows, hawks).

Specific habitats used:

Comments: One of the first species to nest in Maine each year.

Predicted habitat quantities:

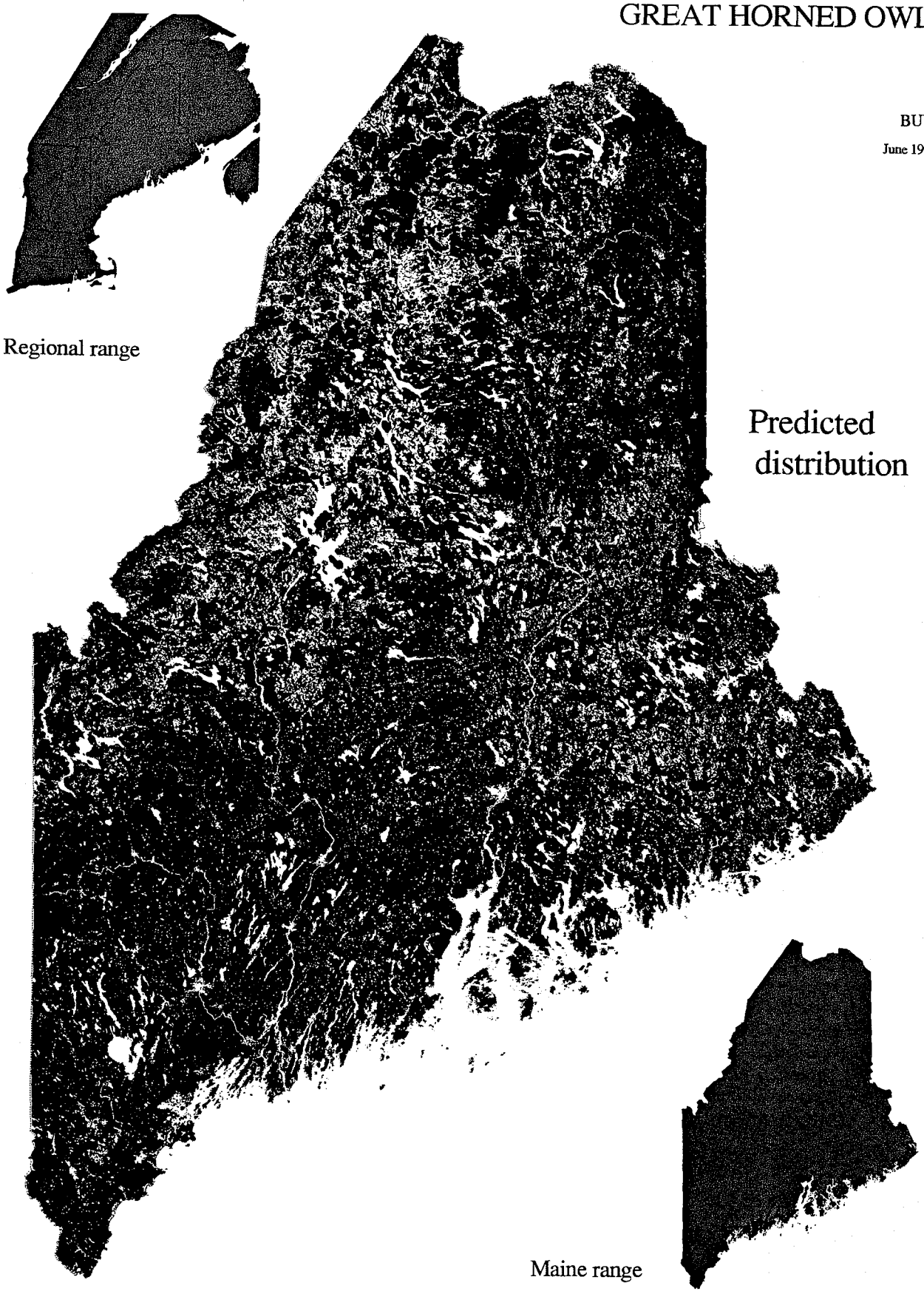
GREAT HORNED OWL					Total in ha: 6,933,025
Habitat	**ha**	**Habitat**	**ha**	**Habitat**	**ha**
Agricultural lands		Light partial cut	93,170	Fresh emergent	*40,894*
Abandoned field	16,985	Heavy partial cut	126,449	Peatland	*17,433*
Blueberry field	11,221	Deciduous forest	1,231,066	Wet meadow	13,400
Grassland	432,628	Decid./Conif. forest	1,251,889	Salt aquatic bed	*6,465*
Crops/Ground	99,746	Conif./Decid. forest	1,654,147	Salt emergent	*2,890*
Developed lands		Coniferous forest	726,699	Mudflat	18,892
Sparse residential	58,546	**Wetlands**		Sand shore	2,291
Dense residential	*11,517*	Deciduous forested	65,335	Gravel shore	2,613
Urban/Industrial	*370*	Coniferous forested	344,580	Rock shore	3,519
Highways/Runways	539	Dead-forested	2,368	Shallow water	*8,618*
Forestlands		Decid. shrub-scrub	116,619	Open water	*70,242*
Clearcut	103,635	Conifer. shrub-scrub	13,439	**Other**	
Early regeneration	*212,370*	Dead shrub-scrub	96	Alpine tundra	*400*
Late regeneration	*170,780*	Fresh aquatic bed	*73*	Exposed rock/Talus	*1,098*

For definitions of field contents see the Introduction. Items in *italics* in the table of habitat quantities show habitats not used by the species, but included in the predicted distribution because of generalization (see the Introduction for details).

GREAT HORNED OWL

BUVI

June 1998



BARRED OWL (*Strix varia*)

Element code: BNSB1202

ME-GAP code: STVA

Order: Strigiformes

Family: Strigidae

Breeding range change: Stable

Listing status: Not listed

Migratory status: Resident

Game species: No

Population level: Uncommon

Population trend: Unknown; not well surveyed

Heritage ranks: G5 . . S5

Knowledge: Adequate

General habitats used: Barred Owls are most common in extensive, wet, older (> 80 years), densely forested areas. These owls occur in forested swamps, densely forested stream and pond margins, selecting mixed and oak forests for foraging and nesting, and mixed and coniferous forests for roosting. Barred Owls hunt for small mammals in open areas such as fields, clearcuts, and pastures. These owls nest in tree cavities (occasionally in abandoned nests of other birds or squirrels) and may be limited by cavity densities.

Specific habitats used: Barred Owls regularly uses large (≥ 50 cm dbh) tree cavities for nesting.

Comments: Barred owls have a famous call among bird watchers. It calls repeatedly, "Who cooks for you, who cooks for you all?"

Predicted habitat quantities:

BARRED OWL					Total in ha: 6,738,618
Habitat	**ha**	**Habitat**	**ha**	**Habitat**	**ha**
Agricultural lands		Light partial cut	92,244	Fresh emergent	*39,476*
Abandoned field	16,232	Heavy partial cut	124,546	Peatland	42,414
Blueberry field	*5,401*	Deciduous forest	1,224,411	Wet meadow	*7,909*
Grassland	404,650	Decid./Conif. forest	1,237,486	Salt aquatic bed	*5,482*
Crops/Ground	*45,912*	Conif./Decid. forest	1,625,811	Salt emergent	*2,695*
Developed lands		Coniferous forest	711,498	Mudflat	18,430
Sparse residential	*37,662*	**Wetlands**		Sand shore	2,175
Dense residential	*9,667*	Deciduous forested	63,632	Gravel shore	*626*
Urban/Industrial	*302*	Coniferous forested	344,828	Rock shore	*1,795*
Highways/Runways	*271*	Dead-forested	2,247	Shallow water	*8,298*
Forestlands		Decid. shrub-scrub	115,276	Open water	*62,752*
Clearcut	101,258	Conifer. shrub-scrub	13,329	**Other**	
Early regeneration	*203,355*	Dead shrub-scrub	100	Alpine tundra	*386*
Late regeneration	*164,958*	Fresh aquatic bed	*66*	Exposed rock/Talus	*1,041*

For definitions of field contents see the Introduction. Items in *italics* in the table of habitat quantities show habitats not used by the species, but included in the predicted distribution because of generalization (see the Introduction for details).

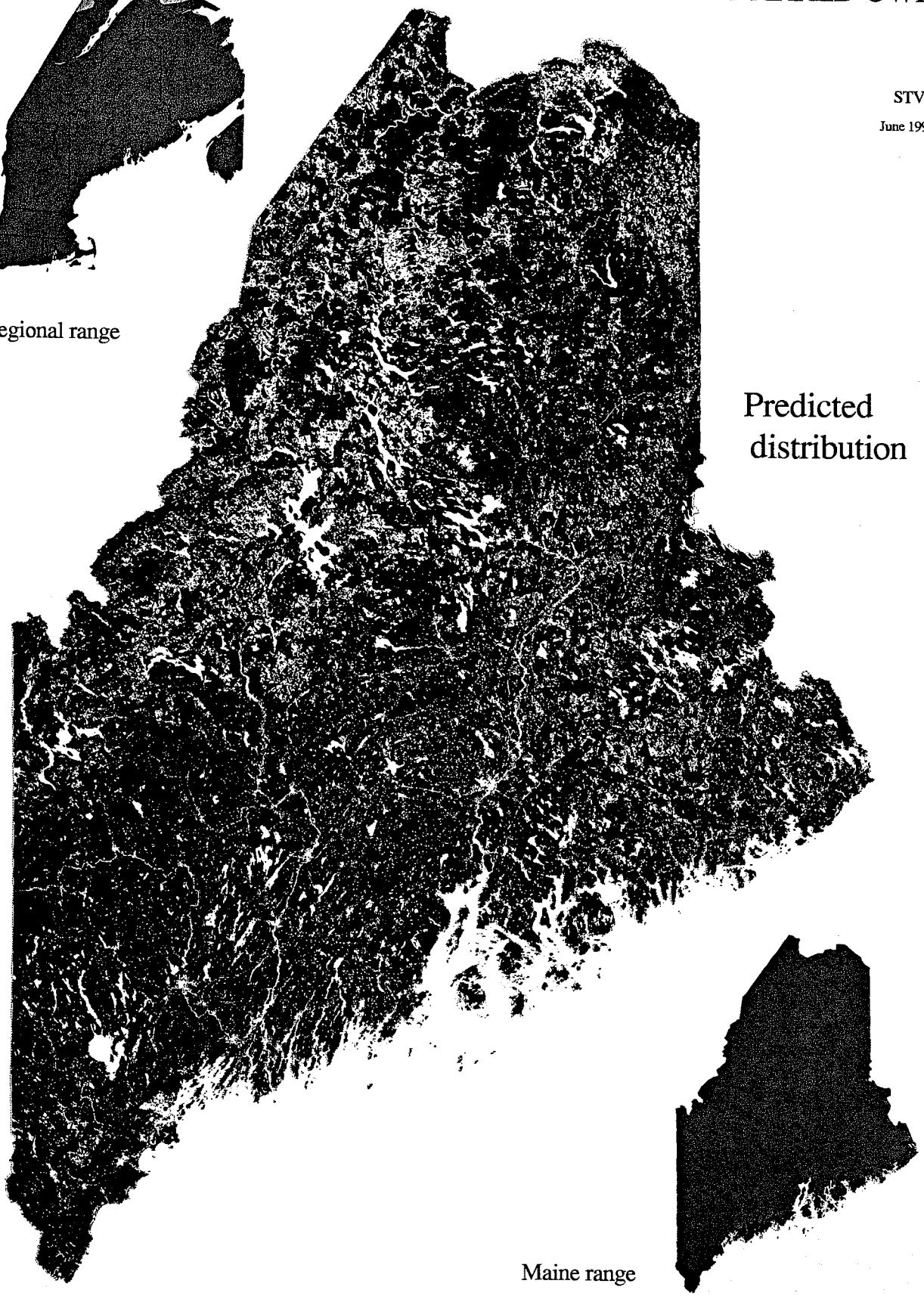
BARRED OWL

STVA

June 1998



Regional range



Predicted distribution

Maine range

LONG-EARED OWL (*Asio otus*)

Element code: BNSB1301 **ME-GAP code:** ASOT

Order: Strigiformes **Family:** Strigidae

Breeding range change: Stable **Listing status**: Not listed

Migratory status: Resident; Local migrant **Game species**: No

Population level: Uncommon **Population trend**: Stable, but not well surveyed

Heritage ranks: G5 . . S1S3B,SZN **Knowledge**: Best guess

General habitats used: Long-eared Owls inhabit a variety of forested areas, including large or small, dense or open, conifer or deciduous stands. That said, these owls are more common in coniferous habitats (pines, cedars, conifer plantations) than deciduous. Long-eared Owls forage in open areas, such as fields, parks, and grassy meadows. These owls nest in dense vegetation, often in abandoned nests of other species.

Specific habitats used:

Comments: Long-eared owls are not usually included in regular surveys conducted , so we know little about their distribution in Maine.

Predicted habitat quantities:

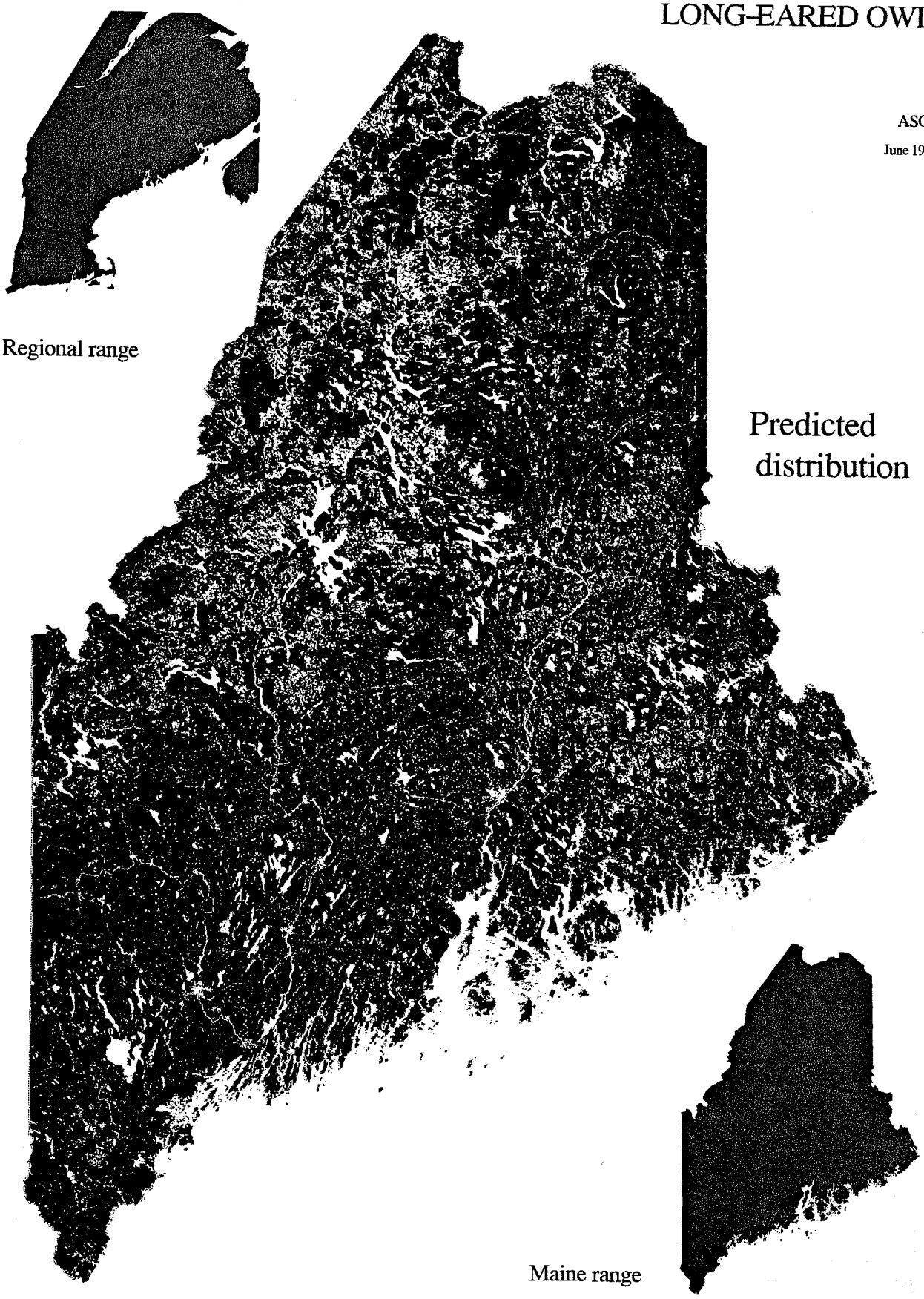
LONG-EARED OWL					Total in ha: 6,815,831
Habitat	ha	Habitat	ha	Habitat	ha
Agricultural lands		Light partial cut	93,480	Fresh emergent	*40,552*
Abandoned field	16,322	Heavy partial cut	124,634	Peatland	42,805
Blueberry field	11,003	Deciduous forest	1,223,366	Wet meadow	13,387
Grassland	419,330	Decid./Conif. forest	1,234,647	Salt aquatic bed	*2,989*
Crops/Ground	96,535	Conif./Decid. forest	1,629,212	Salt emergent	*1,139*
Developed lands		Coniferous forest	720,572	Mudflat	2,091
Sparse residential	*40,298*	**Wetlands**		Sand shore	410
Dense residential	*10,508*	Deciduous forested	64,286	Gravel shore	*582*
Urban/Industrial	*312*	Coniferous forested	347,360	Rock shore	*1,528*
Highways/Runways	425	Dead-forested	2,324	Shallow water	*8,648*
Forestlands		Decid. shrub-scrub	116,543	Open water	*59,791*
Clearcut	102,440	Conifer. shrub-scrub	13,546	**Other**	
Early regeneration	*207,385*	Dead shrub-scrub	97	Alpine tundra	*397*
Late regeneration	*165,779*	Fresh aquatic bed	*71*	Exposed rock/Talus	*1,036*

For definitions of field contents see the Introduction. Items in *italics* in the table of habitat quantities show habitats not used by the species, but included in the predicted distribution because of generalization (see the Introduction for details).

LONG-EARED OWL

ASOT

June 1998



SHORT-EARED OWL (*Asio flammeus*)

Element code: BNSB1304

ME-GAP code: ASFL

Order: Strigiformes

Family: Strigidae

Breeding range change: Unknown

Listing status: Not listed

Migratory status: Resident; Local migrant

Game species: No

Population level: Uncommon

Population trend: Stable, but not well surveyed, erratic

Heritage ranks: G5 . . S1BS1N

Knowledge: Best guess

General habitats used: Short-eared Owls inhabit open grassy and barren areas, such as meadows, marshes (fresh or salt), pastures, dunes, and tundra. Sites near water may be selected by these owls. Large open grassy fields with some cover and high densities of small mammalian prey (mainly voles) are good Short-eared Owl habitats. Short-eared Owls nest on the ground, and areas that lack mammalian predators (offshore island) are selected.

Specific habitats used:

Comments: Short-eared Owl populations tend to fluctuate, increasing in years when there are many voles available for food. These owls are rarely included in regular surveys, so little is known about their distribution in Maine.

Predicted habitat quantities:

SHORT-EARED OWL					Total in ha: 514,531
Habitat	**ha**	**Habitat**	**ha**	**Habitat**	**ha**
Agricultural lands		Light partial cut	*1,990*	Fresh emergent	36,611
Abandoned field	8,772	Heavy partial cut	*2,990*	Peatland	35,614
Blueberry field	*859*	Deciduous forest	*5,427*	Wet meadow	8,950
Grassland	130,845	Decid./Conif. forest	*9,889*	Salt aquatic bed	*289*
Crops/Ground	68,206	Conif./Decid. forest	*18,773*	Salt emergent	468
Developed lands		Coniferous forest	*8,068*	Mudflat	1,526
Sparse residential	*4,738*	**Wetlands**		Sand shore	395
Dense residential	*618*	Deciduous forested	*1,736*	Gravel shore	2,512
Urban/Industrial	*0*	Coniferous forested	*10,255*	Rock shore	2,837
Highways/Runways	176	Dead-forested	*74*	Shallow water	*733*
Forestlands		Decid. shrub-scrub	72,035	Open water	*3,646*
Clearcut	52,904	Conifer. shrub-scrub	8,066	**Other**	
Early regeneration	*9,395*	Dead shrub-scrub	16	Alpine tundra	1,776
Late regeneration	*3,257*	Fresh aquatic bed	*5*	Exposed rock/Talus	*82*

For definitions of field contents see the Introduction. Items in *italics* in the table of habitat quantities show habitats not used by the species, but included in the predicted distribution because of generalization (see the Introduction for details).

SHORT-EARED OWL

ASFL

June 1998



Regional range

Predicted distribution



Maine range

NORTHERN SAW-WHET OWL (*Aegolius acadicus*)

Element code: BNSB1502

ME-GAP code: AEAC

Order: Strigiformes

Family: Strigidae

Breeding range change: Stable

Listing status: Not listed

Migratory status: Resident

Game species: No

Population level: Uncommon

Population trend: Stable, but not well surveyed

Heritage ranks: G5 . . S4S5N,S5B

Knowledge: Adequate

General habitats used: Northern Saw-whet Owls use a variety of habitats, but may be classed a species of moist woods. These owls are most common in damp, dense mixed and conifer stands, young thickets of hemlocks and red cedar, bogs, and densely wooded margins of streams and ponds. Altered habitats like residential yards, cemeteries, and clearcuts are favored. Mature mixed stands with snags are used for nesting. Northern Saw-whet Owls nest in cavities, and will use nest boxes.

Specific habitats used: Northern Saw-whet Owls require cavities within trees that are > 30 diameter at breast height for breeding. Nest boxes can provide alternative sites.

Comments: Northern Saw-Whet owls are named for the sound of their call -- like a sawyer sharpening a blade.

Predicted habitat quantities:

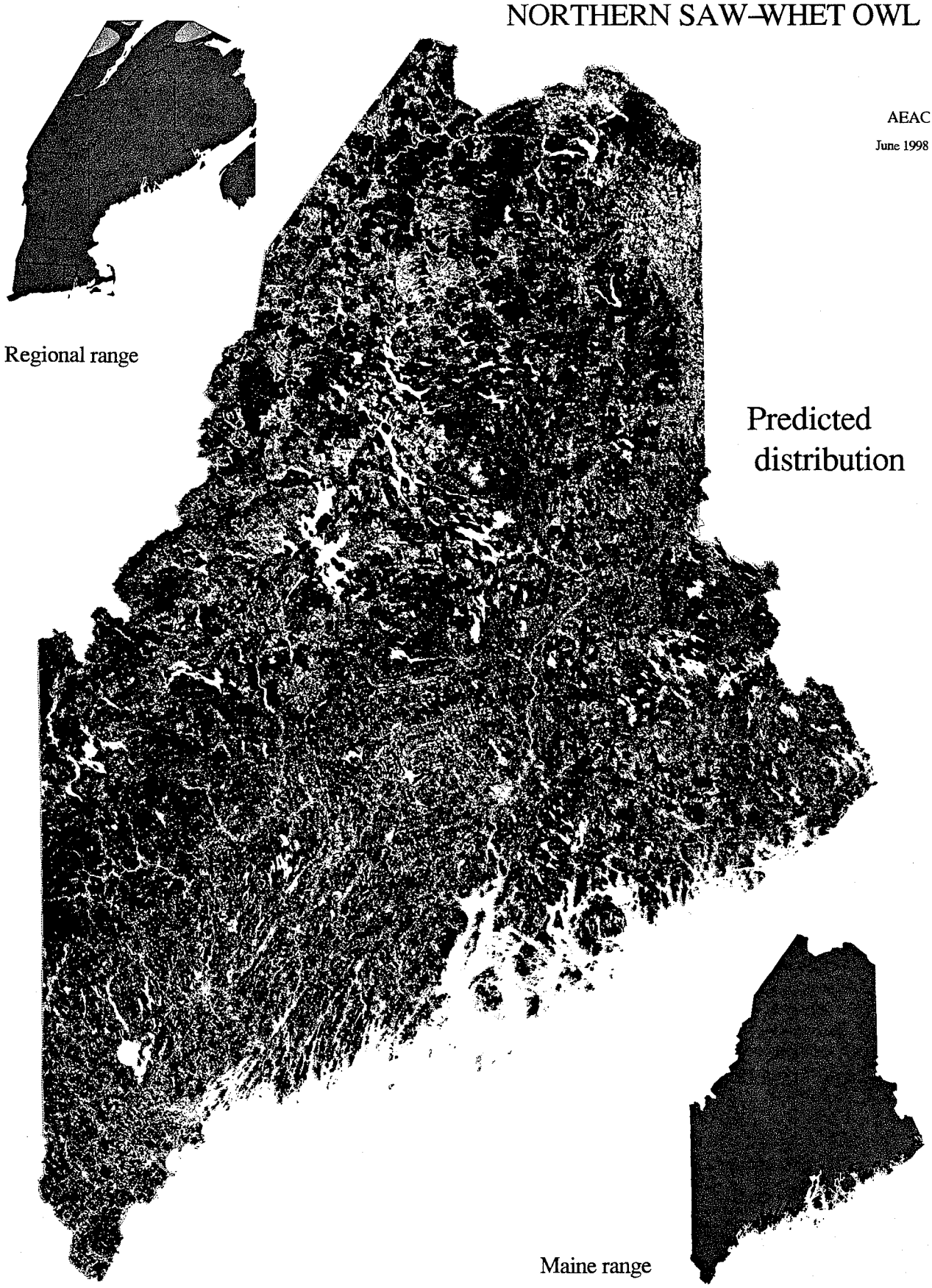
NORTHERN SAW-WHET OWL					Total in ha: 6,291,624
Habitat	**ha**	**Habitat**	**ha**	**Habitat**	**ha**
Agricultural lands		Light partial cut	90,244	Fresh emergent	*37,510*
Abandoned field	14,406	Heavy partial cut	120,284	Peatland	42,068
Blueberry field	*4,765*	Deciduous forest	1,180,083	Wet meadow	*7,535*
Grassland	*173,409*	Decid./Conif. forest	1,183,435	Salt aquatic bed	*2,761*
Crops/Ground	*30,394*	Conif./Decid. forest	1,593,860	Salt emergent	*970*
Developed lands		Coniferous forest	712,541	Mudflat	1,893
Sparse residential	44,594	**Wetlands**		Sand shore	365
Dense residential	*6,308*	Deciduous forested	59,898	Gravel shore	*571*
Urban/Industrial	*134*	Coniferous forested	342,922	Rock shore	*1,443*
Highways/Runways	*319*	Dead-forested	2,205	Shallow water	*7,924*
Forestlands		Decid. shrub-scrub	109,927	Open water	*55,555*
Clearcut	96,665	Conifer. shrub-scrub	12,824	**Other**	
Early regeneration	*193,715*	Dead shrub-scrub	74	Alpine tundra	*386*
Late regeneration	*158,951*	Fresh aquatic bed	*52*	Exposed rock/Talus	*634*

For definitions of field contents see the Introduction. Items in *italics* in the table of habitat quantities show habitats not used by the species, but included in the predicted distribution because of generalization (see the Introduction for details).

NORTHERN SAW-WHET OWL

AEAC

June 1998



COMMON NIGHTHAWK (*Chordeiles minor*)

Element code: BNTA0202

ME-GAP code: CHMI

Order: Caprimulgiformes

Family: Caprimulgidae

Breeding range change: Stable

Listing status: Not listed

Migratory status: Neotropical migrant

Game species: No

Population level: Uncommon

Population trend: Stable, perhaps gradually decreasing

Heritage ranks: G5 . . S4B

Knowledge: Adequate

General habitats used: Common Nighthawks inhabit open areas, such as meadows, burns, plowed fields, clearcuts, railroad right-of-ways, and gravelly or rocky barrenlands. As a species that feeds by aerial screening, many types of habitats may be used in feeding. Still, non-forested areas are selected. Common Nighthawks nest in open habitats with gravel (like gravel pits) or bare ground. In urban areas, Common Nighthawks nest on flat, gravel roofs, selecting roofs with parapets. As such roofs become less available, and rubber roof liners being more commonly used in new construction, flat-roofs are not used by nighthawks.

Specific habitats used:

Comments: Common Nighthawk populations may be gradually decreasing from losses of nest sites. These birds regularly "Stoop", where they fly very high, and drop quickly toward the ground. As they pull up ending their aerial breeding display, their wings make a loud buzz.

Predicted habitat quantities:

COMMON NIGHTHAWK					**Total in ha:** 2,159,506
Habitat	**ha**	**Habitat**	**ha**	**Habitat**	**ha**
Agricultural lands		Light partial cut	*20,992*	Fresh emergent	38,270
Abandoned field	10,259	Heavy partial cut	63,235	Peatland	31,928
Blueberry field	9,134	Deciduous forest	*91,711*	Wet meadow	10,448
Grassland	299,669	Decid./Conif. forest	*149,635*	Salt aquatic bed	2,330
Crops/Ground	81,666	Conif./Decid. forest	*193,905*	Salt emergent	671
Developed lands		Coniferous forest	*83,358*	Mudflat	1,435
Sparse residential	40,183	**Wetlands**		Sand shore	307
Dense residential	29,048	Deciduous forested	*15,550*	Gravel shore	2,971
Urban/Industrial	1,414	Coniferous forested	*61,963*	Rock shore	2,894
Highways/Runways	552	Dead-forested	*555*	Shallow water	7,470
Forestlands		Decid. shrub-scrub	74,441	Open water	366,647
Clearcut	67,380	Conifer. shrub-scrub	9,004	**Other**	
Early regeneration	324,808	Dead shrub-scrub	70	Alpine tundra	1,671
Late regeneration	*60,040*	Fresh aquatic bed	79	Exposed rock/Talus	3,811

For definitions of field contents see the Introduction. Items in *italics* in the table of habitat quantities show habitats not used by the species, but included in the predicted distribution because of generalization (see the Introduction for details).

COMMON NIGHTHAWK

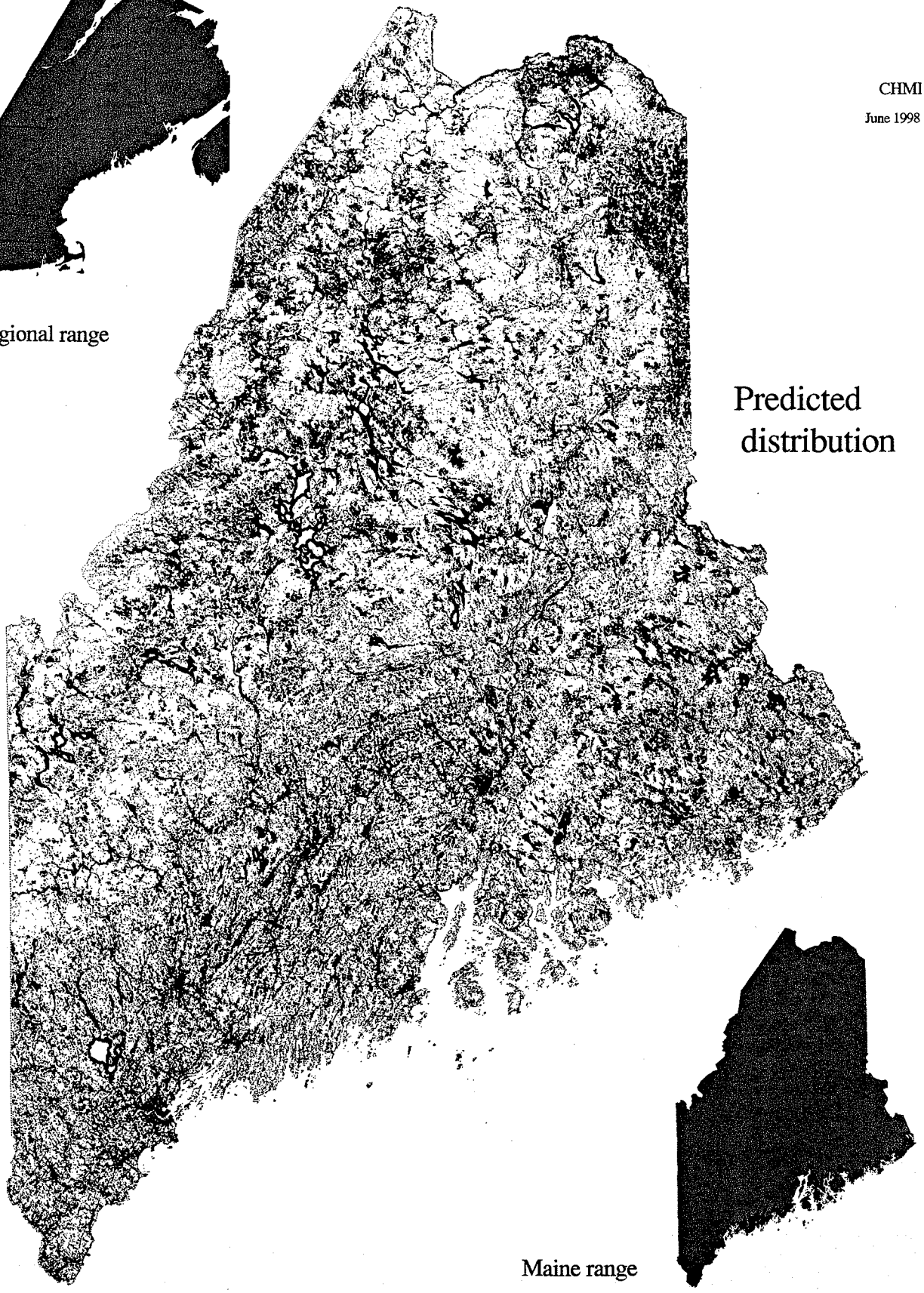
CHMI

June 1998



Regional range

Predicted distribution



Maine range

WHIP-POOR-WILL (*Caprimulgus vociferus*)

Element code: BNTA0707 **ME-GAP code:** CAVO

Order: Caprimulgiformes **Family:** Caprimulgidae

Breeding range change: Unknown **Listing status:** Not listed

Migratory status: US and Neotropical migrant **Game species:** No

Population level: Uncommon **Population trend:** Declining or Stable

Heritage ranks: G5 . . S3B **Knowledge:** Best guess

General habitats used: Whip-poor-wills inhabit open deciduous and mixed forests interspersed with pastures, abandoned fields, burns, or meadows. As aerial feeders, they will feed over a variety of habitats. Open forest stands with beech, oak, and pine are favored. Mature or grazed woodlands are avoided. Whip-poor-wills nest in open areas, or in bushes on forest edges.

Specific habitats used:

Comments: These birds roost on roads, and are often struck by vehicles. Pesticide use and "Bug Zappers" may be reducing populations of large moths, a primary food source of Whip-poor-wills, leading to declining bird populations.

Predicted habitat quantities:

WHIP-POOR-WILL					Total in ha: 2,289,981
Habitat	**ha**	**Habitat**	**ha**	**Habitat**	**ha**
Agricultural lands		Light partial cut	*22,165*	Fresh emergent	41,295
Abandoned field	11,086	Heavy partial cut	56,397	Peatland	35,533
Blueberry field	9,655	Deciduous forest	*99,208*	Wet meadow	11,226
Grassland	276,035	Decid./Conif. forest	*160,346*	Salt aquatic bed	2,282
Crops/Ground	45,063	Conif./Decid. forest	*254,044*	Salt emergent	671
Developed lands		Coniferous forest	*114,097*	Mudflat	1,354
Sparse residential	*22,887*	**Wetlands**		Sand shore	282
Dense residential	*7,055*	Deciduous forested	41,940	Gravel shore	2,769
Urban/Industrial	*318*	Coniferous forested	207,491	Rock shore	2,938
Highways/Runways	310	Dead-forested	1,317	Shallow water	7,648
Forestlands		Decid. shrub-scrub	82,123	Open water	342,674
Clearcut	62,874	Conifer. shrub-scrub	10,500	**Other**	
Early regeneration	245,461	Dead shrub-scrub	78	Alpine tundra	*66*
Late regeneration	110,064	Fresh aquatic bed	82	Exposed rock/Talus	*646*

For definitions of field contents see the Introduction. Items in *italics* in the table of habitat quantities show habitats not used by the species, but included in the predicted distribution because of generalization (see the Introduction for details).

WHIP-POOR-WILL

CAVO

June 1998



Regional range

Predicted distribution





Maine range

CHIMNEY SWIFT (*Chaetura pelagica*)

Element code: BNUA0301 **ME-GAP code:** CHPE

Order: Apodiformes **Family:** Apodidae

Breeding range change: Stable **Listing status**: Not listed

Migratory status: Neotropical migrant **Game species**: No

Population level: Common **Population trend**: Moderate decline, due to harvests, pesticides

Heritage ranks: G5 . . S5B **Knowledge**: Adequate

General habitats used: Chimney Swift are most common within urban habitats, including residential areas, commercial sites, parks, golf courses, and cemeteries. Swifts also will occur in agricultural areas. Swifts originally nested in mature, hollow trees, but now almost all swifts nest in building, chimneys, abandoned wells, and caves.

Specific habitats used: Structures with openings are required by nesting Chimney Swifts.

Comments: Cutting of mature trees, pesticide use and the building of narrower chimneys may be leading to decreasing populations.

Predicted habitat quantities:

CHIMNEY SWIFT					Total in ha: 2,089,561
Habitat	**ha**	**Habitat**	**ha**	**Habitat**	**ha**
Agricultural lands		Light partial cut	*15,470*	Fresh emergent	42,958
Abandoned field	10,208	Heavy partial cut	53,712	Peatland	39,155
Blueberry field	8,408	Deciduous forest	*79,378*	Wet meadow	11,154
Grassland	298,844	Decid./Conif. forest	*132,714*	Salt aquatic bed	2,340
Crops/Ground	79,985	Conif./Decid. forest	*215,741*	Salt emergent	707
Developed lands		Coniferous forest	*105,511*	Mudflat	1,422
Sparse residential	38,626	**Wetlands**		Sand shore	309
Dense residential	29,154	Deciduous forested	42,324	Gravel shore	3,001
Urban/Industrial	1,420	Coniferous forested	230,212	Rock shore	2,874
Highways/Runways	576	Dead-forested	1,387	Shallow water	8,034
Forestlands		Decid. shrub-scrub	85,116	Open water	368,373
Clearcut	60,656	Conifer. shrub-scrub	10,796	**Other**	
Early regeneration	*70,097*	Dead shrub-scrub	70	Alpine tundra	1,469
Late regeneration	*36,320*	Fresh aquatic bed	86	Exposed rock/Talus	*956*

For definitions of field contents see the Introd ıction. Items in *italics* in the table of habitat quantities show habitats not used by the species, but included in the predicted distribution because of generalization (see the Introduction for details).

CHIMNEY SWIFT

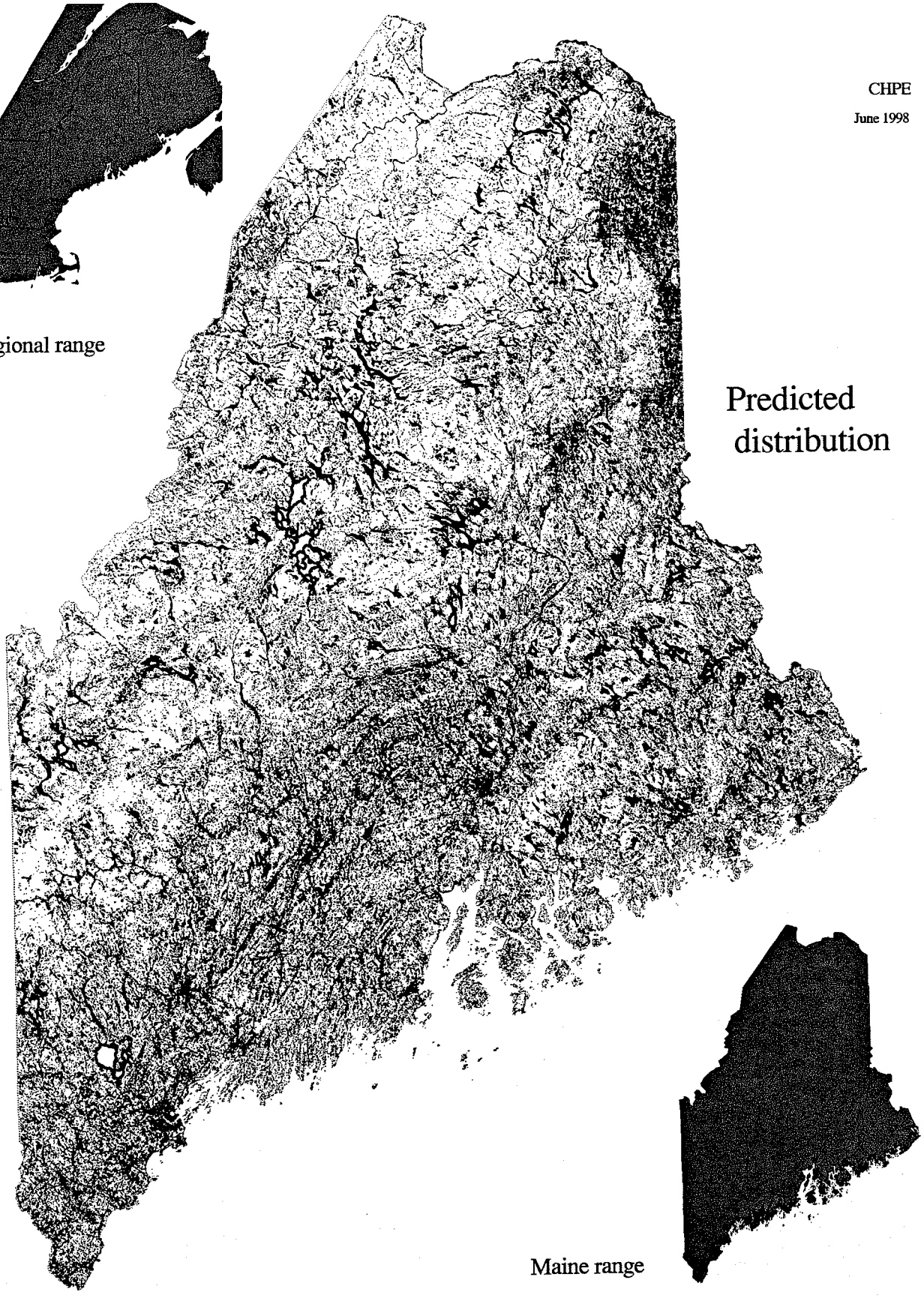
CHPE

June 1998



Regional range

Predicted distribution



Maine range

RUBY-THROATED HUMMINGBIRD (*Archilochus colubris*)

Element code: BNUC4501 **ME-GAP code:** ARCO

Order: Apodiformes **Family:** Trochilidae

Breeding range change: Stable **Listing status**: Not listed

Migratory status: Neotropical migrant **Game species**: No

Population level: Common **Population trend**: Stable

Heritage ranks: G5 . . S5B **Knowledge**: Adequate

General habitats used: Ruby-throated Hummingbirds tend to occur anywhere there are abundant flowers (usually red), including urban areas (e.g., residential areas, parks, golf courses), orchards, open woodlands, clearcuts, and wetlands. Nests are placed in shrubs or trees, often near streams or wetlands. Ruby-throated Hummingbirds are absent from industrial areas and densely forested areas.

Specific habitats used:

Comments: Ruby-throated Hummingbirds are the smallest bird in Maine, weighing in at about 3 grams -- about the weight of an old copper penny.

Predicted habitat quantities:

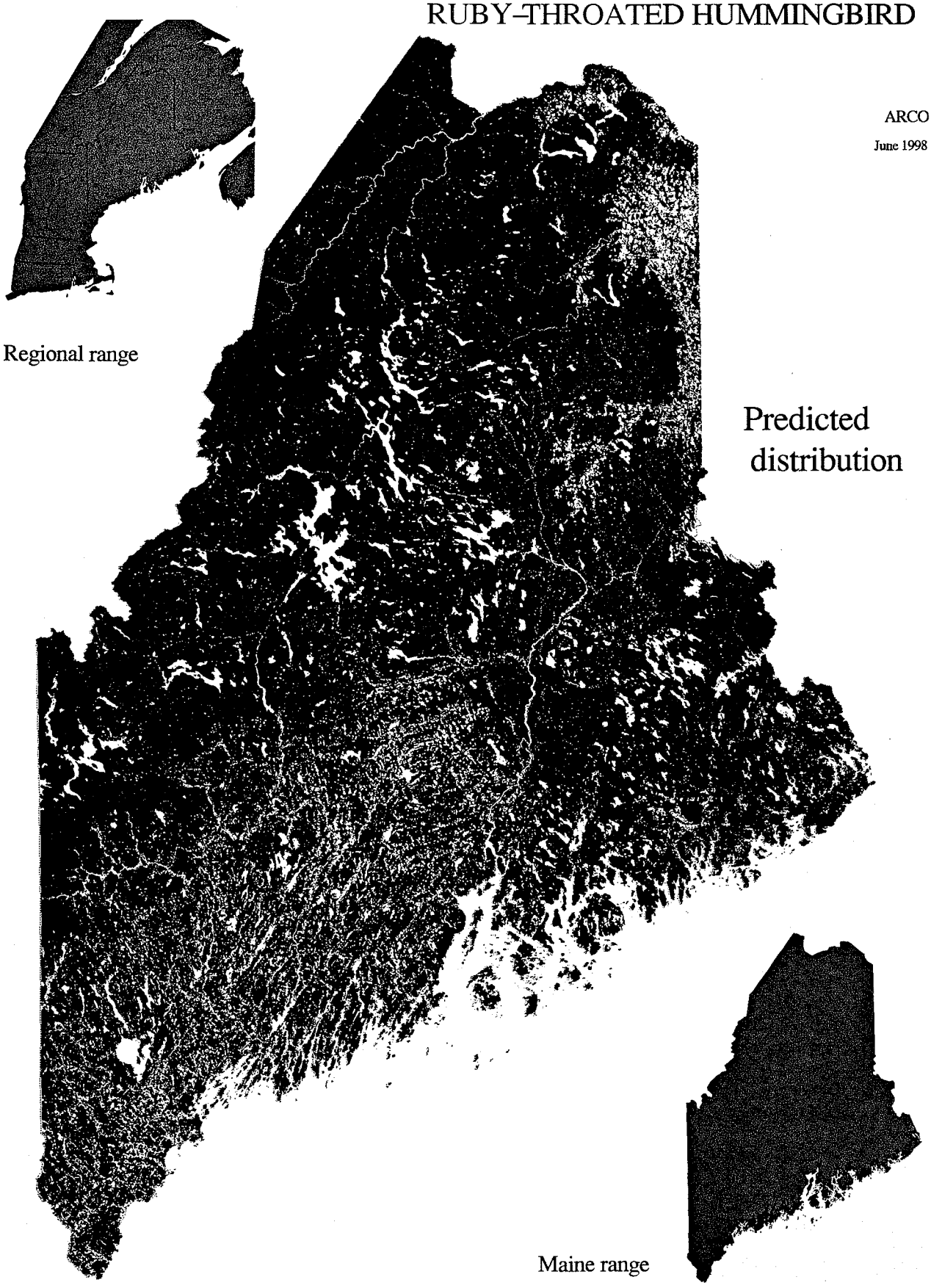
RUBY-THROATED HUMMINGBIRD					Total in ha: 7,183,610
Habitat	**ha**	**Habitat**	**ha**	**Habitat**	**ha**
Agricultural lands		Light partial cut	106,669	Fresh emergent	64,252
Abandoned field	16,247	Heavy partial cut	142,235	Peatland	44,436
Blueberry field	*6,235*	Deciduous forest	1,227,792	Wet meadow	14,382
Grassland	*197,173*	Decid./Conif. forest	1,257,113	Salt aquatic bed	*2,866*
Crops/Ground	*37,178*	Conif./Decid. forest	1,683,901	Salt emergent	1,203
Developed lands		Coniferous forest	751,438	Mudflat	*1,410*
Sparse residential	50,505	**Wetlands**		Sand shore	*276*
Dense residential	27,739	Deciduous forested	64,563	Gravel shore	*735*
Urban/Industrial	*525*	Coniferous forested	372,997	Rock shore	*1,579*
Highways/Runways	*522*	Dead-forested	2,489	Shallow water	*9,365*
Forestlands		Decid. shrub-scrub	124,210	Open water	*62,819*
Clearcut	115,172	Conifer. shrub-scrub	14,051	**Other**	
Early regeneration	507,078	Dead shrub-scrub	86	Alpine tundra	*427*
Late regeneration	272,980	Fresh aquatic bed	*59*	Exposed rock/Talus	*904*

For definitions of field contents see the Introduction. Items in *italics* in the table of habitat quantities show habitats not used by the species, but included in the predicted distribution because of generalization (see the Introduction for details).

RUBY-THROATED HUMMINGBIRD

ARCO

June 1998



BELTED KINGFISHER (*Ceryle alcyon*)

Element code: BNXD0102 **ME-GAP code:** CEAL

Order: Coraciiformes **Family:** Alcedinidae

Breeding range change: Stable **Listing status:** Not listed

Migratory status: Local migrant; Resident **Game species:** No

Population level: Common **Population trend:** Stable

Heritage ranks: G5 . . S3N,S5B **Knowledge:** Good

General habitats used: Belted Kingfishers forage for fish in small, clear ponds, lake edges, streams, and rivers. Kingfishers are more dense in streams than ponds, because of increased prey vulnerability, but closed, heavily wooded streams are not frequently used. Brackish aquatic habitats are used, especially shallow, protected bays. These birds are burrow nesters, digging burrows in steep, sandy stream banks and bare road cuts, usually at least 2 meters above water or ground level.

Specific habitats used: Stream banks or road cuts, suitable for excavating a nesting cavity, within 1.6 km of foraging areas are used by Belted Kingfishers during the breeding season.

Comments:

Predicted habitat quantities:

BELTED KINGFISHER					Total in ha: 1,537,227
Habitat	**ha**	**Habitat**	**ha**	**Habitat**	**ha**
Agricultural lands		Light partial cut	*6,359*	Fresh emergent	35,812
Abandoned field	*1,942*	Heavy partial cut	*7,220*	Peatland	*10,488*
Blueberry field	*840*	Deciduous forest	*28,020*	Wet meadow	*4,672*
Grassland	*31,143*	Decid./Conif. forest	*58,400*	Salt aquatic bed	15,023
Crops/Ground	*7,181*	Conif./Decid. forest	*134,124*	Salt emergent	5,822
Developed lands		Coniferous forest	*80,300*	Mudflat	19,662
Sparse residential	20,999	**Wetlands**		Sand shore	2,413
Dense residential	*2,707*	Deciduous forested	34,255	Gravel shore	3,054
Urban/Industrial	*149*	Coniferous forested	201,447	Rock shore	4,282
Highways/Runways	252	Dead-forested	1,211	Shallow water	6,066
Forestlands		Decid. shrub-scrub	*39,866*	Open water	711,121
Clearcut	*9,515*	Conifer. shrub-scrub	*4,044*	**Other**	
Early regeneration	*31,285*	Dead shrub-scrub	*16*	Alpine tundra	*50*
Late regeneration	*17,213*	Fresh aquatic bed	72	Exposed rock/Talus	*201*

For definitions of field contents see the Introduction. Items in *italics* in the table of habitat quantities show habitats not used by the species, but included in the predicted distribution because of generalization (see the Introduction for details).

BELTED KINGFISHER

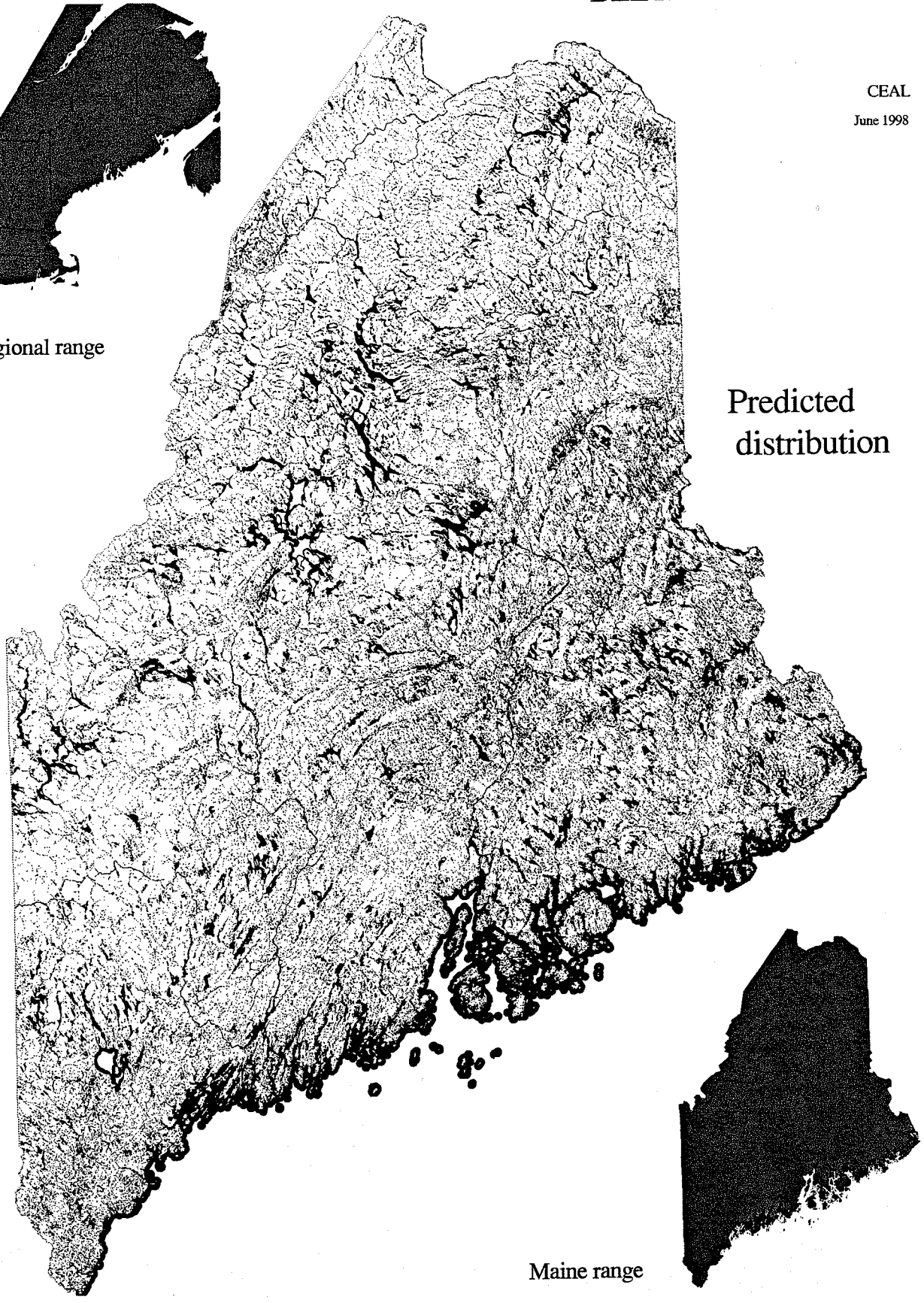
CEAL

June 1998



Regional range

Predicted distribution



Maine range

YELLOW-BELLIED SAPSUCKER (*Sphyrapicus varius*)

Element code: BNYF0501 **ME-GAP code:** SPVA

Order: Piciformes **Family:** Picidae

Breeding range change: Stable **Listing status:** Not listed

Migratory status: Local migrant; US migrant **Game species:** No

Population level: Common **Population trend:** Stable

Heritage ranks: G5 . . S5B **Knowledge:** Adequate

General habitats used: Yellow-bellied Sapsuckers occur in moist forests near water, such as in swampy areas. Forests selected are usually mixed deciduous-coniferous, including birches, maples, poplars, and pines, but aspen and apples appear favored. Stands that are interspersed with small clearings are selected. Yellow-bellied Sapsuckers nest in cavities, which they may excavate themselves, in trees.

Specific habitats used: Trees with a minimum diameter-at-breast-height of 25 cm are used by Yellow-bellied Sapsuckers during the breeding season.

Comments:

Predicted habitat quantities:

YELLOW-BELLIED SAPSUCKER					Total in ha: 6,850,950
Habitat	**ha**	**Habitat**	**ha**	**Habitat**	**ha**
Agricultural lands		Light partial cut	100,078	Fresh emergent	*16,010*
Abandoned field	17,182	Heavy partial cut	142,932	Peatland	44,652
Blueberry field	*2,636*	Deciduous forest	1,243,782	Wet meadow	*3,123*
Grassland	*70,846*	Decid./Conif. forest	1,230,894	Salt aquatic bed	*1,713*
Crops/Ground	*15,916*	Conif./Decid. forest	1,673,447	Salt emergent	*426*
Developed lands		Coniferous forest	747,841	Mudflat	*687*
Sparse residential	52,922	**Wetlands**		Sand shore	*147*
Dense residential	*1,977*	Deciduous forested	54,991	Gravel shore	*254*
Urban/Industrial	*2*	Coniferous forested	368,980	Rock shore	*659*
Highways/Runways	*207*	Dead-forested	2,491	Shallow water	*3,001*
Forestlands		Decid. shrub-scrub	122,744	Open water	*17,980*
Clearcut	116,118	Conifer. shrub-scrub	13,905	**Other**	
Early regeneration	511,377	Dead shrub-scrub	89	Alpine tundra	*150*
Late regeneration	270,514	Fresh aquatic bed	*19*	Exposed rock/Talus	*260*

For definitions of field contents see the Introduction. Items in *italics* in the table of habitat quantities show habitats not used by the species, but included in the predicted distribution because of generalization (see the Introduction for details).

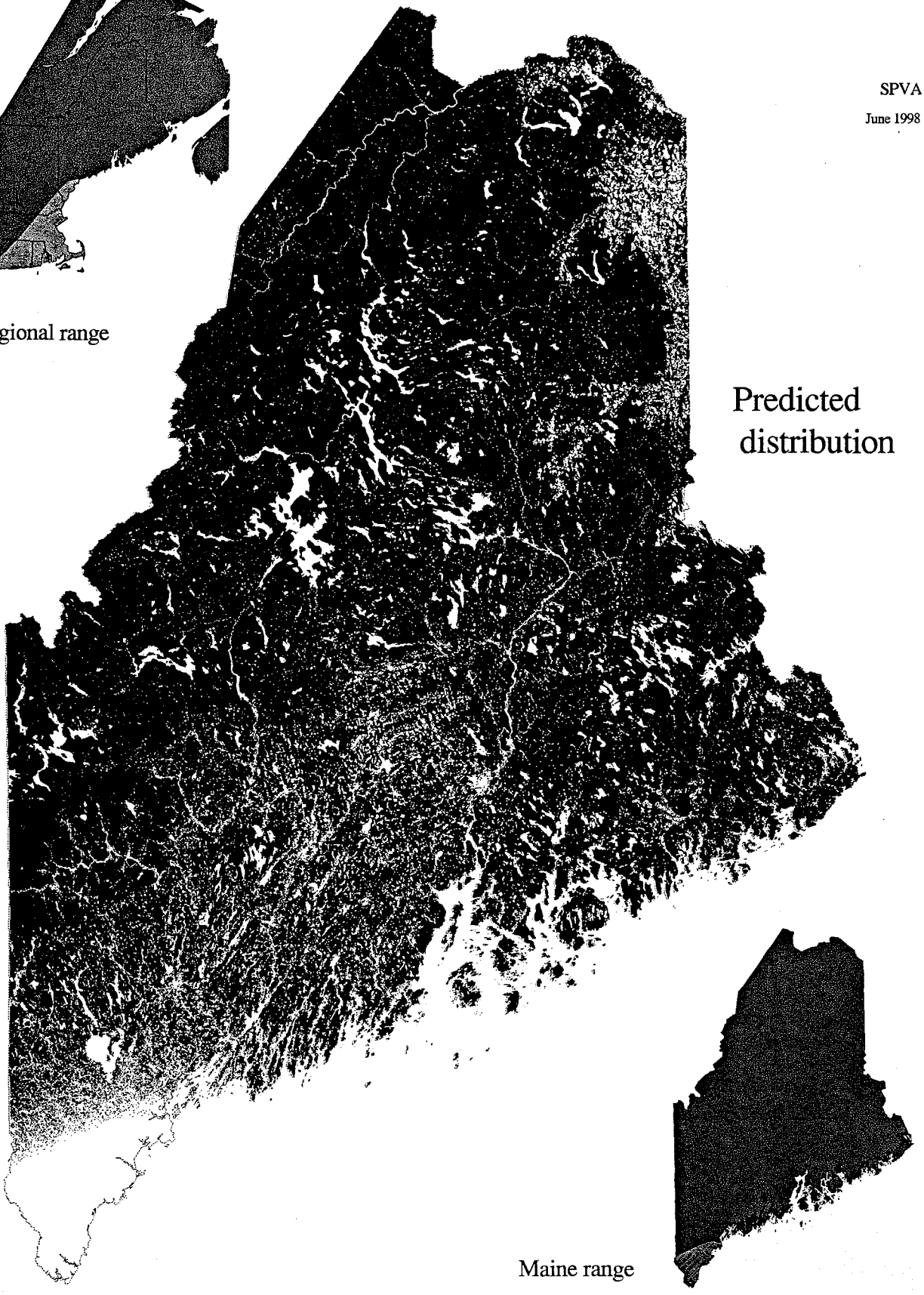
YELLOW-BELLIED SAPSUCKER

SPVA

June 1998



Regional range



Predicted distribution

Maine range

DOWNY WOODPECKER (*Picoides pubescens*)

Element code: BNYF0703

ME-GAP code: PIPU

Order: Piciformes

Family: Picidae

Breeding range change: Stable

Listing status: Not listed

Migratory status: Resident

Game species: No

Population level: Common

Population trend: Stable

Heritage ranks: G5 . . S5

Knowledge: Good

General habitats used: Downy Woodpeckers are most common in mixed and deciduous, bottomland forests with many dead trees. They will occur in open forests, orchards, young clearcuts, forest edges, riparian areas, and urban areas, such as parks and cemeteries. Downy Woodpeckers nest in open forests, almost always in deciduous trees, and feed on the lower branches and trunks of trees, with oaks and elms selected.

Specific habitats used: Trees greater than 15 cm diameter-at-breast-height are favored for cavities for nesting Downy Woodpeckers.

Comments: Downy Woodpeckers show little fear of humans, and can often be approached closely.

Predicted habitat quantities:

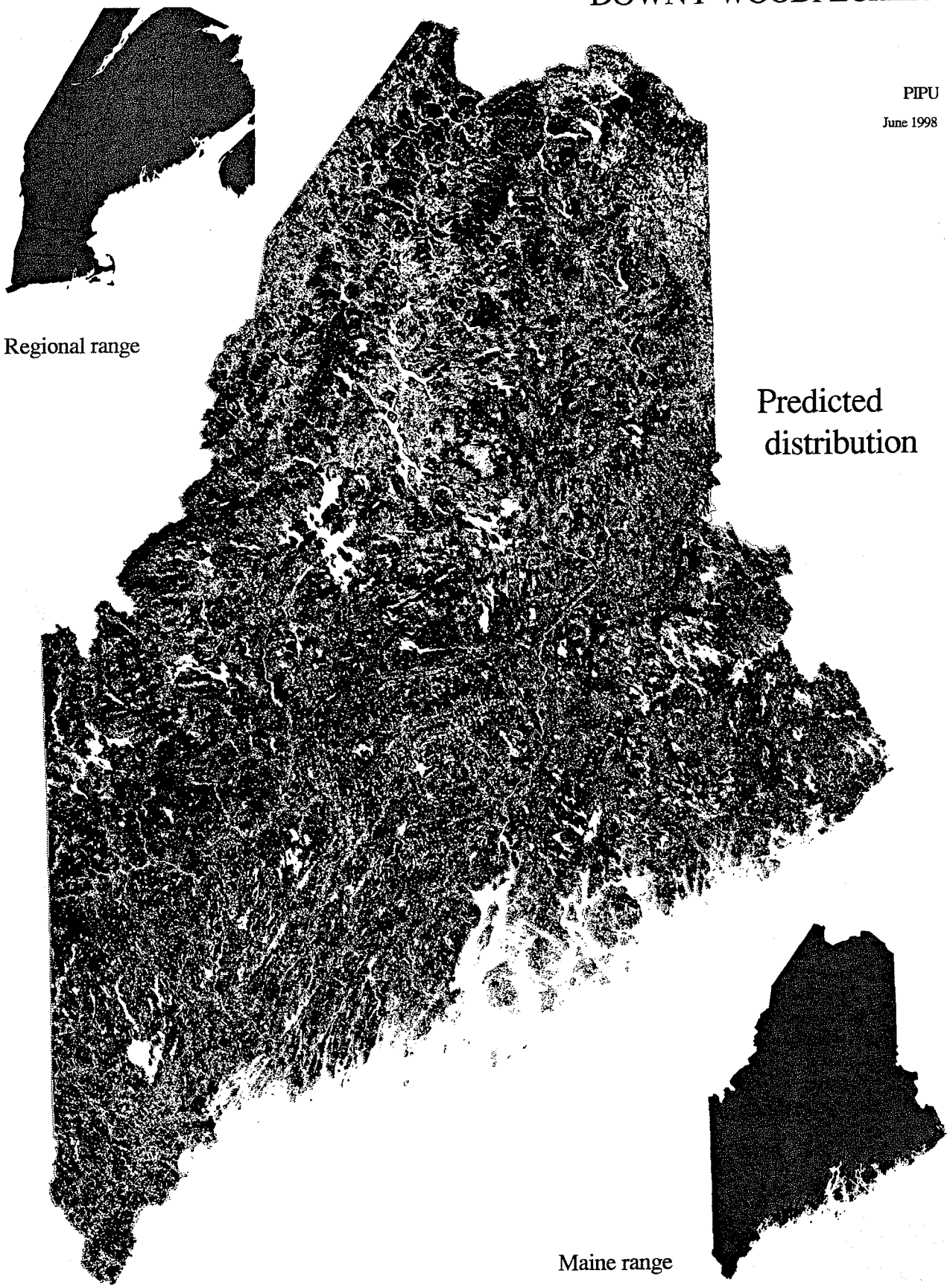
DOWNY WOODPECKER					Total in ha: 5,631,510
Habitat	**ha**	**Habitat**	**ha**	**Habitat**	**ha**
Agricultural lands		Light partial cut	84,963	Fresh emergent	*32,438*
Abandoned field	14,401	Heavy partial cut	120,439	Peatland	*14,552*
Blueberry field	*4,748*	Deciduous forest	1,162,092	Wet meadow	*6,525*
Grassland	*167,365*	Decid./Conif. forest	1,143,083	Salt aquatic bed	*1,361*
Crops/Ground	*29,750*	Conif./Decid. forest	1,422,318	Salt emergent	*765*
Developed lands		Coniferous forest	*334,300*	Mudflat	*862*
Sparse residential	42,974	**Wetlands**		Sand shore	*128*
Dense residential	26,370	Deciduous forested	56,867	Gravel shore	*416*
Urban/Industrial	*508*	Coniferous forested	295,614	Rock shore	*938*
Highways/Runways	*479*	Dead-forested	2,028	Shallow water	*6,165*
Forestlands		Decid. shrub-scrub	101,104	Open water	*42,482*
Clearcut	91,457	Conifer. shrub-scrub	11,387	**Other**	
Early regeneration	*198,168*	Dead shrub-scrub	73	Alpine tundra	*110*
Late regeneration	213,587	Fresh aquatic bed	*40*	Exposed rock/Talus	*655*

For definitions of field contents see the Introduction. Items in *italics* in the table of habitat quantities show habitats not used by the species, but included in the predicted distribution because of generalization (see the Introduction for details).

DOWNY WOODPECKER

PIPU

June 1998



HAIRY WOODPECKER (*Picoides villosus*)

Element code: BNYF0704 **ME-GAP code:** PIVI

Order: Piciformes **Family:** Picidae

Breeding range change: Stable **Listing status:** Not listed

Migratory status: Resident **Game species:** No

Population level: Common **Population trend:** Stable

Heritage ranks: G5 . . S5 **Knowledge:** Good

General habitats used: Hairy Woodpeckers use forests with any mixture of tree species, selecting for somewhat dense habitats, with mature living and dead trees. Very dense forests or savanna-like stands are avoided. These woodpeckers will occur in wooded swamps, moist bottomland near rivers, and in drier sites, such as orchards. Hairy Woodpeckers nest in cavities within trees, and glean bark for insects such as wood boring beetles.

Specific habitats used: Trees with a diameter-at-breast-height of more than 25 cm are used by Hairy Woodpeckers during the breeding season.

Comments:

Predicted habitat quantities:

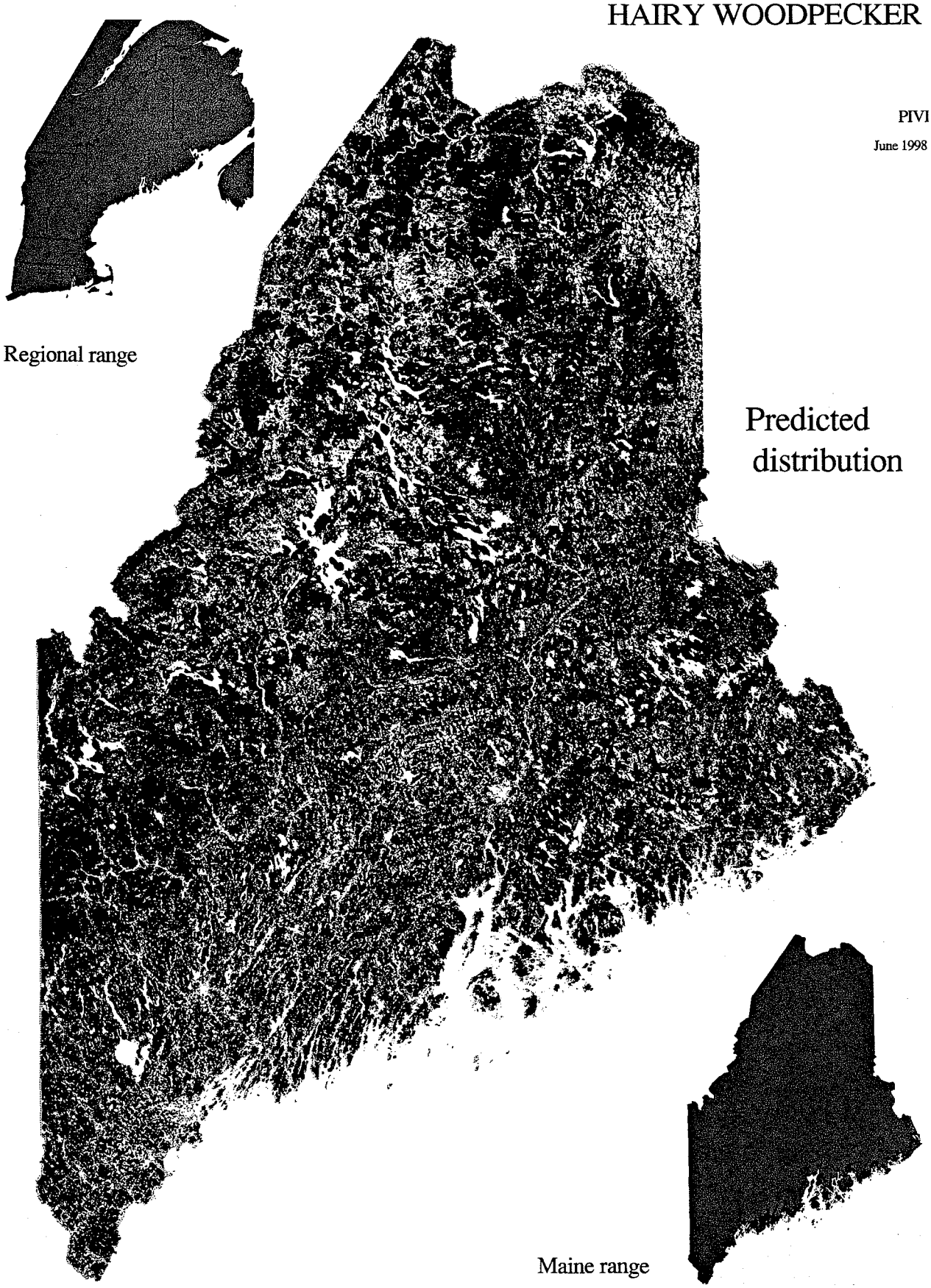
HAIRY WOODPECKER					Total in ha: 6,137,065
Habitat	**ha**	**Habitat**	**ha**	**Habitat**	**ha**
Agricultural lands		Light partial cut	88,041	Fresh emergent	*36,407*
Abandoned field	13,947	Heavy partial cut	119,204	Peatland	*16,227*
Blueberry field	*4,517*	Deciduous forest	1,163,382	Wet meadow	*7,277*
Grassland	*167,395*	Decid./Conif. forest	1,153,180	Salt aquatic bed	*2,628*
Crops/Ground	*28,556*	Conif./Decid. forest	1,562,456	Salt emergent	*912*
Developed lands		Coniferous forest	704,620	Mudflat	*1,172*
Sparse residential	43,231	**Wetlands**		Sand shore	*247*
Dense residential	*6,001*	Deciduous forested	58,769	Gravel shore	*529*
Urban/Industrial	*113*	Coniferous forested	333,061	Rock shore	*1,387*
Highways/Runways	*301*	Dead-forested	2,177	Shallow water	*7,446*
Forestlands		Decid. shrub-scrub	107,063	Open water	*52,980*
Clearcut	95,525	Conifer. shrub-scrub	12,378	**Other**	
Early regeneration	*189,773*	Dead shrub-scrub	71	Alpine tundra	*387*
Late regeneration	*155,062*	Fresh aquatic bed	*48*	Exposed rock/Talus	*598*

For definitions of field contents see the Introduction. Items in *italics* in the table of habitat quantities show habitats not used by the species, but included in the predicted distribution because of generalization (see the Introduction for details).

HAIRY WOODPECKER

PIVI

June 1998



THREE-TOED WOODPECKER (*Picoides tridactylus*)

Element code: BNYF0708

ME-GAP code: PITR

Order: Piciformes

Family: Picidae

Breeding range change: Unknown

Listing status: Not listed

Migratory status: Resident

Game species: No

Population level: Rare

Population trend: Unknown

Heritage ranks: G5 . . S3

Knowledge: Best guess

General habitats used: Three-toed Woodpeckers inhabit dense, coniferous forests, including cedar or tamarack swamps, as well as upland sites. Stands that have large proportion of dead or dying trees, from burns, disease, beaver flooding, or spruce budworm, are selected. These woodpeckers will occur in clearcuts and sparsely wooded swamps, but generally remain in dense woods. Three-toed Woodpeckers nest in cavities within live or dead trees.

Specific habitats used: Trees with a minimum diameter-at-breast-height of 30 cm are used by Three-toed Woodpeckers during breeding season.

Comments: The Three-toed Woodpecker and Black-backed Woodpecker are the only Maine Woodpeckers to have three toes, most woodpeckers have four.

Predicted habitat quantities:

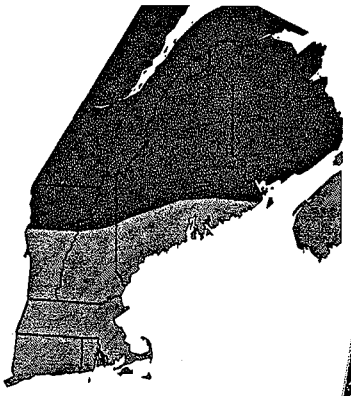
THREE-TOED WOODPECKER					Total in ha: 2,897,147
Habitat	**ha**	**Habitat**	**ha**	**Habitat**	**ha**
Agricultural lands		Light partial cut	61,016	Fresh emergent	*7,775*
Abandoned field	*1,213*	Heavy partial cut	91,583	Peatland	*4,067*
Blueberry field	*148*	Deciduous forest	*46,600*	Wet meadow	*1,511*
Grassland	*10,877*	Decid./Conif. forest	*138,823*	Salt aquatic bed	*341*
Crops/Ground	*4,124*	Conif./Decid. forest	1,000,682	Salt emergent	*11*
Developed lands		Coniferous forest	520,941	Mudflat	*15*
Sparse residential	*4,277*	**Wetlands**		Sand shore	*3*
Dense residential	*180*	Deciduous forested	*5,349*	Gravel shore	*139*
Urban/Industrial	*0*	Coniferous forested	289,371	Rock shore	*196*
Highways/Runways	*13*	Dead-forested	1,178	Shallow water	*1,586*
Forestlands		Decid. shrub-scrub	*16,895*	Open water	*7,731*
Clearcut	76,443	Conifer. shrub-scrub	9,224	**Other**	
Early regeneration	421,060	Dead shrub-scrub	57	Alpine tundra	*128*
Late regeneration	173,496	Fresh aquatic bed	*2*	Exposed rock/Talus	*91*

For definitions of field contents see the Introduction. Items in *italics* in the table of habitat quantities show habitats not used by the species, but included in the predicted distribution because of generalization (see the Introduction for details).

THREE-TOED WOODPECKER

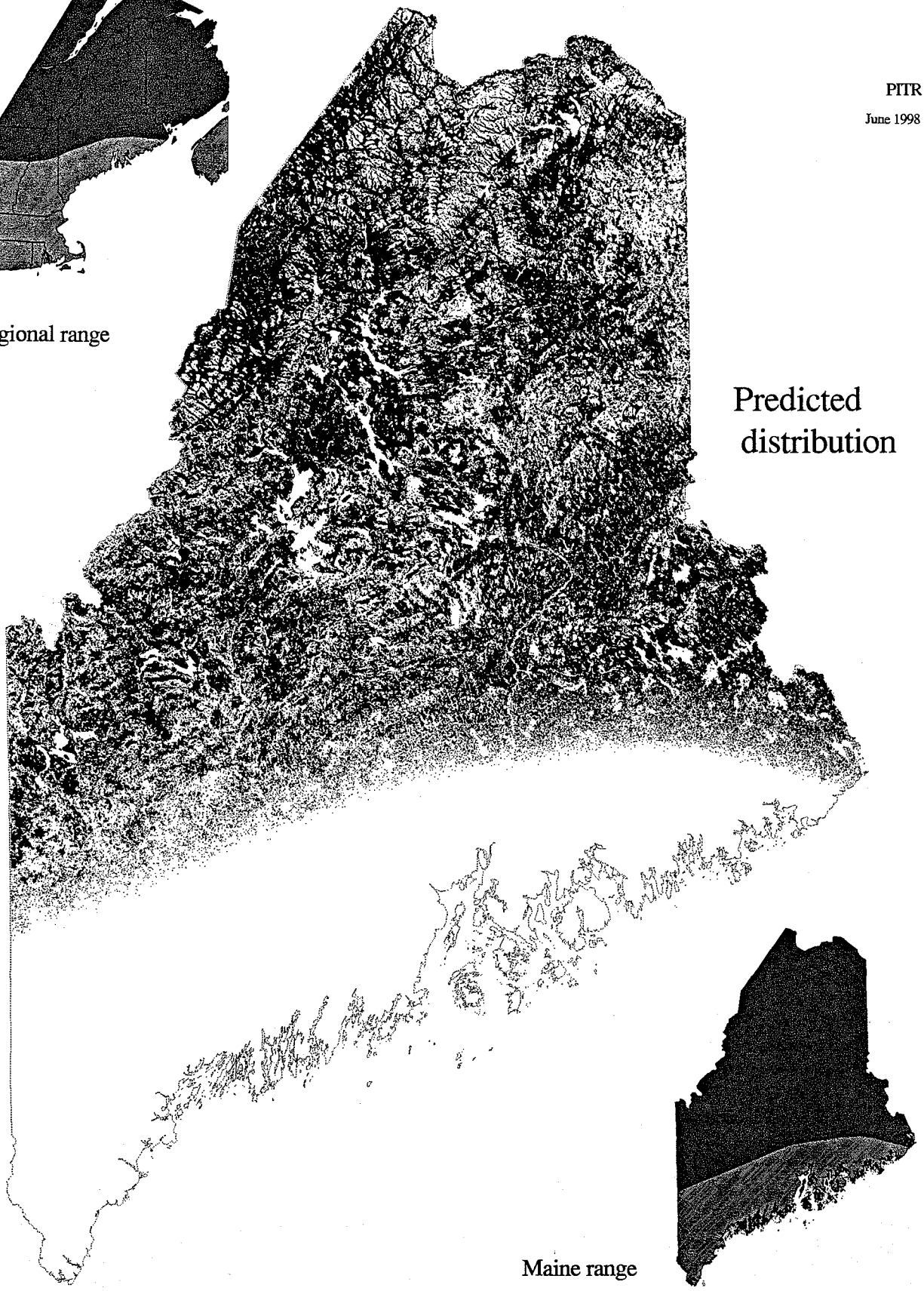
PITR

June 1998



Regional range

Predicted distribution



Maine range

BLACK-BACKED WOODPECKER (*Picoides arcticus*)

Element code: BNYF0709 **ME-GAP code:** PIAR

Order: Piciformes **Family:** Picidae

Breeding range change: Unknown **Listing status:** Not listed

Migratory status: Resident **Game species:** No

Population level: Uncommon **Population trend:** Stable

Heritage ranks: G5 . . S4 **Knowledge:** Adequate

General habitats used: Black-backed Woodpeckers inhabit coniferous and mixed forests, especially wet forests that are near recently burned, flooded, or harvested forests. Recently flooded beaver flowages within coniferous stands are ideal Black-backed Woodpecker habitats. Spruce-fir and tamarack stands are selected, if dead trees are present. Black-backed Woodpeckers often nest in cavities within dead trees, and probe and drill bark to forage.

Specific habitats used: Trees with a minimum diameter-at-breast-height of 30 cm are used by Black-backed Woodpeckers during the nesting season.

Comments:

Predicted habitat quantities:

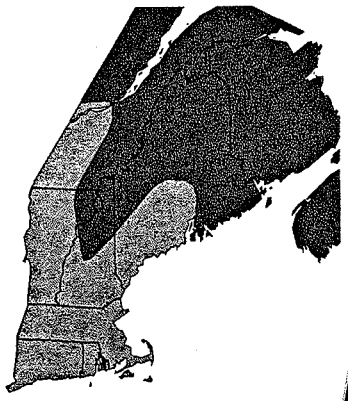
BLACK-BACKED WOODPECKER					Total in ha: 3,793,654
Habitat	**ha**	**Habitat**	**ha**	**Habitat**	**ha**
Agricultural lands		Light partial cut	70,037	Fresh emergent	*8,373*
Abandoned field	9,240	Heavy partial cut	87,820	Peatland	*4,734*
Blueberry field	*1,928*	Deciduous forest	*109,517*	Wet meadow	*1,559*
Grassland	*13,119*	Decid./Conif. forest	700,593	Salt aquatic bed	*733*
Crops/Ground	*5,681*	Conif./Decid. forest	1,130,540	Salt emergent	*193*
Developed lands		Coniferous forest	580,320	Mudflat	*207*
Sparse residential	*6,826*	**Wetlands**		Sand shore	*49*
Dense residential	*249*	Deciduous forested	*5,779*	Gravel shore	*147*
Urban/Industrial	*0*	Coniferous forested	291,244	Rock shore	*373*
Highways/Runways	*15*	Dead-forested	1,473	Shallow water	*1,673*
Forestlands		Decid. shrub-scrub	*17,566*	Open water	*8,182*
Clearcut	83,094	Conifer. shrub-scrub	9,043	**Other**	
Early regeneration	445,414	Dead shrub-scrub	44	Alpine tundra	*116*
Late regeneration	197,539	Fresh aquatic bed	*6*	Exposed rock/Talus	*229*

For definitions of field contents see the Introduction. Items in *italics* in the table of habitat quantities show habitats not used by the species, but included in the predicted distribution because of generalization (see the Introduction for details).

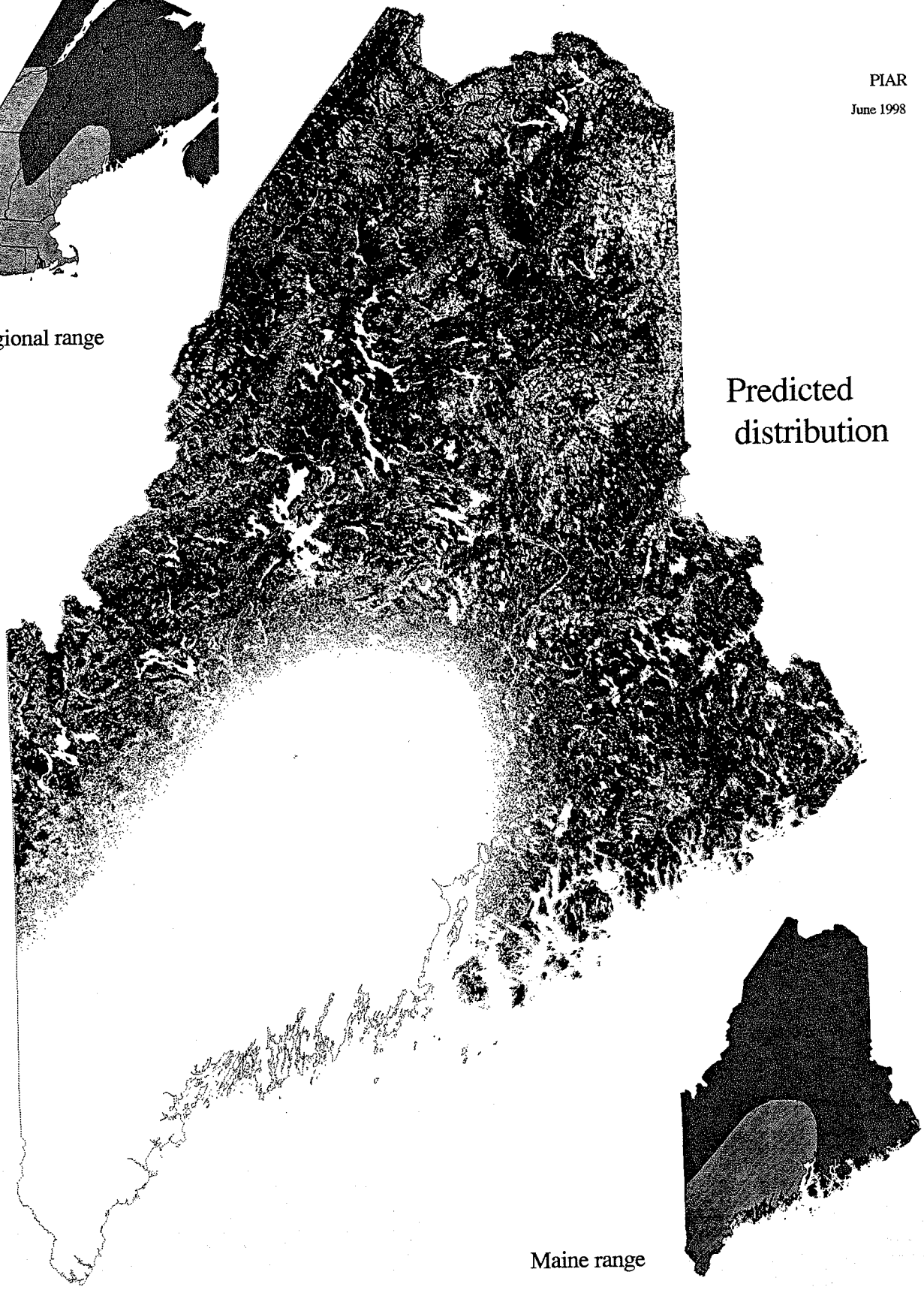
BLACK-BACKED WOODPECKER

PIAR

June 1998



Regional range



Predicted distribution

Maine range

NORTHERN FLICKER (*Colaptes auratus*)

Element code: BNYF1002

ME-GAP code: COAU

Order: Piciformes

Family: Picidae

Breeding range change: Stable

Listing status: Not listed

Migratory status: Local migrant; Resident

Game species: No

Population level: Common

Population trend: Stable to gradual decline

Heritage ranks: G5 . . S5B,S5N

Knowledge: Good

General habitats used: Northern Flickers use more open habitats than other woodpeckers in Maine. Flickers inhabit open coniferous, mixed, and deciduous forests, and readily move into pastures, forest openings, clearcuts, meadows, and lawns to forage. Very open areas may support some flickers, but nest and roost sites (e.g., apples, maples, white pines, utility poles) must be present. Flickers nest in cavities, often in snags near clearcuts or other forest edges. These woodpeckers will glean bark, but also will feed on the ground, probing the soil.

Specific habitats used: Trees with a minimum diameter-at-breast-height of 30 cm are used by Northern Flickers during the nesting season.

Comments:

Predicted habitat quantities:

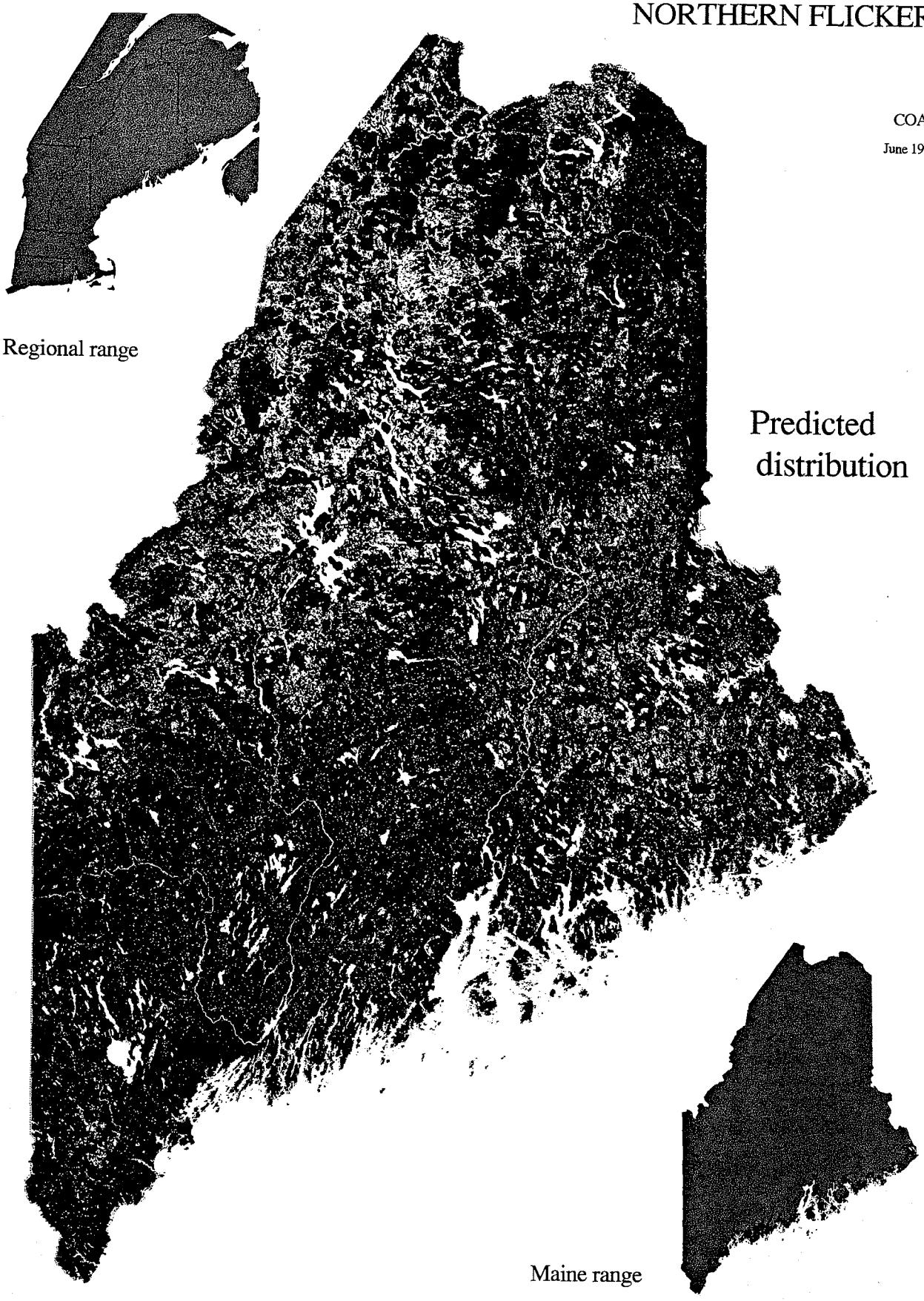
NORTHERN FLICKER					Total in ha: 6,894,539
Habitat	**ha**	**Habitat**	**ha**	**Habitat**	**ha**
Agricultural lands		Light partial cut	93,578	Fresh emergent	*41,090*
Abandoned field	16,849	Heavy partial cut	125,102	Peatland	*17,728*
Blueberry field	11,200	Deciduous forest	1,217,784	Wet meadow	13,355
Grassland	432,978	Decid./Conif. forest	1,243,067	Salt aquatic bed	*3,216*
Crops/Ground	100,493	Conif./Decid. forest	1,652,251	Salt emergent	*1,238*
Developed lands		Coniferous forest	726,862	Mudflat	2,184
Sparse residential	58,903	**Wetlands**		Sand shore	446
Dense residential	32,191	Deciduous forested	65,292	Gravel shore	*600*
Urban/Industrial	*771*	Coniferous forested	348,041	Rock shore	*1,577*
Highways/Runways	706	Dead-forested	2,415	Shallow water	*8,704*
Forestlands		Decid. shrub-scrub	115,856	Open water	*61,633*
Clearcut	103,382	Conifer. shrub-scrub	13,226	**Other**	
Early regeneration	*210,865*	Dead shrub-scrub	99	Alpine tundra	*403*
Late regeneration	*169,122*	Fresh aquatic bed	*73*	Exposed rock/Talus	*1,258*

For definitions of field contents see the Introduction. Items in *italics* in the table of habitat quantities show habitats not used by the species, but included in the predicted distribution because of generalization (see the Introduction for details).

NORTHERN FLICKER

COAU

June 1998



PILEATED WOODPECKER (*Dryocopus pileatus*)

Element code: BNYF1202

ME-GAP code: DRPI

Order: Piciformes

Family: Picidae

Breeding range change: Stable

Listing status: Not listed

Migratory status: Resident

Game species: No

Population level: Uncommon

Population trend: Stable, perhaps gradual decline from cutting

Heritage ranks: G5 . . S5

Knowledge: Adequate

General habitats used: Pileated Woodpeckers are most common in mature bottomland forests (often near water), with large trees and snags present. Mixed forests, with dense canopies, are selected. Younger stands may be used by Pileated Woodpeckers, if fallen logs and older logs are present. Forest stands that are interspersed with farmland or residential areas are good Pileated Woodpecker habitat. These woodpeckers usually nest in relatively large dead trees, using the same tree (but a different cavity) each year.

Specific habitats used: Dead or dying trees at least 36 cm diameter-at-breast-height within dense mature forest are used by Pileated Woodpeckers for nesting and rearing of young.

Comments: Pileated Woodpeckers can often be identified in flight; crow sized birds flapping then gliding forming shallow U-shaped flight paths.

Predicted habitat quantities:

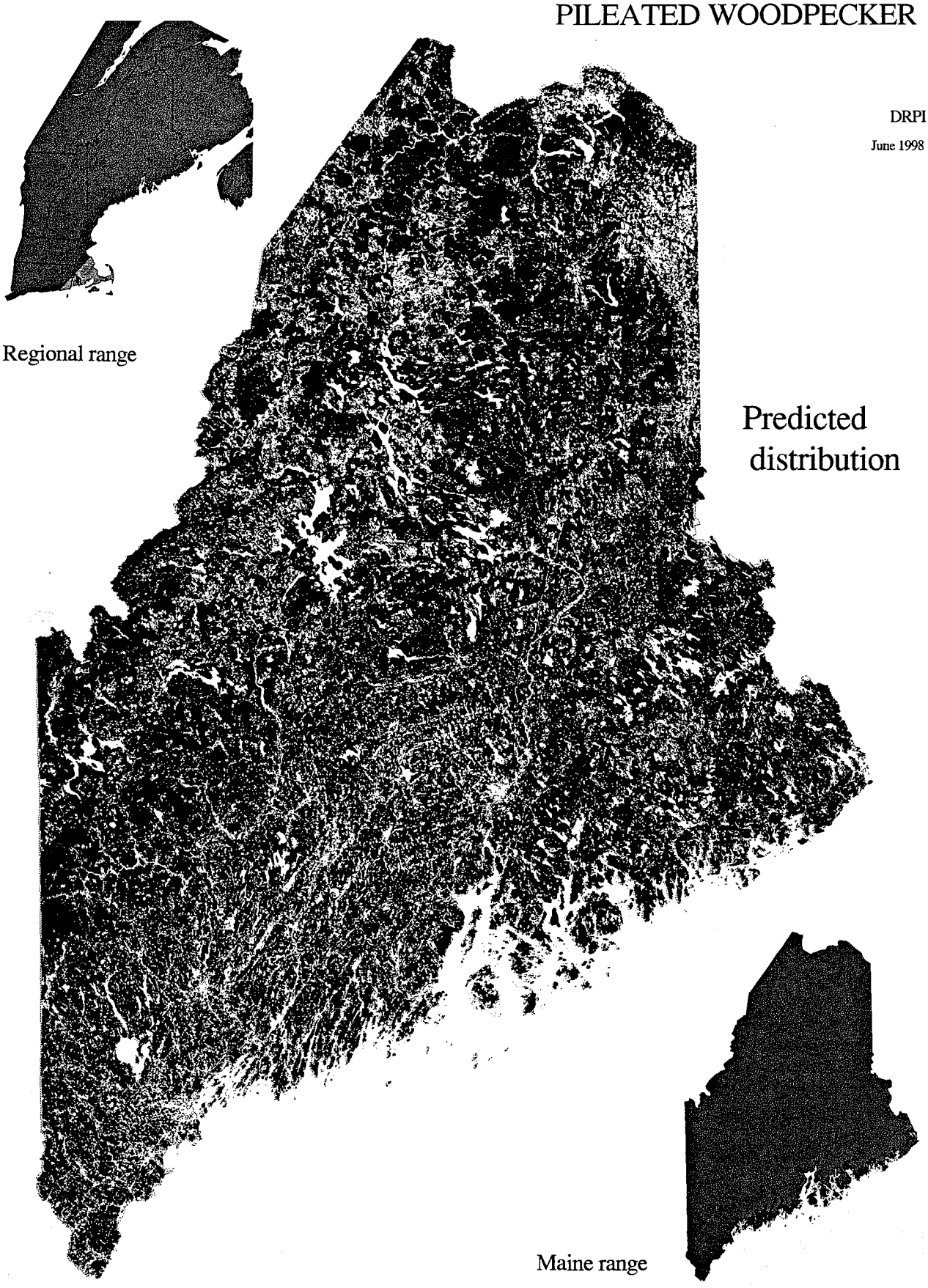
PILEATED WOODPECKER					Total in ha: 6,139,984
Habitat	**ha**	**Habitat**	**ha**	**Habitat**	**ha**
Agricultural lands		Light partial cut	89,194	Fresh emergent	*36,473*
Abandoned field	13,875	Heavy partial cut	*83,193*	Peatland	*16,176*
Blueberry field	*4,411*	Deciduous forest	1,164,865	Wet meadow	*7,228*
Grassland	*158,932*	Decid./Conif. forest	1,173,866	Salt aquatic bed	*2,415*
Crops/Ground	*26,562*	Conif./Decid. forest	1,581,696	Salt emergent	*860*
Developed lands		Coniferous forest	696,560	Mudflat	*1,077*
Sparse residential	*25,856*	**Wetlands**		Sand shore	*220*
Dense residential	*4,915*	Deciduous forested	58,929	Gravel shore	*524*
Urban/Industrial	*53*	Coniferous forested	333,153	Rock shore	*1,373*
Highways/Runways	*187*	Dead-forested	2,233	Shallow water	*7,365*
Forestlands		Decid. shrub-scrub	107,921	Open water	*52,128*
Clearcut	*55,078*	Conifer. shrub-scrub	12,419	**Other**	
Early regeneration	*198,491*	Dead shrub-scrub	71	Alpine tundra	*374*
Late regeneration	220,686	Fresh aquatic bed	*51*	Exposed rock/Talus	*570*

For definitions of field contents see the Introduction. Items in *italics* in the table of habitat quantities show habitats not used by the species, but included in the predicted distribution because of generalization (see the Introduction for details).

PILEATED WOODPECKER

DRPI

June 1998



OLIVE-SIDED FLYCATCHER (*Contopus cooperi*)

Element code: BPAE3201

ME-GAP code: COBO

Order: Passeriformes

Family: Tyrannidae

Breeding range change: Stable

Listing status: Not listed

Migratory status: Neotropical migrant

Game species: No

Population level: Rare

Population trend: Stable to slightly declining

Heritage ranks: G5 . . S4B

Knowledge: Adequate

General habitats used: Olive-sided Flycatchers occur in moist coniferous forests, such as spruce, white pine, fir, and hemlock forests, sometimes mixed with deciduous trees. These flycatchers tend to inhabit the edges of forest patches, along forest clearings, clearcuts, bogs, riparian areas, burns, or beaver flowages. Areas with patches of dead trees are selected. Nests are typically constructed in conifers, near water.

Specific habitats used:

Comments:

Predicted habitat quantities:

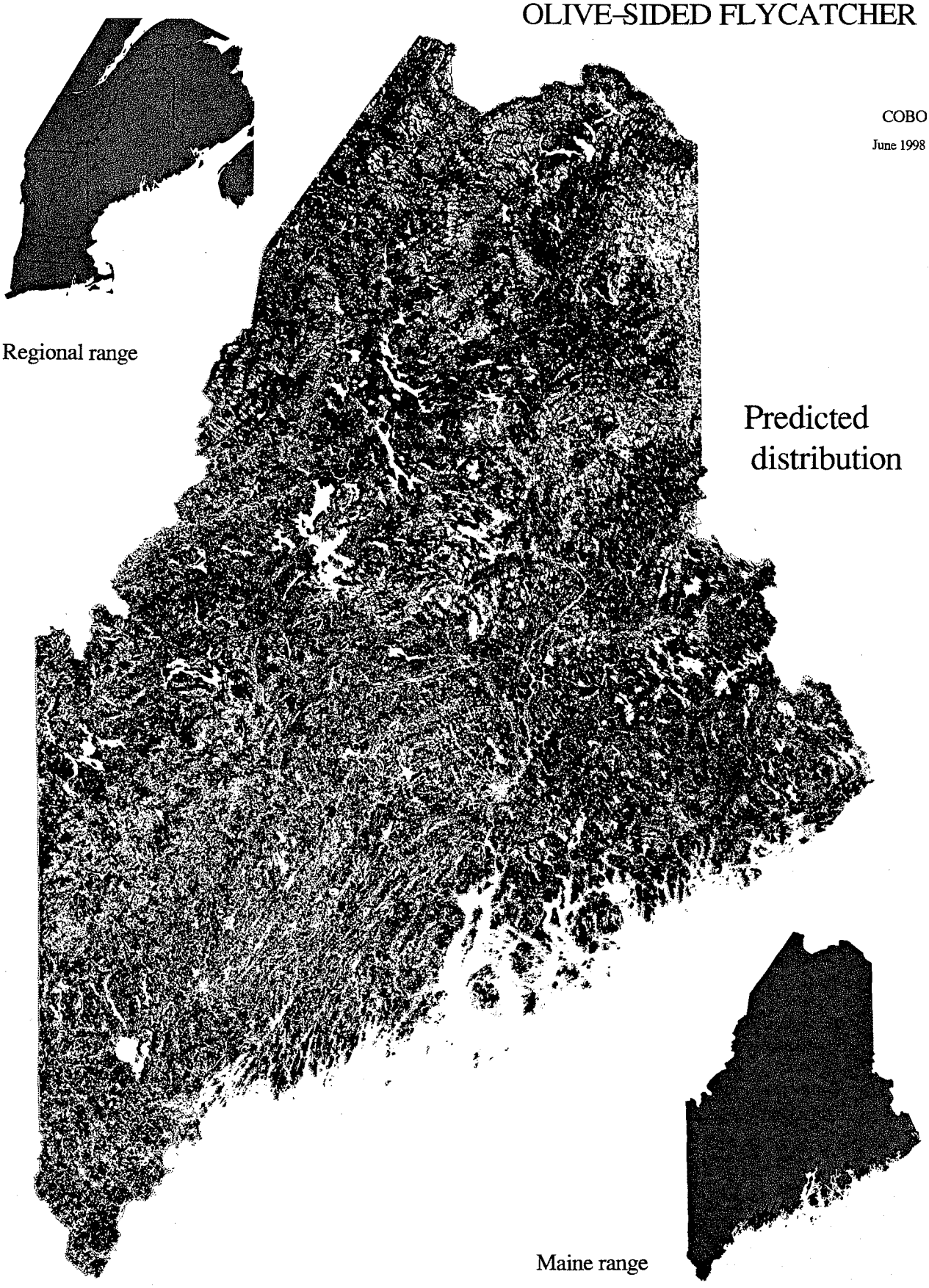
OLIVE-SIDED FLYCATCHER					Total in ha: 5,220,438
Habitat	**ha**	**Habitat**	**ha**	**Habitat**	**ha**
Agricultural lands		Light partial cut	88,795	Fresh emergent	*31,451*
Abandoned field	*7,887*	Heavy partial cut	111,536	Peatland	41,147
Blueberry field	*4,221*	Deciduous forest	*392,669*	Wet meadow	*6,102*
Grassland	*125,923*	Decid./Conif. forest	960,170	Salt aquatic bed	*2,527*
Crops/Ground	*24,279*	Conif./Decid. forest	1,479,850	Salt emergent	*849*
Developed lands		Coniferous forest	703,108	Mudflat	1,768
Sparse residential	*24,675*	**Wetlands**		Sand shore	321
Dense residential	*4,435*	Deciduous forested	*31,436*	Gravel shore	2,327
Urban/Industrial	*66*	Coniferous forested	335,202	Rock shore	2,590
Highways/Runways	*159*	Dead-forested	2,125	Shallow water	*6,920*
Forestlands		Decid. shrub-scrub	*62,420*	Open water	*47,084*
Clearcut	99,359	Conifer. shrub-scrub	11,630	**Other**	
Early regeneration	439,116	Dead shrub-scrub	76	Alpine tundra	*392*
Late regeneration	*167,216*	Fresh aquatic bed	*41*	Exposed rock/Talus	*565*

For definitions of field contents see the Introduction. Items in *italics* in the table of habitat quantities show habitats not used by the species, but included in the predicted distribution because of generalization (see the Introduction for details).

OLIVE-SIDED FLYCATCHER

COBO

June 1998



EASTERN WOOD-PEWEE (*Contopus virens*)

Element code: BPAE3206

ME-GAP code: COVR

Order: Passeriformes

Family: Tyrannidae

Breeding range change: Stable

Listing status: Not listed

Migratory status: Neotropical migrant

Game species: No

Population level: Common

Population trend: Stable

Heritage ranks: G5 . . S4B

Knowledge: Good

General habitats used: Eastern Wood-pewees are most common along the edges of deciduous and mixed forests. Although Wood-pewees may occur in coniferous stands, deciduous stands (especially oaks) are preferred. Wood-pewees forage along the edges of openings, such as around farm woodlots, low density residential areas, ponds, streams, orchards, roads, hedgerows, and parks. They hawk insects, and glean leaves and bark.

Specific habitats used:

Comments: Eastern Wood-pewees are named for their song, a slow plaintive "Pewee, Pewee."

Predicted habitat quantities:

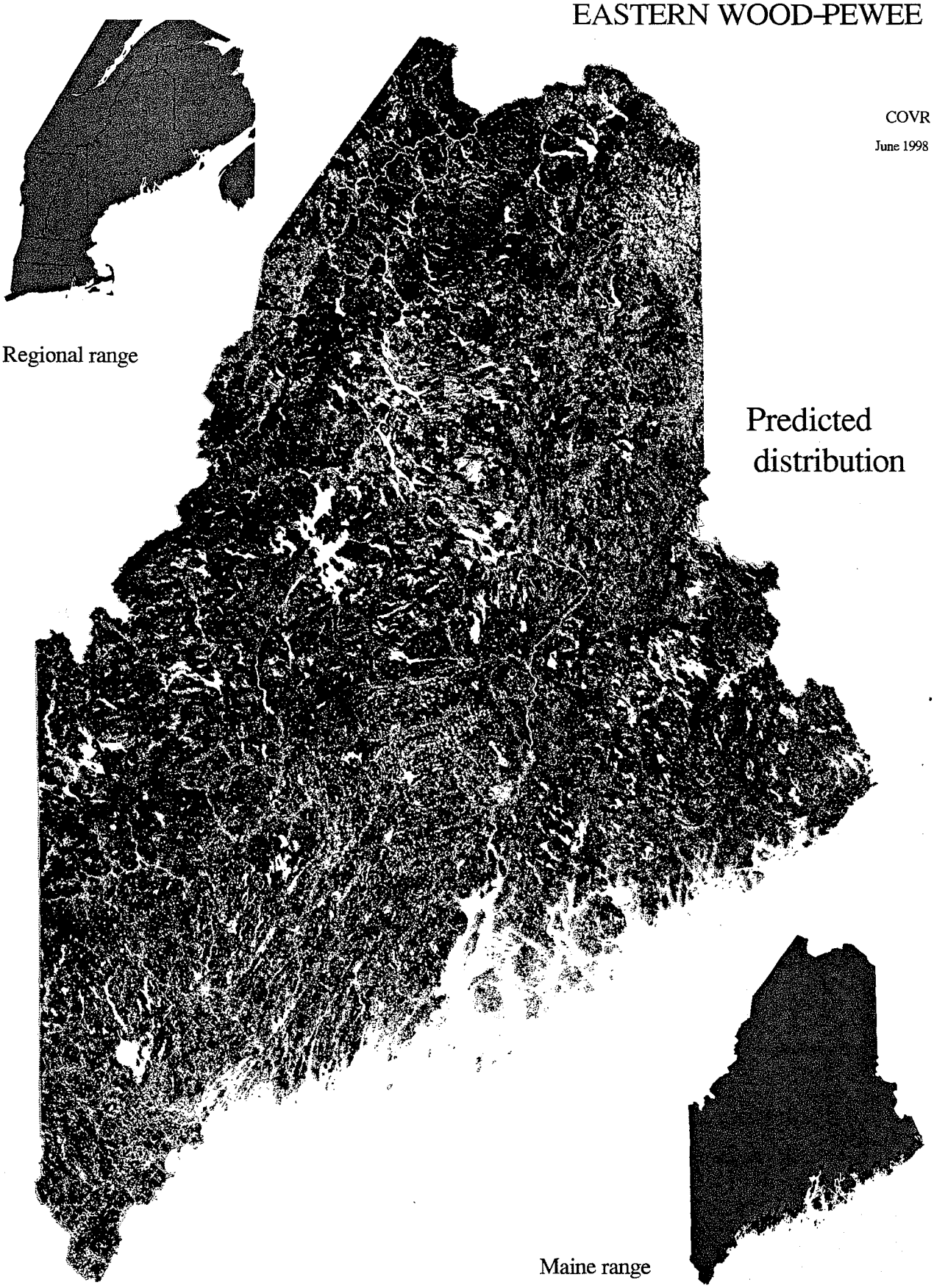
EASTERN WOOD-PEWEE					Total in ha: 6,307,679
Habitat	**ha**	**Habitat**	**ha**	**Habitat**	**ha**
Agricultural lands		Light partial cut	97,354	Fresh emergent	*36,920*
Abandoned field	15,632	Heavy partial cut	136,980	Peatland	41,757
Blueberry field	*5,884*	Deciduous forest	1,211,481	Wet meadow	12,740
Grassland	*180,534*	Decid./Conif. forest	1,215,117	Salt aquatic bed	*1,582*
Crops/Ground	*33,179*	Conif./Decid. forest	1,485,489	Salt emergent	*823*
Developed lands		Coniferous forest	*364,909*	Mudflat	1,614
Sparse residential	45,847	**Wetlands**		Sand shore	245
Dense residential	*6,212*	Deciduous forested	59,810	Gravel shore	2,343
Urban/Industrial	*134*	Coniferous forested	322,941	Rock shore	2,365
Highways/Runways	*347*	Dead-forested	2,307	Shallow water	10,962
Forestlands		Decid. shrub-scrub	108,896	Open water	*48,652*
Clearcut	106,364	Conifer. shrub-scrub	12,557	**Other**	
Early regeneration	481,651	Dead shrub-scrub	76	Alpine tundra	*148*
Late regeneration	253,171	Fresh aquatic bed	*52*	Exposed rock/Talus	*604*

For definitions of field contents see the Introduction. Items in *italics* in the table of habitat quantities show habitats not used by the species, but included in the predicted distribution because of generalization (see the Introduction for details).

EASTERN WOOD-PEWEE

COVR

June 1998



YELLOW-BELLIED FLYCATCHER (*Empidonax flaviventris*)

Element code: BPAE3301

ME-GAP code: EMFL

Order: Passeriformes

Family: Tyrannidae

Breeding range change: Unknown

Listing status: Not listed

Migratory status: Neotropical migrant

Game species: No

Population level: Common

Population trend: Rapid increase, possibly artifact of methods

Heritage ranks: G5 . . S4S5B

Knowledge: Good

General habitats used: Yellow-bellied Flycatchers occur in wet, swampy thickets of coniferous vegetation, such as in wet eastern hemlock patches on the sides of mountains, black spruce swamps, tamarack bogs, and alder swamps. These flycatchers will inhabit wet, mixed forests if less than one-third of the vegetation is deciduous. Successional forest stages are adequate habitat for Yellow-bellied Flycatchers, if shrubs and herbs are not too dense.

Specific habitats used:

Comments:

Predicted habitat quantities:

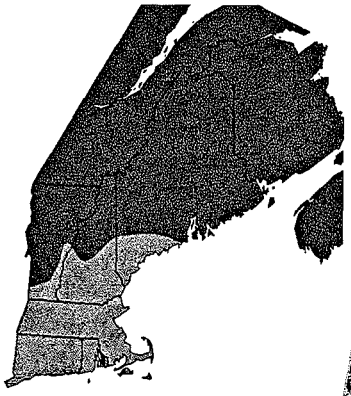
YELLOW-BELLIED FLYCATCHER					Total in ha: 2,939,784
Habitat	**ha**	**Habitat**	**ha**	**Habitat**	**ha**
Agricultural lands		Light partial cut	65,237	Fresh emergent	*11,059*
Abandoned field	*2,110*	Heavy partial cut	*15,697*	Peatland	43,389
Blueberry field	*927*	Deciduous forest	*36,067*	Wet meadow	*2,100*
Grassland	*13,707*	Decid./Conif. forest	*124,128*	Salt aquatic bed	*899*
Crops/Ground	*4,481*	Conif./Decid. forest	1,346,879	Salt emergent	*164*
Developed lands		Coniferous forest	657,038	Mudflat	*206*
Sparse residential	*5,286*	**Wetlands**		Sand shore	*75*
Dense residential	*311*	Deciduous forested	38,494	Gravel shore	*153*
Urban/Industrial	*0*	Coniferous forested	335,321	Rock shore	*329*
Highways/Runways	*22*	Dead-forested	2,118	Shallow water	10,141
Forestlands		Decid. shrub-scrub	106,261	Open water	*11,157*
Clearcut	*14,173*	Conifer. shrub-scrub	12,604	**Other**	
Early regeneration	*36,498*	Dead shrub-scrub	66	Alpine tundra	*109*
Late regeneration	*42,455*	Fresh aquatic bed	*11*	Exposed rock/Talus	*114*

For definitions of field contents see the Intro luction. Items in *italics* in the table of habitat quantities show habitats not used by the species, but included in the predicted distribution because of generalization (see the Introduction for details).

YELLOW-BELLIED FLYCATCHER

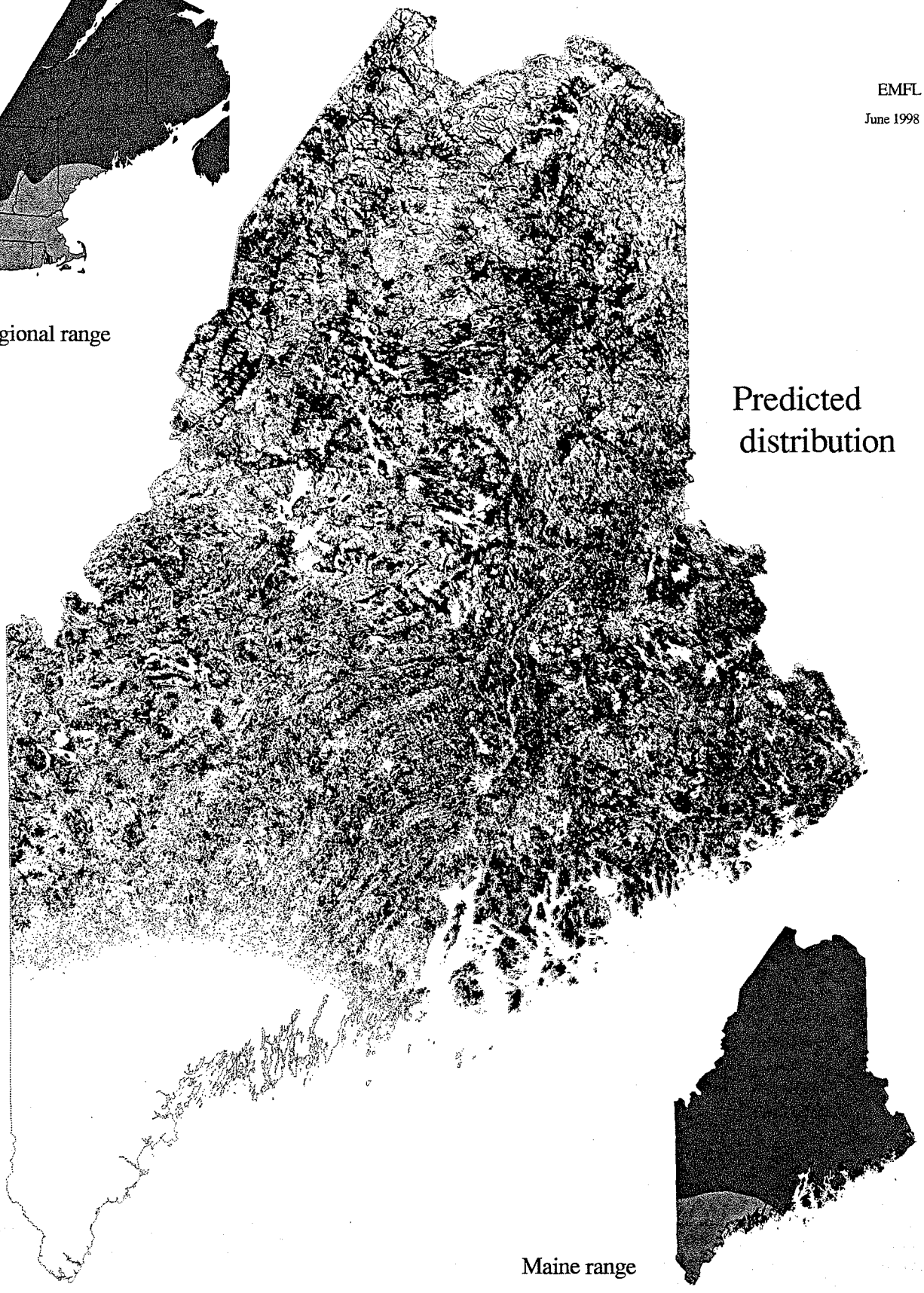
EMFL

June 1998



Regional range

Predicted distribution



Maine range

ALDER FLYCATCHER (*Empidonax alnorum*)

Element code: BPAE3303

ME-GAP code: EMAL

Order: Passeriformes

Family: Tyrannidae

Breeding range change: Stable

Listing status: Not listed

Migratory status: Neotropical migrant

Game species: No

Population level: Common

Population trend: Stable, but not well surveyed

Heritage ranks: G5 . . S4S5B

Knowledge: Adequate

General habitats used: Alder Flycatchers inhabit moderately tall, dense swamps with alder, willow, or elders present. Swampy thickets interspersed with open, marshy areas are selected, with the edges of thickets used most. Alder Flycatchers will forage in open areas, such as in sedge or rush marshes, shrub wetlands, and beaver flowages. Although these flycatchers may nest in drier habitats, typically nests are built close to the ground in marsh or swamp habitats.

Specific habitats used:

Comments:

Predicted habitat quantities:

ALDER FLYCATCHER					Total in ha: 1,354,598
Habitat	**ha**	**Habitat**	**ha**	**Habitat**	**ha**
Agricultural lands		Light partial cut	*11,828*	Fresh emergent	42,135
Abandoned field	7,907	Heavy partial cut	34,959	Peatland	37,611
Blueberry field	*2,232*	Deciduous forest	*53,123*	Wet meadow	9,943
Grassland	200,831	Decid./Conif. forest	*101,005*	Salt aquatic bed	1,682
Crops/Ground	*19,390*	Conif./Decid. forest	*185,336*	Salt emergent	1,609
Developed lands		Coniferous forest	*95,118*	Mudflat	1,304
Sparse residential	*13,912*	**Wetlands**		Sand shore	254
Dense residential	*4,533*	Deciduous forested	41,097	Gravel shore	2,192
Urban/Industrial	*239*	Coniferous forested	230,573	Rock shore	1,662
Highways/Runways	*121*	Dead-forested	1,392	Shallow water	7,804
Forestlands		Decid. shrub-scrub	86,131	Open water	*21,028*
Clearcut	44,425	Conifer. shrub-scrub	10,519	**Other**	
Early regeneration	*53,185*	Dead shrub-scrub	43	Alpine tundra	*43*
Late regeneration	*28,911*	Fresh aquatic bed	80	Exposed rock/Talus	*441*

For definitions of field contents see the Introduction. Items in *italics* in the table of habitat quantities show habitats not used by the species, but included in the predicted distribution because of generalization (see the Introduction for details).

ALDER FLYCATCHER

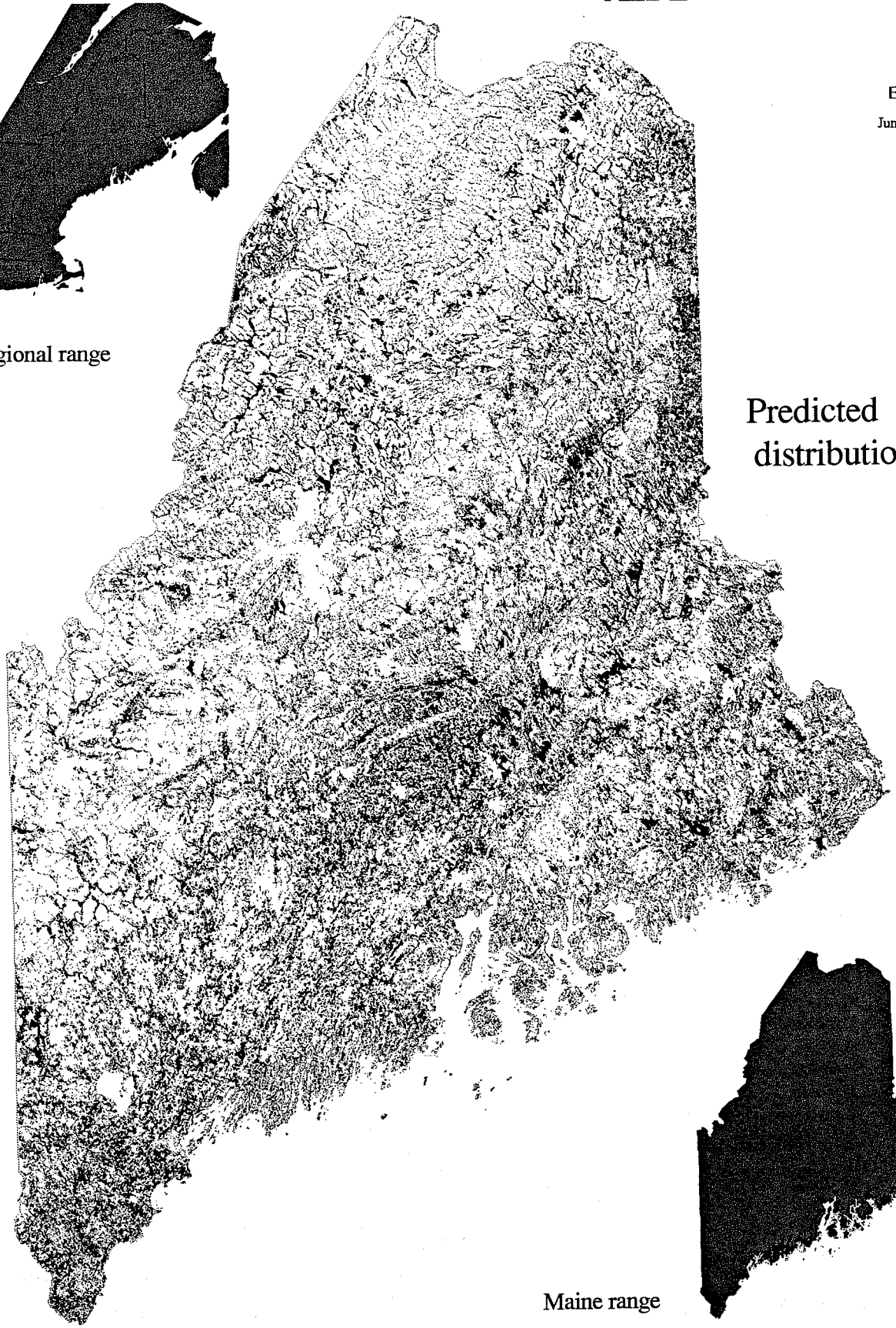
EMAL

June 1998



Regional range

Predicted distribution





Maine range

WILLOW FLYCATCHER (*Empidonax traillii*)

Element code: BPAE3304 **ME-GAP code:** EMTR

Order: Passeriformes **Family:** Tyrannidae

Breeding range change: Expanding **Listing status**: Not listed

Migratory status: Neotropical migrant **Game species**: No

Population level: Common **Population trend**: Stable

Heritage ranks: G5 . . S3?B **Knowledge**: Adequate

General habitats used: Willow Flycatchers occur in open moist to dry habitats, with deciduous shrubs. Brushy habitats, such as clearcuts, hedgerows, forest edges, pasture margins, and wetland edges are selected. These flycatchers use habitats that are more open and drier than those used by Alder Flycatchers. Willow Flycatchers nest in shrubs.

Specific habitats used:

Comments:

Predicted habitat quantities:

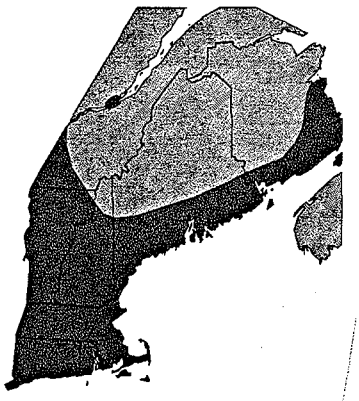
WILLOW FLYCATCHER					Total in ha: 1,114,800
Habitat	**ha**	**Habitat**	**ha**	**Habitat**	**ha**
Agricultural lands		Light partial cut	18,684	Fresh emergent	17,282
Abandoned field	9,364	Heavy partial cut	15,682	Peatland	10,954
Blueberry field	*1,978*	Deciduous forest	196,676	Wet meadow	3,593
Grassland	221,417	Decid./Conif. forest	278,099	Salt aquatic bed	4,010
Crops/Ground	*6,179*	Conif./Decid. forest	*69,690*	Salt emergent	1,782
Developed lands		Coniferous forest	*13,992*	Mudflat	3,183
Sparse residential	26,062	**Wetlands**		Sand shore	659
Dense residential	*2,471*	Deciduous forested	30,248	Gravel shore	130
Urban/Industrial	*141*	Coniferous forested	44,292	Rock shore	674
Highways/Runways	*105*	Dead-forested	821	Shallow water	3,338
Forestlands		Decid. shrub-scrub	29,247	Open water	*4,435*
Clearcut	20,312	Conifer. shrub-scrub	2,668	**Other**	
Early regeneration	35,314	Dead shrub-scrub	23	Alpine tundra	*0*
Late regeneration	40,851	Fresh aquatic bed	74	Exposed rock/Talus	*371*

For definitions of field contents see the Introduction. Items in *italics* in the table of habitat quantities show habitats not used by the species, but included in the predicted distribution because of generalization (see the Introduction for details).

WILLOW FLYCATCHER

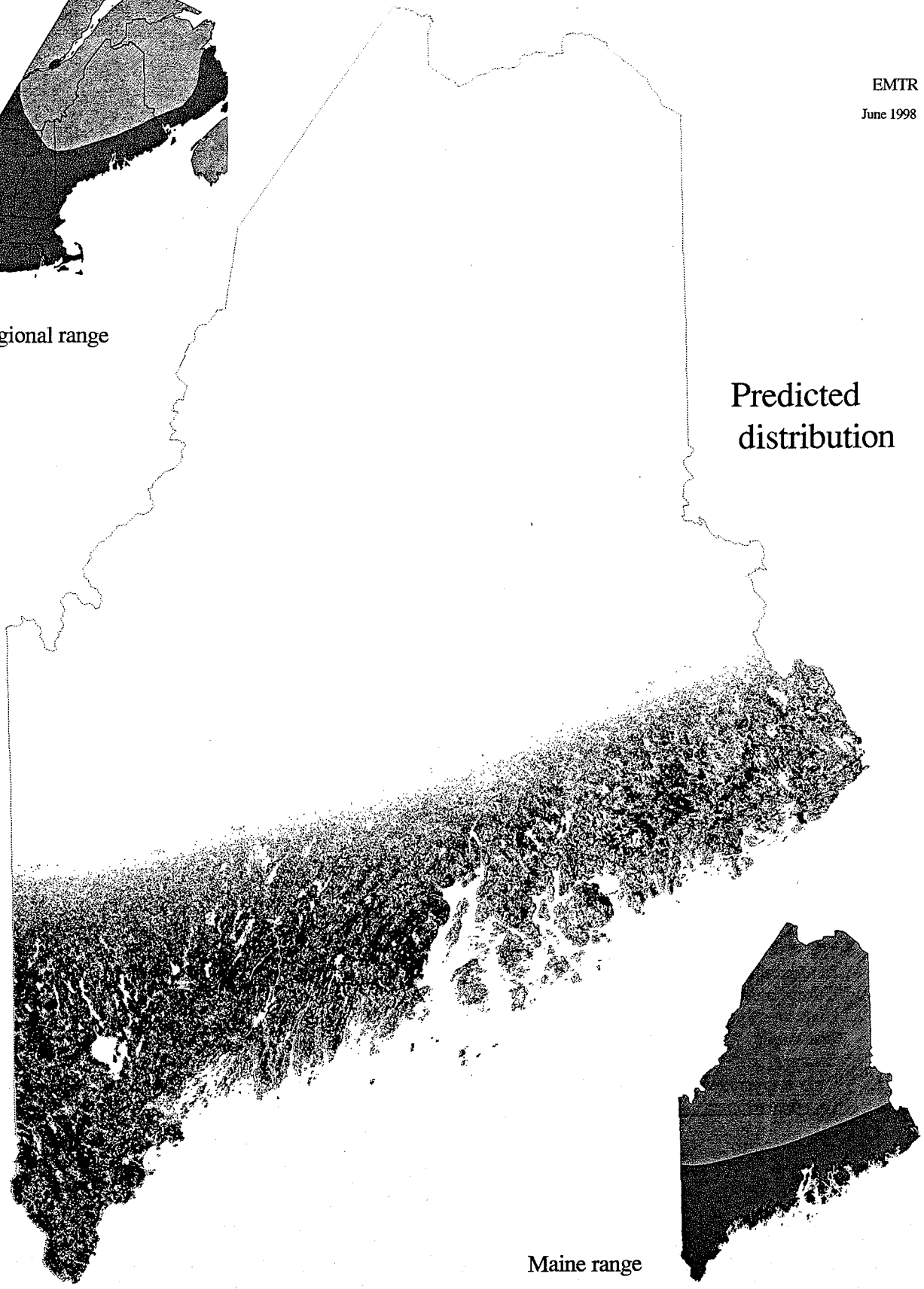
EMTR

June 1998



Regional range

Predicted distribution



Maine range

LEAST FLYCATCHER (*Empidonax minimus*)

Element code: BPAE3307

ME-GAP code: EMMI

Order: Passeriformes

Family: Tyrannidae

Breeding range change: Stable

Listing status: Not listed

Migratory status: Neotropical migrant

Game species: No

Population level: Common

Population trend: Stable

Heritage ranks: G5 . . S4B

Knowledge: Adequate

General habitats used: Least Flycatchers inhabit forest edges, usually associated with deciduous and mixed stands, but also the edges of coniferous stands. The forest type appears to not be critical, only that early successional vegetation is present. Shrubs surrounding ponds, streams, burns, beaver flowages, bogs, roadsides, clearcuts, pastures, and parks. Least Flycatchers construct nests in deciduous trees and shrubs, such as apples, oaks, and willows.

Specific habitats used:

Comments:

Predicted habitat quantities:

LEAST FLYCATCHER					Total in ha: 3,693,359
Habitat	ha	Habitat	ha	Habitat	ha
Agricultural lands		Light partial cut	*35,827*	Fresh emergent	*17,105*
Abandoned field	11,632	Heavy partial cut	89,699	Peatland	30,193
Blueberry field	9,136	Deciduous forest	1,071,266	Wet meadow	*3,793*
Grassland	367,337	Decid./Conif. forest	898,666	Salt aquatic bed	*958*
Crops/Ground	88,035	Conif./Decid. forest	*447,623*	Salt emergent	*566*
Developed lands		Coniferous forest	*91,602*	Mudflat	*680*
Sparse residential	42,799	**Wetlands**		Sand shore	*133*
Dense residential	*8,644*	Deciduous forested	43,230	Gravel shore	*267*
Urban/Industrial	*331*	Coniferous forested	*60,138*	Rock shore	*599*
Highways/Runways	*332*	Dead-forested	1,189	Shallow water	*3,502*
Forestlands		Decid. shrub-scrub	69,245	Open water	*24,889*
Clearcut	73,553	Conifer. shrub-scrub	8,410	**Other**	
Early regeneration	*116,894*	Dead shrub-scrub	68	Alpine tundra	*62*
Late regeneration	*74,160*	Fresh aquatic bed	*41*	Exposed rock/Talus	*752*

For definitions of field contents see the Introductic . Items in *italics* in the table of habitat quantities show habitats not used by the species, but included in the predicted distribution because of generalization (see the Introduction for details).

LEAST FLYCATCHER

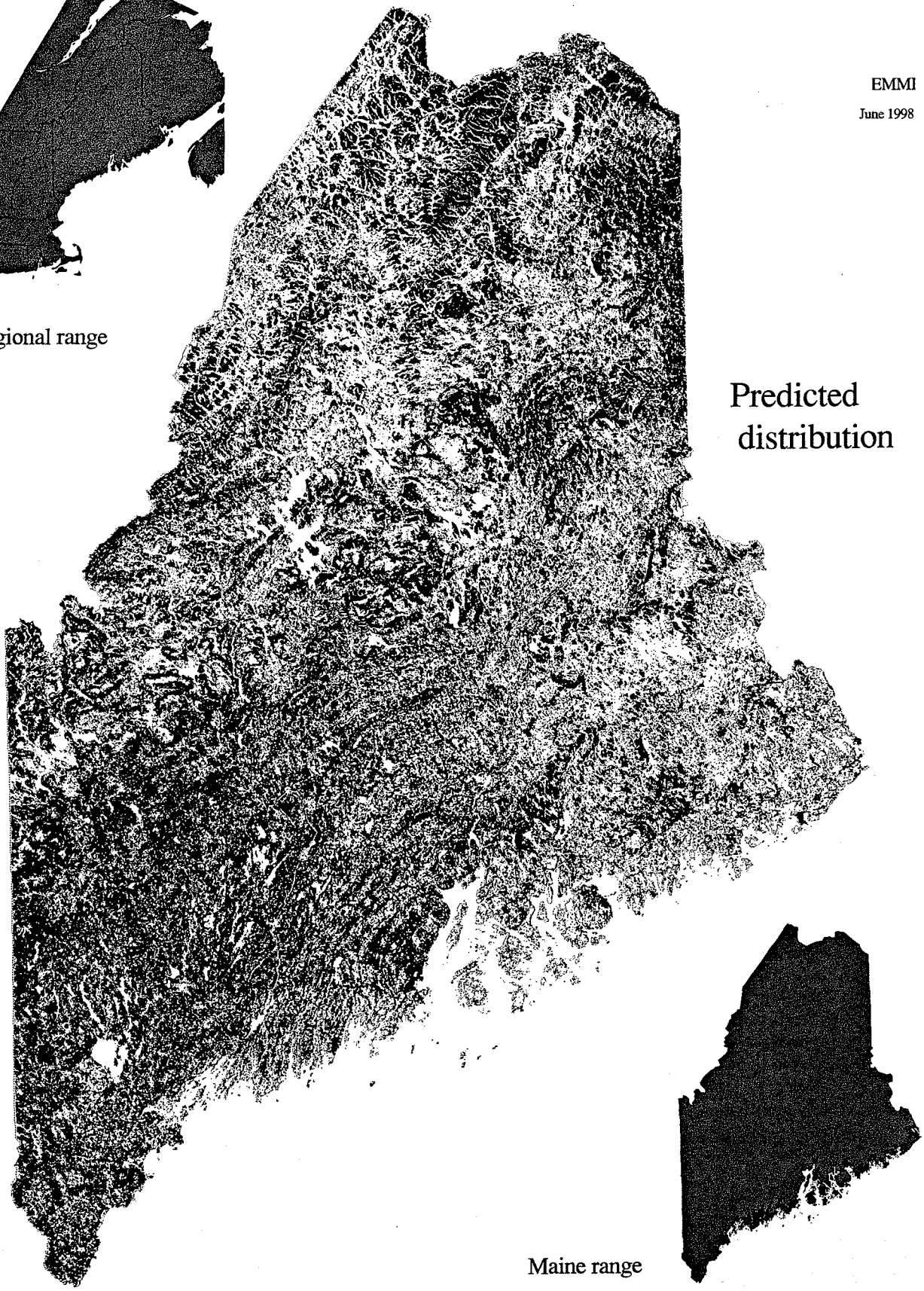
EMMI

June 1998



Regional range

Predicted distribution



Maine range

EASTERN PHOEBE (*Sayornis phoebe*)

Element code: BPAE3502

ME-GAP code: SAPH

Order: Passeriformes

Family: Tyrannidae

Breeding range change: Stable

Listing status: Not listed

Migratory status: US migrant

Game species: No

Population level: Common

Population trend: Stable to slightly declining

Heritage ranks: G5 . . S5B,S5N

Knowledge: Adequate

General habitats used: Eastern Phoebes may occur in a variety of habitats, from open fields to dense woodland, including agricultural and suburban areas (but not high density urban or industrial areas). Phoebes tend to occur near streams. Whether sites are occupied may be determined by nest site availability, because they nest on natural rock ledges, bridges, rafters, culverts, and even under porches (eves of houses). Regardless, Eastern Phoebes are flexible in their placement of nests.

Specific habitats used: Nest sites, such as ledges or structures, are required by breeding Eastern Phoebes.

Comments: Eastern Phoebes are named for their call "Phoebe, Phoebe."

Predicted habitat quantities:

EASTERN PHOEBE					Total in ha: 7,862,630
Habitat	**ha**	**Habitat**	**ha**	**Habitat**	**ha**
Agricultural lands		Light partial cut	111,434	Fresh emergent	68,399
Abandoned field	18,999	Heavy partial cut	149,032	Peatland	45,771
Blueberry field	12,857	Deciduous forest	1,270,470	Wet meadow	15,400
Grassland	456,748	Decid./Conif. forest	1,329,513	Salt aquatic bed	4,504
Crops/Ground	107,141	Conif./Decid. forest	1,760,365	Salt emergent	2,582
Developed lands		Coniferous forest	772,699	Mudflat	2,575
Sparse residential	64,714	**Wetlands**		Sand shore	514
Dense residential	33,208	Deciduous forested	70,711	Gravel shore	2,654
Urban/Industrial	*796*	Coniferous forested	382,953	Rock shore	3,116
Highways/Runways	735	Dead-forested	2,664	Shallow water	14,025
Forestlands		Decid. shrub-scrub	132,436	Open water	*71,488*
Clearcut	123,110	Conifer. shrub-scrub	15,055	**Other**	
Early regeneration	525,870	Dead shrub-scrub	111	Alpine tundra	*650*
Late regeneration	285,003	Fresh aquatic bed	124	Exposed rock/Talus	4,203

For definitions of field contents see the Introduction. Items in *italics* in the table of habitat quantities show habitats not used by the species, but included in the predicted distribution because of generalization (see the Introduction for details).

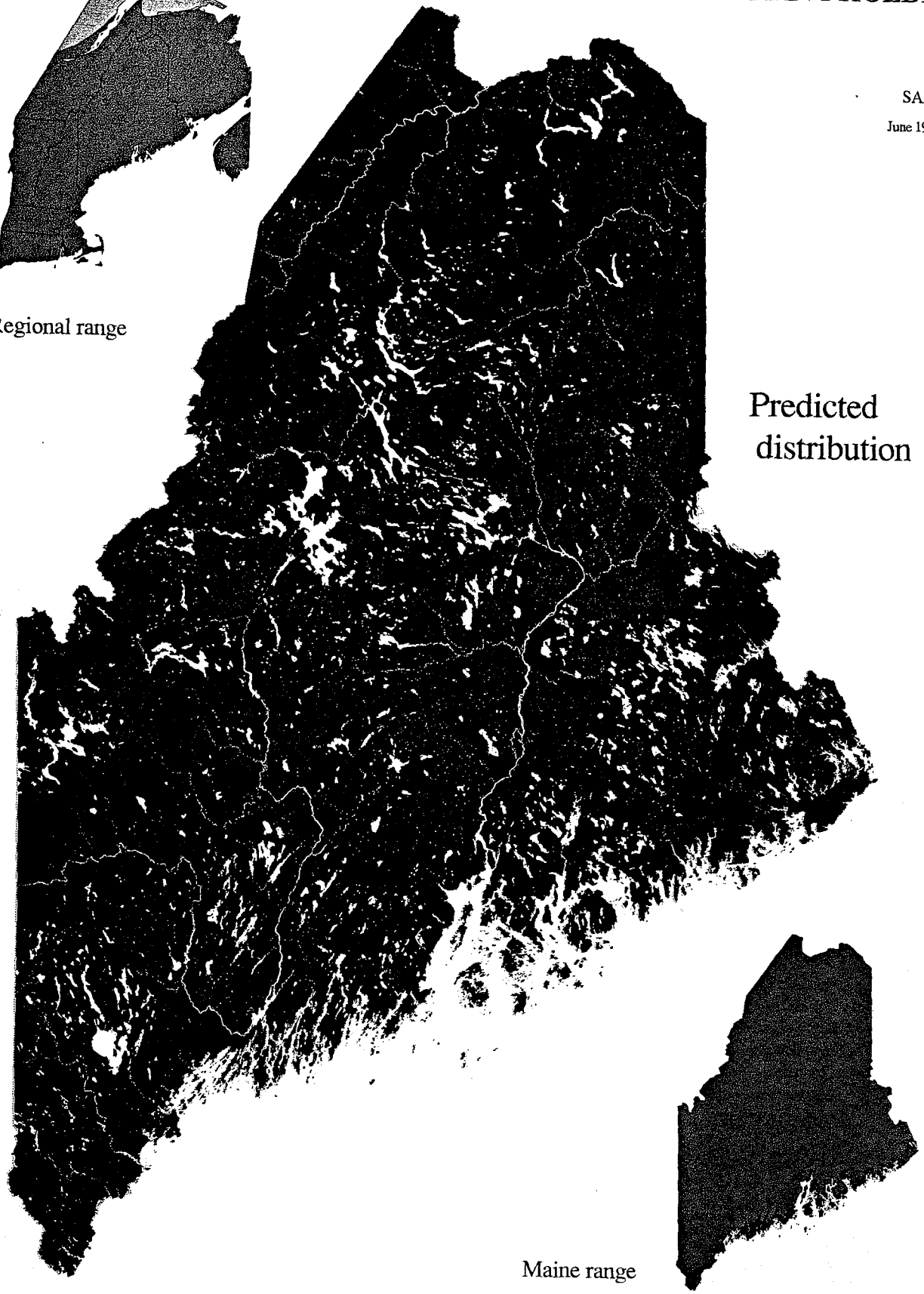
EASTERN PHOEBE

SAPH

June 1998



Regional range



Predicted distribution

Maine range

GREAT CRESTED FLYCATCHER (*Myiarchus crinitus*)

Element code: BPAE4307

ME-GAP code: MYCR

Order: Passeriformes

Family: Tyrannidae

Breeding range change: Stable

Listing status: Not listed

Migratory status: US and Neotropical migrant

Game species: No

Population level: Common

Population trend: Gradual increase

Heritage ranks: G5 . . S5B

Knowledge: Adequate

General habitats used: Great Crested Flycatchers inhabit a variety of forested habitats, especially those with dead trees. These flycatchers are most common in mature stands of deciduous and mixed trees, including swamps, long abandoned farms, bottomland near streams, and treed suburban areas. Great Crested Flycatchers use clearings within forests extensively. They nest in cavities within trees, often in abandoned woodpecker holes, and will use nest boxes.

Specific habitats used: Trees large enough to have cavities suitable for Great Crested Flycatchers (or nest boxes) are used for nesting.

Comments:

Predicted habitat quantities:

GREAT CRESTED FLYCATCHER					Total in ha: 4,970,669
Habitat	**ha**	**Habitat**	**ha**	**Habitat**	**ha**
Agricultural lands		Light partial cut	88,727	Fresh emergent	60,614
Abandoned field	15,500	Heavy partial cut	*39,641*	Peatland	41,171
Blueberry field	*2,009*	Deciduous forest	1,207,064	Wet meadow	14,544
Grassland	*76,068*	Decid./Conif. forest	1,199,804	Salt aquatic bed	4,687
Crops/Ground	*13,072*	Conif./Decid. forest	1,531,353	Salt emergent	2,722
Developed lands		Coniferous forest	*142,864*	Mudflat	3,627
Sparse residential	52,345	**Wetlands**		Sand shore	680
Dense residential	30,507	Deciduous forested	64,288	Gravel shore	2,916
Urban/Industrial	*228*	Coniferous forested	*54,932*	Rock shore	3,370
Highways/Runways	*323*	Dead-forested	2,407	Shallow water	12,407
Forestlands		Decid. shrub-scrub	118,484	Open water	*16,912*
Clearcut	*21,434*	Conifer. shrub-scrub	13,063	**Other**	
Early regeneration	*65,486*	Dead shrub-scrub	73	Alpine tundra	*70*
Late regeneration	*66,804*	Fresh aquatic bed	120	Exposed rock/Talus	*356*

For definitions of field contents see the Introduction. Items in *italics* in the table of habitat quantities show habitats not used by the species, but included in the predicted distribution because of generalization (see the Introduction for details).

GREAT CRESTED FLYCATCHER

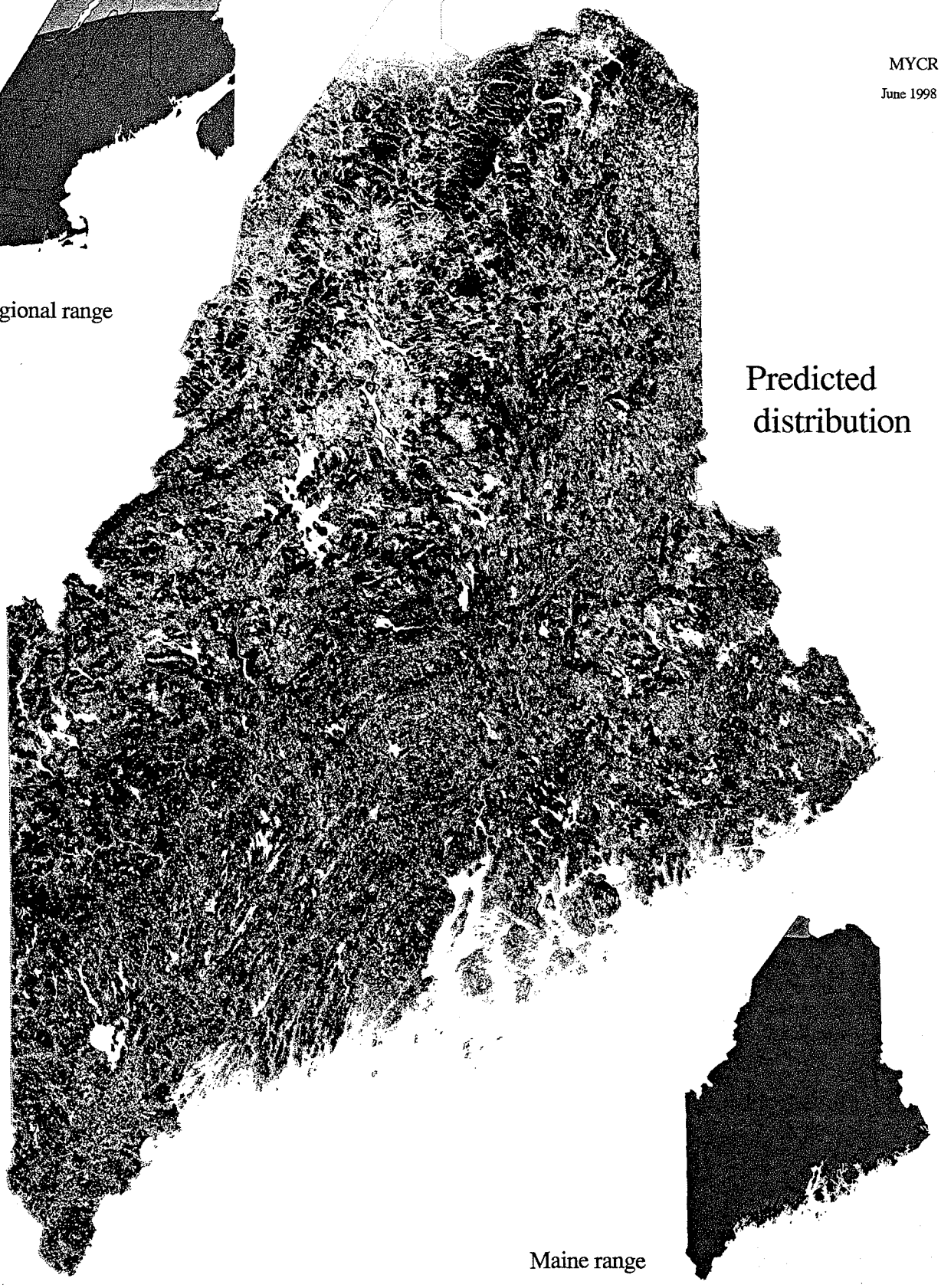
MYCR

June 1998



Regional range

Predicted distribution



Maine range

EASTERN KINGBIRD (*Tyrannus tyrannus*)

Element code: BPAE5206

ME-GAP code: TYTY

Order: Passeriformes

Family: Tyrannidae

Breeding range change: Stable

Listing status: Not listed

Migratory status: Neotropical migrant

Game species: No

Population level: Common

Population trend: Stable to Moderate decrease

Heritage ranks: G5 . . S4S5B

Knowledge: Good

General habitats used: Eastern Kingbirds are closely associated with edges between forested areas and others. Kingbirds occur near the borders of burns, wetlands, pastures, orchards, rivers, lakes, and along hedgerows and roadsides. Forest edges, with some scattered tall trees overhanging streams or pond margins are good kingbird habitat. Eastern Kingbirds often nest in deciduous trees, such as apples, and feed by hawking insects, and gleaning fruit (even fish are sometimes eaten).

Specific habitats used: Eastern Kingbirds use large trees as hunting perches, as they watch for insects.

Comments:

Predicted habitat quantities:

EASTERN KINGBIRD					Total in ha: 2,592,757
Habitat	**ha**	**Habitat**	**ha**	**Habitat**	**ha**
Agricultural lands		Light partial cut	54,359	Fresh emergent	47,328
Abandoned field	11,878	Heavy partial cut	78,173	Peatland	39,794
Blueberry field	9,628	Deciduous forest	*121,987*	Wet meadow	10,985
Grassland	310,952	Decid./Conif. forest	*216,311*	Salt aquatic bed	2,170
Crops/Ground	83,945	Conif./Decid. forest	*323,876*	Salt emergent	1,758
Developed lands		Coniferous forest	*147,047*	Mudflat	1,511
Sparse residential	42,133	**Wetlands**		Sand shore	300
Dense residential	*7,893*	Deciduous forested	45,150	Gravel shore	2,279
Urban/Industrial	*352*	Coniferous forested	262,148	Rock shore	1,840
Highways/Runways	411	Dead-forested	1,593	Shallow water	8,676
Forestlands		Decid. shrub-scrub	95,490	Open water	*27,601*
Clearcut	80,043	Conifer. shrub-scrub	11,323	**Other**	
Early regeneration	387,364	Dead shrub-scrub	71	Alpine tundra	*112*
Late regeneration	155,488	Fresh aquatic bed	83	Exposed rock/Talus	*705*

For definitions of field contents see the Introduction Items in *italics* in the table of habitat quantities show habitats not used by the species, but included in the predicted distribution because of generalization (see the Introduction for details).

EASTERN KINGBIRD

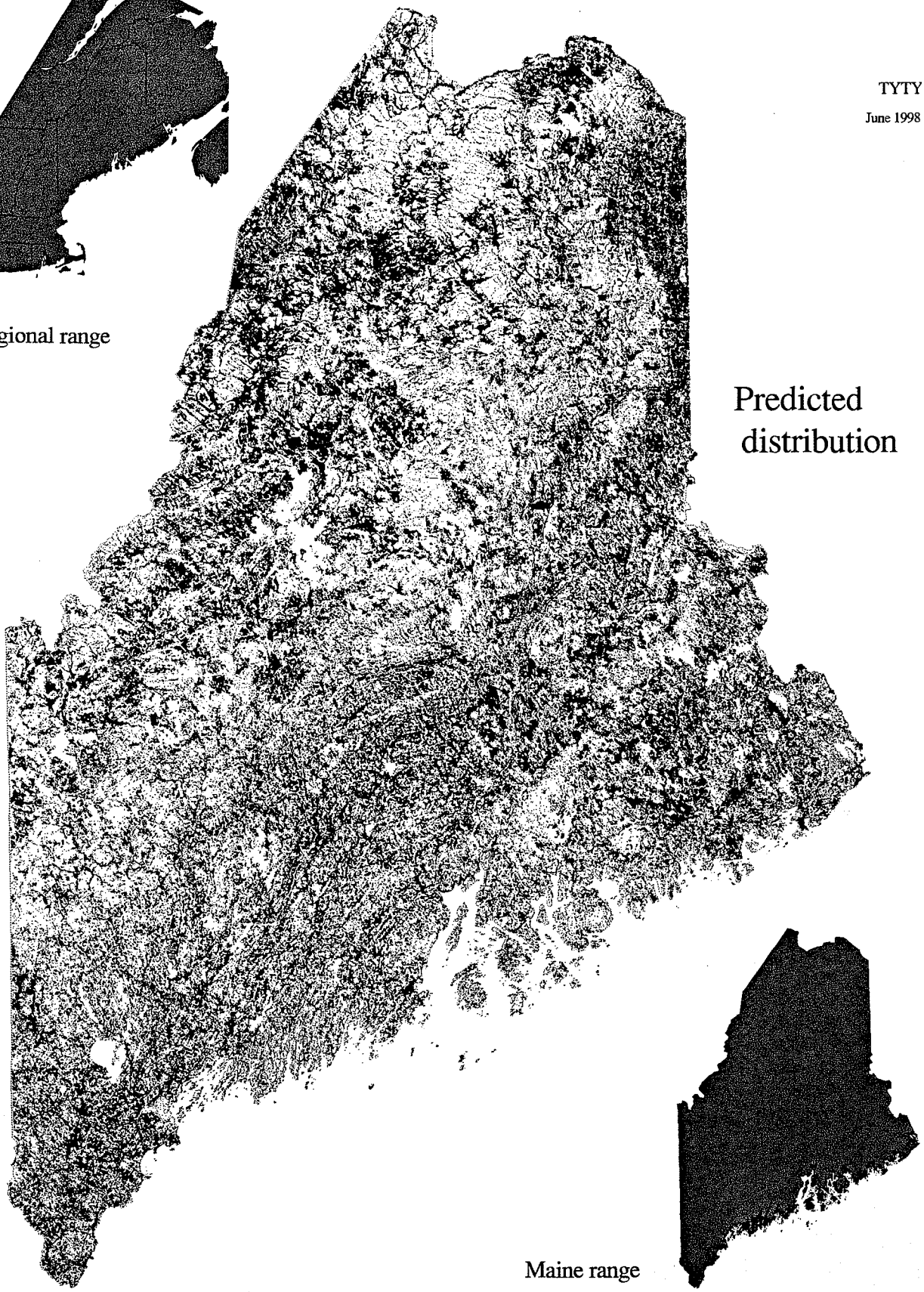
TYTY

June 1998



Regional range

Predicted distribution



Maine range

HORNED LARK (*Eremophila alpestris*)

Element code: BPAT0201

ME-GAP code: ERAL

Order: Passeriformes

Family: Alaudidae

Breeding range change: Stable

Listing status: Not listed

Migratory status: Local migrant; Resident

Game species: No

Population level: Uncommon

Population trend: Stable, slightly decreasing

Heritage ranks: G5 . . S3B,S3S4N

Knowledge: Adequate

General habitats used: Horned Larks are closely associated with sparsely vegetated habitats. They are most common in agricultural lands (especially plowed fields), and also occur in meadows, bogs, clearcuts, heavily burned areas, coastal beaches, and in open urban areas (airports, golf courses, parks, large parking areas). Horned Larks nest on the ground, usually on bare soil or gravel.

Specific habitats used:

Comments: Horned Lark populations may be gradually declining from pesticide use and forest regrowth.

Predicted habitat quantities:

HORNED LARK					Total in ha: 770,006
Habitat	**ha**	**Habitat**	**ha**	**Habitat**	**ha**
Agricultural lands		Light partial cut	*6,796*	Fresh emergent	*3,995*
Abandoned field	*3,322*	Heavy partial cut	42,290	Peatland	*1,106*
Blueberry field	6,737	Deciduous forest	*50,892*	Wet meadow	5,812
Grassland	265,379	Decid./Conif. forest	*73,917*	Salt aquatic bed	*744*
Crops/Ground	71,926	Conif./Decid. forest	*79,046*	Salt emergent	*322*
Developed lands		Coniferous forest	*21,761*	Mudflat	1,064
Sparse residential	32,043	**Wetlands**		Sand shore	224
Dense residential	*6,509*	Deciduous forested	*5,573*	Gravel shore	1,899
Urban/Industrial	943	Coniferous forested	*9,325*	Rock shore	1,445
Highways/Runways	346	Dead-forested	*160*	Shallow water	*1,020*
Forestlands		Decid. shrub-scrub	*8,299*	Open water	*8,764*
Clearcut	*11,417*	Conifer. shrub-scrub	*826*	**Other**	
Early regeneration	*28,011*	Dead shrub-scrub	*25*	Alpine tundra	1,451
Late regeneration	*15,942*	Fresh aquatic bed	*20*	Exposed rock/Talus	*659*

For definitions of field contents see the Introduction. Items in *italic* in the table of habitat quantities show habitats not used by the species, but included in the predicted distribution because of generalization (see the Introduction for details).

HORNED LARK

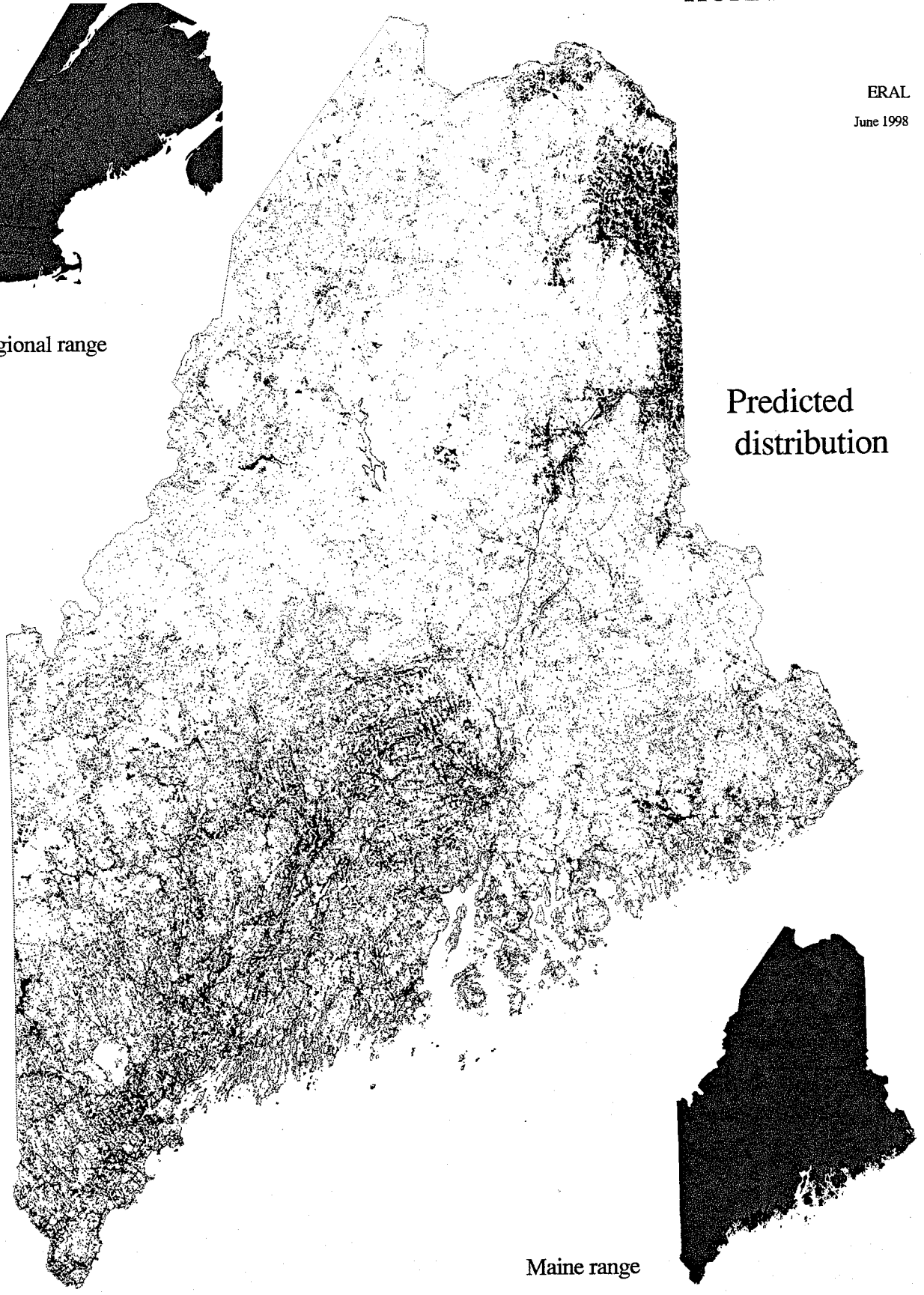
ERAL

June 1998



Regional range

Predicted distribution



Maine range

PURPLE MARTIN (*Progne subis*)

Element code: BPAU0101

ME-GAP code: PRSU

Order: Passeriformes

Family: Hirundinidae

Breeding range change: Unknown

Listing status: Not listed

Migratory status: Neotropical migrant

Game species: No

Population level: Uncommon

Population trend: Declining (causes unknown)

Heritage ranks: G5 . . S3B

Knowledge: Good

General habitats used: Purple Martins occur in open areas, breeding in the yards, golf courses, parks, meadows, swamps, and agricultural fields that boarder water. Martins will hawk insects over open areas, and will skim the surface of water for insects. Although Purple Martins originally nested in natural tree cavities, today they nest almost exclusively in nest boxes, for which they compete with European Starlings, House Finches, and House Sparrows.

Specific habitats used: Nest boxes (usually large multi-roomed nest boxes) are apparently required for Purple Martins to breed in numbers in an area.

Comments:

Predicted habitat quantities:

PURPLE MARTIN					Total in ha: 937,632
Habitat	**ha**	**Habitat**	**ha**	**Habitat**	**ha**
Agricultural lands		Light partial cut	*3,847*	Fresh emergent	17,764
Abandoned field	11,450	Heavy partial cut	25,567	Peatland	4,578
Blueberry field	10,443	Deciduous forest	*19,060*	Wet meadow	4,758
Grassland	305,478	Decid./Conif. forest	*37,057*	Salt aquatic bed	5,102
Crops/Ground	56,928	Conif./Decid. forest	*61,106*	Salt emergent	2,350
Developed lands		Coniferous forest	*22,972*	Mudflat	4,567
Sparse residential	45,362	**Wetlands**		Sand shore	745
Dense residential	26,994	Deciduous forested	*5,602*	Gravel shore	187
Urban/Industrial	*396*	Coniferous forested	*9,752*	Rock shore	799
Highways/Runways	565	Dead-forested	*211*	Shallow water	4,840
Forestlands		Decid. shrub-scrub	29,324	Open water	155,356
Clearcut	38,433	Conifer. shrub-scrub	2,438	**Other**	
Early regeneration	*12,719*	Dead shrub-scrub	18	Alpine tundra	*0*
Late regeneration	*10,367*	Fresh aquatic bed	48	Exposed rock/Talus	*449*

For definitions of field contents see the Introduction. Items in *italics* in the table of habitat quantities show habitats not used by the species, but included in the predicted distribution because of generalization (see the Introduction for details).

PURPLE MARTIN

PRSU

June 1998



Regional range

Predicted distribution



Maine range

TREE SWALLOW (*Tachycineta bicolor*)

Element code: BPAU0301

ME-GAP code: TABI

Order: Passeriformes

Family: Hirundinidae

Breeding range change: Stable

Listing status: Not listed

Migratory status: US and Neotropical migrant

Game species: No

Population level: Abundant

Population trend: Stable, but not well surveyed

Heritage ranks: G5 . . S5B

Knowledge: Good

General habitats used: Tree Swallows favor nesting sites within cavities in standing dead trees, in ponds or slow moving rivers. Beaver flowages with flooded forest are good habitat for swallows. These swallows will occur in open forests, farmlands, low density residential areas, and meadows, if lakes, ponds, streams, or rivers are nearby. Tree Swallows feed over open water, hawking and skimming the surface of the water for insects.

Specific habitats used: Trees with a minimum diameter-at-breast-height of 25 cm (or nest boxes) are readily used by Tree Swallows for nesting.

Comments:

Predicted habitat quantities:

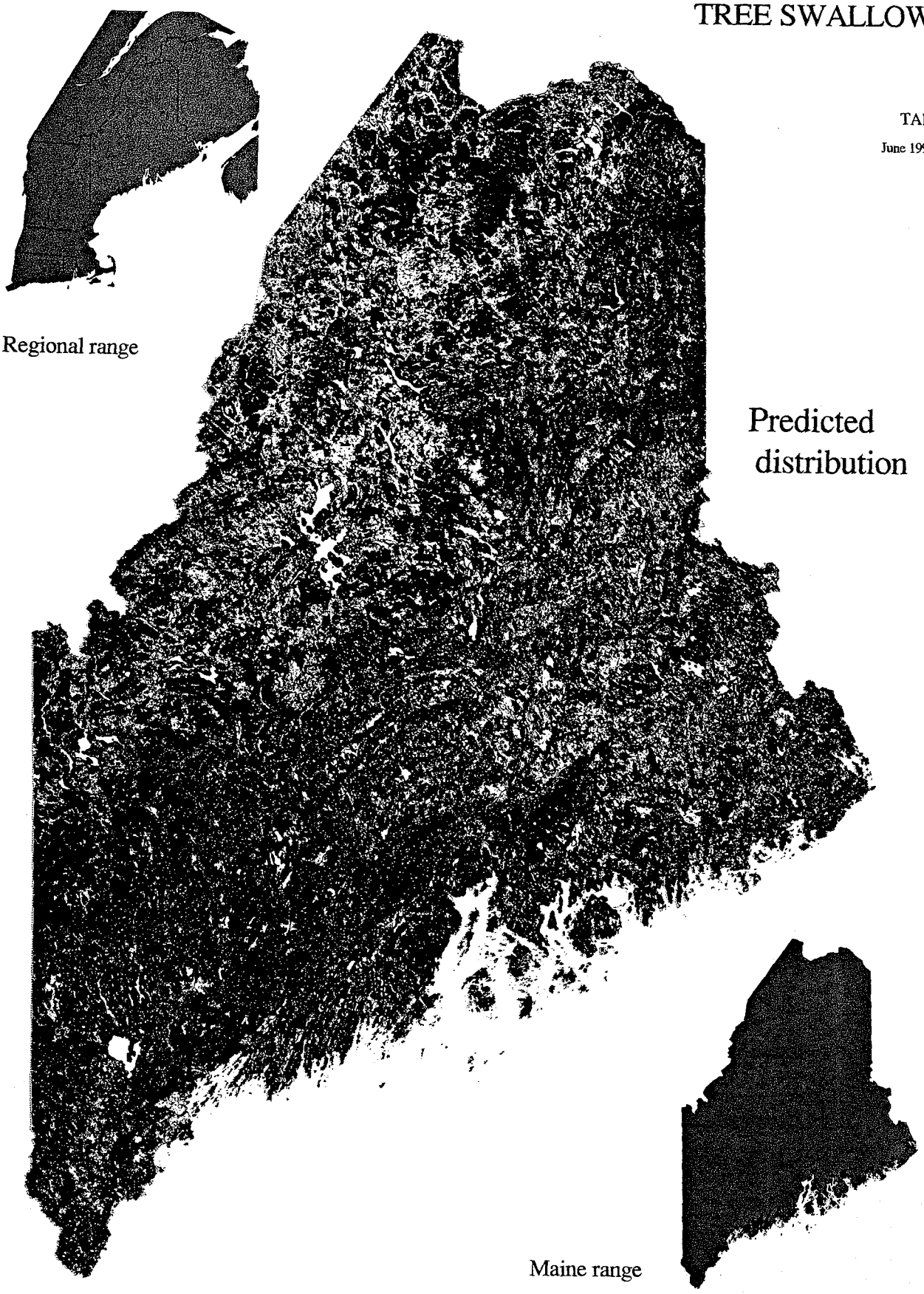
TREE SWALLOW					Total in ha: 6,681,861
Habitat	**ha**	**Habitat**	**ha**	**Habitat**	**ha**
Agricultural lands		Light partial cut	*73,139*	Fresh emergent	29,613
Abandoned field	17,046	Heavy partial cut	123,143	Peatland	6,358
Blueberry field	11,391	Deciduous forest	1,228,395	Wet meadow	6,768
Grassland	431,633	Decid./Conif. forest	1,242,009	Salt aquatic bed	5,094
Crops/Ground	100,020	Conif./Decid. forest	1,634,970	Salt emergent	1,976
Developed lands		Coniferous forest	714,187	Mudflat	2,904
Sparse residential	59,112	**Wetlands**		Sand shore	523
Dense residential	*12,415*	Deciduous forested	29,380	Gravel shore	859
Urban/Industrial	*437*	Coniferous forested	117,224	Rock shore	2,262
Highways/Runways	563	Dead-forested	1,017	Shallow water	12,425
Forestlands		Decid. shrub-scrub	48,572	Open water	294,703
Clearcut	97,680	Conifer. shrub-scrub	3,907	**Other**	
Early regeneration	*204,632*	Dead shrub-scrub	91	Alpine tundra	*442*
Late regeneration	*165,772*	Fresh aquatic bed	58	Exposed rock/Talus	*1,142*

For definitions of field contents see the Introduction. Items in *italics* in the table of habitat quantities show habitats not used by the species, but included in the predicted distribution because of generalization (see the Introduction for details).

TREE SWALLOW

TABI

June 1998



NORTHERN ROUGH-WINGED SWALLOW (*Stelgidopteryx serripennis*)

Element code: BPAU0701 **ME-GAP code:** STSE

Order: Passeriformes **Family:** Hirundinidae

Breeding range change: Expanding **Listing status:** Not listed

Migratory status: US and Neotropical migrant **Game species:** No

Population level: Uncommon **Population trend:** Moderate decline, but not well surveyed

Heritage ranks: G5 . . S3S4B **Knowledge:** Adequate

General habitats used: Northern Rough-winged Swallows are closely associated with aquatic habitats for foraging. Streams are good foraging habitat for these swallows. Northern Rough-winged Swallows will nest and sometimes feed in open habitats, such as farmland and low density residential areas. These swallows nest in cavities in stream banks (in abandoned Belted Kingfisher nests, often), on rock ledges, or buildings.

Specific habitats used: Suitable nesting sites (e.g., stream banks, buildings) must be available for Northern Rough-winged Swallows to occupy an area.

Comments:

Predicted habitat quantities:

NORTHERN ROUGH-WINGED SWALLOW					Total in ha: 1,126,045
Habitat	**ha**	**Habitat**	**ha**	**Habitat**	**ha**
Agricultural lands		Light partial cut	*3,563*	Fresh emergent	38,314
Abandoned field	13,094	Heavy partial cut	*5,130*	Peatland	24,090
Blueberry field	10,689	Deciduous forest	*21,732*	Wet meadow	10,199
Grassland	309,308	Decid./Conif. forest	*40,843*	Salt aquatic bed	5,852
Crops/Ground	36,009	Conif./Decid. forest	*58,997*	Salt emergent	6,918
Developed lands		Coniferous forest	*21,275*	Mudflat	9,966
Sparse residential	40,104	**Wetlands**		Sand shore	1,522
Dense residential	28,561	Deciduous forested	*7,348*	Gravel shore	972
Urban/Industrial	*369*	Coniferous forested	*13,036*	Rock shore	1,067
Highways/Runways	637	Dead-forested	*261*	Shallow water	7,241
Forestlands		Decid. shrub-scrub	69,012	Open water	252,131
Clearcut	52,136	Conifer. shrub-scrub	7,996	**Other**	
Early regeneration	*14,467*	Dead shrub-scrub	73	Alpine tundra	*2*
Late regeneration	*10,893*	Fresh aquatic bed	104	Exposed rock/Talus	2,133

For definitions of field contents see the Introduc on. Items in *italics* in the table of habitat quantities show habitats not used by the species, but included in the predicted distribution because of generalization (see the Introduction for details).

NORTHERN ROUGH-WINGED SWALLOW

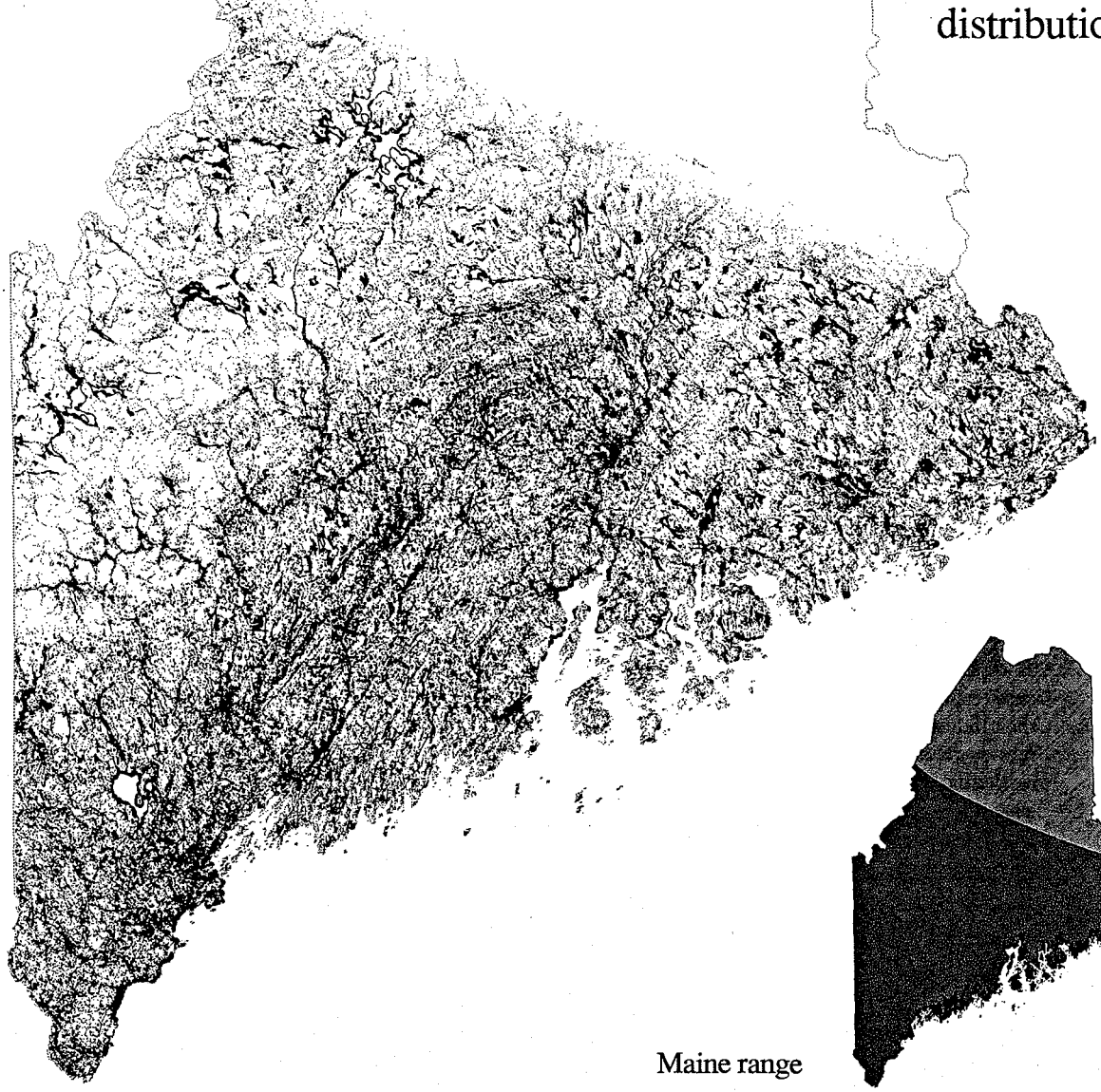
STSE

June 1998



Regional range

Predicted distribution





Maine range

BANK SWALLOW (*Riparia riparia*)

Element code: BPAU0801

ME-GAP code: RIRI

Order: Passeriformes

Family: Hirundinidae

Breeding range change: Stable

Listing status: Not listed

Migratory status: Neotropical migrant

Game species: No

Population level: Common

Population trend: Stable, but not well surveyed

Heritage ranks: G5 . . S5B

Knowledge: Good

General habitats used: Bank Swallows forage over water (especially large streams and rivers) and open agricultural and residential areas. Pastures and cropland are selected for foraging. Bank Swallows nest in burrows dug into the banks of streams, along roadcuts, or the walls of sand or gravel pits. Banks selected for nests must be relatively high and steep. Scarcity of nest sites may be limiting swallow populations.

Specific habitats used: Nest sites (i.e., stream banks, roadcuts, etc.) near open lands and water are required by Bank Swallows.

Comments:

Predicted habitat quantities:

BANK SWALLOW					Total in ha: 1,445,715
Habitat	ha	Habitat	ha	Habitat	ha
Agricultural lands		Light partial cut	*12,400*	Fresh emergent	15,477
Abandoned field	9,445	Heavy partial cut	49,810	Peatland	3,221
Blueberry field	8,183	Deciduous forest	*74,972*	Wet meadow	3,864
Grassland	286,733	Decid./Conif. forest	*117,582*	Salt aquatic bed	2,779
Crops/Ground	78,553	Conif./Decid. forest	*170,034*	Salt emergent	1,268
Developed lands		Coniferous forest	*69,484*	Mudflat	1,933
Sparse residential	36,308	**Wetlands**		Sand shore	326
Dense residential	*7,982*	Deciduous forested	*10,388*	Gravel shore	638
Urban/Industrial	*401*	Coniferous forested	*27,209*	Rock shore	1,277
Highways/Runways	380	Dead-forested	*376*	Shallow water	10,055
Forestlands		Decid. shrub-scrub	27,140	Open water	278,071
Clearcut	52,947	Conifer. shrub-scrub	1,946	**Other**	
Early regeneration	*52,959*	Dead shrub-scrub	50	Alpine tundra	*232*
Late regeneration	*27,887*	Fresh aquatic bed	35	Exposed rock/Talus	3,370

For definitions of field contents see the Introduction. Items in *italics* in the table of habitat quantities show habitats not used by the species, but included in the predicted distribution because of generalization (see the Introduction for details).

BANK SWALLOW

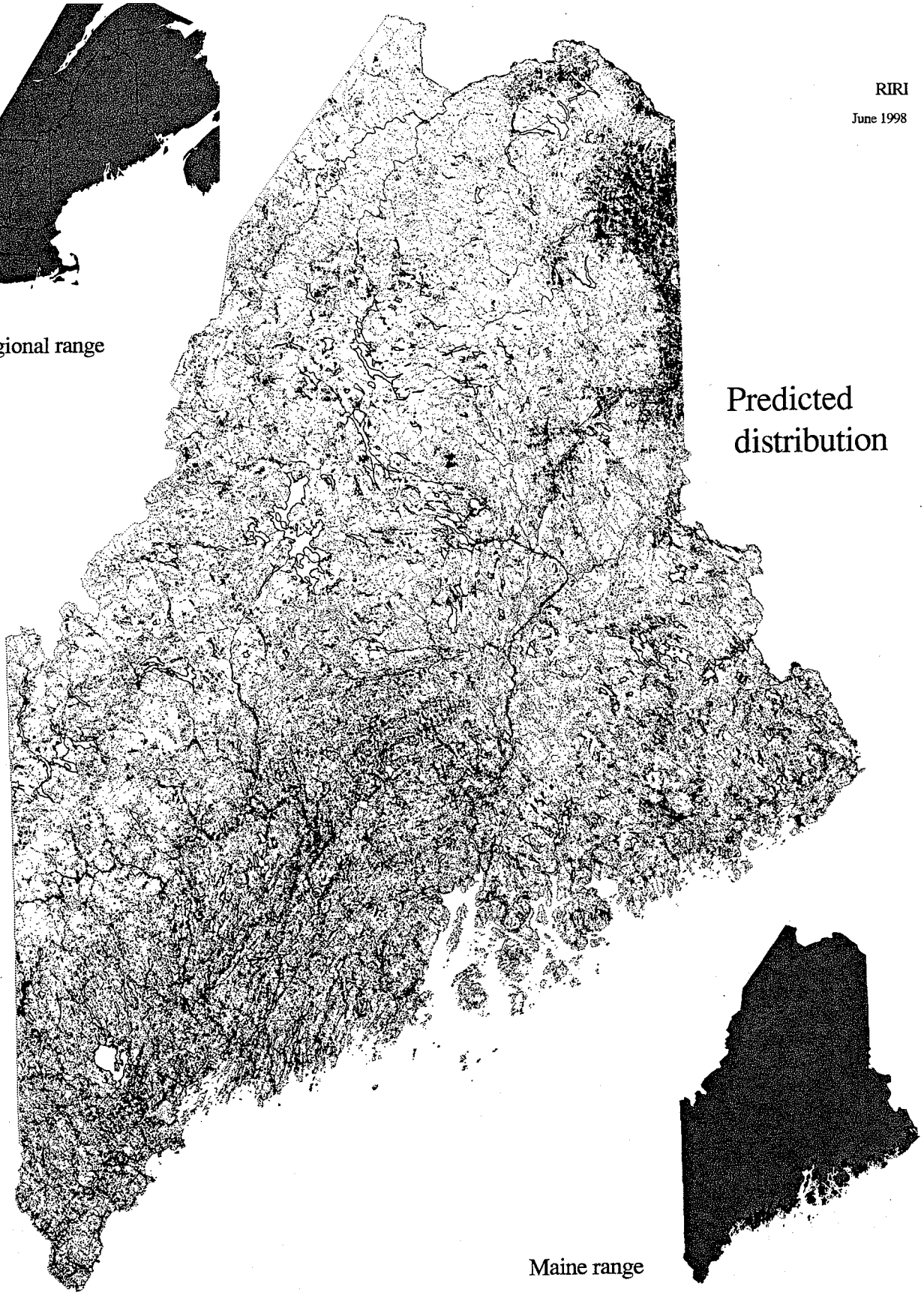
RIRI

June 1998



Regional range

Predicted distribution



Maine range

CLIFF SWALLOW (*Petrochelidon pyrrhonota*)

Element code: BPAU0901

ME-GAP code: HIPY

Order: Passeriformes

Family: Hirundinidae

Breeding range change: Stable

Listing status: Not listed

Migratory status: Neotropical migrant

Game species: No

Population level: Uncommon

Population trend: Moderate decline, but not well surveyed

Heritage ranks: G5 . . S5B

Knowledge: Adequate

General habitats used: Cliff Swallows forage over residential areas, parks, farmland, pastures, open forests, and over running water. These swallows may feed high over suitable habitats. Today, nests of Cliff Swallows are almost entirely constructed on man-made structures. Nests are built of mud, adhered to the outside, vertical walls (or eaves) of buildings and bridges. In general, these swallows nest on the outside of buildings, and Barn Swallows on the inside. Cliff Swallows compete with House Sparrows for nest sites.

Specific habitats used: Buildings or other structures with somewhat rough siding are used by Cliff Swallows for nest sites.

Comments:

Predicted habitat quantities:

CLIFF SWALLOW					Total in ha: 1,254,806
Habitat	**ha**	**Habitat**	**ha**	**Habitat**	**ha**
Agricultural lands		Light partial cut	*8,675*	Fresh emergent	35,138
Abandoned field	9,321	Heavy partial cut	*12,252*	Peatland	30,746
Blueberry field	8,142	Deciduous forest	*55,109*	Wet meadow	9,844
Grassland	286,404	Decid./Conif. forest	*91,548*	Salt aquatic bed	2,974
Crops/Ground	78,512	Conif./Decid. forest	*133,783*	Salt emergent	1,095
Developed lands		Coniferous forest	*56,945*	Mudflat	18,445
Sparse residential	36,039	**Wetlands**		Sand shore	311
Dense residential	*8,031*	Deciduous forested	*13,292*	Gravel shore	2,905
Urban/Industrial	1,008	Coniferous forested	*43,154*	Rock shore	2,850
Highways/Runways	374	Dead-forested	*433*	Shallow water	6,682
Forestlands		Decid. shrub-scrub	67,966	Open water	110,876
Clearcut	51,109	Conifer. shrub-scrub	8,601	**Other**	
Early regeneration	*40,916*	Dead shrub-scrub	63	Alpine tundra	*28*
Late regeneration	*20,583*	Fresh aquatic bed	78	Exposed rock/Talus	*573*

For definitions of field contents see the Introduction. Items in *italics* in the table of habitat quantities show habitats not used by the species, but included in the predicted distribution because of generalization (see the Introduction for details).

CLIFF SWALLOW

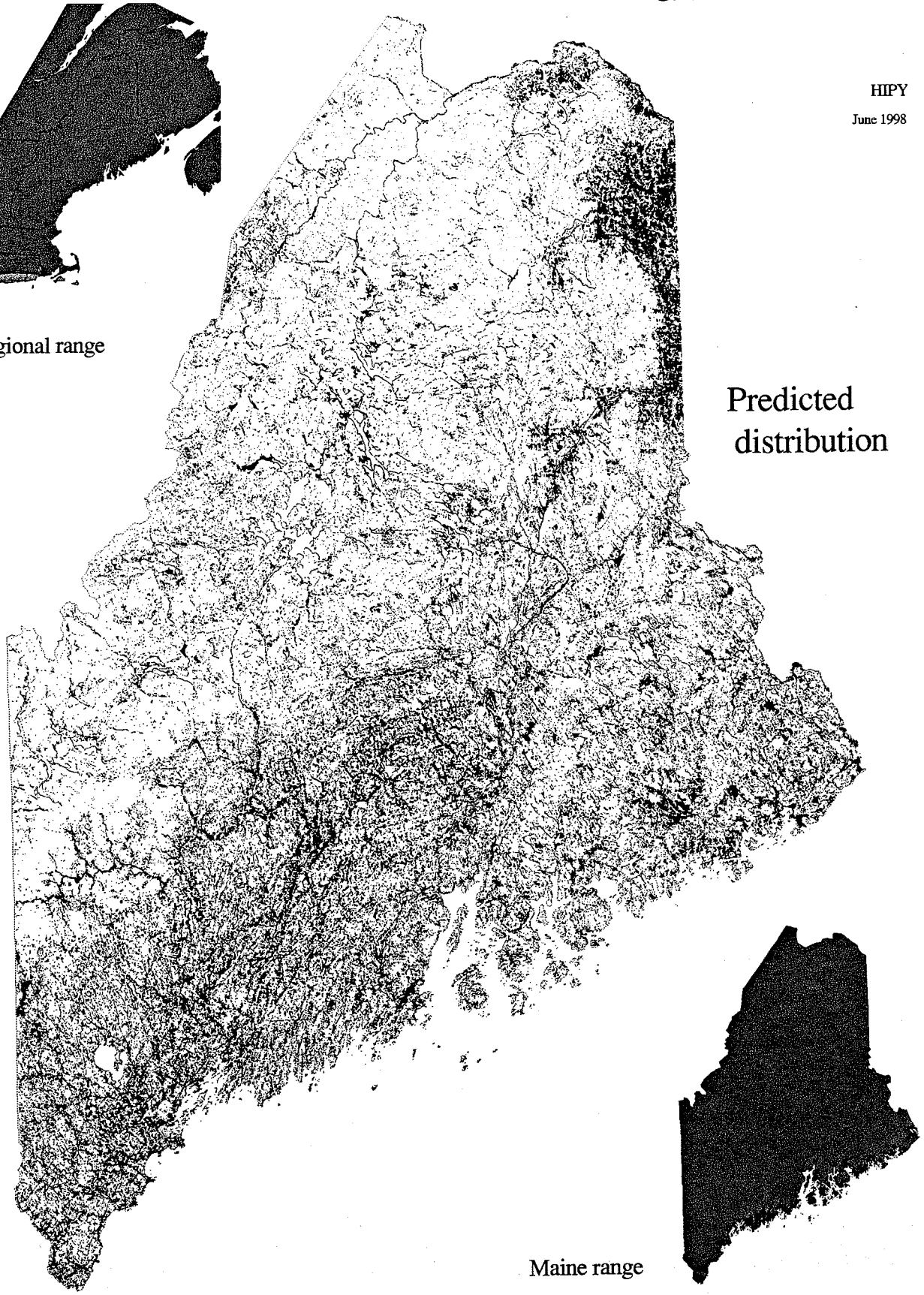
HIPY

June 1998



Regional range

Predicted distribution



Maine range

BARN SWALLOW (*Hirundo rustica*)

Element code: BPAU0903

ME-GAP code: HIRU

Order: Passeriformes

Family: Hirundinidae

Breeding range change: Stable

Listing status: Not listed

Migratory status: Neotropical migrant

Game species: No

Population level: Common

Population trend: Gradual decline, but not well surveyed

Heritage ranks: G5 . . S4B

Knowledge: Good

General habitats used: Barn Swallows forage over open water (rivers, ponds, and lakes), agricultural areas, clearcuts, and open residential areas, such as parks and golf courses. Today, Barn Swallows rarely nest in natural sites (e.g., rock crevices, caves), but nest as colonies with their nests on bridges, in culverts, and inside barns and other open buildings.

Specific habitats used: Man-made structures are commonly used as a substrate for nest construction by Barn Swallows.

Comments: Because Barn swallows are a migratory species, they are protected under federal statues. Barn Swallow nests should not be destroyed.

Predicted habitat quantities:

BARN SWALLOW					Total in ha: 1,463,474
Habitat	ha	Habitat	ha	Habitat	ha
Agricultural lands		Light partial cut	*10,919*	Fresh emergent	8,277
Abandoned field	9,078	Heavy partial cut	48,460	Peatland	2,635
Blueberry field	8,058	Deciduous forest	*67,220*	Wet meadow	2,460
Grassland	283,493	Decid./Conif. forest	*102,204*	Salt aquatic bed	2,747
Crops/Ground	78,162	Conif./Decid. forest	*138,438*	Salt emergent	809
Developed lands		Coniferous forest	*55,698*	Mudflat	1,911
Sparse residential	36,205	**Wetlands**		Sand shore	324
Dense residential	27,906	Deciduous forested	*6,311*	Gravel shore	582
Urban/Industrial	*783*	Coniferous forested	*12,860*	Rock shore	1,256
Highways/Runways	534	Dead-forested	*183*	Shallow water	9,685
Forestlands		Decid. shrub-scrub	11,803	Open water	411,610
Clearcut	50,453	Conifer. shrub-scrub	1,197	**Other**	
Early regeneration	*46,373*	Dead shrub-scrub	54	Alpine tundra	*29*
Late regeneration	*23,999*	Fresh aquatic bed	23	Exposed rock/Talus	*735*

For definitions of field contents see the Introduction. Items in *italics* in the table of habitat quantities show habitats not used by the species, but included in the predicted distribution because of generalization (see the Introduction for details).

BARN SWALLOW

HIRU

June 1998



Regional range

Predicted distribution



Maine range

GRAY JAY (*Perisoreus canadensis*)

Element code: BPAV0101

ME-GAP code: PECA

Order: Passeriformes

Family: Corvidae

Breeding range change: Unknown

Listing status: Not listed

Migratory status: Resident; Local migrant

Game species: No

Population level: Common

Population trend: Stable

Heritage ranks: G5 . . S5

Knowledge: Adequate

General habitats used: Gray Jays inhabit dry or wet coniferous forests, and mixed coniferous-deciduous forests. Extensive deciduous forests are not used by Gray Jays. Spruce-fir forests, cedar bogs, and black-spruce and tamarack swamps may contain Gray Jays. These jays typically nest in conifers.

Specific habitats used:

Comments:

Predicted habitat quantities:

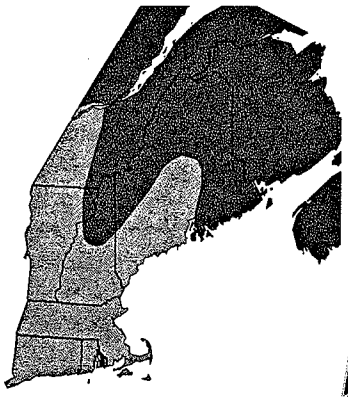
GRAY JAY					Total in ha: 2,097,809
Habitat	**ha**	**Habitat**	**ha**	**Habitat**	**ha**
Agricultural lands		Light partial cut	*12,424*	Fresh emergent	*5,576*
Abandoned field	*1,431*	Heavy partial cut	62,732	Peatland	31,230
Blueberry field	*922*	Deciduous forest	*21,263*	Wet meadow	*1,005*
Grassland	*7,221*	Decid./Conif. forest	*81,992*	Salt aquatic bed	*656*
Crops/Ground	*2,727*	Conif./Decid. forest	917,687	Salt emergent	*136*
Developed lands		Coniferous forest	499,993	Mudflat	1,436
Sparse residential	20,109	**Wetlands**		Sand shore	216
Dense residential	*271*	Deciduous forested	17,683	Gravel shore	*122*
Urban/Industrial	*0*	Coniferous forested	258,176	Rock shore	*246*
Highways/Runways	*21*	Dead-forested	1,247	Shallow water	*1,182*
Forestlands		Decid. shrub-scrub	*12,331*	Open water	*5,787*
Clearcut	61,366	Conifer. shrub-scrub	7,159	**Other**	
Early regeneration	*34,013*	Dead shrub-scrub	27	Alpine tundra	*60*
Late regeneration	*29,252*	Fresh aquatic bed	*2*	Exposed rock/Talus	*107*

For definitions of field contents see the Introduction. Items in *italics* in the table of habitat quantities show habitats not used by the species, but included in the predicted distribution because of generalization (see the Introduction for details).

GRAY JAY

PECA

June 1998



Regional range

Predicted distribution



Maine range

BLUE JAY (*Cyanocitta cristata*)

Element code: BPAV0202

ME-GAP code: CYCR

Order: Passeriformes

Family: Corvidae

Breeding range change: Stable

Listing status: Not listed

Migratory status: Local migrant; Resident

Game species: No

Population level: Common

Population trend: Stable

Heritage ranks: G5 . . S5

Knowledge: Good

General habitats used: Blue Jays tend to select open, mixed forests. Regardless, jays use a wide variety of habitats, including open coniferous and deciduous forests (selecting oaks, beech, and hickory), residential areas, parks, golf courses, cropland and farmland. Blue Jays most often nest in coniferous trees, including within patches of conifers in mixed stands. Deciduous trees and shrubs also are used as nest substrates.

Specific habitats used:

Comments: The colorful Blue-Jay can often be seen as stashing nuts away for winter use. It is for this reason that some theorize that the northern movement of oaks after the last ice age can be correlated with the northern movement of Blue Jays at that time.

Predicted habitat quantities:

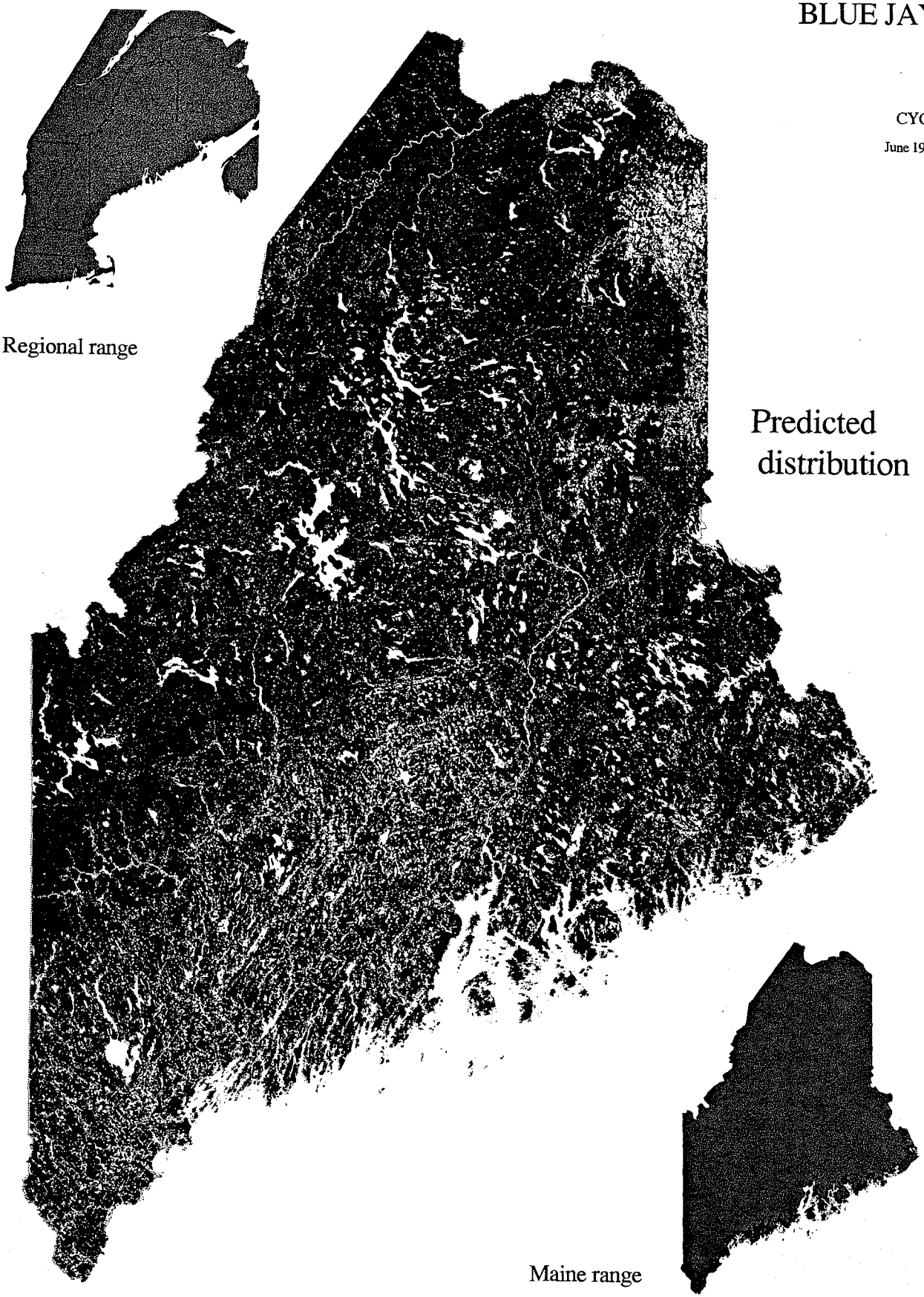
BLUE JAY					**Total in ha:** 6,811,184
Habitat	**ha**	**Habitat**	**ha**	**Habitat**	**ha**
Agricultural lands		Light partial cut	101,124	Fresh emergent	*39,411*
Abandoned field	15,147	Heavy partial cut	136,068	Peatland	*17,617*
Blueberry field	*5,620*	Deciduous forest	1,195,624	Wet meadow	*7,793*
Grassland	*181,839*	Decid./Conif. forest	1,213,286	Salt aquatic bed	*3,953*
Crops/Ground	*33,466*	Conif./Decid. forest	1,624,410	Salt emergent	*1,727*
Developed lands		Coniferous forest	721,920	Mudflat	*2,754*
Sparse residential	46,954	**Wetlands**		Sand shore	*496*
Dense residential	27,138	Deciduous forested	61,401	Gravel shore	*623*
Urban/Industrial	*506*	Coniferous forested	354,305	Rock shore	*1,639*
Highways/Runways	*488*	Dead-forested	2,310	Shallow water	*8,042*
Forestlands		Decid. shrub-scrub	114,165	Open water	*58,672*
Clearcut	*72,905*	Conifer. shrub-scrub	12,686	**Other**	
Early regeneration	485,371	Dead shrub-scrub	81	Alpine tundra	*410*
Late regeneration	260,325	Fresh aquatic bed	*49*	Exposed rock/Talus	*862*

For definitions of field contents see the Introduction. Items in *italics* in the table of habitat quantities show habitats not used by the species, but included in the predicted distribution because of generalization (see the Introduction for details).

BLUE JAY

CYCR

June 1998



Regional range

Predicted distribution

Maine range

AMERICAN CROW (*Corvus brachyrhynchos*)

Element code: BPAV1001 **ME-GAP code:** COBR

Order: Passeriformes **Family:** Corvidae

Breeding range change: Stable **Listing status:** Not listed

Migratory status: Resident; Local migrant **Game species:** No

Population level: Common **Population trend:** Stable

Heritage ranks: G5 . . S5 **Knowledge:** Good

General habitats used: American Crows inhabit open forests of all types, and along the edges of closed forests. Crows forage in open habitats interspersed with these forests, such as cropland, pastures, clearcuts, bogs, marshes, parks, and residential areas. American Crows will search along highways and smaller roads, looking for carrion. Crows select conifers to build nests in, but will readily use deciduous trees.

Specific habitats used:

Comments:

Predicted habitat quantities:

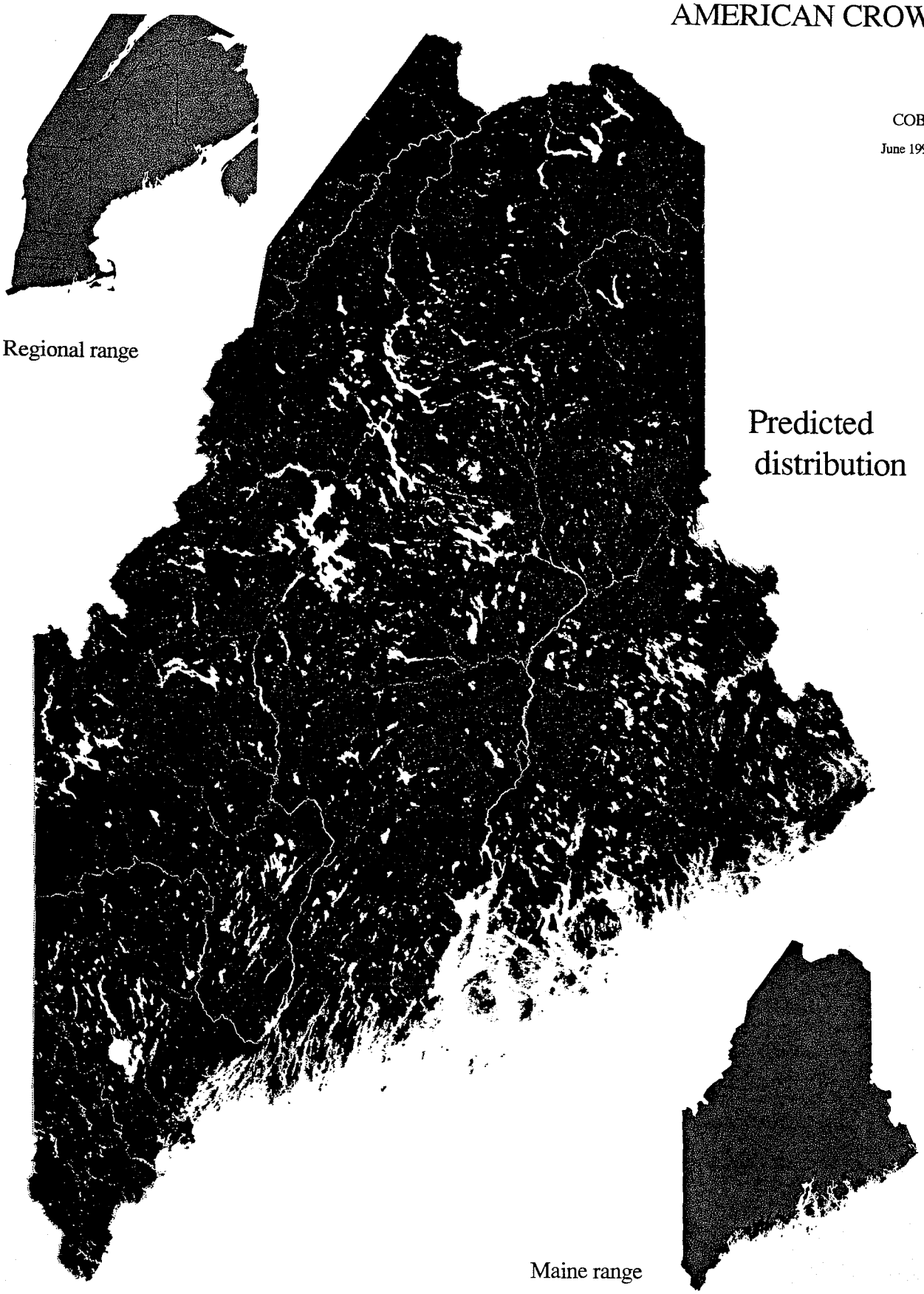
AMERICAN CROW					Total in ha: 7,811,515
Habitat	ha	Habitat	ha	Habitat	ha
Agricultural lands		Light partial cut	109,644	Fresh emergent	67,317
Abandoned field	18,831	Heavy partial cut	147,953	Peatland	45,229
Blueberry field	12,752	Deciduous forest	1,268,821	Wet meadow	15,050
Grassland	455,265	Decid./Conif. forest	1,326,058	Salt aquatic bed	*3,314*
Crops/Ground	106,739	Conif./Decid. forest	1,753,572	Salt emergent	1,441
Developed lands		Coniferous forest	767,047	Mudflat	*1,726*
Sparse residential	64,067	**Wetlands**		Sand shore	*352*
Dense residential	32,954	Deciduous forested	70,083	Gravel shore	*778*
Urban/Industrial	*763*	Coniferous forested	380,314	Rock shore	*1,730*
Highways/Runways	735	Dead-forested	2,616	Shallow water	*10,161*
Forestlands		Decid. shrub-scrub	130,967	Open water	*69,025*
Clearcut	122,410	Conifer. shrub-scrub	14,786	**Other**	
Early regeneration	523,693	Dead shrub-scrub	108	Alpine tundra	*442*
Late regeneration	283,336	Fresh aquatic bed	*79*	Exposed rock/Talus	*1,358*

For definitions of field contents see the Introduction. Items in *italics* in the table of habitat quantities show habitats not used by the species, but included in the predicted distribution because of generalization (see the Introduction for details).

AMERICAN CROW

COBR

June 1998



COMMON RAVEN (*Corvus corax*)

Element code: BPAV1011

ME-GAP code: COCO

Order: Passeriformes

Family: Corvidae

Breeding range change: Stable

Listing status: Not listed

Migratory status: Resident; Local migrant

Game species: No

Population level: Common

Population trend: Stable to slowly increasing

Heritage ranks: G5 . . S5

Knowledge: Adequate

General habitats used: Common Ravens inhabit open, remote, coniferous, deciduous, or mixed forests. Like crows, ravens use open habitats that are interspersed with forests, such as marshes and clearcuts, but use agricultural areas and urban sites less than crows. Ravens nest on cliffs, ledges, tall trees, or abandoned buildings, and may fly up to 3 km from the nest to feed. Ravens feed on small or large carrion from roads, winter kill sites, at seabird colonies, and garbage dumps.

Specific habitats used:

Comments:

Predicted habitat quantities:

COMMON RAVEN					Total in ha: 7,661,157
Habitat	**ha**	**Habitat**	**ha**	**Habitat**	**ha**
Agricultural lands		Light partial cut	107,516	Fresh emergent	66,645
Abandoned field	18,574	Heavy partial cut	144,617	Peatland	45,081
Blueberry field	*7,288*	Deciduous forest	1,241,482	Wet meadow	14,895
Grassland	448,530	Decid./Conif. forest	1,289,821	Salt aquatic bed	*3,426*
Crops/Ground	106,717	Conif./Decid. forest	1,723,543	Salt emergent	1,428
Developed lands		Coniferous forest	762,881	Mudflat	2,349
Sparse residential	63,170	**Wetlands**		Sand shore	467
Dense residential	*12,237*	Deciduous forested	69,026	Gravel shore	2,624
Urban/Industrial	*391*	Coniferous forested	377,209	Rock shore	3,002
Highways/Runways	565	Dead-forested	2,583	Shallow water	*9,917*
Forestlands		Decid. shrub-scrub	129,346	Open water	*68,525*
Clearcut	120,592	Conifer. shrub-scrub	14,692	**Other**	
Early regeneration	518,376	Dead shrub-scrub	107	Alpine tundra	*608*
Late regeneration	278,884	Fresh aquatic bed	*78*	Exposed rock/Talus	3,965

For definitions of field contents see the Introduction. Items in *italics* in the table of habitat quantities show habitats not used by the species, but included in the predicted distribution because of generalization (see the Introduction for details).

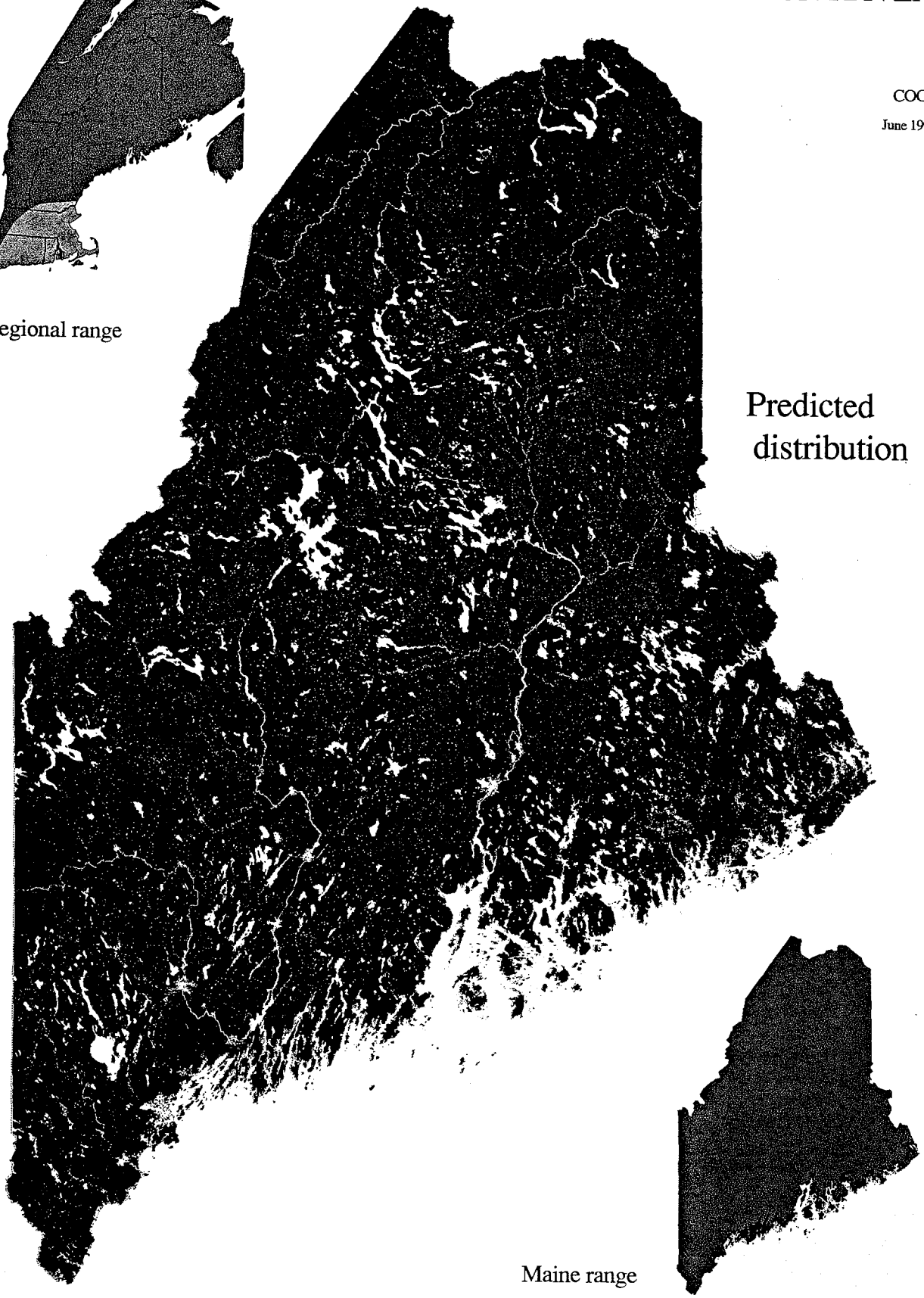
COMMON RAVEN

COCO

June 1998



Regional range



Predicted distribution

Maine range

BLACK-CAPPED CHICKADEE (*Parus atricapillus*)

Element code: BPAW0101

ME-GAP code: PAAT

Order: Passeriformes

Family: Paridae

Breeding range change: Stable

Listing status: Not listed

Migratory status: Resident

Game species: No

Population level: Abundant

Population trend: Moderate increase, maybe winter feeding

Heritage ranks: G5 . . S5

Knowledge: Good

General habitats used: Black-capped Chickadees use any type of forest (e.g., coniferous, deciduous, mixed), but appear to select mixed forests. Areas near stream and bottomland are used, as are uplands with birches present. Chickadees tend to breed in dense forest, often in dead, decaying stubs of tree limbs, such as in mature maples. They feed in more open forests, residential areas, and hedgerows.

Specific habitats used: Whether or not sites are used for breeding may be determined by the availability of cavities for use as communal roosting sites in winter.

Comments: Black-capped chickadees have the familiar song heard during most months in Maine, with one long plaintive "fee-bee" followed by two short notes.

Predicted habitat quantities:

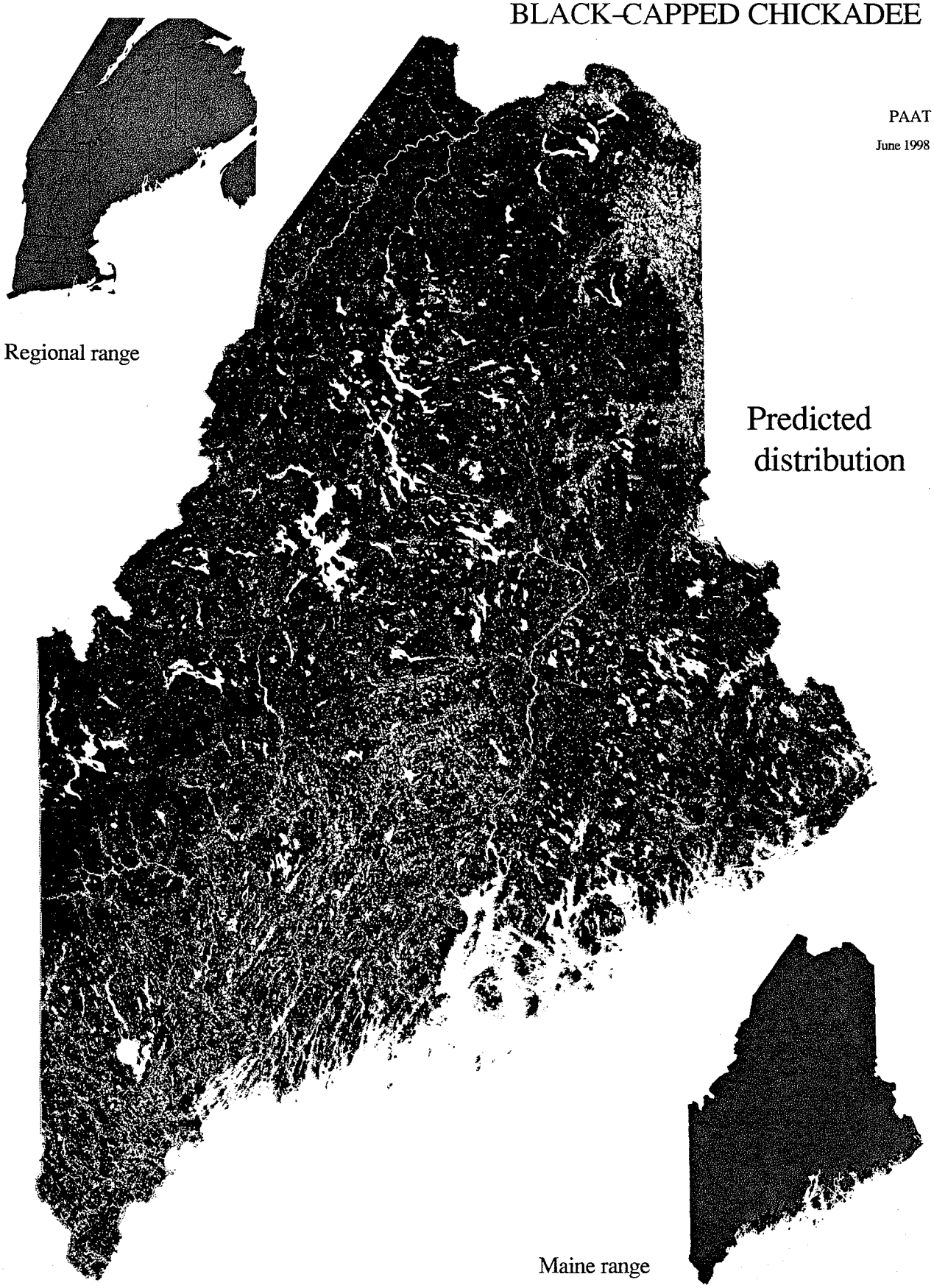
BLACK-CAPPED CHICKADEE					Total in ha: 6,875,462
Habitat	**ha**	**Habitat**	**ha**	**Habitat**	**ha**
Agricultural lands		Light partial cut	102,047	Fresh emergent	*40,277*
Abandoned field	15,132	Heavy partial cut	137,442	Peatland	43,290
Blueberry field	*5,704*	Deciduous forest	1,195,182	Wet meadow	*7,963*
Grassland	*182,814*	Decid./Conif. forest	1,215,472	Salt aquatic bed	*2,728*
Crops/Ground	*33,876*	Conif./Decid. forest	1,631,058	Salt emergent	*978*
Developed lands		Coniferous forest	727,244	Mudflat	*1,319*
Sparse residential	47,845	**Wetlands**		Sand shore	*258*
Dense residential	27,136	Deciduous forested	62,279	Gravel shore	*606*
Urban/Industrial	*505*	Coniferous forested	363,685	Rock shore	*1,473*
Highways/Runways	*484*	Dead-forested	2,358	Shallow water	*8,314*
Forestlands		Decid. shrub-scrub	116,357	Open water	*56,498*
Clearcut	*74,364*	Conifer. shrub-scrub	13,178	**Other**	
Early regeneration	491,451	Dead shrub-scrub	82	Alpine tundra	*411*
Late regeneration	264,745	Fresh aquatic bed	*49*	Exposed rock/Talus	*861*

For definitions of field contents see the Introduction. Items in *italics* in the table of habitat quantities show habitats not used by the species, but included in the predicted distribution because of generalization (see the Introduction for details).

BLACK-CAPPED CHICKADEE

PAAT

June 1998



BOREAL CHICKADEE (*Parus hudsonicus*)

Element code: BPAW0106 **ME-GAP code:** PAHU

Order: Passeriformes **Family:** Paridae

Breeding range change: Unknown **Listing status:** Not listed

Migratory status: Resident **Game species:** No

Population level: Common **Population trend:** Stable, to declining

Heritage ranks: G5 . . S4 **Knowledge:** Adequate

General habitats used: Boreal Chickadees inhabit moist, dense northern coniferous forests, such as tamarack and black spruce bogs, or cedar swamps. They will also occur in drier coniferous forests (especially spruce forests), and in mixed habitats. Boreal Chickadees nest in cavities that they may excavate in decaying limbs or trunks of trees (with wood texture more important in selection than tree species).

Specific habitats used:

Comments:

Predicted habitat quantities:

BOREAL CHICKADEE					Total in ha: 2,971,653
Habitat	ha	Habitat	ha	Habitat	ha
Agricultural lands		Light partial cut	53,808	Fresh emergent	*8,614*
Abandoned field	*1,464*	Heavy partial cut	*15,868*	Peatland	34,692
Blueberry field	*1,168*	Deciduous forest	*87,278*	Wet meadow	*1,611*
Grassland	*11,300*	Decid./Conif. forest	625,229	Salt aquatic bed	*943*
Crops/Ground	*4,210*	Conif./Decid. forest	1,058,220	Salt emergent	*189*
Developed lands		Coniferous forest	549,921	Mudflat	*228*
Sparse residential	22,077	**Wetlands**		Sand shore	*69*
Dense residential	*339*	Deciduous forested	*5,019*	Gravel shore	*160*
Urban/Industrial	*0*	Coniferous forested	282,343	Rock shore	*413*
Highways/Runways	*24*	Dead-forested	1,417	Shallow water	*1,797*
Forestlands		Decid. shrub-scrub	76,700	Open water	*9,589*
Clearcut	*15,135*	Conifer. shrub-scrub	9,157	**Other**	
Early regeneration	*48,862*	Dead shrub-scrub	40	Alpine tundra	*101*
Late regeneration	*43,488*	Fresh aquatic bed	*8*	Exposed rock/Talus	*172*

For definitions of field contents see the Introduction. Items in *italics* in the table of habitat quantities show habitats not used by the species, but included in the predicted distribution because of generalization (see the Introduction for details).

BOREAL CHICKADEE

PAHU

June 1998



Regional range

Predicted distribution



Maine range

TUFTED TITMOUSE (*Parus bicolor*)

Element code: BPAW0111 **ME-GAP code:** PABI

Order: Passeriformes **Family:** Paridae

Breeding range change: Expanding **Listing status**: Not listed

Migratory status: Resident **Game species**: No

Population level: Uncommon **Population trend**: Gradual increase

Heritage ranks: G5 . . S4 **Knowledge**: Adequate

General habitats used: Tufted Titmice occur in fertile bottomlands, occurring most often in moist deciduous stands, but also using coniferous and mixed forests. Forested wetlands, parks, cemeteries, orchards, and residential areas are used. Sites near water appear to be selected by Tufted Titmice. Titmice nest in trees in abandoned cavities excavated by other species, usually in mixed forests.

Specific habitats used: Tufted Titmice nest in cavities within trees at least 20 cm diameter-at-breast-height.

Comments:

Predicted habitat quantities:

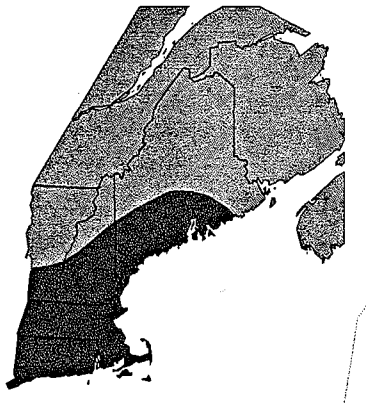
TUFTED TITMOUSE					Total in ha: 1,265,810
Habitat	**ha**	**Habitat**	**ha**	**Habitat**	**ha**
Agricultural lands		Light partial cut	18,592	Fresh emergent	*2,443*
Abandoned field	3,639	Heavy partial cut	*6,219*	Peatland	*711*
Blueberry field	*227*	Deciduous forest	211,441	Wet meadow	*434*
Grassland	*43,312*	Decid./Conif. forest	292,836	Salt aquatic bed	*716*
Crops/Ground	*4,554*	Conif./Decid. forest	367,149	Salt emergent	*356*
Developed lands		Coniferous forest	149,868	Mudflat	*501*
Sparse residential	23,561	**Wetlands**		Sand shore	*108*
Dense residential	20,942	Deciduous forested	29,911	Gravel shore	*4*
Urban/Industrial	*199*	Coniferous forested	40,165	Rock shore	*145*
Highways/Runways	*164*	Dead-forested	629	Shallow water	*497*
Forestlands		Decid. shrub-scrub	19,285	Open water	*4,365*
Clearcut	*3,249*	Conifer. shrub-scrub	2,392	**Other**	
Early regeneration	*4,666*	Dead shrub-scrub	20	Alpine tundra	*0*
Late regeneration	*12,200*	Fresh aquatic bed	*10*	Exposed rock/Talus	*303*

For definitions of field contents see the Introduction. Items in *italics* in the table of habitat quantities show habitats not used by the species, but included in the predicted distribution because of generalization (see the Introduction for details).

TUFTED TITMOUSE

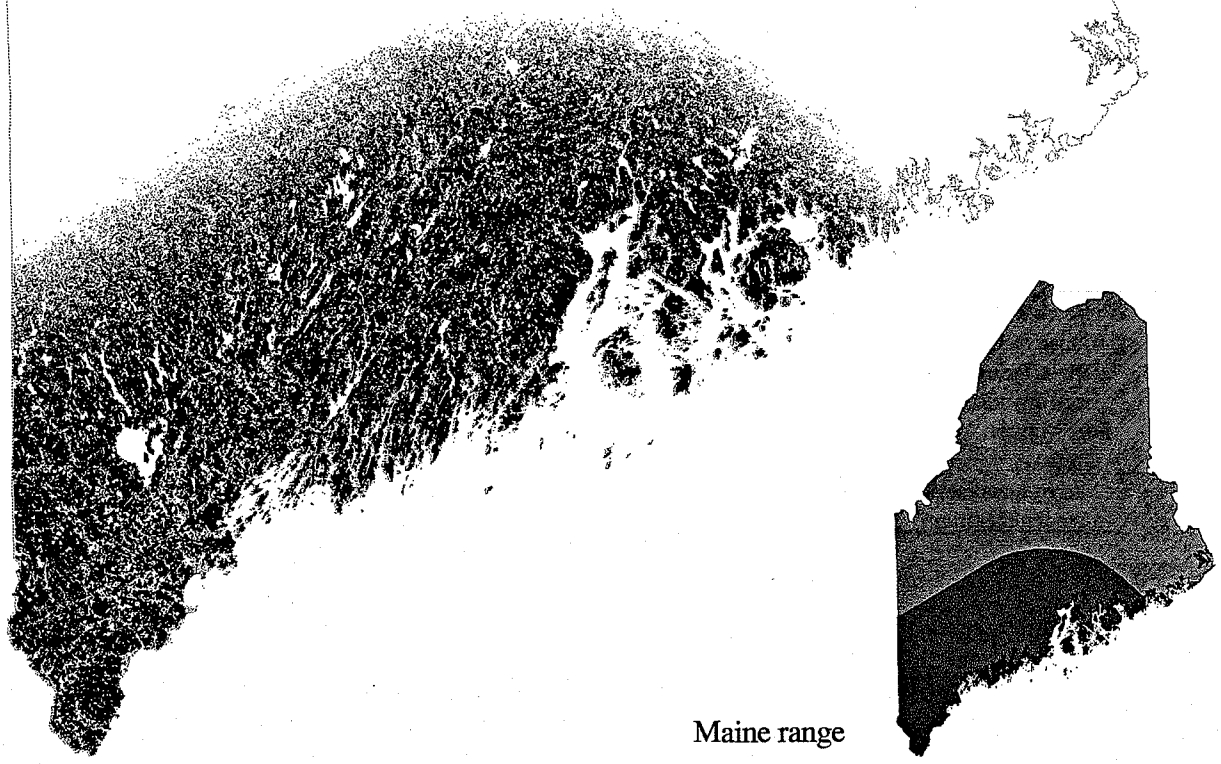
PABI

June 1998



Regional range

Predicted distribution



Maine range

RED-BREASTED NUTHATCH (*Sitta canadensis*)

Element code: BPAZ0101 **ME-GAP code:** SICA

Order: Passeriformes **Family:** Sittidae

Breeding range change: Stable **Listing status**: Not listed

Migratory status: Local migrant; Resident **Game species**: No

Population level: Common **Population trend**: Increasing

Heritage ranks: G5 . . S5 **Knowledge**: Adequate

General habitats used: Red-breasted Nuthatches inhabit coniferous forests in the breeding season, and less frequently mixed forests. Mature stands (with ample cone production) are selected by Red-breasted Nuthatches. These Nuthatches tend to forage on the foliage of trees, whereas White-Breasted Nuthatches forage on the trunks. Red-breasted Nuthatches nest in cavities in decaying hardwood or softwood trees. They usually excavate a cavity, but may use an abandoned site of another species, or nest box.

Specific habitats used: Decaying trees (or limbs) with a minimum diameter-at-breast-height of 30 cm are used by breeding Red-breasted Nuthatches.

Comments: Nuthatches have a remarkably loud song for their size; a loud nasal "Hank."

Predicted habitat quantities:

RED-BREASTED NUTHATCH					Total in ha: 4,424,943
Habitat	**ha**	**Habitat**	**ha**	**Habitat**	**ha**
Agricultural lands		Light partial cut	71,141	Fresh emergent	*27,113*
Abandoned field	11,715	Heavy partial cut	*53,778*	Peatland	*13,672*
Blueberry field	*3,557*	Deciduous forest	*345,275*	Wet meadow	*5,214*
Grassland	*118,764*	Decid./Conif. forest	883,279	Salt aquatic bed	*2,476*
Crops/Ground	*21,618*	Conif./Decid. forest	1,404,044	Salt emergent	*817*
Developed lands		Coniferous forest	666,554	Mudflat	*1,094*
Sparse residential	38,666	**Wetlands**		Sand shore	*236*
Dense residential	*4,739*	Deciduous forested	*28,395*	Gravel shore	*388*
Urban/Industrial	*92*	Coniferous forested	304,664	Rock shore	*1,197*
Highways/Runways	*262*	Dead-forested	1,934	Shallow water	*6,002*
Forestlands		Decid. shrub-scrub	*53,362*	Open water	*42,162*
Clearcut	*41,767*	Conifer. shrub-scrub	10,623	**Other**	
Early regeneration	*135,884*	Dead shrub-scrub	63	Alpine tundra	*347*
Late regeneration	*123,524*	Fresh aquatic bed	*38*	Exposed rock/Talus	*485*

For definitions of field contents see the Introduction. Items in *italics* in the table of habitat quantities show habitats not used by the species, but included in the predicted distribution because of generalization (see the Introduction for details).

RED-BREASTED NUTHATCH

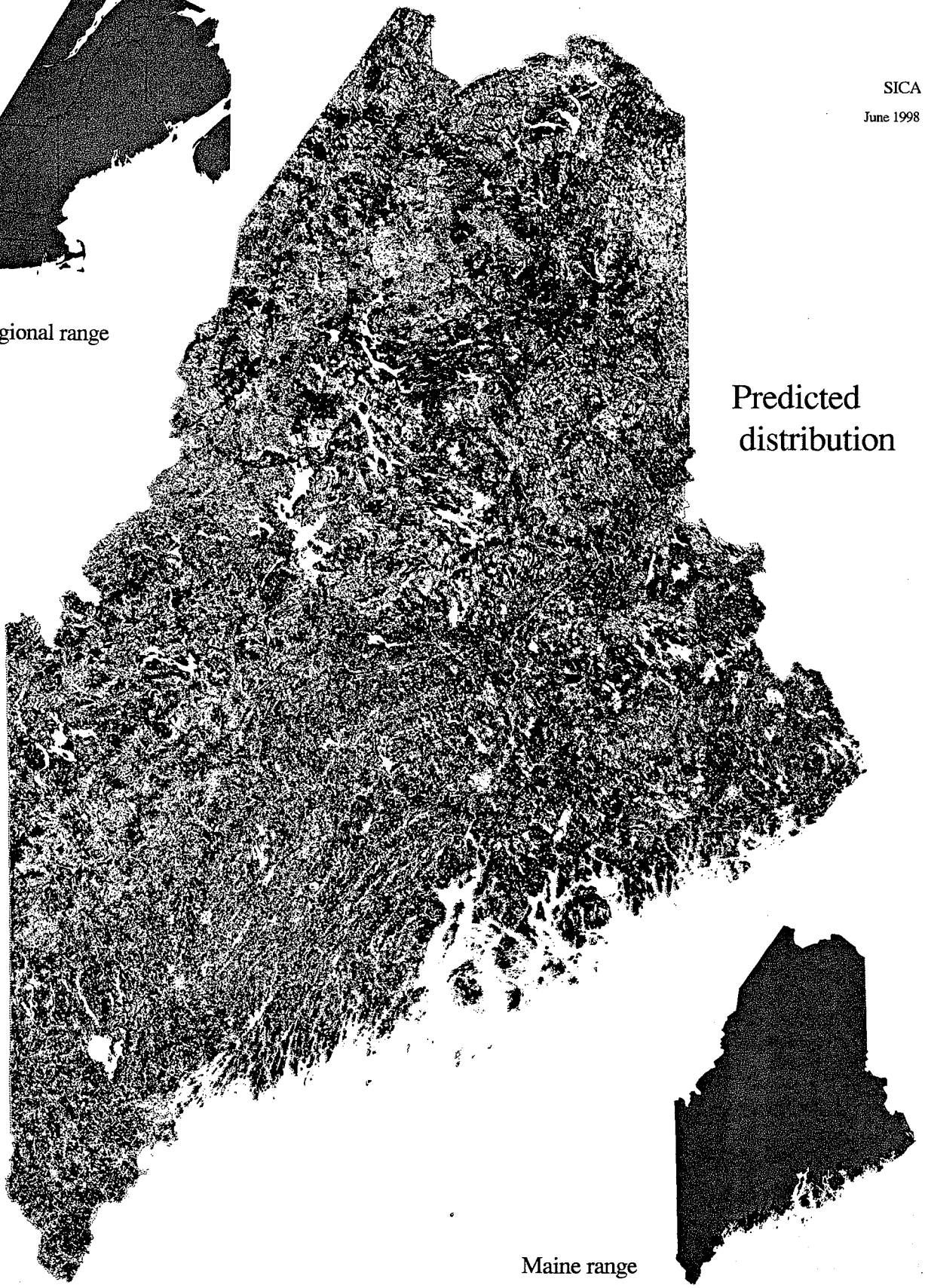
SICA

June 1998



Regional range

Predicted distribution



Maine range

WHITE-BREASTED NUTHATCH (*Sitta carolinensis*)

Element code: BPAZ0102 **ME-GAP code:** SICR

Order: Passeriformes **Family:** Sittidae

Breeding range change: Stable **Listing status:** Not listed

Migratory status: Resident **Game species:** No

Population level: Common **Population trend:** Gradual increase

Heritage ranks: G5 . . S5 **Knowledge:** Adequate

General habitats used: White-breasted Nuthatches occur in mature deciduous and mixed forests, and may also sometimes occur in coniferous stands. More open or disturbed areas with large trees, such as orchards, parks, cemeteries, and residential areas may be used by White-breasted Nuthatches. These nuthatches forage along the trunks of trees, and nest in cavities in live or dead tree limbs and trunks.

Specific habitats used: Trees with a minimum diameter-at-breast-height of 30 cm are used by White-breasted Nuthatches for nest sites.

Comments:

Predicted habitat quantities:

WHITE-BREASTED NUTHATCH					Total in ha: 4,715,420
Habitat	**ha**	**Habitat**	**ha**	**Habitat**	**ha**
Agricultural lands		Light partial cut	71,947	Fresh emergent	*23,655*
Abandoned field	12,199	Heavy partial cut	*67,334*	Peatland	*5,570*
Blueberry field	*3,976*	Deciduous forest	1,118,055	Wet meadow	*5,080*
Grassland	*145,688*	Decid./Conif. forest	1,069,677	Salt aquatic bed	*1,165*
Crops/Ground	*23,920*	Conif./Decid. forest	1,290,553	Salt emergent	*660*
Developed lands		Coniferous forest	*265,991*	Mudflat	*724*
Sparse residential	37,996	**Wetlands**		Sand shore	*100*
Dense residential	*4,945*	Deciduous forested	49,684	Gravel shore	*322*
Urban/Industrial	*95*	Coniferous forested	*96,280*	Rock shore	*829*
Highways/Runways	*275*	Dead-forested	1,709	Shallow water	*4,602*
Forestlands		Decid. shrub-scrub	81,042	Open water	*36,325*
Clearcut	*39,672*	Conifer. shrub-scrub	*3,947*	**Other**	
Early regeneration	*130,230*	Dead shrub-scrub	52	Alpine tundra	*102*
Late regeneration	*120,544*	Fresh aquatic bed	*38*	Exposed rock/Talus	*433*

For definitions of field contents see the Introduction. Items in *italics* in the table of habitat quantities show habitats not used by the species, but included in the predicted distribution because of generalization (see the Introduction for details).

WHITE-BREASTED NUTHATCH

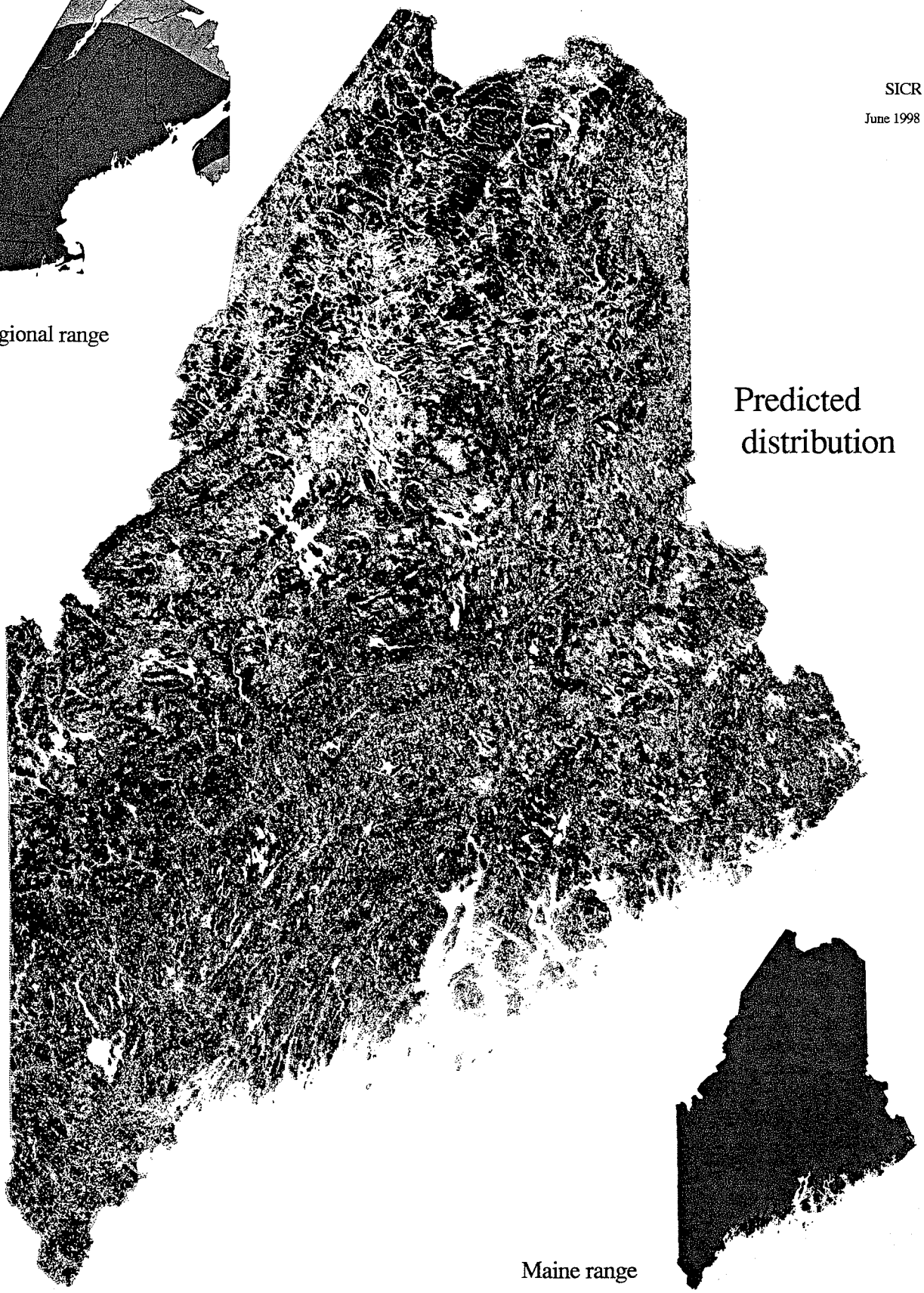
SICR

June 1998



Regional range

Predicted distribution



Maine range

BROWN CREEPER (*Certhia americana*)

Element code: BPBA0101

ME-GAP code: CEAM

Order: Passeriformes

Family: Certhiidae

Breeding range change: Stable

Listing status: Not listed

Migratory status: Local migrant; Resident

Game species: No

Population level: Common

Population trend: Stable to Declining

Heritage ranks: G5 . . S5

Knowledge: Adequate

General habitats used: Brown Creepers are most common in the interiors of relatively large stands of moist dense forest, such as in forested swamps. All types of forest are used, but coniferous and mixed forests may be selected. Brown Creepers probe the flaking bark of large trees for insects, and nest under large flakes of bark (and sometime cavities) of dead trees.

Specific habitats used: Brown Creepers use trees with a minimum diameter-at-breast-height of 25 cm, nesting under bark and within cavities.

Comments:

Predicted habitat quantities:

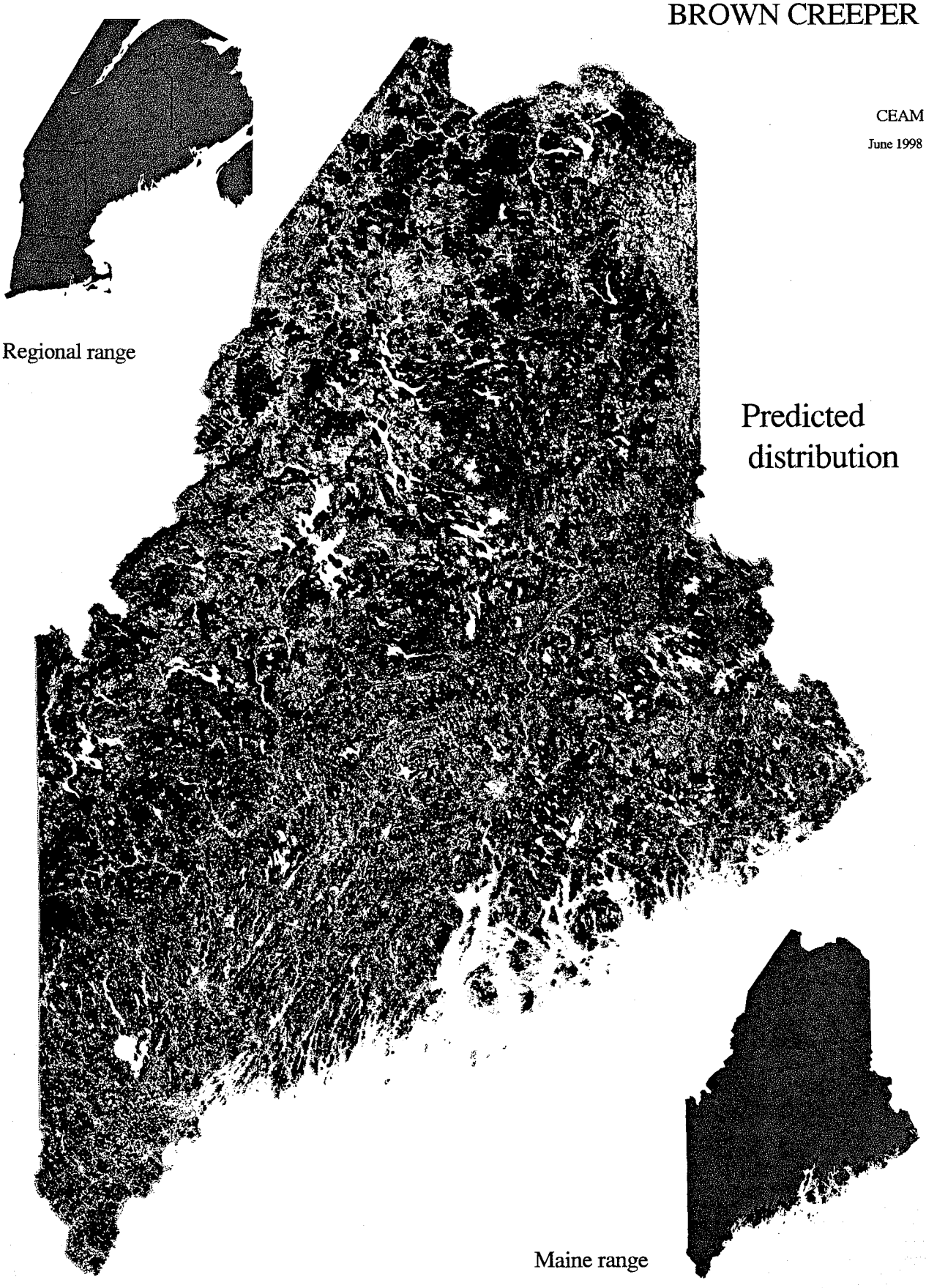
BROWN CREEPER					Total in ha: 6,065,148
Habitat	**ha**	**Habitat**	**ha**	**Habitat**	**ha**
Agricultural lands		Light partial cut	84,577	Fresh emergent	*36,017*
Abandoned field	*8,765*	Heavy partial cut	*80,373*	Peatland	*16,393*
Blueberry field	*3,799*	Deciduous forest	1,175,402	Wet meadow	*7,184*
Grassland	*168,721*	Decid./Conif. forest	1,172,038	Salt aquatic bed	*2,560*
Crops/Ground	*27,957*	Conif./Decid. forest	1,567,783	Salt emergent	*880*
Developed lands		Coniferous forest	700,531	Mudflat	*1,102*
Sparse residential	42,049	**Wetlands**		Sand shore	*234*
Dense residential	*5,986*	Deciduous forested	59,966	Gravel shore	*518*
Urban/Industrial	*105*	Coniferous forested	335,466	Rock shore	*1,386*
Highways/Runways	*306*	Dead-forested	2,147	Shallow water	*7,486*
Forestlands		Decid. shrub-scrub	106,339	Open water	*54,081*
Clearcut	*53,625*	Conifer. shrub-scrub	12,315	**Other**	
Early regeneration	*175,615*	Dead shrub-scrub	66	Alpine tundra	*379*
Late regeneration	*152,334*	Fresh aquatic bed	*52*	Exposed rock/Talus	*612*

For definitions of field contents see the Introduction. Items in *italics* in the table of habitat quantities show habitats not used by the species, but included in the predicted distribution because of generalization (see the Introduction for details).

BROWN CREEPER

CEAM

June 1998



HOUSE WREN (*Troglodytes aedon*)

Element code: BPBG0901 **ME-GAP code:** TRAE

Order: Passeriformes **Family:** Troglodytidae

Breeding range change: Unknown **Listing status:** Not listed

Migratory status: US migrant **Game species:** No

Population level: Uncommon **Population trend:** Stable

Heritage ranks: G5 . . S4S5B **Knowledge:** Adequate

General habitats used: House Wrens inhabit open forests (or small openings in more dense forests), harvest sites, brushy areas, farmland, and residential areas. Open deciduous and mixed forests are used by these wrens, but they are most common near residential areas with nearby vegetation, hedgerows and edges of agricultural areas, and orchards. House Wrens are cavity nesters, and will nest in a variety of settings.

Specific habitats used: House Wrens select cavities within trees that have a minimum diameter-at-breast-height of 25 cm, but are likely not limited by cavity availability because of their generalist nature.

Comments:

Predicted habitat quantities:

HOUSE WREN					Total in ha: 4,236,584
Habitat	**ha**	**Habitat**	**ha**	**Habitat**	**ha**
Agricultural lands		Light partial cut	74,126	Fresh emergent	*10,826*
Abandoned field	18,044	Heavy partial cut	99,572	Peatland	*2,011*
Blueberry field	12,740	Deciduous forest	827,458	Wet meadow	*2,305*
Grassland	370,902	Decid./Conif. forest	821,068	Salt aquatic bed	*946*
Crops/Ground	*16,407*	Conif./Decid. forest	1,127,659	Salt emergent	*677*
Developed lands		Coniferous forest	*105,377*	Mudflat	*754*
Sparse residential	50,898	**Wetlands**		Sand shore	*131*
Dense residential	31,162	Deciduous forested	58,036	Gravel shore	*81*
Urban/Industrial	*327*	Coniferous forested	*32,933*	Rock shore	*262*
Highways/Runways	718	Dead-forested	1,830	Shallow water	*1,790*
Forestlands		Decid. shrub-scrub	83,209	Open water	*11,887*
Clearcut	76,967	Conifer. shrub-scrub	*1,696*	**Other**	
Early regeneration	216,732	Dead shrub-scrub	90	Alpine tundra	*0*
Late regeneration	176,316	Fresh aquatic bed	*23*	Exposed rock/Talus	*625*

For definitions of field contents see the Introduction. Items in *italics* in the table of habitat quantities show habitats not used by the species, but included in the predicted distribution because of generalization (see the Introduction for details).

HOUSE WREN

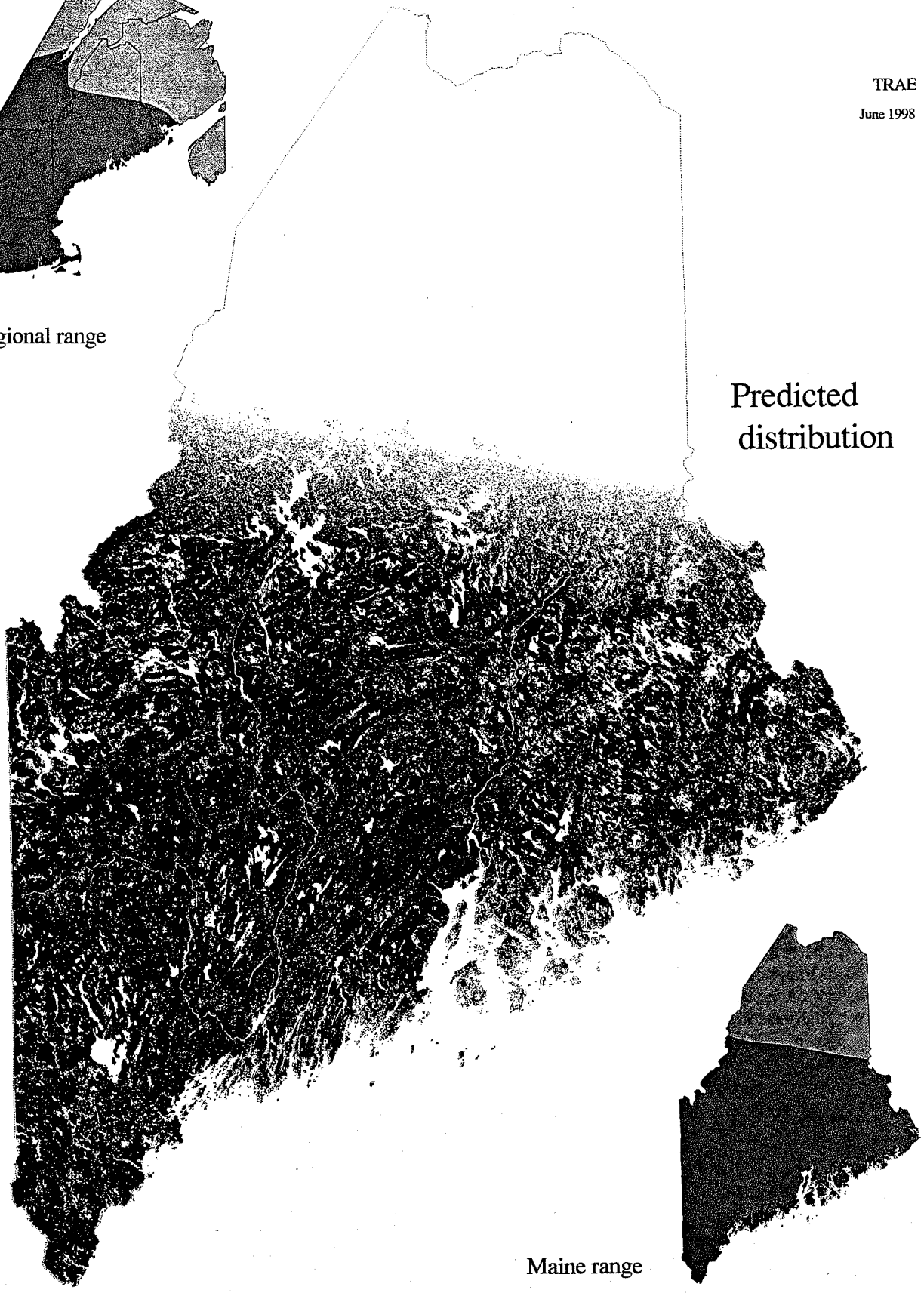
TRAE

June 1998



Regional range

Predicted distribution



Maine range

WINTER WREN (*Troglodytes troglodytes*)

Element code: BPBG0905 **ME-GAP code:** TRTR

Order: Passeriformes **Family:** Troglodytidae

Breeding range change: Stable **Listing status:** Not listed

Migratory status: US migrant; Local migrant **Game species:** No

Population level: Common **Population trend:** Stable

Heritage ranks: G5 . . S4N,S5B **Knowledge:** Adequate

General habitats used: Winter Wrens are most common in the interiors of moist, dense coniferous and mixed forests, usually close to streams, ponds, lakes, swamps, or bogs. Sites selected typically include dense thickets of vegetation, such as logging slash piles, regenerating harvests (up to about 15 years past cutting), or dense low conifers that occur at bogs. Winter Wrens nest in cavities or crevices within trees and brush piles.

Specific habitats used:

Comments: Winter Wrens have a very high, beautiful song that may be difficult for some people to hear.

Predicted habitat quantities:

WINTER WREN					Total in ha: 5,684,145
Habitat	**ha**	**Habitat**	**ha**	**Habitat**	**ha**
Agricultural lands		Light partial cut	96,576	Fresh emergent	60,588
Abandoned field	14,741	Heavy partial cut	123,536	Peatland	43,408
Blueberry field	*5,600*	Deciduous forest	*412,190*	Wet meadow	*8,317*
Grassland	*140,014*	Decid./Conif. forest	995,766	Salt aquatic bed	*2,547*
Crops/Ground	*27,835*	Conif./Decid. forest	1,556,325	Salt emergent	1,064
Developed lands		Coniferous forest	729,234	Mudflat	*1,235*
Sparse residential	*27,801*	**Wetlands**		Sand shore	*236*
Dense residential	*4,790*	Deciduous forested	*37,446*	Gravel shore	*668*
Urban/Industrial	*58*	Coniferous forested	360,655	Rock shore	*1,414*
Highways/Runways	*182*	Dead-forested	2,359	Shallow water	*8,306*
Forestlands		Decid. shrub-scrub	117,589	Open water	*53,551*
Clearcut	106,672	Conifer. shrub-scrub	13,324	**Other**	
Early regeneration	477,850	Dead shrub-scrub	78	Alpine tundra	*393*
Late regeneration	251,174	Fresh aquatic bed	*45*	Exposed rock/Talus	*579*

For definitions of field contents see the Introduction. Items in *italics* in the table of habitat quantities show habitats not used by the species, but included in the predicted distribution because of generalization (see the Introduction for details).

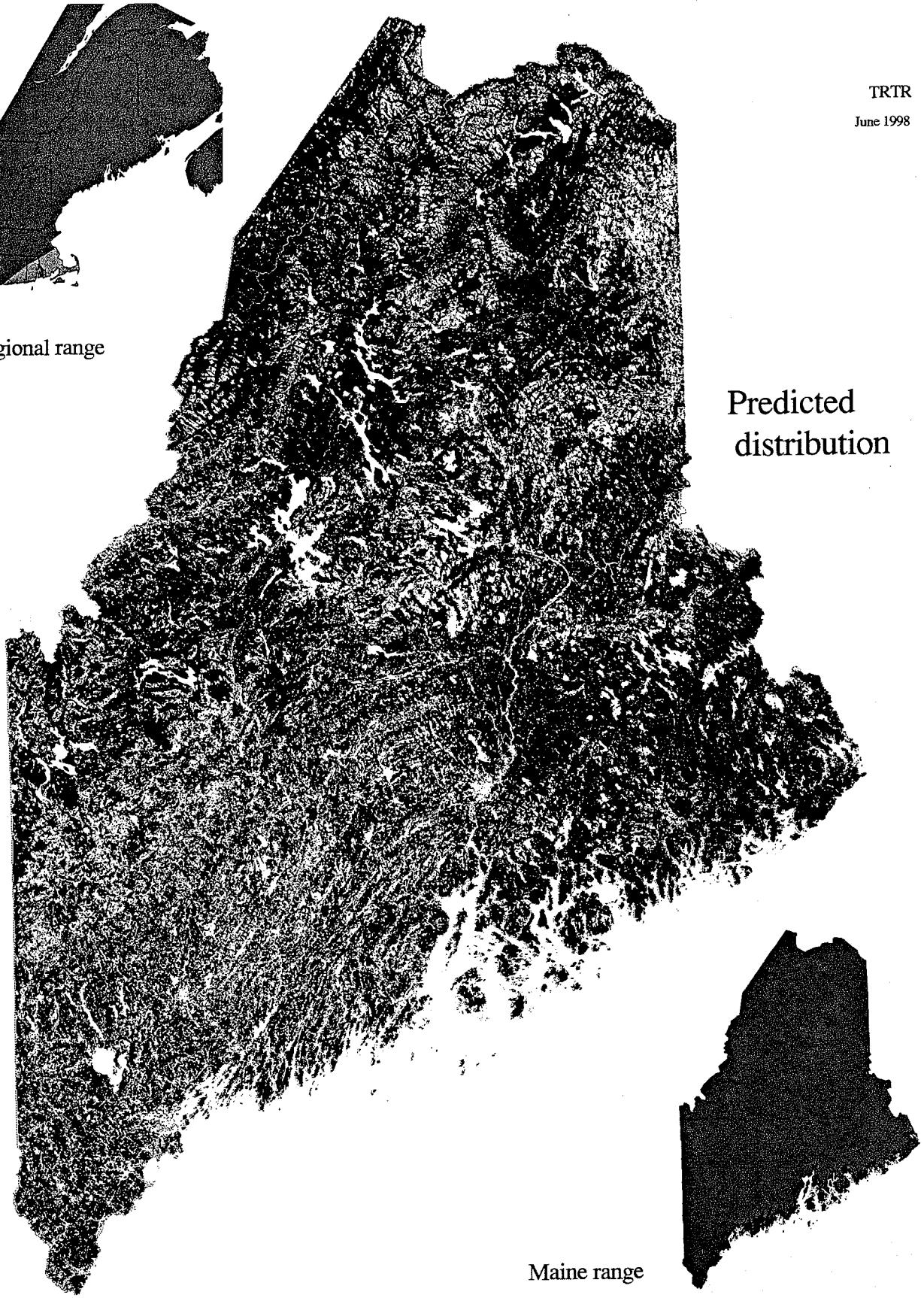
WINTER WREN

TRTR

June 1998



Regional range



Predicted distribution

Maine range

MARSH WREN (*Cistothorus palustris*)

Element code: BPBG1002

ME-GAP code: CIPA

Order: Passeriformes

Family: Troglodytidae

Breeding range change: Unknown

Listing status: Not listed

Migratory status: US migrant

Game species: No

Population level: Common

Population trend: Stable

Heritage ranks: G5 . . S4B

Knowledge: Good

General habitats used: Marsh Wrens inhabit large permanent wetlands with emergent vegetation present, such as cattails, bulrushes, loosestrife, sedges, and rushes. Freshwater wetlands are selected, but brackish wetlands may be used. Marsh Wrens may be found along the margins of slow moving rivers, ponds, and lakes. Wetlands smaller than 0.4 hectares are rarely used by these wrens.

Specific habitats used:

Comments:

Predicted habitat quantities:

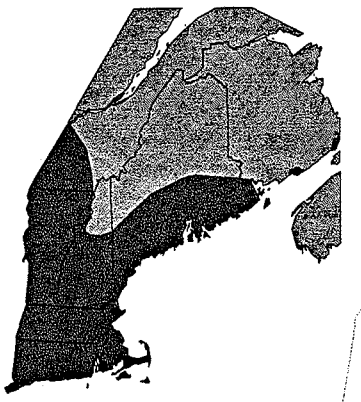
MARSH WREN					Total in ha:	111,108
Habitat	**ha**	**Habitat**	**ha**	**Habitat**		**ha**
Agricultural lands		Light partial cut	*178*	Fresh emergent		20,478
Abandoned field	*190*	Heavy partial cut	*244*	Peatland		17,818
Blueberry field	*150*	Deciduous forest	*316*	Wet meadow		5,537
Grassland	*1,669*	Decid./Conif. forest	*1,422*	Salt aquatic bed		*15*
Crops/Ground	*359*	Conif./Decid. forest	*5,204*	Salt emergent		5,177
Developed lands		Coniferous forest	*1,699*	Mudflat		*248*
Sparse residential	*208*	**Wetlands**		Sand shore		*16*
Dense residential	*100*	Deciduous forested	*1,200*	Gravel shore		*1*
Urban/Industrial	*2*	Coniferous forested	*2,625*	Rock shore		*13*
Highways/Runways	*5*	Dead-forested	*67*	Shallow water		2,160
Forestlands		Decid. shrub-scrub	36,960	Open water		*1,166*
Clearcut	*590*	Conifer. shrub-scrub	3,929	**Other**		
Early regeneration	*685*	Dead shrub-scrub	1	Alpine tundra		*0*
Late regeneration	*670*	Fresh aquatic bed	*4*	Exposed rock/Talus		*6*

For definitions of field contents see the Introduction. Items in *italics* in the table of habitat quantities show habitats not used by the species, but included in the predicted distribution because of generalization (see the Introduction for details).

MARSH WREN

CIPA

June 1998



Regional range

Predicted distribution



Maine range

SEDGE WREN (*Cistothorus platensis*)

Element code: BPBG1001

ME-GAP code: CIPL

Order: Passeriformes

Family: Troglodytidae

Breeding range change: Unknown

Listing status: Endangered (S)

Migratory status: US migrant

Game species: No

Population level: Rare

Population trend: Unknown

Heritage ranks: G5 . . S1B

Knowledge: Adequate

General habitats used: Sedge Wrens occur in tall, dense patches of sedges within moist meadows, pastures, and hayfields. Areas with standing water, such as deep cattail marshes, are not used, but the edges of swampy areas can be. Coastal marshes, and the margins of ponds and open-water wetlands are selected by Sedge Wrens. These wrens build nests low in clumps of sedges and grasses.

Specific habitats used:

Comments: Trends are difficult to determine for Sedge Wrens because of their rarity and their manner of frequently abandoning nest sites and establishing other distant nest sites. Because nesting areas are established and abandoned often, we could not represent their range with observations. Predicted habitats are over-estimating habitat actually occupied.

Predicted habitat quantities:

SEDGE WREN					Total in ha:	56,693
Habitat	**ha**	**Habitat**	**ha**	**Habitat**		**ha**
Agricultural lands		Light partial cut	*79*	Fresh emergent		21,337
Abandoned field	*83*	Heavy partial cut	*126*	Peatland		18,747
Blueberry field	*84*	Deciduous forest	*161*	Wet meadow		6,366
Grassland	*745*	Decid./Conif. forest	*582*	Salt aquatic bed		*7*
Crops/Ground	*144*	Conif./Decid. forest	*2,347*	Salt emergent		*4*
Developed lands		Coniferous forest	*943*	Mudflat		*17*
Sparse residential	*99*	**Wetlands**		Sand shore		*3*
Dense residential	*55*	Deciduous forested	*395*	Gravel shore		*3*
Urban/Industrial	*0*	Coniferous forested	*1,315*	Rock shore		*4*
Highways/Runways	*2*	Dead-forested	*24*	Shallow water		*175*
Forestlands		Decid. shrub-scrub	*1,120*	Open water		*659*
Clearcut	*289*	Conifer. shrub-scrub	*105*	**Other**		
Early regeneration	*307*	Dead shrub-scrub	*0*	Alpine tundra		*0*
Late regeneration	*361*	Fresh aquatic bed	*2*	Exposed rock/Talus		*2*

For definitions of field contents see the Introduction. Items in *italics* in the table of habitat quantities show habitats not used by the species, but included in the predicted distribution because of generalization (see the Introduction for details).

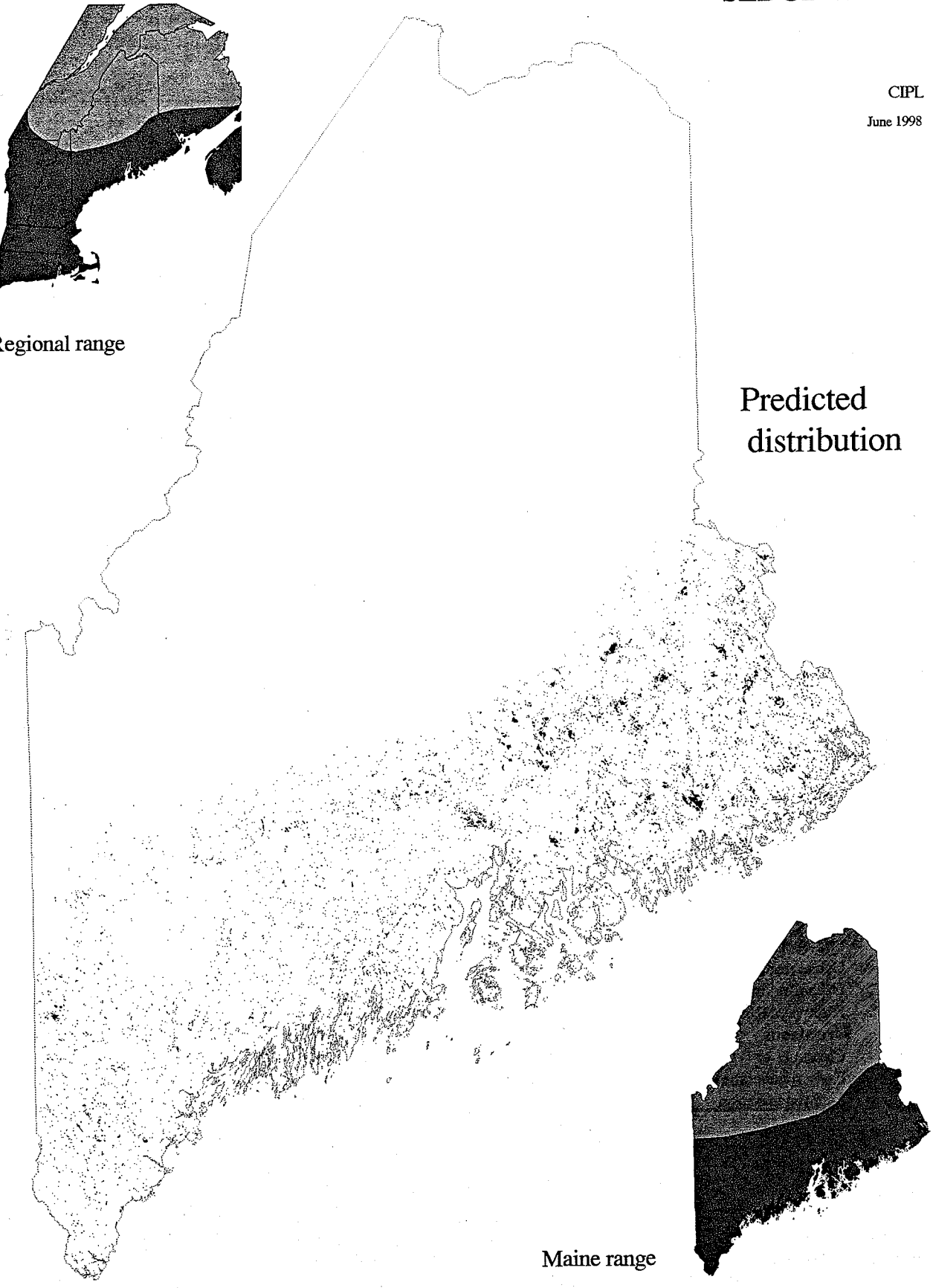
SEDGE WREN

CIPL

June 1998

Regional range

Predicted distribution



Maine range

CAROLINA WREN (*Thryothorus ludovicianus*)

Element code: BPBG0613 **ME-GAP code:** THLU

Order: Passeriformes **Family:** Troglodytidae

Breeding range change: Unknown **Listing status**: Not listed

Migratory status: Resident **Game species**: No

Population level: Rare **Population trend**: Unknown

Heritage ranks: G5 . . S1B?,S1N? **Knowledge**: Adequate

General habitats used: Carolina Wrens are most common in moist areas with brushy vegetation, such as along the margins of streams and ponds, in brushy clearings, within clearcuts and regenerating areas, and in residential areas. The northern limit of the range of Carolina Wrens varies depending upon the severity of the past winter.

Specific habitats used:

Comments: Carolina Wrens only recently began nesting regularly in Maine.

Predicted habitat quantities:

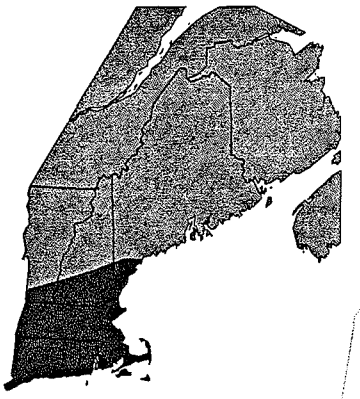
CAROLINA WREN					Total in ha:	74,948
Habitat	**ha**	**Habitat**	**ha**	**Habitat**		**ha**
Agricultural lands		Light partial cut	1,850	Fresh emergent		*177*
Abandoned field	0	Heavy partial cut	353	Peatland		*21*
Blueberry field	*5*	Deciduous forest	2,900	Wet meadow		*19*
Grassland	*4,073*	Decid./Conif. forest	25,320	Salt aquatic bed		*21*
Crops/Ground	*60*	Conif./Decid. forest	19,810	Salt emergent		*71*
Developed lands		Coniferous forest	*1,225*	Mudflat		*13*
Sparse residential	1,427	**Wetlands**		Sand shore		*13*
Dense residential	*233*	Deciduous forested	7,207	Gravel shore		*0*
Urban/Industrial	*19*	Coniferous forested	3,703	Rock shore		*0*
Highways/Runways	*0*	Dead-forested	44	Shallow water		*61*
Forestlands		Decid. shrub-scrub	1,769	Open water		*111*
Clearcut	1,379	Conifer. shrub-scrub	164	**Other**		
Early regeneration	1,712	Dead shrub-scrub	0	Alpine tundra		*0*
Late regeneration	1,183	Fresh aquatic bed	*0*	Exposed rock/Talus		*4*

For definitions of field contents see the Introduction. Items in *italics* in the table of habitat quantities show habitats not used by the species, but included in the predicted distribution because of generalization (see the Introduction for details).

CAROLINA WREN

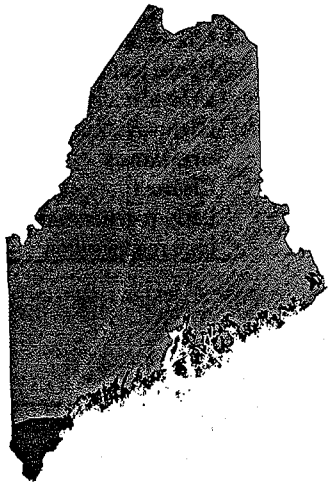
THLU

June 1998



Regional range

Predicted distribution



Maine range

GOLDEN-CROWNED KINGLET (*Regulus satrapa*)

Element code: BPBJ0501

ME-GAP code: RESA

Order: Passeriformes

Family: Regulidae

Breeding range change: Stable

Listing status: Not listed

Migratory status: US migrant; Local migrant

Game species: No

Population level: Common

Population trend: Stable, responsive to insect outbreaks

Heritage ranks: G5 . . S5B,S5N

Knowledge: Adequate

General habitats used: Golden-crowned Kinglets use moist, dark areas of coniferous forest (usually mature spruce stands). Spruce plantation may be used, but young stands are not; trees in good Golden-crowned Kinglet habitat are over 15 cm and 10 to 20 m in height. Open spruce forests are used, but these kinglets also will use dense spruce stands, pine, hemlock, fir, and tamarack stands, as well as coniferous forested wetlands.

Specific habitats used:

Comments:

Predicted habitat quantities:

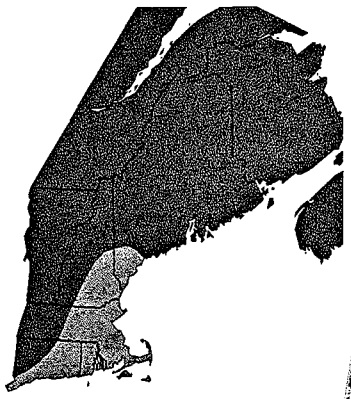
GOLDEN-CROWNED KINGLET					Total in ha: 2,866,055
Habitat	**ha**	**Habitat**	**ha**	**Habitat**	**ha**
Agricultural lands		Light partial cut	67,789	Fresh emergent	*7,981*
Abandoned field	*2,044*	Heavy partial cut	*16,329*	Peatland	*4,703*
Blueberry field	*731*	Deciduous forest	*41,655*	Wet meadow	*1,442*
Grassland	*14,746*	Decid./Conif. forest	*132,261*	Salt aquatic bed	*1,002*
Crops/Ground	*4,201*	Conif./Decid. forest	1,405,575	Salt emergent	*181*
Developed lands		Coniferous forest	688,858	Mudflat	*253*
Sparse residential	*5,715*	**Wetlands**		Sand shore	*86*
Dense residential	*353*	Deciduous forested	*6,513*	Gravel shore	*108*
Urban/Industrial	*0*	Coniferous forested	331,297	Rock shore	*313*
Highways/Runways	*21*	Dead-forested	2,076	Shallow water	*1,401*
Forestlands		Decid. shrub-scrub	*16,036*	Open water	*8,681*
Clearcut	*12,659*	Conifer. shrub-scrub	12,123	**Other**	
Early regeneration	*34,607*	Dead shrub-scrub	*13*	Alpine tundra	*105*
Late regeneration	*44,080*	Fresh aquatic bed	*7*	Exposed rock/Talus	*109*

For definitions of field contents see the Introduction. Items in *italics* in the table of habitat quantities show habitats not used by the species, but included in the predicted distribution because of generalization (see the Introduction for details).

GOLDEN-CROWNED KINGLET

RESA

June 1998



Regional range

Predicted distribution



Maine range

RUBY-CROWNED KINGLET (*Regulus calendula*)

Element code: BPBJ0502 **ME-GAP code:** RECA

Order: Passeriformes **Family:** Regulidae

Breeding range change: Stable **Listing status**: Not listed

Migratory status: US migrant; Local migrant **Game species**: No

Population level: Common **Population trend**: Slowly increasing

Heritage ranks: G5 . . S4N,S5B **Knowledge**: Adequate

General habitats used: Ruby-crowned Kinglets occur in moist coniferous stands, such as spruce, fir, or pine stands, cedar, black spruce, and tamarack bogs. These kinglets also will inhabit mixed stands, and more open habitats, such as forest edges and the margins of streams. Ruby-crowned Kinglets construct nests in coniferous trees (usually spruce).

Specific habitats used:

Comments:

Predicted habitat quantities:

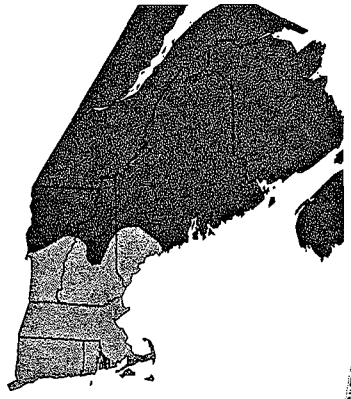
RUBY-CROWNED KINGLET					Total in ha: 3,814,390
Habitat	**ha**	**Habitat**	**ha**	**Habitat**	**ha**
Agricultural lands		Light partial cut	77,085	Fresh emergent	*8,657*
Abandoned field	*2,628*	Heavy partial cut	*25,488*	Peatland	*4,952*
Blueberry field	*1,029*	Deciduous forest	*137,213*	Wet meadow	*1,618*
Grassland	*20,603*	Decid./Conif. forest	896,355	Salt aquatic bed	*1,069*
Crops/Ground	*6,236*	Conif./Decid. forest	1,442,744	Salt emergent	*170*
Developed lands		Coniferous forest	671,679	Mudflat	*224*
Sparse residential	*6,892*	**Wetlands**		Sand shore	*88*
Dense residential	*463*	Deciduous forested	*7,680*	Gravel shore	*126*
Urban/Industrial	*0*	Coniferous forested	331,365	Rock shore	*377*
Highways/Runways	*42*	Dead-forested	2,073	Shallow water	*1,554*
Forestlands		Decid. shrub-scrub	*17,202*	Open water	*9,510*
Clearcut	*16,752*	Conifer. shrub-scrub	12,003	**Other**	
Early regeneration	*52,490*	Dead shrub-scrub	55	Alpine tundra	*108*
Late regeneration	*57,681*	Fresh aquatic bed	*11*	Exposed rock/Talus	*168*

For definitions of field contents see the Introduction. Items in *italics* in the table of habitat quantities show habitats not used by the species, but included in the predicted distribution because of generalization (see the Introduction for details).

RUBY-CROWNED KINGLET

RECA

June 1998



Regional range

Predicted distribution



Maine range

BLUE-GRAY GNATCATCHER (*Polioptila caerulea*)

Element code: BPBJ0801 **ME-GAP code:** POCA

Order: Passeriformes **Family:** Silviidae

Breeding range change: Expanding **Listing status**: Not listed

Migratory status: Resident **Game species**: No

Population level: Rare **Population trend**: Stable

Heritage ranks: G5 . . S2S3 **Knowledge**: Adequate

General habitats used: Blue-gray Gnatcatchers inhabit moist, open forests, and the edges of denser forest stands. Gnatcatchers are associated with the brushy habitats of floodplain mixed, oak, and pine forests. The brushy edges of streams and ponds are selected by Blue-gray Gnatcatchers. Gnatcatchers nest in tall trees, either deciduous or coniferous species.

Specific habitats used:

Comments:

Predicted habitat quantities:

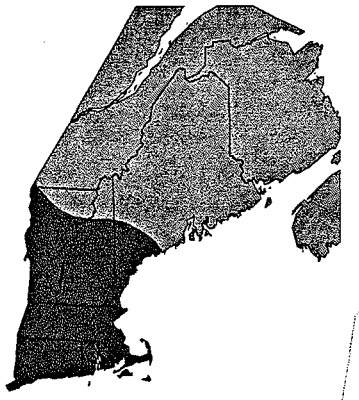
BLUE-GRAY GNATCATCHER				**Total in ha:**	314,696
Habitat	**ha**	**Habitat**	**ha**	**Habitat**	**ha**
Agricultural lands		Light partial cut	9,174	Fresh emergent	*543*
Abandoned field	53	Heavy partial cut	*888*	Peatland	*112*
Blueberry field	*48*	Deciduous forest	49,451	Wet meadow	*75*
Grassland	*11,372*	Decid./Conif. forest	109,622	Salt aquatic bed	*13*
Crops/Ground	*114*	Conif./Decid. forest	81,799	Salt emergent	*62*
Developed lands		Coniferous forest	*5,766*	Mudflat	*15*
Sparse residential	3,080	**Wetlands**		Sand shore	*8*
Dense residential	*613*	Deciduous forested	17,861	Gravel shore	*0*
Urban/Industrial	*23*	Coniferous forested	11,722	Rock shore	*0*
Highways/Runways	*0*	Dead-forested	151	Shallow water	*173*
Forestlands		Decid. shrub-scrub	7,153	Open water	*483*
Clearcut	*718*	Conifer. shrub-scrub	718	**Other**	
Early regeneration	*1,460*	Dead shrub-scrub	3	Alpine tundra	*0*
Late regeneration	*1,409*	Fresh aquatic bed	*1*	Exposed rock/Talus	*17*

For definitions of field contents see the Introduction. Items in *italics* in the table of habitat quantities show habitats not used by the species, but included in the predicted distribution because of generalization (see the Introduction for details).

BLUE-GRAY GNATCATCHER

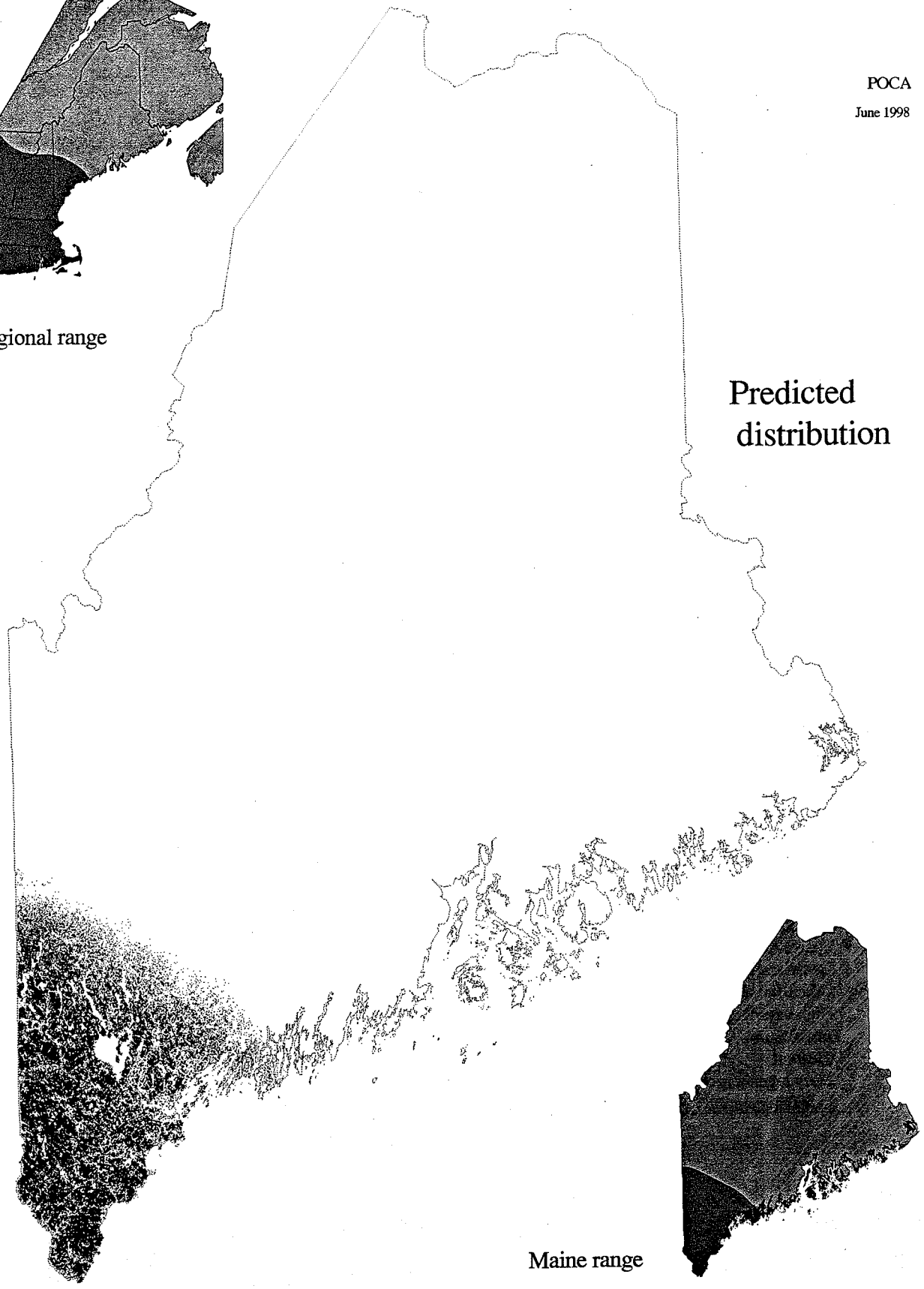
POCA

June 1998



Regional range

Predicted distribution



Maine range

EASTERN BLUEBIRD (*Sialia sialis*)

Element code: BPBJ1501

ME-GAP code: SISI

Order: Passeriformes

Family: Turdidae

Breeding range change: Stable

Listing status: Not listed

Migratory status: US migrant; Local migrant

Game species: No

Population level: Uncommon

Population trend: Stable, slowly increasing

Heritage ranks: G5 . . S4B

Knowledge: Adequate

General habitats used: Eastern Bluebirds are most common in open field and forest habitats around farmland, hedgerows, grassy residential areas, roadside brushy areas, pastures, and hayfields. Openings from fires or timber harvesting are used. Open wet areas may be used by Eastern Bluebirds, such as bogs, beaver flowages, and swamps. Bluebirds are cavity nesters, and compete with European Starlings, House Sparrows, Tree Swallows and Wrens for nest sites. Bird boxes when located in large grassy fields are often used.

Specific habitats used: Nest cavities in trees or nest boxes must be present for breeding Eastern Bluebirds to occur in an area.

Comments: Nest boxes seen along grassy fields, mounted on posts, are usually intended for use by Eastern Bluebirds.

Predicted habitat quantities:

EASTERN BLUEBIRD					Total in ha: 2,057,091
Habitat	**ha**	**Habitat**	**ha**	**Habitat**	**ha**
Agricultural lands		Light partial cut	*22,554*	Fresh emergent	42,515
Abandoned field	10,207	Heavy partial cut	65,063	Peatland	38,697
Blueberry field	9,032	Deciduous forest	*91,201*	Wet meadow	9,891
Grassland	285,993	Decid./Conif. forest	*155,853*	Salt aquatic bed	*942*
Crops/Ground	*31,532*	Conif./Decid. forest	*225,638*	Salt emergent	710
Developed lands		Coniferous forest	*110,979*	Mudflat	1,330
Sparse residential	37,110	**Wetlands**		Sand shore	252
Dense residential	27,265	Deciduous forested	42,151	Gravel shore	*381*
Urban/Industrial	*727*	Coniferous forested	244,970	Rock shore	*406*
Highways/Runways	*407*	Dead-forested	1,413	Shallow water	*4,394*
Forestlands		Decid. shrub-scrub	87,033	Open water	*22,116*
Clearcut	72,636	Conifer. shrub-scrub	10,681	**Other**	
Early regeneration	337,960	Dead shrub-scrub	69	Alpine tundra	*53*
Late regeneration	*64,108*	Fresh aquatic bed	*32*	Exposed rock/Talus	*789*

For definitions of field contents see the Introduction. Items in *italics* in the table of habitat quantities show habitats not used by the species, but included in the predicted distribution because of generalization (see the Introduction for details).

EASTERN BLUEBIRD

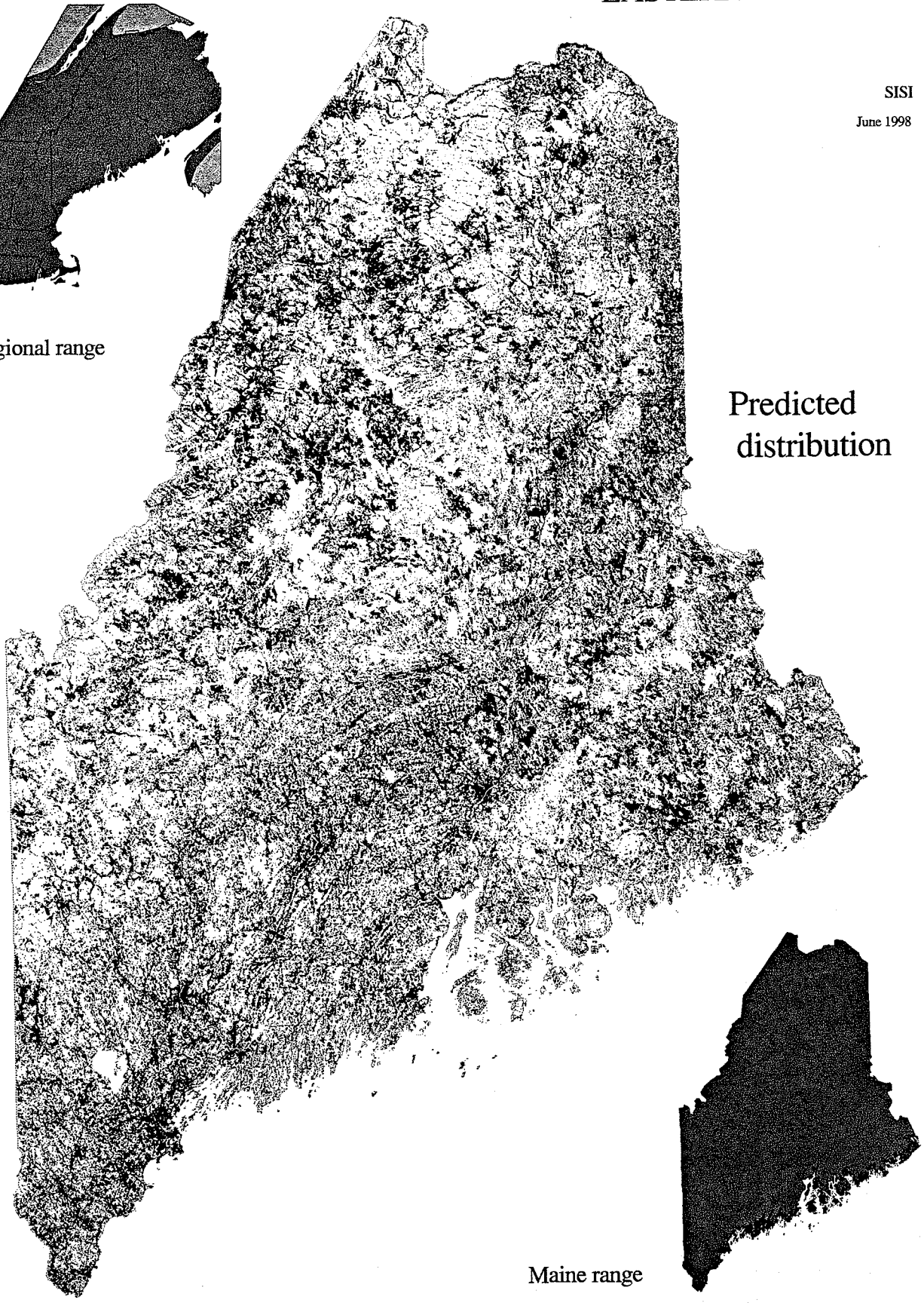
SISI

June 1998



Regional range

Predicted distribution



Maine range

VEERY (*Catharus fuscescens*)

Element code: BPBJ1808

ME-GAP code: CAFU

Order: Passeriformes

Family: Turdidae

Breeding range change: Stable

Listing status: Not listed

Migratory status: Neotropical migrant

Game species: No

Population level: Common

Population trend: Stable

Heritage ranks: G5 . . S5B

Knowledge: Adequate

General habitats used: Veerys occur in moist, low forested areas with dense understories of shrubs or ferns. The interiors of deciduous and mixed bottomland regenerating forests and open forests with dense vegetation are selected. Coniferous forests may occasionally be used, especially hemlock stands. Veerys are often associated with streams and ponds, but water is not required to be nearby. Veerys nest on the ground among dense shrubs or ferns, or in low branches of shrubs and trees.

Specific habitats used:

Comments: Veerys and other woodland thrushes have beautiful voices. They can actually produce two notes at once.

Predicted habitat quantities:

VEERY					Total in ha: 5,479,733
Habitat	**ha**	**Habitat**	**ha**	**Habitat**	**ha**
Agricultural lands		Light partial cut	81,467	Fresh emergent	*31,814*
Abandoned field	14,308	Heavy partial cut	*77,900*	Peatland	39,991
Blueberry field	*4,553*	Deciduous forest	1,158,840	Wet meadow	*6,405*
Grassland	*159,036*	Decid./Conif. forest	1,132,711	Salt aquatic bed	*1,311*
Crops/Ground	*27,529*	Conif./Decid. forest	1,412,419	Salt emergent	*715*
Developed lands		Coniferous forest	*328,183*	Mudflat	*882*
Sparse residential	41,468	**Wetlands**		Sand shore	*116*
Dense residential	*5,472*	Deciduous forested	55,219	Gravel shore	*402*
Urban/Industrial	*101*	Coniferous forested	303,379	Rock shore	*927*
Highways/Runways	*306*	Dead-forested	2,000	Shallow water	*6,237*
Forestlands		Decid. shrub-scrub	98,461	Open water	*42,117*
Clearcut	*48,602*	Conifer. shrub-scrub	11,782	**Other**	
Early regeneration	*178,580*	Dead shrub-scrub	62	Alpine tundra	*104*
Late regeneration	205,831	Fresh aquatic bed	*41*	Exposed rock/Talus	*463*

For definitions of field contents see the Introduction. Items in *italics* in the table of habitat quantities show habitats not used by the species, but included in the predicted distribution because of generalization (see the Introduction for details).

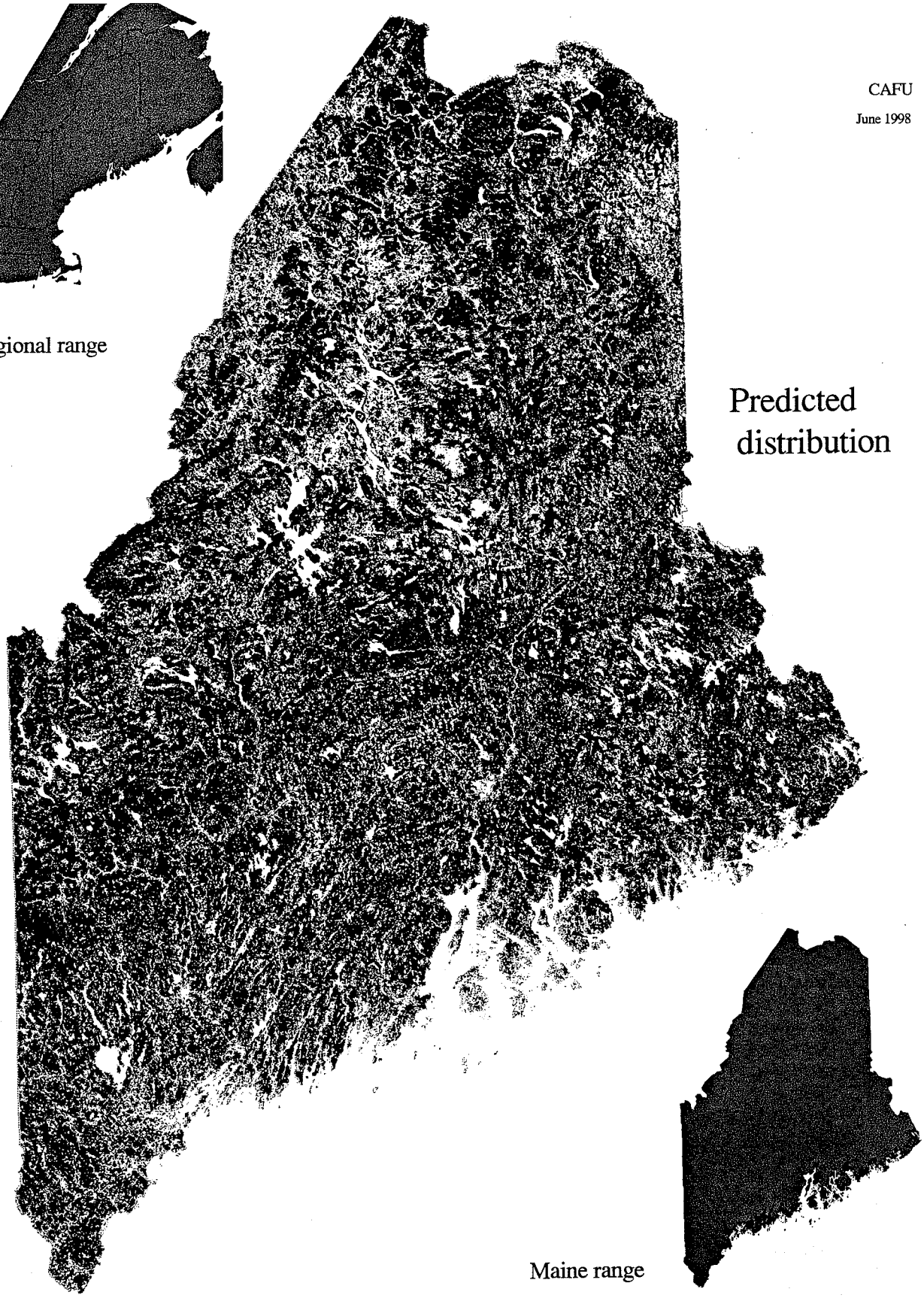
VEERY

CAFU

June 1998



Regional range



Predicted distribution

Maine range

BICKNELL'S THRUSH (*Catharus bicknelli*)

Element code: BPBJ1812

ME-GAP code: CAMI

Order: Passeriformes

Family: Turdidae

Breeding range change: Unknown

Listing status: Not listed

Migratory status: Neotropical migrant

Game species: No

Population level: Uncommon

Population trend: Stable

Heritage ranks: G4 . . S3B

Knowledge: Adequate

General habitats used: Bicknell's Thrushes usually occur in dense, stunted growths of spruce near the tops of mountains (above 915 m). Sites with these thrushes are typically covered with sphagnum moss or other herbaceous material. Young or mature stands of densely growing coniferous trees and snags are used. Bicknell's Thrushes also will use mixed or deciduous stands high on mountains.

Specific habitats used:

Comments: Bicknell's Thrush is one of the few vertebrate species that is endemic to the northeastern U.S.A. and eastern Canada. Forests above 915 m were modeled as potential habitats.

Predicted habitat quantities:

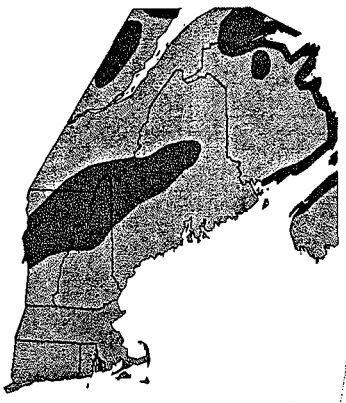
BICKNELL'S THRUSH					**Total in ha:** 20,799
Habitat	**ha**	**Habitat**	**ha**	**Habitat**	**ha**
Agricultural lands		Light partial cut	1,929	Fresh emergent	*2*
Abandoned field	*15*	Heavy partial cut	237	Peatland	2
Blueberry field	*0*	Deciduous forest	147	Wet meadow	*0*
Grassland	*8*	Decid./Conif. forest	1,166	Salt aquatic bed	*1*
Crops/Ground	*0*	Conif./Decid. forest	2,918	Salt emergent	*0*
Developed lands		Coniferous forest	9,819	Mudflat	*0*
Sparse residential	*15*	**Wetlands**		Sand shore	*0*
Dense residential	*0*	Deciduous forested	*0*	Gravel shore	*0*
Urban/Industrial	*0*	Coniferous forested	1	Rock shore	*0*
Highways/Runways	*0*	Dead-forested	*0*	Shallow water	*9*
Forestlands		Decid. shrub-scrub	*0*	Open water	*85*
Clearcut	*114*	Conifer. shrub-scrub	0	**Other**	
Early regeneration	724	Dead shrub-scrub	*0*	Alpine tundra	1,619
Late regeneration	1,831	Fresh aquatic bed	*0*	Exposed rock/Talus	*160*

For definitions of field contents see the Introduction. Items in *italics* in the table of habitat quantities show habitats not used by the species, but included in the predicted distribution because of generalization (see the Introduction for details).

BICKNELL'S THRUSH

CAMI

June 1998



Regional range

Predicted distribution



Maine range

SWAINSON'S THRUSH (*Catharus ustulatus*)

Element code: BPBJ1810

ME-GAP code: CAUS

Order: Passeriformes

Family: Turdidae

Breeding range change: Unknown

Listing status: Not listed

Migratory status: Neotropical migrant

Game species: No

Population level: Common

Population trend: Moderate decline, perhaps forest cutting

Heritage ranks: G5 . . S5B

Knowledge: Adequate

General habitats used: Swainson's Thrushes inhabit low, moist forests with a high percentage of coniferous trees. Mature, closed forests of spruce and balsam fir are selected by Swainson's Thrushes, with undisturbed sites favored. These thrushes are associated with streams and ponds, but use forest interiors rather than the stream margins. Swainson's Thrushes nest on the lower limbs of shrubs or trees.

Specific habitats used:

Comments:

Predicted habitat quantities:

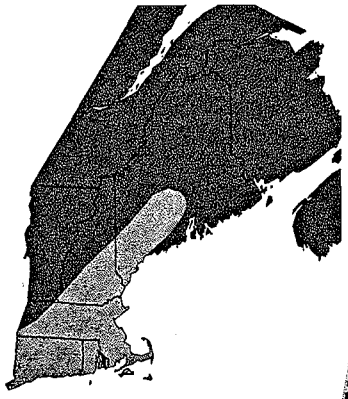
SWAINSON'S THRUSH					Total in ha: 4,239,765
Habitat	**ha**	**Habitat**	**ha**	**Habitat**	**ha**
Agricultural lands		Light partial cut	77,893	Fresh emergent	*11,287*
Abandoned field	*2,468*	Heavy partial cut	*31,970*	Peatland	41,421
Blueberry field	*1,823*	Deciduous forest	*122,651*	Wet meadow	*2,098*
Grassland	*16,405*	Decid./Conif. forest	794,661	Salt aquatic bed	*893*
Crops/Ground	*7,118*	Conif./Decid. forest	1,274,776	Salt emergent	*207*
Developed lands		Coniferous forest	622,522	Mudflat	*263*
Sparse residential	30,070	**Wetlands**		Sand shore	*75*
Dense residential	*492*	Deciduous forested	31,413	Gravel shore	*197*
Urban/Industrial	*0*	Coniferous forested	328,695	Rock shore	*436*
Highways/Runways	*53*	Dead-forested	1,795	Shallow water	*2,186*
Forestlands		Decid. shrub-scrub	98,732	Open water	*11,095*
Clearcut	*24,300*	Conifer. shrub-scrub	11,224	**Other**	
Early regeneration	469,320	Dead shrub-scrub	56	Alpine tundra	*122*
Late regeneration	220,807	Fresh aquatic bed	*10*	Exposed rock/Talus	*231*

For definitions of field contents see the Introduction. Items in *italics* in the table of habitat quantities show habitats not used by the species, but included in the predicted distribution because of generalization (see the Introduction for details).

SWAINSON'S THRUSH

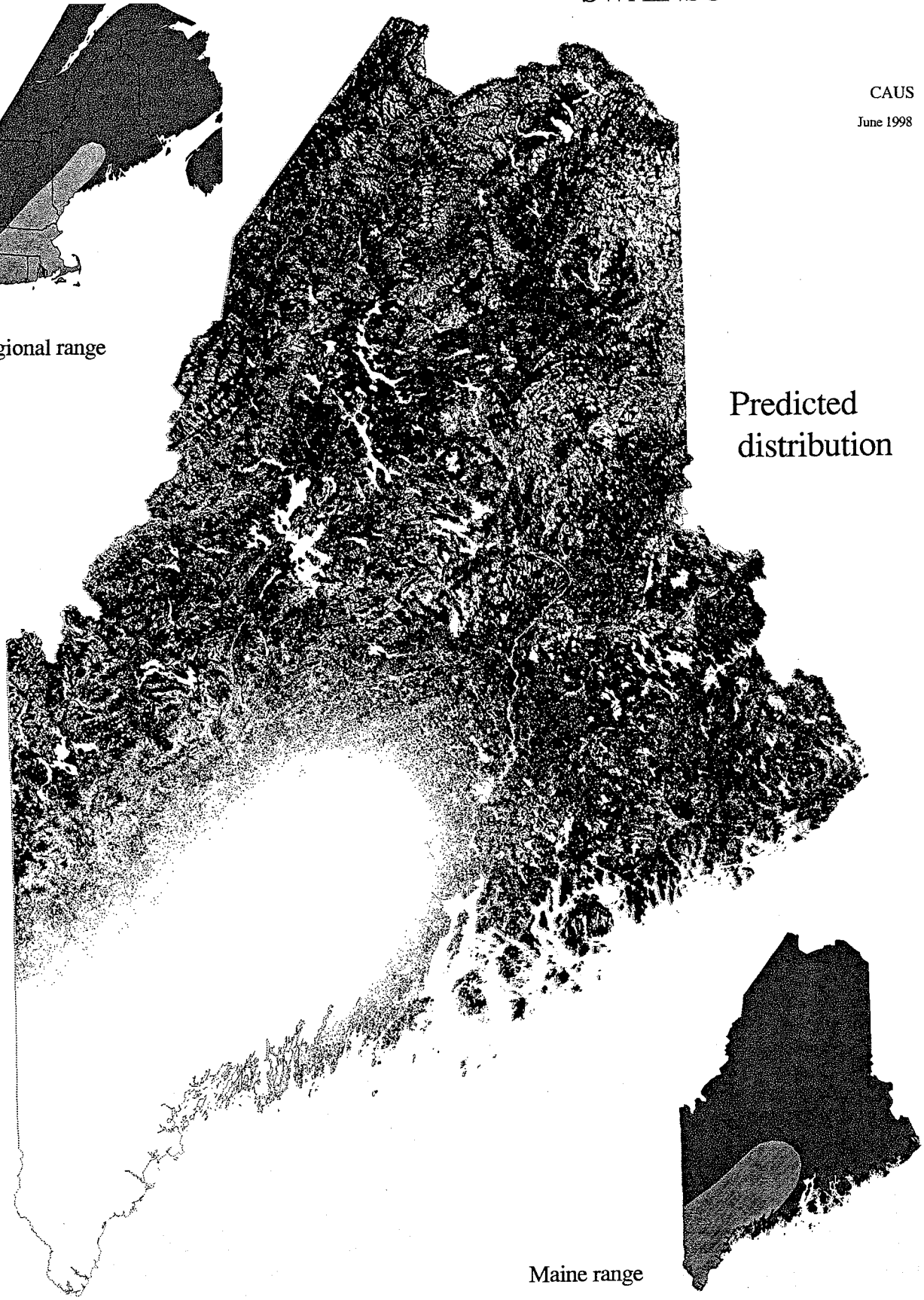
CAUS

June 1998



Regional range

Predicted distribution



Maine range

HERMIT THRUSH (*Catharus guttatus*)

Element code: BPBJ1811

ME-GAP code: CAGU

Order: Passeriformes

Family: Turdidae

Breeding range change: Stable

Listing status: Not listed

Migratory status: US migrant; Local migrant

Game species: No

Population level: Common

Population trend: Stable

Heritage ranks: G5 . . S4B,S4N

Knowledge: Adequate

General habitats used: Hermit Thrushes inhabit large, open coniferous and mixed forests, with cool, moist, mixed stands being selected. Hermit Thrushes may occur in less dense forest than Swainson's Thrushes, and may occur in forested bogs, harvested areas, powerline right-of-ways, pastures, hedgerows, and the margins of ponds and streams. In general, they occur in disturbed areas associated with forest edges. Hermit thrushes nest on the ground or sometimes in low shrubs.

Specific habitats used:

Comments:

Predicted habitat quantities:

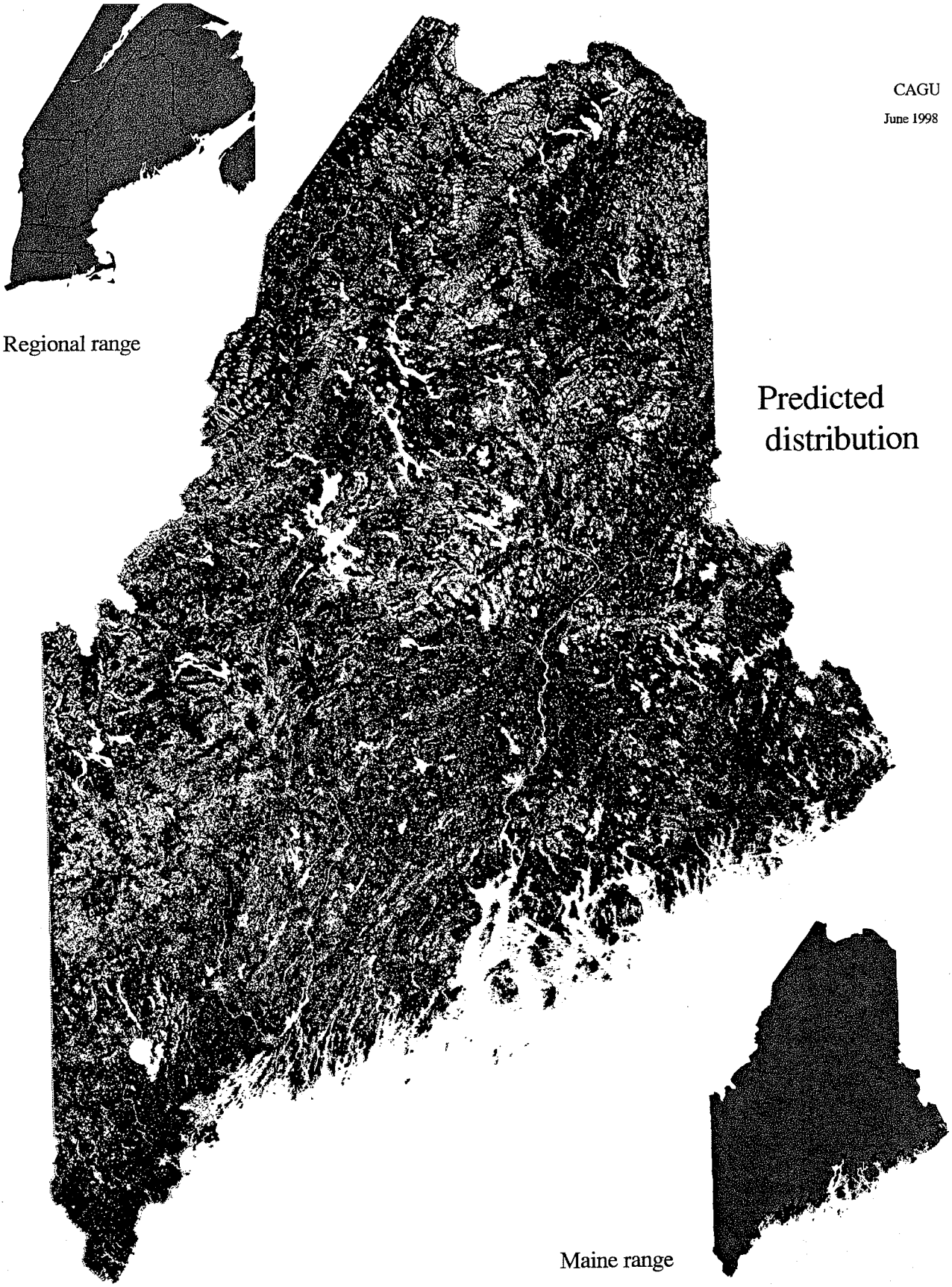
HERMIT THRUSH					Total in ha:	6,049,811
Habitat	**ha**	**Habitat**	**ha**	**Habitat**		**ha**
Agricultural lands		Light partial cut	97,730	Fresh emergent		*40,764*
Abandoned field	16,126	Heavy partial cut	124,330	Peatland		43,347
Blueberry field	*6,271*	Deciduous forest	*442,723*	Wet meadow		*7,998*
Grassland	385,626	Decid./Conif. forest	1,043,919	Salt aquatic bed		*2,981*
Crops/Ground	*48,244*	Conif./Decid. forest	1,578,407	Salt emergent		*1,133*
Developed lands		Coniferous forest	719,448	Mudflat		*1,533*
Sparse residential	55,483	**Wetlands**		Sand shore		*318*
Dense residential	*9,957*	Deciduous forested	63,728	Gravel shore		*582*
Urban/Industrial	*325*	Coniferous forested	358,004	Rock shore		*1,460*
Highways/Runways	*354*	Dead-forested	2,296	Shallow water		*8,321*
Forestlands		Decid. shrub-scrub	118,177	Open water		*55,326*
Clearcut	*70,528*	Conifer. shrub-scrub	13,371	**Other**		
Early regeneration	473,660	Dead shrub-scrub	104	Alpine tundra		*387*
Late regeneration	255,781	Fresh aquatic bed	*60*	Exposed rock/Talus		*1,013*

For definitions of field contents see the Introduction. Items in *italics* in the table of habitat quantities show habitats not used by the species, but included in the predicted distribution because of generalization (see the Introduction for details).

HERMIT THRUSH

CAGU

June 1998



WOOD THRUSH (*Hylocichla mustelina*)

Element code: BPBJ1901

ME-GAP code: HYMU

Order: Passeriformes

Family: Turdidae

Breeding range change: Unknown

Listing status: Not listed

Migratory status: Neotropical migrant

Game species: No

Population level: Common

Population trend: Stable

Heritage ranks: G5 . . S4B

Knowledge: Adequate

General habitats used: Wood Thrushes are most common in cool, moist, tall (> 12 m) deciduous and mixed forests, often associated with streams, ponds, swamps, or rivers. Sites these thrushes occupy tend to be drier than those with Veerys, and running water is not required for Wood Thrushes to breed. Wood Thrushes use forests with thick vegetation, such as regenerating stands and brushy lots within residential areas. These thrushes nest in trees or shrubs, and feed on the ground.

Specific habitats used:

Comments:

Predicted habitat quantities:

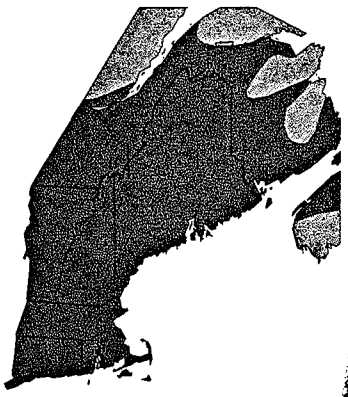
WOOD THRUSH					Total in ha: 6,033,089
Habitat	ha	Habitat	ha	Habitat	ha
Agricultural lands		Light partial cut	93,690	Fresh emergent	*34,389*
Abandoned field	*9,719*	Heavy partial cut	130,999	Peatland	*15,352*
Blueberry field	*5,029*	Deciduous forest	1,179,417	Wet meadow	*6,831*
Grassland	*167,650*	Decid./Conif. forest	1,177,616	Salt aquatic bed	*1,334*
Crops/Ground	*30,688*	Conif./Decid. forest	1,458,515	Salt emergent	*727*
Developed lands		Coniferous forest	*353,697*	Mudflat	*808*
Sparse residential	42,666	**Wetlands**		Sand shore	*108*
Dense residential	*5,686*	Deciduous forested	56,977	Gravel shore	*442*
Urban/Industrial	*102*	Coniferous forested	315,428	Rock shore	*983*
Highways/Runways	*301*	Dead-forested	2,112	Shallow water	*6,537*
Forestlands		Decid. shrub-scrub	105,915	Open water	*43,957*
Clearcut	*65,082*	Conifer. shrub-scrub	11,917	**Other**	
Early regeneration	462,553	Dead shrub-scrub	75	Alpine tundra	*141*
Late regeneration	245,069	Fresh aquatic bed	*41*	Exposed rock/Talus	*539*

For definitions of field contents see the Introduction. Items in *italics* in the table of habitat quantities show habitats not used by the species, but included in the predicted distribution because of generalization (see the Introduction for details).

WOOD THRUSH

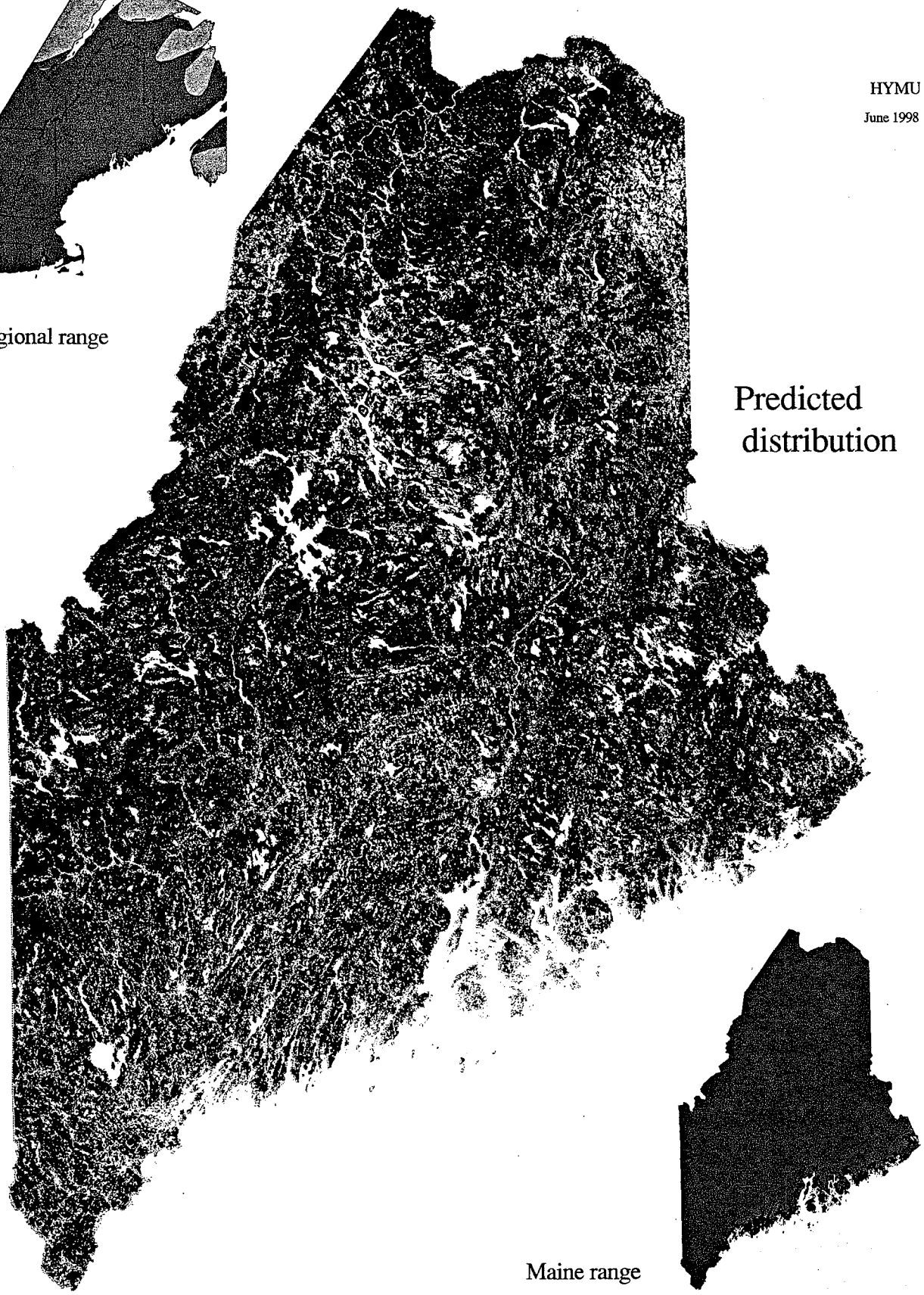
HYMU

June 1998



Regional range

Predicted distribution



Maine range

AMERICAN ROBIN (*Turdus migratorius*)

Element code: BPBJ2017

ME-GAP code: TUMI

Order: Passeriformes

Family: Turdidae

Breeding range change: Stable

Listing status: Not listed

Migratory status: Resident; Local migrant

Game species: No

Population level: Abundant

Population trend: Stable

Heritage ranks: G5 . . S5B,S5N

Knowledge: Good

General habitats used: American Robins are most common in residential areas within a mosaic of open woodland and farmland. Robins forage in short-grass lawns, plowed fields, forest roads, hayfields, orchards, and gardens. They also will occur in open forests and cleared areas. Large residential trees and trees within open forests are used as perches by robins, and they will nest in apple trees, white pines, and maples, for example. A variety forest types are used for nesting, except dense coniferous forests.

Specific habitats used:

Comments: Robins are familiar to almost everyone, but their voice may not be. Robins sing often with whistled notes sounding something like "Cherry-up, Cherry-oh, Cheery-oh, Cheery-up".

Predicted habitat quantities:

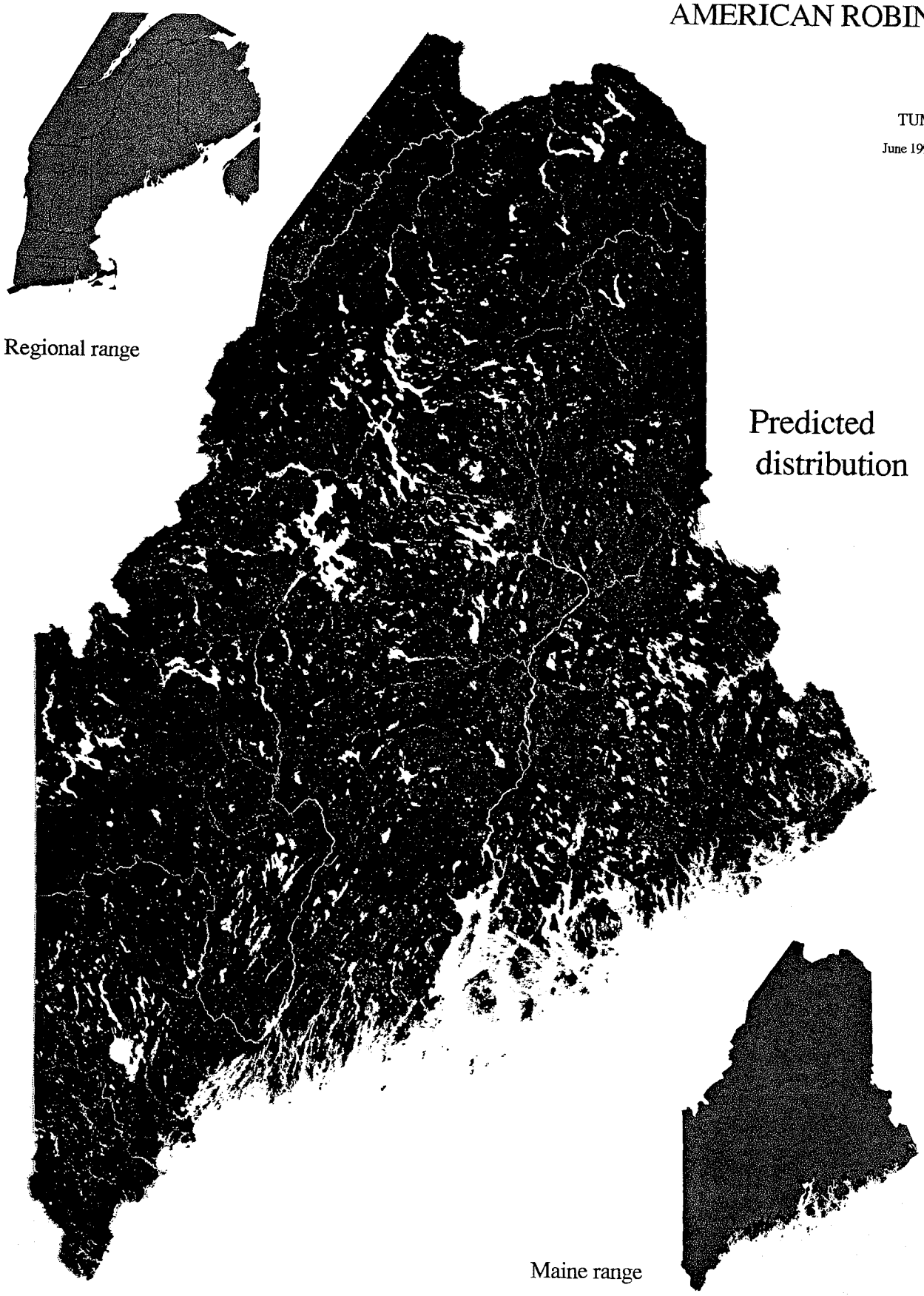
AMERICAN ROBIN					Total in ha: 7,755,266
Habitat	**ha**	**Habitat**	**ha**	**Habitat**	**ha**
Agricultural lands		Light partial cut	111,398	Fresh emergent	*45,852*
Abandoned field	19,072	Heavy partial cut	149,973	Peatland	45,096
Blueberry field	12,721	Deciduous forest	1,268,793	Wet meadow	14,237
Grassland	454,370	Decid./Conif. forest	1,324,676	Salt aquatic bed	*3,332*
Crops/Ground	107,850	Conif./Decid. forest	1,740,040	Salt emergent	*1,294*
Developed lands		Coniferous forest	754,649	Mudflat	2,330
Sparse residential	63,954	**Wetlands**		Sand shore	459
Dense residential	33,293	Deciduous forested	69,231	Gravel shore	*680*
Urban/Industrial	1,416	Coniferous forested	377,381	Rock shore	*1,699*
Highways/Runways	729	Dead-forested	2,574	Shallow water	*9,627*
Forestlands		Decid. shrub-scrub	126,822	Open water	*65,601*
Clearcut	121,466	Conifer. shrub-scrub	14,324	**Other**	
Early regeneration	524,616	Dead shrub-scrub	109	Alpine tundra	*430*
Late regeneration	283,734	Fresh aquatic bed	*72*	Exposed rock/Talus	*1,365*

For definitions of field contents see the Introduction. Items in *italics* in the table of habitat quantities show habitats not used by the species, but included in the predicted distribution because of generalization (see the Introduction for details).

AMERICAN ROBIN

TUMI

June 1998



GRAY CATBIRD (*Dumetella carolinensis*)

Element code: BPBK0101

ME-GAP code: DUCA

Order: Passeriformes

Family: Mimidae

Breeding range change: Stable

Listing status: Not listed

Migratory status: US migrant

Game species: No

Population level: Common

Population trend: Stable

Heritage ranks: G5 . . S4B

Knowledge: Good

General habitats used: Gray Catbirds inhabit dense shrubs and vines that border streams, ponds, wetlands, and swamps. Dry sites with thickets present also are used, such as open deciduous and mixed forests, clearcuts, parks, cemeteries, golf courses, and gardens. Shrubs around buildings are likely places to locate Gray Catbirds; the species of shrubs is not important, only that they are dense and near edges. Catbirds nest in shrubs under a deciduous overstory, nesting in hawthorns, grape, and multifloral rose, for example.

Specific habitats used:

Comments: Gray Catbirds are named for one phrase of their varied songs, which sounds like the meow of a cat.

Predicted habitat quantities:

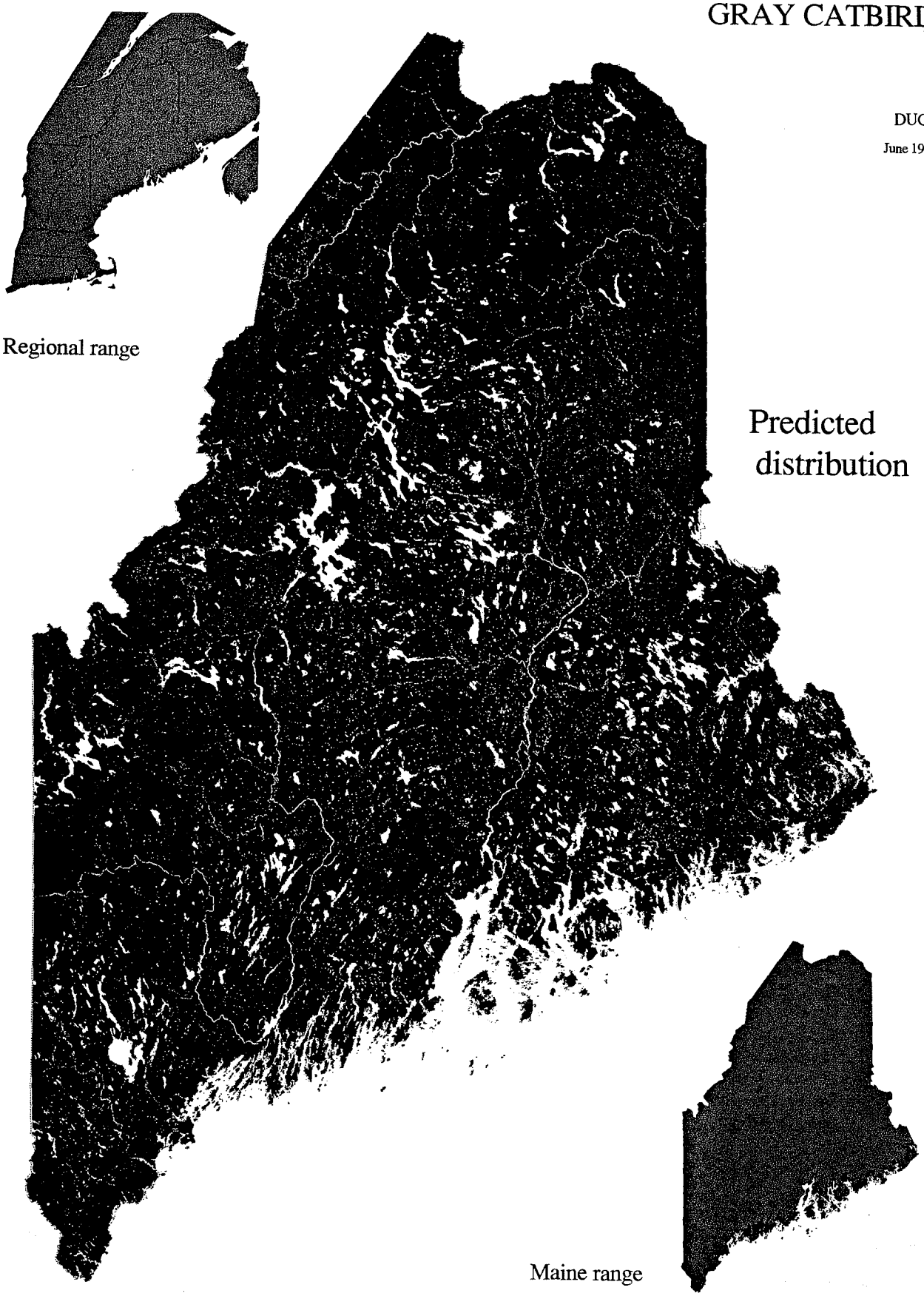
GRAY CATBIRD					Total in ha: 7,693,172
Habitat	ha	Habitat	ha	Habitat	ha
Agricultural lands		Light partial cut	110,010	Fresh emergent	*44,705*
Abandoned field	18,475	Heavy partial cut	146,678	Peatland	44,717
Blueberry field	12,480	Deciduous forest	1,263,277	Wet meadow	*8,957*
Grassland	451,228	Decid./Conif. forest	1,312,545	Salt aquatic bed	*3,278*
Crops/Ground	105,727	Conif./Decid. forest	1,728,717	Salt emergent	*1,248*
Developed lands		Coniferous forest	759,088	Mudflat	*1,695*
Sparse residential	63,414	**Wetlands**		Sand shore	*346*
Dense residential	33,005	Deciduous forested	67,795	Gravel shore	*654*
Urban/Industrial	*758*	Coniferous forested	375,595	Rock shore	*1,664*
Highways/Runways	742	Dead-forested	2,484	Shallow water	*9,378*
Forestlands		Decid. shrub-scrub	123,675	Open water	*63,873*
Clearcut	121,042	Conifer. shrub-scrub	13,957	**Other**	
Early regeneration	520,049	Dead shrub-scrub	109	Alpine tundra	*440*
Late regeneration	279,959	Fresh aquatic bed	*70*	Exposed rock/Talus	*1,337*

For definitions of field contents see the Introduction. Items in *italics* in the table of habitat quantities show habitats not used by the species, but included in the predicted distribution because of generalization (see the Introduction for details).

GRAY CATBIRD

DUCA

June 1998



NORTHERN MOCKINGBIRD (*Mimus polyglottus*)

Element code: BPBK0301 **ME-GAP code:** MIPO

Order: Passeriformes **Family:** Mimidae

Breeding range change: Expanding **Listing status:** Not listed

Migratory status: Local migrant; Resident **Game species:** No

Population level: Common **Population trend:** Slight increase

Heritage ranks: G5 . . S5B,S5N **Knowledge:** Adequate

General habitats used: Northern Mockingbirds inhabit brushy, open areas, usually associated with urban sites. Edges of forests, hedgerows, roadside brush, pastures with some shrubs present, and parks are good habitat for mockingbirds. In general, sites with a few trees, dense vegetation, and edible fruits are selected. Northern Mockingbirds nest in shrubs, vine tangles, or low trees.

Specific habitats used:

Comments:

Predicted habitat quantities:

NORTHERN MOCKINGBIRD					Total in ha: 1,296,787
Habitat	**ha**	**Habitat**	**ha**	**Habitat**	**ha**
Agricultural lands		Light partial cut	50,226	Fresh emergent	*5,227*
Abandoned field	13,854	Heavy partial cut	66,571	Peatland	*1,086*
Blueberry field	11,198	Deciduous forest	*30,280*	Wet meadow	10,942
Grassland	355,203	Decid./Conif. forest	*52,223*	Salt aquatic bed	*534*
Crops/Ground	49,849	Conif./Decid. forest	*67,352*	Salt emergent	*315*
Developed lands		Coniferous forest	*18,015*	Mudflat	*338*
Sparse residential	50,674	**Wetlands**		Sand shore	*97*
Dense residential	30,094	Deciduous forested	*4,631*	Gravel shore	*36*
Urban/Industrial	*325*	Coniferous forested	*11,385*	Rock shore	*198*
Highways/Runways	654	Dead-forested	*117*	Shallow water	*1,072*
Forestlands		Decid. shrub-scrub	80,055	Open water	*4,717*
Clearcut	63,122	Conifer. shrub-scrub	9,338	**Other**	
Early regeneration	184,689	Dead shrub-scrub	82	Alpine tundra	*7*
Late regeneration	121,818	Fresh aquatic bed	*9*	Exposed rock/Talus	*453*

For definitions of field contents see the Introduction. Items in *italics* in the table of habitat quantities show habitats not used by the species, but included in the predicted distribution because of generalization (see the Introduction for details).

NORTHERN MOCKINGBIRD

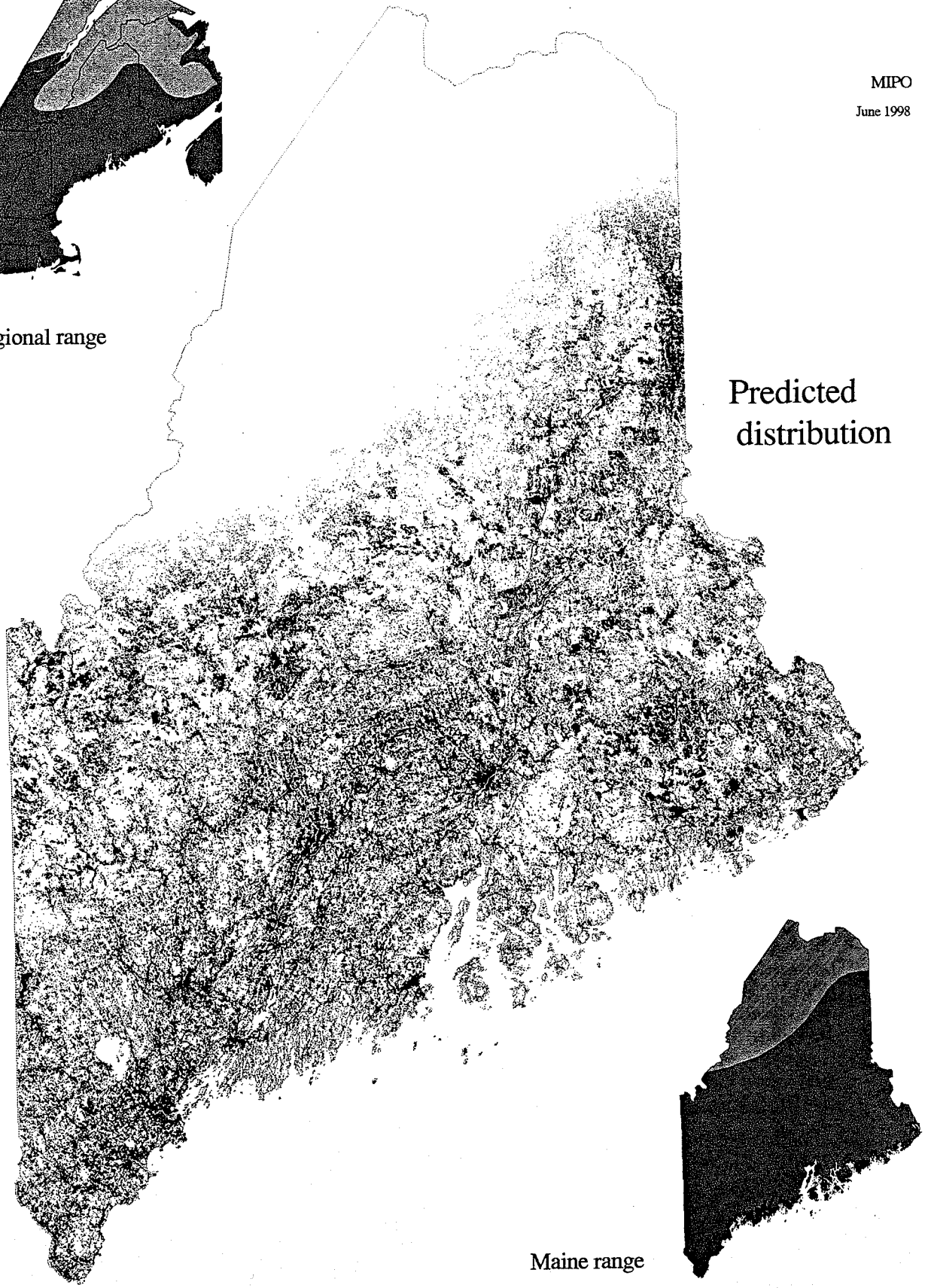
MIPO

June 1998



Regional range

Predicted distribution



Maine range

BROWN THRASHER (*Toxostoma rufum*)

Element code: BPBK0601 **ME-GAP code:** TORU

Order: Passeriformes **Family:** Mimidae

Breeding range change: Expanding **Listing status**: Not listed

Migratory status: US migrant **Game species**: No

Population level: Common **Population trend**: Declining

Heritage ranks: G5 . . S4B **Knowledge**: Adequate

General habitats used: Brown Thrashers occur in shrubs, thickets, and hedgerows that border pastures, hay fields, roadsides, and small forest openings. Shrubby sites near residential areas, cemeteries, parks, and golf courses may be used by thrashers. Forest edges are selected over forest interiors, and sites within high mountains are not used. Brown Thrashers nest on the ground or in shrubs, and occasionally in low trees.

Specific habitats used:

Comments: Brown Thrasher populations are gradually declining, perhaps because of farmland abandonment. Many of the small farms of 50 years ago have regrown into young forests unattractive to Brown Thrashers. Brown Thrashers use many phrases in their songs and the phrases are always given in pairs.

Predicted habitat quantities:

BROWN THRASHER					Total in ha: 1,235,980
Habitat	**ha**	**Habitat**	**ha**	**Habitat**	**ha**
Agricultural lands		Light partial cut	*7,857*	Fresh emergent	*5,182*
Abandoned field	13,825	Heavy partial cut	69,402	Peatland	*1,039*
Blueberry field	11,178	Deciduous forest	*28,534*	Wet meadow	10,920
Grassland	334,248	Decid./Conif. forest	*48,589*	Salt aquatic bed	*521*
Crops/Ground	39,667	Conif./Decid. forest	*61,466*	Salt emergent	*311*
Developed lands		Coniferous forest	*15,433*	Mudflat	*339*
Sparse residential	47,621	**Wetlands**		Sand shore	*100*
Dense residential	29,626	Deciduous forested	*4,315*	Gravel shore	*38*
Urban/Industrial	*325*	Coniferous forested	*10,673*	Rock shore	*188*
Highways/Runways	656	Dead-forested	*118*	Shallow water	*1,017*
Forestlands		Decid. shrub-scrub	76,225	Open water	*4,582*
Clearcut	67,696	Conifer. shrub-scrub	8,992	**Other**	
Early regeneration	204,549	Dead shrub-scrub	72	Alpine tundra	*1*
Late regeneration	130,203	Fresh aquatic bed	*6*	Exposed rock/Talus	*467*

For definitions of field contents see the Introduction. Items in *italics* in the table of habitat quantities show habitats not used by the species, but included in the predicted distribution because of generalization (see the Introduction for details).

BROWN THRASHER

TORU

June 1998



Regional range

Predicted distribution



Maine range

AMERICAN PIPIT (*Anthus rubescens*)

Element code: BPBM0205

ME-GAP code: ANSP

Order: Passeriformes

Family: Motacillidae

Breeding range change: Stable

Listing status: Endangered (S)

Migratory status: Neotropical migrant

Game species: No

Population level: Rare

Population trend: Stable

Heritage ranks: G5 . . S1B,S3N

Knowledge: Adequate

General habitats used: In Maine, American Pipits only inhabit a restricted area near the summit of Katahdin Mountain. Maine pipits are associated with alpine meadows on sloping ground, above the tree line. In general, breeding habitats are alpine and arctic tundra, with America Pipits nesting on the ground, on a mossy hummock or in a cavity in a rock pile.

Specific habitats used:

Comments:

Predicted habitat quantities:

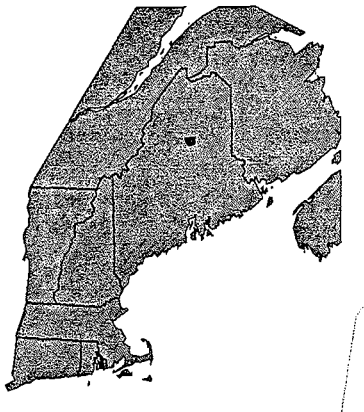
AMERICAN PIPIT					Total in ha:	980
Habitat	ha	Habitat	ha	Habitat		ha
Agricultural lands		Light partial cut	*1*	Fresh emergent		*0*
Abandoned field	*0*	Heavy partial cut	*0*	Peatland		*0*
Blueberry field	*0*	Deciduous forest	*0*	Wet meadow		*0*
Grassland	*0*	Decid./Conif. forest	*3*	Salt aquatic bed		*0*
Crops/Ground	*0*	Conif./Decid. forest	*23*	Salt emergent		*0*
Developed lands		Coniferous forest	*88*	Mudflat		*0*
Sparse residential	*0*	**Wetlands**		Sand shore		0
Dense residential	*0*	Deciduous forested	*0*	Gravel shore		0
Urban/Industrial	*0*	Coniferous forested	*0*	Rock shore		0
Highways/Runways	*0*	Dead-forested	*0*	Shallow water		*1*
Forestlands		Decid. shrub-scrub	*0*	Open water		*0*
Clearcut	*2*	Conifer. shrub-scrub	*0*	**Other**		
Early regeneration	*2*	Dead shrub-scrub	*0*	Alpine tundra		772
Late regeneration	*0*	Fresh aquatic bed	*0*	Exposed rock/Talus		*87*

For definitions of field contents see the Introduction. Items in *italics* in the table of habitat quantities show habitats not used by the species, but included in the predicted distribution because of generalization (see the Introduction for details).

AMERICAN PIPIT

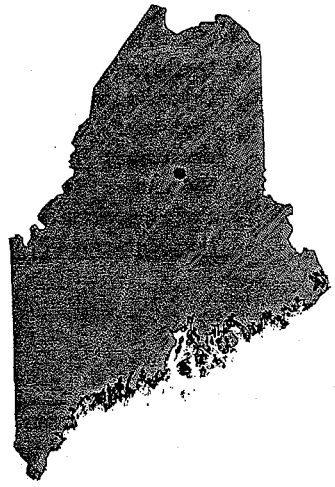
ANSP

June 1998



Regional range

Predicted distribution



Maine range

CEDAR WAXWING (*Bombycilla cedrorum*)

Element code: BPBN0102

ME-GAP code: BOCE

Order: Passeriformes

Family: Bombycillidae

Breeding range change: Stable

Listing status: Not listed

Migratory status: Local migrant; Resident

Game species: No

Population level: Common

Population trend: Stable

Heritage ranks: G5 . . S3S5N,S5B

Knowledge: Good

General habitats used: Cedar Waxwings nest in open young deciduous and coniferous forests, residential trees, hedgerows, clearcuts, roadsides, streamsides, gardens, and the edges of pastures and hayfields. Brushy sites within open areas that are near water are used by Cedar Waxwings. These waxwings will nest in coniferous or deciduous trees, with dense coniferous thickets (such as cedar) are heavily used.

Specific habitats used:

Comments:

Predicted habitat quantities:

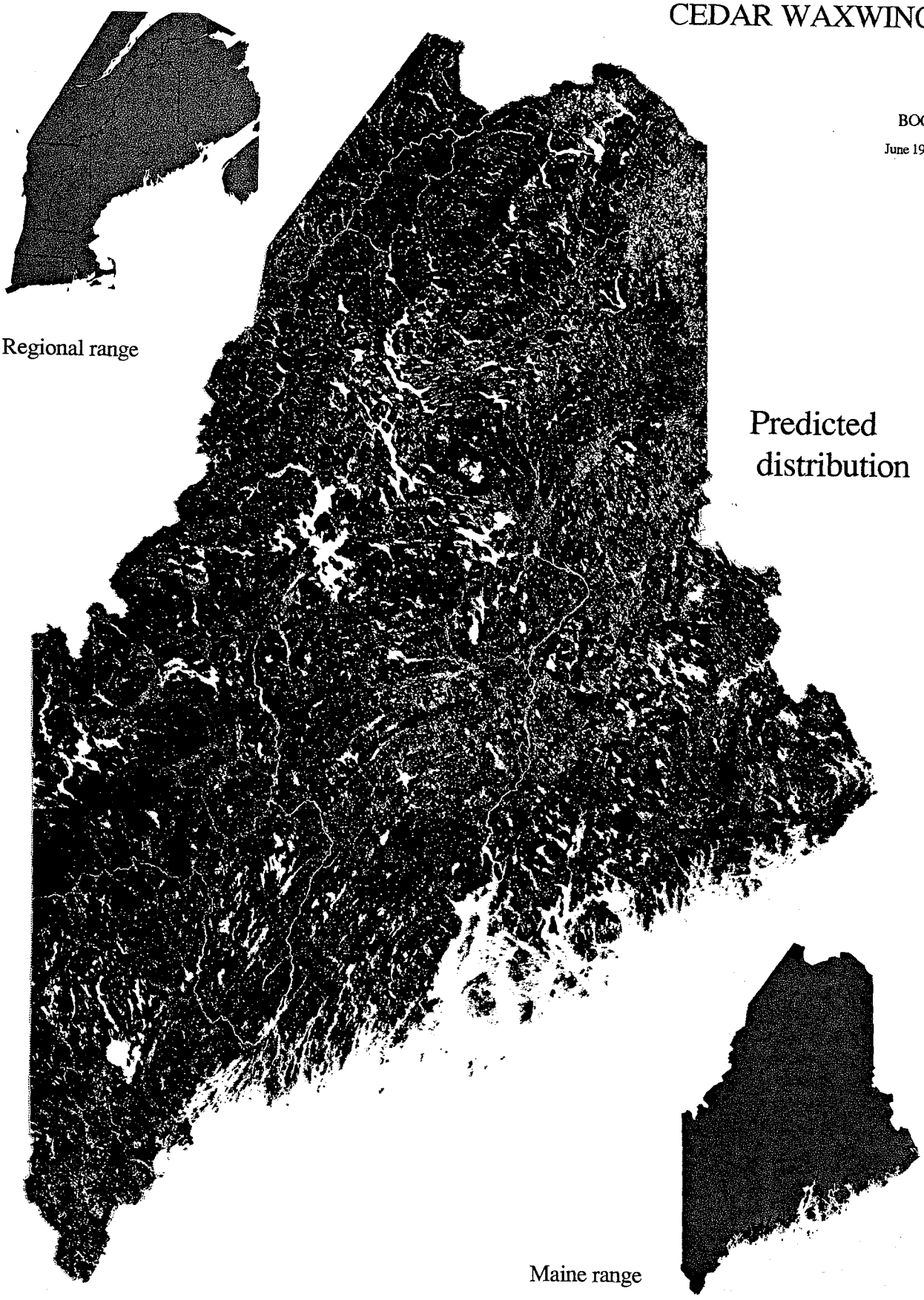
CEDAR WAXWING					Total in ha: 7,231,528
Habitat	**ha**	**Habitat**	**ha**	**Habitat**	**ha**
Agricultural lands		Light partial cut	107,766	Fresh emergent	59,844
Abandoned field	17,936	Heavy partial cut	143,355	Peatland	36,804
Blueberry field	12,430	Deciduous forest	1,252,744	Wet meadow	13,717
Grassland	426,845	Decid./Conif. forest	1,287,693	Salt aquatic bed	*3,165*
Crops/Ground	*54,148*	Conif./Decid. forest	1,672,450	Salt emergent	1,373
Developed lands		Coniferous forest	716,782	Mudflat	*1,669*
Sparse residential	59,770	**Wetlands**		Sand shore	*339*
Dense residential	31,405	Deciduous forested	*40,391*	Gravel shore	*714*
Urban/Industrial	*731*	Coniferous forested	*191,481*	Rock shore	*1,648*
Highways/Runways	*563*	Dead-forested	*1,627*	Shallow water	*8,801*
Forestlands		Decid. shrub-scrub	113,291	Open water	*61,844*
Clearcut	115,606	Conifer. shrub-scrub	12,508	**Other**	
Early regeneration	504,909	Dead shrub-scrub	104	Alpine tundra	*430*
Late regeneration	275,279	Fresh aquatic bed	*68*	Exposed rock/Talus	*1,298*

For definitions of field contents see the Introduction. Items in *italics* in the table of habitat quantities show habitats not used by the species, but included in the predicted distribution because of generalization (see the Introduction for details).

CEDAR WAXWING

BOCE

June 1998



BLUE-HEADED VIREO (*Vireo solitarius*)

Element code: BPBW0116

ME-GAP code: VISO

Order: Passeriformes

Family: Vireonidae

Breeding range change: Stable

Listing status: Not listed

Migratory status: US and Neotropical migrant

Game species: No

Population level: Common

Population trend: Stable to slightly increasing

Heritage ranks: G5 . . S5B

Knowledge: Adequate

General habitats used: Blue-headed Vireos are forest generalist, but are most common in closed canopy mixed forests, and appear to require some conifers in the overstory for breeding. Spruce, pines, and hemlock stands are selected by Blue-headed Vireos. Forest stands with gaps in the overstory and thick understories are good habitat for this species. Similarly, forest edges may be used by vireos. Blue-headed Vireos typically nest in conifers.

Specific habitats used:

Comments: This vireo is also known as the Solitary Vireo.

Predicted habitat quantities:

BLUE-HEADED VIREO					Total in ha: 6,660,536
Habitat	ha	Habitat	ha	Habitat	ha
Agricultural lands		Light partial cut	101,343	Fresh emergent	*34,319*
Abandoned field	14,836	Heavy partial cut	135,827	Peatland	*15,853*
Blueberry field	*5,412*	Deciduous forest	1,193,461	Wet meadow	*6,655*
Grassland	*173,807*	Decid./Conif. forest	1,209,443	Salt aquatic bed	*2,683*
Crops/Ground	*31,498*	Conif./Decid. forest	1,607,591	Salt emergent	*921*
Developed lands		Coniferous forest	712,985	Mudflat	*1,204*
Sparse residential	46,140	**Wetlands**		Sand shore	*249*
Dense residential	*6,166*	Deciduous forested	58,079	Gravel shore	*515*
Urban/Industrial	*102*	Coniferous forested	341,804	Rock shore	*1,415*
Highways/Runways	*305*	Dead-forested	2,268	Shallow water	*7,335*
Forestlands		Decid. shrub-scrub	*67,855*	Open water	*50,993*
Clearcut	*71,425*	Conifer. shrub-scrub	11,713	**Other**	
Early regeneration	484,071	Dead shrub-scrub	79	Alpine tundra	*407*
Late regeneration	261,064	Fresh aquatic bed	*47*	Exposed rock/Talus	*666*

For definitions of field contents see the Introduction. Items in *italics* in the table of habitat quantities show habitats not used by the species, but included in the predicted distribution because of generalization (see the Introduction for details).

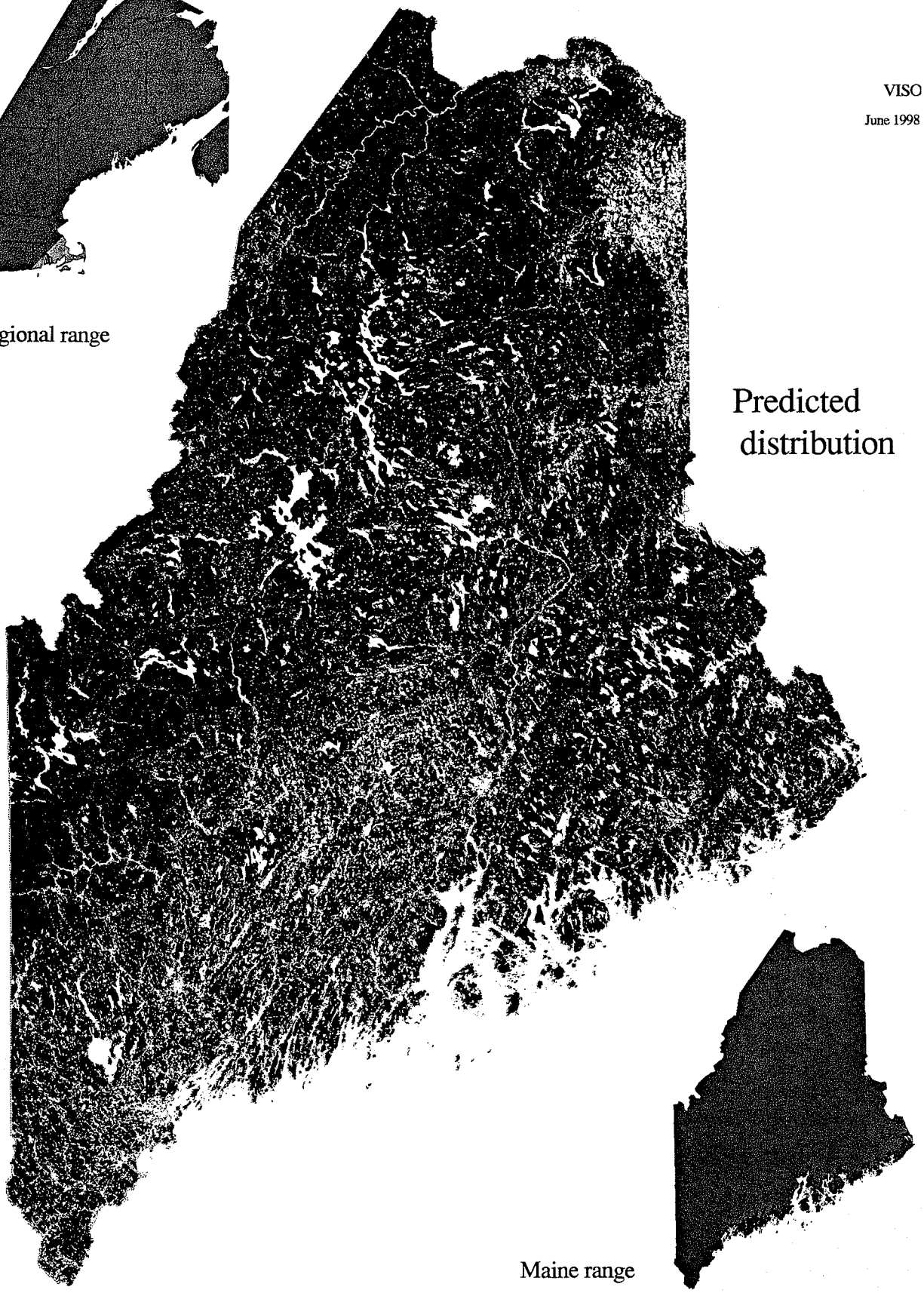
BLUE-HEADED VIREO

VISO

June 1998



Regional range



Predicted distribution

Maine range

YELLOW-THROATED VIREO (*Vireo flavifrons*)

Element code: BPBW0117

ME-GAP code: VIFL

Order: Passeriformes

Family: Vireonidae

Breeding range change: Unknown

Listing status: Not listed

Migratory status: Neotropical migrant

Game species: No

Population level: Rare

Population trend: Gradual increase

Heritage ranks: G5 . . S3B

Knowledge: Best guess

General habitats used: Yellow-throated Vireos inhabit open deciduous forests, especially those with spreading crowns, such as with oaks and maples. Woodland edges that border streams, roadsides, or open fields are used. Forested wetlands may be used by Yellow-throated Vireos, especially sites with some dead trees present. The expansion of suburban areas, with their large deciduous trees lining the streets, may have increased populations of these vireos.

Specific habitats used:

Comments:

Predicted habitat quantities:

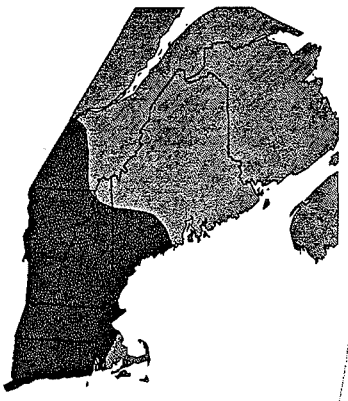
YELLOW-THROATED VIREO				**Total in ha:**	594,808
Habitat	**ha**	**Habitat**	**ha**	**Habitat**	**ha**
Agricultural lands		Light partial cut	*4,006*	Fresh emergent	*906*
Abandoned field	511	Heavy partial cut	*2,565*	Peatland	*144*
Blueberry field	*45*	Deciduous forest	141,701	Wet meadow	*161*
Grassland	*21,597*	Decid./Conif. forest	188,480	Salt aquatic bed	*28*
Crops/Ground	*764*	Conif./Decid. forest	142,602	Salt emergent	*105*
Developed lands		Coniferous forest	*11,974*	Mudflat	*45*
Sparse residential	6,636	**Wetlands**		Sand shore	*12*
Dense residential	15,292	Deciduous forested	22,086	Gravel shore	*1*
Urban/Industrial	*196*	Coniferous forested	17,498	Rock shore	*4*
Highways/Runways	*28*	Dead-forested	206	Shallow water	*252*
Forestlands		Decid. shrub-scrub	9,654	Open water	*1,276*
Clearcut	*967*	Conifer. shrub-scrub	*187*	**Other**	
Early regeneration	*2,215*	Dead shrub-scrub	13	Alpine tundra	*0*
Late regeneration	*2,484*	Fresh aquatic bed	*1*	Exposed rock/Talus	*166*

For definitions of field contents see the Introduction. Items in *italics* in the table of habitat quantities show habitats not used by the species, but included in the predicted distribution because of generalization (see the Introduction for details).

YELLOW-THROATED VIREO

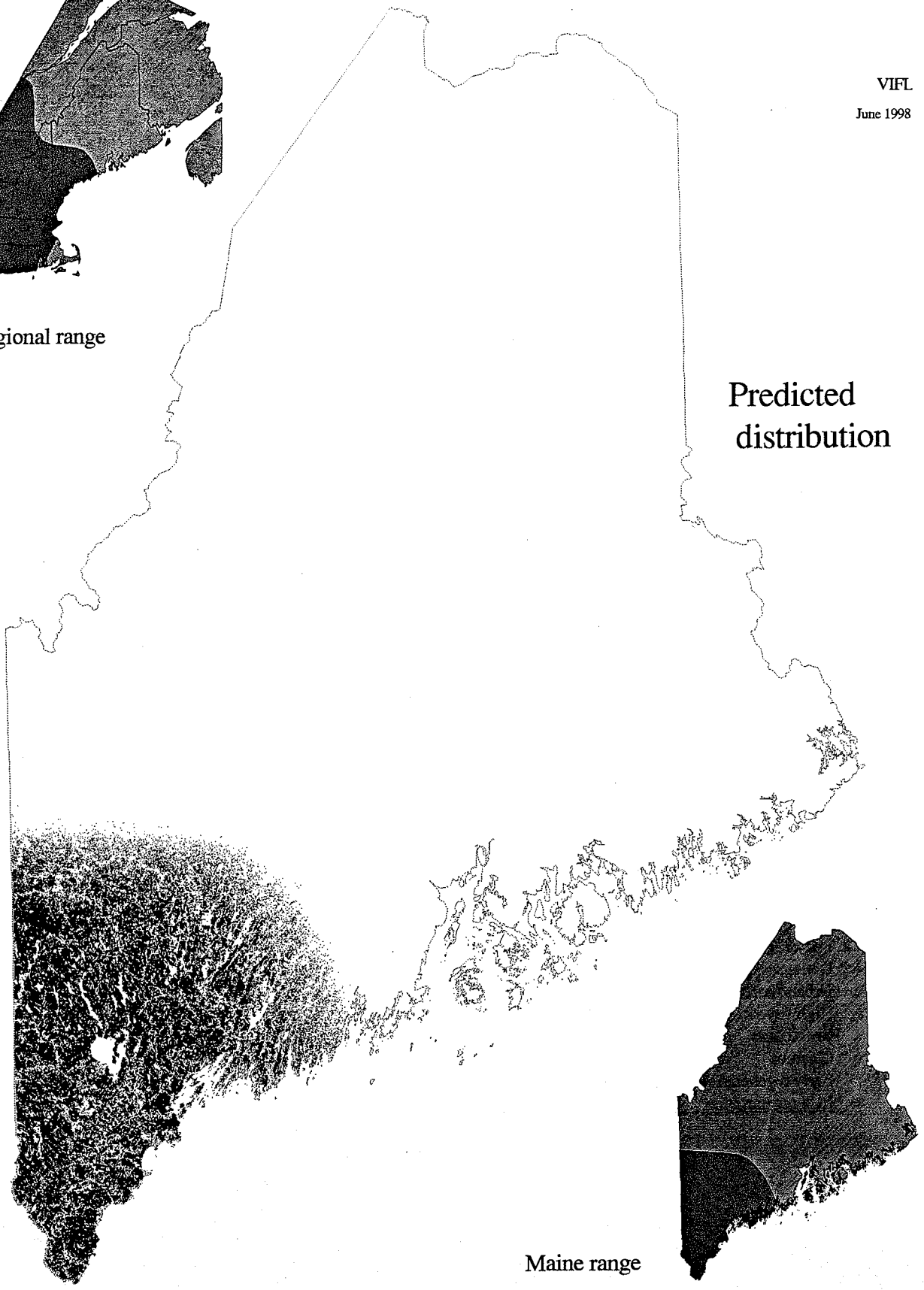
VIFL

June 1998



Regional range

Predicted distribution



Maine range

WARBLING VIREO (*Vireo gilvus*)

Element code: BPBW0121

ME-GAP code: VIGI

Order: Passeriformes

Family: Vireonidae

Breeding range change: Stable

Listing status: Not listed

Migratory status: Neotropical migrant

Game species: No

Population level: Uncommon

Population trend: Stable

Heritage ranks: G5 . . S4B

Knowledge: Adequate

General habitats used: Warbling Vireos breed in open deciduous forests with tall, mature trees. Inland valleys and river bottoms forested with American elm, silver maple, and poplars are favored. Warbling Vireos inhabit roadsides and residential areas, if large deciduous trees with open canopies are present. These vireos nest high in trees, and feed heavily on caterpillars.

Specific habitats used:

Comments:

Predicted habitat quantities:

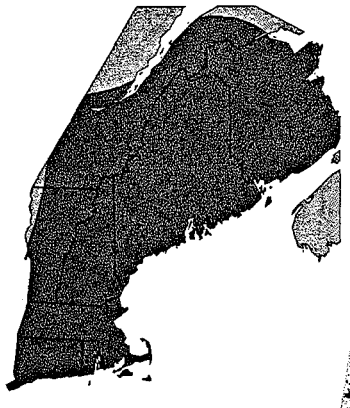
WARBLING VIREO					Total in ha: 3,830,284
Habitat	ha	Habitat	ha	Habitat	ha
Agricultural lands		Light partial cut	67,585	Fresh emergent	*16,907*
Abandoned field	10,471	Heavy partial cut	*67,391*	Peatland	*4,789*
Blueberry field	*3,558*	Deciduous forest	1,087,437	Wet meadow	*3,622*
Grassland	*128,963*	Decid./Conif. forest	930,633	Salt aquatic bed	*707*
Crops/Ground	*22,352*	Conif./Decid. forest	*485,044*	Salt emergent	*411*
Developed lands		Coniferous forest	*109,298*	Mudflat	*450*
Sparse residential	33,559	**Wetlands**		Sand shore	*71*
Dense residential	24,722	Deciduous forested	41,636	Gravel shore	*282*
Urban/Industrial	*484*	Coniferous forested	*66,350*	Rock shore	*600*
Highways/Runways	*405*	Dead-forested	1,229	Shallow water	*3,181*
Forestlands		Decid. shrub-scrub	68,862	Open water	*23,249*
Clearcut	*43,838*	Conifer. shrub-scrub	*2,935*	**Other**	
Early regeneration	400,622	Dead shrub-scrub	51	Alpine tundra	*85*
Late regeneration	177,876	Fresh aquatic bed	*28*	Exposed rock/Talus	*599*

For definitions of field contents see the Introduction. Items in *italics* in the table of habitat quantities show habitats not used by the species, but included in the predicted distribution because of generalization (see the Introduction for details).

WARBLING VIREO

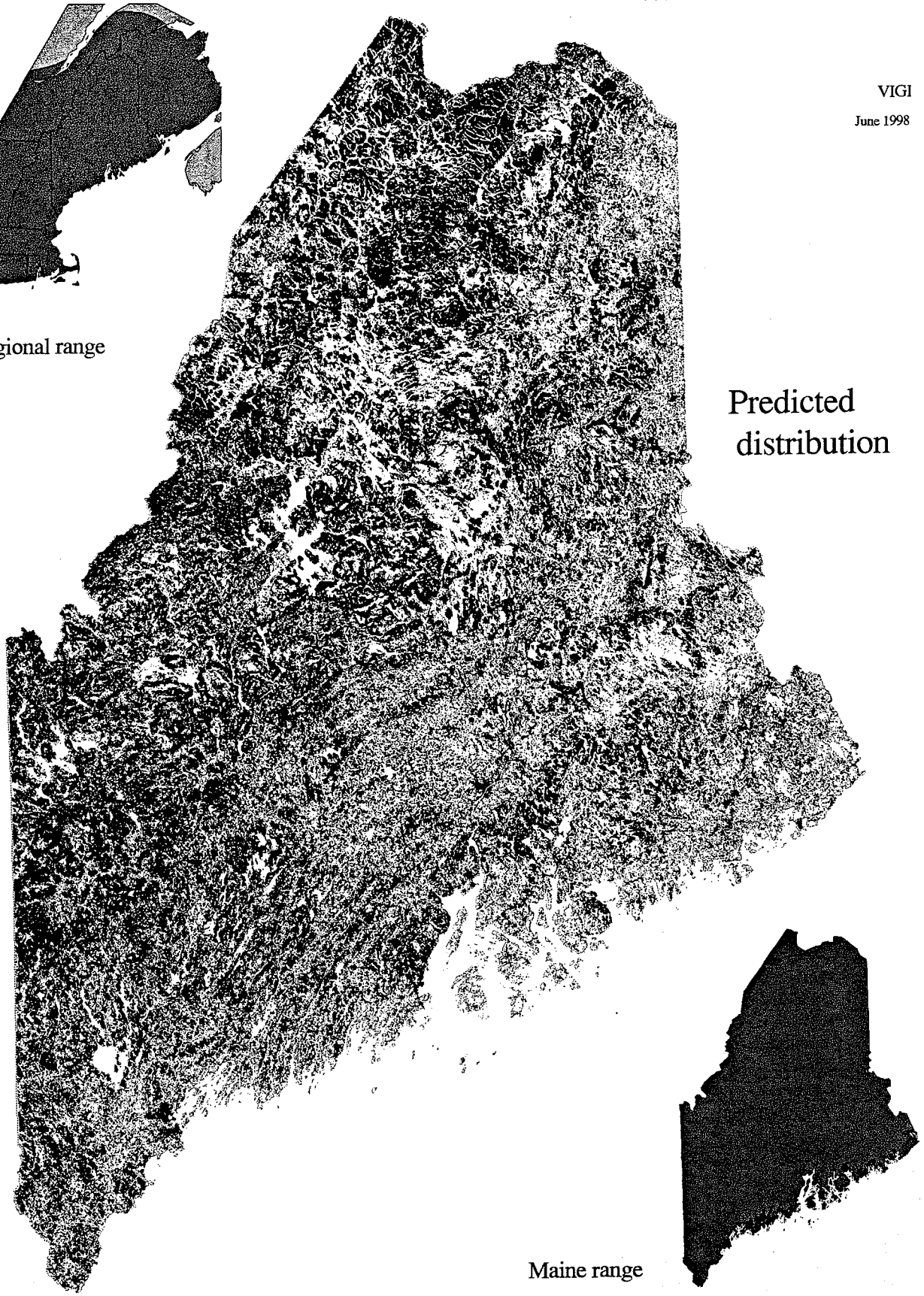
VIGI

June 1998



Regional range

Predicted distribution



Maine range

PHILADELPHIA VIREO (*Vireo philadelphicus*)

Element code: BPBW0123

ME-GAP code: VIPH

Order: Passeriformes

Family: Vireonidae

Breeding range change: Unknown

Listing status: Not listed

Migratory status: Neotropical migrant

Game species: No

Population level: Uncommon

Population trend: Rapid increase, possibly due to forest cutting

Heritage ranks: G5 . . S4B

Knowledge: Adequate

General habitats used: Philadelphia Vireos inhabit young forests, with deciduous and mixed forested selected over coniferous. White ash and yellow birch appear to be selected by this species. Brushy areas associated with forest edges, burns, and harvested areas are used. Moist habitats near streams, and with nearby openings are good Philadelphia Vireo habitat. Nests are built low in deciduous trees, or in shrubs.

Specific habitats used:

Comments:

Predicted habitat quantities:

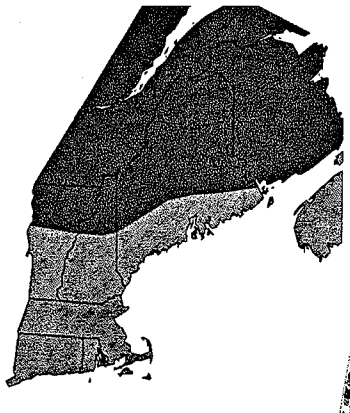
PHILADELPHIA VIREO					Total in ha: 3,707,869
Habitat	**ha**	**Habitat**	**ha**	**Habitat**	**ha**
Agricultural lands		Light partial cut	63,319	Fresh emergent	*6,406*
Abandoned field	2,986	Heavy partial cut	98,954	Peatland	*1,389*
Blueberry field	*56*	Deciduous forest	880,270	Wet meadow	*1,376*
Grassland	*16,845*	Decid./Conif. forest	821,613	Salt aquatic bed	*89*
Crops/Ground	*5,525*	Conif./Decid. forest	903,655	Salt emergent	*0*
Developed lands		Coniferous forest	*84,382*	Mudflat	*2*
Sparse residential	*3,706*	**Wetlands**		Sand shore	*0*
Dense residential	*293*	Deciduous forested	22,879	Gravel shore	*143*
Urban/Industrial	*0*	Coniferous forested	*33,191*	Rock shore	*228*
Highways/Runways	*11*	Dead-forested	1,059	Shallow water	*1,367*
Forestlands		Decid. shrub-scrub	67,907	Open water	*7,428*
Clearcut	73,022	Conifer. shrub-scrub	7,957	**Other**	
Early regeneration	428,021	Dead shrub-scrub	53	Alpine tundra	*54*
Late regeneration	173,625	Fresh aquatic bed	*4*	Exposed rock/Talus	*54*

For definitions of field contents see the Introduction. Items in *italics* in the table of habitat quantities show habitats not used by the species, but included in the predicted distribution because of generalization (see the Introduction for details).

PHILADELPHIA VIREO

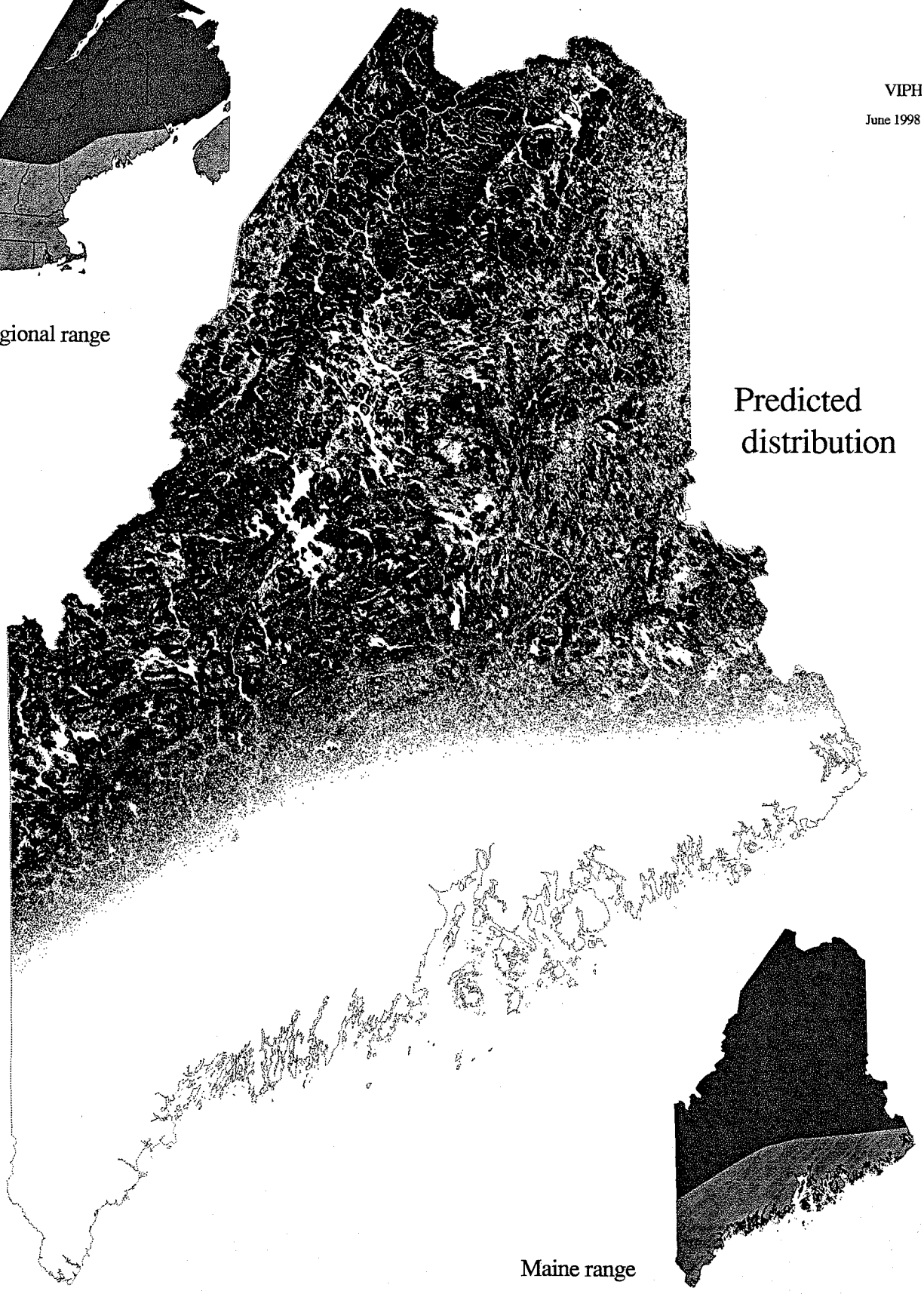
VIPH

June 1998



Regional range

Predicted distribution



Maine range

RED-EYED VIREO (*Vireo olivaceus*)

Element code: BPBW0124

ME-GAP code: VIOL

Order: Passeriformes

Family: Vireonidae

Breeding range change: Stable

Listing status: Not listed

Migratory status: Neotropical migrant

Game species: No

Population level: Abundant

Population trend: Stable

Heritage ranks: G5 . . S5B

Knowledge: Good

General habitats used: Red-eyed Vireos are most common in moderate age, moist deciduous forests, but the species uses a variety of habitats. To be occupied, and area must have underbrush present, and have deciduous trees (> 25%) in the canopy. Forests with a continuous canopy and tall trees present are used. Urban sites may be used by Red-eyed Vireos, including residential areas with tree-lined streets, parks, and woodlots. These vireos nest in deciduous sapling trees, or shrubs.

Specific habitats used:

Comments:

Predicted habitat quantities:

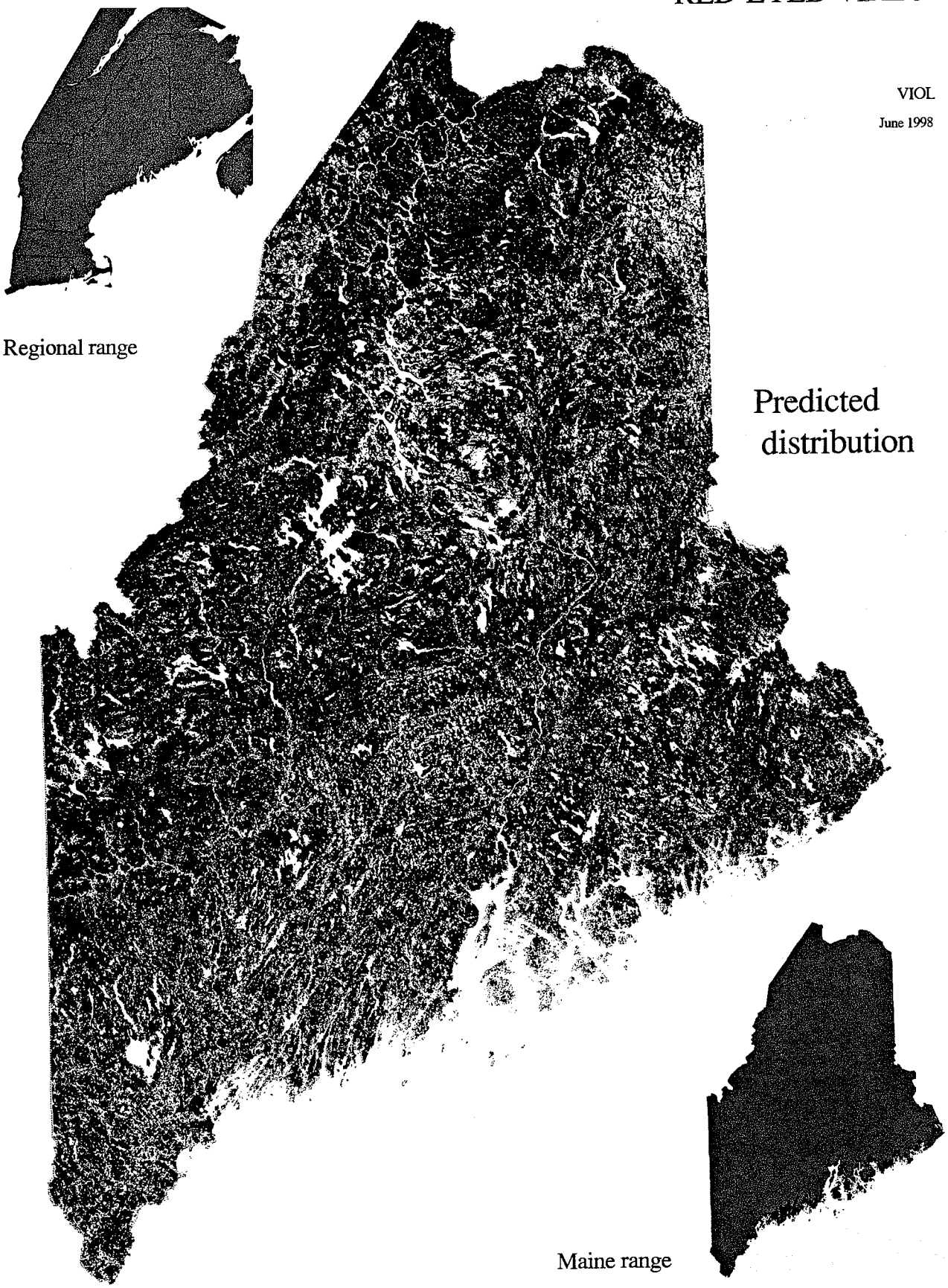
RED-EYED VIREO					Total in ha: 6,088,961
Habitat	ha	Habitat	ha	Habitat	ha
Agricultural lands		Light partial cut	93,891	Fresh emergent	*34,657*
Abandoned field	14,697	Heavy partial cut	131,745	Peatland	*15,576*
Blueberry field	*5,565*	Deciduous forest	1,181,598	Wet meadow	*6,883*
Grassland	*173,867*	Decid./Conif. forest	1,181,869	Salt aquatic bed	*1,399*
Crops/Ground	*32,096*	Conif./Decid. forest	1,463,116	Salt emergent	*788*
Developed lands		Coniferous forest	*354,795*	Mudflat	*890*
Sparse residential	44,398	**Wetlands**		Sand shore	*122*
Dense residential	26,624	Deciduous forested	57,363	Gravel shore	*454*
Urban/Industrial	*505*	Coniferous forested	315,925	Rock shore	*1,008*
Highways/Runways	602	Dead-forested	2,128	Shallow water	*6,623*
Forestlands		Decid. shrub-scrub	106,356	Open water	*44,572*
Clearcut	*65,847*	Conifer. shrub-scrub	11,701	**Other**	
Early regeneration	465,165	Dead shrub-scrub	72	Alpine tundra	*141*
Late regeneration	245,153	Fresh aquatic bed	*41*	Exposed rock/Talus	*727*

For definitions of field contents see the Introduction. Items in *italics* in the table of habitat quantities show habitats not used by the species, but included in the predicted distribution because of generalization (see the Introduction for details).

RED-EYED VIREO

VIOL

June 1998



BLUE-WINGED WARBLER (*Vermivora pinus*)

Element code: BPBX0102

ME-GAP code: VEPI

Order: Passeriformes

Family: Parulidae

Breeding range change: Unknown

Listing status: Not listed

Migratory status: Neotropical migrant

Game species: No

Population level: Rare

Population trend: Stable

Heritage ranks: G5 . . S1B

Knowledge: Best guess

General habitats used: Blue-winged Warblers are most closely associated with abandoned farmland. Selected sites typically have saplings (> 3 m), have other scattered shrubs, and are wet, such as wet farmland and the borders of forested wetlands or stream edges. Blue-winged Warbler range is expanding to the north, and tend to replace Golden-winged Warblers where their ranges overlap.

Specific habitats used:

Comments:

Predicted habitat quantities:

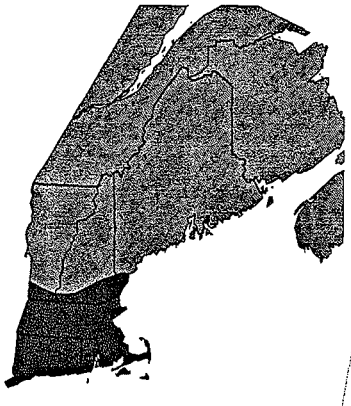
BLUE-WINGED WARBLER					Total in ha:	6,946
Habitat	**ha**	**Habitat**	**ha**	**Habitat**		**ha**
Agricultural lands		Light partial cut	307	Fresh emergent		*16*
Abandoned field	0	Heavy partial cut	59	Peatland		*2*
Blueberry field	*0*	Deciduous forest	*8*	Wet meadow		*2*
Grassland	*238*	Decid./Conif. forest	*341*	Salt aquatic bed		*8*
Crops/Ground	*5*	Conif./Decid. forest	*420*	Salt emergent		*6*
Developed lands		Coniferous forest	*89*	Mudflat		*1*
Sparse residential	586	**Wetlands**		Sand shore		*3*
Dense residential	*26*	Deciduous forested	2,074	Gravel shore		*0*
Urban/Industrial	*6*	Coniferous forested	1,363	Rock shore		*0*
Highways/Runways	*0*	Dead-forested	21	Shallow water		*4*
Forestlands		Decid. shrub-scrub	505	Open water		*10*
Clearcut	327	Conifer. shrub-scrub	23	**Other**		
Early regeneration	437	Dead shrub-scrub	0	Alpine tundra		*0*
Late regeneration	58	Fresh aquatic bed	*0*	Exposed rock/Talus		*0*

For definitions of field contents see the Introduction. Items in *italics* in the table of habitat quantities show habitats not used by the species, but included in the predicted distribution because of generalization (see the Introduction for details).

BLUE-WINGED WARBLER

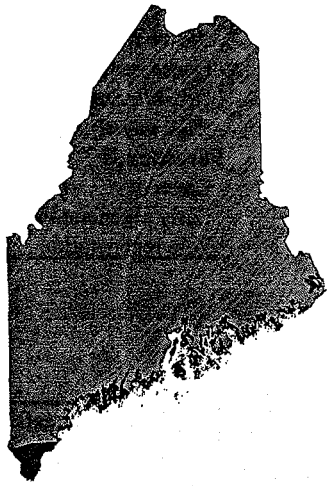
VEPI

June 1998



Regional range

Predicted distribution



Maine range

TENNESSEE WARBLER (*Vermivora peregrina*)

Element code: BPBX0104 **ME-GAP code:** VEPE

Order: Passeriformes **Family:** Parulidae

Breeding range change: Unknown **Listing status:** Not listed

Migratory status: Neotropical migrant **Game species:** No

Population level: Common **Population trend:** Declining

Heritage ranks: G5 . . S4B **Knowledge:** Adequate

General habitats used: Tennessee Warblers are best classed as forest birds, but they are associated with grassy forest openings and edges. Openings with scattered young deciduous trees, such as alder and willow thickets, bogs, harvested areas, burns, and the edges of polesize stands are used. In general, any forest type may be used, but deciduous trees are most heavily used. Tennessee Warblers nest on the ground, using shrubs as cover, and forage in terminal leaves of trees, taking many caterpillars.

Specific habitats used:

Comments: Tennessee Warbler populations respond strongly to insect outbreaks, taking advantage of a super-abundant resource.

Predicted habitat quantities:

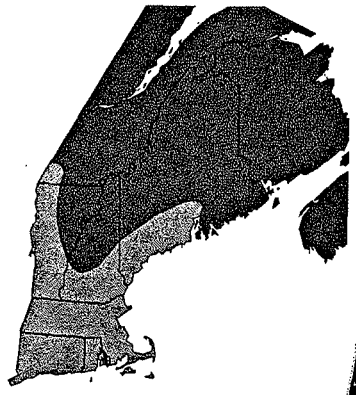
TENNESSEE WARBLER					Total in ha: 5,692,792
Habitat	**ha**	**Habitat**	**ha**	**Habitat**	**ha**
Agricultural lands		Light partial cut	86,659	Fresh emergent	*14,050*
Abandoned field	13,295	Heavy partial cut	122,334	Peatland	41,449
Blueberry field	11,234	Deciduous forest	960,072	Wet meadow	*2,783*
Grassland	149,581	Decid./Conif. forest	961,210	Salt aquatic bed	*1,123*
Crops/Ground	*14,979*	Conif./Decid. forest	1,328,552	Salt emergent	*302*
Developed lands		Coniferous forest	614,826	Mudflat	*389*
Sparse residential	33,716	**Wetlands**		Sand shore	*75*
Dense residential	*1,196*	Deciduous forested	34,556	Gravel shore	*254*
Urban/Industrial	*0*	Coniferous forested	335,463	Rock shore	*561*
Highways/Runways	*84*	Dead-forested	1,847	Shallow water	*2,818*
Forestlands		Decid. shrub-scrub	103,430	Open water	*14,742*
Clearcut	98,630	Conifer. shrub-scrub	11,871	**Other**	
Early regeneration	498,549	Dead shrub-scrub	79	Alpine tundra	*157*
Late regeneration	231,656	Fresh aquatic bed	*11*	Exposed rock/Talus	*257*

For definitions of field contents see the Introduction. Items in *italics* in the table of habitat quantities show habitats not used by the species, but included in the predicted distribution because of generalization (see the Introduction for details).

TENNESSEE WARBLER

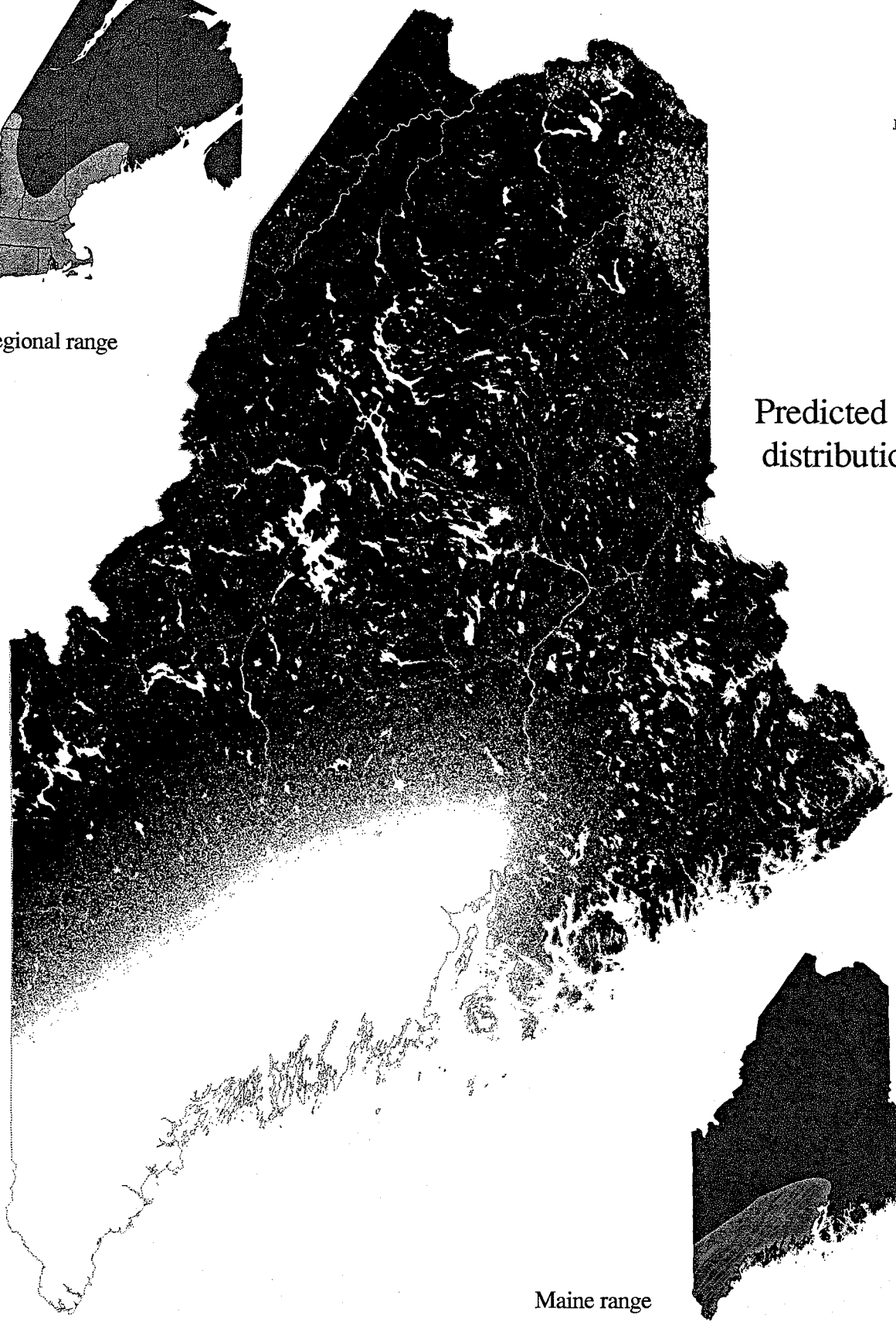
VEPE

June 1998



Regional range

Predicted distribution





Maine range

NASHVILLE WARBLER (*Vermivora ruficapilla*)

Element code: BPBX0106

ME-GAP code: VERU

Order: Passeriformes

Family: Parulidae

Breeding range change: Stable

Listing status: Not listed

Migratory status: Neotropical migrant

Game species: No

Population level: Common

Population trend: Stable

Heritage ranks: G5 . . S5

Knowledge: Adequate

General habitats used: Nashville Warblers inhabit young coniferous, mixed, or deciduous forests, selecting wet stands of conifers, such as tamarack bogs and spruce-sphagnum moss bogs. Closed-canopy forests are avoided; Nashville Warblers use clearings with brushy vegetation or saplings, forest edges, regenerating clearcuts, and overgrown, abandoned farmland. Nashville Warblers nest on the ground in these habitats, under herbaceous cover.

Specific habitats used:

Comments:

Predicted habitat quantities:

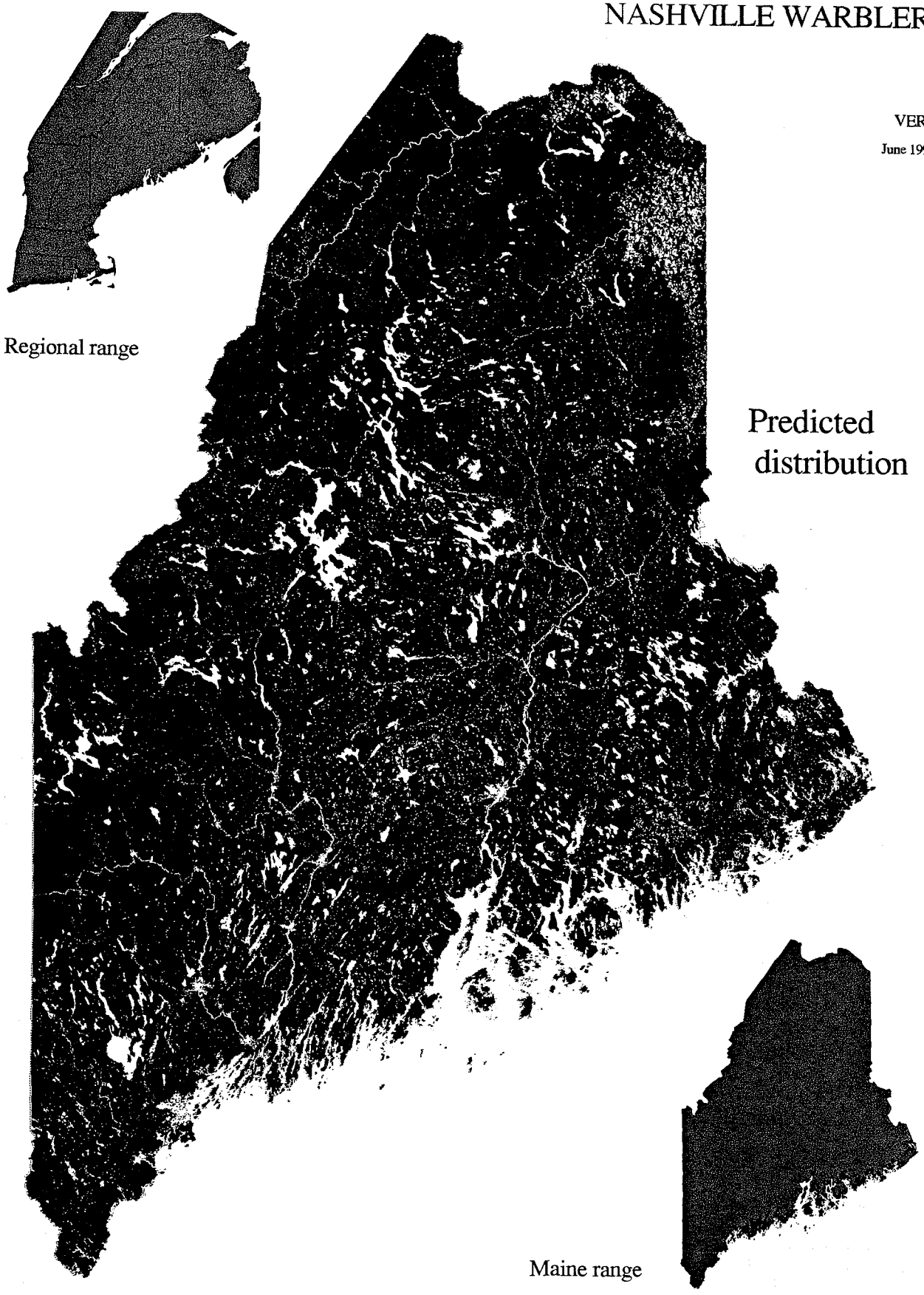
NASHVILLE WARBLER					Total in ha: 7,592,449
Habitat	**ha**	**Habitat**	**ha**	**Habitat**	**ha**
Agricultural lands		Light partial cut	110,812	Fresh emergent	*44,509*
Abandoned field	17,787	Heavy partial cut	147,657	Peatland	44,151
Blueberry field	*6,896*	Deciduous forest	1,263,572	Wet meadow	*8,844*
Grassland	431,036	Decid./Conif. forest	1,314,035	Salt aquatic bed	*3,216*
Crops/Ground	*54,640*	Conif./Decid. forest	1,732,937	Salt emergent	*1,200*
Developed lands		Coniferous forest	760,260	Mudflat	*1,617*
Sparse residential	60,254	**Wetlands**		Sand shore	*334*
Dense residential	*11,049*	Deciduous forested	67,595	Gravel shore	*654*
Urban/Industrial	*337*	Coniferous forested	374,448	Rock shore	*1,671*
Highways/Runways	*407*	Dead-forested	2,486	Shallow water	*9,312*
Forestlands		Decid. shrub-scrub	123,223	Open water	*63,598*
Clearcut	120,490	Conifer. shrub-scrub	14,068	**Other**	
Early regeneration	517,055	Dead shrub-scrub	109	Alpine tundra	*441*
Late regeneration	280,535	Fresh aquatic bed	*69*	Exposed rock/Talus	*1,146*

For definitions of field contents see the Introduction. Items in *italics* in the table of habitat quantities show habitats not used by the species, but included in the predicted distribution because of generalization (see the Introduction for details).

NASHVILLE WARBLER

VERU

June 1998



NORTHERN PARULA (*Parula americana*)

Element code: BPBX0201 **ME-GAP code:** PAAM

Order: Passeriformes **Family:** Parulidae

Breeding range change: Unknown **Listing status**: Not listed

Migratory status: Neotropical migrant **Game species**: No

Population level: Common **Population trend**: Stable

Heritage ranks: G5 . . S5 **Knowledge**: Adequate

General habitats used: Northern Parulas inhabit mature forests (most often conifers), often near streams or rivers. Spruce and hemlock stands, with some interspersed tall deciduous trees appear selected. Parulas use bearded lichens (*Usnea* spp) in nests, and glean branches and foliage for insects. Although bearded lichen is not required by breeding Northern Parulas, they are strongly associated with the lichen in the northern portion of their breeding range.

Specific habitats used:

Comments:

Predicted habitat quantities:

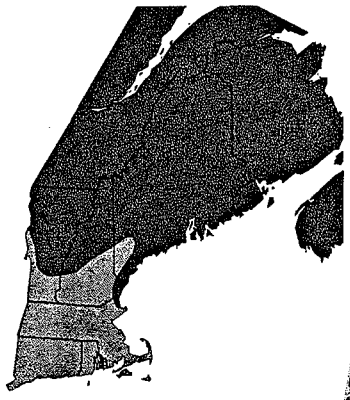
NORTHERN PARULA					Total in ha: 5,453,950
Habitat	**ha**	**Habitat**	**ha**	**Habitat**	**ha**
Agricultural lands		Light partial cut	84,745	Fresh emergent	*13,098*
Abandoned field	*3,992*	Heavy partial cut	*39,819*	Peatland	43,746
Blueberry field	*1,501*	Deciduous forest	1,119,416	Wet meadow	*2,528*
Grassland	*45,060*	Decid./Conif. forest	1,082,482	Salt aquatic bed	*1,304*
Crops/Ground	*10,530*	Conif./Decid. forest	1,544,255	Salt emergent	*336*
Developed lands		Coniferous forest	703,547	Mudflat	*525*
Sparse residential	44,411	**Wetlands**		Sand shore	*115*
Dense residential	*1,357*	Deciduous forested	45,276	Gravel shore	*199*
Urban/Industrial	*2*	Coniferous forested	349,006	Rock shore	*502*
Highways/Runways	*159*	Dead-forested	2,341	Shallow water	*2,494*
Forestlands		Decid. shrub-scrub	113,301	Open water	*15,173*
Clearcut	*23,676*	Conifer. shrub-scrub	12,857	**Other**	
Early regeneration	*72,072*	Dead shrub-scrub	66	Alpine tundra	*130*
Late regeneration	*73,712*	Fresh aquatic bed	*17*	Exposed rock/Talus	*198*

For definitions of field contents see the Introduction. Items in *italics* in the table of habitat quantities show habitats not used by the species, but included in the predicted distribution because of generalization (see the Introduction for details).

NORTHERN PARULA

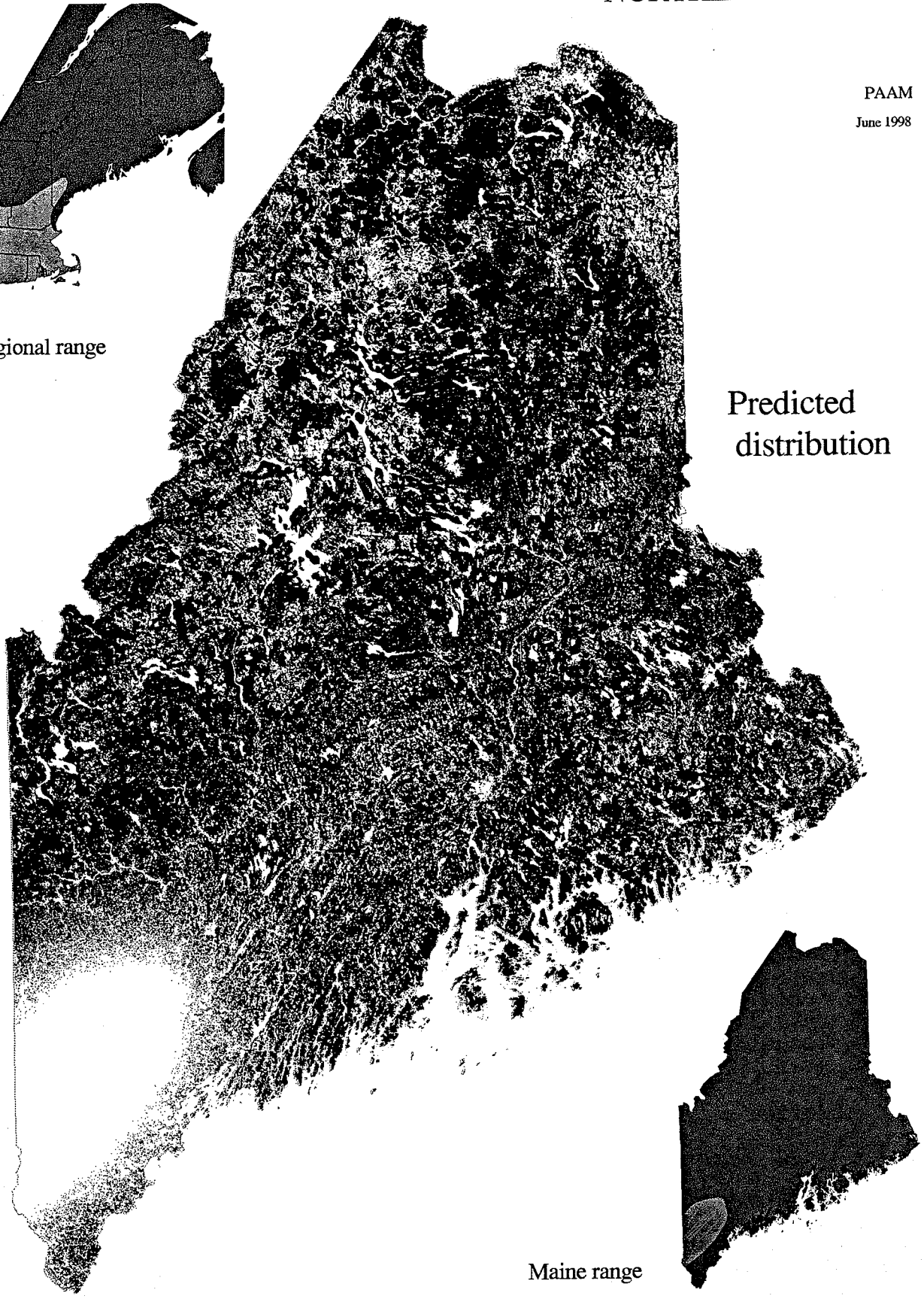
PAAM

June 1998



Regional range

Predicted distribution



Maine range

YELLOW WARBLER (*Dendroica petechia*)

Element code: BPBX0301

ME-GAP code: DEPE

Order: Passeriformes

Family: Parulidae

Breeding range change: Stable

Listing status: Not listed

Migratory status: Neotropical migrant

Game species: No

Population level: Common

Population trend: Stable

Heritage ranks: G5 . . S5

Knowledge: Good

General habitats used: Yellow Warblers inhabit areas with dense shrubs and small trees, such as gardens, farms, parks, roadsides, and abandoned fields. These warblers are associated with edges, using forest edges or very large openings, shrubs along the margins of streams, ponds, and marshes. Yellow Warblers nest in a variety of sites, in shrubs or trees.

Specific habitats used:

Comments:

Predicted habitat quantities:

YELLOW WARBLER					Total in ha: 1,473,256
Habitat	ha	Habitat	ha	Habitat	ha
Agricultural lands		Light partial cut	44,546	Fresh emergent	34,491
Abandoned field	8,496	Heavy partial cut	68,735	Peatland	30,644
Blueberry field	*2,906*	Deciduous forest	*69,123*	Wet meadow	8,550
Grassland	*48,653*	Decid./Conif. forest	*121,839*	Salt aquatic bed	*529*
Crops/Ground	*13,273*	Conif./Decid. forest	*177,699*	Salt emergent	405
Developed lands		Coniferous forest	*74,887*	Mudflat	*412*
Sparse residential	26,380	**Wetlands**		Sand shore	*74*
Dense residential	22,828	Deciduous forested	*10,512*	Gravel shore	*313*
Urban/Industrial	*471*	Coniferous forested	*60,978*	Rock shore	*310*
Highways/Runways	*331*	Dead-forested	*463*	Shallow water	*2,906*
Forestlands		Decid. shrub-scrub	66,544	Open water	*15,917*
Clearcut	69,023	Conifer. shrub-scrub	8,007	**Other**	
Early regeneration	349,506	Dead shrub-scrub	41	Alpine tundra	*48*
Late regeneration	133,046	Fresh aquatic bed	*11*	Exposed rock/Talus	*361*

For definitions of field contents see the Introduction. Items in *italics* in the table of habitat quantities show habitats not used by the species, but included in the predicted distribution because of generalization (see the Introduction for details).

YELLOW WARBLER

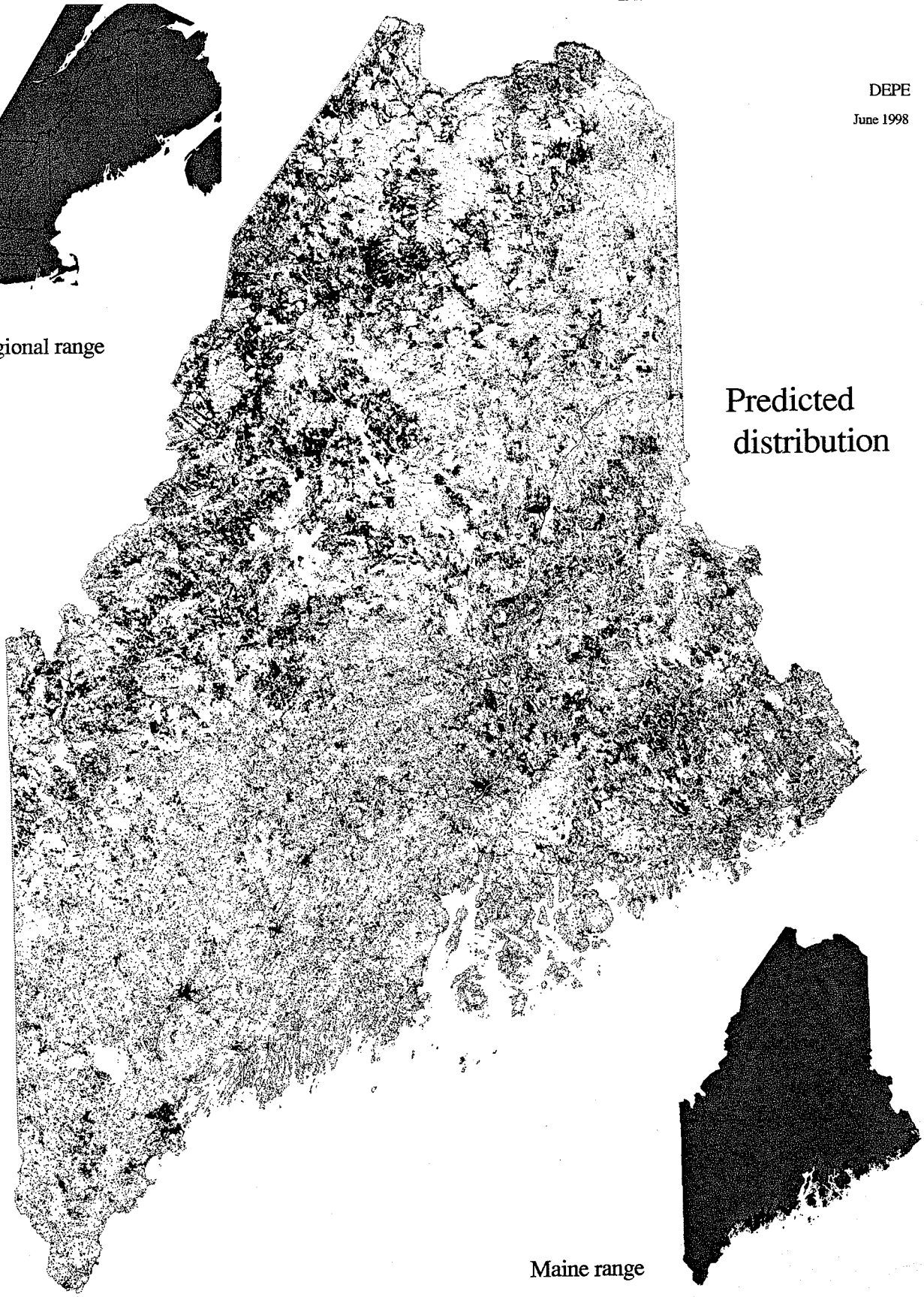
DEPE

June 1998



Regional range

Predicted distribution



Maine range

CHESTNUT-SIDED WARBLER (*Dendroica pensylvanica*)

Element code: BPBX0302

ME-GAP code: DEPN

Order: Passeriformes

Family: Parulidae

Breeding range change: Stable

Listing status: Not listed

Migratory status: Neotropical migrant

Game species: No

Population level: Common

Population trend: Stable

Heritage ranks: G5 . . S5

Knowledge: Adequate

General habitats used: Chestnut-sided Warblers are associated with edge habitats, being most common along the edges of early successional deciduous stands. These warblers will occur along roadsides in shrubs or vines, within clearcuts, regenerating areas, burns, powerline corridors, and residential areas. Closed canopy forest interiors are not used by Chestnut-sided Warblers. This species nests in shrubs, vines, or low in young trees.

Specific habitats used:

Comments:

Predicted habitat quantities:

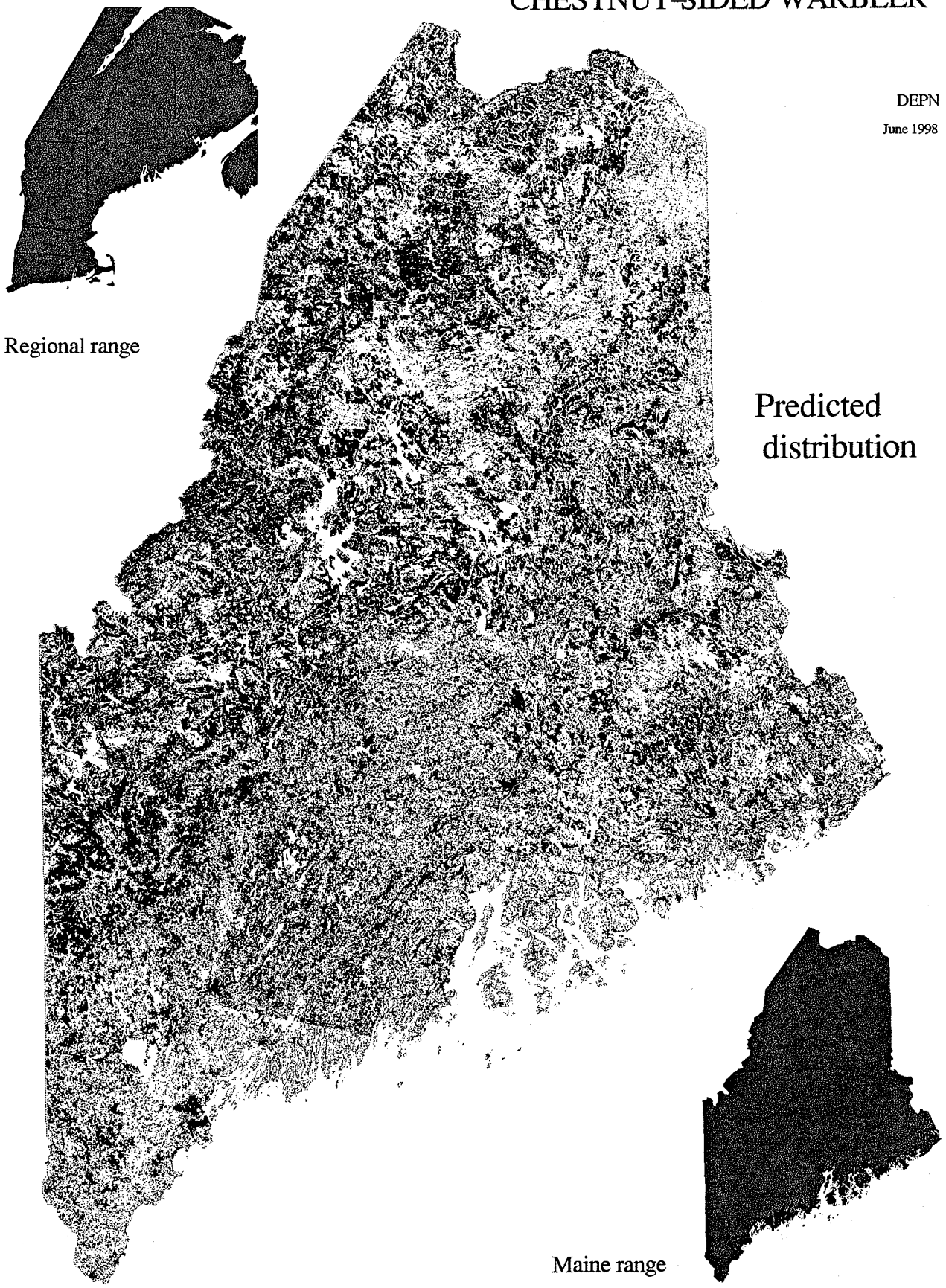
CHESTNUT-SIDED WARBLER					Total in ha: 2,801,289
Habitat	**ha**	**Habitat**	**ha**	**Habitat**	**ha**
Agricultural lands		Light partial cut	54,136	Fresh emergent	37,748
Abandoned field	9,661	Heavy partial cut	90,551	Peatland	31,300
Blueberry field	*3,338*	Deciduous forest	861,531	Wet meadow	9,294
Grassland	*86,533*	Decid./Conif. forest	*356,405*	Salt aquatic bed	*622*
Crops/Ground	*17,647*	Conif./Decid. forest	*281,390*	Salt emergent	460
Developed lands		Coniferous forest	*90,717*	Mudflat	*449*
Sparse residential	29,833	**Wetlands**		Sand shore	*79*
Dense residential	23,958	Deciduous forested	37,336	Gravel shore	*369*
Urban/Industrial	*487*	Coniferous forested	*69,739*	Rock shore	*423*
Highways/Runways	*365*	Dead-forested	*588*	Shallow water	*3,575*
Forestlands		Decid. shrub-scrub	72,314	Open water	*21,834*
Clearcut	77,345	Conifer. shrub-scrub	8,535	**Other**	
Early regeneration	371,545	Dead shrub-scrub	44	Alpine tundra	*80*
Late regeneration	150,589	Fresh aquatic bed	*19*	Exposed rock/Talus	*450*

For definitions of field contents see the Introduction. Items in *italics* in the table of habitat quantities show habitats not used by the species, but included in the predicted distribution because of generalization (see the Introduction for details).

CHESTNUT-SIDED WARBLER

DEPN

June 1998



MAGNOLIA WARBLER (*Dendroica magnolia*)

Element code: BPBX0303

ME-GAP code: DEMA

Order: Passeriformes

Family: Parulidae

Breeding range change: Stable

Listing status: Not listed

Migratory status: Neotropical migrant

Game species: No

Population level: Common

Population trend: Stable

Heritage ranks: G5 . . S5

Knowledge: Adequate

General habitats used: Magnolia Warblers inhabit coniferous shrubs and saplings. Small stands of dense, young spruce or hemlock are selected, such as in forested bogs, swamps, clearcuts with residual conifers, spruce plantations, regenerating areas in conifers, and abandoned farmland. Edges and open interiors of larger stands may be used by these warblers. Apparently stands with some balsam fir present are selected over pure spruce or hemlock stands. Magnolia Warblers typically nest in these same young conifers.

Specific habitats used:

Comments:

Predicted habitat quantities:

MAGNOLIA WARBLER					Total in ha: 5,530,763
Habitat	**ha**	**Habitat**	**ha**	**Habitat**	**ha**
Agricultural lands		Light partial cut	93,774	Fresh emergent	*37,661*
Abandoned field	14,472	Heavy partial cut	116,310	Peatland	43,086
Blueberry field	*5,363*	Deciduous forest	*401,067*	Wet meadow	*7,364*
Grassland	*142,588*	Decid./Conif. forest	978,281	Salt aquatic bed	*2,651*
Crops/Ground	*28,817*	Conif./Decid. forest	1,530,344	Salt emergent	*900*
Developed lands		Coniferous forest	714,597	Mudflat	*1,251*
Sparse residential	44,895	**Wetlands**		Sand shore	*253*
Dense residential	*5,541*	Deciduous forested	*35,375*	Gravel shore	*553*
Urban/Industrial	*97*	Coniferous forested	356,373	Rock shore	*1,368*
Highways/Runways	*289*	Dead-forested	2,257	Shallow water	*7,701*
Forestlands		Decid. shrub-scrub	112,405	Open water	*50,771*
Clearcut	*65,401*	Conifer. shrub-scrub	12,835	**Other**	
Early regeneration	466,652	Dead shrub-scrub	81	Alpine tundra	*380*
Late regeneration	248,385	Fresh aquatic bed	*42*	Exposed rock/Talus	*582*

For definitions of field contents see the Introduction. Items in *italics* in the table of habitat quantities show habitats not used by the species, but included in the predicted distribution because of generalization (see the Introduction for details).

MAGNOLIA WARBLER

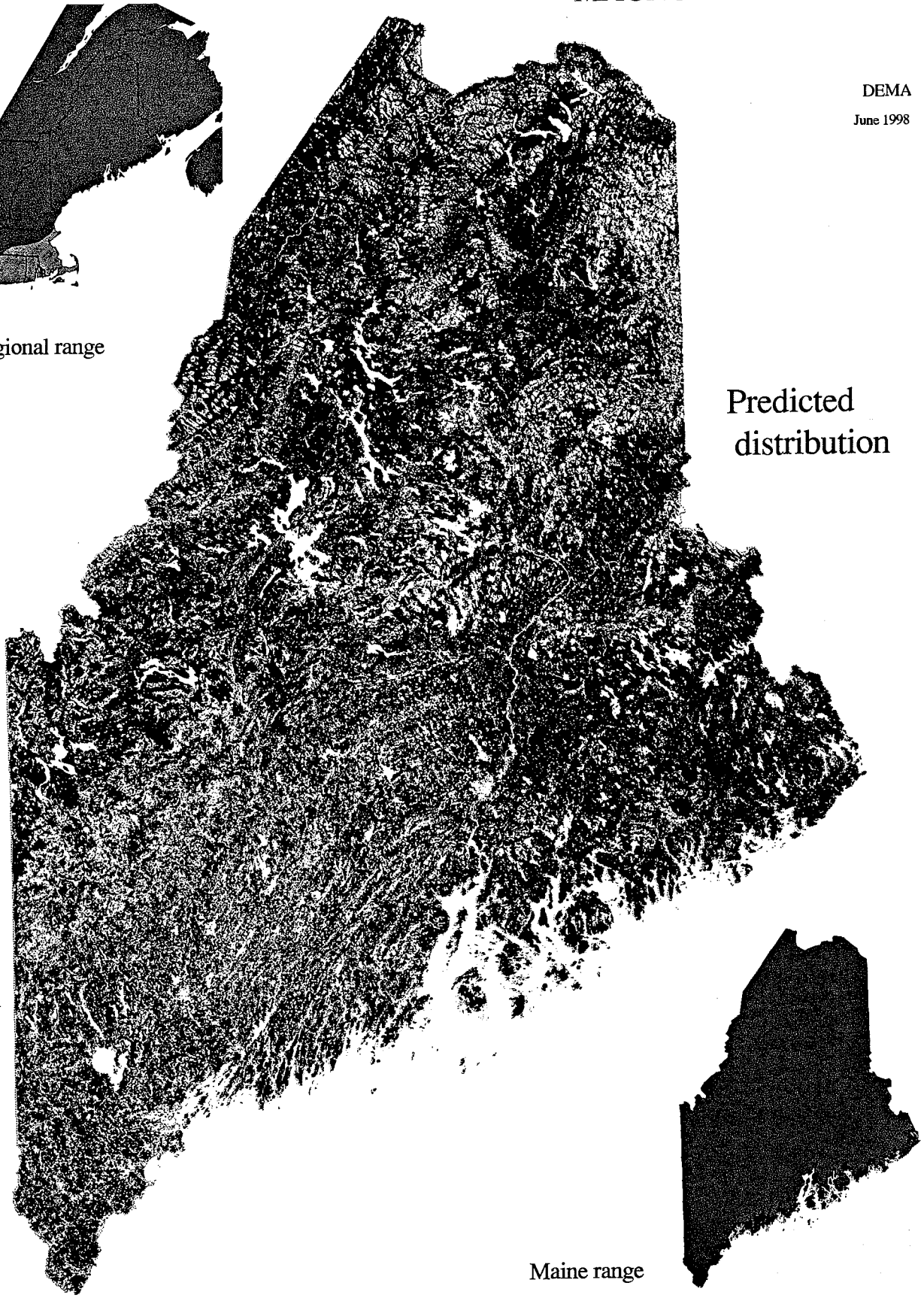
DEMA

June 1998



Regional range

Predicted distribution



Maine range

CAPE MAY WARBLER (*Dendroica tigrina*)

Element code: BPBX0304

ME-GAP code: DETI

Order: Passeriformes

Family: Parulidae

Breeding range change: Unknown

Listing status: Not listed

Migratory status: Neotropical migrant

Game species: No

Population level: Common

Population trend: Stable, but responsive to insect outbreaks

Heritage ranks: G5 . . S4S5B

Knowledge: Adequate

General habitats used: Cape May Warblers inhabit open, mature, coniferous and mixed forests, selecting stands with many tall spruces. These warblers are rare in the forest interior, and glean caterpillars off twigs and leaves near the tops of trees, hawking above them, and using the edges of more dense stands. Cape May Warblers are more common in spruce stands than balsam fir stands. Nests are constructed near the top of tall spruce trees. Cape May Warbler populations are related to spruce budworm densities.

Specific habitats used:

Comments:

Predicted habitat quantities:

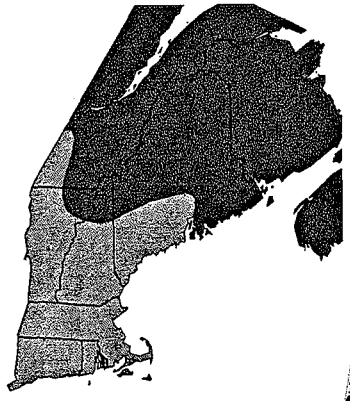
CAPE MAY WARBLER					Total in ha: 2,437,639
Habitat	**ha**	**Habitat**	**ha**	**Habitat**	**ha**
Agricultural lands		Light partial cut	54,690	Fresh emergent	*6,204*
Abandoned field	9,167	Heavy partial cut	*13,197*	Peatland	*3,820*
Blueberry field	*1,129*	Deciduous forest	*27,562*	Wet meadow	*1,140*
Grassland	*7,306*	Decid./Conif. forest	*100,845*	Salt aquatic bed	*548*
Crops/Ground	*2,933*	Conif./Decid. forest	1,078,186	Salt emergent	*148*
Developed lands		Coniferous forest	558,895	Mudflat	*154*
Sparse residential	22,746	**Wetlands**		Sand shore	*41*
Dense residential	*311*	Deciduous forested	*4,180*	Gravel shore	*113*
Urban/Industrial	*0*	Coniferous forested	292,480	Rock shore	*252*
Highways/Runways	*23*	Dead-forested	1,450	Shallow water	*1,192*
Forestlands		Decid. shrub-scrub	*13,068*	Open water	*6,307*
Clearcut	*11,516*	Conifer. shrub-scrub	9,438	**Other**	
Early regeneration	*43,400*	Dead shrub-scrub	*7*	Alpine tundra	*100*
Late regeneration	165,033	Fresh aquatic bed	*2*	Exposed rock/Talus	*54*

For definitions of field contents see the Introduction. Items in *italics* in the table of habitat quantities show habitats not used by the species, but included in the predicted distribution because of generalization (see the Introduction for details).

CAPE MAY WARBLER

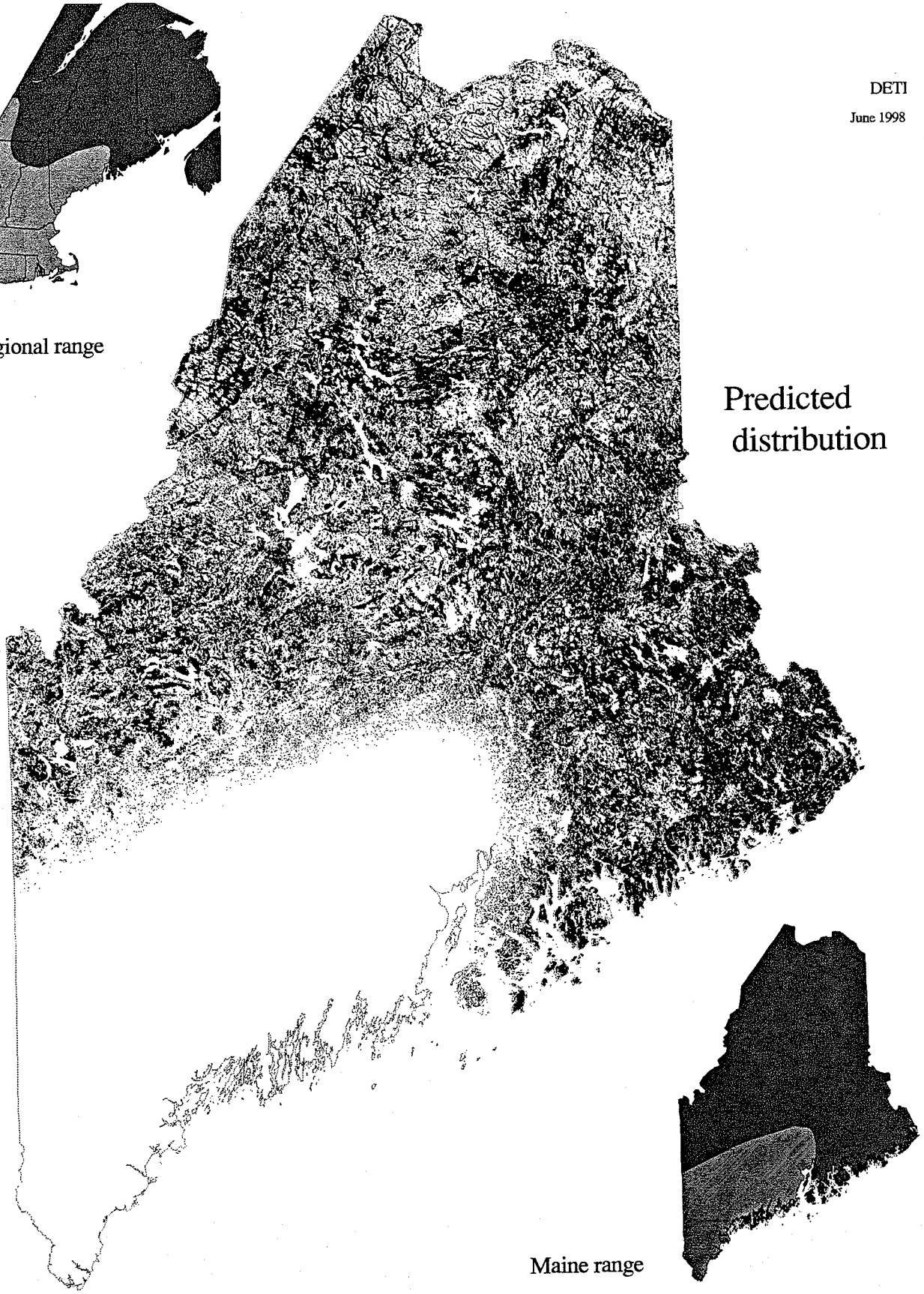
DETI

June 1998



Regional range

Predicted distribution



Maine range

BLACK-THROATED BLUE WARBLER (*Dendroica caerulescens*)

Element code: BPBX0305 **ME-GAP code:** DECA

Order: Passeriformes **Family:** Parulidae

Breeding range change: Stable **Listing status:** Not listed

Migratory status: Neotropical migrant **Game species:** No

Population level: Common **Population trend:** Stable

Heritage ranks: G5 . . S5B **Knowledge:** Adequate

General habitats used: Black-throated Blue Warblers inhabit the interiors of deciduous and mixed forests that are mature and have a dense understory. These warblers forage in the shrubs and subcanopy of these moist, dark forests, and along the edges of associated openings. Pole-sized forests 15 years old may be used by these warblers. Black-throated Blue Warblers nest low in deciduous or coniferous trees and shrubs.

Specific habitats used:

Comments:

Predicted habitat quantities:

BLACK-THROATED BLUE WARBLER					Total in ha: 5,199,674
Habitat	ha	Habitat	ha	Habitat	ha
Agricultural lands		Light partial cut	73,199	Fresh emergent	*29,640*
Abandoned field	13,018	Heavy partial cut	*72,344*	Peatland	*13,580*
Blueberry field	*4,169*	Deciduous forest	1,151,993	Wet meadow	*5,971*
Grassland	*154,975*	Decid./Conif. forest	1,113,764	Salt aquatic bed	*1,226*
Crops/Ground	*26,075*	Conif./Decid. forest	1,360,835	Salt emergent	*694*
Developed lands		Coniferous forest	*312,326*	Mudflat	*752*
Sparse residential	39,445	**Wetlands**		Sand shore	*107*
Dense residential	*5,239*	Deciduous forested	53,626	Gravel shore	*360*
Urban/Industrial	*103*	Coniferous forested	287,616	Rock shore	*877*
Highways/Runways	*303*	Dead-forested	1,941	Shallow water	*5,647*
Forestlands		Decid. shrub-scrub	96,349	Open water	*39,820*
Clearcut	*44,520*	Conifer. shrub-scrub	*6,106*	**Other**	
Early regeneration	*150,483*	Dead shrub-scrub	61	Alpine tundra	*100*
Late regeneration	*131,913*	Fresh aquatic bed	*41*	Exposed rock/Talus	*459*

For definitions of field contents see the Introduction. Items in *italics* in the table of habitat quantities show habitats not used by the species, but included in the predicted distribution because of generalization (see the Introduction for details).

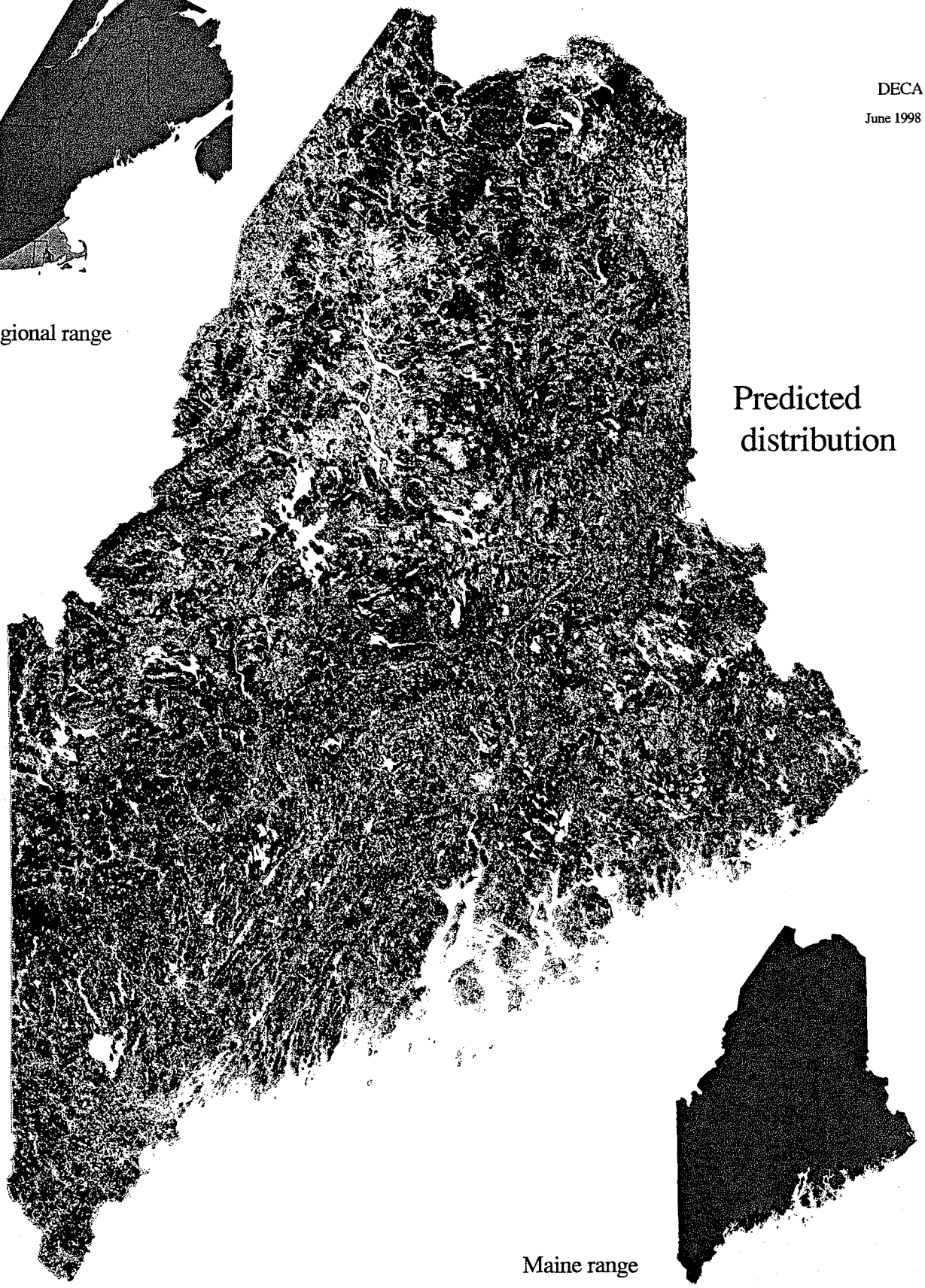
BLACK-THROATED BLUE WARBLER

DECA

June 1998



Regional range



Predicted distribution

Maine range

YELLOW-RUMPED WARBLER (*Dendroica coronata*)

Element code: BPBX0306

ME-GAP code: DECO

Order: Passeriformes

Family: Parulidae

Breeding range change: Stable

Listing status: Not listed

Migratory status: US migrant; Local migrant

Game species: No

Population level: Common

Population trend: Slow increase, perhaps conifer regeneration

Heritage ranks: G5 . . S4N,S5B

Knowledge: Good

General habitats used: Yellow-rumped Warblers are most common in coniferous forests that are near water or bogs. Spruce and balsam fir stands are used by these warblers, as are edges of other coniferous stands. Mixed forests may be used, but conifers must be present (such as hemlocks and white pines within northern hardwood forests). Yellow-rumped Warblers typically nest in coniferous trees.

Specific habitats used:

Comments:

Predicted habitat quantities:

YELLOW-RUMPED WARBLER					Total in ha: 4,705,510
Habitat	**ha**	**Habitat**	**ha**	**Habitat**	**ha**
Agricultural lands		Light partial cut	79,754	Fresh emergent	*29,330*
Abandoned field	*7,784*	Heavy partial cut	*60,075*	Peatland	*14,388*
Blueberry field	*3,384*	Deciduous forest	*358,295*	Wet meadow	*5,553*
Grassland	*129,000*	Decid./Conif. forest	914,259	Salt aquatic bed	*2,460*
Crops/Ground	*24,478*	Conif./Decid. forest	1,440,238	Salt emergent	*858*
Developed lands		Coniferous forest	667,877	Mudflat	*1,118*
Sparse residential	39,880	**Wetlands**		Sand shore	*237*
Dense residential	25,830	Deciduous forested	54,280	Gravel shore	*420*
Urban/Industrial	*497*	Coniferous forested	312,749	Rock shore	*1,198*
Highways/Runways	*433*	Dead-forested	2,006	Shallow water	*6,274*
Forestlands		Decid. shrub-scrub	*57,863*	Open water	*44,123*
Clearcut	*45,703*	Conifer. shrub-scrub	10,969	**Other**	
Early regeneration	*165,470*	Dead shrub-scrub	69	Alpine tundra	*339*
Late regeneration	197,590	Fresh aquatic bed	*41*	Exposed rock/Talus	*685*

For definitions of field contents see the Introduction. Items in *italics* in the table of habitat quantities show habitats not used by the species, but included in the predicted distribution because of generalization (see the Introduction for details).

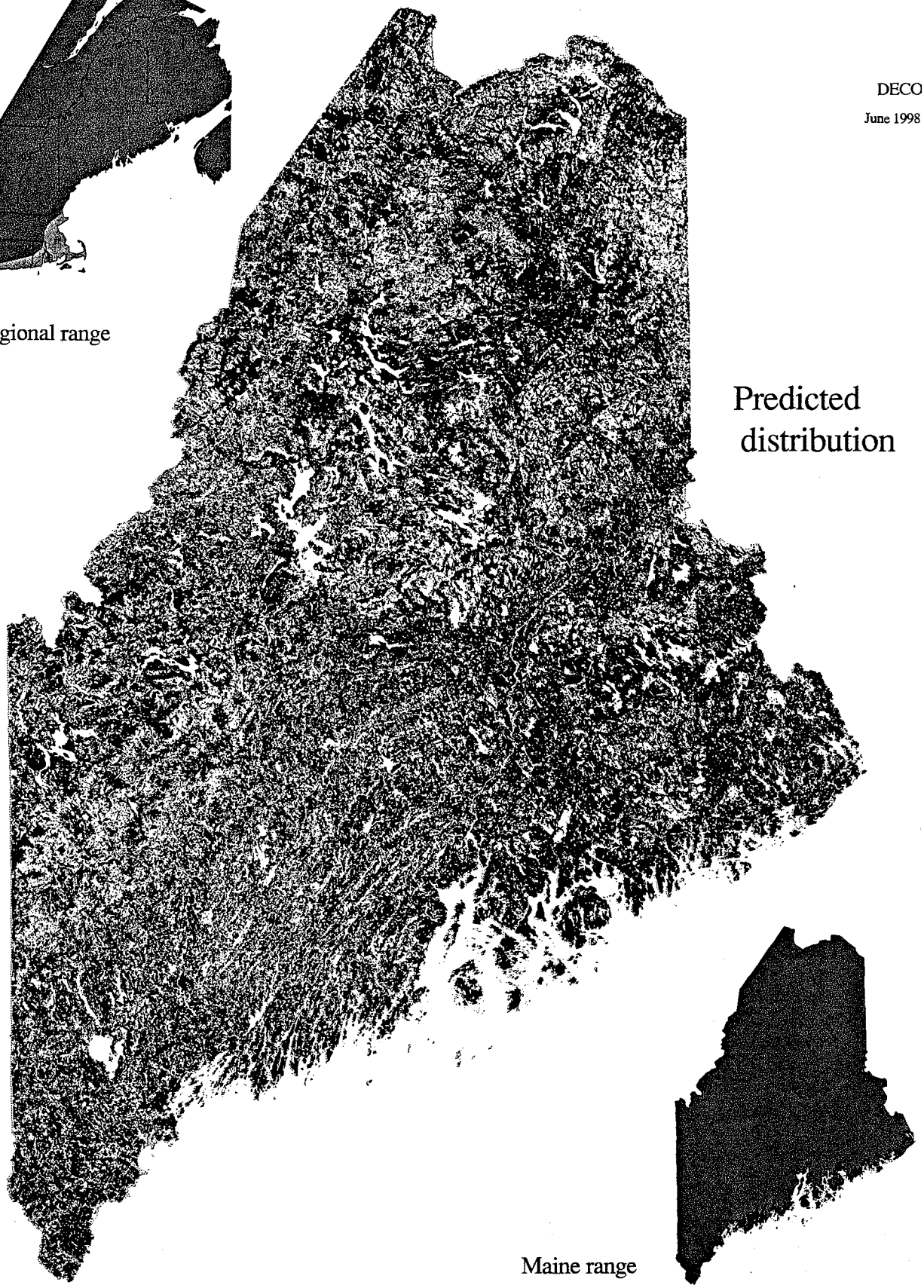
YELLOW-RUMPED WARBLER

DECO

June 1998



Regional range



Predicted distribution

Maine range

BLACK-THROATED GREEN WARBLER (*Dendroica virens*)

Element code: BPBX0310

ME-GAP code: DEVI

Order: Passeriformes

Family: Parulidae

Breeding range change: Stable

Listing status: Not listed

Migratory status: Neotropical and US migrant

Game species: No

Population level: Common

Population trend: Moderate increase, may-be conifer growth

Heritage ranks: G5 . . S5B

Knowledge: Adequate

General habitats used: Black-throated Green Warblers are most common in mature, closed canopy stands of eastern hemlock, but also will occur in balsam fir, spruce (including plantations), pine, cedar, or mixed forests. In general, rich, moist stands with trees larger than pole size are heavily used. Black-throated Green Warblers nest and forage high in trees, usually conifers in Maine. The species may be area sensitive, meaning that small patches of appropriate habitat are unsuitable.

Specific habitats used:

Comments:

Predicted habitat quantities:

BLACK-THROATED GREEN WARBLER					Total in ha: 5,854,132
Habitat	**ha**	**Habitat**	**ha**	**Habitat**	**ha**
Agricultural lands		Light partial cut	80,857	Fresh emergent	*34,710*
Abandoned field	13,087	Heavy partial cut	*74,023*	Peatland	*15,919*
Blueberry field	*4,187*	Deciduous forest	1,140,832	Wet meadow	*6,900*
Grassland	*159,456*	Decid./Conif. forest	1,123,381	Salt aquatic bed	*2,502*
Crops/Ground	*26,756*	Conif./Decid. forest	1,515,984	Salt emergent	*874*
Developed lands		Coniferous forest	678,232	Mudflat	*1,110*
Sparse residential	41,555	**Wetlands**		Sand shore	*236*
Dense residential	*5,723*	Deciduous forested	58,143	Gravel shore	*502*
Urban/Industrial	*104*	Coniferous forested	329,180	Rock shore	*1,327*
Highways/Runways	*296*	Dead-forested	2,117	Shallow water	*7,095*
Forestlands		Decid. shrub-scrub	104,411	Open water	*50,595*
Clearcut	*51,532*	Conifer. shrub-scrub	12,025	**Other**	
Early regeneration	*166,223*	Dead shrub-scrub	64	Alpine tundra	*369*
Late regeneration	*143,200*	Fresh aquatic bed	*47*	Exposed rock/Talus	*579*

For definitions of field contents see the Introduction. Items in *italics* in the table of habitat quantities show habitats not used by the species, but included in the predicted distribution because of generalization (see the Introduction for details).

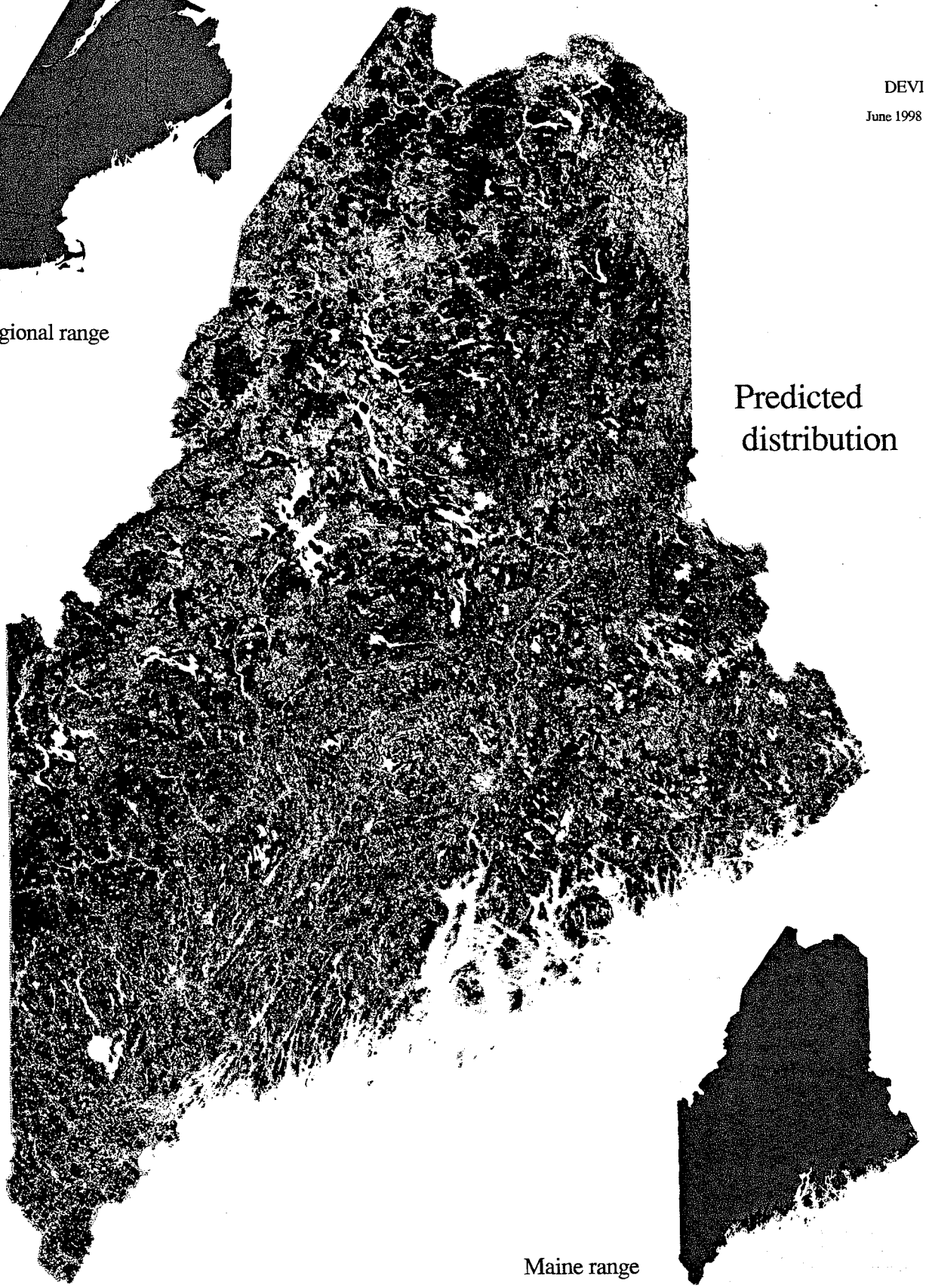
BLACK-THROATED GREEN WARBLER

DEVI

June 1998



Regional range



Predicted distribution

Maine range

BLACKBURNIAN WARBLER (*Dendroica fusca*)

Element code: BPBX0312

ME-GAP code: DEFS

Order: Passeriformes

Family: Parulidae

Breeding range change: Stable

Listing status: Not listed

Migratory status: Neotropical migrant

Game species: No

Population level: Common

Population trend: Slow increase, perhaps recovery from DDT

Heritage ranks: G5 . . S5

Knowledge: Adequate

General habitats used: Blackburnian Warblers are most common in large, fertile, mature stands of tall eastern hemlock, with bearded lichen for nest material. Stands of balsam fir also are heavily used. Blackburnian Warblers will forage in deciduous trees, if a large conifer (or a clump of conifers) are present for nest sites. Occasionally these warblers may nest in deciduous trees, but more typically they build nests high in spruces, hemlocks, or firs.

Specific habitats used:

Comments:

Predicted habitat quantities:

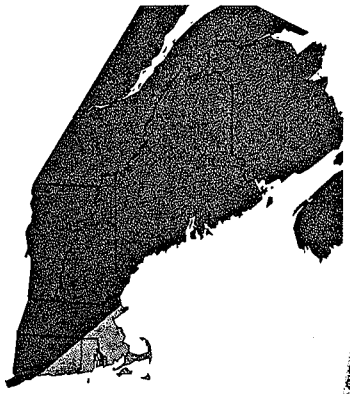
BLACKBURNIAN WARBLER					Total in ha: 5,623,558
Habitat	**ha**	**Habitat**	**ha**	**Habitat**	**ha**
Agricultural lands		Light partial cut	81,042	Fresh emergent	*28,770*
Abandoned field	*7,093*	Heavy partial cut	*72,684*	Peatland	*14,009*
Blueberry field	*3,157*	Deciduous forest	1,134,582	Wet meadow	*5,591*
Grassland	*140,973*	Decid./Conif. forest	1,111,596	Salt aquatic bed	*2,245*
Crops/Ground	*22,307*	Conif./Decid. forest	1,479,601	Salt emergent	*773*
Developed lands		Coniferous forest	662,882	Mudflat	*950*
Sparse residential	*22,347*	**Wetlands**		Sand shore	*192*
Dense residential	*4,385*	Deciduous forested	53,754	Gravel shore	*415*
Urban/Industrial	*46*	Coniferous forested	309,107	Rock shore	*1,232*
Highways/Runways	*164*	Dead-forested	2,009	Shallow water	*6,283*
Forestlands		Decid. shrub-scrub	*56,949*	Open water	*44,937*
Clearcut	*47,489*	Conifer. shrub-scrub	10,922	**Other**	
Early regeneration	*156,825*	Dead shrub-scrub	64	Alpine tundra	*364*
Late regeneration	*137,235*	Fresh aquatic bed	*45*	Exposed rock/Talus	*540*

For definitions of field contents see the Introduction. Items in *italics* in the table of habitat quantities show habitats not used by the species, but included in the predicted distribution because of generalization (see the Introduction for details).

BLACKBURNIAN WARBLER

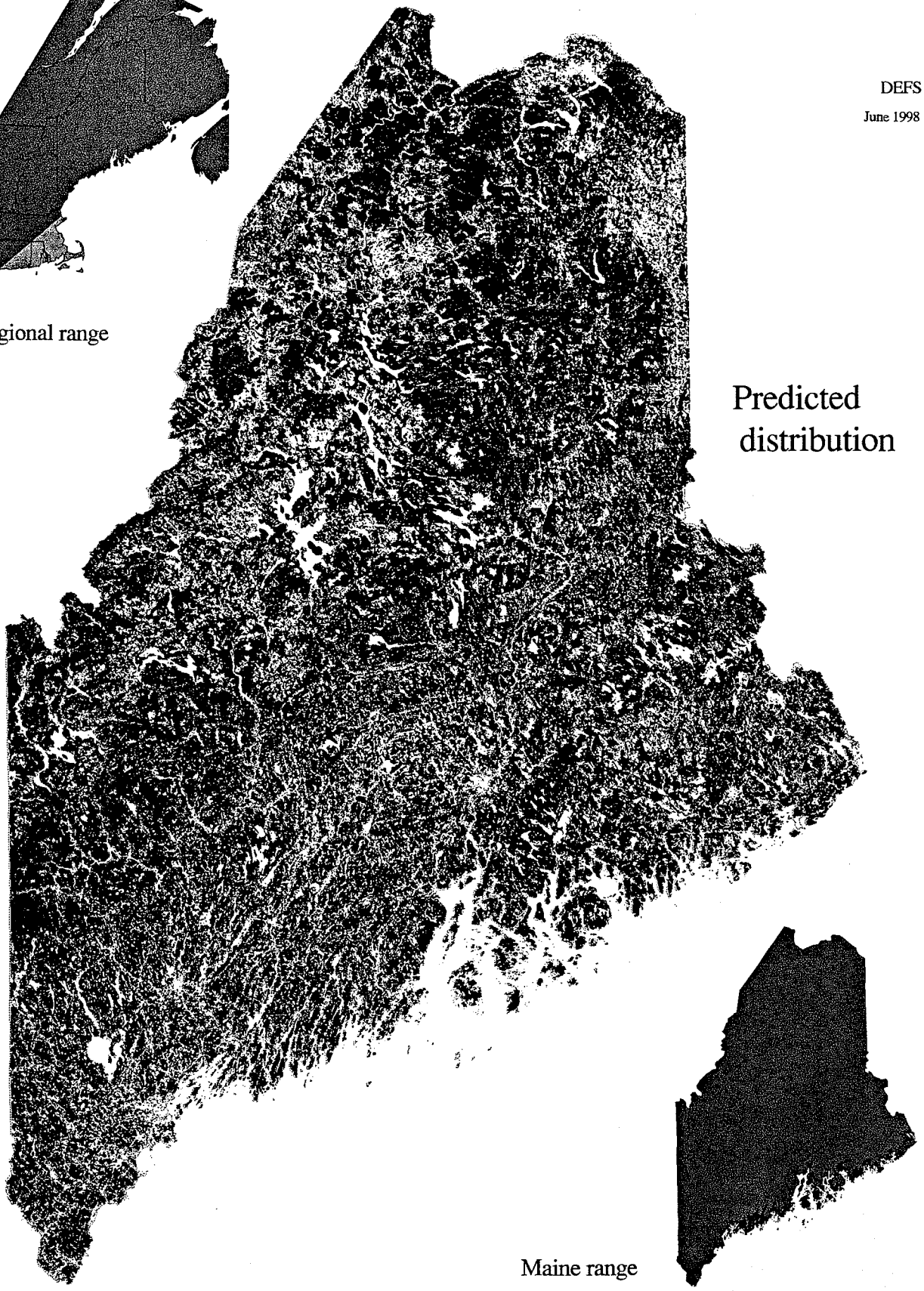
DEFS

June 1998



Regional range

Predicted distribution



Maine range

PINE WARBLER (*Dendroica pinus*)

Element code: BPBX0317

ME-GAP code: DEPI

Order: Passeriformes

Family: Parulidae

Breeding range change: Unknown

Listing status: Not listed

Migratory status: US migrant

Game species: No

Population level: Uncommon

Population trend: Increasing

Heritage ranks: G5 . . S5

Knowledge: Adequate

General habitats used: Pine Warblers inhabit large or small stands of pine trees, especially with pitch pine, but other species (in Maine, jack, red, white, and prince's pines) also are used. Pine plantation may be used by this species, and occasionally Pine Warblers will occur within deciduous stands that have a few clustered pines present.

Specific habitats used:

Comments:

Predicted habitat quantities:

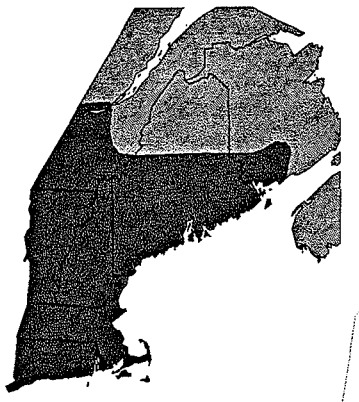
PINE WARBLER					Total in ha: 1,732,333
Habitat	ha	Habitat	ha	Habitat	ha
Agricultural lands		Light partial cut	*11,435*	Fresh emergent	*4,388*
Abandoned field	*2,275*	Heavy partial cut	*10,360*	Peatland	*2,188*
Blueberry field	*844*	Deciduous forest	*26,786*	Wet meadow	*774*
Grassland	*20,196*	Decid./Conif. forest	*80,972*	Salt aquatic bed	*808*
Crops/Ground	*3,566*	Conif./Decid. forest	926,789	Salt emergent	*286*
Developed lands		Coniferous forest	370,892	Mudflat	*377*
Sparse residential	39,884	**Wetlands**		Sand shore	*107*
Dense residential	*1,302*	Deciduous forested	*5,600*	Gravel shore	*18*
Urban/Industrial	*20*	Coniferous forested	161,200	Rock shore	*165*
Highways/Runways	*114*	Dead-forested	1,594	Shallow water	*643*
Forestlands		Decid. shrub-scrub	*7,678*	Open water	*5,237*
Clearcut	*5,767*	Conifer. shrub-scrub	*974*	**Other**	
Early regeneration	*12,425*	Dead shrub-scrub	*13*	Alpine tundra	*1*
Late regeneration	*26,562*	Fresh aquatic bed	*7*	Exposed rock/Talus	*84*

For definitions of field contents see the Introduction. Items in *italics* in the table of habitat quantities show habitats not used by the species, but included in the predicted distribution because of generalization (see the Introduction for details).

PINE WARBLER

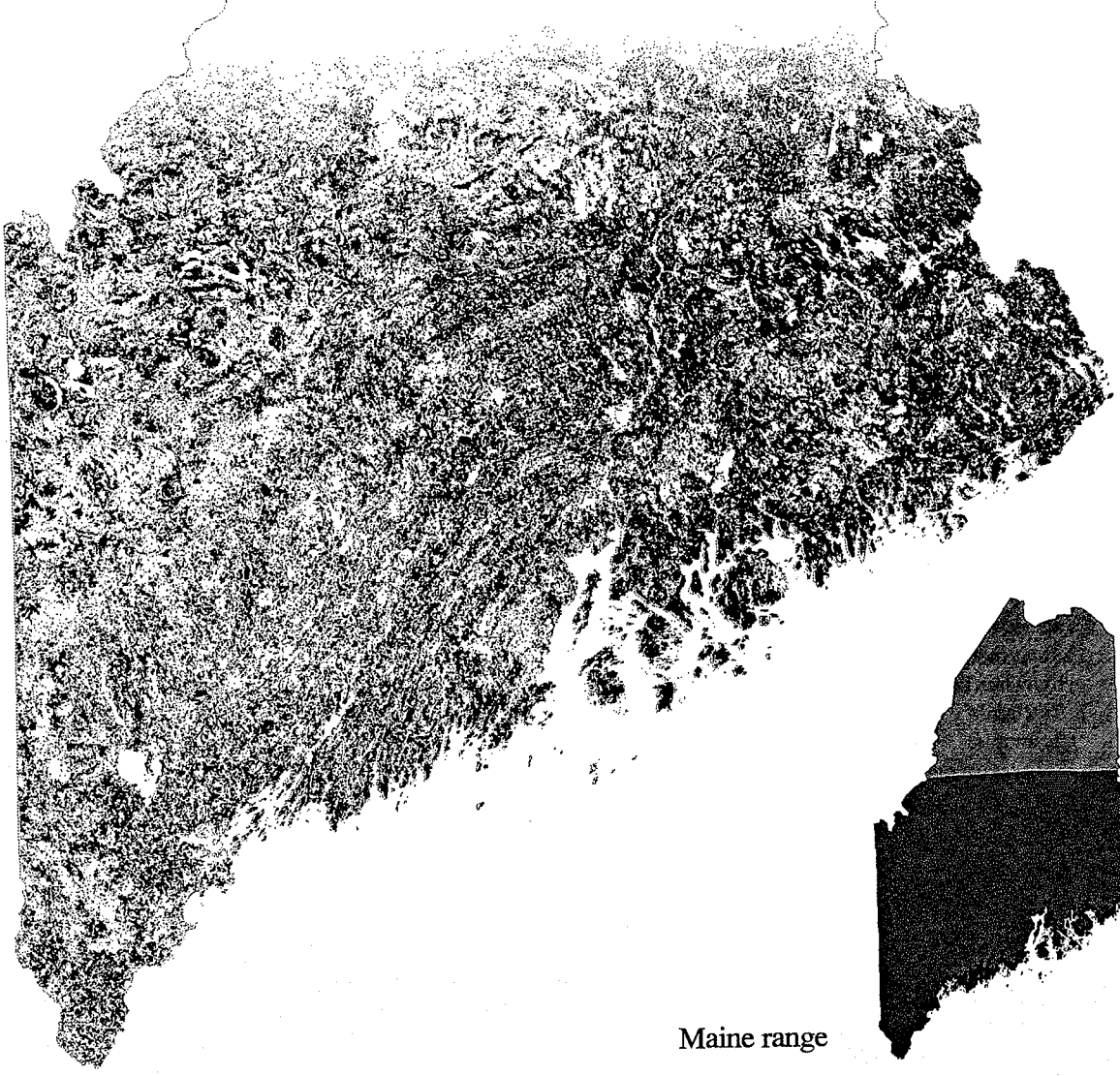
DEPI

June 1998



Regional range

Predicted distribution





Maine range

PRAIRIE WARBLER (*Dendroica discolor*)

Element code: BPBX0319 **ME-GAP code:** DEDI

Order: Passeriformes **Family:** Parulidae

Breeding range change: Expanding **Listing status:** Not listed

Migratory status: Neotropical and US migrant **Game species:** No

Population level: Uncommon **Population trend:** Stable

Heritage ranks: G5 . . S4B **Knowledge:** Adequate

General habitats used: Prairie Warblers inhabit dry, open areas with brush and scattered trees. Burned sites, perhaps ten years after the burn, with scattered pitch pine, scrub oak, cedars, hawthorns, or crab apples are good Prairie Warbler habitat. Harvested areas, abandoned fields, and dry brushy pastures are occupied by these warblers. Prairie Warblers nest in shrubs, and forage in foliage, on the ground, and in the air.

Specific habitats used:

Comments: This species' population may have recently begun to decline in Southern Maine as old fields revert back to forests or are transformed into housing developments.

Predicted habitat quantities:

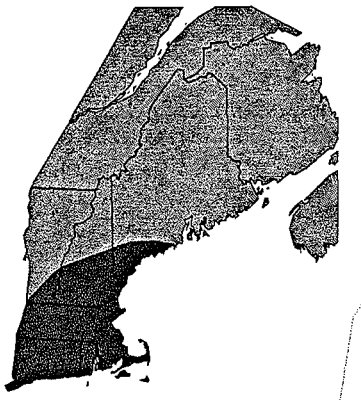
PRAIRIE WARBLER					Total in ha:	164,782
Habitat	**ha**	**Habitat**	**ha**	**Habitat**		**ha**
Agricultural lands		Light partial cut	4,866	Fresh emergent		*347*
Abandoned field	3	Heavy partial cut	940	Peatland		553
Blueberry field	440	Deciduous forest	*2,990*	Wet meadow		223
Grassland	58,863	Decid./Conif. forest	57,678	Salt aquatic bed		*53*
Crops/Ground	*1,087*	Conif./Decid. forest	*9,315*	Salt emergent		*119*
Developed lands		Coniferous forest	*1,450*	Mudflat		219
Sparse residential	3,361	**Wetlands**		Sand shore		86
Dense residential	*805*	Deciduous forested	*1,921*	Gravel shore		*0*
Urban/Industrial	*126*	Coniferous forested	7,833	Rock shore		*5*
Highways/Runways	0	Dead-forested	*6*	Shallow water		*135*
Forestlands		Decid. shrub-scrub	*603*	Open water		*211*
Clearcut	2,889	Conifer. shrub-scrub	*52*	**Other**		
Early regeneration	3,144	Dead shrub-scrub	*0*	Alpine tundra		*0*
Late regeneration	4,297	Fresh aquatic bed	*1*	Exposed rock/Talus		*161*

For definitions of field contents see the Introduction. Items in *italics* in the table of habitat quantities show habitats not used by the species, but included in the predicted distribution because of generalization (see the Introduction for details).

PRAIRIE WARBLER

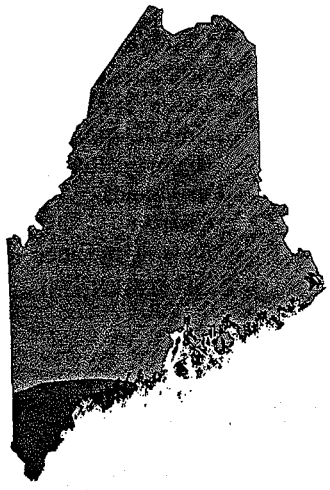
DEDI

June 1998



Regional range

Predicted distribution



Maine range

PALM WARBLER (*Dendroica palmarum*)

Element code: BPBX0321

ME-GAP code: DEPA

Order: Passeriformes

Family: Parulidae

Breeding range change: Unknown

Listing status: Not listed

Migratory status: US migrant

Game species: No

Population level: Uncommon

Population trend: Stable, but difficult to monitor

Heritage ranks: G5 . . S4B

Knowledge: Adequate

General habitats used: Palm Warblers breed most commonly in sphagnum bogs and other wet sites with scattered shrubs and trees, such as black spruce swamps. Within these sites, Palm Warblers nest on drier ridges, or on low branches of shrubs and trees. Palm Warblers also will nest in drier habitats, such as open barrenlands with scattered trees, and upland spruce forests.

Specific habitats used:

Comments: Investigations in the state and provinces bordering Maine confirm the unusual range shown here.

Predicted habitat quantities:

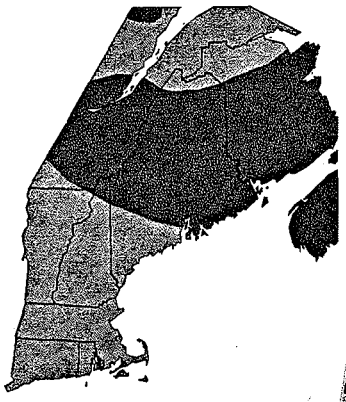
PALM WARBLER					Total in ha:	565,074
Habitat	ha	Habitat	ha	Habitat		ha
Agricultural lands		Light partial cut	*2,330*	Fresh emergent		*4,425*
Abandoned field	*578*	Heavy partial cut	*2,612*	Peatland		38,979
Blueberry field	8,891	Deciduous forest	*2,934*	Wet meadow		*868*
Grassland	*2,718*	Decid./Conif. forest	*7,797*	Salt aquatic bed		*37*
Crops/Ground	*1,038*	Conif./Decid. forest	*25,506*	Salt emergent		*19*
Developed lands		Coniferous forest	*21,392*	Mudflat		*38*
Sparse residential	*921*	**Wetlands**		Sand shore		*6*
Dense residential	*79*	Deciduous forested	*2,142*	Gravel shore		*51*
Urban/Industrial	*0*	Coniferous forested	258,294	Rock shore		*45*
Highways/Runways	*9*	Dead-forested	1,340	Shallow water		*907*
Forestlands		Decid. shrub-scrub	84,445	Open water		*3,150*
Clearcut	68,019	Conifer. shrub-scrub	10,334	**Other**		
Early regeneration	*10,988*	Dead shrub-scrub	35	Alpine tundra		*1*
Late regeneration	*4,143*	Fresh aquatic bed	*1*	Exposed rock/Talus		*4*

For definitions of field contents see the Introduction. Items in *italics* in the table of habitat quantities show habitats not used by the species, but included in the predicted distribution because of generalization (see the Introduction for details).

PALM WARBLER

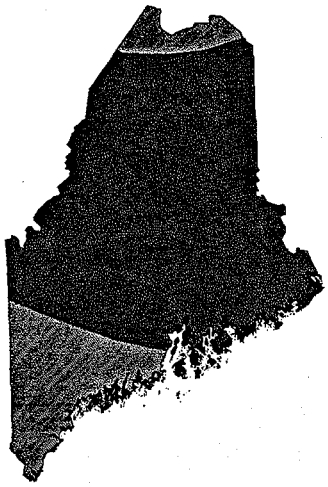
DEPA

June 1998



Regional range

Predicted distribution



Maine range

BAY-BREASTED WARBLER (*Dendroica castanea*)

Element code: BPBX0322

ME-GAP code: DECS

Order: Passeriformes

Family: Parulidae

Breeding range change: Stable

Listing status: Not listed

Migratory status: Neotropical migrant

Game species: No

Population level: Common

Population trend: Stable, but increases in insect outbreaks

Heritage ranks: G5 . . S5

Knowledge: Adequate

General habitats used: Bay-breasted Warblers are most common in stands of dense spruce and balsam fir, with intermixed deciduous trees. Early successional stages of coniferous growth are heavily used, as are the edges and openings of more mature coniferous stands. Forest edges near streams, ponds, and rivers are used by Bay-breasted Warblers. Although these warblers are most common in mixed forests, they only nest in coniferous trees. Bay-breasted Warblers feed heavily on spruce budworms, and the species' population level varies in response to budworm outbreaks.

Specific habitats used:

Comments:

Predicted habitat quantities:

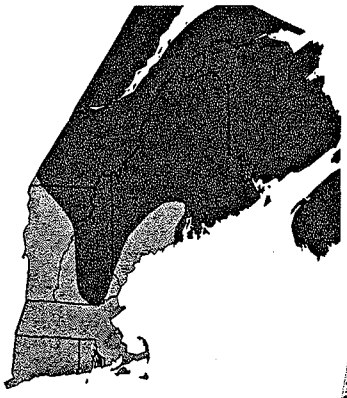
BAY-BREASTED WARBLER					Total in ha: 3,834,555
Habitat	**ha**	**Habitat**	**ha**	**Habitat**	**ha**
Agricultural lands		Light partial cut	74,156	Fresh emergent	*8,946*
Abandoned field	11,559	Heavy partial cut	101,010	Peatland	*4,844*
Blueberry field	*1,481*	Deciduous forest	*130,997*	Wet meadow	*1,665*
Grassland	*17,816*	Decid./Conif. forest	842,354	Salt aquatic bed	*1,123*
Crops/Ground	*5,707*	Conif./Decid. forest	1,334,381	Salt emergent	*204*
Developed lands		Coniferous forest	625,896	Mudflat	*253*
Sparse residential	*6,458*	**Wetlands**		Sand shore	*101*
Dense residential	*406*	Deciduous forested	*6,898*	Gravel shore	*139*
Urban/Industrial	*0*	Coniferous forested	322,716	Rock shore	*454*
Highways/Runways	*27*	Dead-forested	1,761	Shallow water	*1,673*
Forestlands		Decid. shrub-scrub	*18,236*	Open water	*9,474*
Clearcut	*19,630*	Conifer. shrub-scrub	10,933	**Other**	
Early regeneration	*69,051*	Dead shrub-scrub	62	Alpine tundra	*103*
Late regeneration	203,862	Fresh aquatic bed	*8*	Exposed rock/Talus	*168*

For definitions of field contents see the Introduction. Items in *italics* in the table of habitat quantities show habitats not used by the species, but included in the predicted distribution because of generalization (see the Introduction for details).

BAY-BREASTED WARBLER

DECS

June 1998



Regional range

Predicted distribution



Maine range

BLACKPOLL WARBLER (*Dendroica striata*)

Element code: BPBX0323

ME-GAP code: DEST

Order: Passeriformes

Family: Parulidae

Breeding range change: Unknown

Listing status: Not listed

Migratory status: Neotropical migrant

Game species: No

Population level: Common

Population trend: Moderate increase, perhaps conifer growth

Heritage ranks: G5 . . S4B

Knowledge: Adequate

General habitats used: Blackpoll Warblers inhabit dense, low, cool, coniferous forests, such as krumholtz stands of spruce at high elevation or on the coast. These warblers also use moist stands of non-stunted spruce, mixed forests, forest edges, alder and willow thickets, harvested areas, and burns. Blackpoll Warblers typically nest on the low limbs of stunted conifers, but also commonly nest on moist ground.

Specific habitats used:

Comments:

Predicted habitat quantities:

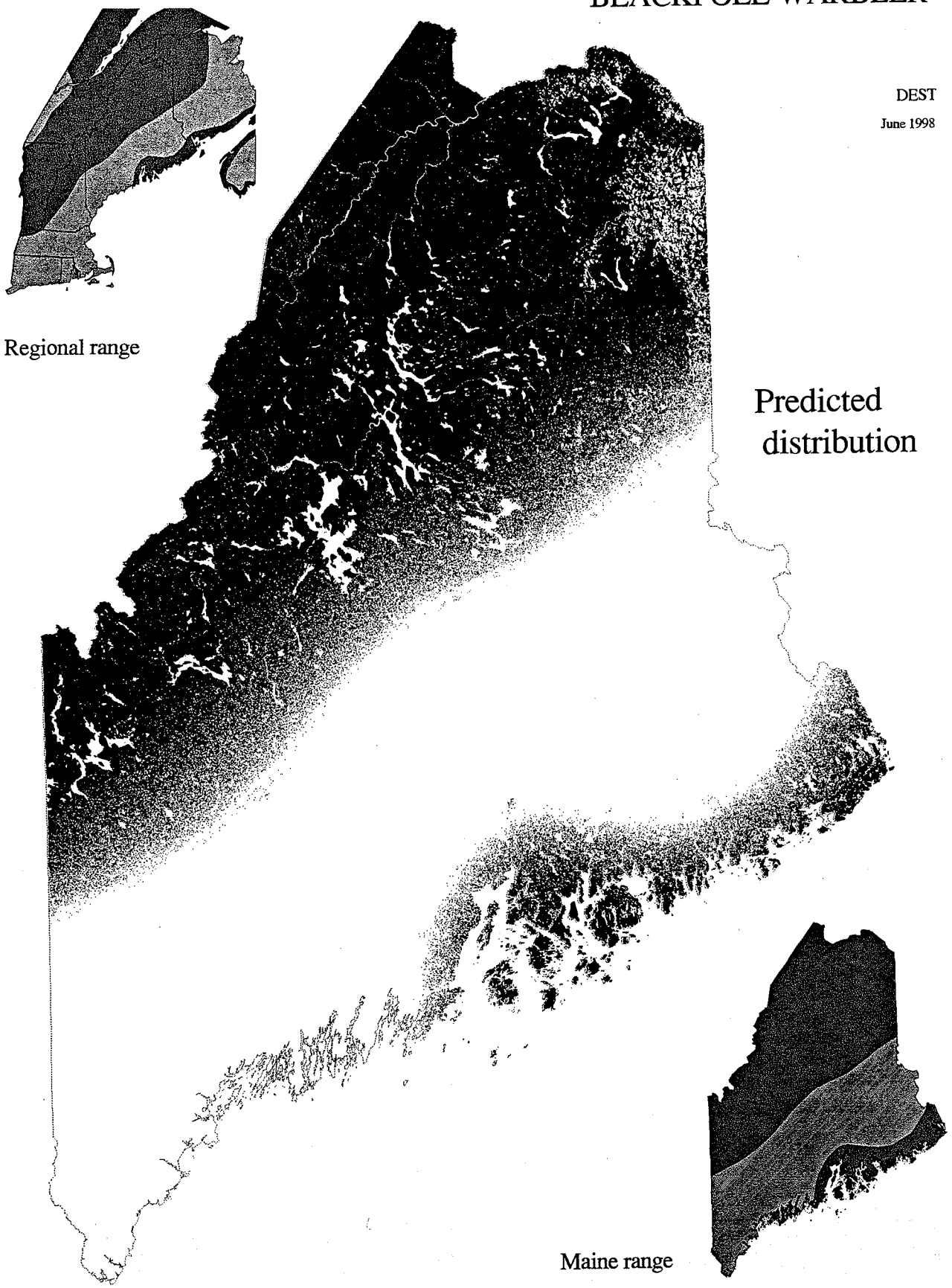
BLACKPOLL WARBLER					Total in ha: 3,414,472
Habitat	**ha**	**Habitat**	**ha**	**Habitat**	**ha**
Agricultural lands		Light partial cut	51,195	Fresh emergent	*6,543*
Abandoned field	*1,087*	Heavy partial cut	78,977	Peatland	16,105
Blueberry field	*506*	Deciduous forest	598,751	Wet meadow	*1,086*
Grassland	*11,751*	Decid./Conif. forest	641,558	Salt aquatic bed	*970*
Crops/Ground	*4,968*	Conif./Decid. forest	727,166	Salt emergent	*112*
Developed lands		Coniferous forest	436,657	Mudflat	*181*
Sparse residential	11,053	**Wetlands**		Sand shore	*96*
Dense residential	*347*	Deciduous forested	12,815	Gravel shore	*190*
Urban/Industrial	*0*	Coniferous forested	185,395	Rock shore	*494*
Highways/Runways	*10*	Dead-forested	847	Shallow water	*1,520*
Forestlands		Decid. shrub-scrub	49,066	Open water	*7,126*
Clearcut	56,600	Conifer. shrub-scrub	5,342	**Other**	
Early regeneration	360,415	Dead shrub-scrub	43	Alpine tundra	*128*
Late regeneration	145,150	Fresh aquatic bed	*4*	Exposed rock/Talus	*219*

For definitions of field contents see the Introduction. Items in *italics* in the table of habitat quantities show habitats not used by the species, but included in the predicted distribution because of generalization (see the Introduction for details).

BLACKPOLL WARBLER

DEST

June 1998



BLACK-AND-WHITE WARBLER (*Mniotilta varia*)

Element code: BPBX0501

ME-GAP code: MNVA

Order: Passeriformes

Family: Parulidae

Breeding range change: Stable

Listing status: Not listed

Migratory status: Neotropical and US migrant

Game species: No

Population level: Common

Population trend: Stable

Heritage ranks: G5 . . S5

Knowledge: Good

General habitats used: Black-and-white Warblers occur in the interiors of extensive deciduous and mixed forests, selecting mature and mid-successional stands. Wet and moist habitats, such as forests within ravines and forested wetlands, are used by these warblers. In addition, Black-and-white Warblers may occur in drier habitats, such as on hillsides. These warblers nest on the ground, under a stump or ledge for cover, and they feed by gleaning bark in chickadee fashion.

Specific habitats used:

Comments:

Predicted habitat quantities:

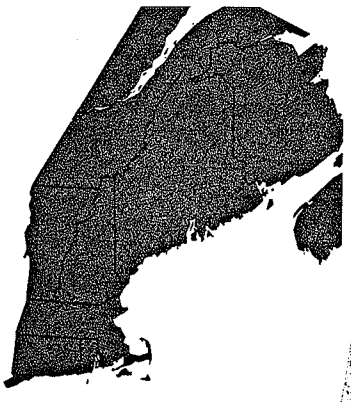
BLACK-AND-WHITE WARBLER					Total in ha: 4,876,050
Habitat	ha	Habitat	ha	Habitat	ha
Agricultural lands		Light partial cut	73,757	Fresh emergent	*23,876*
Abandoned field	12,656	Heavy partial cut	108,338	Peatland	*5,482*
Blueberry field	*4,173*	Deciduous forest	1,156,610	Wet meadow	*5,131*
Grassland	*151,121*	Decid./Conif. forest	1,105,622	Salt aquatic bed	*1,161*
Crops/Ground	*24,524*	Conif./Decid. forest	1,307,393	Salt emergent	*662*
Developed lands		Coniferous forest	*266,876*	Mudflat	*725*
Sparse residential	37,369	**Wetlands**		Sand shore	*100*
Dense residential	*5,037*	Deciduous forested	49,196	Gravel shore	*323*
Urban/Industrial	*95*	Coniferous forested	*96,942*	Rock shore	*853*
Highways/Runways	*279*	Dead-forested	1,645	Shallow water	*4,651*
Forestlands		Decid. shrub-scrub	79,981	Open water	*36,748*
Clearcut	*43,431*	Conifer. shrub-scrub	*3,937*	**Other**	
Early regeneration	*140,770*	Dead shrub-scrub	57	Alpine tundra	*102*
Late regeneration	*125,944*	Fresh aquatic bed	*38*	Exposed rock/Talus	*445*

For definitions of field contents see the Introduction. Items in *italics* in the table of habitat quantities show habitats not used by the species, but included in the predicted distribution because of generalization (see the Introduction for details).

BLACK-AND-WHITE WARBLER

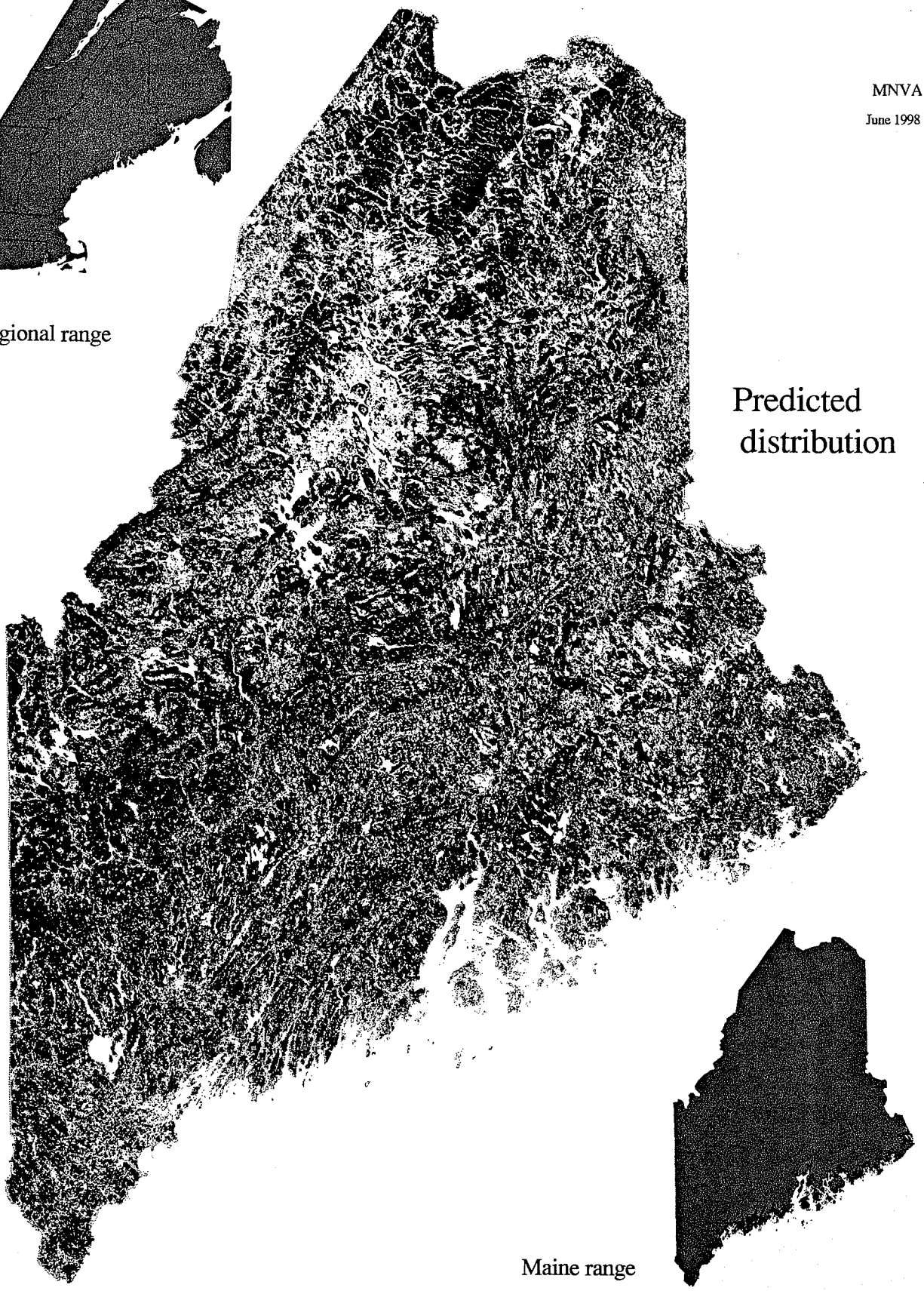
MNVA

June 1998



Regional range

Predicted distribution



Maine range

AMERICAN REDSTART (*Setophaga ruticilla*)

Element code: BPBX0601

ME-GAP code: SERU

Order: Passeriformes

Family: Parulidae

Breeding range change: Stable

Listing status: Not listed

Migratory status: Neotropical migrant

Game species: No

Population level: Common

Population trend: Stable

Heritage ranks: G5 . . S5

Knowledge: Good

General habitats used: American Redstart use many habitats, but are most common in extensive mid-successional, moist deciduous forests. However, redstarts may be common in mixed forests, and will use coniferous stands if alders and other understory trees and shrubs are present. American Redstarts are somewhat area sensitive, using the interiors of forests, but may also use the forest edges and shade trees in residential areas. Restarts nest low in trees or in shrubs, and forage by gleaning branches and foliage, and by flycatching.

Specific habitats used:

Comments:

Predicted habitat quantities:

AMERICAN REDSTART					Total in ha:	6,320,279
Habitat	**ha**	**Habitat**	**ha**	**Habitat**		**ha**
Agricultural lands		Light partial cut	98,291	Fresh emergent		*36,000*
Abandoned field	15,260	Heavy partial cut	140,173	Peatland		*15,871*
Blueberry field	*5,867*	Deciduous forest	1,215,173	Wet meadow		*7,192*
Grassland	*184,988*	Decid./Conif. forest	1,222,544	Salt aquatic bed		*1,464*
Crops/Ground	*34,257*	Conif./Decid. forest	1,497,766	Salt emergent		*816*
Developed lands		Coniferous forest	*366,310*	Mudflat		*927*
Sparse residential	46,560	**Wetlands**		Sand shore		*133*
Dense residential	27,188	Deciduous forested	59,676	Gravel shore		*471*
Urban/Industrial	*514*	Coniferous forested	321,714	Rock shore		*1,054*
Highways/Runways	*518*	Dead-forested	2,214	Shallow water		*6,932*
Forestlands		Decid. shrub-scrub	108,479	Open water		*46,032*
Clearcut	105,935	Conifer. shrub-scrub	12,237	**Other**		
Early regeneration	479,944	Dead shrub-scrub	79	Alpine tundra		*147*
Late regeneration	256,754	Fresh aquatic bed	*42*	Exposed rock/Talus		*756*

For definitions of field contents see the Introduction. Items in *italics* in the table of habitat quantities show habitats not used by the species, but included in the predicted distribution because of generalization (see the Introduction for details).

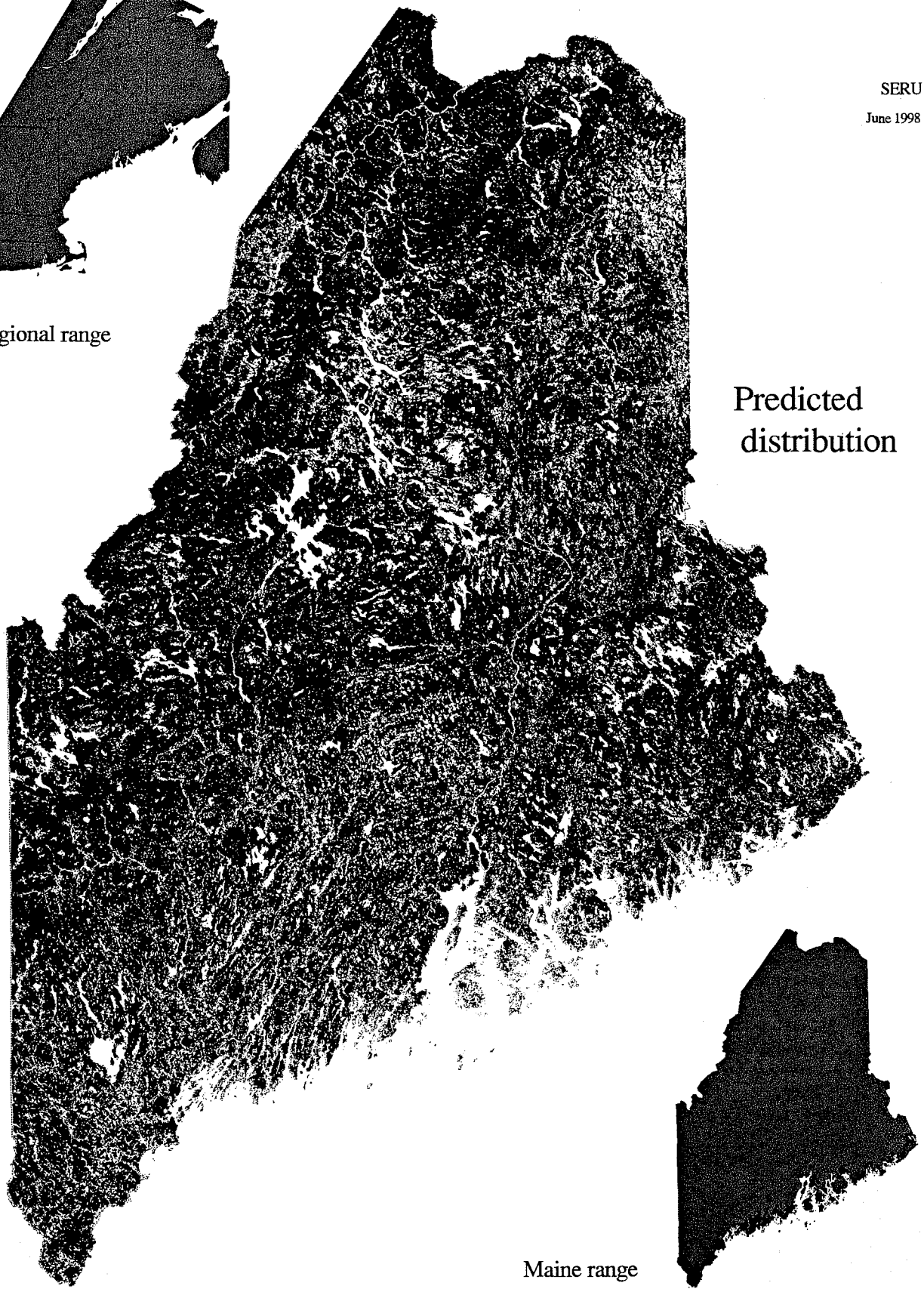
AMERICAN REDSTART

SERU

June 1998



Regional range



Predicted distribution

Maine range

OVENBIRD (*Seiurus aurocapillus*)

Element code: BPBX1001

ME-GAP code: SEAU

Order: Passeriformes

Family: Parulidae

Breeding range change: Stable

Listing status: Not listed

Migratory status: Neotropical and US migrant

Game species: No

Population level: Common

Population trend: Stable

Heritage ranks: G5 . . S5

Knowledge: Good

General habitats used: Ovenbirds are most common in the interiors of extensive, mature, closed-canopy deciduous and mixed forests. Coniferous stands in Maine typically have enough deciduous trees and shrubs to support some Ovenbirds. Stands occupied may be wet or dry, but have little understory, a thick layer of dropped leaves on the ground, and rocks or logs for cover. Ovenbirds nest on the ground and feed by scratching about the leaf layer.

Specific habitats used:

Comments: Ovenbirds may not occur, or breed successfully if they do occur, in small patches of forested habitat.

Predicted habitat quantities:

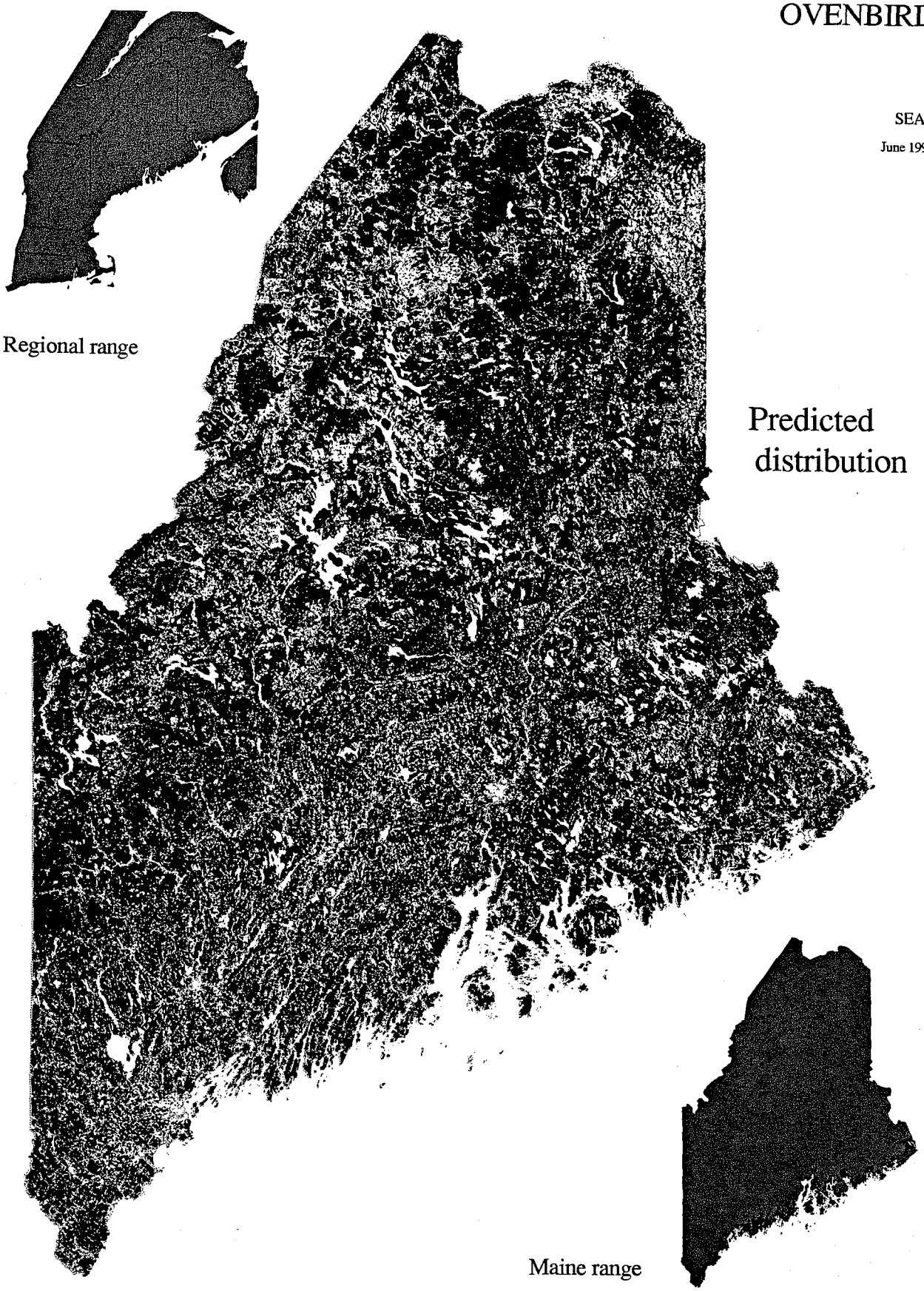
OVENBIRD					**Total in ha:** 5,831,259
Habitat	**ha**	**Habitat**	**ha**	**Habitat**	**ha**
Agricultural lands		Light partial cut	82,945	Fresh emergent	*34,252*
Abandoned field	*8,081*	Heavy partial cut	*73,780*	Peatland	*15,661*
Blueberry field	*3,644*	Deciduous forest	1,138,601	Wet meadow	*6,776*
Grassland	*156,811*	Decid./Conif. forest	1,120,682	Salt aquatic bed	*2,478*
Crops/Ground	*26,325*	Conif./Decid. forest	1,513,245	Salt emergent	*847*
Developed lands		Coniferous forest	680,909	Mudflat	*1,064*
Sparse residential	41,233	**Wetlands**		Sand shore	*228*
Dense residential	*5,642*	Deciduous forested	57,021	Gravel shore	*490*
Urban/Industrial	*104*	Coniferous forested	326,646	Rock shore	*1,307*
Highways/Runways	*291*	Dead-forested	2,081	Shallow water	*7,002*
Forestlands		Decid. shrub-scrub	104,509	Open water	*50,370*
Clearcut	*51,271*	Conifer. shrub-scrub	*7,093*	**Other**	
Early regeneration	*166,199*	Dead shrub-scrub	66	Alpine tundra	*369*
Late regeneration	*142,609*	Fresh aquatic bed	*49*	Exposed rock/Talus	*574*

For definitions of field contents see the Introduction. Items in *italics* in the table of habitat quantities show habitats not used by the species, but included in the predicted distribution because of generalization (see the Introduction for details).

OVENBIRD

SEAU

June 1998



NORTHERN WATERTHRUSH (*Seiurus noveboracensis*)

Element code: BPBX1002 **ME-GAP code:** SENO

Order: Passeriformes **Family:** Parulidae

Breeding range change: Stable **Listing status:** Not listed

Migratory status: Neotropical migrant **Game species:** No

Population level: Common **Population trend:** Stable

Heritage ranks: G5 . . S5 **Knowledge:** Adequate

General habitats used: Northern Waterthrushes inhabit forested wetlands and bogs, often those associated with coniferous forests. These waterthrushes also will use shrubby wet areas on the margins of streams, ponds, and rivers, such as alder and willow thickets. In general, Northern Waterthrushes use areas near shallow stagnant or slow moving water. These waterthrushes nest on the ground and within cavities, and are ground gleaners.

Specific habitats used:

Comments:

Predicted habitat quantities:

NORTHERN WATERTHRUSH					Total in ha: 3,425,761
Habitat	ha	Habitat	ha	Habitat	ha
Agricultural lands		Light partial cut	*35,390*	Fresh emergent	*39,381*
Abandoned field	*5,776*	Heavy partial cut	*38,498*	Peatland	41,558
Blueberry field	*2,583*	Deciduous forest	363,439	Wet meadow	*8,053*
Grassland	*96,161*	Decid./Conif. forest	523,106	Salt aquatic bed	*2,380*
Crops/Ground	*16,660*	Conif./Decid. forest	949,823	Salt emergent	*1,891*
Developed lands		Coniferous forest	480,210	Mudflat	*2,131*
Sparse residential	*16,694*	**Wetlands**		Sand shore	689
Dense residential	*3,485*	Deciduous forested	58,750	Gravel shore	2,409
Urban/Industrial	*53*	Coniferous forested	335,980	Rock shore	2,680
Highways/Runways	*138*	Dead-forested	2,210	Shallow water	10,609
Forestlands		Decid. shrub-scrub	108,840	Open water	*42,972*
Clearcut	*30,961*	Conifer. shrub-scrub	12,665	**Other**	
Early regeneration	*102,146*	Dead shrub-scrub	52	Alpine tundra	*127*
Late regeneration	*86,846*	Fresh aquatic bed	*62*	Exposed rock/Talus	*353*

For definitions of field contents see the Introduction. Items in *italics* in the table of habitat quantities show habitats not used by the species, but included in the predicted distribution because of generalization (see the Introduction for details).

NORTHERN WATERTHRUSH

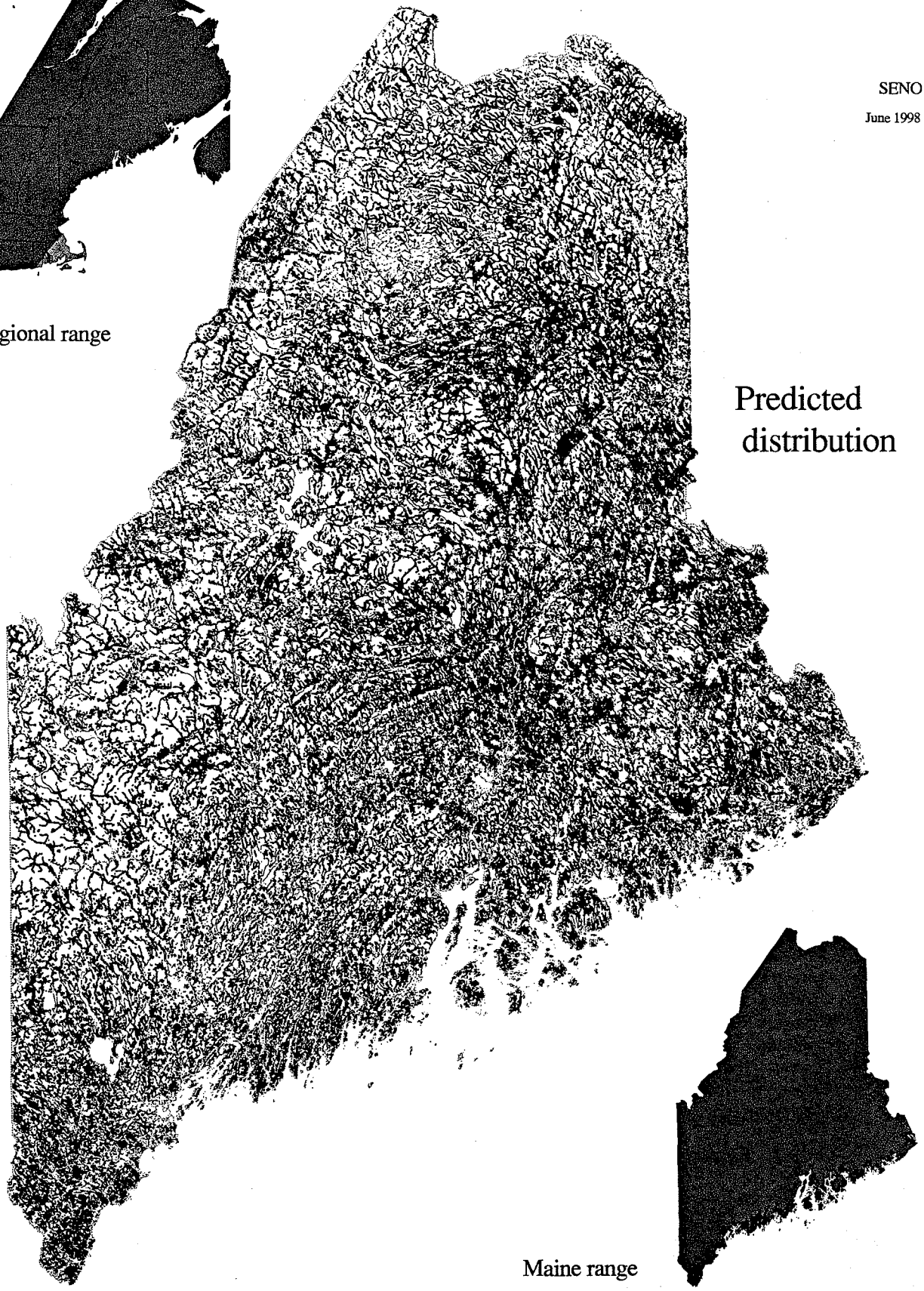
SENO

June 1998



Regional range

Predicted distribution



Maine range

LOUISIANA WATERTHRUSH (*Seiurus motacilla*)

Element code: BPBX1003

ME-GAP code: SEMO

Order: Passeriformes

Family: Parulidae

Breeding range change: Unknown

Listing status: Not listed

Migratory status: Neotropical migrant

Game species: No

Population level: Uncommon

Population trend: Stable

Heritage ranks: G5 . . S2B

Knowledge: Adequate

General habitats used: Louisiana Waterthrushes are most common along fast flowing streams passing through the interiors of fertile, bottomland, deciduous forests. Sites with a thick understory, many trees, and rocks are selected. Swamps and forested wetlands, and the meadows associated with wooded streams are also used by this species. Less commonly, Louisiana Waterthrushes will occur in upland deciduous forests. These waterthrushes nest in ground cavities near streams, and forage by ground-gleaning.

Specific habitats used:

Comments:

Predicted habitat quantities:

LOUISIANA WATERTHRUSH					Total in ha: 141,856
Habitat	**ha**	**Habitat**	**ha**	**Habitat**	**ha**
Agricultural lands		Light partial cut	*1,024*	Fresh emergent	*1,065*
Abandoned field	*15*	Heavy partial cut	*452*	Peatland	965
Blueberry field	*16*	Deciduous forest	17,856	Wet meadow	*178*
Grassland	*7,410*	Decid./Conif. forest	48,188	Salt aquatic bed	*19*
Crops/Ground	*152*	Conif./Decid. forest	*12,295*	Salt emergent	*415*
Developed lands		Coniferous forest	*2,675*	Mudflat	2,417
Sparse residential	*298*	**Wetlands**		Sand shore	168
Dense residential	*415*	Deciduous forested	19,006	Gravel shore	38
Urban/Industrial	*28*	Coniferous forested	13,920	Rock shore	16
Highways/Runways	*0*	Dead-forested	164	Shallow water	855
Forestlands		Decid. shrub-scrub	8,335	Open water	*708*
Clearcut	*418*	Conifer. shrub-scrub	879	**Other**	
Early regeneration	*695*	Dead shrub-scrub	3	Alpine tundra	*0*
Late regeneration	*756*	Fresh aquatic bed	*0*	Exposed rock/Talus	*15*

For definitions of field contents see the Introduction. Items in *italics* in the table of habitat quantities show habitats not used by the species, but included in the predicted distribution because of generalization (see the Introduction for details).

LOUISIANA WATERTHRUSH

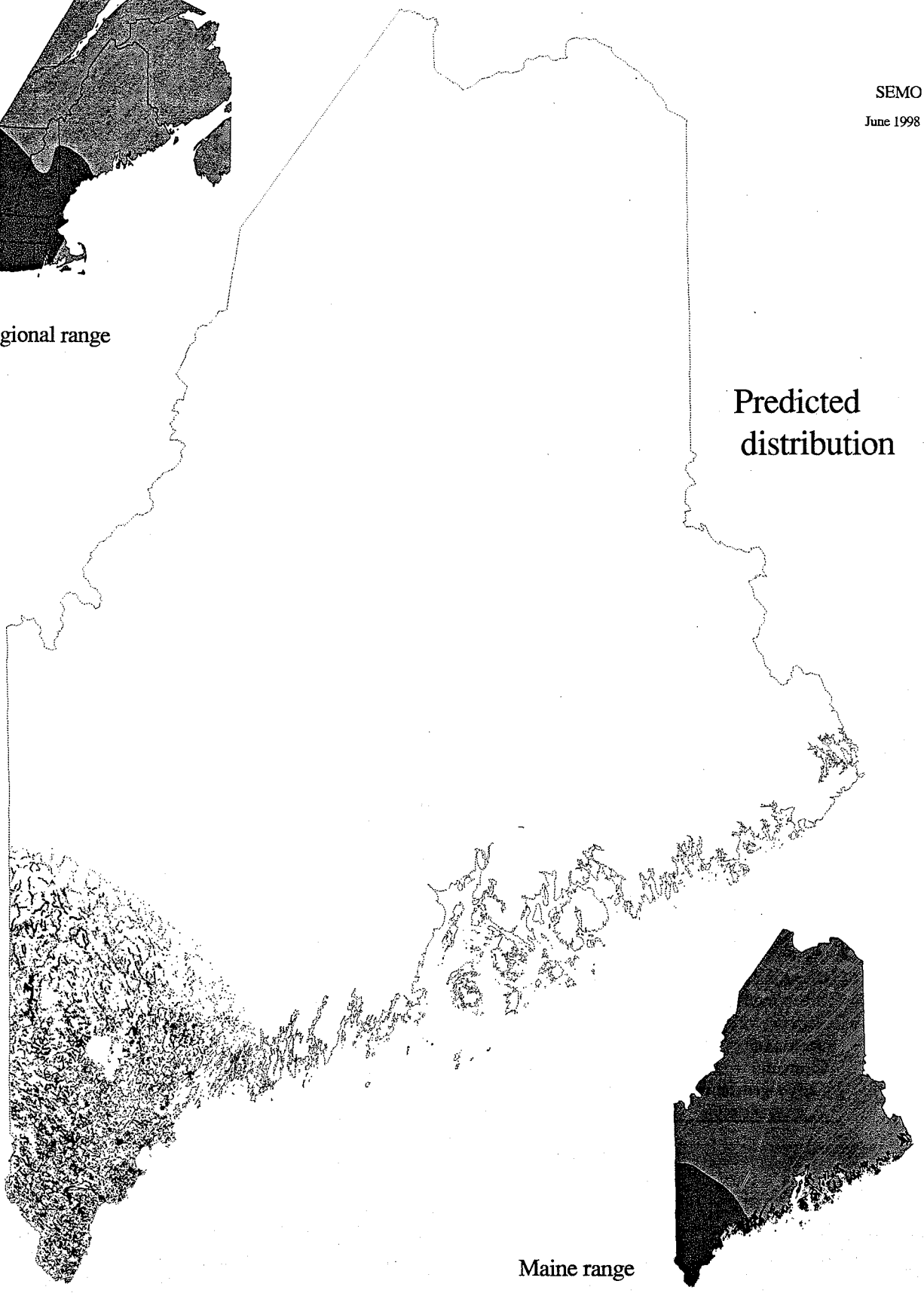
SEMO

June 1998



Regional range

Predicted distribution



Maine range

MOURNING WARBLER (*Oporornis philadelphia*)

Element code: BPBX1103

ME-GAP code: OPPH

Order: Passeriformes

Family: Parulidae

Breeding range change: Stable

Listing status: Not listed

Migratory status: Neotropical migrant

Game species: No

Population level: Common

Population trend: Stable

Heritage ranks: G5 . . S5

Knowledge: Adequate

General habitats used: Mourning Warblers inhabit wet or dry open brushy areas associated with young forests (especially aspen and birch stands), forest edges, clearcuts, regenerating areas, burns, industrial corridors, swamps, bogs, marsh margins, and abandoned pastures. Areas with dense woody and herbaceous vegetation are selected, such as slash piles within clearcuts. Mourning Warblers typically nest on the ground, and forage by ground gleaning.

Specific habitats used:

Comments:

Predicted habitat quantities:

MOURNING WARBLER					Total in ha:	1,674,980
Habitat	**ha**	**Habitat**	**ha**	**Habitat**		**ha**
Agricultural lands		Light partial cut	64,252	Fresh emergent		*7,117*
Abandoned field	12,178	Heavy partial cut	99,851	Peatland		42,406
Blueberry field	*1,304*	Deciduous forest	*24,208*	Wet meadow		*1,352*
Grassland	*14,316*	Decid./Conif. forest	*53,312*	Salt aquatic bed		*186*
Crops/Ground	*5,315*	Conif./Decid. forest	*84,600*	Salt emergent		*75*
Developed lands		Coniferous forest	*41,082*	Mudflat		*126*
Sparse residential	35,234	**Wetlands**		Sand shore		*23*
Dense residential	*629*	Deciduous forested	37,650	Gravel shore		*107*
Urban/Industrial	*0*	Coniferous forested	310,684	Rock shore		*117*
Highways/Runways	*94*	Dead-forested	1,939	Shallow water		*1,399*
Forestlands		Decid. shrub-scrub	101,233	Open water		*5,329*
Clearcut	89,312	Conifer. shrub-scrub	11,797	**Other**		
Early regeneration	439,233	Dead shrub-scrub	69	Alpine tundra		*20*
Late regeneration	188,358	Fresh aquatic bed	*1*	Exposed rock/Talus		*72*

For definitions of field contents see the Introduction. Items in *italics* in the table of habitat quantities show habitats not used by the species, but included in the predicted distribution because of generalization (see the Introduction for details).

MOURNING WARBLER

OPPH

June 1998



Regional range

Predicted distribution



Maine range

COMMON YELLOWTHROAT (*Geothlypis trichas*)

Element code: BPBX1201 **ME-GAP code:** GETR

Order: Passeriformes **Family:** Parulidae

Breeding range change: Stable **Listing status:** Not listed

Migratory status: US and Neotropical migrant **Game species:** No

Population level: Abundant **Population trend:** Gradual decline

Heritage ranks: G5 . . S4S5B **Knowledge:** Good

General habitats used: Common Yellowthroats are most common in wet habitats, such as cattail marshes, alder swamps, wet meadows, stream margins, and other areas of thick herbaceous vegetation, shrubs, and small trees. Yellowthroats also will inhabit drier brushy sites, such as open forests, clearcuts, regenerating stands, roadside brush, abandoned farmland, hedgerows, and industrial corridors. This species is more common in smaller openings than larger. Yellowthroats nest among weeds and grasses, and forage in low shrubs and on the ground.

Specific habitats used:

Comments:

Predicted habitat quantities:

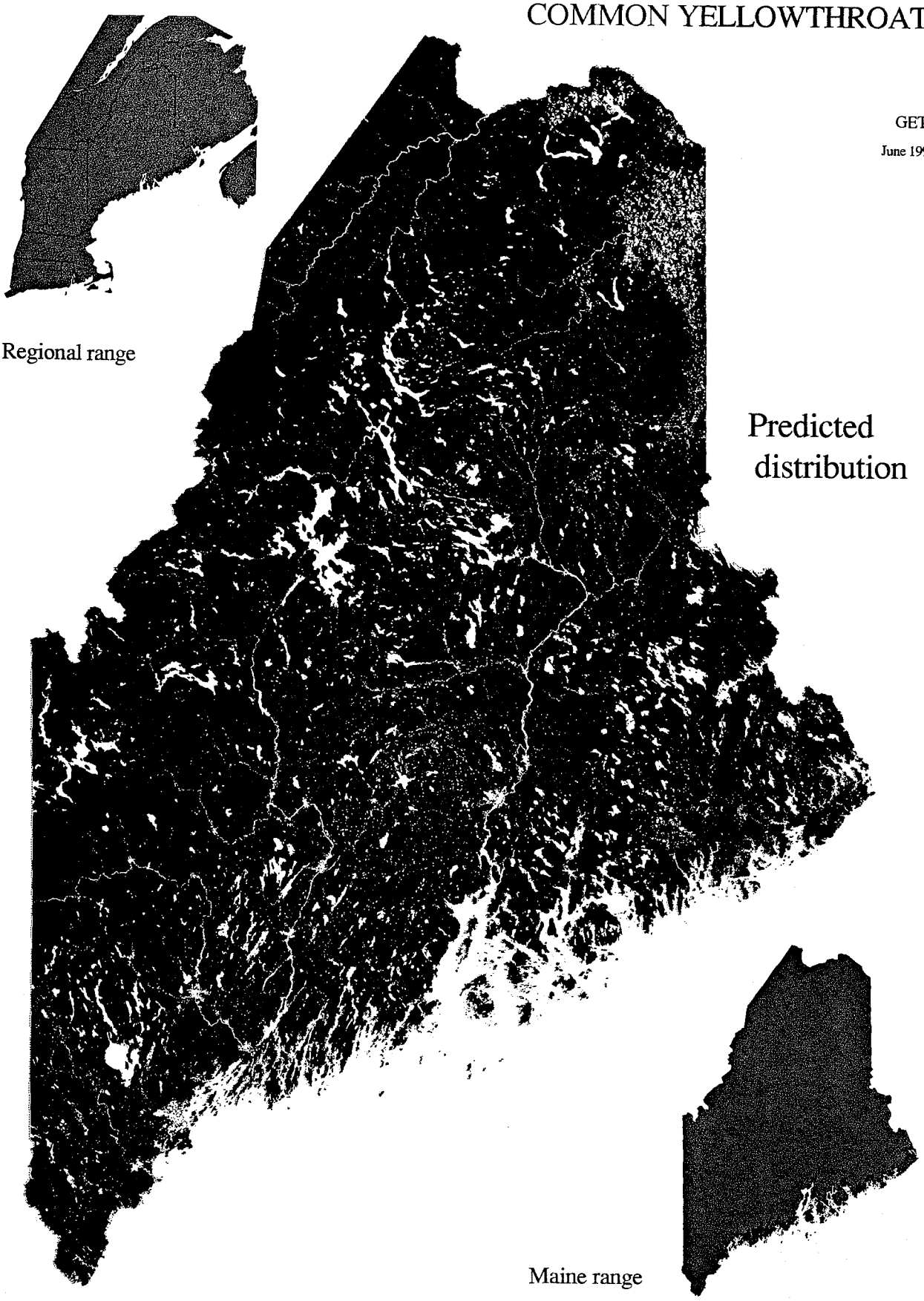
COMMON YELLOWTHROAT					Total in ha: 7,730,572
Habitat	**ha**	**Habitat**	**ha**	**Habitat**	**ha**
Agricultural lands		Light partial cut	112,363	Fresh emergent	67,258
Abandoned field	18,393	Heavy partial cut	150,757	Peatland	45,102
Blueberry field	*7,417*	Deciduous forest	1,268,838	Wet meadow	15,025
Grassland	437,874	Decid./Conif. forest	1,324,207	Salt aquatic bed	*3,404*
Crops/Ground	*56,368*	Conif./Decid. forest	1,754,538	Salt emergent	1,444
Developed lands		Coniferous forest	769,611	Mudflat	2,310
Sparse residential	62,883	**Wetlands**		Sand shore	457
Dense residential	*11,512*	Deciduous forested	69,893	Gravel shore	*799*
Urban/Industrial	*361*	Coniferous forested	382,582	Rock shore	*1,744*
Highways/Runways	538	Dead-forested	2,628	Shallow water	*10,139*
Forestlands		Decid. shrub-scrub	130,047	Open water	*68,409*
Clearcut	123,603	Conifer. shrub-scrub	14,734	**Other**	
Early regeneration	526,496	Dead shrub-scrub	106	Alpine tundra	*447*
Late regeneration	287,024	Fresh aquatic bed	*80*	Exposed rock/Talus	*1,180*

For definitions of field contents see the Introduction. Items in *italics* in the table of habitat quantities show habitats not used by the species, but included in the predicted distribution because of generalization (see the Introduction for details).

COMMON YELLOWTHROAT

GETR

June 1998



WILSON'S WARBLER (*Wilsonia pusilla*)

Element code: BPBX1602

ME-GAP code: WIPU

Order: Passeriformes

Family: Parulidae

Breeding range change: Unknown

Listing status: Not listed

Migratory status: Neotropical migrant

Game species: No

Population level: Uncommon

Population trend: Stable

Heritage ranks: G5 . . S3S4B

Knowledge: Adequate

General habitats used: Wilson's Warblers inhabit wet, brushy areas, such as swamps, stream and pond margins, bogs, peatlands, and wet meadows. Alder and willow thickets with thick sphagnum moss mats are heavily used by Wilson's Warblers. Drier habitats, such as abandoned farmland and cleared areas, may occasionally be used. These warblers nest on the ground, using sphagnum as part of the nesting material, and they forage by flycatching.

Specific habitats used:

Comments:

Predicted habitat quantities:

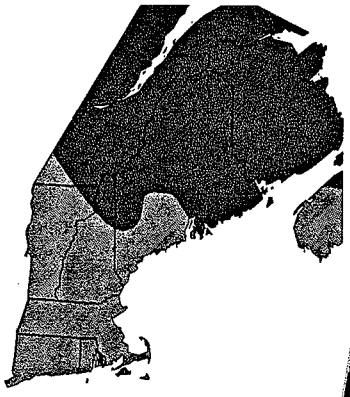
WILSON'S WARBLER					Total in ha: 1,559,418
Habitat	ha	Habitat	ha	Habitat	ha
Agricultural lands		Light partial cut	58,676	Fresh emergent	44,650
Abandoned field	9,607	Heavy partial cut	82,494	Peatland	40,963
Blueberry field	*1,284*	Deciduous forest	*19,634*	Wet meadow	10,431
Grassland	*7,148*	Decid./Conif. forest	*48,075*	Salt aquatic bed	*153*
Crops/Ground	*3,758*	Conif./Decid. forest	*76,591*	Salt emergent	395
Developed lands		Coniferous forest	*40,001*	Mudflat	*150*
Sparse residential	*3,205*	**Wetlands**		Sand shore	*26*
Dense residential	*264*	Deciduous forested	28,328	Gravel shore	*129*
Urban/Industrial	*0*	Coniferous forested	291,398	Rock shore	*133*
Highways/Runways	*19*	Dead-forested	1,628	Shallow water	*1,685*
Forestlands		Decid. shrub-scrub	93,210	Open water	*6,270*
Clearcut	78,790	Conifer. shrub-scrub	10,776	**Other**	
Early regeneration	426,737	Dead shrub-scrub	52	Alpine tundra	*20*
Late regeneration	172,664	Fresh aquatic bed	*2*	Exposed rock/Talus	*69*

For definitions of field contents see the Introduction. Items in *italics* in the table of habitat quantities show habitats not used by the species, but included in the predicted distribution because of generalization (see the Introduction for details).

WILSON'S WARBLER

WIPU

June 1998



Regional range

Predicted distribution



Maine range

CANADA WARBLER (*Wilsonia canadensis*)

Element code: BPBX1603

ME-GAP code: WICA

Order: Passeriformes

Family: Parulidae

Breeding range change: Stable

Listing status: Not listed

Migratory status: Neotropical migrant

Game species: No

Population level: Common

Population trend: Stable, responsive to insect outbreaks

Heritage ranks: G5 . . S4B

Knowledge: Adequate

General habitats used: Canada Warblers are most common in moist, mixed forests, with interspersed small openings with thick herbaceous vegetation. These warblers are more closely associated with deciduous forests than coniferous, but may occur in any forest type. Inhabited sites include cedar, alder, or willow thickets, burns with deciduous regeneration, and regenerating forest harvest. Canada Warblers usually nest on the ground amid cover, and forage by flycatching and ground gleaning.

Specific habitats used:

Comments:

Predicted habitat quantities:

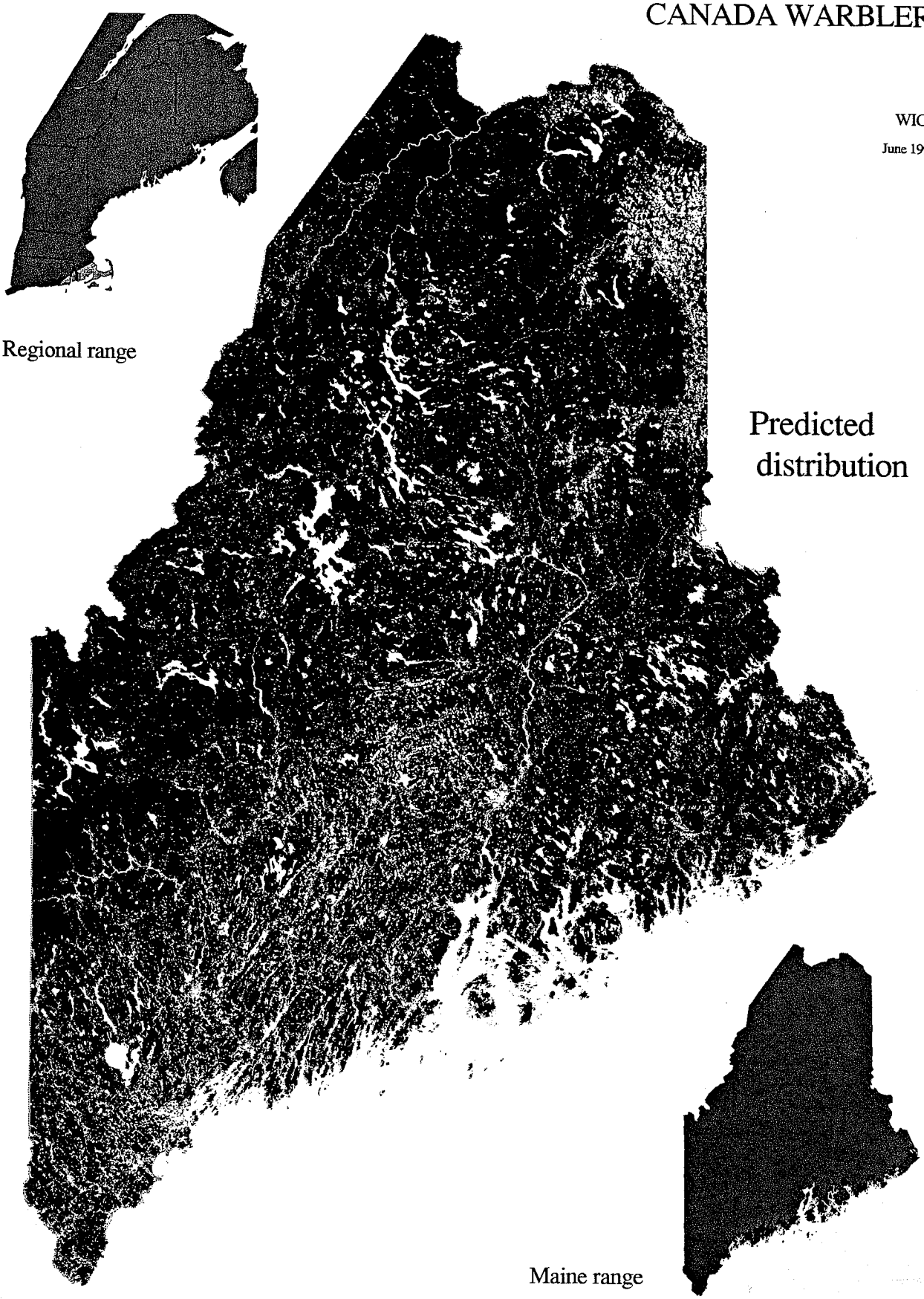
CANADA WARBLER					Total in ha: 7,027,192
Habitat	ha	Habitat	ha	Habitat	ha
Agricultural lands		Light partial cut	105,120	Fresh emergent	*41,337*
Abandoned field	16,061	Heavy partial cut	139,152	Peatland	43,485
Blueberry field	*5,954*	Deciduous forest	1,226,378	Wet meadow	*8,227*
Grassland	*191,482*	Decid./Conif. forest	1,258,183	Salt aquatic bed	*2,914*
Crops/Ground	*35,169*	Conif./Decid. forest	1,677,378	Salt emergent	*1,025*
Developed lands		Coniferous forest	742,074	Mudflat	1,980
Sparse residential	48,615	**Wetlands**		Sand shore	378
Dense residential	*6,785*	Deciduous forested	62,769	Gravel shore	*639*
Urban/Industrial	*127*	Coniferous forested	364,733	Rock shore	*1,558*
Highways/Runways	*333*	Dead-forested	2,351	Shallow water	*8,554*
Forestlands		Decid. shrub-scrub	116,649	Open water	*59,483*
Clearcut	*75,928*	Conifer. shrub-scrub	13,244	**Other**	
Early regeneration	496,542	Dead shrub-scrub	89	Alpine tundra	*424*
Late regeneration	271,295	Fresh aquatic bed	*53*	Exposed rock/Talus	*723*

For definitions of field contents see the Introduction. Items in *italics* in the table of habitat quantities show habitats not used by the species, but included in the predicted distribution because of generalization (see the Introduction for details).

CANADA WARBLER

WICA

June 1998



SCARLET TANAGER (*Piranga olivacea*)

Element code: BPBX4504

ME-GAP code: PIOL

Order: Passeriformes

Family: Thraupidae

Breeding range change: Stable

Listing status: Not listed

Migratory status: Neotropical migrant

Game species: No

Population level: Common

Population trend: Stable

Heritage ranks: G5 . . S5B

Knowledge: Adequate

General habitats used: Scarlet Tanagers inhabit the interiors of mature stands of a variety of forest types, with deciduous and mixed forests being used most commonly. Pine, oak, red maple, and hickory forests are selected by Scarlet Tanagers. Although most common in extensive mature stands, tanagers will use any mature trees, such as in parks, cemeteries, and the shade trees that line residential streets. Scarlet Tanagers nest and feed in trees.

Specific habitats used:

Comments:

Predicted habitat quantities:

SCARLET TANAGER					Total in ha: 5,924,468
Habitat	**ha**	**Habitat**	**ha**	**Habitat**	**ha**
Agricultural lands		Light partial cut	84,155	Fresh emergent	*35,088*
Abandoned field	*8,333*	Heavy partial cut	*75,656*	Peatland	*15,872*
Blueberry field	*3,643*	Deciduous forest	1,141,697	Wet meadow	*6,966*
Grassland	*161,529*	Decid./Conif. forest	1,128,622	Salt aquatic bed	*2,546*
Crops/Ground	*27,411*	Conif./Decid. forest	1,533,952	Salt emergent	*894*
Developed lands		Coniferous forest	694,535	Mudflat	*1,134*
Sparse residential	41,747	**Wetlands**		Sand shore	*235*
Dense residential	26,421	Deciduous forested	57,738	Gravel shore	*514*
Urban/Industrial	*507*	Coniferous forested	327,411	Rock shore	*1,347*
Highways/Runways	*458*	Dead-forested	2,129	Shallow water	*7,303*
Forestlands		Decid. shrub-scrub	106,399	Open water	*52,414*
Clearcut	*51,582*	Conifer. shrub-scrub	12,025	**Other**	
Early regeneration	*167,764*	Dead shrub-scrub	70	Alpine tundra	*377*
Late regeneration	*145,172*	Fresh aquatic bed	*51*	Exposed rock/Talus	*770*

For definitions of field contents see the Introduction. Items in *italics* in the table of habitat quantities show habitats not used by the species, but included in the predicted distribution because of generalization (see the Introduction for details).

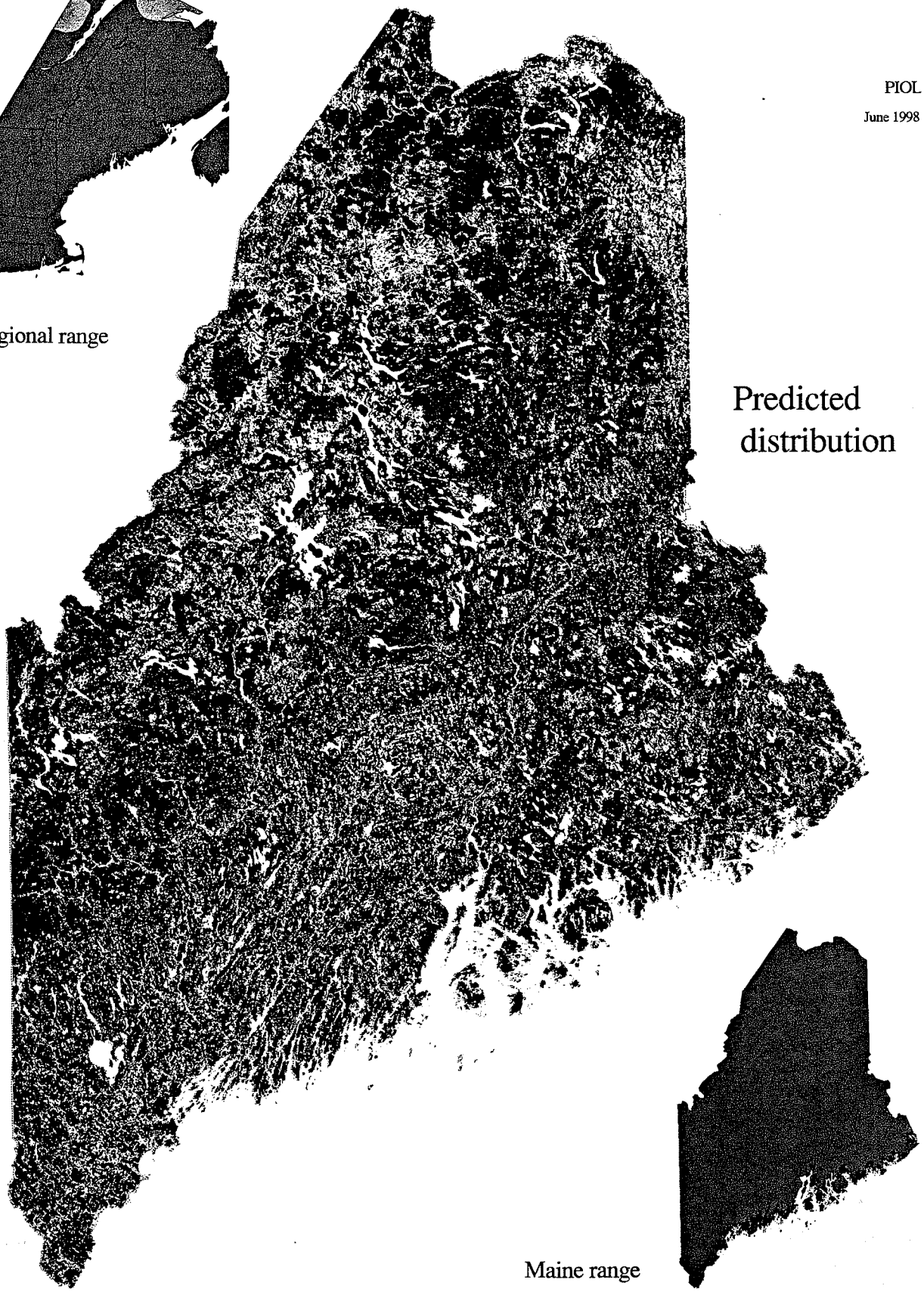
SCARLET TANAGER

PIOL

June 1998



Regional range



Predicted distribution

Maine range

NORTHERN CARDINAL (*Cardinalis cardinalis*)

Element code: BPBX6001 **ME-GAP code:** CACA

Order: Passeriformes **Family:** Cardinalidae

Breeding range change: Expanding **Listing status**: Not listed

Migratory status: Resident **Game species**: No

Population level: Uncommon **Population trend**: Moderate increase

Heritage ranks: G5 . . S4 **Knowledge**: Good

General habitats used: Northern Cardinals occur in brushy habitats associated with forest edges, open forests, brushy fields, harvested sites, and forested wetlands with brush or vines. Northern Cardinals also are adapted to urban settings (with winter feeding stations determining, in part, residence during the breeding season), and occur in gardens, parks, and residential areas. Cardinals nest in shrubs and forage along the ground.

Specific habitats used:

Comments: The northern spread of this species' range is probably associated with backyard bird feeders. In Maine, cardinals apparently become first established in towns and cities before pioneering into forestland habitats.

Predicted habitat quantities:

NORTHERN CARDINAL					Total in ha: 1,720,975
Habitat	**ha**	**Habitat**	**ha**	**Habitat**	**ha**
Agricultural lands		Light partial cut	23,683	Fresh emergent	*2,944*
Abandoned field	7,693	Heavy partial cut	26,209	Peatland	*910*
Blueberry field	*1,228*	Deciduous forest	339,885	Wet meadow	*488*
Grassland	*51,041*	Decid./Conif. forest	373,637	Salt aquatic bed	*757*
Crops/Ground	*5,005*	Conif./Decid. forest	436,086	Salt emergent	*407*
Developed lands		Coniferous forest	188,186	Mudflat	*497*
Sparse residential	25,763	**Wetlands**		Sand shore	*105*
Dense residential	21,805	Deciduous forested	33,910	Gravel shore	*12*
Urban/Industrial	*207*	Coniferous forested	45,716	Rock shore	*223*
Highways/Runways	*144*	Dead-forested	766	Shallow water	*606*
Forestlands		Decid. shrub-scrub	26,395	Open water	*4,511*
Clearcut	19,461	Conifer. shrub-scrub	2,635	**Other**	
Early regeneration	32,501	Dead shrub-scrub	34	Alpine tundra	*0*
Late regeneration	47,165	Fresh aquatic bed	*14*	Exposed rock/Talus	*347*

For definitions of field contents see the Introduction. Items in *italics* in the table of habitat quantities show habitats not used by the species, but included in the predicted distribution because of generalization (see the Introduction for details).

NORTHERN CARDINAL

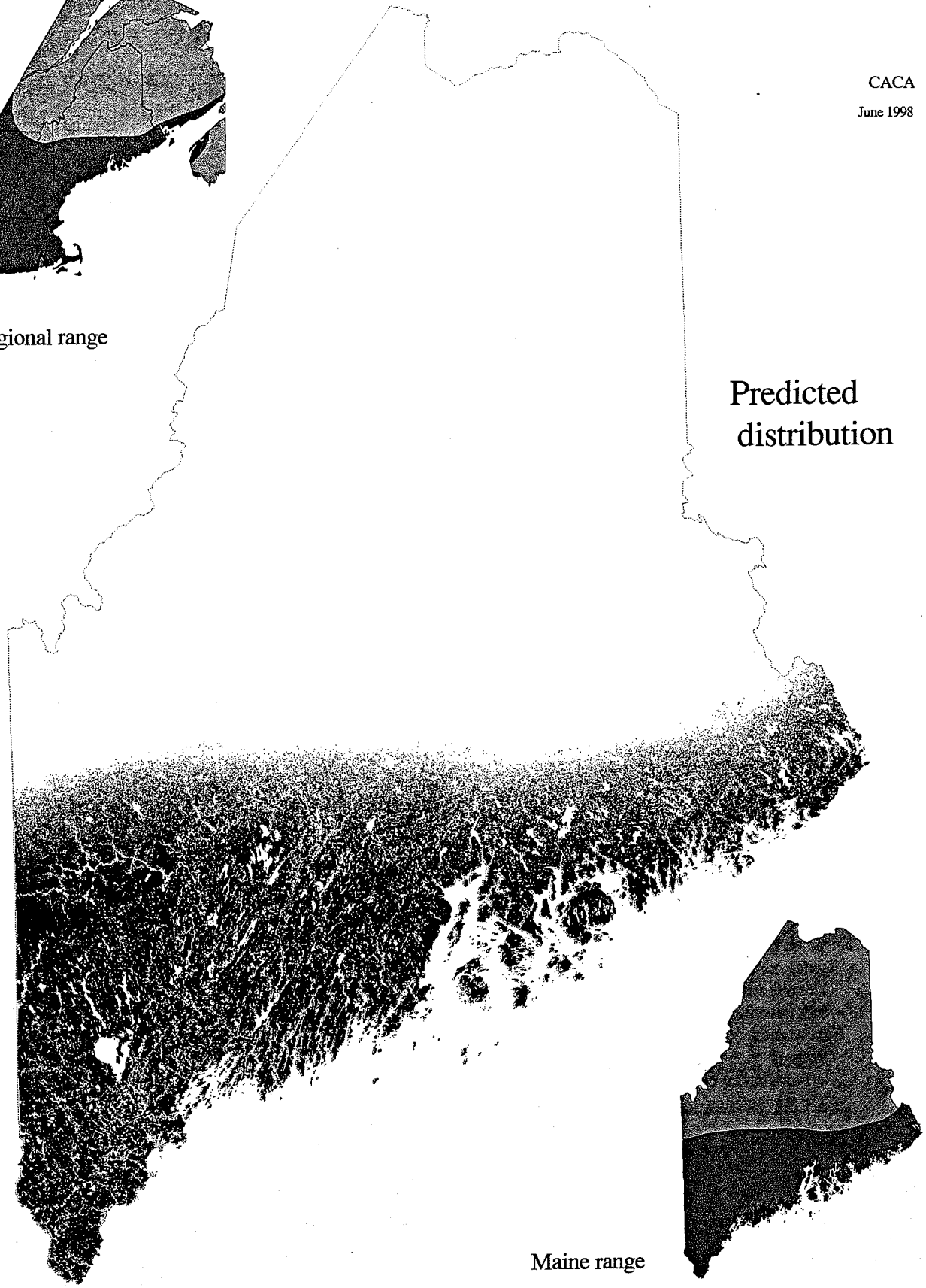
CACA

June 1998



Regional range

Predicted distribution



Maine range

ROSE-BREASTED GROSBEAK (*Pheucticus ludovicianus*)

Element code: BPBX6103

ME-GAP code: PHLU

Order: Passeriformes

Family: Cardinalidae

Breeding range change: Stable

Listing status: Not listed

Migratory status: Neotropical migrant

Game species: No

Population level: Common

Population trend: Moderate decrease, perhaps due to cutting

Heritage ranks: G5 . . S5B

Knowledge: Adequate

General habitats used: Rose-breasted Grosbeaks inhabit the edges and openings of mixed and deciduous forests. Mature forest interiors are avoided by this species. These grosbeaks occur along the edges of streams, ponds, and swamps, roadside thickets, clearcut edges, old orchards, parks, abandoned farmland, pastures with brushy edges, and residential areas. Rose-breasted Grosbeaks nest in shrubs, and forage along the ground and in shrubs.

Specific habitats used:

Comments:

Predicted habitat quantities:

ROSE-BREASTED GROSBEAK					Total in ha: 7,090,091
Habitat	ha	Habitat	ha	Habitat	ha
Agricultural lands		Light partial cut	106,884	Fresh emergent	*41,678*
Abandoned field	16,056	Heavy partial cut	143,697	Peatland	*18,132*
Blueberry field	*6,070*	Deciduous forest	1,232,989	Wet meadow	*8,290*
Grassland	*194,748*	Decid./Conif. forest	1,267,568	Salt aquatic bed	*2,785*
Crops/Ground	*35,642*	Conif./Decid. forest	1,685,143	Salt emergent	*985*
Developed lands		Coniferous forest	741,637	Mudflat	*1,268*
Sparse residential	48,538	**Wetlands**		Sand shore	*261*
Dense residential	*6,782*	Deciduous forested	63,412	Gravel shore	*627*
Urban/Industrial	*117*	Coniferous forested	363,553	Rock shore	*1,552*
Highways/Runways	*338*	Dead-forested	2,432	Shallow water	*8,375*
Forestlands		Decid. shrub-scrub	118,942	Open water	*57,996*
Clearcut	117,094	Conifer. shrub-scrub	13,350	**Other**	
Early regeneration	509,635	Dead shrub-scrub	86	Alpine tundra	*420*
Late regeneration	272,242	Fresh aquatic bed	*53*	Exposed rock/Talus	*715*

For definitions of field contents see the Introduction. Items in *italics* in the table of habitat quantities show habitats not used by the species, but included in the predicted distribution because of generalization (see the Introduction for details).

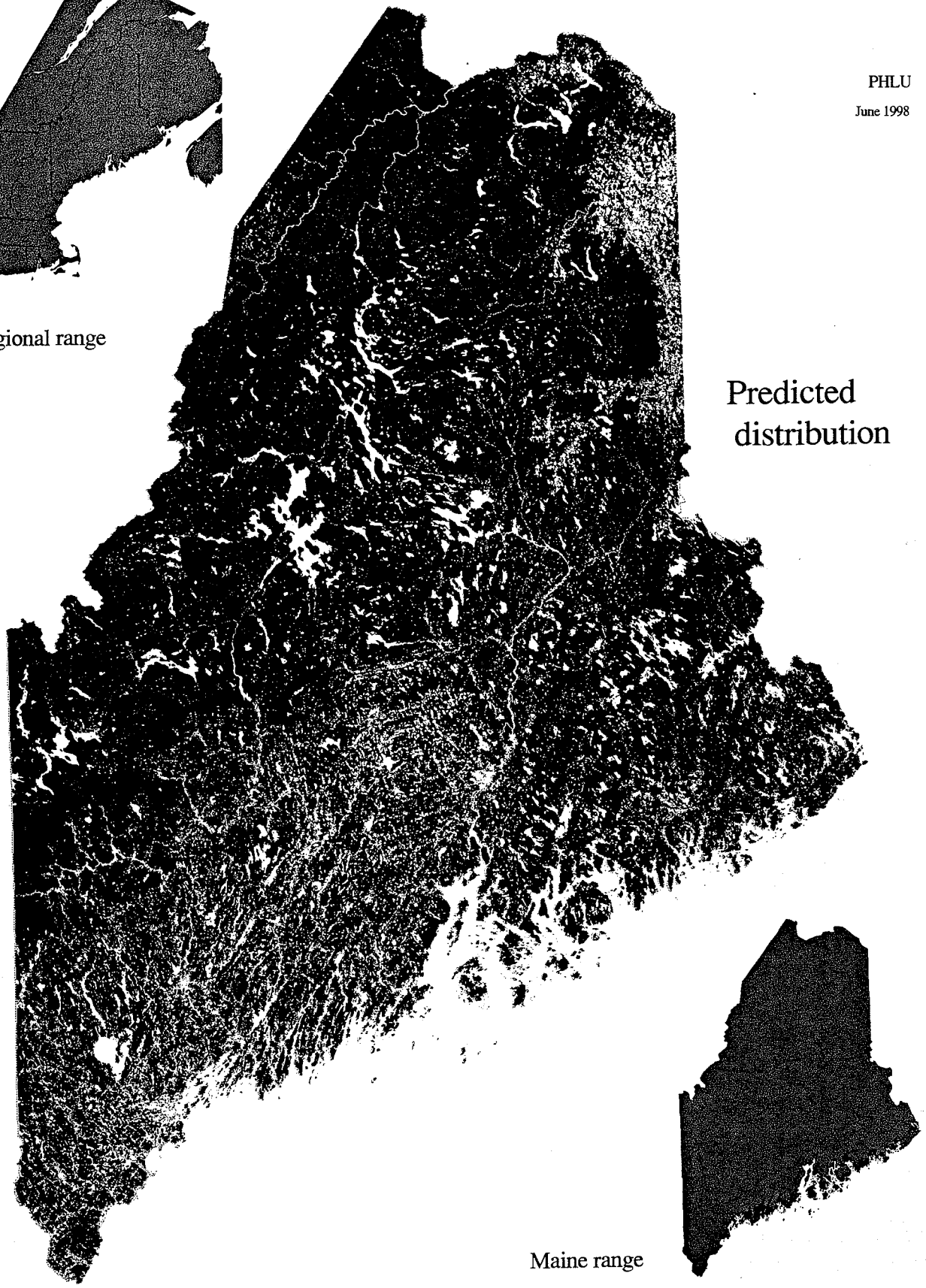
ROSE-BREASTED GROSBEAK

PHLU

June 1998



Regional range



Predicted distribution

Maine range

INDIGO BUNTING (*Passerina cyanea*)

Element code: BPBX6403 **ME-GAP code:** PACY

Order: Passeriformes **Family:** Cardinalidae

Breeding range change: Expanding **Listing status**: Not listed

Migratory status: Neotropical and US migrant **Game species**: No

Population level: Common **Population trend**: Stable

Heritage ranks: G5 . . S5B **Knowledge**: Adequate

General habitats used: Indigo Buntings inhabit shrubby areas, such as forested edges, thickets, roadside edges, active and abandoned farmland, utility corridors, and brushy margins of rivers, ponds, and lakes. Closed-canopy forests are avoided by these buntings. Scattered trees or utility wires are used as perches. Indigo Buntings have expanded their range in northern New England, apparently because of their use of clearcut and regenerating areas.

Specific habitats used:

Comments:

Predicted habitat quantities:

INDIGO BUNTING					Total in ha: 1,417,085
Habitat	ha	Habitat	ha	Habitat	ha
Agricultural lands		Light partial cut	50,093	Fresh emergent	42,154
Abandoned field	14,177	Heavy partial cut	71,780	Peatland	28,971
Blueberry field	11,383	Deciduous forest	*32,651*	Wet meadow	11,173
Grassland	360,133	Decid./Conif. forest	*58,604*	Salt aquatic bed	*620*
Crops/Ground	58,100	Conif./Decid. forest	*76,875*	Salt emergent	*304*
Developed lands		Coniferous forest	*19,864*	Mudflat	2,867
Sparse residential	49,534	**Wetlands**		Sand shore	619
Dense residential	*3,200*	Deciduous forested	*5,479*	Gravel shore	*41*
Urban/Industrial	*144*	Coniferous forested	*14,484*	Rock shore	*185*
Highways/Runways	514	Dead-forested	*165*	Shallow water	*1,341*
Forestlands		Decid. shrub-scrub	80,771	Open water	*5,583*
Clearcut	68,029	Conifer. shrub-scrub	9,007	**Other**	
Early regeneration	203,721	Dead shrub-scrub	72	Alpine tundra	*0*
Late regeneration	134,114	Fresh aquatic bed	*9*	Exposed rock/Talus	*326*

For definitions of field contents see the Introduction. Items in *italics* in the table of habitat quantities show habitats not used by the species, but included in the predicted distribution because of generalization (see the Introduction for details).

INDIGO BUNTING

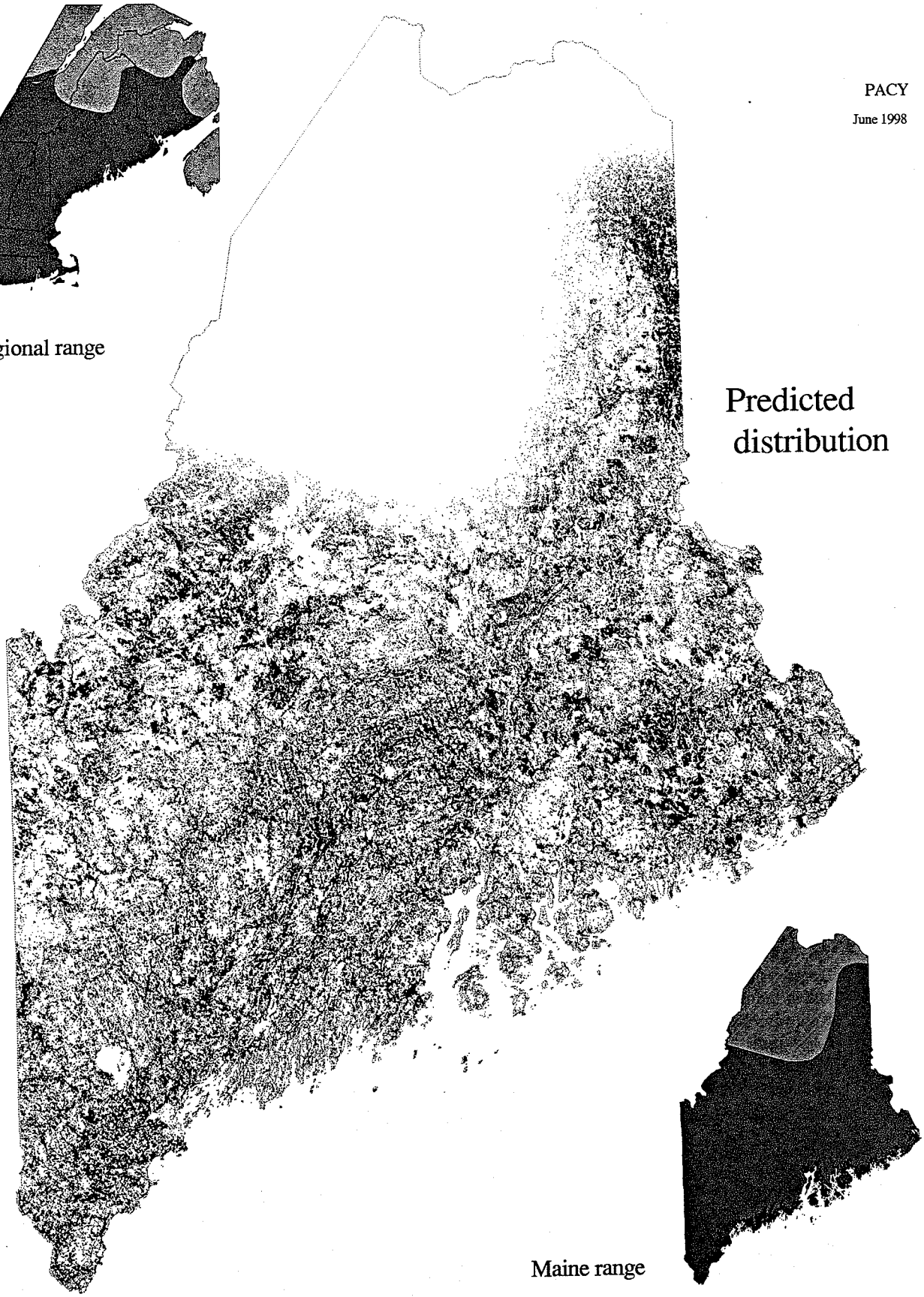
PACY

June 1998



Regional range

Predicted distribution



Maine range

EASTERN TOWHEE (*Pipilo erythrophthalmus*)

Element code: BPBX7403 **ME-GAP code:** PIER

Order: Passeriformes **Family:** Emberizidae

Breeding range change: Unknown **Listing status:** Not listed

Migratory status: US migrant **Game species:** No

Population level: Common **Population trend:** Gradual decline

Heritage ranks: G5 . . S4B **Knowledge:** Adequate

General habitats used: Eastern Towhees occur in dry, dense, brushy habitats, such as at forest edges, hedgerows, utility corridors, roadside shrubs, clearcuts, brushy hillsides, and overgrown pastures. Forests (mainly deciduous) with dense understories may by used by Eastern Towhees. Agricultural fields without brush are avoided by towhees. These birds nest in shrubs close to the ground, and forage in the duff on the ground.

Specific habitats used:

Comments: Eastern Towhee population declines are likely due to southern Maine and southern New England brushland habitats reverting to forests. This species is also known as the Rufous Sided Towhee.

Predicted habitat quantities:

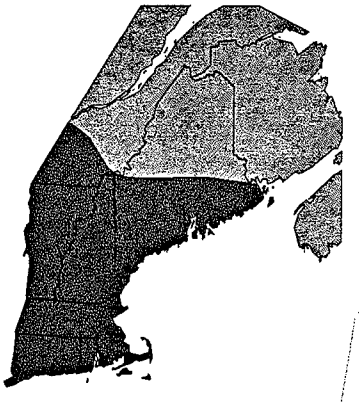
EASTERN TOWHEE					Total in ha: 2,407,297
Habitat	**ha**	**Habitat**	**ha**	**Habitat**	**ha**
Agricultural lands		Light partial cut	40,910	Fresh emergent	*4,039*
Abandoned field	11,244	Heavy partial cut	52,478	Peatland	*722*
Blueberry field	9,650	Deciduous forest	500,676	Wet meadow	*714*
Grassland	327,852	Decid./Conif. forest	517,972	Salt aquatic bed	*704*
Crops/Ground	*10,398*	Conif./Decid. forest	610,039	Salt emergent	*521*
Developed lands		Coniferous forest	*55,810*	Mudflat	*580*
Sparse residential	37,262	**Wetlands**		Sand shore	*96*
Dense residential	*3,585*	Deciduous forested	*8,137*	Gravel shore	*30*
Urban/Industrial	*140*	Coniferous forested	*11,406*	Rock shore	*197*
Highways/Runways	*184*	Dead-forested	*184*	Shallow water	*740*
Forestlands		Decid. shrub-scrub	*6,811*	Open water	*5,084*
Clearcut	35,680	Conifer. shrub-scrub	*750*	**Other**	
Early regeneration	71,628	Dead shrub-scrub	*25*	Alpine tundra	*0*
Late regeneration	80,624	Fresh aquatic bed	*15*	Exposed rock/Talus	*409*

For definitions of field contents see the Introduction. Items in *italics* in the table of habitat quantities show habitats not used by the species, but included in the predicted distribution because of generalization (see the Introduction for details).

EASTERN TOWHEE

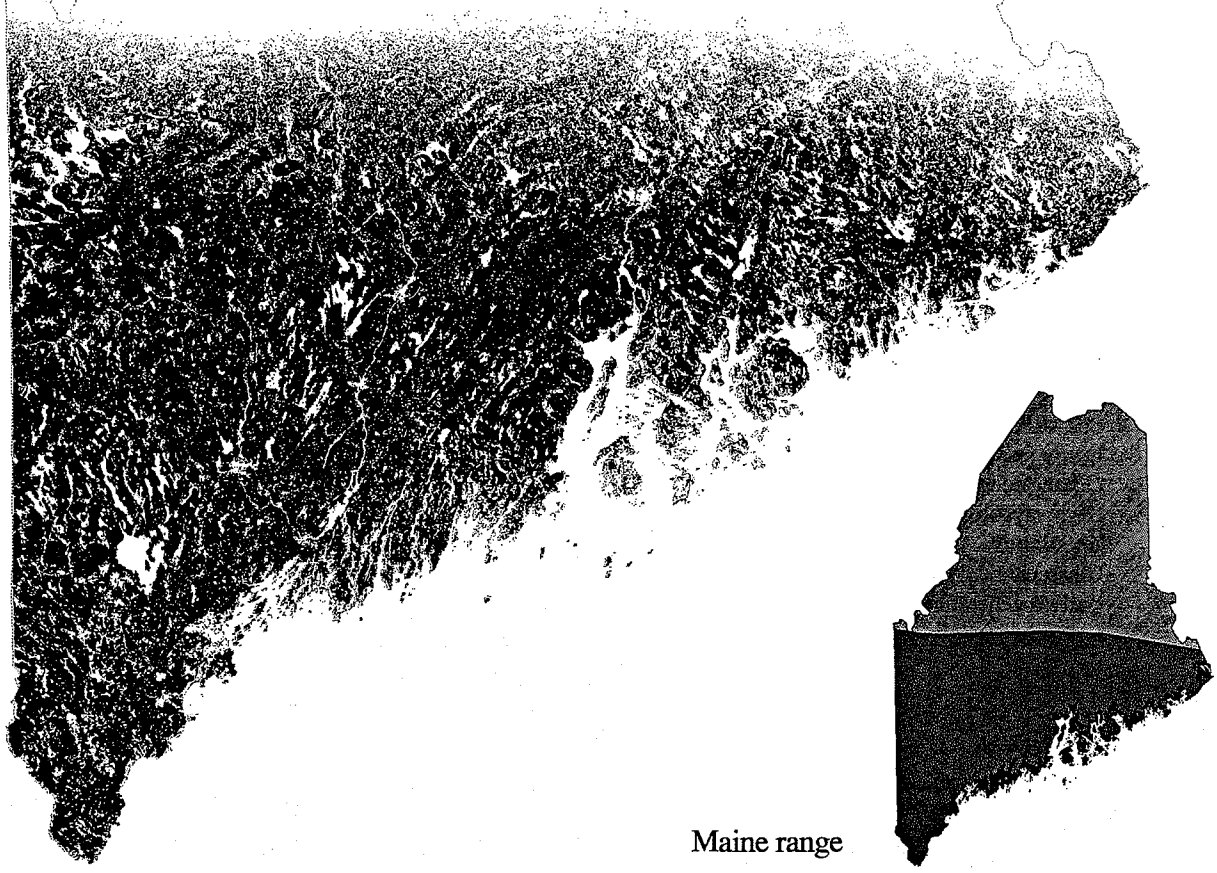
PIER

June 1998



Regional range

Predicted distribution



Maine range

CHIPPING SPARROW (*Spizella passerina*)

Element code: BPBX9402 **ME-GAP code:** SPPA

Order: Passeriformes **Family:** Emberizidae

Breeding range change: Stable **Listing status**: Not listed

Migratory status: US migrant **Game species**: No

Population level: Common **Population trend**: Stable

Heritage ranks: G5 . . S3N,S5B **Knowledge**: Good

General habitats used: Chipping Sparrows are most common in residential areas, selecting places with wide lawns, shrubs, and scattered trees, such as parks, gardens, cemeteries, lawns, and golf courses. Chipping Sparrows also use non-urban habitats that are open with brush and trees, such as forest clearings and edges, open forests, the margins of streams and ponds, clearcuts, and regenerating areas. These sparrows nest in shrubs and are ground-gleaners, feeding on weed seeds.

Specific habitats used:

Comments:

Predicted habitat quantities:

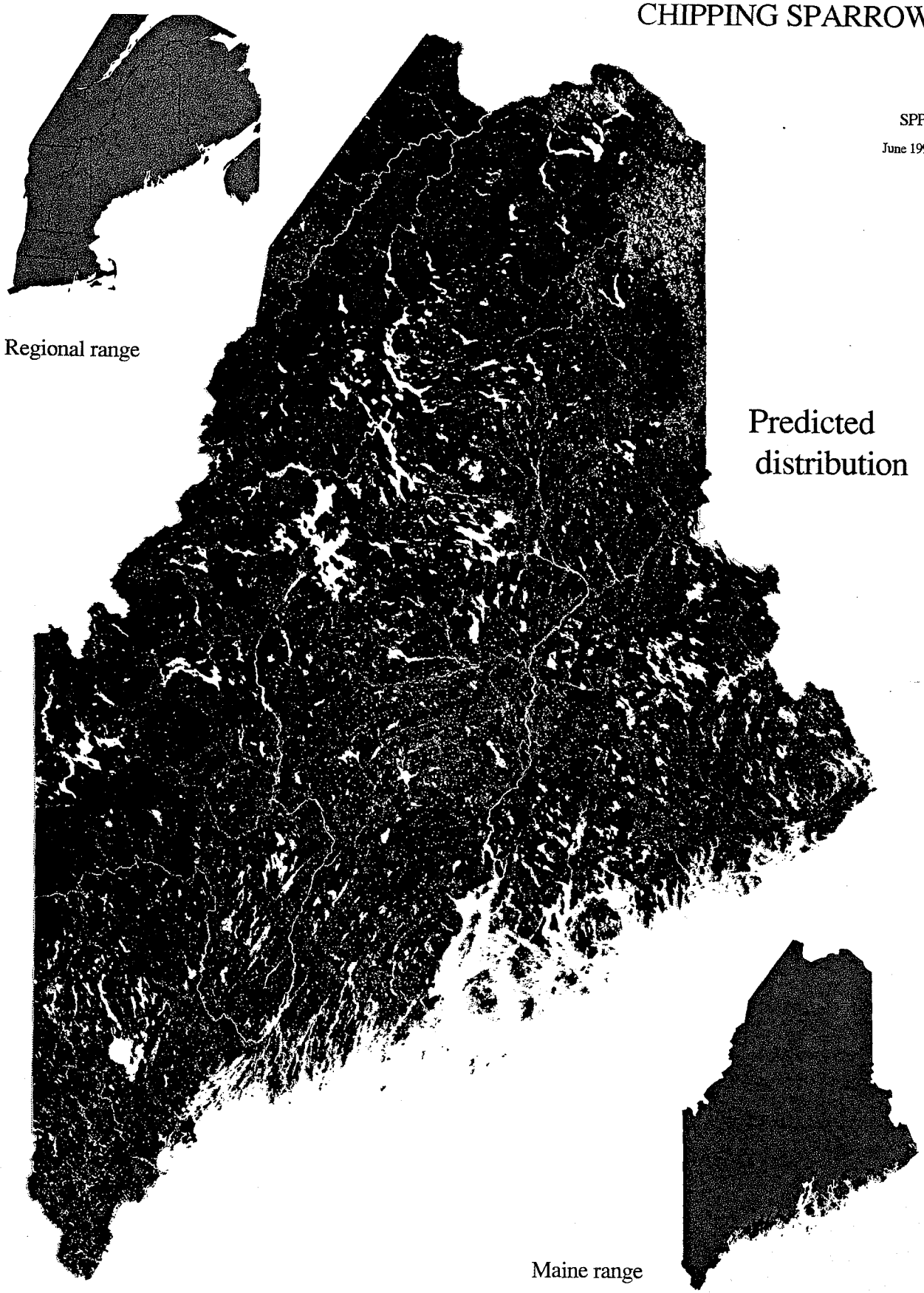
CHIPPING SPARROW					**Total in ha:** 7,558,368
Habitat	**ha**	**Habitat**	**ha**	**Habitat**	**ha**
Agricultural lands		Light partial cut	110,437	Fresh emergent	*43,597*
Abandoned field	18,221	Heavy partial cut	146,906	Peatland	43,866
Blueberry field	12,363	Deciduous forest	1,261,226	Wet meadow	13,722
Grassland	430,273	Decid./Conif. forest	1,305,798	Salt aquatic bed	*3,315*
Crops/Ground	*55,080*	Conif./Decid. forest	1,712,475	Salt emergent	*1,250*
Developed lands		Coniferous forest	754,309	Mudflat	2,311
Sparse residential	60,722	**Wetlands**		Sand shore	453
Dense residential	31,678	Deciduous forested	*43,554*	Gravel shore	*663*
Urban/Industrial	*749*	Coniferous forested	367,934	Rock shore	*1,668*
Highways/Runways	675	Dead-forested	*1,833*	Shallow water	*9,249*
Forestlands		Decid. shrub-scrub	122,717	Open water	*62,394*
Clearcut	119,981	Conifer. shrub-scrub	13,985	**Other**	
Early regeneration	521,036	Dead shrub-scrub	109	Alpine tundra	*436*
Late regeneration	281,994	Fresh aquatic bed	*67*	Exposed rock/Talus	*1,322*

For definitions of field contents see the Introduction. Items in *italics* in the table of habitat quantities show habitats not used by the species, but included in the predicted distribution because of generalization (see the Introduction for details).

CHIPPING SPARROW

SPPA

June 1998



FIELD SPARROW (*Spizella pusilla*)

Element code: BPBX9405

ME-GAP code: SPPU

Order: Passeriformes

Family: Emberizidae

Breeding range change: Unknown

Listing status: Not listed

Migratory status: US migrant

Game species: No

Population level: Uncommon

Population trend: Moderate decline, maybe farmland loss

Heritage ranks: G5 . . S3S4B

Knowledge: Adequate

General habitats used: Field Sparrows inhabit shrubby areas, avoiding both closed forests and open areas, such as meadows, urban sites, and plowed fields. Larger grassy sites with interspersed shrubs are selected. These sparrows will use abandoned farmland, forest edges, clearcuts, and weedy fields with scattered brush. Field Sparrows will nest on the ground or low in shrubs, and are ground gleaners.

Specific habitats used:

Comments:

Predicted habitat quantities:

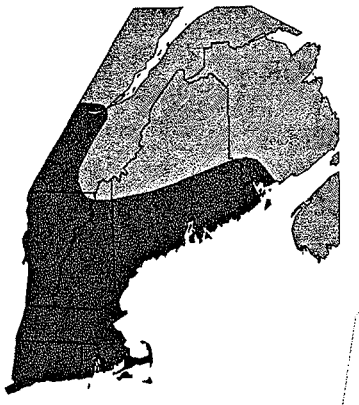
FIELD SPARROW					Total in ha:	654,747
Habitat	ha	Habitat	ha	Habitat		ha
Agricultural lands		Light partial cut	*3,723*	Fresh emergent		*1,798*
Abandoned field	11,867	Heavy partial cut	30,991	Peatland		*399*
Blueberry field	*1,356*	Deciduous forest	*16,561*	Wet meadow		*323*
Grassland	281,483	Decid./Conif. forest	*26,817*	Salt aquatic bed		*522*
Crops/Ground	*6,253*	Conif./Decid. forest	*37,121*	Salt emergent		*284*
Developed lands		Coniferous forest	*7,724*	Mudflat		2,811
Sparse residential	36,013	**Wetlands**		Sand shore		597
Dense residential	*2,428*	Deciduous forested	*2,270*	Gravel shore		*16*
Urban/Industrial	*137*	Coniferous forested	*3,342*	Rock shore		*139*
Highways/Runways	*135*	Dead-forested	*42*	Shallow water		*333*
Forestlands		Decid. shrub-scrub	*3,046*	Open water		*1,568*
Clearcut	36,019	Conifer. shrub-scrub	*414*	**Other**		
Early regeneration	71,036	Dead shrub-scrub	*19*	Alpine tundra		*0*
Late regeneration	66,877	Fresh aquatic bed	*2*	Exposed rock/Talus		*283*

For definitions of field contents see the Introduction. Items in *italics* in the table of habitat quantities show habitats not used by the species, but included in the predicted distribution because of generalization (see the Introduction for details).

FIELD SPARROW

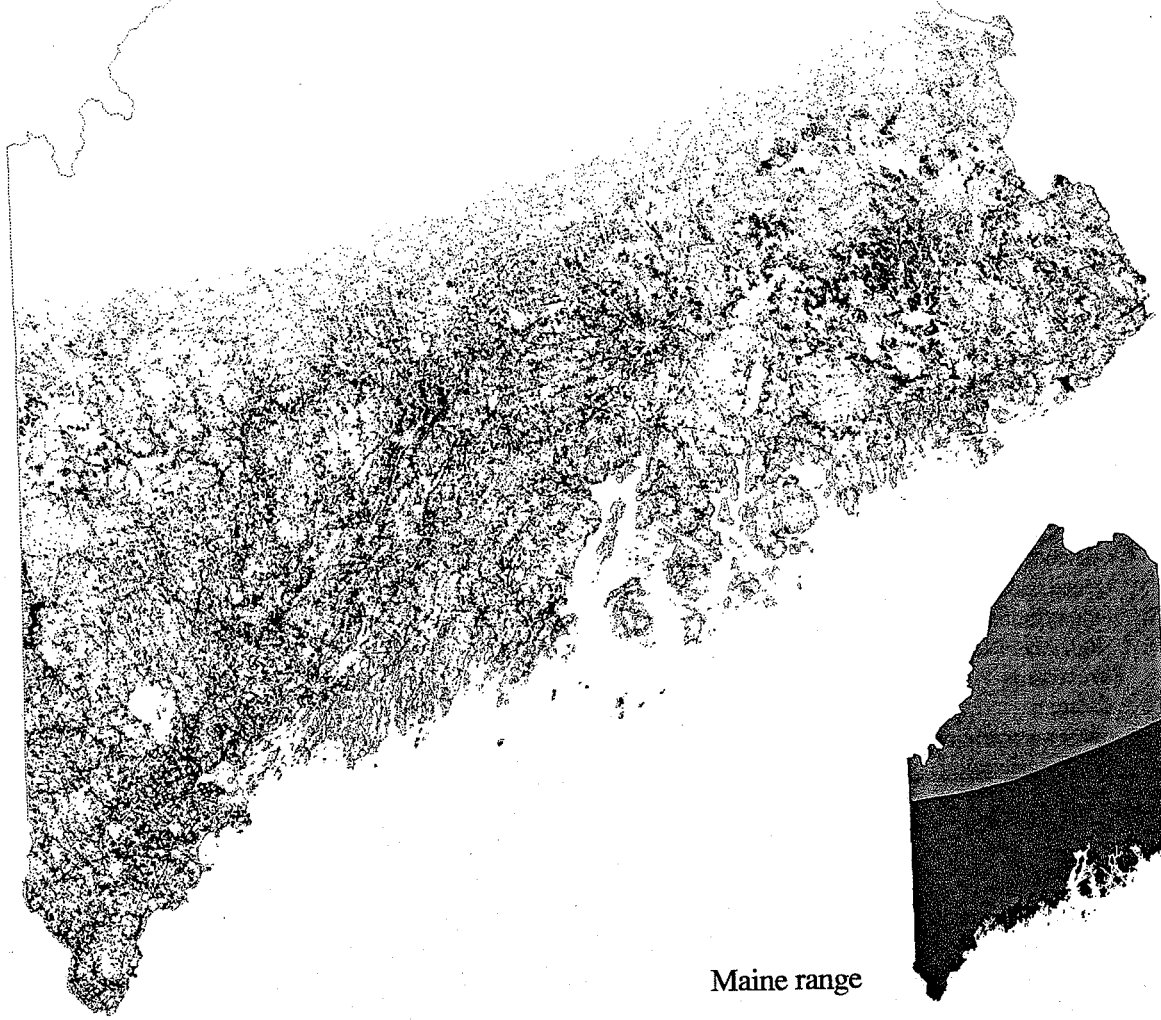
SPPU

June 1998



Regional range

Predicted distribution





Maine range

VESPER SPARROW (*Pooecetes gramineus*)

Element code: BPBX9501

ME-GAP code: POGR

Order: Passeriformes

Family: Emberizidae

Breeding range change: Unknown

Listing status: Not listed

Migratory status: US migrant

Game species: No

Population level: Uncommon

Population trend: Stable

Heritage ranks: G5 . . S3S4B

Knowledge: Adequate

General habitats used: Vesper Sparrows occur in areas with short grass and scattered shrubs, such as meadows, roadsides, old pastures, burns, grain fields, blueberry fields, hayfields, cornfields, and clearcuts. Vesper Sparrows use the scattered trees and shrubs in these sites as perches. Vesper Sparrows are more common in larger than smaller fields. These sparrows are ground nesters, placing nests near grass tussocks. Farm loss has reduced habitat for Vesper Sparrows, and methods of farming used today cut fields too often to allow high production by Vesper Sparrows.

Specific habitats used:

Comments:

Predicted habitat quantities:

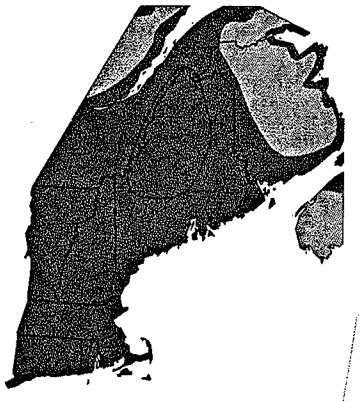
VESPER SPARROW					Total in ha:	678,607
Habitat	**ha**	**Habitat**	**ha**	**Habitat**		**ha**
Agricultural lands		Light partial cut	*1,826*	Fresh emergent		*2,083*
Abandoned field	9,523	Heavy partial cut	*2,139*	Peatland		*1,818*
Blueberry field	10,137	Deciduous forest	*10,096*	Wet meadow		*476*
Grassland	289,223	Decid./Conif. forest	*21,561*	Salt aquatic bed		*266*
Crops/Ground	71,179	Conif./Decid. forest	*26,291*	Salt emergent		*197*
Developed lands		Coniferous forest	*8,985*	Mudflat		*178*
Sparse residential	*7,198*	**Wetlands**		Sand shore		*46*
Dense residential	*2,108*	Deciduous forested	34,898	Gravel shore		*5*
Urban/Industrial	*113*	Coniferous forested	125,607	Rock shore		*97*
Highways/Runways	229	Dead-forested	1,207	Shallow water		*417*
Forestlands		Decid. shrub-scrub	*4,422*	Open water		*1,627*
Clearcut	31,272	Conifer. shrub-scrub	*529*	**Other**		
Early regeneration	*8,282*	Dead shrub-scrub	*15*	Alpine tundra		*0*
Late regeneration	*4,299*	Fresh aquatic bed	*4*	Exposed rock/Talus		*253*

For definitions of field contents see the Introduction. Items in *italics* in the table of habitat quantities show habitats not used by the species, but included in the predicted distribution because of generalization (see the Introduction for details).

VESPER SPARROW

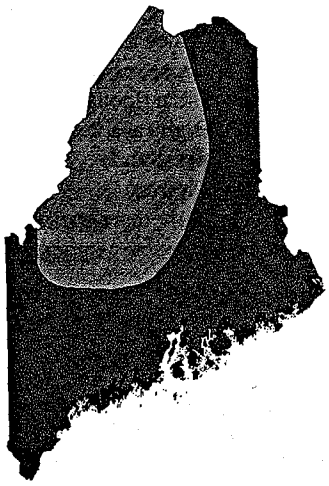
POGR

June 1998



Regional range

Predicted distribution



Maine range

SAVANNAH SPARROW (*Passerculus sandwichensis*)

Element code: BPBX9901 **ME-GAP code:** PASA

Order: Passeriformes **Family:** Emberizidae

Breeding range change: Stable **Listing status:** Not listed

Migratory status: US and Neotropical migrant **Game species:** No

Population level: Uncommon **Population trend:** Stable

Heritage ranks: G5 . . S4S5N **Knowledge:** Adequate

General habitats used: Savannah Sparrows inhabit areas with moderately short grasses, being more common in larger fields than small. Sites may be dry or moist sites may be occupied. These sparrows may be found in meadows, bogs, salt marshes and grassy offshore islands, grasslands, cultivated fields, pastures, and hayfields. Areas with dense clumps of grasses are selected for nesting, with these tufts used for cover.

Specific habitats used:

Comments:

Predicted habitat quantities:

SAVANNAH SPARROW					Total in ha:	791,308
Habitat	**ha**	**Habitat**	**ha**	**Habitat**		**ha**
Agricultural lands		Light partial cut	*5,898*	Fresh emergent		25,868
Abandoned field	7,511	Heavy partial cut	*8,960*	Peatland		27,142
Blueberry field	*1,856*	Deciduous forest	*41,963*	Wet meadow		6,745
Grassland	258,406	Decid./Conif. forest	*66,604*	Salt aquatic bed		*507*
Crops/Ground	70,272	Conif./Decid. forest	*77,434*	Salt emergent		434
Developed lands		Coniferous forest	*27,025*	Mudflat		*419*
Sparse residential	*15,719*	**Wetlands**		Sand shore		*95*
Dense residential	*5,211*	Deciduous forested	*7,182*	Gravel shore		*155*
Urban/Industrial	*241*	Coniferous forested	*21,931*	Rock shore		*186*
Highways/Runways	219	Dead-forested	*242*	Shallow water		*1,649*
Forestlands		Decid. shrub-scrub	*14,131*	Open water		*9,091*
Clearcut	45,503	Conifer. shrub-scrub	*1,742*	**Other**		
Early regeneration	*27,211*	Dead shrub-scrub	*23*	Alpine tundra		*16*
Late regeneration	*13,253*	Fresh aquatic bed	*23*	Exposed rock/Talus		*441*

For definitions of field contents see the Introduction. Items in *italics* in the table of habitat quantities show habitats not used by the species, but included in the predicted distribution because of generalization (see the Introduction for details).

SAVANNAH SPARROW

PASA

June 1998



Regional range

Predicted distribution



Maine range

GRASSHOPPER SPARROW (*Ammodramus savannarum*)

Element code: BPBXA002 **ME-GAP code:** AMSA

Order: Passeriformes **Family:** Emberizidae

Breeding range change: Expanding **Listing status:** Endangered (S)

Migratory status: US and Neotropical migrant **Game species:** No

Population level: Rare **Population trend:** Stable, but difficult to survey

Heritage ranks: G5 . . S1B **Knowledge:** Good

General habitats used: Grasshopper Sparrows inhabit grassy areas interspersed with patches of bare ground and less than 35% covered by shrubs. These sparrows are most common in large cultivated fields of orchard grass, and other bunch-forming grasses, especially if forbs are present. The species also will inhabit alfalfa, clovers, hayfields, pastures, and in Maine, blueberry barrens. Grasshopper Sparrows nest in grasses (with mowing reducing breeding densities) and forage in grasses or on open ground.

Specific habitats used: Grasshopper Sparrows require tall singing perches at breeding sites.

Comments:

Predicted habitat quantities:

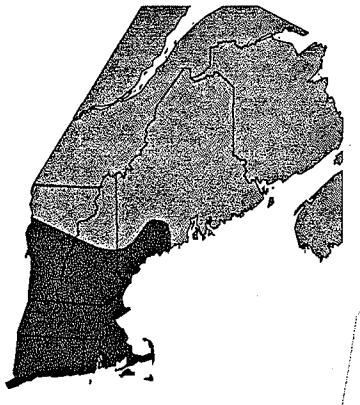
GRASSHOPPER SPARROW				Total in ha:	123,272
Habitat	**ha**	**Habitat**	**ha**	**Habitat**	**ha**
Agricultural lands		Light partial cut	*386*	Fresh emergent	*355*
Abandoned field	*75*	Heavy partial cut	*170*	Peatland	*15*
Blueberry field	505	Deciduous forest	*2,138*	Wet meadow	*29*
Grassland	95,940	Decid./Conif. forest	*6,444*	Salt aquatic bed	*49*
Crops/Ground	5,502	Conif./Decid. forest	*4,079*	Salt emergent	*94*
Developed lands		Coniferous forest	*1,090*	Mudflat	*55*
Sparse residential	*1,560*	**Wetlands**		Sand shore	*27*
Dense residential	*998*	Deciduous forested	*614*	Gravel shore	*0*
Urban/Industrial	*106*	Coniferous forested	*249*	Rock shore	*21*
Highways/Runways	20	Dead-forested	*3*	Shallow water	*104*
Forestlands		Decid. shrub-scrub	*471*	Open water	*304*
Clearcut	*586*	Conifer. shrub-scrub	*90*	**Other**	
Early regeneration	*448*	Dead shrub-scrub	*1*	Alpine tundra	*0*
Late regeneration	*561*	Fresh aquatic bed	*2*	Exposed rock/Talus	*178*

For definitions of field contents see the Introduction. Items in *italics* in the table of habitat quantities show habitats not used by the species, but included in the predicted distribution because of generalization (see the Introduction for details).

GRASSHOPPER SPARROW

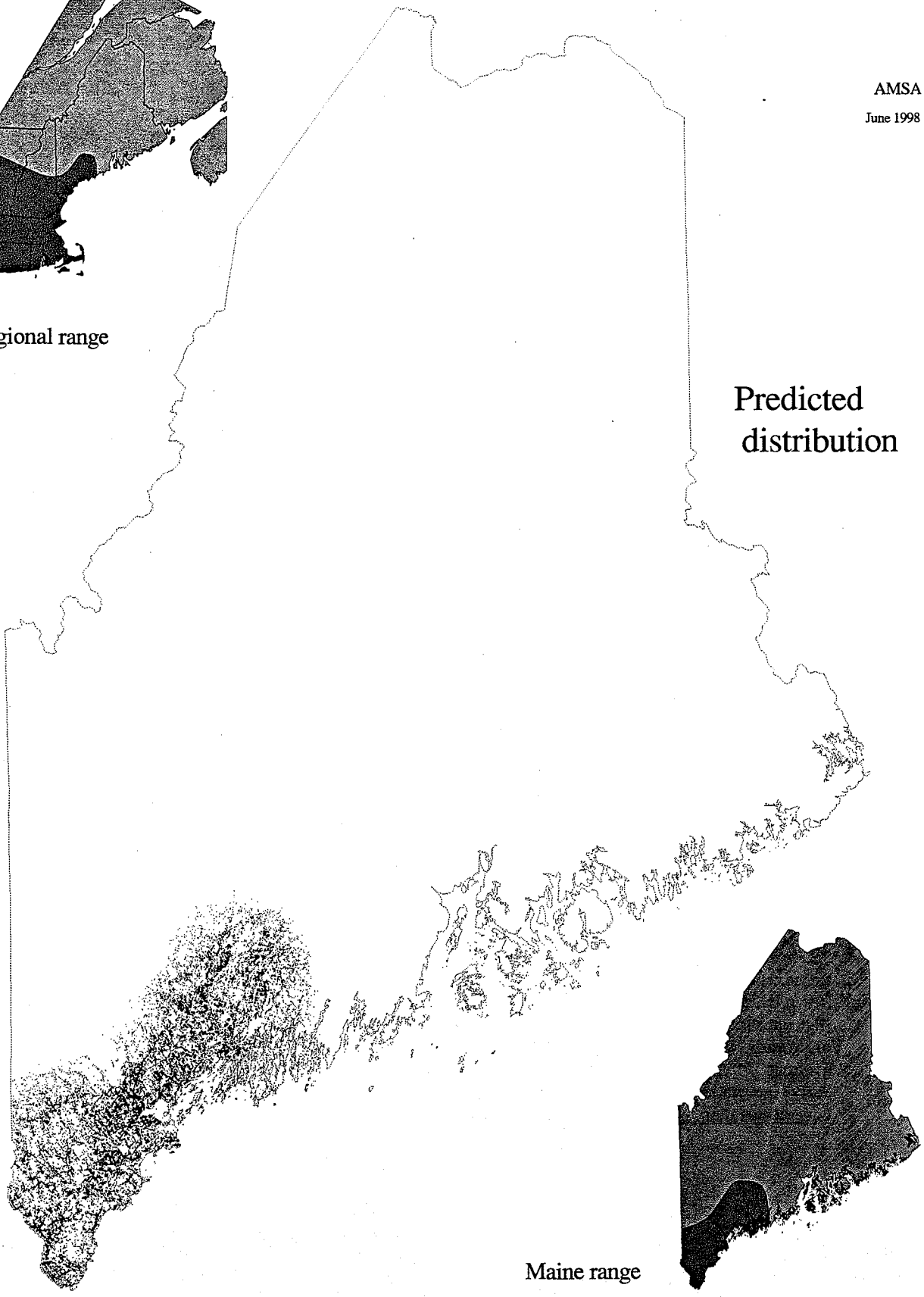
AMSA

June 1998



Regional range

Predicted distribution



Maine range

SALTMARSH SHARP-TAILED SPARROW (*Ammodramus caudacutus*)

Element code: BPBXA005

ME-GAP code: AMCA

Order: Passeriformes

Family: Emberizidae

Breeding range change: Stable

Listing status: Not listed

Migratory status: US migrant

Game species: No

Population level: Uncommon

Population trend: Stable, but not well surveyed

Heritage ranks: G4 . . S3B

Knowledge: Good

General habitats used: Saltmarsh Sharp-tailed Sparrows inhabit brackish and saltwater marshes, and wet meadows. Occupied marshes are most commonly along the coast, but also may be along major rivers. Saltmarsh Sharp-tailed Sparrows construct nests in wetland vegetation (e.g., sedges) sometimes suspended over water.

Specific habitats used:

Comments:

Predicted habitat quantities:

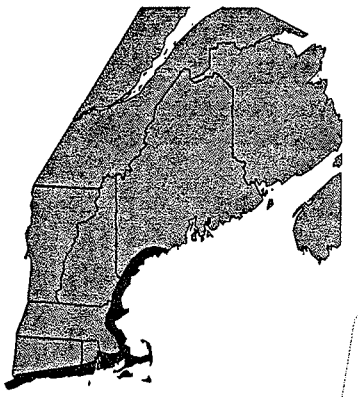
SALTMARSH SHARP-TAILED SPARROW					Total in ha:	4,030
Habitat	**ha**	**Habitat**	**ha**	**Habitat**		**ha**
Agricultural lands		Light partial cut	*4*	Fresh emergent		729
Abandoned field	*0*	Heavy partial cut	*1*	Peatland		*1*
Blueberry field	*0*	Deciduous forest	*1*	Wet meadow		81
Grassland	*151*	Decid./Conif. forest	*66*	Salt aquatic bed		*3*
Crops/Ground	*2*	Conif./Decid. forest	*79*	Salt emergent		2,516
Developed lands		Coniferous forest	*35*	Mudflat		*123*
Sparse residential	*43*	**Wetlands**		Sand shore		*3*
Dense residential	*17*	Deciduous forested	*32*	Gravel shore		*0*
Urban/Industrial	*1*	Coniferous forested	*11*	Rock shore		*0*
Highways/Runways	*0*	Dead-forested	*0*	Shallow water		*3*
Forestlands		Decid. shrub-scrub	*20*	Open water		*78*
Clearcut	*11*	Conifer. shrub-scrub	*0*	**Other**		
Early regeneration	*14*	Dead shrub-scrub	*0*	Alpine tundra		*0*
Late regeneration	*2*	Fresh aquatic bed	*0*	Exposed rock/Talus		*3*

For definitions of field contents see the Introduction. Items in *italics* in the table of habitat quantities show habitats not used by the species, but included in the predicted distribution because of generalization (see the Introduction for details).

SALTMARSH SHARP-TAILED SPARROW

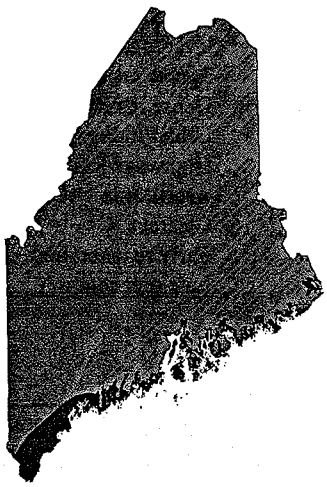
AMCA

June 1998



Regional range

Predicted distribution



Maine range

NELSON'S SHARP-TAILED SPARROW (*Ammodramus nelsoni*)

Element code: BPBXA007

ME-GAP code: AMNE

Order: Passeriformes

Family: Emberizidae

Breeding range change: Stable

Listing status: Not listed

Migratory status: US migrant

Game species: No

Population level: Uncommon

Population trend: Stable, but not well surveyed

Heritage ranks: G5 . . S3S4B

Knowledge: Good

General habitats used: Nelson's Sharp-tailed Sparrows inhabit brackish and saltwater marshes, and wet meadows. Occupied marshes are most commonly along the coast, but also may be along major rivers. Sharp-tailed Sparrows construct nests in wetland vegetation (e.g., sedges) sometimes suspended over water.

Specific habitats used:

Comments: This species was recently split taxonomically from the Saltmarsh Sharp-tailed Sparrow into its own species.

Predicted habitat quantities:

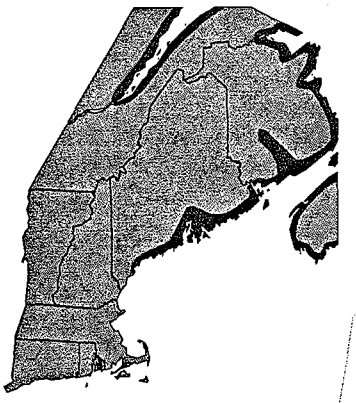
NELSON'S SHARP-TAILED SPARROW				Total in ha:	8,592
Habitat	**ha**	**Habitat**	**ha**	**Habitat**	**ha**
Agricultural lands		Light partial cut	*6*	Fresh emergent	3,208
Abandoned field	*32*	Heavy partial cut	*15*	Peatland	*18*
Blueberry field	*47*	Deciduous forest	*23*	Wet meadow	532
Grassland	*168*	Decid./Conif. forest	*108*	Salt aquatic bed	*11*
Crops/Ground	*20*	Conif./Decid. forest	*425*	Salt emergent	3,013
Developed lands		Coniferous forest	*207*	Mudflat	*143*
Sparse residential	*38*	**Wetlands**		Sand shore	*12*
Dense residential	*9*	Deciduous forested	*45*	Gravel shore	*0*
Urban/Industrial	*0*	Coniferous forested	*61*	Rock shore	*6*
Highways/Runways	*0*	Dead-forested	*1*	Shallow water	*23*
Forestlands		Decid. shrub-scrub	*115*	Open water	*148*
Clearcut	*43*	Conifer. shrub-scrub	*6*	**Other**	
Early regeneration	*66*	Dead shrub-scrub	*0*	Alpine tundra	*0*
Late regeneration	*40*	Fresh aquatic bed	*2*	Exposed rock/Talus	*2*

For definitions of field contents see the Introduction. Items in *italics* in the table of habitat quantities show habitats not used by the species, but included in the predicted distribution because of generalization (see the Introduction for details).

NELSON'S SHARP-TAILED SPARROW

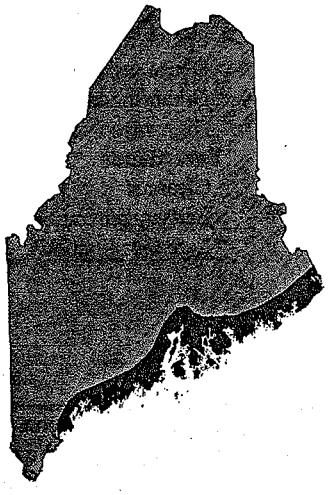
AMNE

June 1998



Regional range

Predicted distribution



Maine range

FOX SPARROW (*Passerella iliaca*)

Element code: BPBXA201 **ME-GAP code:** PAIL

Order: Passeriformes **Family:** Emberizidae

Breeding range change: Expanding **Listing status**: Not listed

Migratory status: US migrant **Game species**: No

Population level: Uncommon **Population trend**: Unknown

Heritage ranks: G5 . . S2B,S2N? **Knowledge**: Best guess

General habitats used: Fox Sparrows are most common in thickets of dense, damp deciduous shrubs, such as alders and willows. Young coniferous stands also may be used, such as regenerating harvested areas and krumholtz sites. Forest edges, openings, the margins of streams and ponds, and clearcuts are used by Fox Sparrows. Fox Sparrows typically nest on the ground, and will nest in trees early in the breeding season.

Specific habitats used:

Comments:

Predicted habitat quantities:

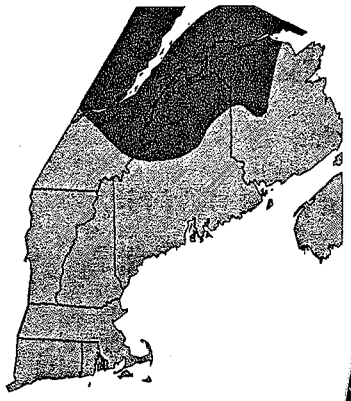
FOX SPARROW					Total in ha: 1,998,822
Habitat	**ha**	**Habitat**	**ha**	**Habitat**	**ha**
Agricultural lands		Light partial cut	30,262	Fresh emergent	*3,716*
Abandoned field	248	Heavy partial cut	43,171	Peatland	*1,968*
Blueberry field	*0*	Deciduous forest	310,238	Wet meadow	*603*
Grassland	*4,836*	Decid./Conif. forest	413,941	Salt aquatic bed	*110*
Crops/Ground	*3,384*	Conif./Decid. forest	405,433	Salt emergent	*0*
Developed lands		Coniferous forest	227,378	Mudflat	*2*
Sparse residential	1,593	**Wetlands**		Sand shore	*0*
Dense residential	*84*	Deciduous forested	6,386	Gravel shore	*164*
Urban/Industrial	*0*	Coniferous forested	113,046	Rock shore	*212*
Highways/Runways	*0*	Dead-forested	484	Shallow water	*818*
Forestlands		Decid. shrub-scrub	28,563	Open water	*3,929*
Clearcut	35,131	Conifer. shrub-scrub	2,937	**Other**	
Early regeneration	268,176	Dead shrub-scrub	7	Alpine tundra	*73*
Late regeneration	91,876	Fresh aquatic bed	*0*	Exposed rock/Talus	*51*

For definitions of field contents see the Introduction. Items in *italics* in the table of habitat quantities show habitats not used by the species, but included in the predicted distribution because of generalization (see the Introduction for details).

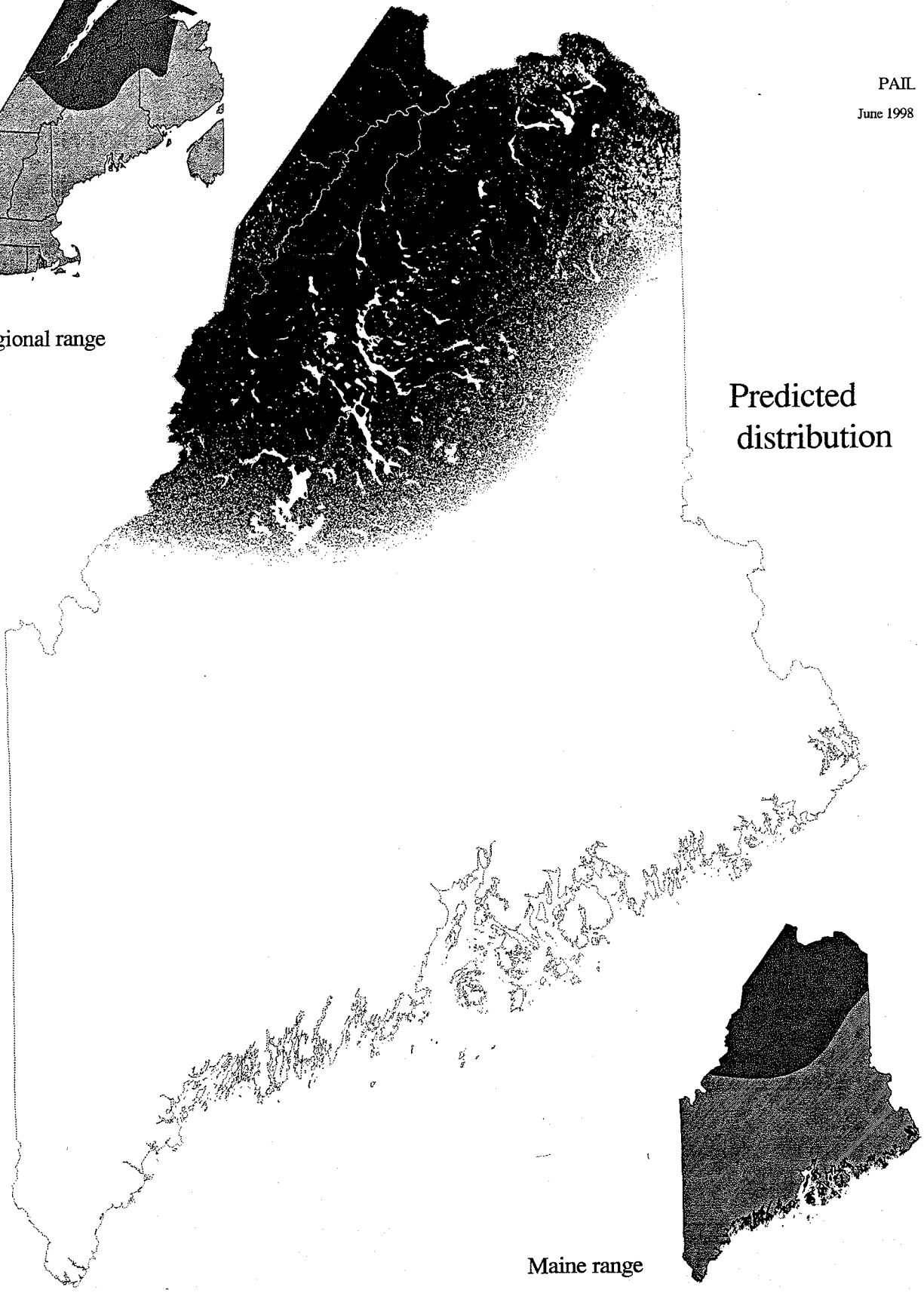
FOX SPARROW

PAIL

June 1998



Regional range



Predicted distribution

Maine range

SONG SPARROW (*Melospiza melodia*)

Element code: BPBXA301

ME-GAP code: MEML

Order: Passeriformes

Family: Emberizidae

Breeding range change: Stable

Listing status: Not listed

Migratory status: Local migrant; Resident

Game species: No

Population level: Abundant

Population trend: Stable to a moderate decline

Heritage ranks: G5 . . S4N,S4S5B

Knowledge: Good

General habitats used: Song Sparrows inhabit moist, brushy areas with abundant sunlight, often near water. This includes many types of habitats, such as abandoned pastures, swamps, forest edges and openings (including very small openings), the margins of streams, rivers, and ponds, farmland, hedgerows, and residential areas. Song Sparrows typically nest on the ground, and sometimes in shrubs.

Specific habitats used: Song Sparrows use tall perches to sing from during the breeding season.

Comments:

Predicted habitat quantities:

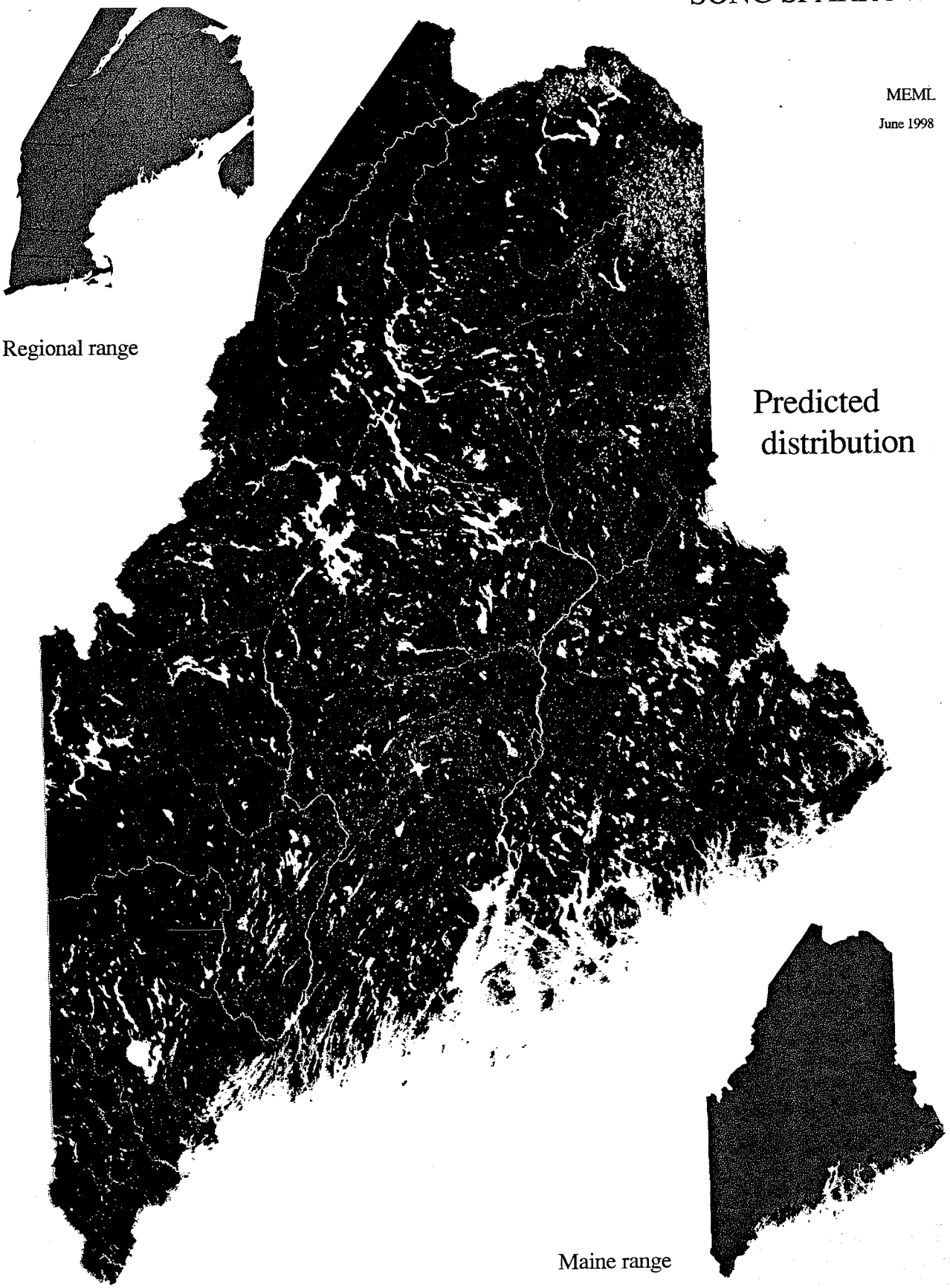
SONG SPARROW					Total in ha: 7,760,445
Habitat	ha	Habitat	ha	Habitat	ha
Agricultural lands		Light partial cut	111,858	Fresh emergent	68,368
Abandoned field	18,906	Heavy partial cut	149,102	Peatland	45,490
Blueberry field	13,035	Deciduous forest	1,269,008	Wet meadow	15,065
Grassland	447,065	Decid./Conif. forest	1,325,245	Salt aquatic bed	*3,293*
Crops/Ground	*58,389*	Conif./Decid. forest	1,754,591	Salt emergent	1,473
Developed lands		Coniferous forest	768,496	Mudflat	*1,746*
Sparse residential	63,214	**Wetlands**		Sand shore	*352*
Dense residential	32,752	Deciduous forested	70,292	Gravel shore	*787*
Urban/Industrial	*765*	Coniferous forested	380,183	Rock shore	*1,721*
Highways/Runways	*612*	Dead-forested	2,613	Shallow water	*10,253*
Forestlands		Decid. shrub-scrub	130,158	Open water	*68,857*
Clearcut	122,453	Conifer. shrub-scrub	14,665	**Other**	
Early regeneration	523,206	Dead shrub-scrub	112	Alpine tundra	*443*
Late regeneration	284,423	Fresh aquatic bed	*79*	Exposed rock/Talus	*1,375*

For definitions of field contents see the Introduction. Items in *italics* in the table of habitat quantities show habitats not used by the species, but included in the predicted distribution because of generalization (see the Introduction for details).

SONG SPARROW

MEML

June 1998



Regional range

Predicted distribution

Maine range

LINCOLN'S SPARROW (*Melospiza lincolnii*)

Element code: BPBXA302

ME-GAP code: MELI

Order: Passeriformes

Family: Emberizidae

Breeding range change: Unknown

Listing status: Not listed

Migratory status: US and Neotropical migrant

Game species: No

Population level: Uncommon

Population trend: Stable to slow decline

Heritage ranks: G5 . . S5B,S5N

Knowledge: Adequate

General habitats used: Lincoln's Sparrows occur in dry or wet brushy areas with scattered trees. Occupied sites include alder and willow thickets, shrubby areas along streams and around ponds and lakes, bogs, abandoned fields, hillsides with poor soils and sparse vegetation, burns, clearcuts, and regenerating areas. Lincoln's Sparrows build nests on the ground, amid grass tussocks or sedges, and forage by ground-gleaning.

Specific habitats used:

Comments:

Predicted habitat quantities:

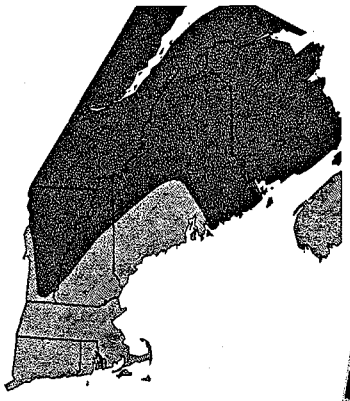
LINCOLN'S SPARROW					Total in ha: 1,359,048
Habitat	**ha**	**Habitat**	**ha**	**Habitat**	**ha**
Agricultural lands		Light partial cut	*11,195*	Fresh emergent	*5,917*
Abandoned field	8,265	Heavy partial cut	74,688	Peatland	37,176
Blueberry field	*1,234*	Deciduous forest	*16,653*	Wet meadow	8,706
Grassland	*6,697*	Decid./Conif. forest	*41,111*	Salt aquatic bed	*139*
Crops/Ground	*3,436*	Conif./Decid. forest	*63,394*	Salt emergent	*73*
Developed lands		Coniferous forest	*34,832*	Mudflat	1,273
Sparse residential	20,817	**Wetlands**		Sand shore	124
Dense residential	*318*	Deciduous forested	20,913	Gravel shore	*117*
Urban/Industrial	*0*	Coniferous forested	265,328	Rock shore	*98*
Highways/Runways	*24*	Dead-forested	1,324	Shallow water	*1,282*
Forestlands		Decid. shrub-scrub	79,115	Open water	*4,729*
Clearcut	71,155	Conifer. shrub-scrub	9,245	**Other**	
Early regeneration	413,202	Dead shrub-scrub	36	Alpine tundra	*20*
Late regeneration	156,349	Fresh aquatic bed	*2*	Exposed rock/Talus	*61*

For definitions of field contents see the Introduction. Items in *italics* in the table of habitat quantities show habitats not used by the species, but included in the predicted distribution because of generalization (see the Introduction for details).

LINCOLN'S SPARROW

MELI

June 1998



Regional range

Predicted distribution



Maine range

SWAMP SPARROW (*Melospiza georgiana*)

Element code: BPBXA303

ME-GAP code: MEGO

Order: Passeriformes

Family: Emberizidae

Breeding range change: Stable

Listing status: Not listed

Migratory status: US migrant; Local migrant

Game species: No

Population level: Common

Population trend: Stable, but not well surveyed

Heritage ranks: G5 . . S5B,S5N

Knowledge: Adequate

General habitats used: Swamp Sparrows occur in wetlands with tall emergent vegetation and brush. Swamps, marshes, bogs, and the flooded margins of streams and ponds are used by Swamp Sparrows. Saturated soils or standing water are key to habitat for these sparrows. In addition, they select wetlands with mixed vegetation rather than pure cattail marshes. Freshwater sites are better habitat for Swamp Sparrows than salt marshes, but both are used. Nests are often constructed over water.

Specific habitats used:

Comments:

Predicted habitat quantities:

SWAMP SPARROW					Total in ha:	274,464
Habitat	**ha**	**Habitat**	**ha**	**Habitat**		**ha**
Agricultural lands		Light partial cut	*1,472*	Fresh emergent		27,789
Abandoned field	*730*	Heavy partial cut	*1,810*	Peatland		28,015
Blueberry field	*454*	Deciduous forest	*3,843*	Wet meadow		7,143
Grassland	*7,286*	Decid./Conif. forest	*9,605*	Salt aquatic bed		2,132
Crops/Ground	*1,467*	Conif./Decid. forest	*28,416*	Salt emergent		5,001
Developed lands		Coniferous forest	*15,842*	Mudflat		12,676
Sparse residential	*1,134*	**Wetlands**		Sand shore		*99*
Dense residential	*316*	Deciduous forested	*5,219*	Gravel shore		*229*
Urban/Industrial	*21*	Coniferous forested	*27,012*	Rock shore		*236*
Highways/Runways	*11*	Dead-forested	*196*	Shallow water		*1,500*
Forestlands		Decid. shrub-scrub	53,347	Open water		*10,042*
Clearcut	*2,864*	Conifer. shrub-scrub	6,904	**Other**		
Early regeneration	*7,549*	Dead shrub-scrub	10	Alpine tundra		*0*
Late regeneration	*4,021*	Fresh aquatic bed	45	Exposed rock/Talus		*32*

For definitions of field contents see the Introduction. Items in *italics* in the table of habitat quantities show habitats not used by the species, but included in the predicted distribution because of generalization (see the Introduction for details).

SWAMP SPARROW

MEGO

June 1998



Regional range

Predicted distribution



Maine range

WHITE-THROATED SPARROW (*Zonotrichia albicollis*)

Element code: BPBXA402 **ME-GAP code:** ZOAL

Order: Passeriformes **Family:** Emberizidae

Breeding range change: Stable **Listing status:** Not listed

Migratory status: Local migrant; US migrant **Game species:** No

Population level: Common **Population trend:** Slight decline

Heritage ranks: G5 . . S4S5B,S4S5N **Knowledge:** Good

General habitats used: White-throated Sparrows are most common along the edges and openings of forests (coniferous forests may be selected) where shrubs and a thick understory occur. Wet or moist sites are often used by White-throated Sparrows, such as beaver flowages, wetlands, bogs, the shrubby margins of streams and ponds. Clearcuts and regenerating areas are used by White-throated Sparrows. These sparrows nest on the ground, using clumps of grass or ferns as cover.

Specific habitats used:

Comments:

Predicted habitat quantities:

WHITE-THROATED SPARROW					Total in ha: 7,137,771
Habitat	**ha**	**Habitat**	**ha**	**Habitat**	**ha**
Agricultural lands		Light partial cut	108,015	Fresh emergent	*42,988*
Abandoned field	16,540	Heavy partial cut	142,643	Peatland	44,365
Blueberry field	*6,171*	Deciduous forest	1,228,767	Wet meadow	*8,522*
Grassland	*194,018*	Decid./Conif. forest	1,259,753	Salt aquatic bed	*2,972*
Crops/Ground	*36,353*	Conif./Decid. forest	1,689,637	Salt emergent	*1,043*
Developed lands		Coniferous forest	752,014	Mudflat	2,001
Sparse residential	50,119	**Wetlands**		Sand shore	383
Dense residential	*6,773*	Deciduous forested	64,242	Gravel shore	*662*
Urban/Industrial	*134*	Coniferous forested	374,121	Rock shore	*1,582*
Highways/Runways	*358*	Dead-forested	2,421	Shallow water	*8,844*
Forestlands		Decid. shrub-scrub	120,781	Open water	*59,906*
Clearcut	116,966	Conifer. shrub-scrub	13,539	**Other**	
Early regeneration	504,076	Dead shrub-scrub	83	Alpine tundra	*428*
Late regeneration	275,775	Fresh aquatic bed	*55*	Exposed rock/Talus	*721*

For definitions of field contents see the Introduction. Items in *italics* in the table of habitat quantities show habitats not used by the species, but included in the predicted distribution because of generalization (see the Introduction for details).

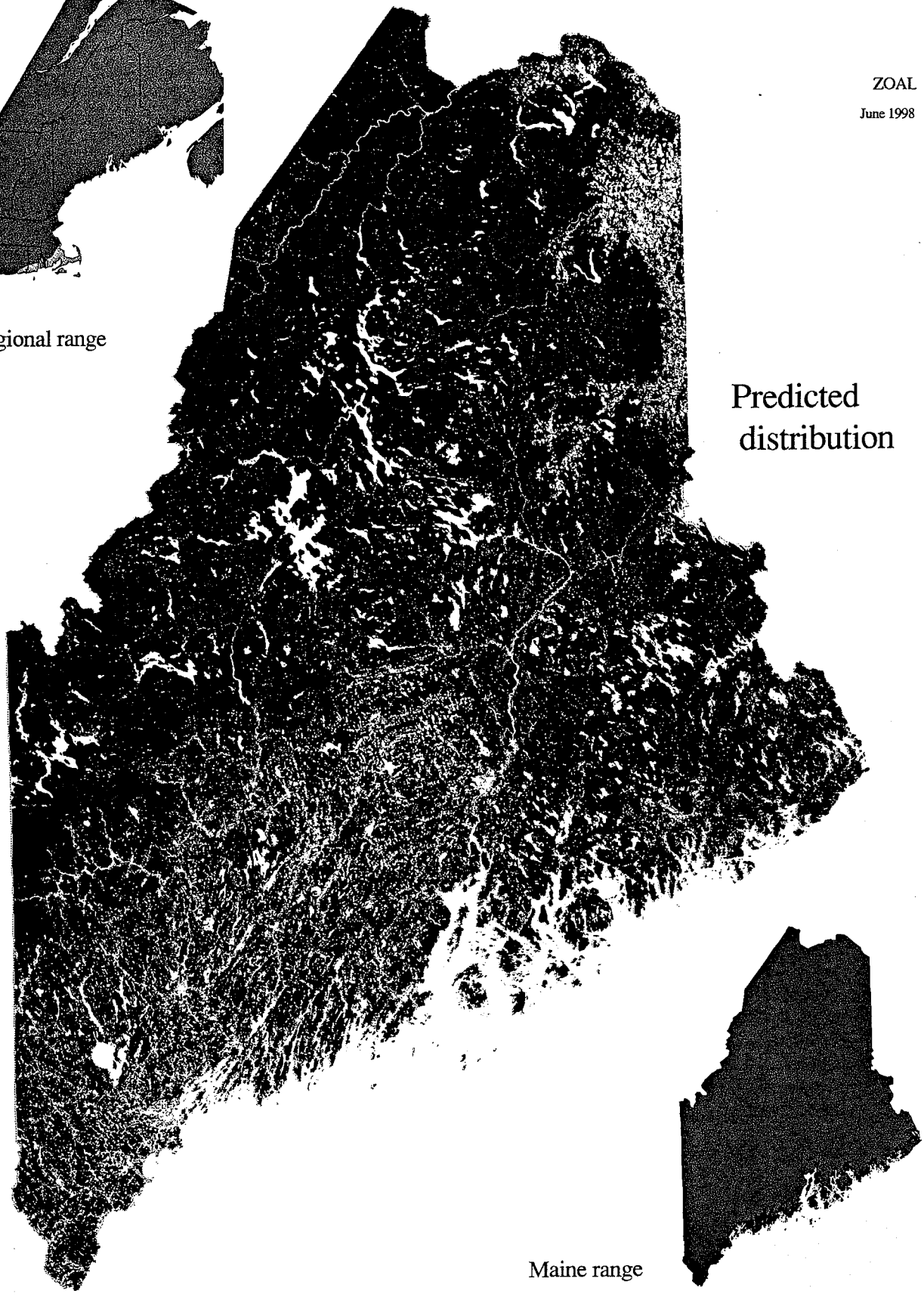
WHITE-THROATED SPARROW

ZOAL

June 1998



Regional range



Predicted distribution

Maine range

DARK-EYED JUNCO (*Junco hyemalis*)

Element code: BPBXA502 **ME-GAP code:** JUHY

Order: Passeriformes **Family:** Emberizidae

Breeding range change: Stable **Listing status:** Not listed

Migratory status: Local migrant; Resident **Game species:** No

Population level: Common **Population trend:** Stable

Heritage ranks: G5 . . S5B,S5N **Knowledge:** Adequate

General habitats used: Dark-eyed Juncos are most common in coniferous and mixed forest openings and edges, although any type of open forest may be used. Cool, moist (but not wet) sites are heavily used, such as the borders of streams and ponds, hedgerows, shrubby clearcuts and regenerating areas (including spruce plantations), and the drier margins of wetlands. Juncos nest on the ground amid weeds and grasses, and sometimes low in shrubs and trees.

Specific habitats used:

Comments:

Predicted habitat quantities:

DARK-EYED JUNCO					Total in ha: 7,535,062
Habitat	**ha**	**Habitat**	**ha**	**Habitat**	**ha**
Agricultural lands		Light partial cut	110,189	Fresh emergent	*42,808*
Abandoned field	18,670	Heavy partial cut	149,065	Peatland	*18,329*
Blueberry field	12,565	Deciduous forest	1,261,116	Wet meadow	*8,473*
Grassland	433,679	Decid./Conif. forest	1,305,586	Salt aquatic bed	*3,363*
Crops/Ground	*55,636*	Conif./Decid. forest	1,721,645	Salt emergent	*1,267*
Developed lands		Coniferous forest	756,077	Mudflat	2,279
Sparse residential	62,121	**Wetlands**		Sand shore	459
Dense residential	31,624	Deciduous forested	*43,273*	Gravel shore	*657*
Urban/Industrial	*758*	Coniferous forested	363,766	Rock shore	*1,680*
Highways/Runways	*592*	Dead-forested	*1,804*	Shallow water	*8,869*
Forestlands		Decid. shrub-scrub	120,337	Open water	*61,122*
Clearcut	120,474	Conifer. shrub-scrub	13,645	**Other**	
Early regeneration	518,956	Dead shrub-scrub	110	Alpine tundra	*442*
Late regeneration	282,242	Fresh aquatic bed	*64*	Exposed rock/Talus	*1,319*

For definitions of field contents see the Introduction. Items in *italics* in the table of habitat quantities show habitats not used by the species, but included in the predicted distribution because of generalization (see the Introduction for details).

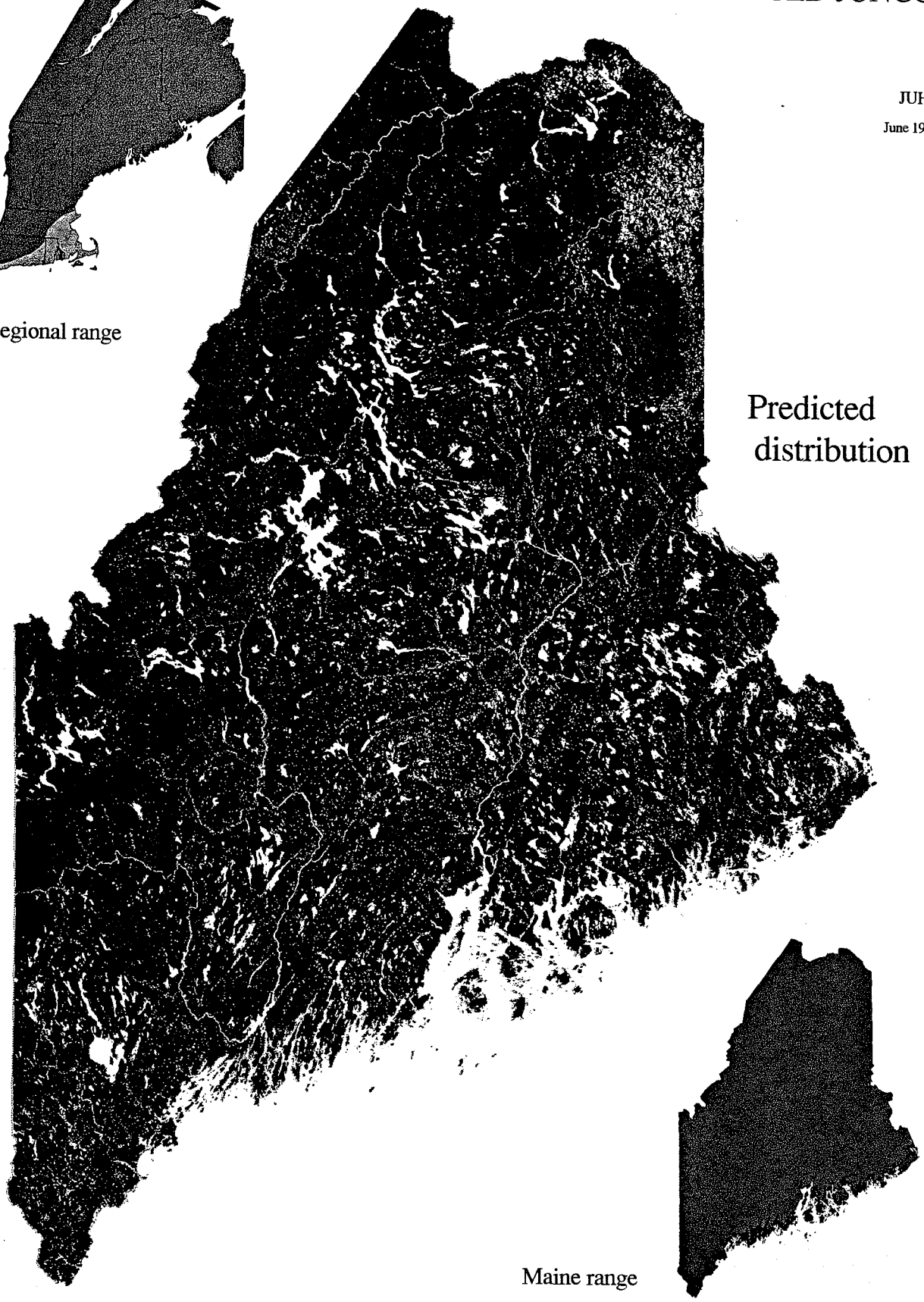
DARK-EYED JUNCO

JUHY

June 1998



Regional range



Predicted distribution

Maine range

BOBOLINK (*Dolichonyx oryzivorus*)

Element code: BPBXA901

ME-GAP code: DOOR

Order: Passeriformes

Family: Icteridae

Breeding range change: Stable

Listing status: Not listed

Migratory status: Neotropical migrant

Game species: No

Population level: Common

Population trend: Stable, perhaps decline from farm loss

Heritage ranks: G5 . . S4B

Knowledge: Adequate

General habitats used: Bobolinks occur in large, open hay fields, moist meadows, weedy fields, and the drier portions of marshes. Apparently grassy fields with a low percentage of cover in alfalfa or clover are selected over pure grasslands. Grain fields will be used for feeding by Bobolinks. These birds nest on the ground, in dense grasses or amongst weeds. Bobolinks sing in flight, so singing perches are not a required habitat component. Hay being cut from fields too early in the breeding season, and simple farm abandonment, are decreasing Bobolink habitat.

Specific habitats used:

Comments: This grassland species is declining in Maine, as well as New England in general. Habitat loss (i.e., loss of pastures, hayfields, and abandoned farmlands in early successional stages) is probably the cause.

Predicted habitat quantities:

BOBOLINK					Total in ha:	691,521
Habitat	**ha**	**Habitat**	**ha**	**Habitat**		**ha**
Agricultural lands		Light partial cut	*5,489*	Fresh emergent		25,556
Abandoned field	7,143	Heavy partial cut	*8,373*	Peatland		27,083
Blueberry field	*1,758*	Deciduous forest	*38,865*	Wet meadow		6,625
Grassland	241,948	Decid./Conif. forest	*59,895*	Salt aquatic bed		*464*
Crops/Ground	*20,246*	Conif./Decid. forest	*70,187*	Salt emergent		426
Developed lands		Coniferous forest	*25,551*	Mudflat		*411*
Sparse residential	*13,280*	**Wetlands**		Sand shore		*88*
Dense residential	*4,410*	Deciduous forested	*6,640*	Gravel shore		*153*
Urban/Industrial	*227*	Coniferous forested	*20,849*	Rock shore		*169*
Highways/Runways	179	Dead-forested	*215*	Shallow water		*1,582*
Forestlands		Decid. shrub-scrub	*13,287*	Open water		*8,108*
Clearcut	44,369	Conifer. shrub-scrub	*1,675*	**Other**		
Early regeneration	*23,923*	Dead shrub-scrub	*23*	Alpine tundra		*15*
Late regeneration	*11,858*	Fresh aquatic bed	*21*	Exposed rock/Talus		*428*

For definitions of field contents see the Introduction. Items in *italics* in the table of habitat quantities show habitats not used by the species, but included in the predicted distribution because of generalization (see the Introduction for details).

BOBOLINK

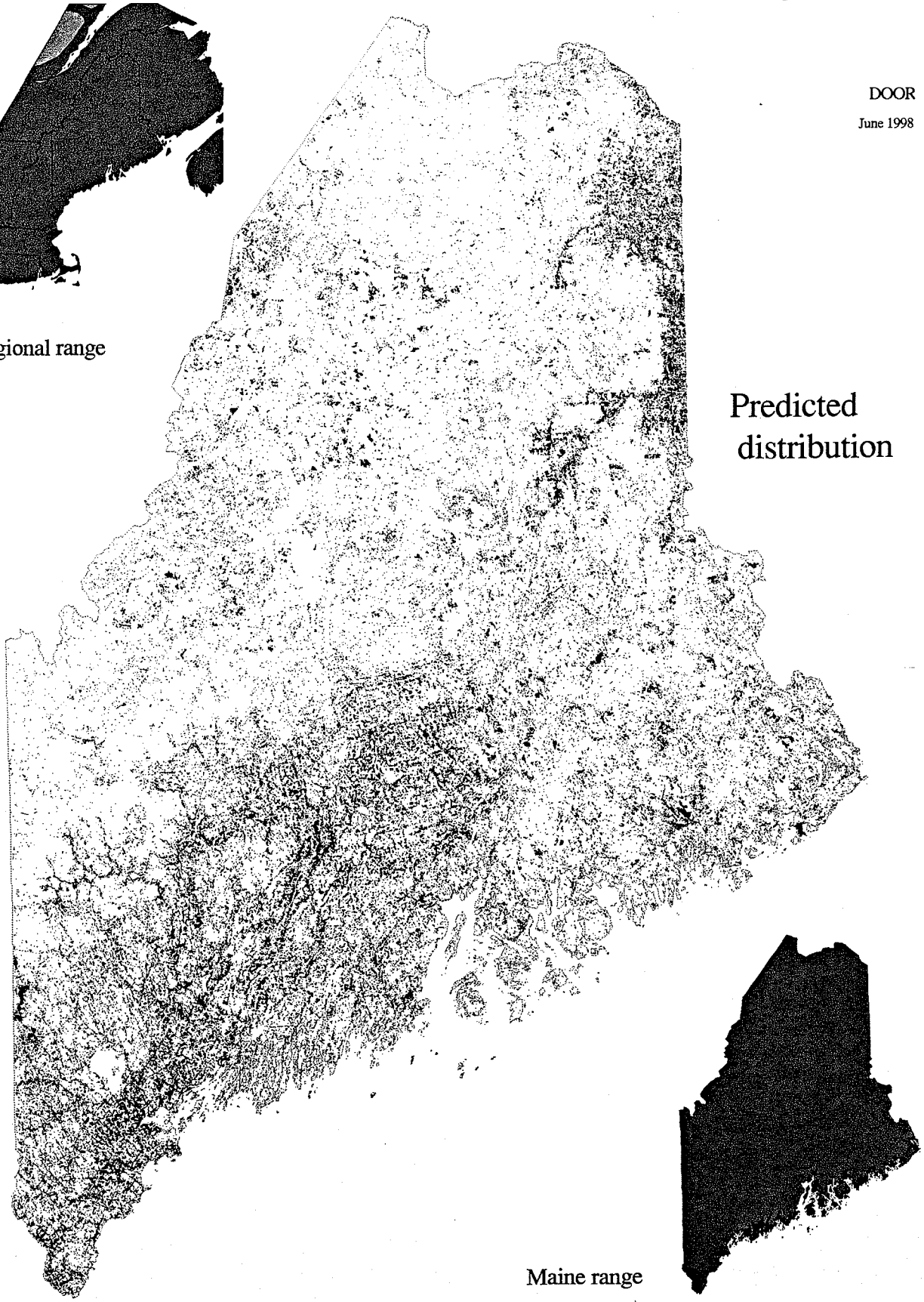
DOOR

June 1998



Regional range

Predicted distribution



Maine range

RED-WINGED BLACKBIRD (*Agelaius phoeniceus*)

Element code: BPBXB001

ME-GAP code: AGPH

Order: Passeriformes

Family: Icteridae

Breeding range change: Stable

Listing status: Not listed

Migratory status: US and Neotropical migrant

Game species: No

Population level: Abundant

Population trend: Stable, but not well surveyed

Heritage ranks: G5 . . S4S5B,S4S5N

Knowledge: Good

General habitats used: Red-winged Blackbirds are most common in freshwater marshes with cattails, sedges, and bulrushes, with scattered shrubs. Other habitats used for breeding or feeding include swamps, wet margins of rivers, streams, ponds, and lakes, alder and willow thickets, fields (plowed or hayfields), and orchards. Red-winged Blackbirds nest in emergent vegetation, shrubs, or trees, close to or above water.

Specific habitats used:

Comments:

Predicted habitat quantities:

RED-WINGED BLACKBIRD					Total in ha: 1,082,368
Habitat	ha	Habitat	ha	Habitat	ha
Agricultural lands		Light partial cut	*5,166*	Fresh emergent	37,418
Abandoned field	5,519	Heavy partial cut	*6,320*	Peatland	37,186
Blueberry field	*1,852*	Deciduous forest	*23,587*	Wet meadow	8,848
Grassland	235,680	Decid./Conif. forest	*50,586*	Salt aquatic bed	2,689
Crops/Ground	67,205	Conif./Decid. forest	*97,842*	Salt emergent	5,671
Developed lands		Coniferous forest	*56,647*	Mudflat	13,363
Sparse residential	*8,274*	**Wetlands**		Sand shore	568
Dense residential	*3,000*	Deciduous forested	37,893	Gravel shore	*318*
Urban/Industrial	*152*	Coniferous forested	216,428	Rock shore	*416*
Highways/Runways	91	Dead-forested	1,221	Shallow water	*2,921*
Forestlands		Decid. shrub-scrub	77,738	Open water	*16,347*
Clearcut	*9,786*	Conifer. shrub-scrub	9,951	**Other**	
Early regeneration	*27,491*	Dead shrub-scrub	29	Alpine tundra	*4*
Late regeneration	*13,627*	Fresh aquatic bed	69	Exposed rock/Talus	*463*

For definitions of field contents see the Introduction. Items in *italics* in the table of habitat quantities show habitats not used by the species, but included in the predicted distribution because of generalization (see the Introduction for details).

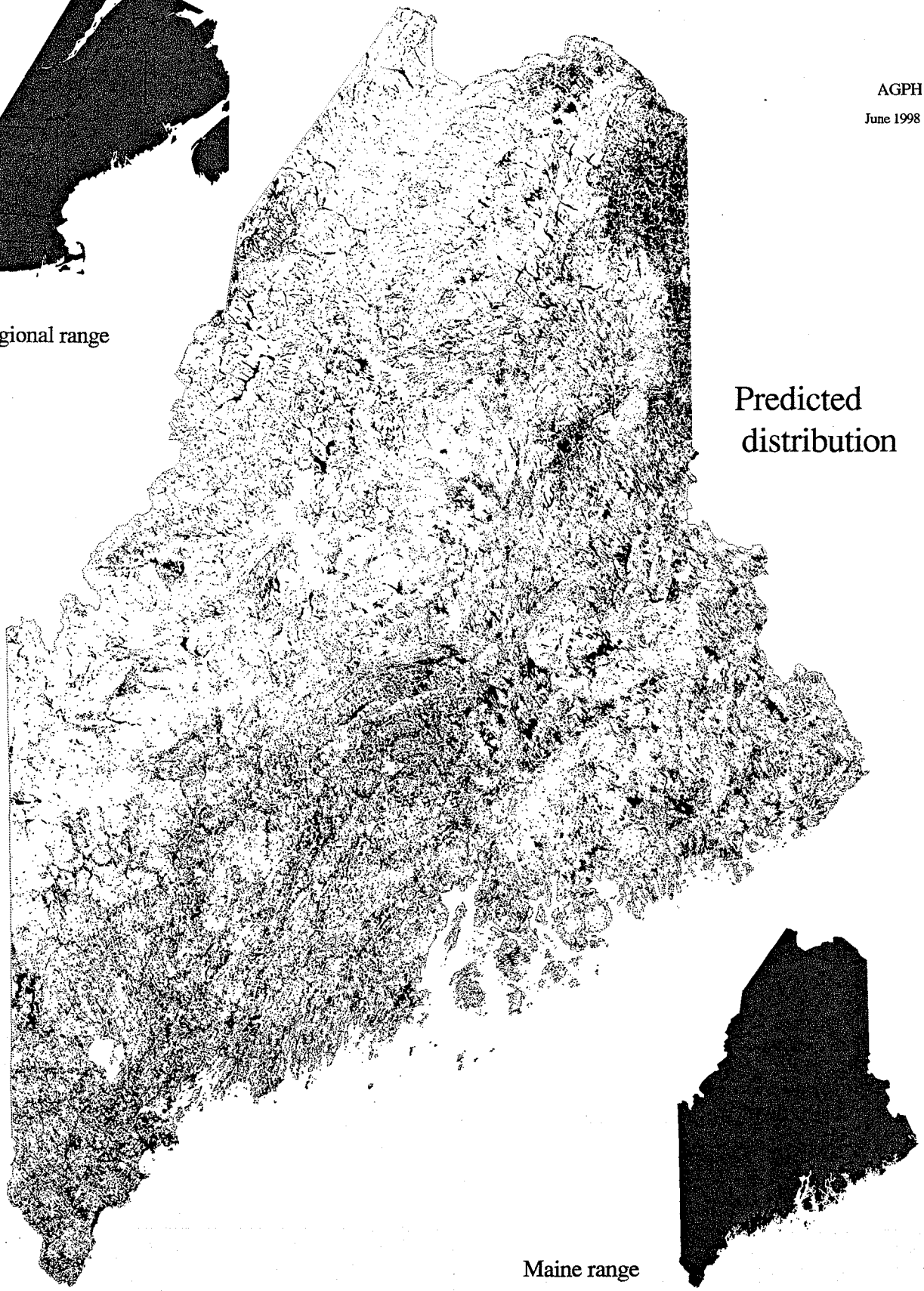
RED-WINGED BLACKBIRD

AGPH

June 1998



Regional range



Predicted distribution

Maine range

EASTERN MEADOWLARK (*Sturnella magna*)

Element code: BPBXB202

ME-GAP code: STMA

Order: Passeriformes

Family: Icteridae

Breeding range change: Unknown

Listing status: Not listed

Migratory status: Local migrant; Resident

Game species: No

Population level: Uncommon

Population trend: Moderate decline, probably farm loss

Heritage ranks: G5 . . S3S4B

Knowledge: Adequate

General habitats used: Eastern Meadowlarks inhabit various types of grassland, including grazed and ungrazed pastures, fallow fields, hayfields, and grassy meadows. Having scattered shrubs for perches may improve habitat for these birds, but sites without nearby shrubs are selected. This species may be area sensitive, selecting large pastures. Eastern Meadowlarks are ground nesters, placing nests in dense vegetation.

Specific habitats used:

Comments:

Predicted habitat quantities:

EASTERN MEADOWLARK					Total in ha:	765,281
Habitat	**ha**	**Habitat**	**ha**	**Habitat**		**ha**
Agricultural lands		Light partial cut	*2,291*	Fresh emergent		39,748
Abandoned field	12,649	Heavy partial cut	*3,260*	Peatland		30,396
Blueberry field	10,324	Deciduous forest	*15,115*	Wet meadow		10,777
Grassland	360,324	Decid./Conif. forest	*26,119*	Salt aquatic bed		*364*
Crops/Ground	73,231	Conif./Decid. forest	*27,733*	Salt emergent		1,552
Developed lands		Coniferous forest	*7,494*	Mudflat		*346*
Sparse residential	48,406	**Wetlands**		Sand shore		*93*
Dense residential	*2,780*	Deciduous forested	*2,734*	Gravel shore		*17*
Urban/Industrial	*131*	Coniferous forested	*5,722*	Rock shore		*117*
Highways/Runways	*173*	Dead-forested	*70*	Shallow water		*721*
Forestlands		Decid. shrub-scrub	*5,902*	Open water		*2,855*
Clearcut	55,739	Conifer. shrub-scrub	*683*	**Other**		
Early regeneration	*10,856*	Dead shrub-scrub	*19*	Alpine tundra		*0*
Late regeneration	*6,259*	Fresh aquatic bed	*6*	Exposed rock/Talus		*275*

For definitions of field contents see the Introduction. Items in *italics* in the table of habitat quantities show habitats not used by the species, but included in the predicted distribution because of generalization (see the Introduction for details).

EASTERN MEADOWLARK

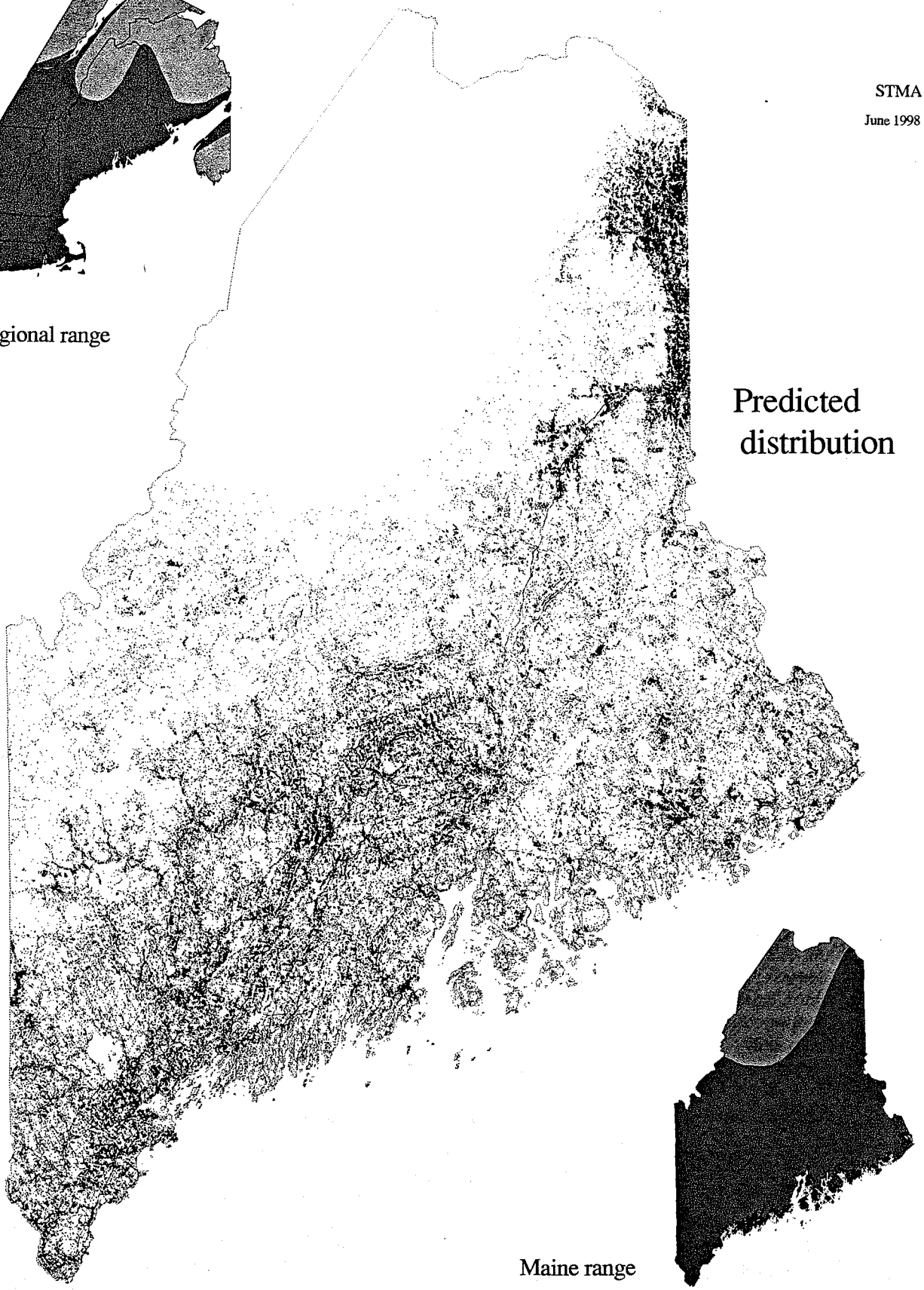
STMA

June 1998



Regional range

Predicted distribution



Maine range

RUSTY BLACKBIRD (*Euphagus carolinus*)

Element code: BPBXB501

ME-GAP code: EUCA

Order: Passeriformes

Family: Icteridae

Breeding range change: Unknown

Listing status: Not listed

Migratory status: US migrant

Game species: No

Population level: Uncommon

Population trend: Stable, perhaps a gradual decline

Heritage ranks: G5 . . S3N,S3S4B

Knowledge: Adequate

General habitats used: Rusty Blackbirds are most common in cool forested wetlands, spruce bogs, newly formed beaver flowages, and alder swales. Wooded margins of streams, rivers, ponds, and lakes are used by these birds, as are forested islands in lakes and rivers. Nonforested wetlands with boreal forests nearby may be used by Rusty Blackbirds. This species most often nests in young coniferous trees. Clearcutting around swamps encourages establishment of Common Grackles, which can exclude Rusty Blackbirds.

Specific habitats used:

Comments:

Predicted habitat quantities:

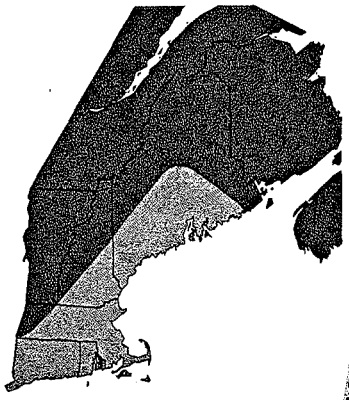
RUSTY BLACKBIRD					Total in ha: 1,433,371
Habitat	**ha**	**Habitat**	**ha**	**Habitat**	**ha**
Agricultural lands		Light partial cut	*6,833*	Fresh emergent	*5,810*
Abandoned field	*334*	Heavy partial cut	*6,025*	Peatland	23,684
Blueberry field	*171*	Deciduous forest	*25,311*	Wet meadow	*1,081*
Grassland	*4,824*	Decid./Conif. forest	217,670	Salt aquatic bed	*264*
Crops/Ground	*1,733*	Conif./Decid. forest	466,213	Salt emergent	*47*
Developed lands		Coniferous forest	298,918	Mudflat	1,292
Sparse residential	*1,243*	**Wetlands**		Sand shore	32
Dense residential	*51*	Deciduous forested	14,833	Gravel shore	2,605
Urban/Industrial	*0*	Coniferous forested	233,929	Rock shore	2,441
Highways/Runways	*0*	Dead-forested	951	Shallow water	*1,389*
Forestlands		Decid. shrub-scrub	55,301	Open water	*7,166*
Clearcut	*6,296*	Conifer. shrub-scrub	7,036	**Other**	
Early regeneration	*23,302*	Dead shrub-scrub	32	Alpine tundra	*18*
Late regeneration	*16,527*	Fresh aquatic bed	*2*	Exposed rock/Talus	*9*

For definitions of field contents see the Introduction. Items in *italics* in the table of habitat quantities show habitats not used by the species, but included in the predicted distribution because of generalization (see the Introduction for details).

RUSTY BLACKBIRD

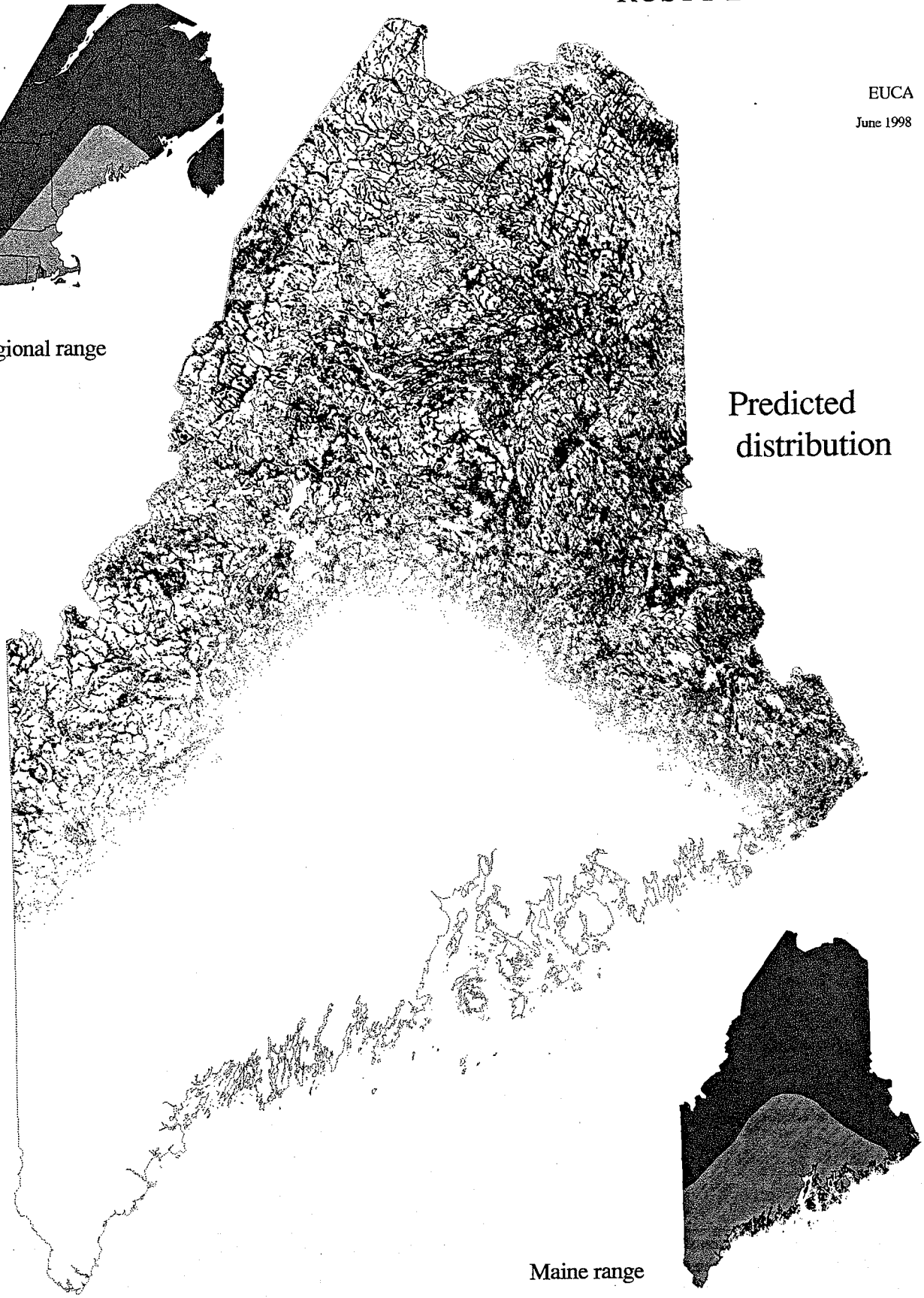
EUCA

June 1998



Regional range

Predicted distribution



Maine range

COMMON GRACKLE (*Quiscalus quiscala*)

Element code: BPBXB607 **ME-GAP code:** QUQU

Order: Passeriformes **Family:** Icteridae

Breeding range change: Stable **Listing status:** Not listed

Migratory status: US migrant **Game species:** No

Population level: Abundant **Population trend:** Stable

Heritage ranks: G5 . . S4N,S5B **Knowledge:** Good

General habitats used: Common Grackles are a gregarious species, occurring in agricultural areas, abandoned farms, meadows, marshes, open forests, and forest edges. In general, these birds select sites with scattered trees and bushes, and often with homes nearby. Grackles most often nest in coniferous stands (cedar, white pine, and spruce, with cedar being selected), often in colonies. Common Grackles also will nest in deciduous trees and shrubs, and occasionally in cavities, cattails, and bird houses.

Specific habitats used:

Comments:

Predicted habitat quantities:

COMMON GRACKLE					Total in ha: 5,142,658
Habitat	ha	Habitat	ha	Habitat	ha
Agricultural lands		Light partial cut	84,897	Fresh emergent	62,569
Abandoned field	16,221	Heavy partial cut	105,654	Peatland	44,201
Blueberry field	11,467	Deciduous forest	*227,489*	Wet meadow	13,687
Grassland	368,468	Decid./Conif. forest	*488,105*	Salt aquatic bed	*3,171*
Crops/Ground	95,627	Conif./Decid. forest	1,405,327	Salt emergent	1,302
Developed lands		Coniferous forest	715,964	Mudflat	2,215
Sparse residential	57,568	**Wetlands**		Sand shore	458
Dense residential	30,946	Deciduous forested	60,134	Gravel shore	*693*
Urban/Industrial	*765*	Coniferous forested	356,515	Rock shore	*1,361*
Highways/Runways	663	Dead-forested	2,302	Shallow water	*8,750*
Forestlands		Decid. shrub-scrub	122,117	Open water	*56,367*
Clearcut	102,518	Conifer. shrub-scrub	13,684	**Other**	
Early regeneration	450,277	Dead shrub-scrub	95	Alpine tundra	*398*
Late regeneration	229,514	Fresh aquatic bed	*61*	Exposed rock/Talus	*1,103*

For definitions of field contents see the Introduction. Items in *italics* in the table of habitat quantities show habitats not used by the species, but included in the predicted distribution because of generalization (see the Introduction for details).

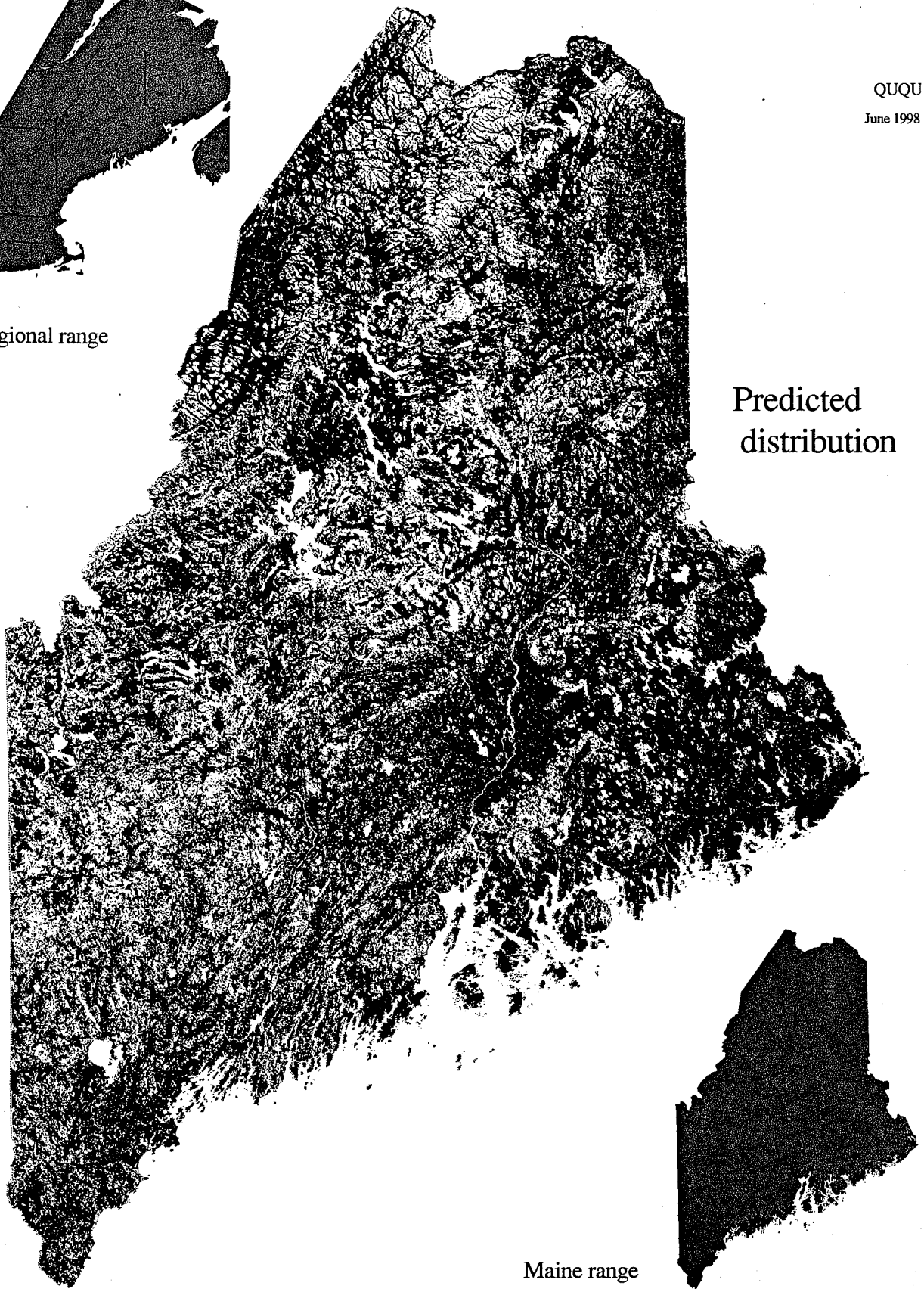
COMMON GRACKLE

QUQU

June 1998



Regional range



Predicted distribution

Maine range

BROWN-HEADED COWBIRD (*Molothrus ater*)

Element code: BPBXB703

ME-GAP code: MOAT

Order: Passeriformes

Family: Icteridae

Breeding range change: Stable

Listing status: Not listed

Migratory status: US migrant

Game species: No

Population level: Common

Population trend: Moderate decline, probably farm loss

Heritage ranks: G5 . . S4N,S4S5B

Knowledge: Good

General habitats used: Brown-headed Cowbirds are most common in open areas, such as agricultural lands, forest edges, open forests, and suburban areas. Cowbirds are ground feeders, feeding in pastures and fields, often in flocks with other gregarious species (e.g., Common Grackles, Red-winged Blackbirds). Brown-headed Cowbirds do not build nests; they parasitize other species' nests. In New Brunswick, 37 species incubated cowbird eggs, typically those species nesting in open forests and edges, agricultural areas, and other habitats associated with residential areas.

Specific habitats used:

Comments: Originally a species of the prairie associated with bison, in eastern habitats this pioneer species is commonly associated with dairy cows and beef cattle.

Predicted habitat quantities:

BROWN-HEADED COWBIRD					Total in ha: 2,263,432
Habitat	ha	Habitat	ha	Habitat	ha
Agricultural lands		Light partial cut	*28,941*	Fresh emergent	*21,757*
Abandoned field	11,188	Heavy partial cut	72,356	Peatland	*12,724*
Blueberry field	9,201	Deciduous forest	*105,050*	Wet meadow	9,355
Grassland	301,181	Decid./Conif. forest	*183,655*	Salt aquatic bed	*1,019*
Crops/Ground	81,814	Conif./Decid. forest	*265,080*	Salt emergent	*497*
Developed lands		Coniferous forest	*117,687*	Mudflat	1,227
Sparse residential	40,296	**Wetlands**		Sand shore	*143*
Dense residential	*7,201*	Deciduous forested	41,676	Gravel shore	*279*
Urban/Industrial	*329*	Coniferous forested	240,931	Rock shore	*417*
Highways/Runways	383	Dead-forested	1,426	Shallow water	*3,852*
Forestlands		Decid. shrub-scrub	82,379	Open water	*20,862*
Clearcut	74,524	Conifer. shrub-scrub	9,888	**Other**	
Early regeneration	371,914	Dead shrub-scrub	67	Alpine tundra	*56*
Late regeneration	143,437	Fresh aquatic bed	*32*	Exposed rock/Talus	*606*

For definitions of field contents see the Introduction. Items in *italics* in the table of habitat quantities show habitats not used by the species, but included in the predicted distribution because of generalization (see the Introduction for details).

BROWN-HEADED COWBIRD

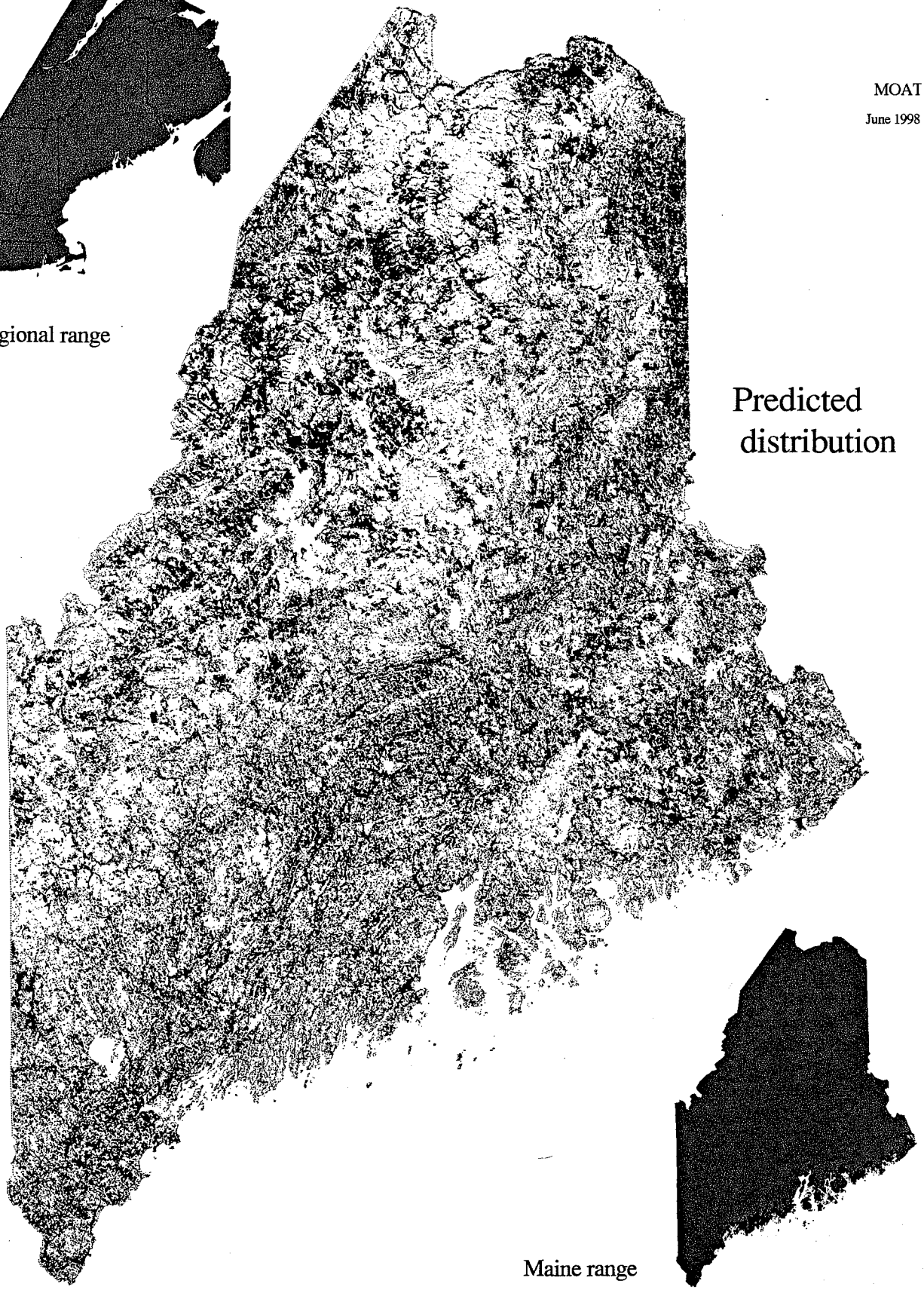
MOAT

June 1998



Regional range

Predicted distribution



Maine range

BALTIMORE ORIOLE (*Icterus galbula*)

Element code: BPBXB919

ME-GAP code: ICGA

Order: Passeriformes

Family: Icteridae

Breeding range change: Stable

Listing status: Not listed

Migratory status: Neotropical migrant

Game species: No

Population level: Common

Population trend: Moderate increase, perhaps planted elms

Heritage ranks: G5 . . S2S3N,S5B

Knowledge: Good

General habitats used: Baltimore Orioles inhabit areas with large, scattered trees. These orioles will occur in hedgerows of farms, abandoned farmland, orchards, open deciduous forests, forest edges, rural roadsides, but most commonly in residential areas. In towns, shade trees along streets, parks, cemeteries, and golf courses are used. Elm trees were selected by Baltimore Orioles, until that tree species' decline, mature ornamental willows now appear to be favored.

Specific habitats used: In Maine the highest densities of this species occurs along rivers and the coast, and in low density residential areas.

Comments: Northern Orioles recently regained their older common name, Baltimore Oriole.

Predicted habitat quantities:

BALTIMORE ORIOLE					Total in ha: 4,721,745
Habitat	**ha**	**Habitat**	**ha**	**Habitat**	**ha**
Agricultural lands		Light partial cut	*48,716*	Fresh emergent	*23,514*
Abandoned field	12,546	Heavy partial cut	*65,659*	Peatland	*5,774*
Blueberry field	*3,998*	Deciduous forest	1,137,819	Wet meadow	*5,044*
Grassland	*152,379*	Decid./Conif. forest	1,082,127	Salt aquatic bed	*1,166*
Crops/Ground	*25,078*	Conif./Decid. forest	1,278,309	Salt emergent	*697*
Developed lands		Coniferous forest	*258,733*	Mudflat	*768*
Sparse residential	36,895	**Wetlands**		Sand shore	*106*
Dense residential	25,700	Deciduous forested	49,663	Gravel shore	*329*
Urban/Industrial	*498*	Coniferous forested	*95,358*	Rock shore	*840*
Highways/Runways	*448*	Dead-forested	1,611	Shallow water	*4,653*
Forestlands		Decid. shrub-scrub	78,730	Open water	*36,557*
Clearcut	*37,699*	Conifer. shrub-scrub	8,958	**Other**	
Early regeneration	*125,011*	Dead shrub-scrub	53	Alpine tundra	*96*
Late regeneration	*115,558*	Fresh aquatic bed	*37*	Exposed rock/Talus	*620*

For definitions of field contents see the Introduction. Items in *italics* in the table of habitat quantities show habitats not used by the species, but included in the predicted distribution because of generalization (see the Introduction for details).

BALTIMORE ORIOLE

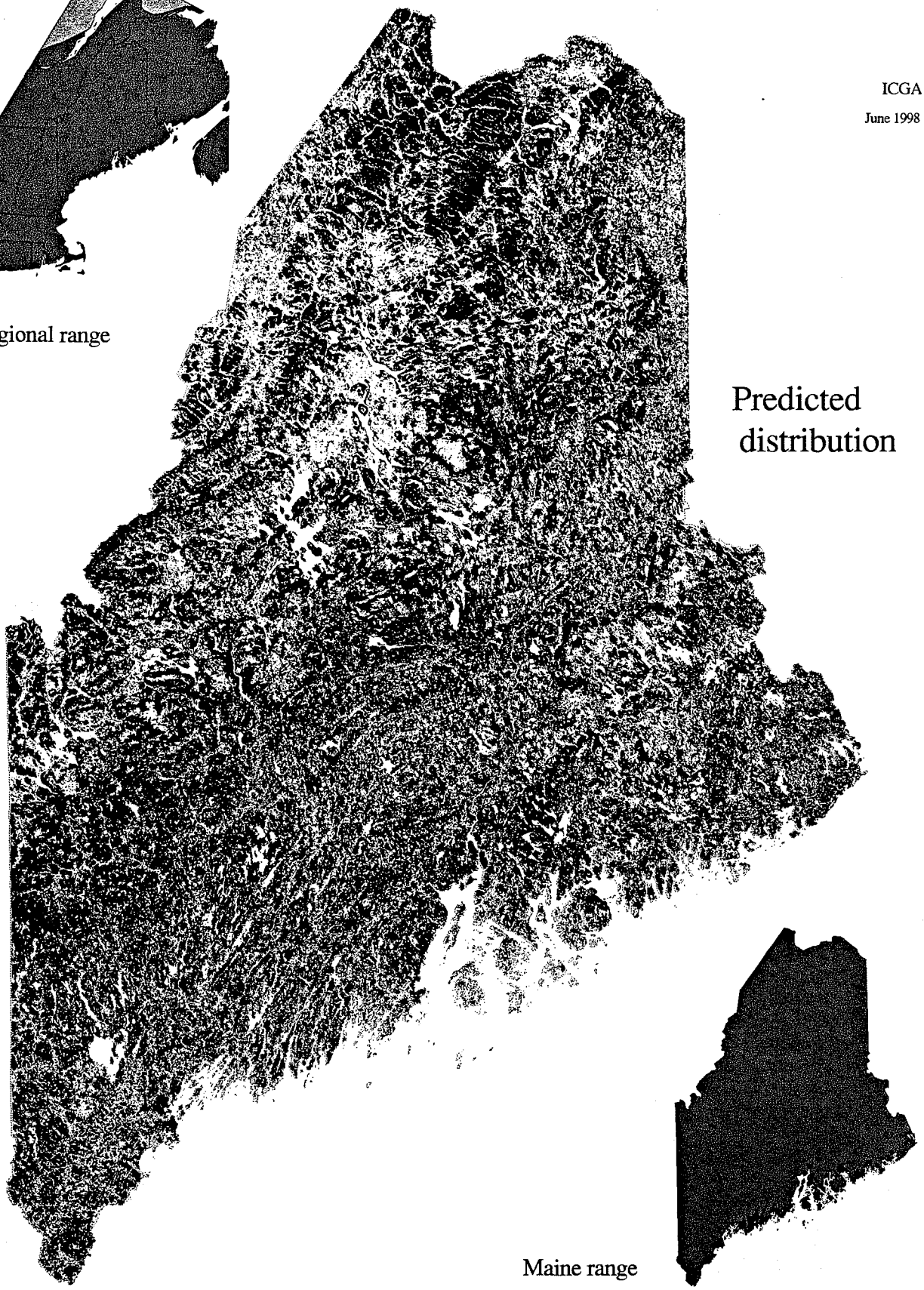
ICGA

June 1998



Regional range

Predicted distribution



Maine range

PINE GROSBEAK (*Pinicola enucleator*)

Element code: BPBY0301

ME-GAP code: PIEN

Order: Passeriformes

Family: Fringillidae

Breeding range change: Unknown

Listing status: Not listed

Migratory status: US migrant; Local migrant

Game species: No

Population level: Uncommon

Population trend: Stable, but poorly surveyed

Heritage ranks: G5 . . S3?B,S3S5N

Knowledge: Adequate

General habitats used: Pine Grosbeaks are irregular inhabitants of coniferous forests. These grosbeaks are most associated with forest edges, openings, and open forest stands. In Maine, higher elevation spruce-fir forests are heavily used by this species. Nests are constructed of moss, twigs, and grass low in spruce trees or shrubs.

Specific habitats used:

Comments:

Predicted habitat quantities:

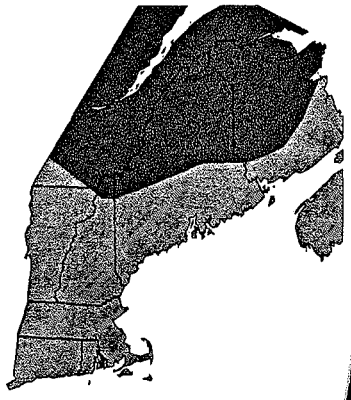
PINE GROSBEAK					Total in ha: 1,913,401
Habitat	ha	Habitat	ha	Habitat	ha
Agricultural lands		Light partial cut	36,983	Fresh emergent	*4,470*
Abandoned field	*141*	Heavy partial cut	52,396	Peatland	15,725
Blueberry field	*0*	Deciduous forest	*28,663*	Wet meadow	*802*
Grassland	*5,650*	Decid./Conif. forest	*96,335*	Salt aquatic bed	*268*
Crops/Ground	*2,595*	Conif./Decid. forest	590,146	Salt emergent	*0*
Developed lands		Coniferous forest	367,036	Mudflat	*2*
Sparse residential	*1,267*	**Wetlands**		Sand shore	*0*
Dense residential	*79*	Deciduous forested	*2,584*	Gravel shore	*125*
Urban/Industrial	*0*	Coniferous forested	194,002	Rock shore	*171*
Highways/Runways	*0*	Dead-forested	696	Shallow water	*1,094*
Forestlands		Decid. shrub-scrub	*10,776*	Open water	*4,747*
Clearcut	51,724	Conifer. shrub-scrub	4,891	**Other**	
Early regeneration	325,945	Dead shrub-scrub	16	Alpine tundra	1,804
Late regeneration	112,112	Fresh aquatic bed	*1*	Exposed rock/Talus	*155*

For definitions of field contents see the Introduction. Items in *italics* in the table of habitat quantities show habitats not used by the species, but included in the predicted distribution because of generalization (see the Introduction for details).

PINE GROSBEAK

PIEN

June 1998



Regional range

Predicted distribution



Maine range

PURPLE FINCH (*Carpodacus purpureus*)

Element code: BPBY0402 **ME-GAP code:** CAPU

Order: Passeriformes **Family:** Fringillidae

Breeding range change: Stable **Listing status:** Not listed

Migratory status: US migrant **Game species:** No

Population level: Common **Population trend:** Moderate decline

Heritage ranks: G5 . . S4N,S5B **Knowledge:** Good

General habitats used: Purple Finches inhabit open coniferous forests, forest edges, and other sites with conifer trees present. Sites used by Purple Finches include conifer plantations, treed borders of streams, forested wetlands and bogs, open mixed forests, abandoned farms with conifers, parks, golf courses, and residential areas with conifers present. Purple Finches nest high in spruces and other conifers.

Specific habitats used:

Comments:

Predicted habitat quantities:

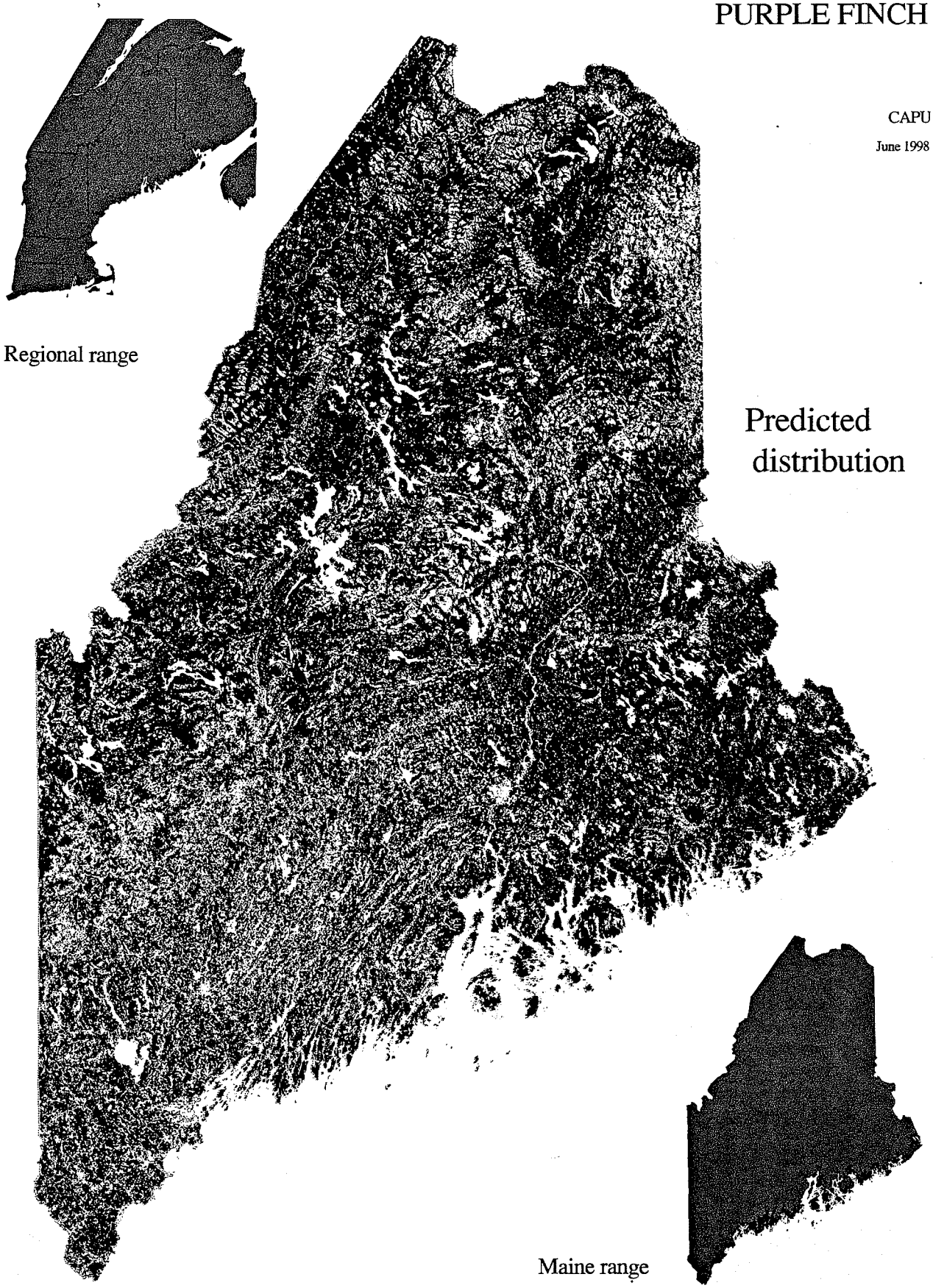
PURPLE FINCH					Total in ha: 5,503,149
Habitat	ha	Habitat	ha	Habitat	ha
Agricultural lands		Light partial cut	92,822	Fresh emergent	*37,176*
Abandoned field	14,416	Heavy partial cut	117,133	Peatland	42,633
Blueberry field	*5,323*	Deciduous forest	*401,165*	Wet meadow	*7,259*
Grassland	*141,977*	Decid./Conif. forest	977,426	Salt aquatic bed	*2,628*
Crops/Ground	*28,612*	Conif./Decid. forest	1,525,532	Salt emergent	*897*
Developed lands		Coniferous forest	710,121	Mudflat	*1,251*
Sparse residential	44,335	**Wetlands**		Sand shore	*251*
Dense residential	*5,505*	Deciduous forested	*35,178*	Gravel shore	*548*
Urban/Industrial	*96*	Coniferous forested	354,827	Rock shore	*1,359*
Highways/Runways	*284*	Dead-forested	2,212	Shallow water	*7,592*
Forestlands		Decid. shrub-scrub	110,716	Open water	*50,247*
Clearcut	*64,623*	Conifer. shrub-scrub	12,625	**Other**	
Early regeneration	460,352	Dead shrub-scrub	78	Alpine tundra	*377*
Late regeneration	244,949	Fresh aquatic bed	*41*	Exposed rock/Talus	*581*

For definitions of field contents see the Introduction. Items in *italics* in the table of habitat quantities show habitats not used by the species, but included in the predicted distribution because of generalization (see the Introduction for details).

PURPLE FINCH

CAPU

June 1998



RED CROSSBILL (*Loxia curvirostra*)

Element code: BPBY0501

ME-GAP code: LXCU

Order: Passeriformes

Family: Fringillidae

Breeding range change: Stable

Listing status: Not listed

Migratory status: US migrant; Local migrant

Game species: No

Population level: Uncommon

Population trend: Stable, but eruptive

Heritage ranks: G5 . . S3S4B,S3S4N

Knowledge: Adequate

General habitats used: Red Crossbills are closely associated with mature conifer (pines, hemlock, spruces) forests. Larger and older conifer trees produce more cones, and more seeds (the primary food of this species), than younger trees. Regardless, cone production varies from year to year, and this species' populations vary in response. As forest habitats are fragmented and older trees are removed, crossbill populations decline.

Specific habitats used:

Comments:

Predicted habitat quantities:

RED CROSSBILL					Total in ha: 2,983,903
Habitat	ha	Habitat	ha	Habitat	ha
Agricultural lands		Light partial cut	*31,843*	Fresh emergent	*22,529*
Abandoned field	*5,108*	Heavy partial cut	*29,495*	Peatland	*12,685*
Blueberry field	*2,140*	Deciduous forest	*121,168*	Wet meadow	*4,208*
Grassland	*65,570*	Decid./Conif. forest	*294,418*	Salt aquatic bed	*2,195*
Crops/Ground	*13,956*	Conif./Decid. forest	1,139,898	Salt emergent	*615*
Developed lands		Coniferous forest	606,651	Mudflat	*900*
Sparse residential	31,660	**Wetlands**		Sand shore	*214*
Dense residential	*3,143*	Deciduous forested	*20,185*	Gravel shore	*311*
Urban/Industrial	*71*	Coniferous forested	288,269	Rock shore	*903*
Highways/Runways	*207*	Dead-forested	1,661	Shallow water	*4,866*
Forestlands		Decid. shrub-scrub	*44,925*	Open water	*33,200*
Clearcut	*27,356*	Conifer. shrub-scrub	9,702	**Other**	
Early regeneration	*81,308*	Dead shrub-scrub	48	Alpine tundra	*322*
Late regeneration	*81,856*	Fresh aquatic bed	*24*	Exposed rock/Talus	*292*

For definitions of field contents see the Introduction. Items in *italics* in the table of habitat quantities show habitats not used by the species, but included in the predicted distribution because of generalization (see the Introduction for details).

RED CROSSBILL

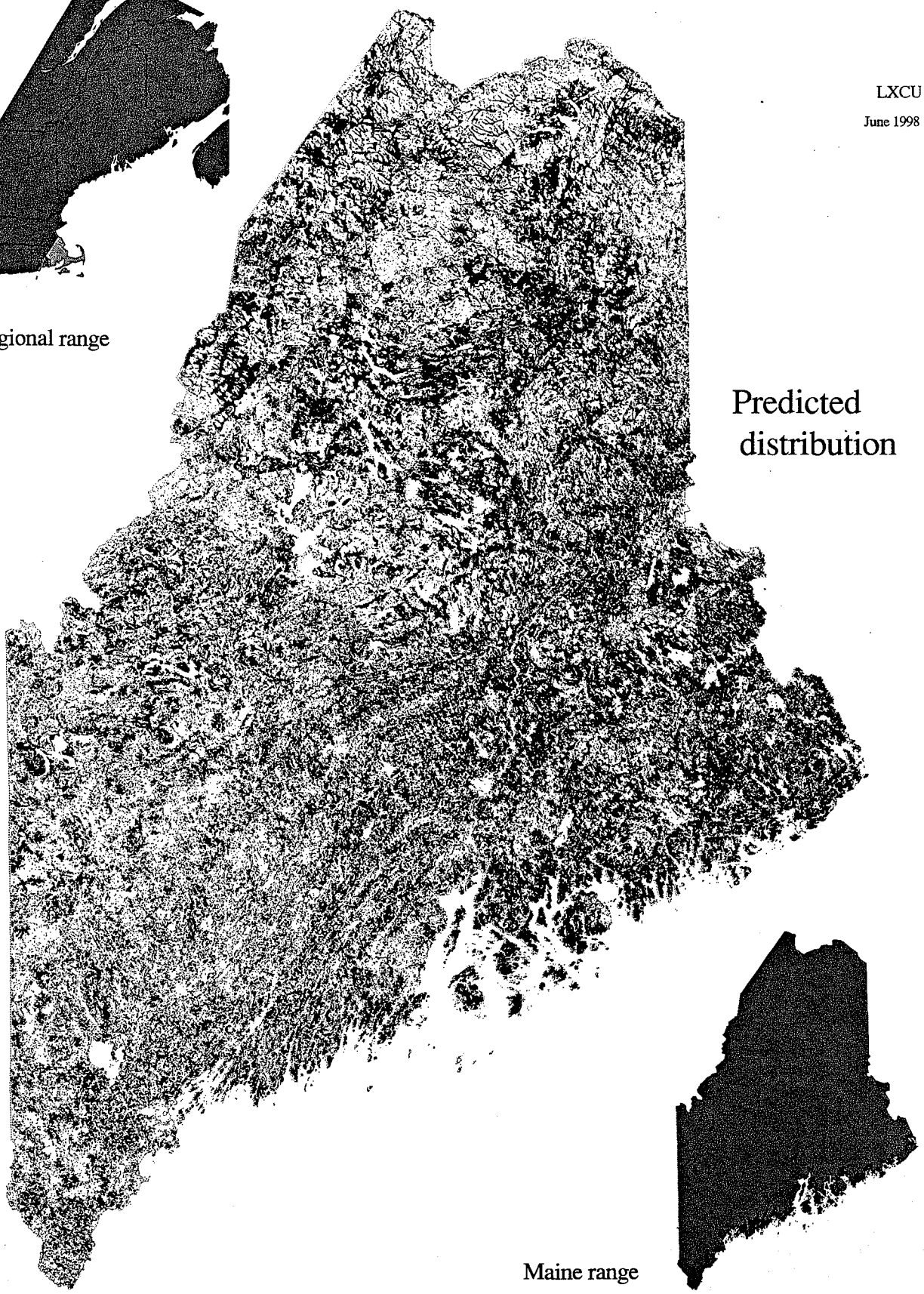
LXCU

June 1998



Regional range

Predicted distribution



Maine range

WHITE-WINGED CROSSBILL (*Loxia leucoptera*)

Element code: BPBY0502

ME-GAP code: LOLE

Order: Passeriformes

Family: Fringillidae

Breeding range change: Stable

Listing status: Not listed

Migratory status: Resident; Local migrant

Game species: No

Population level: Uncommon

Population trend: Stable, but eruptive and not well surveyed

Heritage ranks: G5 . . S3S4B,S3S4N

Knowledge: Adequate

General habitats used: White-winged Crossbills are closely associated with coniferous forests, feeding on the seeds of spruces, tamarack, and balsam fir. These crossbills may breed any month of the year. Larger and older conifer trees produce more cones, and more seeds, than younger trees. Therefore, harvesting of larger trees may reduce population rebounds in White-winged Crossbills, and fragmentation of habitats may reduce populations overall.

Specific habitats used:

Comments:

Predicted habitat quantities:

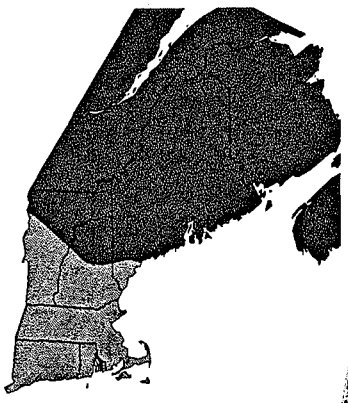
WHITE-WINGED CROSSBILL					Total in ha: 2,867,194
Habitat	**ha**	**Habitat**	**ha**	**Habitat**	**ha**
Agricultural lands		Light partial cut	*15,754*	Fresh emergent	*8,067*
Abandoned field	*2,185*	Heavy partial cut	*14,647*	Peatland	*4,700*
Blueberry field	*855*	Deciduous forest	*44,584*	Wet meadow	*1,428*
Grassland	*19,098*	Decid./Conif. forest	*129,773*	Salt aquatic bed	*1,105*
Crops/Ground	*5,241*	Conif./Decid. forest	1,420,369	Salt emergent	*203*
Developed lands		Coniferous forest	682,794	Mudflat	*309*
Sparse residential	43,077	**Wetlands**		Sand shore	*107*
Dense residential	*797*	Deciduous forested	*6,644*	Gravel shore	*109*
Urban/Industrial	*0*	Coniferous forested	340,607	Rock shore	*356*
Highways/Runways	*113*	Dead-forested	2,124	Shallow water	*1,407*
Forestlands		Decid. shrub-scrub	*16,527*	Open water	*8,764*
Clearcut	*12,235*	Conifer. shrub-scrub	12,358	**Other**	
Early regeneration	*31,317*	Dead shrub-scrub	70	Alpine tundra	*100*
Late regeneration	*39,258*	Fresh aquatic bed	*7*	Exposed rock/Talus	*108*

For definitions of field contents see the Introduction. Items in *italics* in the table of habitat quantities show habitats not used by the species, but included in the predicted distribution because of generalization (see the Introduction for details).

WHITE-WINGED CROSSBILL

LOLE

June 1998



Regional range

Predicted distribution



Maine range

PINE SISKIN (*Carduelis pinus*)

Element code: BPBY0603

ME-GAP code: CAPI

Order: Passeriformes

Family: Fringillidae

Breeding range change: Stable

Listing status: Not listed

Migratory status: Resident; Local migrant

Game species: No

Population level: Uncommon

Population trend: Stable, with wide fluctuations

Heritage ranks: G5 . . S5B,S5N

Knowledge: Adequate

General habitats used: Pine Siskins occur in coniferous forests of various ages. Somewhat open stands and stand edges are used. Pine Siskins may occur in hemlock, pine, tamarack, and spruce stands, conifer plantations, brushy forest edges, conifers in residential areas, and alder thickets. Pine Siskins nest in coniferous trees, and glean the ground and branches for food.

Specific habitats used:

Comments:

Predicted habitat quantities:

PINE SISKIN					Total in ha: 4,590,730
Habitat	ha	Habitat	ha	Habitat	ha
Agricultural lands		Light partial cut	72,029	Fresh emergent	*33,293*
Abandoned field	*7,254*	Heavy partial cut	*54,864*	Peatland	41,248
Blueberry field	*3,351*	Deciduous forest	*348,027*	Wet meadow	*6,519*
Grassland	*124,561*	Decid./Conif. forest	890,235	Salt aquatic bed	*2,365*
Crops/Ground	*22,872*	Conif./Decid. forest	1,411,211	Salt emergent	*826*
Developed lands		Coniferous forest	663,941	Mudflat	*1,086*
Sparse residential	38,908	**Wetlands**		Sand shore	*223*
Dense residential	*5,093*	Deciduous forested	55,722	Gravel shore	*471*
Urban/Industrial	*102*	Coniferous forested	325,106	Rock shore	*1,200*
Highways/Runways	*278*	Dead-forested	2,023	Shallow water	*6,836*
Forestlands		Decid. shrub-scrub	102,872	Open water	*46,826*
Clearcut	*43,486*	Conifer. shrub-scrub	12,070	**Other**	
Early regeneration	*140,857*	Dead shrub-scrub	64	Alpine tundra	*336*
Late regeneration	*124,034*	Fresh aquatic bed	*41*	Exposed rock/Talus	*501*

For definitions of field contents see the Introduction. Items in *italics* in the table of habitat quantities show habitats not used by the species, but included in the predicted distribution because of generalization (see the Introduction for details).

PINE SISKIN

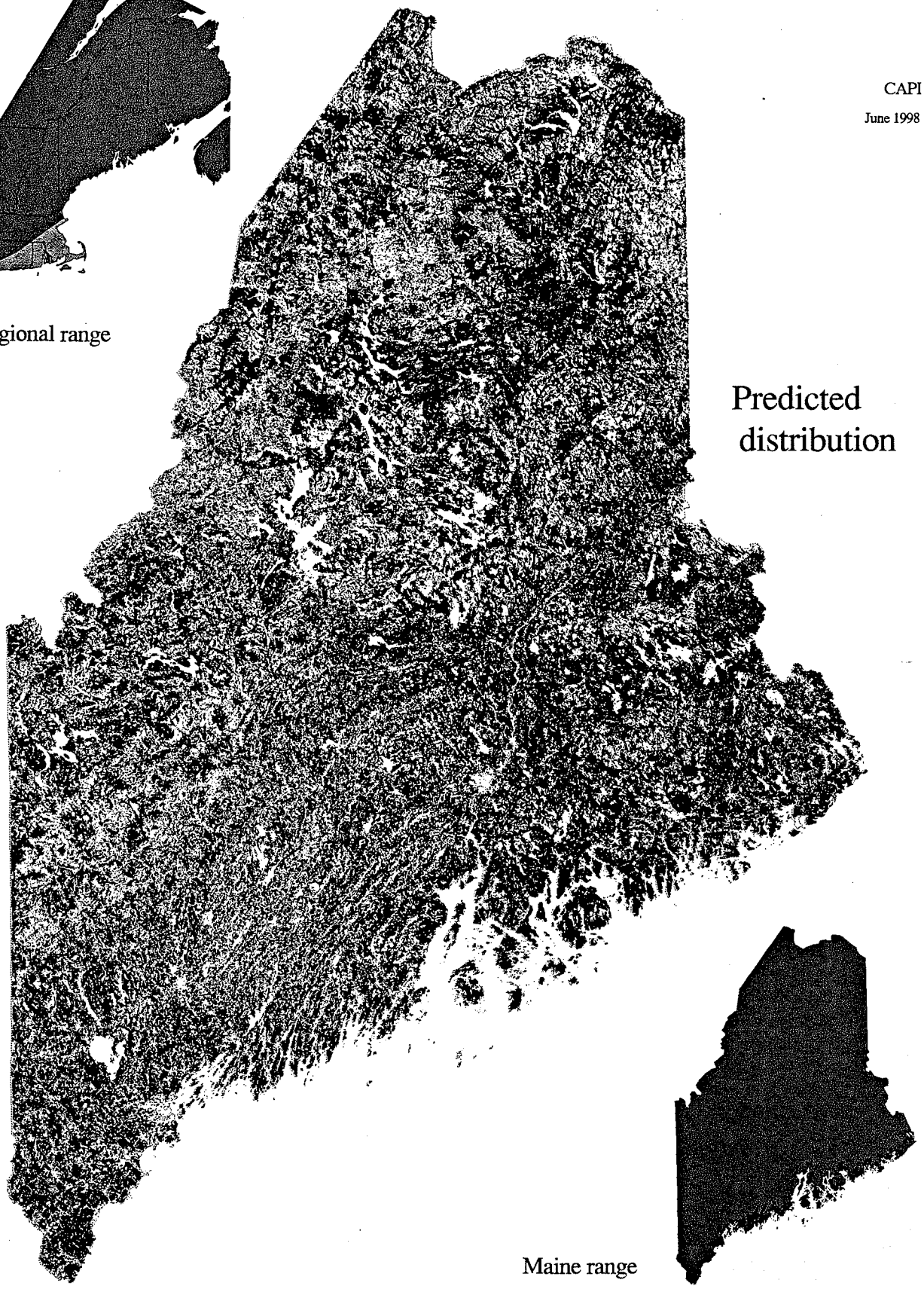
CAPI

June 1998



Regional range

Predicted distribution



Maine range

AMERICAN GOLDFINCH (*Carduelis tristis*)

Element code: BPBY0611

ME-GAP code: CATR

Order: Passeriformes

Family: Fringillidae

Breeding range change: Stable

Listing status: Not listed

Migratory status: Resident; Local migrant

Game species: No

Population level: Common

Population trend: Moderate increase

Heritage ranks: G5 . . S5B,S5N

Knowledge: Good

General habitats used: American Goldfinches breed in a variety of wet and dry, weedy habitats that have scattered trees. These birds may occur in brushy and weedy fields, abandoned farms, pastures, marshes, swamps, and sparse residential areas. Forest edges and the trees scattered through rural sites may be used by American Goldfinches. Goldfinches feed heavily on Canada Thistle, and on other composites, and construct nests in trees and shrubs.

Specific habitats used:

Comments:

Predicted habitat quantities:

AMERICAN GOLDFINCH					Total in ha: 1,668,060
Habitat	**ha**	**Habitat**	**ha**	**Habitat**	**ha**
Agricultural lands		Light partial cut	*19,788*	Fresh emergent	35,060
Abandoned field	9,841	Heavy partial cut	64,939	Peatland	30,763
Blueberry field	8,931	Deciduous forest	*84,575*	Wet meadow	8,725
Grassland	288,931	Decid./Conif. forest	*136,666*	Salt aquatic bed	*825*
Crops/Ground	78,644	Conif./Decid. forest	*167,055*	Salt emergent	567
Developed lands		Coniferous forest	*66,483*	Mudflat	*602*
Sparse residential	37,789	**Wetlands**		Sand shore	*131*
Dense residential	*6,714*	Deciduous forested	*13,116*	Gravel shore	*311*
Urban/Industrial	*306*	Coniferous forested	*56,828*	Rock shore	*369*
Highways/Runways	366	Dead-forested	*459*	Shallow water	*3,178*
Forestlands		Decid. shrub-scrub	69,499	Open water	*18,013*
Clearcut	68,870	Conifer. shrub-scrub	8,345	**Other**	
Early regeneration	323,928	Dead shrub-scrub	62	Alpine tundra	*53*
Late regeneration	*56,722*	Fresh aquatic bed	*28*	Exposed rock/Talus	*576*

For definitions of field contents see the Introduction. Items in *italics* in the table of habitat quantities show habitats not used by the species, but included in the predicted distribution because of generalization (see the Introduction for details).

AMERICAN GOLDFINCH

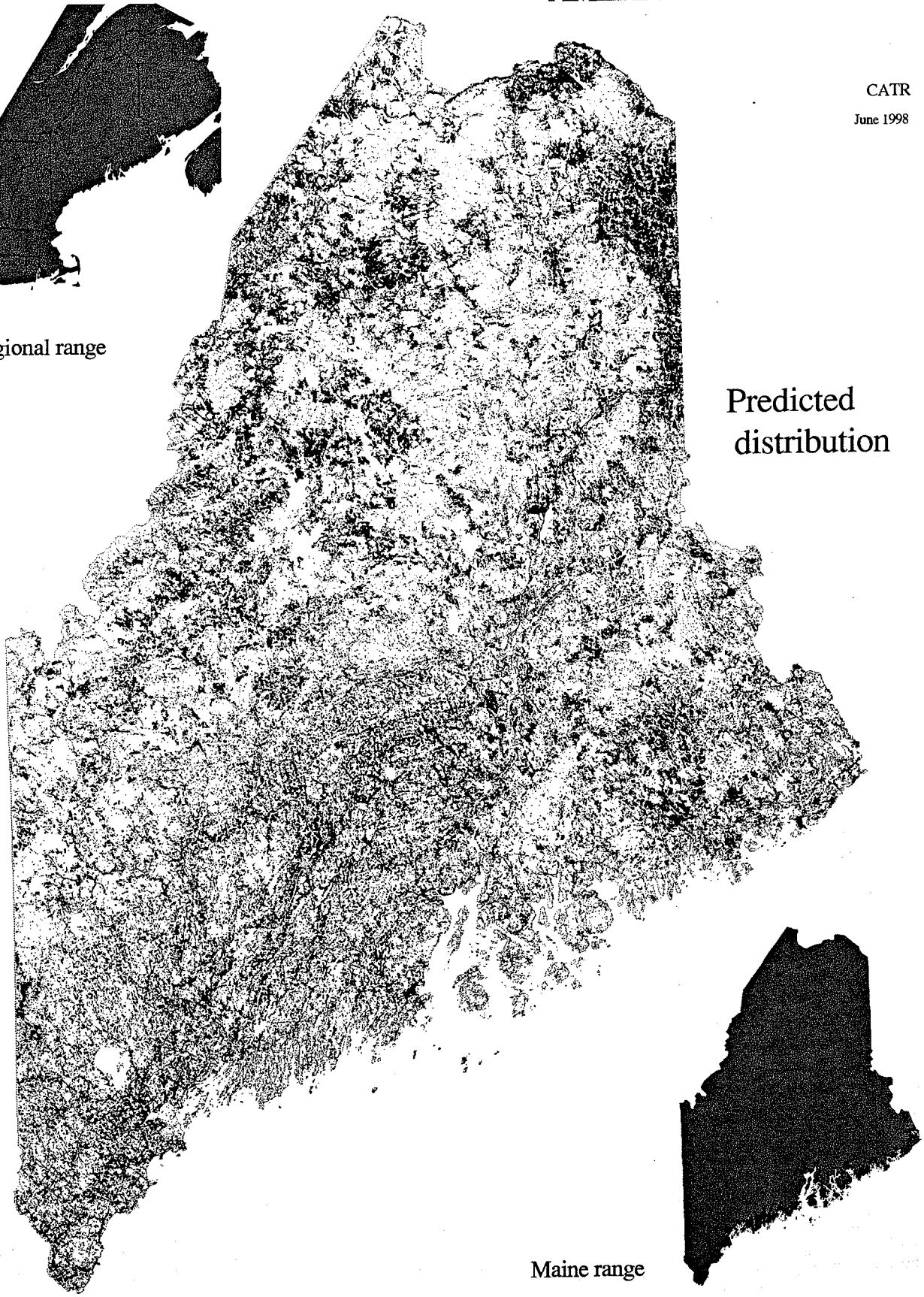
CATR

June 1998



Regional range

Predicted distribution



Maine range

EVENING GROSBEAK (*Coccothraustes vespertinus*)

Element code: BPBY0902

ME-GAP code: COVE

Order: Passeriformes

Family: Fringillidae

Breeding range change: Unknown

Listing status: Not listed

Migratory status: Resident; Local migrant

Game species: No

Population level: Common

Population trend: Stable, but respond to insect outbreaks

Heritage ranks: G5 . . S5B,S5N

Knowledge: Adequate

General habitats used: Evening Grosbeaks occur in coniferous forests, such as spruce, hemlock, and pine forests. These grosbeaks also will sometimes feed and nest in deciduous trees, such as box elder, maples, sumacs, and apples. Evening Grosbeaks typically build nests in coniferous trees, and forage for seeds, buds, and insects. Grosbeak populations increase when spruce budworm outbreaks occur.

Specific habitats used:

Comments:

Predicted habitat quantities:

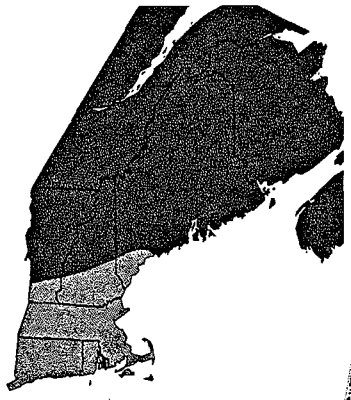
EVENING GROSBEAK					Total in ha: 4,110,025
Habitat	ha	Habitat	ha	Habitat	ha
Agricultural lands		Light partial cut	83,027	Fresh emergent	*9,842*
Abandoned field	*3,119*	Heavy partial cut	*26,413*	Peatland	*5,170*
Blueberry field	*1,199*	Deciduous forest	*152,120*	Wet meadow	*1,810*
Grassland	*30,656*	Decid./Conif. forest	972,820	Salt aquatic bed	*1,213*
Crops/Ground	*8,208*	Conif./Decid. forest	1,523,965	Salt emergent	*207*
Developed lands		Coniferous forest	705,642	Mudflat	*296*
Sparse residential	43,820	**Wetlands**		Sand shore	*108*
Dense residential	*983*	Deciduous forested	*8,443*	Gravel shore	*139*
Urban/Industrial	*0*	Coniferous forested	347,017	Rock shore	*410*
Highways/Runways	*133*	Dead-forested	2,210	Shallow water	*1,783*
Forestlands		Decid. shrub-scrub	*19,329*	Open water	*11,004*
Clearcut	*19,259*	Conifer. shrub-scrub	12,580	**Other**	
Early regeneration	*55,201*	Dead shrub-scrub	75	Alpine tundra	*111*
Late regeneration	*61,529*	Fresh aquatic bed	*11*	Exposed rock/Talus	*173*

For definitions of field contents see the Introduction. Items in *italics* in the table of habitat quantities show habitats not used by the species, but included in the predicted distribution because of generalization (see the Introduction for details).

EVENING GROSBEAK

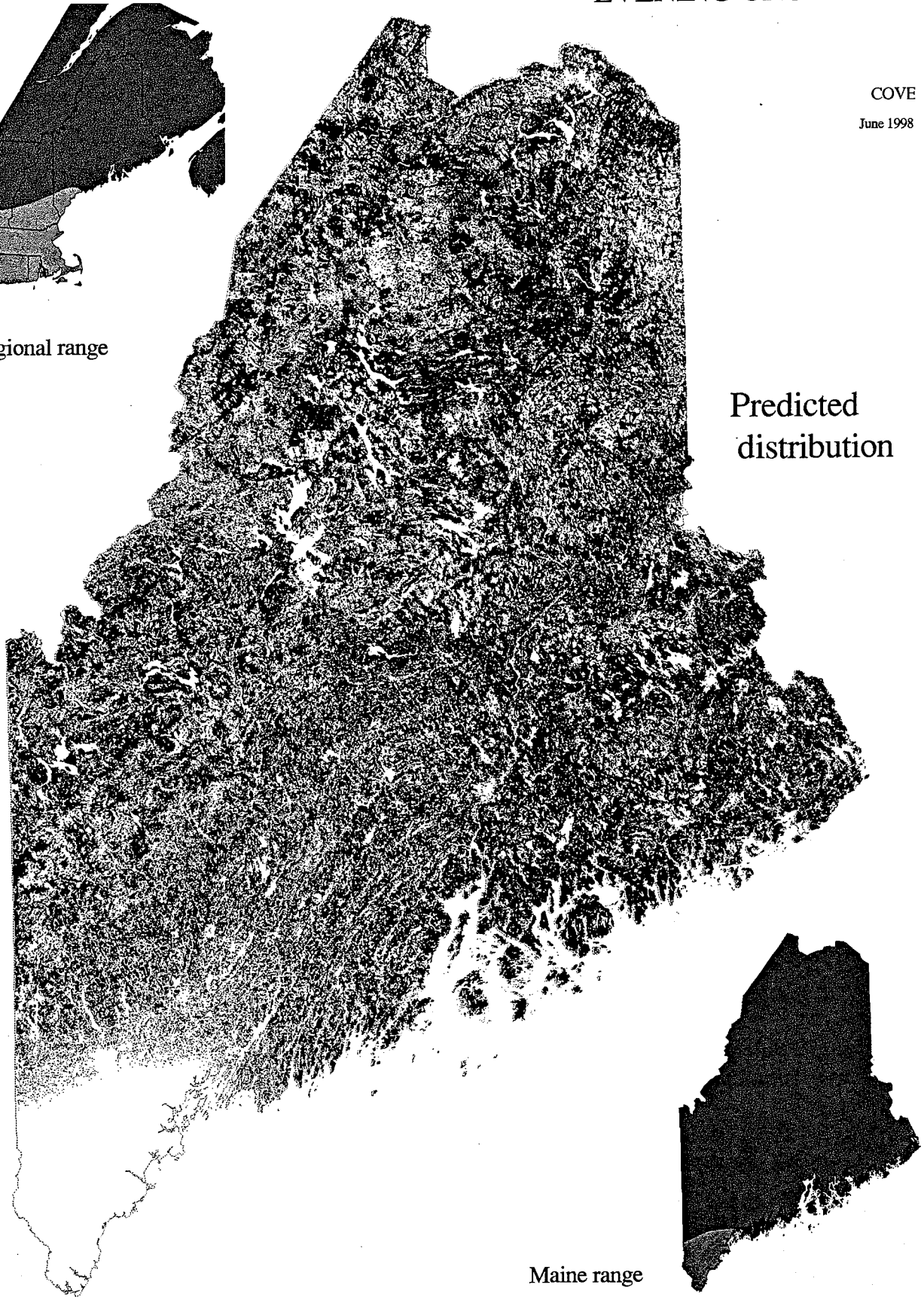
COVE

June 1998



Regional range

Predicted distribution



Maine range

Appendix 1. General, forest management, and group-specific literature reviewed for determining the habitat relations of breeding birds in Maine.

General Literature

Adamus, P.R. 1987. Atlas of breeding birds in Maine, 1978-1983. Maine Department of Inland Fisheries and Wildlife, Augusta. 366 pp.

Anderson, S.H. and C.S. Robbins. 1980. Habitat size and bird community management. *North American Wildlife Conference* 46:511-520.

Askins, R.A., M.J. Philbrick, and D.S. Sugeno. 1987. Relationship between the regional abundance of forest and the composition of forest bird communities. *Biological Conservation* 39:129-152.

Beals, E. 1960. Forest bird communities in the Apostle Islands of Wisconsin. *Wilson Bulletin* 72:156-181.

Brauning, D.W. 1992. Atlas of breeding birds in Pennsylvania. University of Pittsburgh Press, Pittsburgh, Pennsylvania. 484 pp.

Brooks, R.P. and M.J. Croonquist. 1990. Wetland, habitat, and trophic response guilds for wildlife species in Pennsylvania. *Journal of the Pennsylvania Academy of Science* 62:93-102.

Capen, D.E. 1979. Management of northeastern pine forests for nongame birds. Pages 90-99 *In* DeGraaf, R.M., and K.E. Evans (editors). Management of north central and northeastern forest for nongame birds. USDA Forest Service General Technical Report NC-51. 268 pp.

Chadwick, N.L., D.R. Progulske, and J.T. Finn. 1986. Effects of fuelwood cutting on birds in southern New England. *Journal of Wildlife Management* 50:398-405.

Cieslak, M. 1994. The vulnerability of breeding birds to forest fragmentation. *Acta Ornithological* 29:29-38.

Clark, K., D. Euler, and E. Armstrong. 1983. Habitat associations of breeding birds in cottage and natural areas of central Ontario. *Wilson Bulletin* 95:77-96.

Cody, M.L. 1981. Habitat selection in birds: the roles of vegetation structure, competitors, and productivity. *BioScience* 31:107-113.

Craig, R.J. and J.S. Barclay. 1992. Seasonal dynamics of bird populations in small New England wetlands. *Wilson Bulletin* 104:148-155.

Craig, R.J. and K.G. Beal. 1992. The influence of habitat variables on marsh bird communities of the Connecticut River Estuary. *Wilson Bulletin* 104:295-311.

Crawford, H.S. 1984. Wildlife habitat management and changing forest practices in the Northeast. *Northeast Journal of Applied Ecology* 1:12-14.

Crawford, H.S. and R.M. Frank. 1987. Wildlife habitat responses to silvicultural practices in spruce-fir forests. *North American Wildlife and Natural Resources Conference* 52:92-100.

Crawford, H.S. and R.W. Titterington. 1979. Effects of silvicultural practices on bird communities in upland spruce-fir stands. Pages 110-119. *In* DeGraaf, R.M., and K.E. Evans (editors). Management of north central and northeastern forest for nongame birds. USDA Forest Service General Technical Report NC-51. 268 pp.

Darveau, M., P. Beauchesne, L. Belanger, J. Huot, and P. Larue. 1995. Riparian forest strips as habitat for breeding birds in boreal forest. *Journal of Wildlife Management* 59:67-78.

Dawson, D.K. 1979. Bird communities associated with succession and management of lowland conifer forests. Pages 120-131. *In* DeGraaf, R.M., and K.E. Evans (editors). Management of north central and northeastern forest for nongame birds. USDA Forest Service General Technical Report NC-51. 268 pp.

DeGraaf, R.M. 1991. Breeding bird assemblages in managed northern hardwood forests in New England. Pages 153-171. *In* Rodiek, J.E. and E.G. Bolen (editors). Wildlife and habitats in managed landscapes. Island Press, Washington, DC. 219 pp.

DeGraaf, R.M., R.A. Askins, and W.M. Healy. The ruse of nature's constancy -- preservation, protection, and ecosystem management. Unpublished manuscript. 27 pp.

DeGraaf, R.M. and N.L. Chadwick. 1987. Forest type, timber size class, and New England breeding birds. *Journal of Wildlife Management* 51:212-217.

DeGraaf, R.M. and D.D. Rudis. 1986. New England wildlife: habitat, natural history, and distribution. USDA Forest Service, Northeastern (NE) Forest Experiment Station General Technical Report NE-108. 491 pp.

Derleth, E.L., McAuley, D.G., and T.J. Dwyer. 1989. Avian community response to small-scale habitat disturbance in Maine. *Canadian Journal of Zoology* 67:385-390.

Erskine, A.J. 1992. Atlas of breeding birds of the Maritime Provinces. Co-published by the Crown and Nova Scotia Museum. 270 pp.

Ferris, C.R. 1979. Effects of Interstate 95 on breeding birds in northern Maine. *Journal of Wildlife Management* 43:421-427.

Foss, C.R. (editor). 1994. Atlas of breeding birds in New Hampshire. Audubon Society of New Hampshire and Acadia Publishing, Dover, New Hampshire. 414 pp.

Gauthier, J., and Y. Aubry (editors). 1996. Atlas of the breeding birds of southern Quebec: the breeding birds of Quebec. Province of Quebec Society for the Protection of Birds and the Canadian Wildlife Service, Montreal, Quebec, Canada. 1,302 pp.

Gibbs, J.P., J.R. Longcore, D.G. McAuley, and J.K. Ringelman. 1991. Use of wetland habitats by selected nongame water birds in Maine. US Fish and Wildlife Service, Fish and Wildlife Resources 9. 57 pp.

Godfrey, W.E. 1966. The birds of Canada. Crown Copyright, Queen's Printer, Ottawa. 428 pp.

Gullion, G.W. 1984. Managing northern forests for wildlife. The Ruffed Grouse Society, Coraopolis, Pennsylvania. 72 pp.

Holmes, R.T. 1990. The structure of a temperate deciduous forest bird community: variability in time and space. 121-139 pp. *In* Keast, A. (editor). Biogeography and ecology of forest bird communities. SPB Academic Publishing, The Netherlands. 410 pp.

Holmes, R.T., and S.K. Robinson. 1981. Tree species preferences of foraging insectivorous birds in a northern hardwoods forest. *Oecologia* 48:31-35.

Holmes, R.T., T.W. Sherry, and F.W. Sturges. 1986. Bird community dynamics in a temperate deciduous forest: long-term trends at Hubbard Brook. *Ecological Monographs* 56:201-220.

James, F.C. and N.O. Wamer. 1982. Relationships between temperate forest bird communities and vegetation structure. *Ecology* 63:159-171.

Litvaitis, J.A. 1992. Influence of historic land use on temporal patterns of diversity among forest vertebrates. Unpublished manuscript. 27 pp.

Long, R.H. 1987. Native birds of Mount Desert Island and Acadia National Park. Beech Hill Publishing Company, Mount Desert, Maine. 41 pp.

Lynch, J.F. and D.F. Whigham. 1984. Effects of forest fragmentation on breeding bird communities in Maryland, USA. *Biological Conservation* 28:287-324.

MacArthur, R.H., J.W. MacArthur, and J. Preer. 1962. On bird species diversity. *American Naturalist* 96:167-174.

McLaren, M.A. and P.L. McLaren. 1981. Relative abundances of birds in boreal and subarctic habitats of northwestern Ontario and northeastern Manitoba. *Canadian Field-Naturalist* 95:418-427.

Meiklejohn, B.A. 1994. The value of buffer strips as riparian habitat in northern forests. M.S. Thesis, University of Vermont, Burlington.

Mitchell, W.A. 1988. Songbird nest boxes. US Army Corps of Engineers Wildlife Resources Management Manual. Technical Report EL-88-19. 48 pp.

Niemi, G.J. and J.M. Hanowski. 1984. Relationships of breeding birds to habitat characteristics in logged areas. *Journal of Wildlife Management* 48:438-443.

Palmer, R.S. 1949. Maine birds. Bulletin of the Museum of Comparative Zoology 102. Harvard College, Cambridge, MA 656 pp.

Parker, G.R., D.G. Kimball, and B. Dalzell. 1994. Bird communities breeding in selected spruce and pine plantations in New Brunswick. *Canadian Field-Naturalist* 108:1-9.

Robbins, C.S. 1988. Forest fragmentation and its effects on birds. Pages 61-65. *In* Johnson, J.E. (editor). Managing north central forests for non-timber values. Society of American Foresters, Bethesda, Maryland. 156 pp.

Robbins, C.S., D.K. Dawson, and B.A. Dowell. 1989. Habitat area requirements of breeding forest birds of the middle Atlantic states. *Wildlife Monographs* 103.

Sabo, S.R. 1980. Niche and habitat relations in subalpine bird communities of the White Mountains of New Hampshire. *Ecological Monographs* 50:241-258.

Sabo, S.R. and R.T. Holmes. 1983. Foraging niches and the structure of forest bird communities in contrasting montane habitats. *Condor* 85:121-138.

Sanders, C.J. 1970. Populations of breeding birds in the spruce-fir forests of northwestern Ontario. *Canadian Field-Naturalist* 84:131-135.

Scanlon, J.J. 1992. Managing forests to enhance wildlife diversity in Massachusetts. *Northeast Wildlife* 49:1-9.

Silloway, P.M. 1923. Relation of summer birds to the western Adirondack forest. *Roosevelt Wild Life Bulletin* 1:397-486.

Stewart, R.E. and J.W. Aldrich. 1951. Removal and repopulation of breeding birds in a spruce-fir forest community. *Auk* 68:471-493.

Stockwell, S.S. 1994. Habitat selection and community organization of birds in eight peatlands of Maine. Ph.D. Thesis, University of Maine, Orono. 115 pp.

Taber, W. 1951. The northern element in the summer bird life of south-central New England. *Wilson Bulletin* 63:69-74.

Temple, S.A., M.J. Mossman, and B. Ambuel. 1979. The ecology and management of avian communities in mixed hardwood-coniferous forests. Pages 132-153. *In* DeGraaf, R.M., and K.E. Evans (editors). Management of north central and northeastern forest for nongame birds. USDA Forest Service General Technical Report NC-51. 268 pp.

Thompson, F.R., III and D.E. Capen. 1988. Avian assemblages in seral stages of a Vermont forest. *Journal of Wildlife Management* 52:771-777.

Vera, C.J. and F.A. Servello. 1994. Effects of paper mill sludge in spruce-fir forests on wildlife in Maine. *Journal of Wildlife Management* 58:719-727.

Vickery, P.D. 1991. A regional analysis of endangered, threatened, and special-concern birds in the northeastern United States. *Transactions of the Northeast Section of the Wildlife Society* 48:1-10.

Welsh, C.J.E. and W.M. Healy. 1993. Effect of even-aged timber management on bird species diversity and composition in northern hardwoods of New Hampshire. *Wildlife Society Bulletin* 21:143-154.

Wiens, J.A. 1969. An approach to the study of ecological relationships among grassland birds. *Ornithological Monographs* 8:1-93.

Whitcomb, B.L., R.F. Whitcomb, and D. Bystrak. 1977. Long-term turnover and effects of selective logging on the avifauna of forest fragments. *American Birds* 31:17-24.

Yahner, R.H. 1984. Effects of habitat patchiness created by a Ruffed Grouse management plan on breeding bird communities. *American Midland Naturalist* 111:409-413.

Yahner, R.H. 1986. Structure, seasonal dynamics, and habitat relationships of avian communities in small even-aged forest stands. *Wilson Bulletin* 98:61-82.

Forest Practices and Succession

Crawford, H.S., R.G. Hooper, and R.W. Titterington. 1981. Songbird population response to silvicultural practices in central Appalachian hardwoods. *Journal of Wildlife Management* 45:680-692.

Crawford, H.S., R.W. Titterington, and D.T. Jennings. 1983. Bird predation and spruce budworm populations. *Journal of Forestry* 81:433-435.

Elliott, C.A. 1987. Songbird species diversity and habitat use in relation to vegetation structure and size of forest stands and forest-clearcut edges in north-central Maine. Ph.D. Thesis, University of Maine, Orono. 84 pp.

Elliott, C.A. 1988. A forester's guide to managing wildlife habitats in Maine. Maine Chapter of The Wildlife Society and the Cooperative Extension Service, University of Maine, Orono. 46 pp plus appendices.

Freedman, B., C. Beauchamp, I.A. McLaren, and S.I. Tingley. 1981. Forestry management practices and populations of breeding birds in a hardwood forest in Nova Scotia. *Canadian Field-Naturalist* 95:307-311.

Freedman, B., A.M. Poirer, R. Morash, and F. Scott. 1988. Effects of the herbicide 2,4,5-T on the habitat and abundance of breeding birds and small mammals of a conifer clearcut in Nova Scotia. *Canadian Field-Naturalist* 102:6-11.

Hagan, J.M., P.S. McKinley, A. L. Meehan, and S. L. Grove. 1997. Diversity and abundance of landbirds in northeastern industrial forest. *Journal of Wildlife Management* 61:718-735.

Hartley, M. J., and M. L. Hunter, Jr. 1998. A meta-analysis of forest cover, edge effects, and artificial nest predation rates. *Conservation Biology* 12:465-469.

Johnson, W.N., Jr. and P.W. Brown. 1990. Avian use of a lakeshore buffer strip and an undisturbed lakeshore in Maine. *Northern Journal of Applied Forestry* 7:114-117.

Martin, N.D. 1960. An analysis of bird populations in relation to forest succession in Algonquin Provincial Park, Ontario. *Ecology* 41:126-140.

Maurer, B.A., L.B. McArthur, and R.C. Whitmore. 1981. Effects of logging on guild structure of a forest bird community in West Virginia. *American Birds* 35:11-13.

Morgan, K. and B. Freedman. 1986. Breeding bird communities in a hardwood forest succession in Nova Scotia. *Canadian Field-Naturalist* 100:506-519.

Orr, J.C. 1983. The response of small mammal and breeding songbird populations to varying woodlot management techniques. M.S. Thesis, Acadia University, Nova Scotia. 84 pp.

Rudnicky, T., and M.L. Hunter, Jr. 1992. Avian nest predation in clearcuts, forests, and edges in a forest-dominated landscape. *Journal of Wildlife Management* 57:358-364.

Rudnicky T., and M.L. Hunter, Jr. 1993. Reversing the fragmentation perspective: effects of clearcut size on bird species richness in Maine. *Ecological Applications* 3:357-366.

Santillo, D.J., P.W. Brown, and D.M. Leslie, Jr. 1989. Response of songbirds to glyphosate-induced habitat changes on clearcuts. *Journal of Wildlife Management* 53:64-71.

Titterington, R.W., H.S. Crawford, and B.N. Burgason. 1979. Songbird responses to commercial clear-cutting in Maine spruce-fir forests. *Journal of Wildlife Management* 43:602-609.

VanderHaegen, W.M., and R.M. DeGraaf. 1996. Predation on artificial nests in forested riparian buffer strips. *Journal of Wildlife Management* 60:542-550.

Webb, W.L., D.F. Behrend, and B. Saisorn. 1977. Effect of logging on songbird populations in a northern hardwood forest. *Wildlife Monographs* 55. 35 pp.

Yahner, R.H. and C.A. DeLong. 1992. Avian predation and parasitism on artificial nests and eggs in two fragmented landscapes. *Wilson Bulletin* 104:162-168.

Group-specific

Wading and wetland birds

Crowley, S.K. 1994. Habitat use and population monitoring of secretive waterbirds in Massachusetts. M.S. Thesis, University of Massachusetts, Amherst. 108 pp.

Gibbs, J.P. and S.M. Melvin. 1990. An assessment of wading birds and other wetlands avifauna and their habitats in Maine. Unpublished report, Maine Department of Inland Fisheries and Wildlife, Augusta. 61 pp.

Gibbs, J.P., J.R. Longcore, D.G. McAuley, and J.K. Ringelman. 1991. Use of wetland habitats by selected nongame birds in Maine. USDI Fish and Wildlife Service, Fish and Wildlife Resources 9, Washington, DC. 57 pp.

Gibbs, J.P. and S.M. Melvin. 1993. Call-response surveys for monitoring breeding waterbirds. *Journal of Wildlife Management* 57:27-34.

Waterfowl

Bellrose, F.C. 1976. Ducks, Geese and Swans of North America. Stackpole Books, Harrisburg, Pennsylvania. 540 pp.

Mcall, T.C., T.P., Hodgman, D.R. Diefenbach, and R.B. Owen, Jr. 1996. Beaver populations and their relation to wetland habitat and breeding waterfowl in Maine. *Wetlands* 16:163-172

Hawks

Devaul, H. 1990. A theoretical and empirical evaluation of a method of estimating area occupied for breeding woodland Hawks in Maine. M.S. Thesis, University of Maine, Orono. 59 pp.

Titus, K. and M.R. Fuller. 1990. Recent trends in counts of migrant Hawks from northeastern North America. *Journal of Wildlife Management* 54:463-470.

Gamebirds

Edminster, F.C. 1954. American game birds of field and forest: their habits, ecology, and management. Charles Scribner's Sons, New York, New York. 490 pp.

Vermont Fish and Wildlife Department (VFWD). 1985. Model habitat management guidelines for Deer, Bear, Hare, Grouse, Turkey, Woodcock, and non-game wildlife. VFWD, Agency of Environmental Conservation, Montpelier, Vermont. 64 pp.

Owls

Hayward, G.D. and E.O. Garton. 1984. Roost habitat selection by three small forest Owls. *Wilson Bulletin* 96:690-692.

Woodpeckers

Connor, R.N. and H.S. Crawford. 1974. Woodpecker foraging in Appalachian clearcuts. *Journal of Forestry* 72:564-566.

Connor, R.H., R.G. Hooper, H.S. Crawford, H.S. Mosby. 1975. Woodpecker nesting habitat in cut and uncut woodlands in Virginia. *Journal of Wildlife Management* 39:144-150.

Flycatchers

Hespenheide, H.A. 1971. Flycatcher habitat selection in the eastern deciduous forest. *Auk* 88:61-74.

Grassland Birds

Vickery, P.D., M.L. Hunter, Jr., and J.V. Wells. 1992. Evidence of incidental nest predation and its effects on nests of threatened grassland birds. *Oikos* 63:281-288.

Vickery, P.D., M.L. Hunter, Jr., and S.M. Melvin. 1994. Effects of habitat area on the distribution of grassland birds in Maine. *Conservation Biology* 8:1087-1097.

Vickery, P.D. and M.L. Hunter, Jr. 1995. Do artificial song-perches affect habitat use by grassland birds in Maine? *American Midland Naturalist* 133:164-169.

Wiens, J.A. 1969. An approach to the study of ecological relationships among grassland birds. *Ornithological Monographs* 8. 93 pp.

Thrushes

Dilger, W.C. 1956. Adaptive modifications and ecological isolating mechanisms in the Thrush genera *Catharus* and *Hylocichla*. *Wilson Bulletin* 68:171-199.

Warblers

Brooks, M. 1940. The breeding Warblers of the central Allegheny Mountain region. *Wilson Bulletin* 52:249-266.

Collins, S.L., F.C. James and P.G. Risser. 1982. Habitat relationships of wood Warblers (Parulidae) in northern central Minnesota. *Oikos* 39:50-58.

Cruickshank, A.D. 1956. Nesting heights of some woodland Warblers in Maine. *Wilson Bulletin* 68:157.

Kendeigh, S.C. 1945. Nesting behavior of wood Warblers. *Wilson Bulletin* 57:145-164.

MacArthur, R.H. 1958. Population ecology of some Warblers of northeastern coniferous forests. *Ecology* 38:599-619.

Morse, D.H. 1976. Variables affecting the density and territory size of breeding spruce-woods Warblers. *Ecology* 57:290-301.

Sodhi, N.S. and C.A. Paszkowski. 1995. Habitat use and foraging behavior of four parulid Warblers in a second-growth forest. *Journal of Field Ornithology* 66:277-288.

Appendix 2. References for individual species used to determine habitat relations of breeding birds in Maine.

Loon, Grebe

Common Loon (*Gavia immer*) A2-6
Pied-billed Grebe (*Podilymbus podiceps*) A2-7

Wading birds

American Bittern (*Botaurus lentiginosus*) A2-7
Least Bittern (*Ixobrychus exilis*) A2-7
Great Blue Heron (*Ardea herodias*) A2-7
Snowy Egret (*Egretta thula*) A2-7
Little Blue Heron (*Hydranassa caerulea*) A2-8
Cattle Egret (*Bubulcus ibis*) A2-8
Green Heron (*Butorides virescens*) A2-8
Black-crowned Night Heron (*Nycticorax nycticorax*) A2-8
Glossy Ibis (*Plegadis falcinellis*) A2-8

Waterfowl

Canada Goose (*Branta canadensis*) A2-8
Wood Duck (*Aix sponsa*) A2-9
Green-winged Teal (*Anas crecca*) A2-9
Mallard (*Anas platyrhynchos*) A2-9
American Black Duck (*Anas rubripes*) A2-10
Blue-winged Teal (*Anas discors*) A2-10
American Wigeon (*Anas americana*) A2-11
Ring-necked Duck (*Aythya collaris*) A2-11
Common Goldeneye (*Bucephala clangula*) A2-11
Hooded Merganser (*Lophodytes cucullatus*) A2-12
Common Merganser (*Mergus merganser*) A2-12
Red-breasted Merganser (*Mergus serrator*) A2-12

Vulture, Eagles, Hawks, Falcons

Turkey Vulture (*Cathartes aura*) A2-12
Osprey (*Pandion haliaetus*) A2-12
Bald Eagle (*Haliaeetus leucocephalus*) A2-12
Northern Harrier (*Circus cyaneus*) A2-13
Sharp-shinned Hawk (*Accipiter striatus*) A2-13
Cooper's Hawk (*Accipiter cooperii*) A2-13
Northern Goshawk (*Accipiter gentilis*) A2-13
Red-shouldered Hawk (*Buteo lineatus*) A2-13
Broad-winged Hawk (*Buteo platypterus*) A2-14
Red-tailed Hawk (*Buteo jamaicensis*) A2-14

Golden Eagle (*Aquila chrysaetos*) A2-14
American Kestrel (*Falco sparverius*) A2-14
Merlin (*Falco columbarius*) A2-15
Peregrine Falcon (*Falco peregrinus*) A2-15

Gamebirds

Spruce Grouse[a] (*Dendragapus canadensis*) A2-15
Ruffed Grouse (*Bonasa umbellus*) A2-15
Wild Turkey (*Meleagris gallopavo*) A2-16

Rails, Coots

Virginia Rail (*Rallus limicola*) A2-16
Sora (*Porzana carolina*) A2-16
Yellow Rail (*Coturnicops noveboracensis*) A2-16
Common Moorhen (*Gallinula chloropus*) A2-16
American Coot (*Fulica americana*) A2-17

Shorebirds

Killdeer (*Charadrius vociferus*) A2-17
Spotted Sandpiper (*Actitis macularia*) A2-17
Upland Sandpiper (*Bartramia longicauda*) A2-17
Common Snipe (*Gallinago gallinago*) A2-17
American Woodcock (*Scolopax minor*) A2-18

Inland Gulls and Terns

Herring Gull (*Larus argentatus*) A2-18
Great Black-backed Gull (*Larus marinus*) A2-19
Common Tern (*Sterna hirundo*) A2-19
Black Tern (*Chlidonias niger*) A2-19

Dove

Mourning Dove (*Zenaida macroura*) A2-19

Cuckoos

Black-billed Cuckoo (*Coccyzus erythropthalmus*) A2-19
Yellow-billed Cuckoo (*Coccyzus americanus*) A2-20

a - Not hunted; season closed.

Owls, Nightjars

Great Horned Owl (*Bubo virginianus*) A2-20
Barred Owl (*Strix varia*) A2-20
Long-eared Owl (*Asio otus*) A2-20
Short-eared Owl (*Asio flammeus*) A2-20
Northern Saw-whet Owl (*Aegolius acadicus*) A2-20
Common Nighthawk (*Chordeiles minor*) A2-21
Whip-poor-will (*Caprimulgus vociferus*) A2-21

Swift, Hummingbird

Chimney Swift (*Chaetura pelagica*) A2-21
Ruby-throated Hummingbird (*Archilochus colubris*) A2-21

Kingfisher

Belted Kingfisher (*Ceryle alcyon*) A2-21

Woodpeckers

Yellow-bellied Sapsucker (*Sphyrapicus varius*) A2-22
Downy Woodpecker (*Picoides pubescens*) A2-22
Hairy Woodpecker (*Picoides villosus*) A2-22
Three-toed Woodpecker (*Picoides tridactylus*) A2-22
Black-backed Woodpecker (*Picoides arcticus*) A2-22
Northern Flicker (*Colaptes auratus*) A2-23
Pileated Woodpecker (*Dryocopus pileatus*) A2-23

Flycatchers, Lark, Swallows

Olive-sided Flycatcher (*Contopus borealis*) A2-23
Eastern Wood-pewee (*Contopus virens*) A2-23
Yellow-bellied Flycatcher (*Empidonax flaviventris*) A2-23
Alder Flycatcher (*Empidonax alnorum*) A2-24
Willow Flycatcher (*Empidonax traillii*) A2-24
Least Flycatcher (*Empidonax minimus*) A2-24
Eastern Phoebe (*Sayornis phoebe*) A2-24
Great Crested Flycatcher (*Myiarchus crinitus*) A2-25
Eastern Kingbird (*Tyrannus tyrannus*) A2-25
Horned Lark (*Eremophila alpestris*) A2-25
Purple Martin (*Progne subis*) A2-25
Tree Swallow (*Tachycineta bicolor*) A2-26
Northern Rough-winged Swallow (*Stelgidopteryx serripennis*) A2-26
Bank Swallow (*Riparia riparia*) A2-26
Cliff Swallow (*Hirundo pyrrhonata*) A2-26
Barn Swallow (*Hirundo rustica*) A2-26

Jays, Crows

Gray Jay (*Perisoreus canadensis*) A2-27
Blue Jay (*Cyanocitta cristata*) A2-27
American Crow (*Corvus brachyrhynchos*) A2-27
Common Raven (*Corvus corax*) A2-27

Chickadees, Titmouse, Nuthatches

Black-capped Chickadee (*Parus atricapillus*) A2-27
Boreal Chickadee (*Parus hudsonicus*) A2-28
Tufted Titmouse (*Parus bicolor*) A2-28
Red-breasted Nuthatch (*Sitta canadensis*) A2-28
White-breasted Nuthatch (*Sitta carolinensis*) A2-28
Brown Creeper (*Certhia americana*) A2-28

Wrens

House Wren (*Troglodytes aedon*) A2-29
Winter Wren (*Troglodytes troglodytes*) A2-29
Marsh Wren (*Cistothorus palustris*) A2-29
Sedge Wren (*Cistothorus platensis*) A2-29
Carolina Wren (*Thryothorus ludovicianus*) A2-29

Kinglets, Thrushes

Golden-crowned Kinglet (*Regulus satrapa*) A2-29
Ruby-crowned Kinglet (*Regulus calendula*) A2-30
Blue-gray Gnatcatcher (*Polioptila caerulea*) A2-30
Eastern Bluebird (*Sialia sialia*) A2-30
Veery (*Catharus fuscescens*) A2-30
Bicknell's Thrush (*Catharus bicknelli*) A2-30
Swainson's Thrush (*Catharus ustulatus*) A2-31
Hermit Thrush (*Catharus guttatus*) A2-31
Wood Thrush (*Hylocichla mustelina*) A2-31
American Robin (*Turdus migratorius*) A2-31
Gray Catbird (*Dumetella carolinensis*) A2-32
Northern Mockingbird (*Mimus polyglottus*) A2-32
Brown Thrasher (*Toxostoma rufum*) A2-32

Pipit

American Pipit (*Anthus rubescens*) A2-32

Waxwing

Cedar Waxwing (*Bombycilla cedrorum*) A2-32

Vireos

Blue-headed Vireo (*Vireo solitarius*) A2-33

Yellow-throated Vireo (*Vireo flavifrons*) A2-33
Warbling Vireo (*Vireo gilvus*) A2-33
Philadelphia Vireo (*Vireo philadelphicus*) A2-33
Red-eyed Vireo (*Vireo olivaceus*) A2-33

Warblers

Blue-winged Warbler (*Vermivora pinus*) A2-34
Tennessee Warbler (*Vermivora peregrina*) A2-34
Nashville Warbler (*Vermivora ruficapilla*) A2-34
Northern Parula (*Parula americana*) A2-34
Yellow Warbler (*Dendroica petechia*) A2-35
Chestnut-sided Warbler (*Dendroica pensylvanica*) A2-35
Magnolia Warbler (*Dendroica magnolia*) A2-35
Cape May Warbler (*Dendroica tigrina*) A2-35
Black-throated Blue Warbler (*Dendroica caerulescens*) A2-36
Yellow-rumped Warbler (*Dendroica coronata*) A2-36
Black-throated Green Warbler (*Dendroica virens*) A2-36
Blackburnian Warbler (*Dendroica fusca*) A2-36
Pine Warbler (*Dendroica pinus*) A2-37
Prairie Warbler (*Dendroica discolor*) A2-37
Palm Warbler (*Dendroica palmarum*) A2-37
Bay-breasted Warbler (*Dendroica castanea*) A2-37
Blackpoll Warbler (*Dendroica striata*) A2-38
Black-and-white Warbler (*Mniotilta varia*) A2-38
American redstart (*Setophaga ruticilla*) A2-38
Ovenbird (*Seiurus aurocapillus*) A2-38
Northern Waterthrush (*Seiurus noveboracensis*) A2-39
Louisiana Waterthrush (*Seiurus motacilla*) A2-39
Mourning Warbler (*Oporornis philadelphia*) A2-39
Common Yellowthroat (*Geothlypis trichas*) A2-39
Wilson's Warbler (*Wilsonia pusilla*) A2-39
Canada Warbler (*Wilsonia canadensis*) A2-40
Scarlet Tanager (*Piranga olivacea*) A2-40
Northern Cardinal (*Cardinalis cardinalis*) A2-40

Grosbeak, Bunting, Towhee

Rose-breasted Grosbeak (*Pheucticus ludovicianus*) A2-40
Indigo Bunting (*Passerina cyanea*) A2-40
Eastern Towhee (*Pipilo erythrophthalmus*) A2-41

Sparrows

Chipping Sparrow (*Spizella passerina*) A2-41
Field Sparrow (*Spizella pusilla*) A2-41
Vesper Sparrow (*Pooecetes gramineus*) A2-41

Savannah Sparrow (*Passerculus sandwichensis*) A2-42
Grasshopper Sparrow (*Ammodramus savannarum*) A2-42
Saltmarsh Sharp-tailed Sparrow (*Ammodramus caudacutus*) A2-42
Nelson's Sharp-tailed Sparrow (*Ammodramus nelsoni*) A2-42
Fox Sparrow (*Passerella iliaca*) A2-43
Song Sparrow (*Melospiza melodia*) A2-43
Lincoln's Sparrow (*Melospiza lincolnii*) A2-43
Swamp Sparrow (*Melospiza georgiana*) A2-43
White-throated Sparrow (*Zonotrichia albicollis*) A2-43
Dark-eyed Junco (*Junco hyemalis*) A2-44
Bobolink (*Dolichonyx oryzivorus*) A2-44

Blackbirds and Oriole

Red-winged Blackbird (*Agelaius phoeniceus*) A2-44
Eastern Meadowlark (*Sturnella magna*) A2-44
Rusty Blackbird (*Euphagus carolinus*) A2-44
Common Grackle (*Quiscalus quiscala*) A2-45
Brown-headed Cowbird (*Molothrus ater*) A2-45
Baltimore Oriole (*Icterus galbula*) A2-45

Finches

Pine Grosbeak (*Pinicola enucleator*) A2-45
Purple Finch (*Carpodacus purpureus*) A2-46
Red Crossbill (*Loxia curvirostra*) A2-46
White-winged Crossbill (*Loxia leucoptera*) A2-46
Pine Siskin (*Carduelis pinus*) A2-46
American Goldfinch (*Carduelis tristis*) A2-47
Evening Grosbeak (*Coccothraustes vespertinus*) A2-47

Species-specific References

Common Loon (*Gavia immer*)

Blair, R.B. 1992. Lake features, water quality and the summer distribution of Common Loons in New Hampshire. *Journal of Field Ornithology* 63:1-9.

Rimmer, C.C. 1992. Common Loon, *Gavia immer*. Pages 3-30 *In* Schneider, K.J. and D.M. Pence (editors). Migratory nongame birds of management concern in the Northeast. USDI Fish and Wildlife Service, Region 5, Newton Corner, Massachusetts. 400 pp.

Strong, P.I. and J.A. Bissonette. 1987. Effects of nest-site loss on Common Loons, *Gavia immer*. *Canadian Field-Naturalist* 101:581-583.

Strong. P.I. and J.A. Bissonette. 1989. Feeding and chick-rearing areas of Common Loons. *Journal of Wildlife Management* 53:72-76.

Strong, P.I. and J.A. Bissonette. 1989. Common Loons, *Gavia immer*, nesting in deadwater streams. *Canadian Field-Naturalist* 103:94-96.

Pied-billed Grebe (*Podilymbus podiceps*)

Gibbs, J.P. and S.M. Melvin. 1992. Pied-billed Grebe, *Podilymbus podiceps*. Pages 31-49. *In* Schneider, K.J. and D.M. Pence (editors). Migratory nongame birds of management concern in the Northeast. USDI Fish and Wildlife Service, Region 5, Newton Corner, Massachusetts. 400 pp.

American Bittern (*Botaurus lentiginosus*)

Gibbs, J.P. and S.M. Melvin. 1992. American Bittern, *Botaurus lentiginosus*. Pages 51-69. *In* Schneider, K.J. and D.M. Pence (editors). Migratory nongame birds of management concern in the Northeast. USDI Fish and Wildlife Service, Region 5, Newton Corner, Massachusetts. 400 pp.

Least Bittern (*Ixobrychus exilis*)

Gibbs, J.P. and S.M. Melvin. 1992. Least Bittern, *Ixobrychus exilis*. Pages 71-88. *In* Schneider, K.J. and D.M. Pence (editors). Migratory nongame birds of management concern in the Northeast. USDI Fish and Wildlife Service, Region 5, Newton Corner, Massachusetts. 400 pp.

Great Blue Heron (*Ardea herodias*)

Gibbs, J.P. 1991. Spatial relationships between nesting colonies and foraging areas of Great Blue Herons. *Auk* 108:764-770.

Gibbs, J.P. 1987. Determinants of Great Blue Heron colony distribution in coastal Maine. *Auk* 104:38-47.

Snowy Egret (*Egretta thula*)

Brauning, D.W. 1992. Atlas of breeding birds in Pennsylvania. University of Pittsburgh Press, Pittsburgh, Pennsylvania. 484 pp.

DeGraaf, R.M. and D.D. Rudis. 1986. New England wildlife: habitat, natural history, and distribution. USDA Forest Service, Northeastern (NE) Forest Experiment Station General Technical Report NE-108. 491 pp.

Little Blue Heron (*Hydranassa caerulea*)

DeGraaf, R.M. and D.D. Rudis. 1986. New England wildlife: habitat, natural history, and distribution. USDA Forest Service, Northeastern (NE) Forest Experiment Station General Technical Report NE-108. 491 pp.

Foss, C.R. 1994. Atlas of breeding birds in New Hampshire. Audubon Society of New Hampshire and Acadia Publishing, Dover, New Hampshire. 414 pp.

Cattle Egret (*Ardeola ibis*)

Brauning, D.W. 1992. Atlas of breeding birds in Pennsylvania. University of Pittsburgh Press, Pittsburgh, Pennsylvania. 484 pp.

Green Heron (*Butorides virescens*)

Gauvreau, J., and S. Barrette. 1996. Green Heron. Pages 250-253. *In* Gauthier, J. and Y. Aubry (editors). The breeding birds of Quebec: atlas of the breeding birds of southern Quebec. Province of Quebec Society for the Protection of Birds and the Canadian Wildlife Service, Montreal, Quebec, Canada. 1,302 pp.

Black-crowned Night Heron (*Nycticorax nycticorax*)

Nickell, W.P. 1966. The nesting of the Black-crowned Night Heron and its associates. *Jack-Pine Warbler* 44:130-139.

Glossy Ibis (*Plegadis falcinellus*)

DeGraaf, R.M. and D.D. Rudis. 1986. New England wildlife: habitat, natural history, and distribution. USDA Forest Service, Northeastern (NE) Forest Experiment Station General Technical Report NE-108. 491 pp.

Foss, C.R. 1994. Atlas of breeding birds in New Hampshire. Audubon Society of New Hampshire and Acadia Publishing, Dover, New Hampshire. 414 pp.

Canada Goose (*Branta canadensis*)

Brauning, D.W. 1992. Atlas of breeding birds in Pennsylvania. University of Pittsburgh Press, Pittsburgh, Pennsylvania. 484 pp.

DeGraaf, R.M. and D.D. Rudis. 1986. New England wildlife: habitat, natural history, and distribution. USDA Forest Service, Northeastern (NE) Forest Experiment Station General Technical Report NE-108. 491 pp.

Donovan, G.G. 1971. Maine grown honkers. *Maine Fish and Game* 13:2-4.

Wood Duck (*Aix sponsa*)

Coulter, M.W. 1957. Foods of Wood Ducks in Maine. *Journal of Wildlife Management* 21:235-236.

McGilvrey, F.B. 1968. A guide to Wood Duck reproduction habitat requirements. Bureau of Sport Fisheries and Wildlife, Resource Publication 60. 32 pp.

Prince, H.H. 1968. Nest sites used by Wood Ducks and Common Goldeneyes in New Brunswick. *Journal of Wildlife Management* 32:489-500.

Ridlehuber, K.T. and J.W. Teaford. 1986. Wood Duck nest boxes. US Army Corps of Engineers Wildlife Resources Management Manual, Technical Report EL-86-12. 21 pp.

Serie, J.R. and G.G. Chasko. 1990. Status of Wood Ducks in the Atlantic Flyway. Pages 109-113. *In* Fredrickson, L.H., G.V. Burger, S.P. Havera, D.A. Graber, R.E. Kirby, and T.S. Taylor (editors). Proceedings of the North American Wood Duck Symposium, St. Louis, Missouri. 390 pp.

Green-winged Teal (*Anas crecca*)

Bellrose, F.C. 1976. Ducks, geese and swans of North America. Stackpole Books, Harrisburg, Pennslyvania. 540 pp.

DeGraaf, R.M. and D.D. Rudis. 1986. New England wildlife: habitat, natural history, and distribution. USDA Forest Service, Northeastern (NE) Forest Experiment Station General Technical Report NE-108. 491 pp.

Mallard (*Anas platyrhynchos*)

Bellrose, F.C. 1976. Ducks, Geese and Swans of North America. Stackpole Books, Harrisburg, Pennslyvania. 540 pp.

Coulter, M.W. and W.R. Miller. 1968. Nesting biology of Black Ducks and Mallards in northern New England. Vermont Fish and Game Department, Bulletin 68-2. 74 pp.

Coulter, M.W. 1953. Mallard nesting in Maine. *Auk* 70:490.

Dwyer, C.P., and G.A. Baldassarre. 1994. Habitat use by sympatric female Mallards and American Black Ducks breeding in a forested environment. *Canadian Journal of Zoology* 72:1538-1542.

Longcore, J.R., P.O. Corr, and D.G. McAuley. 1987. Black Duck-Mallard interactions on breeding areas in Maine. *Transactions of the Northeast Section of the Wildlife Society* 44:16-32.

American Black Duck (*Anas rubripes*)

Coulter, M.W. and W.R. Miller. 1968. Nesting biology of Black Ducks and Mallards in northern New England. Vermont Fish and Game Department, Bulletin 68-2. 74 pp.

Diefenbach, D.R., and R.B. Owen, Jr. 1989. A model of habitat use by breeding American black ducks. *Journal of Wildlife Management* 53:383-389

Diefenbach, D.R., T.c. McCall, G.A. Paquette, T.P. Hodgeman, and R.B. Owen, Jr. 1996. A test of a habitat use model for American black ducks. *Northeast Wildlife* 53:35-44.

Dwyer, C.P., and G.A. Baldassarre. 1994. Habitat use by sympatric female Mallards and American Black Ducks breeding in a forested environment. *Canadian Journal of Zoology* 72:1,538-1,542.

Frazer, C. 1988. The ecology of post-fledging American Black Ducks in eastern Maine. M.S. Thesis, University of Maine, Orono. 90 pp.

Kitchens, C.G. 1994. Variables affecting habitat use and movements of American Black Ducks and Mallards on the Missisquoi National Wildlife Refuge. M.S. Thesis, University of Maine, Orono. 73 pp.

Longcore, J.R., P.O. Corr, and D.G. McAuley. 1987. Black Duck-Mallard interactions on breeding areas in Maine. *Transactions of the Northeast Section of the Wildlife Society* 44:16-32.

Ringelman, J.K., and J.R. Longcore. 1982. Movements and wetland selection by brood-rearing black ducks. *Journal of Wildlife Management* 46:615-621.

Ringelman, J.K., J.R. Longcore, and R.B. Owen, Jr. 1982. Breeding habitat selection and home range of radio-marked Black Ducks (*Anas rubripes*) in Maine. *Canadian Journal of Zoology* 60:241-248.

Blue-winged Teal (*Anas discors*)

Bellrose, F.C. 1976. Ducks, geese and swans of North America. Stackpole Books, Harrisburg, Pennslyvania. 540 pp.

DeGraaf, R.M. and D.D. Rudis. 1986. New England wildlife: habitat, natural history, and distribution. USDA Forest Service, Northeastern (NE) Forest Experiment Station General Technical Report NE-108. 491 pp.

Donovan, G.G. 1970. Blue-wings: the life history of the interesting and familiar Blue-winged Teal. *Maine Fish and Game* 12:16-18.

American Wigeon (*Anas americana*)

Bellrose, F.C. 1976. Ducks, Geese and Swans of North America. Stackpole Books, Harrisburg, Pennslyvania. 540 pp.

DeGraaf, R.M. and D.D. Rudis. 1986. New England wildlife: habitat, natural history, and distribution. USDA Forest Service, Northeastern (NE) Forest Experiment Station General Technical Report NE-108. 491 pp.

Ring-necked Duck (*Aythya collaris*)

Bellrose, F.C. 1976. Ducks, Geese and Swans of North America. Stackpole Books, Harrisburg, Pennslyvania. 540 pp.

DeGraaf, R.M. and D.D. Rudis. 1986. New England wildlife: habitat, natural history, and distribution. USDA Forest Service, Northeastern (NE) Forest Experiment Station General Technical Report NE-108. 491 pp.

McAuley, D.G. and J.R. Longcore. 1988. Survival of juvenile Ring-necked Ducks on wetlands of different pH. *Journal of Wildlife Management* 52:169-176.

McAuley, D.G. and J.R. Longcore. 1988. Foods of juvenile Ring-necked Ducks: relationship to wetland pH. *Journal of Wildlife Management* 52:177-185.

Mendall, H.L. 1958. The Ring-Necked Duck in the Northeast. University of Maine Bulletin No. 16, University of Maine, Orono. 317 pp.

Common Goldeneye (*Bucephala clangula*)

Carter, B.C. 1952. The American Goldeneye in central New Brunswick. M.S. Thesis, University of Maine, Orono. 121 pp.

Gibbs, R.M. 1961. Breeding ecology of the Common Goldeneye, *Bucephala clangula americana,* in Maine. M.S. Thesis, University of Maine, Orono. 115 pp.

Prince, H.H. 1968. Nest sites used by Wood Ducks and Common Goldeneyes in New Brunswick. *Journal of Wildlife Management* 32:489-500.

Hooded Merganser (*Lophodytes cucullatus*)

DeGraaf, R.M. and D.D. Rudis. 1986. New England wildlife: habitat, natural history, and distribution. USDA Forest Service, Northeastern (NE) Forest Experiment Station General Technical Report NE-108. 491 pp.

Kitchen, D.W. and G.S. Hunt. 1969. Brood habitat of the Hooded Merganser. *Journal of Wildlife Management* 33:605-609.

Common Merganser (*Mergus merganser*)

Bellrose, F.C. 1976. Ducks, Geese and Swans of North America. Stackpole Books, Harrisburg, Pennsylvania. 540 pp.

DeGraaf, R.M. and D.D. Rudis. 1986. New England wildlife: habitat, natural history, and distribution. USDA Forest Service, Northeastern (NE) Forest Experiment Station General Technical Report NE-108. 491 pp.

Red-breasted Merganser (*Mergus serrator*)

Bellrose, F.C. 1976. Ducks, Geese and Swans of North America. Stackpole Books, Harrisburg, Pennslyvania. 540 pp.

DeGraaf, R.M. and D.D. Rudis. 1986. New England wildlife: habitat, natural history, and distribution. USDA Forest Service, Northeastern (NE) Forest Experiment Station General Technical Report NE-108. 491 pp.

Turkey Vulture (*Cathartes aura*)

DeGraaf, R.M. and D.D. Rudis. 1986. New England wildlife: habitat, natural history, and distribution. USDA Forest Service, Northeastern (NE) Forest Experiment Station General Technical Report NE-108. 491 pp.

Osprey (*Pandion haliaetus*)

Henny, C.J. 1986. Osprey (*Pandion haliaetus*). US Army Corp of Engineers Wildlife Resources Management Manual, Technical Report EL-86-5. 36 pp.

Bald Eagle (*Haliaeetus leucocephalus*)

Livingston, S.A., C.S. Todd, W.B. Krohn, and R.B. Owen. 1990. Habitat models for nesting Bald Eagles in Maine. *Journal of Wildlife Management* 54:644-653.

Owen, R.B., Jr., C.S. Todd, M.A. McCollough, and F.J. Gramlich. 1991. Nesting habitat and population status of Maine's Bald Eagles. *Transactions of the Northeast Section of the Wildlife Society* 48:21-30.

Northern Harrier (*Circus cyaneus*)

Serrentino, P. 1992. Northern Harrier, *Circus cyaneus*. Pages 89-117. *In* Schneider, K.J. and D.M. Pence (editors). Migratory nongame birds of management concern in the Northeast. USDI Fish and Wildlife Service, Region 5, Newton Corner, Massachusetts. 400 pp.

Sharp-shinned Hawk (*Accipiter striatus*)

DeGraaf, R.M. and D.D. Rudis. 1986. New England wildlife: habitat, natural history, and distribution. USDA Forest Service, Northeastern (NE) Forest Experiment Station General Technical Report NE-108. 491 pp.

Cooper's Hawk (*Accipiter cooperii*)

Titus, K. and J.A. Mosher. 1981. Nest-site habitat selected by woodland Hawks in the central Appalachians. *Auk* 98:270-281.

Northern Goshawk (*Accipiter gentilis*)

Speiser, R. and T. Bosakowski. 1987. Nest site selection by Northern Goshawks in northern New Jersey and southeastern New York. *Condor* 89:387-394.

Red-shouldered Hawk (*Buteo lineatus*)

Armstrong, E. and D. Euler. 1982. Habitat usage of two woodland *Buteo* species in central Ontario. *Canadian Field-Naturalist* 97:200-207.

Bosakowski, T., D.G. Smith, and R. Speiser. 1992. Status, nesting density, and macrohabitat selection of Red-shouldered Hawks in northern New Jersey. *Wilson Bulletin* 104:434-446.

Bryant, A.A. 1986. Influence of selective logging on Red-shouldered Hawks, *Buteo lineatus*, in Waterloo Region, Ontario, 1953-1978. *Canadian Field-Naturalist* 100:520-525.

Peterson, J.M. and S.T. Crocoll. 1992. Red-shouldered Hawk, *Buteo lineatus*. Pages 333-351. *In* Schneider, K.J and D.M. Pence (editors). Migratory nongame birds of management concern in the Northeast. USDI Fish and Wildlife Service, Region 5, Newton Corner, Massachusetts. 400 pp.

Titus, K. and J.A. Mosher. 1981. Nest-site habitat selected by woodland Hawks in the central Appalachians. *Auk* 98:270-281.

Broad-winged Hawk (*Buteo platypterus*)

Armstrong, E. and D. Euler. 1982. Habitat usage of two woodland *Buteo* species in central Ontario. *Canadian Field-Naturalist* 97:200-207.

Matray, P.F. 1974. Broad-winged Hawk nesting and ecology. *Auk* 91:307-324.

Titus, K. and J.A. Mosher. 1981. Nest-site habitat selected by woodland Hawks in the central Appalachians. *Auk* 98:270-281.

Red-tailed Hawk (*Buteo jamaicensis*)

Bryant, A.A. 1986. Influence of selective logging on Red-shouldered Hawks, *Buteo lineatus*, in Waterloo Region, Ontario, 1953-1978. *Canadian Field-Naturalist* 100:520-525.

Hagar, D.C., Jr. 1957. Nesting populations of Red-tailed Hawks and Great Horned Owls in central New York state. *Wilson Bulletin* 69:263-272.

Titus, K. and J.A. Mosher. 1981. Nest-site habitat selected by woodland Hawks in the central Appalachians. *Auk* 98:270-281.

Golden Eagle (*Aquila chrysaetos*)

DeGraaf, R.M. and D.D. Rudis. 1986. New England wildlife: habitat, natural history, and distribution. USDA Forest Service, Northeastern (NE) Forest Experiment Station General Technical Report NE-108. 491 pp.

Robert, M. 1996. Golden Eagle. Pages 396-399. *In* Gauthier, J. and Y. Aubry (editors). The breeding birds of Quebec: atlas of the breeding birds of southern Quebec. Province of Quebec Society for the Protection of Birds and the Canadian Wildlife Service, Montreal, Quebec, Canada. 1,302 pp.

American Kestrel (*Falco sparverius*)

Lyon, J.G. 1983. Landsat-derived land-cover classifications for locating potential Kestrel nesting habitat. *Photogrammetric Engineering and Remote Sensing* 49:245-250.

Merlin (*Falco columbarius*)

Bird, D.M., and D. Henderson. 1996. Merlin. Pages 404-407. *In* Gauthier, J. and Y. Aubry (editors). The breeding birds of Quebec: atlas of the breeding birds of southern Quebec. Province of Quebec Society for the Protection of Birds and the Canadian Wildlife Service, Montreal, Quebec, Canada. 1,302 pp.

Erskine, A.J. 1992. Atlas of breeding birds of the Maritime Provinces. Co-published by the Crown and Nova Scotia Museum. 270 pp.

Peregrine Falcon (*Falco peregrinus*)

Bird, D.M., P. Laporte, and M. Lepage. 1996. Peregrine Falcon. Pages 408-411. *In* Gauthier, J. and Y. Aubry (editors). The breeding birds of Quebec: atlas of the breeding birds of southern Quebec. Province of Quebec Society for the Protection of Birds and the Canadian Wildlife Service, Montreal, Quebec, Canada. 1,302 pp.

Hickey, J.J. 1942. Eastern population of the duck hawk. *Auk* 59:176-204.

Spruce Grouse (*Dendragapus canadensis*)

Allan, T.A. 1985. Seasonal changes in habitat use by Maine Spruce Grouse. *Canadian Journal of Zoology* 63:2738-2742.

Robinson, W.L. 1969. Habitat selection by Spruce Grouse in northern Michigan. *Journal of Wildlife Management* 33:113-120.

Whitcomb, S.D. 1993. Population characteristics, patch occupancy, and fall dispersal of Spruce Grouse on Mount Desert Island, Maine. M.S. Thesis, University of Maine, Orono. 44 pp.

Ruffed Grouse (*Bonasa umbellus*)

Brown, C.P. 1946. Food of Maine Ruffed Grouse by seasons and cover types. *Journal of Wildlife Management* 10:17-28.

Crawford, J.A. 1986. Ruffed Grouse (*Bonasa umbellus*). US Army Corps of Engineers Wildlife Resources Management Manual, Technical Report EL-86-4. 42 pp.

Gullion, G.W. 1984. Managing northern forests for wildlife. The Ruffed Grouse Society, St. Paul, Minnesota. 72 pp.

Gullion, G.W. 1970. Factors influencing Ruffed Grouse populations. *North American Wildlife Conference* 35:93-105.

Wild Turkey (*Meleagris gallopavo*)

Treiterer, B.E. 1987. Reproductive ecology and habitat use of female Wild Turkeys in Waldo County, Maine. M.S. Thesis, University of Maine, Orono. 71 pp.

Vander Haegan, W.M., M.W. Sayre, and J.E. Cardoza. 1991. Nesting and brood-rearing habitat use in a northern Wild Turkey population. *Transactions of the Northeast Section of the Wildlife Society* 48:113-119.

Vander Haegan, W.M., M.W. Sayre, and W.E. Dodge. 1989. Winter use of agricultural habitats by Wild Turkeys in Massachusetts. *Journal of Wildlife Management* 53:30-33.

Virginia Rail (*Rallus limicola*)

Conway, C.J. and W.R. Eddleman. 1994. Virginia Rail. Pages 192-206. *In* Tacha, T.C. and C.E. Braun (editors). Migratory shore and upland game bird management in North America. The International Association of Fish and Wildlife Agencies, Washington, DC. 223 pp.

Johnson, R.R. and J.J. Dinsmore. 1986. Habitat use by breeding Virginia Rails and Soras. *Journal of Wildlife Management* 50:387-392.

Sora (*Porzana carolina*)

Melvin, S.M and J.P. Gibbs. 1994. Sora. Pages 209-217. *In* Tacha, T.C. and C.E. Braun (editors). Migratory shore and upland game bird management in North America. The International Association of Fish and Wildlife Agencies, Washington, DC. 223 pp.

Johnson, R.R. and J.J. Dinsmore. 1986. Habitat use by breeding Virginia Rails and Soras. *Journal of Wildlife Management* 50:387-392.

Yellow Rail (*Coturnicops noveboracensis*)

Gibbs, J.P., W.G. Shriver, and S.M. Melvin. 1991. Spring and summer records of the Yellow Rail in Maine. *Journal of Field Ornithology* 62:509-516.

Common Moorhen (*Gallinula chloropus*)

Greij, E.D. 1994. Common Moorhen. Pages 144-157. *In* Tacha, T.C. and C.E. Braun (editors). Migratory shore and upland game bird management in North America. The International Association of Fish and Wildlife Agencies, Washington, DC. 223 pp.

American Coot (*Fulica americana*)

Alisauska, R.T. and T.W. Arnold. 1994. American Coot. Pages 126-143. *In* Tacha, T.C. and C.E. Braun (editors). Migratory shore and upland game bird management in North America. The International Association of Fish and Wildlife Agencies, Washington, DC. 223 pp.

Killdeer (*Charadrius vociferus*)

Walbeck, D.E. 1989. Observations of roof-nesting Killdeer and Common Nighthawks in Frostburg, Maryland. *Maryland Birdlife* 45:3-9.

Spotted Sandpiper (*Actitis macularia*)

DeGraaf, R.M. and D.D. Rudis. 1986. New England wildlife: habitat, natural history, and distribution. USDA Forest Service, Northeastern (NE) Forest Experiment Station General Technical Report NE-108. 491 pp.

Erskine, A.J. 1992. Atlas of breeding birds of the Maritime Provinces. Co-published by the Crown and Nova Scotia Museum. 270 pp.

Upland Sandpiper (*Bartramia longicauda*)

Carter, J.W. 1992. Upland Sandpiper, *Bartramia longicauda*. Pages 235-252. *In* Schneider, K.J. and D.M. Pence (editors). Migratory nongame birds of management concern in the Northeast. USDI Fish and Wildlife Service, Region 5, Newton Corner, Massachusetts. 400 pp.

Yank, R., and L. Breton. 1996. Upland Sandpiper. Pages 482-483. *In* Gauthier, J. and Y. Aubry (editors). The breeding birds of Quebec: atlas of the breeding birds of southern Quebec. Province of Quebec Society for the Protection of Birds and the Canadian Wildlife Service, Montreal, Quebec, Canada. 1,302 pp.

Common Snipe (*Gallinago gallinago*)

Arnold, K.A. 1994. Common Snipe. Pages 116-125. *In* Tacha, T.C. and C.E. Braun (editors). Migratory shore and upland game bird management in North America. The International Association of Fish and Wildlife Agencies, Washington, DC. 223 pp.

Tuck, L.M. 1972. The Snipes: a study of the genus *Capella*. Canadian Wildlife Service, Monograph Series Number 5, Environment Canada, Montreal. 429 pp.

American Woodcock (*Scolopax minor*)

Couture, R. and M. Babin. 1993. Survey of Woodcock habitat with Landsat: possibilities and limitations of remote sensing. Pages 49-56. *In*: J.R. Longcore and G.F. Sepik (editors). Proceedings of the eighth American Woodcock symposium. USDI Fish and Wildlife Service Biological Report 16.

Dwyer, T.J., G.F. Sepik, E.L. Derleth, D.G. McAuley. 1988. Demographic characteristics of a Maine woodcock population and effects of habitat management. USDI Fish and Wildlife Service, Fish and Wildlife Research 4. 29 pp.

Galbraith, W.J. 1984. Earthworm biomass available to woodcock in relation to forest, soil and land-use in Maine. M.S. Thesis, University of Maine, Orono. 44 pp.

Krohn, W.B. 1970. Woodcock feeding habits as related to summer field usage in central Maine. *Journal of Wildlife Management* 34:769-775.

Krohn, W.B. 1971. Some patterns of Woodcock activities on Maine summer fields. *Wilson Bulletin* 83:397-407.

Nicholson, C.P. 1977. The utilization of commercial timber production areas by Woodcock in Maine. M.S. Thesis, University of Maine, Orono. 50 pp.

Owen, R.B., Jr. and W.J. Galbraith. 1989. Earthworm biomass in relation to forest types, soil, and land use: implications for Woodcock management. *Wildlife Society Bulletin* 17:130-136.

Rearden, J.D. 1950. Woodcock utilization of improved covers in eastern Maine. M.S. Thesis, University of Maine, Orono. 84 pp.

Straw, J.A., Jr., D.G. Krementz, M.W. Olinde, and G.F. Sepik. 1994. American Woodcock. Pages 96-114. *In* Tacha, T.C. and C.E. Braun (editors). Migratory shore and upland game bird management in North America. The International Association of Fish and Wildlife Agencies, Washington, DC. 223 pp.

Sepik, G.F., R.B. Owen, Jr., and M.W. Coulter. 1981. A landowner's guide to Woodcock management in the northeast. University of Maine Life Sciences Agricultural Experiment Station, Miscellaneous Reports 253. 23 pp.

Herring Gull (*Larus argentatus*)

Bourget, A.A. 1973. Relation of Eiders and Gulls nesting in mixed colonies in Penobscot Bay, Maine. *Auk* 90:809-820.

Great Black-backed Gull (*Larus marinus*)

Bourget, A.A. 1973. Relation of Eiders and Gulls nesting in mixed colonies in Penobscot Bay, Maine. *Auk* 90:809-820.

Common Tern (*Sterna hirundo*)

DeGraaf, R.M. and D.D. Rudis. 1986. New England wildlife: habitat, natural history, and distribution. USDA Forest Service, Northeastern (NE) Forest Experiment Station General Technical Report NE-108. 491 pp.

Erskine, A.J. 1992. Atlas of breeding birds of the Maritime Provinces. Co-published by the Crown and Nova Scotia Museum. 270 pp.

Black Tern (*Chlidonias niger*)

Dorr, D.K. 1976. Black Tern (*Chlidonias niger*) nesting habitat in Maine and its relevancy to the Critical Areas Program. Critical Areas Program, State Planning Office, Augusta. Planning Report 18.

Linz, G.M., D.L. Bergman, D.C. Blixt, and W.J. Bleier. 1994. Response of Black Terns (*Chlidonias niger*) to glyphosate-induced habitat alterations on wetlands. *Colonial Waterbirds* 17:160-167.

Novak, P.G. 1992. Black Tern, *Chlidonias niger*. Pages 149-169. *In* Schneider, K.J. and D.M. Pence (editors). Migratory nongame birds of management concern in the Northeast. USDI Fish and Wildlife Service, Region 5, Newton Corner, Massachusetts. 400 pp.

Mourning Dove (*Zenaida macroura*)

Lehner, P.N. 1965. Some observations on the ecology of the Mourning Dove in New York. *New York Fish and Game Journal* 12:147-169.

Tomlinson, R.E., D.D. Dolton, R.R. George., R.E. Mirarchi. 1994. Mourning Dove. Pages 5-26. *In* Tacha, T.C. and C.E. Braun (editors). Migratory shore and upland game bird management in North America. The International Association of Fish and Wildlife Agencies, Washington, DC. 223 pp.

Black-billed Cuckoo (*Coccyzus erythropthalmus*)

Spencer, O.R. 1943. Nesting habits of the Black-billed Cuckoo. *Wilson Bulletin* 55:11-22.

Yellow-billed Cuckoo (*Coccyzus americanus*)

Brauning, D.W. 1992. Atlas of breeding birds in Pennsylvania. University of Pittsburgh Press, Pittsburgh, Pennsylvania. 484 pp.

DeGraaf, R.M. and D.D. Rudis. 1986. New England wildlife: habitat, natural history, and distribution. USDA Forest Service, Northeastern (NE) Forest Experiment Station General Technical Report NE-108. 491 pp.

Great Horned Owl (*Bubo virginianus*)

Hagar, D.C., Jr. 1957. Nesting populations of Red-tailed Hawks and Horned Owls in central New York State. *Wilson Bulletin* 69:263-272.

McGarigal, K. and J.D. Fraser. 1984. The effect of forest stand age on Owl distribution in southwestern Virginia. *Journal of Wildlife Management* 48:1393-1398.

Barred Owl (*Strix varia*)

Elody, B.I. and N.F. Sloan. 1985. Movements and habitat use of Barred Owls in the Huron Mountains of Marquette County, Michigan, as determined by radiotelemetry. *Jack-Pine Warbler* 63:3-8.

McGarigal, K. and J.D. Fraser. 1984. The effect of forest stand age on Owl distribution in southwestern Virginia. *Journal of Wildlife Management* 48:1393-1398.

Nicholls, T.H. and D.W. Warner. 1972. Barred Owl habitat use as determined by radiotelemetry. *Journal of Wildlife Management* 36:213-224.

Long-eared Owl (*Asio otus*)

Randle, W. and R. Austing. 1952. Ecological notes on Long-eared and Saw-whet Owls in southwestern Ohio. *Ecology* 33:422-426.

Short-eared Owl (*Asio flammeus*)

Tate, G.R. 1992. Short-eared Owl, *Asio flammeus*. Pages 171-189. *In* Schneider, K.J and D.M. Pence (editors). Migratory nongame birds of management concern in the Northeast. USDI Fish and Wildlife Service, Region 5, Newton Corner, Massachusetts. 400 pp.

Northern Saw-whet Owl (*Aegolius acadicus*)

Randle, W. and R. Austing. 1952. Ecological notes on Long-eared and Saw-whet Owls in southwestern Ohio. *Ecology* 33:422-426.

Common Nighthawk (*Chordeiles minor*)

Marzilli, V. 1989. There's room enough for two ... up on the roof. *Maine Fish and Wildlife* 31:25-29.

Marzilli, V., Jr., W.B. Krohn, and W.E. Glanz. Habitat selection by roof-nesting Common Nighthawks. Unpublished manuscript. University of Maine, Orono.

Walbeck, D.E. 1989. Observations of roof-nesting Killdeer and Common Nighthawks in Frostburg, Maryland. *Maryland Birdlife* 45:3-9.

Whip-poor-will (*Caprimulgus vociferus*)

DeGraaf, R.M. and D.D. Rudis. 1986. New England wildlife: habitat, natural history, and distribution. USDA Forest Service, Northeastern (NE) Forest Experiment Station General Technical Report NE-108. 491 pp.

Erskine, A.J. 1992. Atlas of breeding birds of the Maritime Provinces. Co-published by the Crown and Nova Scotia Museum. 270 pp.

Chimney Swift (*Chaetura pelagica*)

Fischer, R.B. 1958. The breeding biology of the Chimney Swift *Chaetura pelagica* (Linnaeus). New York State Museum and Science Service Bulletin 368. 141 pp.

Ruby-throated Hummingbird (*Archilochus colubris*)

DeGraaf, R.M. and D.D. Rudis. 1986. New England wildlife: habitat, natural history, and distribution. USDA Forest Service, Northeastern (NE) Forest Experiment Station General Technical Report NE-108. 491 pp.

Erskine, A.J. 1992. Atlas of breeding birds of the Maritime Provinces. Co-published by the Crown and Nova Scotia Museum. 270 pp.

Belted Kingfisher (*Ceryle alcyon*)

Cornwell, G.W. 1963. Observations on the breeding biology and behavior of a nesting population of Belted Kingfishers. *Condor* 65:426-431.

Davis, W.L. 1982. Territory size in *Megaceryle alcyon* along a stream habitat. *Auk* 99:353-362.

Hamas, M.J. 1974. Human incursion and nesting site of the Belted Kingfisher. *Auk* 91:835-836.

White, H.C. 1953. The eastern Belted Kingfisher in the Maritime Provinces. Fisheries Research Board of Canada, Bulletin 97. 44 pp.

Yellow-bellied Sapsucker (*Sphyrapicus varius*)

DeGraaf, R.M. and D.D. Rudis. 1986. New England wildlife: habitat, natural history, and distribution. USDA Forest Service, Northeastern (NE) Forest Experiment Station General Technical Report NE-108. 491 pp.

Erskine, A.J. 1992. Atlas of breeding birds of the Maritime Provinces. Co-published by the Crown and Nova Scotia Museum. 270 pp.

Downy Woodpecker (*Picoides pubescens*)

Browning, M.R. 1995. Do Downy Woodpeckers migrate? *Journal of Field Ornithology* 66:12-21.

DeGraaf, R.M. and D.D. Rudis. 1986. New England wildlife: habitat, natural history, and distribution. USDA Forest Service, Northeastern (NE) Forest Experiment Station General Technical Report NE-108. 491 pp.

Hairy Woodpecker (*Picoides villosus*)

Kilham, L. 1968. Reproductive behavior of Hairy Woodpeckers: II. nesting and habitat. *Wilson Bulletin* 80:286-305.

Three-toed Woodpecker (*Picoides tridactylus*)

DeGraaf, R.M. and D.D. Rudis. 1986. New England wildlife: habitat, natural history, and distribution. USDA Forest Service, Northeastern (NE) Forest Experiment Station General Technical Report NE-108. 491 pp.

Erskine, A.J. 1992. Atlas of breeding birds of the Maritime Provinces. Co-published by the Crown and Nova Scotia Museum. 270 pp.

Black-backed Woodpecker (*Picoides arcticus*)

DeGraaf, R.M. and D.D. Rudis. 1986. New England wildlife: habitat, natural history, and distribution. USDA Forest Service, Northeastern (NE) Forest Experiment Station General Technical Report NE-108. 491 pp.

Northern Flicker (*Colaptes auratus*)

DeGraaf, R.M. and D.D. Rudis. 1986. New England wildlife: habitat, natural history, and distribution. USDA Forest Service, Northeastern (NE) Forest Experiment Station General Technical Report NE-108. 491 pp.

Dennis, J.V. 1969. The Yellow-shafted Flicker (*Colaptes auratus*) on Nantucket Island, Massachusetts. *Bird-Banding* 40:290-308.

Pileated Woodpecker (*Dryocopus pileatus*)

Hoyt, S.F. 1957. The ecology of the Pileated Woodpecker. *Ecology* 38:246-256.

Renken, R.B. and E. P. Wiggers. 1993. Habitat characteristics related to Pileated Woodpecker densities in Missouri. *Wilson Bulletin* 105:77-83.

Rudis, D.D. 1986 . New England wildlife: habitat, natural history, and distribution. Northeastern Forest Experiment Station, General Technical Report NE-108. 491 pp.

Erskine, A.J. 1992. Atlas of breeding birds of the Maritime Provinces. Co-published by the Crown and Nova Scotia Museum. 270 pp.

Olive-sided Flycatcher (*Contopus borealis*)

Peterson, J.M. and C. Fichtel. 1992. Olive-sided Flycatcher, *Contopus borealis*. Pages 353-367 *In* Schneider, K.J. and D.M. Pence (editors). Migratory nongame birds of management concern in the Northeast. USDI Fish and Wildlife Service, Region 5, Newton Corner, Massachusetts. 400 pp.

Eastern Wood-pewee (*Contopus virens*)

DeGraaf, R.M. and D.D. Rudis. 1986. New England wildlife: habitat, natural history, and distribution. USDA Forest Service, Northeastern (NE) Forest Experiment Station General Technical Report NE-108. 491 pp.

Erskine, A.J. 1992. Atlas of breeding birds of the Maritime Provinces. Co-published by the Crown and Nova Scotia Museum. 270 pp.

Yellow-bellied Flycatcher (*Empidonax flaviventris*)

Erskine, A.J. 1992. Atlas of breeding birds of the Maritime Provinces. Co-published by the Crown and Nova Scotia Museum. 270 pp.

Walkinshaw, L.H. and C.J. Henry. 1957. Yellow-bellied Flycatchers nesting in Michigan. *Auk* 74:292-304.

Alder Flycatcher (*Empidonax alnorum*)

Aldrich, J.W. 1953. Habits and habitat differences in two races of Traill's Flycatcher. *Wilson Bulletin* 65:8-11.

Barlow, J.C. and W.B. McGillivray. 1983. Foraging and habitat relationships of the sibling species Willow Flycatcher (*Empidonax trailli*) and Alder Flycatcher (*E. alnorum*) in southern Ontario. *Canadian Journal of Zoology* 61:1510-1516.

Stein, R.C. 1958. The behavioral, ecological and morphological characteristics of two populations of the Alder Flycatcher, *Empidonax trailli* (Audubon). New York State Museum and Science Service Bulletin 371. 62 pp.

Walkinshaw, L.H. 1966. Summer biology of Traill's Flycatcher. *Wilson Bulletin* 78:31-46.

Willow Flycatcher (*Empidonax traillii*)

Aldrich, J.W. 1953. Habits and habitat differences in two races of Traill's Flycatcher. *Wilson Bulletin* 65:8-11.

Barlow, J.C. and W.B. McGillivray. 1983. Foraging and habitat relationships of the sibling species Willow Flycatcher (*Empidonax trailli*) and Alder Flycatcher (*E. alnorum*) in southern Ontario. *Canadian Journal of Zoology* 61:1510-1516.

Least Flycatcher (*Empidonax minimus*)

Breckenridge, W.J. 1956. Measurements of the habitat niche of the Least Flycather. *Wilson Bulletin* 68:47-51.

Erskine, A.J. 1992. Atlas of breeding birds of the Maritime Provinces. Co-published by the Crown and Nova Scotia Museum. 270 pp.

MacQueen, P.M. 1950. Territory and song in the Least Flycatcher. *Wilson Bulletin* 62:194-205.

Eastern Phoebe (*Sayornis phoebe*)

DeGraaf, R.M. and D.D. Rudis. 1986. New England wildlife: habitat, natural history, and distribution. USDA Forest Service, Northeastern (NE) Forest Experiment Station General Technical Report NE-108. 491 pp.

Erskine, A.J. 1992. Atlas of breeding birds of the Maritime Provinces. Co-published by the Crown and Nova Scotia Museum. 270 pp.

Hill, S.R. and J.E. Gates. 1988. Nesting ecology and microhabitat of the Eastern Phoebe in the central Appalachians. *American Midland Naturalist* 120:313-324.

Great Crested Flycatcher (*Myiarchus crinitus*)

DeGraaf, R.M. and D.D. Rudis. 1986. New England wildlife: habitat, natural history, and distribution. USDA Forest Service, Northeastern (NE) Forest Experiment Station General Technical Report NE-108. 491 pp.

Erskine, A.J. 1992. Atlas of breeding birds of the Maritime Provinces. Co-published by the Crown and Nova Scotia Museum. 270 pp.

Eastern Kingbird (*Tyrannus tyrannus*)

DeGraaf, R.M. and D.D. Rudis. 1986. New England wildlife: habitat, natural history, and distribution. USDA Forest Service, Northeastern (NE) Forest Experiment Station General Technical Report NE-108. 491 pp.

Smith, W.J. 1966. Communication and relationships in the genus *Tyrannus*. Nuttall Ornithological Club, Cambridge, Massachusetts. 249 pp.

Horned Lark (*Eremophila alpestris*)

Brauning, D.W. 1992. Atlas of breeding birds in Pennsylvania. University of Pittsburgh Press, Pittsburgh, Pennsylvania. 484 pp.

DeGraaf, R.M. and D.D. Rudis. 1986. New England wildlife: habitat, natural history, and distribution. USDA Forest Service, Northeastern (NE) Forest Experiment Station General Technical Report NE-108. 491 pp.

Hurley, R.J. and E.C. Franks. 1976. Changes in the breeding ranges of two grassland birds. *Auk* 93:108-115.

Purple Martin (*Progne subis*)

Brauning, D.W. 1992. Atlas of breeding birds in Pennsylvania. University of Pittsburgh Press, Pittsburgh, Pennsylvania. 484 pp.

DeGraaf, R.M. and D.D. Rudis. 1986. New England wildlife: habitat, natural history, and distribution. USDA Forest Service, Northeastern (NE) Forest Experiment Station General Technical Report NE-108. 491 pp.

Tree Swallow (*Tachycineta bicolor*)

DeGraaf, R.M. and D.D. Rudis. 1986. New England wildlife: habitat, natural history, and distribution. USDA Forest Service, Northeastern (NE) Forest Experiment Station General Technical Report NE-108. 491 pp.

Erskine, A.J. 1992. Atlas of breeding birds of the Maritime Provinces. Co-published by the Crown and Nova Scotia Museum. 270 pp.

Northern Rough-winged Swallow (*Stelgidopteryx serripennis*)

Brauning, D.W. 1992. Atlas of breeding birds in Pennsylvania. University of Pittsburgh Press, Pittsburgh, Pennsylvania. 484 pp.

DeGraaf, R.M. and D.D. Rudis. 1986. New England wildlife: habitat, natural history, and distribution. USDA Forest Service, Northeastern (NE) Forest Experiment Station General Technical Report NE-108. 491 pp.

Bank Swallow (*Riparia riparia*)

Brauning, D.W. 1992. Atlas of breeding birds in Pennsylvania. University of Pittsburgh Press, Pittsburgh, Pennsylvania. 484 pp.

DeGraaf, R.M. and D.D. Rudis. 1986. New England wildlife: habitat, natural history, and distribution. USDA Forest Service, Northeastern (NE) Forest Experiment Station General Technical Report NE-108. 491 pp.

Cliff Sallow (*Hirundo pyrrhonata*)

DeGraaf, R.M. and D.D. Rudis. 1986. New England wildlife: habitat, natural history, and distribution. USDA Forest Service, Northeastern (NE) Forest Experiment Station General Technical Report NE-108. 491 pp.

Dunphy, W.J., Jr. 1983. Wildlife populations utilizing right-of-way habitats along Interstate 95 in northern Maine. Maine Department of Transportation, Augusta, Maine. 21 pp.

Barn Swallow (*Hirundo rustica*)

DeGraaf, R.M. and D.D. Rudis. 1986. New England wildlife: habitat, natural history, and distribution. USDA Forest Service, Northeastern (NE) Forest Experiment Station General Technical Report NE-108. 491 pp.

Dunphy, W.J., Jr. 1983. Wildlife populations utilizing right-of-way habitats along Interstate 95 in northern Maine. Maine Department of Transportation, Augusta, Maine. 21 pp.

Gray Jay (*Perisoreus canadensis*)

DeGraaf, R.M. and D.D. Rudis. 1986. New England wildlife: habitat, natural history, and distribution. USDA Forest Service, Northeastern (NE) Forest Experiment Station General Technical Report NE-108. 491 pp.

Erskine, A.J. 1992. Atlas of breeding birds of the Maritime Provinces. Co-published by the Crown and Nova Scotia Museum. 270 pp.

Blue Jay (*Cyanocitta cristata*)

DeGraaf, R.M. and D.D. Rudis. 1986. New England wildlife: habitat, natural history, and distribution. USDA Forest Service, Northeastern (NE) Forest Experiment Station General Technical Report NE-108. 491 pp.

Vaughan, Eleta. 1991. Dispersal of acorns of northern red oaks, *Quercus rubra*, by Blue Jays, *Cyanocitta cristata*, in central Maine. M.S. Thesis, University of Maine, Orono. 58 pp.

American Crow (*Corvus brachyrhynchos*)

DeGraaf, R.M. and D.D. Rudis. 1986. New England wildlife: habitat, natural history, and distribution. USDA Forest Service, Northeastern (NE) Forest Experiment Station General Technical Report NE-108. 491 pp.

Dunphy, W.J., Jr. 1983. Wildlife populations utilizing right-of-way habitats along Interstate 95 in northern Maine. Maine Department of Transportation, Augusta, Maine. 21 pp.

Common Raven (*Corvus corax*)

Dunphy, W.J., Jr. 1983. Wildlife populations utilizing right-of-way habitats along Interstate 95 in northern Maine. Maine Department of Transportation, Augusta, Maine. 21 pp.

Heinrich, B. 1994. Does the early Common Raven get (and show) the meat? *Auk* 111:764-769.

Hooper, R.G. 1977. Nesting habitat of Common Ravens in Virginia. *Wilson Bulletin* 89:233-242.

Black-capped Chickadee (*Parus atricapillus*)

Kluyver, H.N. 1961. Food consumption in relation to habitat in breeding chickadees. *Auk* 78:532-550.

Odum, E.P. 1941. Annual cycle of the Black-capped Chickadee. *Auk* 58:314-333.

Boreal Chickadee (*Parus hudsonicus*)

DeGraaf, R.M. and D.D. Rudis. 1986. New England wildlife: habitat, natural history, and distribution. USDA Forest Service, Northeastern (NE) Forest Experiment Station General Technical Report NE-108. 491 pp.

Erskine, A.J. 1992. Atlas of breeding birds of the Maritime Provinces. Co-published by the Crown and Nova Scotia Museum. 270 pp.

Tufted Titmouse (*Parus bicolor*)

DeGraaf, R.M. and D.D. Rudis. 1986. New England wildlife: habitat, natural history, and distribution. USDA Forest Service, Northeastern (NE) Forest Experiment Station General Technical Report NE-108. 491 pp.

Gillespie, M. 1930. Behavior and local distribution of Tufted Titmice in winter and spring. *Bird-Banding* 1:113-127.

Red-breasted Nuthatch (*Sitta canadensis*)

DeGraaf, R.M. and D.D. Rudis. 1986. New England wildlife: habitat, natural history, and distribution. USDA Forest Service, Northeastern (NE) Forest Experiment Station General Technical Report NE-108. 491 pp.

Erskine, A.J. 1992. Atlas of breeding birds of the Maritime Provinces. Co-published by the Crown and Nova Scotia Museum. 270 pp.

White-breasted Nuthatch (*Sitta carolinensis*)

Brauning, D.W. 1992. Atlas of breeding birds in Pennsylvania. University of Pittsburgh Press, Pittsburgh, Pennsylvania. 484 pp.

DeGraaf, R.M. and D.D. Rudis. 1986. New England wildlife: habitat, natural history, and distribution. USDA Forest Service, Northeastern (NE) Forest Experiment Station General Technical Report NE-108. 491 pp.

Brown Creeper (*Certhia americana*)

DeGraaf, R.M. and D.D. Rudis. 1986. New England wildlife: habitat, natural history, and distribution. USDA Forest Service, Northeastern (NE) Forest Experiment Station General Technical Report NE-108. 491 pp.

Erskine, A.J. 1992. Atlas of breeding birds of the Maritime Provinces. Co-published by the Crown and Nova Scotia Museum. 270 pp.

House Wren (*Troglodytes aedon*)

Brauning, D.W. 1992. Atlas of breeding birds in Pennsylvania. University of Pittsburgh Press, Pittsburgh, Pennsylvania. 484 pp.

DeGraaf, R.M. and D.D. Rudis. 1986. New England wildlife: habitat, natural history, and distribution. USDA Forest Service, Northeastern (NE) Forest Experiment Station General Technical Report NE-108. 491 pp.

Winter Wren (*Troglodytes troglodytes*)

DeGraaf, R.M. and D.D. Rudis. 1986. New England wildlife: habitat, natural history, and distribution. USDA Forest Service, Northeastern (NE) Forest Experiment Station General Technical Report NE-108. 491 pp.

Marsh Wren (*Cistothorus palustris*)

Brauning, D.W. 1992. Atlas of breeding birds in Pennsylvania. University of Pittsburgh Press, Pittsburgh, Pennsylvania. 484 pp.

DeGraaf, R.M. and D.D. Rudis. 1986. New England wildlife: habitat, natural history, and distribution. USDA Forest Service, Northeastern (NE) Forest Experiment Station General Technical Report NE-108. 491 pp.

Sedge Wren (*Cistothorus platensis*)

Gibbs, J.P. and S.M. Melvin. 1992. Sedge Wren, *Cistothorus platensis*. Pages 191-209. *In* Schneider, K.J and D.M. Pence (editors). Migratory nongame birds of management concern in the Northeast. USDI Fish and Wildlife Service, Region 5, Newton Corner, Massachusetts. 400 pp.

Walkinshaw, L.H. 1935. Studies of the Short-billed Marsh Wren (*Cistothorus stellaris*) in Michigan. *Auk* 52:362-369.

Carolina Wren (*Thryothorus ludovicianus*)

DeGraaf, R.M. and D.D. Rudis. 1986. New England wildlife: habitat, natural history, and distribution. USDA Forest Service, Northeastern (NE) Forest Experiment Station General Technical Report NE-108. 491 pp.

Golden-crowned Kinglet (*Regulus satrapa*)

Andrle, R.F. 1971. Range extension of the Golden-crowned Kinglet in New York. *Wilson Bulletin* 83:313-316.

DeGraaf, R.M. and D.D. Rudis. 1986. New England wildlife: habitat, natural history, and distribution. USDA Forest Service, Northeastern (NE) Forest Experiment Station General Technical Report NE-108. 491 pp.

Ruby-crowned Kinglet (*Regulus calendula*)

DeGraaf, R.M. and D.D. Rudis. 1986. New England wildlife: habitat, natural history, and distribution. USDA Forest Service, Northeastern (NE) Forest Experiment Station General Technical Report NE-108. 491 pp.

Erskine, A.J. 1992. Atlas of breeding birds of the Maritime Provinces. Co-published by the Crown and Nova Scotia Museum. 270 pp.

Blue-gray Gnatcatcher (*Polioptila caerulea*)

DeGraaf, R.M. and D.D. Rudis. 1986. New England wildlife: habitat, natural history, and distribution. USDA Forest Service, Northeastern (NE) Forest Experiment Station General Technical Report NE-108. 491 pp.

Ellison, W.G. 1993. Historical patterns of vagrancy by Blue-Gray Gnatcatchers in New England. *Journal of Field Ornithology* 64:358-366.

Eastern Bluebird (*Sialia sialia*)

Conner, R.N. 1974. Eastern Bluebirds nesting in clearcuts. *Journal of Wildlife Management* 38:934-935.

DeGraaf, R.M. and D.D. Rudis. 1986. New England wildlife: habitat, natural history, and distribution. USDA Forest Service, Northeastern (NE) Forest Experiment Station General Technical Report NE-108. 491 pp.

Veery (*Catharus fuscescens*)

Bertin, R.I. 1977. Breeding habitats of the Wood Thrush and Veery. *Condor* 79:303-311.

DeGraaf, R.M. and D.D. Rudis. 1986. New England wildlife: habitat, natural history, and distribution. USDA Forest Service, Northeastern (NE) Forest Experiment Station General Technical Report NE-108. 491 pp.

Bicknell's Thrush (*Catharus bicknelli)*

Atwood, J.L., C.C. Rimmer, K.P. McFarland, S.H. Tsai, and L.R. Nagy. 1996. Distribution of Bicknell's Thrush in New England and New York. *Wilson Bulletin* 108:650-661.

Rimmer, C.C., J.L. Atwood, K.P. McFarland, and L.R. Nagy. 1996. Population density, vocal behavior, and recommended survey methods for Bicknell's Thrush. *Wilson Bulletin* 108:639-649.

Swainson's Thrush (*Catharus ustulatus*)

DeGraaf, R.M. and D.D. Rudis. 1986. New England wildlife: habitat, natural history, and distribution. USDA Forest Service, Northeastern (NE) Forest Experiment Station General Technical Report NE-108. 491 pp.

Morse, D.H. 1972. Habitat differences of Swainson's and Hermit Thrushes. *Wilson Bulletin* 84:206-208.

Hermit Thrush (*Catharus guttatus*)

DeGraaf, R.M. and D.D. Rudis. 1986. New England wildlife: habitat, natural history, and distribution. USDA Forest Service, Northeastern (NE) Forest Experiment Station General Technical Report NE-108. 491 pp.

Morse, D.H. 1972. Habitat differences of Swainson's and Hermit Thrushes. *Wilson Bulletin* 84:206-208.

Wood Thrush (*Hylocichla mustelina*)

Bertin, R.I. 1977. Breeding habitats of the Wood Thrush and Veery. *Condor* 79:303-311.

Weaver, F.G. 1939. Studies in the life history of the Wood Thrush. *Bird-Banding* 10:16-23.

American Robin (*Turdus migratorius*)

Eiserer. L.A. 1980. Effects of grass length and mowing on foraging behavior of the American Robin (*Turdus migratorius*). *Auk* 97:576-580.

Knupp, D.M., R.B. Owen, Jr., and J.B. Dimond. 1976. Pesticide dynamics in robins nesting in contaminated and uncontaminated forests in northern Maine. *Canadian Journal of Zoology* 54:1669-1673.

Knupp, D.M., R.B. Owen, Jr., and J.B. Dimond. 1977. Reproductive biology of American Robins in northern Maine. *Auk* 94:80-85.

Gray Catbird (*Dumetella carolinensis*)

DeGraaf, R.M. and D.D. Rudis. 1986. New England wildlife: habitat, natural history, and distribution. USDA Forest Service, Northeastern (NE) Forest Experiment Station General Technical Report NE-108. 491 pp.

Nickell, W.P. 165. Habitats, territory, and nesting of the Catbird. *American Midland Naturalist* 73:433-478.

Northern Mockingbird (*Mimus polyglottus*)

DeGraaf, R.M. and D.D. Rudis. 1986. New England wildlife: habitat, natural history, and distribution. USDA Forest Service, Northeastern (NE) Forest Experiment Station General Technical Report NE-108. 491 pp.

Adkisson, C.S. 1966. The nesting and behavior of mockingbirds in northern Lower Michigan. *Jack-Pine Warbler* 44:102-116.

Brown Thrasher (*Toxostoma rufum*)

Brauning, D.W. 1992. Atlas of breeding birds in Pennsylvania. University of Pittsburgh Press, Pittsburgh, Pennsylvania. 484 pp.

DeGraaf, R.M. and D.D. Rudis. 1986. New England wildlife: habitat, natural history, and distribution. USDA Forest Service, Northeastern (NE) Forest Experiment Station General Technical Report NE-108. 491 pp.

American Pipit (*Anthus rubescens*)

Falardeau, G. 1996. American Pipit. Pages 814-817. *In* Gauthier, J. and Y. Aubry (editors). The breeding birds of Quebec: atlas of the breeding birds of southern Quebec. Province of Quebec Society for the Protection of Birds and the Canadian Wildlife Service, Montreal, Quebec, Canada. 1,302 pp.

Foss, C.R. 1994. Atlas of breeding birds in New Hampshire. Audubon Society of New Hampshire and Acadian Publishing, Dover, New Hampshire. 414 pp.

Cedar Waxwing (*Bombycilla cedrorum*)

DeGraaf, R.M. and D.D. Rudis. 1986. New England wildlife: habitat, natural history, and distribution. USDA Forest Service, Northeastern (NE) Forest Experiment Station General Technical Report NE-108. 491 pp.

Lea, R.B. 1942. A study of the nesting habits of the Cedar Waxwing. *Wilson Bulletin* 54:225-237.

Blue-headed Vireo (*Vireo solitarius*)

DeGraaf, R.M. and D.D. Rudis. 1986. New England wildlife: habitat, natural history, and distribution. USDA Forest Service, Northeastern (NE) Forest Experiment Station General Technical Report NE-108. 491 pp.

Erskine, A.J. 1992. Atlas of breeding birds of the Maritime Provinces. Co-published by the Crown and Nova Scotia Museum. 270 pp.

Yellow-throated Vireo (*Vireo flavifrons*)

DeGraaf, R.M. and D.D. Rudis. 1986. New England wildlife: habitat, natural history, and distribution. USDA Forest Service, Northeastern (NE) Forest Experiment Station General Technical Report NE-108. 491 pp.

James, R.D. 1976. Foraging behavior and habitat selection of three species of Vireos in southern Ontario. *Wilson Bulletin* 88:62-75.

Warbling Vireo (*Vireo gilvus*)

DeGraaf, R.M. and D.D. Rudis. 1986. New England wildlife: habitat, natural history, and distribution. USDA Forest Service, Northeastern (NE) Forest Experiment Station General Technical Report NE-108. 491 pp.

James, R.D. 1976. Foraging behavior and habitat selection of three species of Vireos in southern Ontario. *Wilson Bulletin* 88:62-75.

Philadelphia Vireo (*Vireo philadelphicus*)

DeGraaf, R.M. and D.D. Rudis. 1986. New England wildlife: habitat, natural history, and distribution. USDA Forest Service, Northeastern (NE) Forest Experiment Station General Technical Report NE-108. 491 pp.

Erskine, A.J. 1992. Atlas of breeding birds of the Maritime Provinces. Co-published by the Crown and Nova Scotia Museum. 270 pp.

Red-eyed Vireo (*Vireo olivaceus*)

DeGraaf, R.M. and D.D. Rudis. 1986. New England wildlife: habitat, natural history, and distribution. USDA Forest Service, Northeastern (NE) Forest Experiment Station General Technical Report NE-108. 491 pp.

James, R.D. 1976. Foraging behavior and habitat selection of three species of Vireos in southern Ontario. *Wilson Bulletin* 88:62-75.

Lawrence, L.D.K. 1953. Nesting life and behaviour of the Red-eyed Vireo. *Canadian Field-Naturalist* 67:47-77.

Blue-winged Warbler (*Vermivora pinus*)

Confer, J.L. and K. Knapp. 1981. Golden-winged Warblers and Blue-winged Warblers: the relative success of a habitat specialist and a generalist. *Auk* 98:108-114.

Tennessee Warbler (*Vermivora peregrina*)

DeGraaf, R.M. and D.D. Rudis. 1986. New England wildlife: habitat, natural history, and distribution. USDA Forest Service, Northeastern (NE) Forest Experiment Station General Technical Report NE-108. 491 pp.

Erskine, A.J. 1992. Atlas of breeding birds of the Maritime Provinces. Co-published by the Crown and Nova Scotia Museum. 270 pp.

Nashville Warbler (*Vermivora ruficapilla*)

Brauning, D.W. 1992. Atlas of breeding birds in Pennsylvania. University of Pittsburgh Press, Pittsburgh, Pennsylvania. 484 pp.

DeGraaf, R.M. and D.D. Rudis. 1986. New England wildlife: habitat, natural history, and distribution. USDA Forest Service, Northeastern (NE) Forest Experiment Station General Technical Report NE-108. 491 pp.

Erskine, A.J. 1992. Atlas of breeding birds of the Maritime Provinces. Co-published by the Crown and Nova Scotia Museum. 270 pp.

Northern Parula (*Parula americana*)

DeGraaf, R.M. and D.D. Rudis. 1986. New England wildlife: habitat, natural history, and distribution. USDA Forest Service, Northeastern (NE) Forest Experiment Station General Technical Report NE-108. 491 pp.

Erskine, A.J. 1992. Atlas of breeding birds of the Maritime Provinces. Co-published by the Crown and Nova Scotia Museum. 270 pp.

Graber, R. and J. Graber. 1951. Nesting of the Parula Warbler in Michigan. *Wilson Bulletin* 63:75-83.

Yellow Warbler (*Dendroica petechia*)

DeGraaf, R.M. and D.D. Rudis. 1986. New England wildlife: habitat, natural history, and distribution. USDA Forest Service, Northeastern (NE) Forest Experiment Station General Technical Report NE-108. 491 pp.

Erskine, A.J. 1992. Atlas of breeding birds of the Maritime Provinces. Co-published by the Crown and Nova Scotia Museum. 270 pp.

Morse, D.H. 1973. The foraging of small populations of Yellow Warblers and American Redstarts. *Ecology* 54:346-355.

Chestnut-sided Warbler (*Dendroica pensylvanica*)

Brauning, D.W. 1992. Atlas of breeding birds in Pennsylvania. University of Pittsburgh Press, Pittsburgh, Pennsylvania. 484 pp.

DeGraaf, R.M. and D.D. Rudis. 1986. New England wildlife: habitat, natural history, and distribution. USDA Forest Service, Northeastern (NE) Forest Experiment Station General Technical Report NE-108. 491 pp.

Erskine, A.J. 1992. Atlas of breeding birds of the Maritime Provinces. Co-published by the Crown and Nova Scotia Museum. 270 pp.

Magnolia Warbler (*Dendroica magnolia*)

DeGraaf, R.M. and D.D. Rudis. 1986. New England wildlife: habitat, natural history, and distribution. USDA Forest Service, Northeastern (NE) Forest Experiment Station General Technical Report NE-108. 491 pp.

Erskine, A.J. 1992. Atlas of breeding birds of the Maritime Provinces. Co-published by the Crown and Nova Scotia Museum. 270 pp.

Cape May Warbler (*Dendroica tigrina*)

DeGraaf, R.M. and D.D. Rudis. 1986. New England wildlife: habitat, natural history, and distribution. USDA Forest Service, Northeastern (NE) Forest Experiment Station General Technical Report NE-108. 491 pp.

Erskine, A.J. 1992. Atlas of breeding birds of the Maritime Provinces. Co-published by the Crown and Nova Scotia Museum. 270 pp.

Black-throated Blue Warbler (*Dendroica caerulescens*)

DeGraaf, R.M. and D.D. Rudis. 1986. New England wildlife: habitat, natural history, and distribution. USDA Forest Service, Northeastern (NE) Forest Experiment Station General Technical Report NE-108. 491 pp.

Erskine, A.J. 1992. Atlas of breeding birds of the Maritime Provinces. Co-published by the Crown and Nova Scotia Museum. 270 pp.

Yellow-rumped Warbler (*Dendroica coronata*)

DeGraaf, R.M. and D.D. Rudis. 1986. New England wildlife: habitat, natural history, and distribution. USDA Forest Service, Northeastern (NE) Forest Experiment Station General Technical Report NE-108. 491 pp.

Erskine, A.J. 1992. Atlas of breeding birds of the Maritime Provinces. Co-published by the Crown and Nova Scotia Museum. 270 pp.

Black-throated Green Warbler (*Dendroica virens*)

Collins, S.L. 1983. Geographic variation in habitat structure of the Black-throated Green Warbler (*Dendroica virens*). *Auk* 100:382-389.

DeGraaf, R.M. and D.D. Rudis. 1986. New England wildlife: habitat, natural history, and distribution. USDA Forest Service, Northeastern (NE) Forest Experiment Station General Technical Report NE-108. 491 pp.

Erskine, A.J. 1992. Atlas of breeding birds of the Maritime Provinces. Co-published by the Crown and Nova Scotia Museum. 270 pp.

Parrish, J.D. 1995. Effects of needle architecture on warbler habitat selection in a coastal spruce forest. *Ecology* 76:1813-1820.

Blackburnian Warbler (*Dendroica fusca*)

DeGraaf, R.M. and D.D. Rudis. 1986. New England wildlife: habitat, natural history, and distribution. USDA Forest Service, Northeastern (NE) Forest Experiment Station General Technical Report NE-108. 491 pp.

Erskine, A.J. 1992. Atlas of breeding birds of the Maritime Provinces. Co-published by the Crown and Nova Scotia Museum. 270 pp.

Pine Warbler (*Dendroica pinus*)

Brauning, D.W. 1992. Atlas of breeding birds in Pennsylvania. University of Pittsburgh Press, Pittsburgh, Pennsylvania. 484 pp.

DeGraaf, R.M. and D.D. Rudis. 1986. New England wildlife: habitat, natural history, and distribution. USDA Forest Service, Northeastern (NE) Forest Experiment Station General Technical Report NE-108. 491 pp.

Prairie Warbler (*Dendroica discolor*)

Brauning, D.W. 1992. Atlas of breeding birds in Pennsylvania. University of Pittsburgh Press, Pittsburgh, Pennsylvania. 484 pp.

DeGraaf, R.M. and D.D. Rudis. 1986. New England wildlife: habitat, natural history, and distribution. USDA Forest Service, Northeastern (NE) Forest Experiment Station General Technical Report NE-108. 491 pp.

Palm Warbler (*Dendroica palmarum*)

DeGraaf, R.M. and D.D. Rudis. 1986. New England wildlife: habitat, natural history, and distribution. USDA Forest Service, Northeastern (NE) Forest Experiment Station General Technical Report NE-108. 491 pp.

Erskine, A.J. 1992. Atlas of breeding birds of the Maritime Provinces. Co-published by the Crown and Nova Scotia Museum. 270 pp.

Walkinshaw, L.H. and M.A. Wolf. 1957. Distribution of the Palm Warbler and its status in Michigan. *Wilson Bulletin* 69:338-351.

Bay-breasted Warbler (*Dendroica castanea*)

DeGraaf, R.M. and D.D. Rudis. 1986. New England wildlife: habitat, natural history, and distribution. USDA Forest Service, Northeastern (NE) Forest Experiment Station General Technical Report NE-108. 491 pp.

Erskine, A.J. 1992. Atlas of breeding birds of the Maritime Provinces. Co-published by the Crown and Nova Scotia Museum. 270 pp.

Mendall, H.L. 1937. Nesting of the Bay-breasted Warbler. *Auk* 54:429-439.

Blackpoll Warbler (*Dendroica striata*)

DeGraaf, R.M. and D.D. Rudis. 1986. New England wildlife: habitat, natural history, and distribution. USDA Forest Service, Northeastern (NE) Forest Experiment Station General Technical Report NE-108. 491 pp.

Erskine, A.J. 1992. Atlas of breeding birds of the Maritime Provinces. Co-published by the Crown and Nova Scotia Museum. 270 pp.

Black-and-white Warbler (*Mniotilta varia*)

DeGraaf, R.M. and D.D. Rudis. 1986. New England wildlife: habitat, natural history, and distribution. USDA Forest Service, Northeastern (NE) Forest Experiment Station General Technical Report NE-108. 491 pp.

Erskine, A.J. 1992. Atlas of breeding birds of the Maritime Provinces. Co-published by the Crown and Nova Scotia Museum. 270 pp.

American Redstart (*Setophaga ruticilla*)

DeGraaf, R.M. and D.D. Rudis. 1986. New England wildlife: habitat, natural history, and distribution. USDA Forest Service, Northeastern (NE) Forest Experiment Station General Technical Report NE-108. 491 pp.

Erskine, A.J. 1992. Atlas of breeding birds of the Maritime Provinces. Co-published by the Crown and Nova Scotia Museum. 270 pp.

Morse, D.H. 1973. The foraging of small populations of Yellow Warblers and American Restarts. *Ecology* 54:346-355.

Ovenbird (*Seiurus aurocapillus*)

DeGraaf, R.M. and D.D. Rudis. 1986. New England wildlife: habitat, natural history, and distribution. USDA Forest Service, Northeastern (NE) Forest Experiment Station General Technical Report NE-108. 491 pp.

Porneluzi, P., J.C. Bednarz, L.J. Goodrich, N. Zawada, and J. Hoover. 1993. Reproductive performance of territorial Ovenbirds occupying forest fragments and a contiguous forest in Pennsylvania. *Conservation Biology* 7:618-622.

Stenger, J. and J.B. Falls. 1959. The utilized territory of the Ovenbird. *Wilson Bulletin* 71:125-140.

Northern Waterthrush (*Seiurus noveboracensis*)

Craig, R.J. 1984. Comparative foraging ecology of Louisiana and Northern Waterthrushes. *Wilson Bulletin* 96:173-183.

DeGraaf, R.M. and D.D. Rudis. 1986. New England wildlife: habitat, natural history, and distribution. USDA Forest Service, Northeastern (NE) Forest Experiment Station General Technical Report NE-108. 491 pp.

Louisiana Waterthrush (*Seiurus motacilla*)

Craig, R.J. 1984. Comparative foraging ecology of Louisiana and Northern Waterthrushes. *Wilson Bulletin* 96:173-183.

Eaton, S.W. 1958. A life history study of the Louisiana Waterthrush. *Wilson Bulletin* 70:211-236.

Mourning Warbler (*Oporornis philadelphia*)

DeGraaf, R.M. and D.D. Rudis. 1986. New England wildlife: habitat, natural history, and distribution. USDA Forest Service, Northeastern (NE) Forest Experiment Station General Technical Report NE-108. 491 pp.

Erskine, A.J. 1992. Atlas of breeding birds of the Maritime Provinces. Co-published by the Crown and Nova Scotia Museum. 270 pp.

Cox, G.W. 1960. A life history of the Mourning Warbler. *Wilson Bulletin* 72:5-28.

Common Yellowthroat (*Geothlypis trichas*)

DeGraaf, R.M. and D.D. Rudis. 1986. New England wildlife: habitat, natural history, and distribution. USDA Forest Service, Northeastern (NE) Forest Experiment Station General Technical Report NE-108. 491 pp.

Stewart, R.E. 1953. A life history study of the Yellowthroat. *Wilson Bulletin* 65:99-115.

Wilson's Warbler (*Wilsonia pusilla*)

DeGraaf, R.M. and D.D. Rudis. 1986. New England wildlife: habitat, natural history, and distribution. USDA Forest Service, Northeastern (NE) Forest Experiment Station General Technical Report NE-108. 491 pp.

Erskine, A.J. 1992. Atlas of breeding birds of the Maritime Provinces. Co-published by the Crown and Nova Scotia Museum. 270 pp.

Canada Warbler (*Wilsonia canadensis*)

DeGraaf, R.M. and D.D. Rudis. 1986. New England wildlife: habitat, natural history, and distribution. USDA Forest Service, Northeastern (NE) Forest Experiment Station General Technical Report NE-108. 491 pp.

Erskine, A.J. 1992. Atlas of breeding birds of the Maritime Provinces. Co-published by the Crown and Nova Scotia Museum. 270 pp.

Scarlet Tanager (*Piranga olivacea*)

DeGraaf, R.M. and D.D. Rudis. 1986. New England wildlife: habitat, natural history, and distribution. USDA Forest Service, Northeastern (NE) Forest Experiment Station General Technical Report NE-108. 491 pp.

Erskine, A.J. 1992. Atlas of breeding birds of the Maritime Provinces. Co-published by the Crown and Nova Scotia Museum. 270 pp.

Northern Cardinal (*Cardinalis cardinalis*)

DeGraaf, R.M. and D.D. Rudis. 1986. New England wildlife: habitat, natural history, and distribution. USDA Forest Service, Northeastern (NE) Forest Experiment Station General Technical Report NE-108. 491 pp.

Dow, D.D. 1969. Home range and habitat of the Cardinal in peripheral and central populations. *Canadian Journal of Zoology* 47:103-114.

Rose-breasted Grosbeak (*Pheucticus ludovicianus*)

Brauning, D.W. 1992. Atlas of breeding birds in Pennsylvania. University of Pittsburgh Press, Pittsburgh, Pennsylvania. 484 pp.

DeGraaf, R.M. and D.D. Rudis. 1986. New England wildlife: habitat, natural history, and distribution. USDA Forest Service, Northeastern (NE) Forest Experiment Station General Technical Report NE-108. 491 pp.

Erskine, A.J. 1992. Atlas of breeding birds of the Maritime Provinces. Co-published by the Crown and Nova Scotia Museum. 270 pp.

Indigo Bunting (*Passerina cyanea*)

Brauning, D.W. 1992. Atlas of breeding birds in Pennsylvania. University of Pittsburgh Press, Pittsburgh, Pennsylvania. 484 pp.

DeGraaf, R.M. and D.D. Rudis. 1986. New England wildlife: habitat, natural history, and distribution. USDA Forest Service, Northeastern (NE) Forest Experiment Station General Technical Report NE-108. 491 pp.

Eastern Towhee (*Pipilo erythrophthalmus*)

DeGraaf, R.M. and D.D. Rudis. 1986. New England wildlife: habitat, natural history, and distribution. USDA Forest Service, Northeastern (NE) Forest Experiment Station General Technical Report NE-108. 491 pp.

Hagan, J.M., III. 1993. Decline of the Rufous-sided Towhee in the eastern United States. *Auk* 110:863-874.

Chipping Sparrow (*Spizella passerina*)

DeGraaf, R.M. and D.D. Rudis. 1986. New England wildlife: habitat, natural history, and distribution. USDA Forest Service, Northeastern (NE) Forest Experiment Station General Technical Report NE-108. 491 pp.

Erskine, A.J. 1992. Atlas of breeding birds of the Maritime Provinces. Co-published by the Crown and Nova Scotia Museum. 270 pp.

Field Sparrow (*Spizella pusilla*)

Best, L.B. 1977. Territory quality and mating success in the Field Sparrow (*Spizella pusilla*). *Condor* 79:192-204.

Brauning, D.W. 1992. Atlas of breeding birds in Pennsylvania. University of Pittsburgh Press, Pittsburgh, Pennsylvania. 484 pp.

DeGraaf, R.M. and D.D. Rudis. 1986. New England wildlife: habitat, natural history, and distribution. USDA Forest Service, Northeastern (NE) Forest Experiment Station General Technical Report NE-108. 491 pp.

Vesper Sparrow (*Pooecetes gramineus*)

DeGraaf, R.M. and D.D. Rudis. 1986. New England wildlife: habitat, natural history, and distribution. USDA Forest Service, Northeastern (NE) Forest Experiment Station General Technical Report NE-108. 491 pp.

Vickery, P.D., M.L. Hunter, Jr., and S.M. Melvin. 1994. Effects of habitat area on the distribution of grassland birds in Maine. *Conservation Biology* 8:1087-1097.

Savannah Sparrow (*Passerculus sandwichensis*)

Dixon, C.L. 1978. Breeding biology of the Savannah Sparrow on Kent Island. *Auk* 95:235-246.

Vickery, P.D., M.L. Hunter, Jr., and S.M. Melvin. 1994. Effects of habitat area on the distribution of grassland birds in Maine. *Conservation Biology* 8:1087-1097.

Wheelwright, N.T., G. Trussell, J.P. Devine, and R. Anderson. 1994. Sexual dimorphism and population sex ratios in juvenile Savannah Sparrows. *Journal of Field Ornithology* 65:520-529.

Wiens, J.A. 1973. Interterritorial habitat variation in Grasshopper and Savannah Sparrows. *Ecology* 54:879-883.

Grasshopper Sparrow (*Ammodramus savannarum*)

Smith, R.L. 1963. Some ecological notes on the Grasshopper Sparrow. *Wilson Bulletin* 75:159-165.

Vickery, P.D., M.L. Hunter, Jr., and S.M. Melvin. 1994. Effects of habitat area on the distribution of grassland birds in Maine. *Conservation Biology* 8:1,087-1,097.

Wiens, J.A. 1973. Interterritorial habitat variation in Grasshopper and Savannah Sparrows. *Ecology* 54:879-883.

Saltmarsh Sharp-tailed Sparrow (*Ammodramus caudacutus*)

Ouellet, R. 1996. Sharp-tailed Sparrow. Pages 994-997. *In* Gauthier, J. and Y. Aubry (editors). The breeding birds of Quebec: atlas of the breeding birds of southern Quebec. Province of Quebec Society for the Protection of Birds and the Canadian Wildlife Service, Montreal, Quebec, Canada. 1,302 pp.

Rising, J.D. and J.C. Avise. 1993. Application of genealogical-concordance principles to the taxonomy and evolutionary history of the Sharp-tailed Sparrow (*Ammodramus caudacutus*). *Auk* 110:844-856.

Nelson's Sharp-tailed Sparrow (*Ammodramus nelsoni*)

Ouellet, R. 1996. Sharp-tailed Sparrow. Pages 994-997. *In* Gauthier, J. and Y. Aubry (editors). The breeding birds of Quebec: atlas of the breeding birds of southern Quebec. Province of Quebec Society for the Protection of Birds and the Canadian Wildlife Service, Montreal, Quebec, Canada. 1,302 pp.

Fox Sparrow (*Passerella iliaca*)

DeGraaf, R.M. and D.D. Rudis. 1986. New England wildlife: habitat, natural history, and distribution. USDA Forest Service, Northeastern (NE) Forest Experiment Station General Technical Report NE-108. 491 pp.

Erskine, A.J. 1992. Atlas of breeding birds of the Maritime Provinces. Co-published by the Crown and Nova Scotia Museum. 270 pp.

Song Sparrow (*Melospiza melodia*)

DeGraaf, R.M. and D.D. Rudis. 1986. New England wildlife: habitat, natural history, and distribution. USDA Forest Service, Northeastern (NE) Forest Experiment Station General Technical Report NE-108. 491 pp.

Greenburg, R. 1988. Water as a habitat cue for breeding Swamp and Song Sparrows. *Condor* 90:420-427.

Lincoln's Sparrow (*Melospiza lincolnii*)

DeGraaf, R.M. and D.D. Rudis. 1986. New England wildlife: habitat, natural history, and distribution. USDA Forest Service, Northeastern (NE) Forest Experiment Station General Technical Report NE-108. 491 pp.

Erskine, A.J. 1992. Atlas of breeding birds of the Maritime Provinces. Co-published by the Crown and Nova Scotia Museum. 270 pp.

Swamp Sparrow (*Melospiza georgiana*)

DeGraaf, R.M. and D.D. Rudis. 1986. New England wildlife: habitat, natural history, and distribution. USDA Forest Service, Northeastern (NE) Forest Experiment Station General Technical Report NE-108. 491 pp.

Greenburg, R. 1988. Water as a habitat cue for breeding Swamp and Song Sparrows. *Condor* 90:420-427.

White-throated Sparrow (*Zonotrichia albicollis*)

DeGraaf, R.M. and D.D. Rudis. 1986. New England wildlife: habitat, natural history, and distribution. USDA Forest Service, Northeastern (NE) Forest Experiment Station General Technical Report NE-108. 491 pp.

Erskine, A.J. 1992. Atlas of breeding birds of the Maritime Provinces. Co-published by the Crown and Nova Scotia Museum. 270 pp.

Dark-eyed Junco (*Junco hyemalis*)

DeGraaf, R.M. and D.D. Rudis. 1986. New England wildlife: habitat, natural history, and distribution. USDA Forest Service, Northeastern (NE) Forest Experiment Station General Technical Report NE-108. 491 pp.

Erskine, A.J. 1992. Atlas of breeding birds of the Maritime Provinces. Co-published by the Crown and Nova Scotia Museum. 270 pp.

Bobolink (*Dolichonyx oryzivorus*)

DeGraaf, R.M. and D.D. Rudis. 1986. New England wildlife: habitat, natural history, and distribution. USDA Forest Service, Northeastern (NE) Forest Experiment Station General Technical Report NE-108. 491 pp.

Erskine, A.J. 1992. Atlas of breeding birds of the Maritime Provinces. Co-published by the Crown and Nova Scotia Museum. 270 pp.

Red-winged Blackbird (*Agelaius phoeniceus*)

DeGraaf, R.M. and D.D. Rudis. 1986. New England wildlife: habitat, natural history, and distribution. USDA Forest Service, Northeastern (NE) Forest Experiment Station General Technical Report NE-108. 491 pp.

Erskine, A.J. 1992. Atlas of breeding birds of the Maritime Provinces. Co-published by the Crown and Nova Scotia Museum. 270 pp.

Eastern Meadowlark (*Sturnella magna*)

Brauning, D.W. 1992. Atlas of breeding birds in Pennsylvania. University of Pittsburgh Press, Pittsburgh, Pennsylvania. 484 pp.

DeGraaf, R.M. and D.D. Rudis. 1986. New England wildlife: habitat, natural history, and distribution. USDA Forest Service, Northeastern (NE) Forest Experiment Station General Technical Report NE-108. 491 pp.

Erskine, A.J. 1992. Atlas of breeding birds of the Maritime Provinces. Co-published by the Crown and Nova Scotia Museum. 270 pp.

Rusty Blackbird (*Euphagus carolinus*)

DeGraaf, R.M. and D.D. Rudis. 1986. New England wildlife: habitat, natural history, and distribution. USDA Forest Service, Northeastern (NE) Forest Experiment Station General Technical Report NE-108. 491 pp.

Erskine, A.J. 1992. Atlas of breeding birds of the Maritime Provinces. Co-published by the Crown and Nova Scotia Museum. 270 pp.

Common Grackle (*Quiscalus quiscala*)

DeGraaf, R.M. and D.D. Rudis. 1986. New England wildlife: habitat, natural history, and distribution. USDA Forest Service, Northeastern (NE) Forest Experiment Station General Technical Report NE-108. 491 pp.

Erskine, A.J. 1992. Atlas of breeding birds of the Maritime Provinces. Co-published by the Crown and Nova Scotia Museum. 270 pp.

Maxwell, G.R., Jr., J.M. Nocilly, and R.I. Shearer. 1976. Observations at a cavity nest of a Common Grackle and an analysis of grackle nest sites. *Wilson Bulletin* 88:505-507.

Brown-headed Cowbird (*Molothrus ater*)

Coher, D.R., and D.E. Capen. 1995. Landscape-level habitat use by Brown-headed Cowbirds in Vermont. *Journal of Wildlife Management* 59:631-637.

DeGraaf, R.M. and D.D. Rudis. 1986. New England wildlife: habitat, natural history, and distribution. USDA Forest Service, Northeastern (NE) Forest Experiment Station General Technical Report NE-108. 491 pp.

Erskine, A.J. 1992. Atlas of breeding birds of the Maritime Provinces. Co-published by the Crown and Nova Scotia Museum. 270 pp.

Baltimore Oriole (*Icterus galbula*)

DeGraaf, R.M. and D.D. Rudis. 1986. New England wildlife: habitat, natural history, and distribution. USDA Forest Service, Northeastern (NE) Forest Experiment Station General Technical Report NE-108. 491 pp.

Erskine, A.J. 1992. Atlas of breeding birds of the Maritime Provinces. Co-published by the Crown and Nova Scotia Museum. 270 pp.

Pine Grosbeak (*Pinicola enucleator*)

DeGraaf, R.M. and D.D. Rudis. 1986. New England wildlife: habitat, natural history, and distribution. USDA Forest Service, Northeastern (NE) Forest Experiment Station General Technical Report NE-108. 491 pp.

Erskine, A.J. 1992. Atlas of breeding birds of the Maritime Provinces. Co-published by the Crown and Nova Scotia Museum. 270 pp.

Purple Finch (*Carpodacus purpureus*)

DeGraaf, R.M. and D.D. Rudis. 1986. New England wildlife: habitat, natural history, and distribution. USDA Forest Service, Northeastern (NE) Forest Experiment Station General Technical Report NE-108. 491 pp.

Erskine, A.J. 1992. Atlas of breeding birds of the Maritime Provinces. Co-published by the Crown and Nova Scotia Museum. 270 pp.

Red Crossbill (*Loxia curvirostra*)

Benkman, C.W. 1993. Logging, conifers, and the conservation of Crossbills. *Conservation Biology* 7:473-479.

DeGraaf, R.M. and D.D. Rudis. 1986. New England wildlife: habitat, natural history, and distribution. USDA Forest Service, Northeastern (NE) Forest Experiment Station General Technical Report NE-108. 491 pp.

Lawrence, L.D.K. 1949. The Red Crossbill at Pimisi Bay, Ontario. *Canadian Field-Naturalist* 63:147-160.

White-winged Crossbill (*Loxia leucoptera*)

Benkman, C.W. 1993. Logging, conifers, and the conservation of Crossbills. *Conservation Biology* 7:473-479.

DeGraaf, R.M. and D.D. Rudis. 1986. New England wildlife: habitat, natural history, and distribution. USDA Forest Service, Northeastern (NE) Forest Experiment Station General Technical Report NE-108. 491 pp.

Pine Siskin (*Carduelis pinus*)

DeGraaf, R.M. and D.D. Rudis. 1986. New England wildlife: habitat, natural history, and distribution. USDA Forest Service, Northeastern (NE) Forest Experiment Station General Technical Report NE-108. 491 pp.

Erskine, A.J. 1992. Atlas of breeding birds of the Maritime Provinces. Co-published by the Crown and Nova Scotia Museum. 270 pp.

Weaver, R.L. and F.H. West. 1943. Notes on the breeding of the Pine Siskin. *Auk* 60:492-504.

American Goldfinch (*Carduelis tristis*)

DeGraaf, R.M. and D.D. Rudis. 1986. New England wildlife: habitat, natural history, and distribution. USDA Forest Service, Northeastern (NE) Forest Experiment Station General Technical Report NE-108. 491 pp.

Nickell, W.P. 1951. Studies of habitats, territory, and nests of the eastern Goldfinch. *Auk* 68:447-470.

Stokes, A.W. 1950. Breeding behavior of the Goldfinch. *Wilson Bulletin* 62:106-127.

Evening Grosbeak (*Coccothraustes vespertinus*)

DeGraaf, R.M. and D.D. Rudis. 1986. New England wildlife: habitat, natural history, and distribution. USDA Forest Service, Northeastern (NE) Forest Experiment Station General Technical Report NE-108. 491 pp.

Erskine, A.J. 1992. Atlas of breeding birds of the Maritime Provinces. Co-published by the Crown and Nova Scotia Museum. 270 pp.