

Rocky ID# 123212
ISRO-0499



**SURVEY OF NON-NATIVE (EXOTIC) VASCULAR
PLANT SPECIES OF CAMPGROUNDS, DEVELOPED
AREAS, AND PASSAGE ISLAND LIGHTHOUSE AND
TRAIL, AT ISLE ROYALE NATIONAL PARK,
MICHIGAN, 1994**

RESOURCE MANAGEMENT REPORT 95-1

AUGUST, 1995

ISRO
(2)

1 January 1995
P.O. Box 144
Mountain, WI 54149

Mr. Jack Oelfke
Resource Management Specialist
Isle Royale National Park
800 E. Lakeshore Drive
Houghton, MI 49931-1895

Dear Jack,

Attached is the revised, final draft of the "Survey of non-native (exotic) vascular plant species of campgrounds, developed areas, and Passage Island lighthouse and trail, at Isle Royale National Park, Michigan, 1994," incorporating the revisions you suggested in your letter of 19 December 1994.

Having completed the report, I request payment of \$ 2,000.00 to the above address for my services, pursuant to National Park Service (NPS) Order for Supplies and Services No. 1443PX631094306.

Sincerely,


Emmet J. Judziewicz

CONTENTS

	<u>Page</u>
Introduction	4
What is an Exotic?	5
Methods	6
Results	7
Developed Areas	
Passage Island Lighthouse, Trail, and Boathouse	
Status of Spotted Knapweed (<u>Centaurea maculosa</u>)	
Trails	
Discussion	9
Severity of the threat posed by each exotic species	
Severity of the threat posed by exotics at developed areas	
Possible correlation between human use of developed areas	
and their exotic plant floras	
Bibliography	10
Figures (in results section, pages 7-9)	
1. Passage Island trail exotics: king devil hawkweed	
(<u>Hieracium pilloselloides</u>).	
2. Passage Island trail exotics: common plantain (<u>Plantago</u>	
<u>major</u>).	
3. Passage Island trail exotics: dandelion (<u>Taraxacum</u>	
<u>officinale</u>).	
4. Passage Island trail exotics: garden monkshood	
(<u>Aconitum napellus</u>), creeping bellflower (<u>Campanula</u>	
<u>rapunculoides</u>), sweet william (<u>Dianthus barbatus</u>), and	
maiden pink (<u>Dianthus deltoides</u>).	
5. Passage Island trail exotics, miscellaneous species.	
6. Distribution of spotted knapweed (<u>Centaurea maculosa</u>)	
on Isle Royale, 1992-1994.	
7. Distribution of spotted knapweed (<u>Centaurea maculosa</u>)	
at Rock Harbor in 1994.	
Tables	
1. LIST OF DEVELOPED AREAS AT ISLE ROYALE NATIONAL	
PARK	11
2. ANNOTATED LIST OF EXOTIC VASCULAR PLANT SPECIES	
PRESENT IN ISLE ROYALE NATIONAL PARK, WITH SITES	
OF OCCURRENCE	13
3. LIST OF EXOTIC VASCULAR PLANT SPECIES PRESENCE	
AND ABUNDANCE AT EACH DEVELOPED AREA	24

INTRODUCTION

Compared with other Midwestern areas, Isle Royale National Park is blessed with (numerically, at least) a poor exotic plant flora of about 124 species. This comprises about 17% of the total vascular plant flora (ca. 750 species), as compared with 23% for the Apostle Islands National Lakeshore and Madeline Island, another Lake Superior insular park (Judziewicz & Koch 1993): Madeline Island, for example, is only 1/9 the size of the main island of Isle Royale and yet has 126 exotic species.

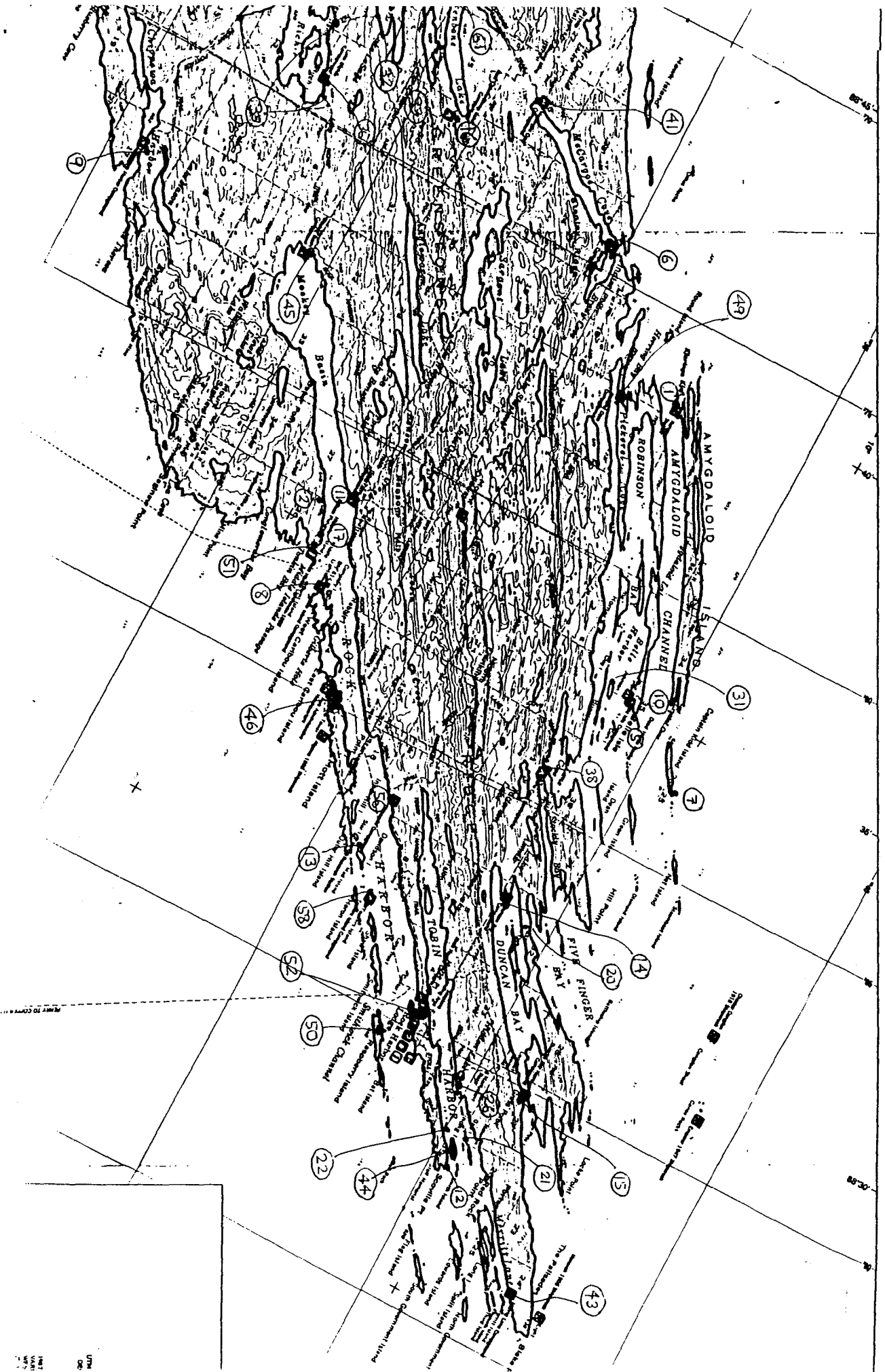
These statistics are misleading in that where exotics do occur on Isle Royale, they are often a dominant feature of the vegetation, such as on the Greenstone, Feldtmann, and other ridges, where rank growths of orange and king devil hawkweeds, Canada bluegrass, timothy, and red, white and yellow hop clovers occur. Such species pose a significant threat to native plant communities all out of proportion to number of species present.

How did these exotics invade these remote inland ridges? Little is known or probably can be known of this history, but chances are that they proceeded inland from coastal entry points such as old fishing and logging camps and mining villages, perhaps in the last century, possibly mixed with hay for the horses that were used as draft animals in these camps.

These coastal entry points, now in many cases developed as National Park Service (N.P.S.) campgrounds, are still potential entry points for troublesome exotics on the boots of hikers or in the bilges of powerboats. Some, such as spotted knapweed (Centaurea maculosa) and common St. John's-wort or Klamath weed (Hypericum perforatum) have the potential to further negatively impact inland native plant communities.

The purpose of this report is to document the occurrence of exotic vascular plant species during the 1994 field season at all developed areas in Isle Royale National Park, including the administration at service complexes at Windigo, Rock Harbor, and Mott Island, ranger stations at Malone Bay and Amygdaloid Island, lighthouse grounds, old fisheries, seasonal cabins, and the numerous developed campgrounds. These data can then serve as a baseline for conducting similar surveys in the future.

DEVELOPED SITES



METHODS

Developed areas on Isle Royale were surveyed during a reconnaissance visit from 6-21 August 1993 and from 13 May through 30 September 1994. For each site, a standard form was used to check off exotic species noted, and abbreviated notes were made of its abundance at the site. For species of particular concern as potentially pernicious invaders (such as burdock, spotted knapweed, and common St. John's-wort), further notes were made of their exact location in each developed area.

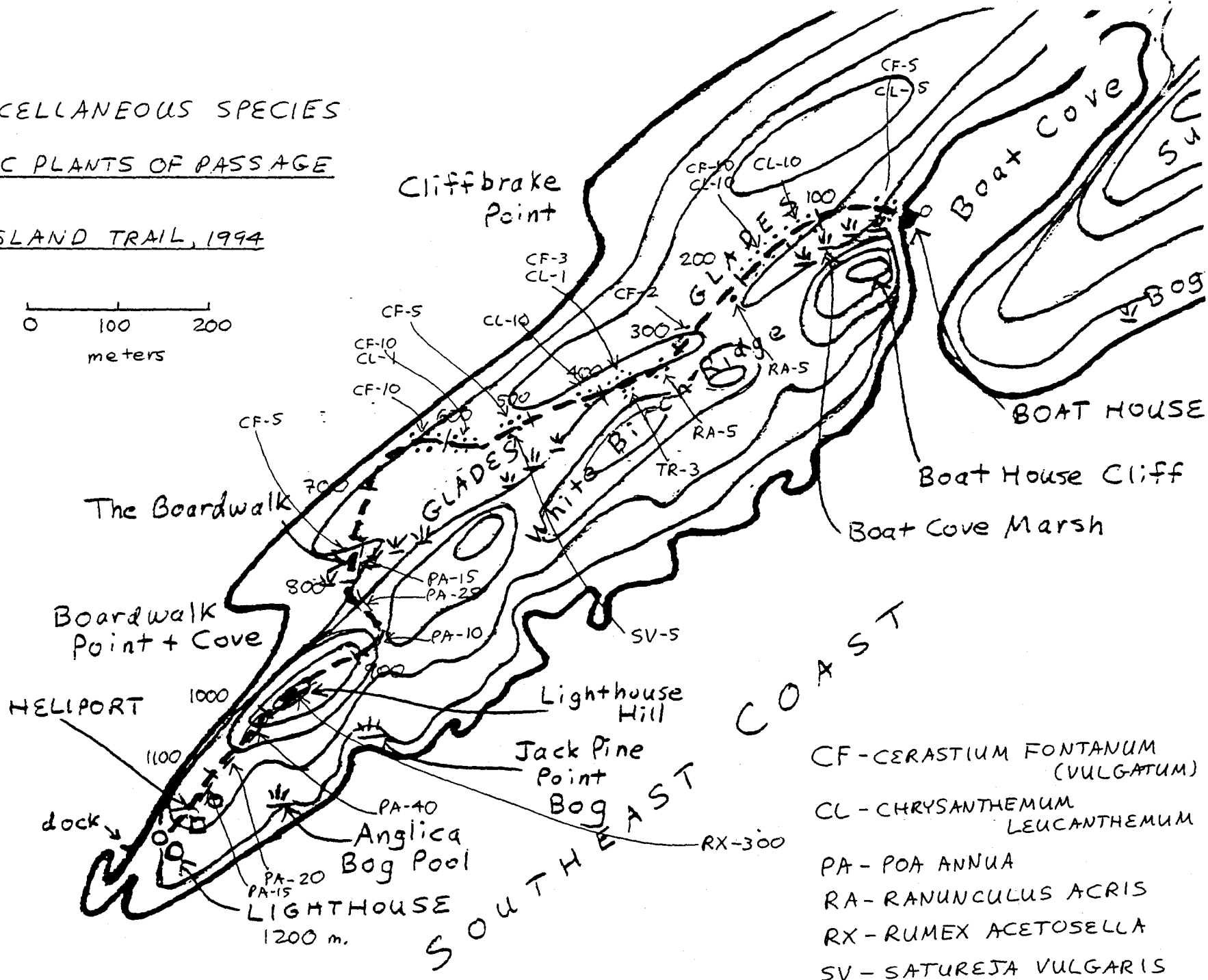
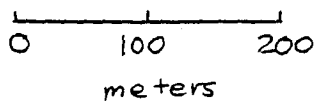
An attempt was made to visit each site at least twice during the field season (both before and after July 1st) in order to survey both early and late-blooming species. A second visit was not possible for several of the more remote inland campgrounds such as both Lake Desor sites and Hatchet Lake, and the inland lakes portage/canoe campsites. Passage Island was visited twice, from 20-24 June and on 15 August 1994.

In estimating abundance at a given site: a hierarchy of six levels of abundance were used: 1) Rare (R), indicating that the species was present as only a single or several depauperate individuals at only one location (for example, a tent pad) at a given developed site. 2) Uncommon (U) is similar to rare but the species was found as 1-several depauperate individuals at two or three locations within a developed site. 3) Occasional (O) is similar to uncommon but with the qualification that the individuals were of normal or vigorous growth. 4) Fairly common (FC) denotes about five or more sites within the developed area where normal or vigorous adult individuals were observed. 5) Common (C) indicates that the species was present as numerous adult individuals that were a conspicuous part of the vegetation of the developed area. 6) Abundant (A) means the species was a dominant in part of the vegetation at the developed area.

The plant lists of Brown (1937), Crispin *et al.* (1985), and Slavick & Janke (1987, 1993) were used to compile a list of exotic vascular plant species known from the park along with localities from they where were are known. The Isle Royale park herbarium was also examined for its holdings of exotic plant specimens and is referenced in Table 3 below, where such entries as (for example) "H. Baggley s.n., 20 August 1940" denotes a specimen collected by Ms. Baggley on that date that is housed in this herbarium. Such dried specimens are vital to identifying and confirming the presence and first date of introduction of exotics into the park.

MISCELLANEOUS SPECIES
EXOTIC PLANTS OF PASSAGE

ISLAND TRAIL, 1994

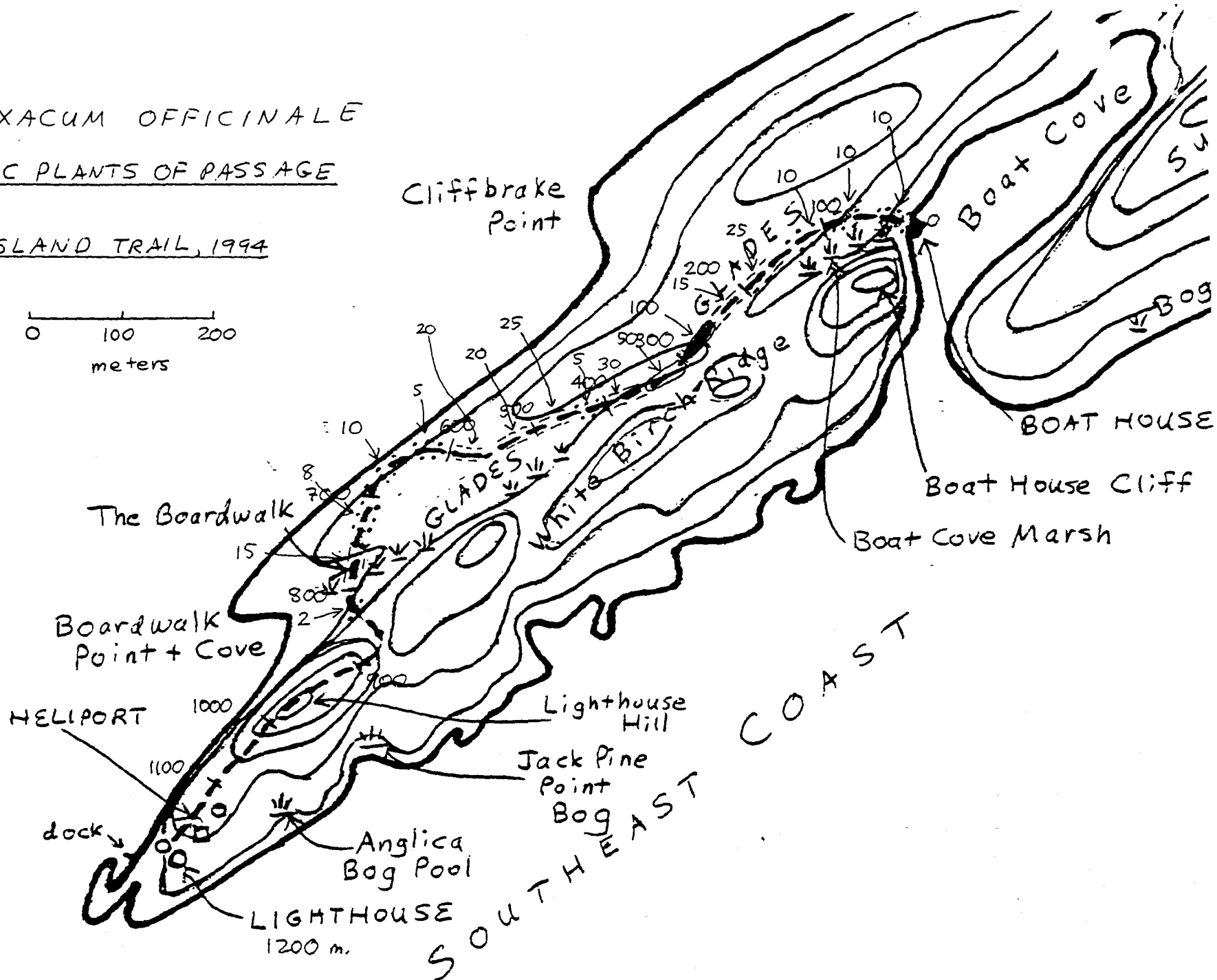
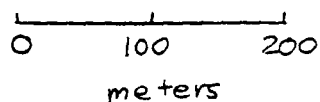


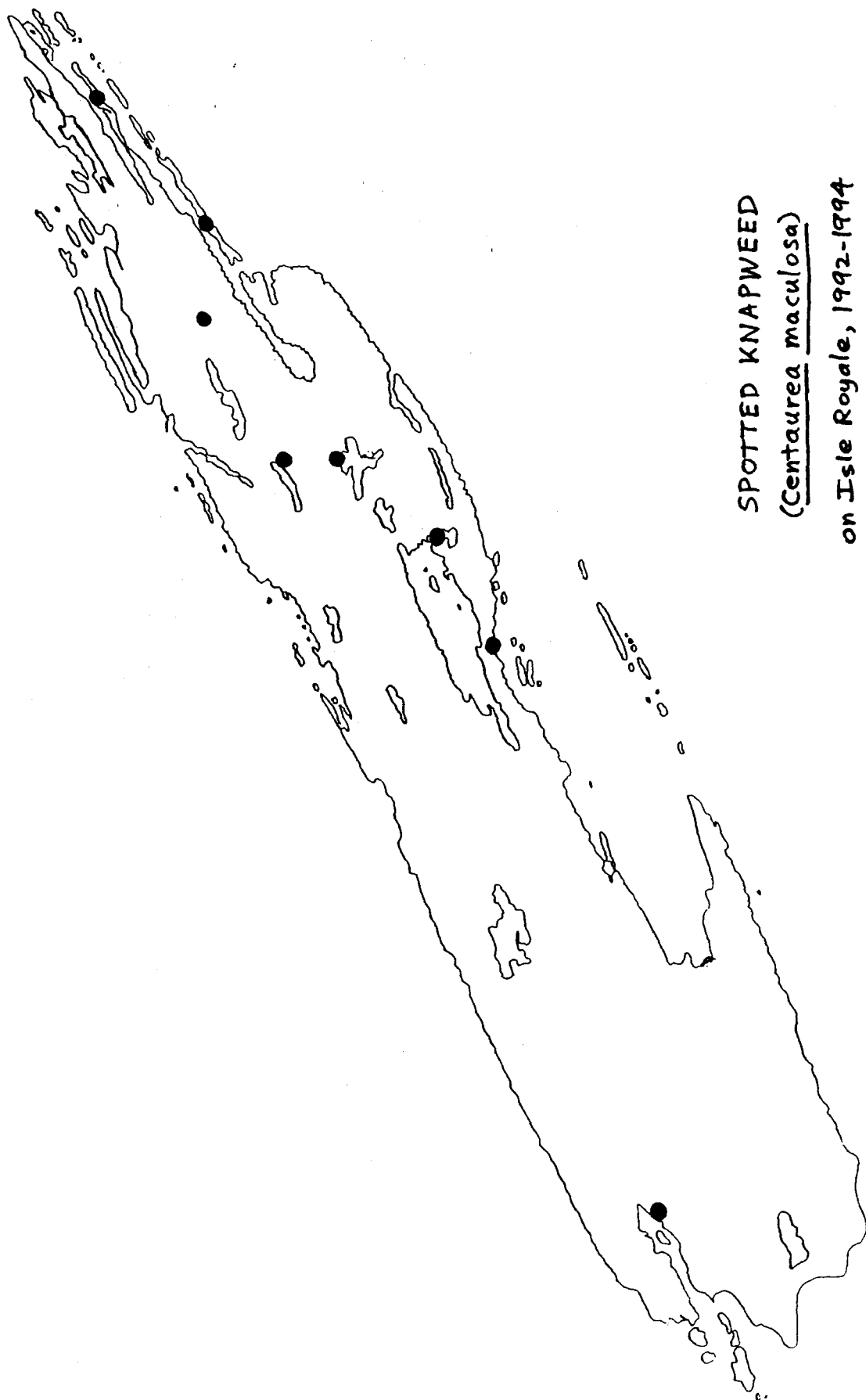
- CF - CERASTIUM FONTANUM
(VULGATUM)
- CL - CHRYSANTHEMUM
LEUCANTHEMUM
- PA - POA ANNUA
- RA - RANUNCULUS ACRIS
- RX - RUMEX ACETOSELLA
- SV - SATUREJA VULGARIS

TARAXACUM OFFICINALE

EXOTIC PLANTS OF PASSAGE

ISLAND TRAIL, 1994





SPOTTED KNAPWEED
(Centaurea maculosa)
on Isle Royale, 1992-1994

the right of the entrance and a larger patch of a dozen plants near the base of the hill containing tanks.

5) Wood Lake Canoe Campground. At landing, a few plants in 1992 and 1993 reported by Oelfke; not noted on 30 September 1994.

6) Malone Bay Campground. A few plants at tent sites in 1992 and/or 1993 but not 1994;

7) Lake Richie Hike-In Campground. One flowering plant reported by a visitor in 1994; not noted there in September 1994.

8) East Chickenbone Lake Campground. Three flowering plants seen (and eradicated) by me in September 1994.

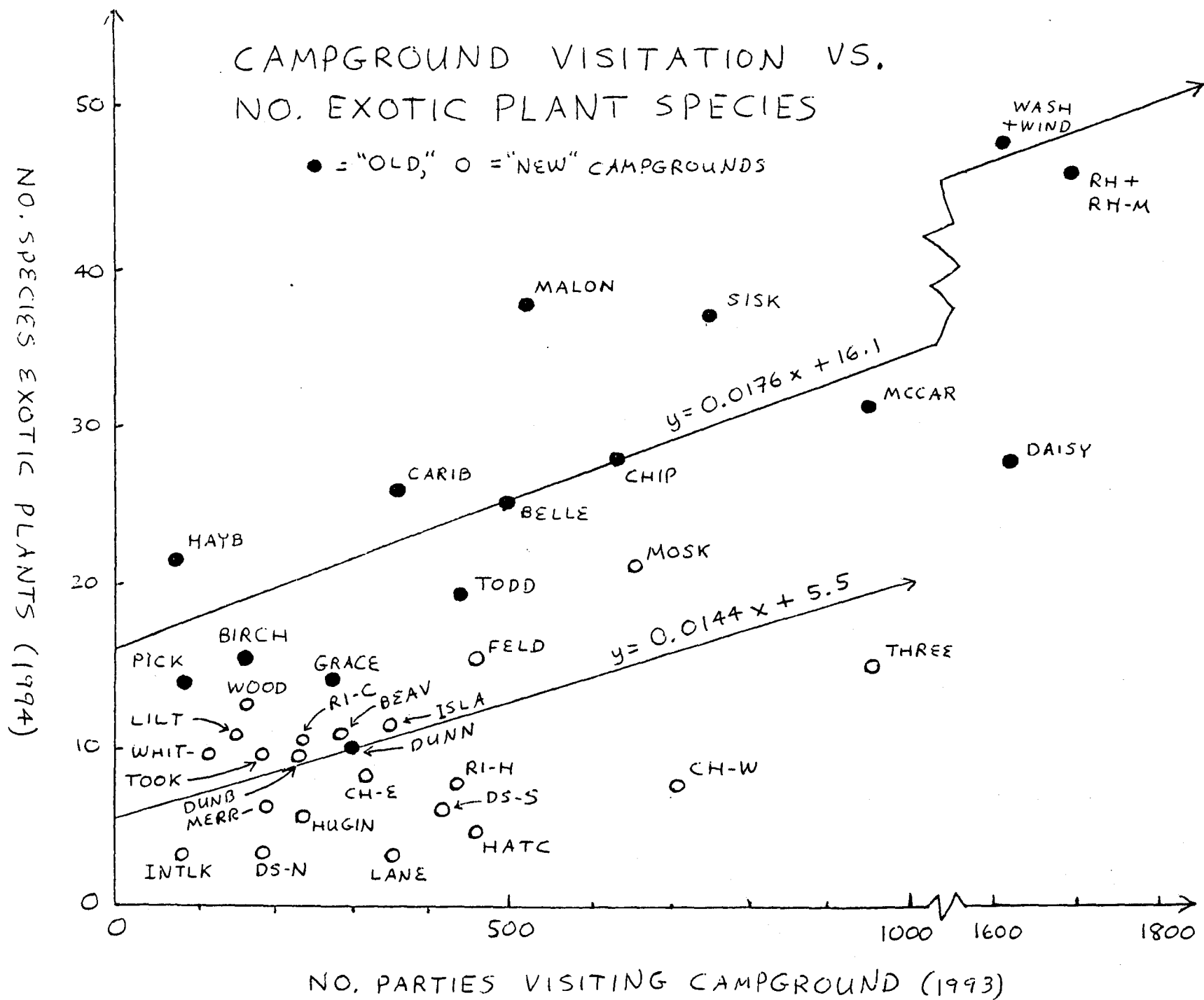
This species prefers loose gravel (as in the equipment yards of the larger developed areas) and thus may or may not become a troublesome weed if it establishes itself on the rocky ridge trails such as the Greenstone; there may not be enough gravelly soil there for it to become more than a local threat. None the less, spotted knapweed should be viewed as a continuing threat to spread into native communities at Isle Royale. It is recommended that all back country rangers and trail crews should learn to recognize this species and urged to eradicate it at back country sites if the infestation is small; if large, resource management personnel should be brought in.

Trails. Many of the major hiking trails of the park traverse the bare crests of burned or otherwise disturbed rock ridges that support some of the densest growths of exotic plant species on the island. This is particularly so for the Feldtmann and Greenstone Ridges. No quantitative data was recorded for these areas but Table 8 summarizes my subjective impression of which species are the greatest competitors/threats to native vegetation. In the worse sites such as on the Feldtmann Ridge summit and parts of the Greenstone from Mt. Siskiwit to Ishpeming Point, among many other areas (especially within the 1936 burn area), it appears that exotics compose the majority of biomass in dry rocky sites.

DISCUSSION

Severity of the threat posed by each exotic species. Table 2 includes a summary of the abundance of each exotic species in the Park, along with a brief description of its habitat and an estimate of its potential for spreading into and threatening native communities. Tables 9-10 summarize those species that are currently local threats or have the potential to become severe island-wide threats.

Severity of the threat posed by exotics at developed areas. Table 3 also includes an estimate of the severity of the number of species and density of exotics at each developed area.



49. Pickerel Cove Campground
50. Raspberry Island Dock and Trail
51. Rock Harbor Lighthouse
52. Rock Harbor Lodge & Campground
53. Rock of Ages Lighthouse
54. Siskiwit Bay Campground
55. South Lake Desor Campground
56. Three Mile Campground
57. Todd Harbor Campground
58. Tookers Island Campground
59. Washington Creek Campground
60. Washington Island Cabins
61. West Chickenbone Lake Campground
62. Windigo Ranger Station & Marina
63. Wood Lake Canoe Cmpd.
64. Wright Island Fishery

Phleum pratense L. [timothy]. A common weed of developed areas, clearings, and ridges. A moderate to severe threat to native communities, especially on ridgetops, but probably ineradicable. 1-3, 5, 6, 8-11, 13-18, 21-23, 25, 30, 31, 34, 36, 37, 40-42, 45, 46, 48, 49, 51, 52, 54, 56-62, 64.

Poa annua L. [annual bluegrass]. Fairly common in and more or less restricted to muddy trodden footpaths and tent pads, particularly near developed areas. Not a significant threat. 1, 4-6, 8, 9, 15-18, 20, 23-28, 32-40, 43, 45, 46, 48, 50, 52, 54-57, 59-63.

Poa compressa L. [Canada bluegrass]. Common throughout the park in clearings, rocky shores, and exposed ridgetops and glades. A significant threat to native communities, but probably ineradicable. 1, 2, 4-9, 11, 13, 16, 17, 21, 22, 25, 34, 36-42, 44-50, 52, 54, 58, 59, 61, 62.

Poa pratensis L. [Kentucky bluegrass]. Fairly common throughout the park in clearings and rocky shores, and as a lawn grass in developed areas. It is probably not a significant threat to native communities. 4, 13-15, 18, 31, 40, 46, 54, 56, 60, 62, 64.

IRIDACEAE (IRIS FAMILY)

Iris sp. [garden iris]. Uncommon relict of cultivation on Belle Isle and at Edisen Fishery; not a threat. 5, 17.

LILIACEAE (LILY FAMILY)

Allium schoenoprasum L. [garden chives]. This species is clearly native to rock shoreline crevices on Passage Island, the northwest shore of Captain Kidd Island, Cork Island, and Blake Point. One to several clumps occur near houses and cabins throughout the park; these are assumed to be European (exotic) garden cultivars, and as long as they are kept separate from native populations, do not appear to pose a threat. There is also a possibility that cultivated plants were dug from wild populations on the island (on visits to Passage Island lighthouse, where the native variety is common?), but this is purely speculative. 1, 3, 5, 13, 17, 31, 46.

Convallaria majalis L. [lily-of-the-valley]. A long-persistent relict of cultivation near houses and gardens noted in 1994 on the following islands: Bailey, Belle Isle, Davidson, the small islet just off the northeast tip of Glenns, and Minong. It often spreads vegetatively but is probably not much of a threat to native communities. 5, 13, 22, 44.

Hemerocallis fulva L. [day-lily]. Cultivated or a relict of cultivation at Captain Kidd Island, Crystal Cove, Edisen Historic Fishery, Fishermans Home Cove, and Star Island; not a threat. 7, 10, 17, 19.

Lilium lancifolium Thunb. [tiger-lily]. A uncommon relict of cultivation on Gale Island (Tobin Harbor) and perhaps at Passage Island Lighthouse; not a threat. 21, 48?

ULMACEAE (ELM FAMILY)

Dianthus barbatus L. [sweet william]. An occasional relict of cultivation at developed areas; not a significant threat except possibly on Passage Island, where it is spreading slightly into a shrub swamp at the trail boardwalk. 2, 9, 11, 17, 19, 48, 62, 64.

Dianthus deltoides L. [maiden pink]. Rare on a Passage Island trailside; not a threat. 48.

Dianthus plumarius L. [garden pink]. A rare relict of cultivation on Wright Island; not a significant threat. 64.

Lychnis chalcedonica L. [scarlet lychnis]. A rare relict of cultivation at developed areas (Slavick & Janke 1993); not seen in the present survey.

Sagina procumbens L. [European pearlwort]. A rare weed first collected in the Park on 18 July 1994 at a group tent site in Daisy Farm Campground (Judziewicz 10978, MICH). Not a significant threat. 11.

Silene antirrhina L. [sleepy catchfly]. An uncommon weed of developed areas (Moskey Basin); occasional on the 1988 Stanley Ridge burn; not a significant threat to native communities. 45.

Silene latifolia Godron & Gren. [white campion or evening lychnis]. An uncommon species of developed areas and in the white birch forest of the 1936 burn (Slavick & Janke 1993); not a threat to native communities. 40, 46, 52, 54.

Silene noctiflora L. [night-flowering catchfly]. An uncommon weed of developed areas; not a significant threat. 51, 52, 54.

Silene vulgaris (Moench) Garcke [bladder-campion]. An uncommon weed of developed areas; not a significant threat. 10, 11, 17, 46, 62.

Stellaria media (L.) Villars [a stitchwort]. An uncommon weed of clearings (Washington Island Cabins); not a significant threat. 60.

RANUNCULACEAE (BUTTERCUP FAMILY)

Aconitum napellus L. [garden monk's-hood]. An uncommon relict of cultivation on Passage Island, Edisen Fishery, and Fishermans Home Cove. Not a significant threat; if desired, the population at the Passage Island boardwalk could easily be eradicated by manual methods. 17, 19, 48.

Aquilegia vulgaris L. [garden columbine]. Rare relict of cultivation near dock at Belle Isle; not a threat. 5.

Ranunculus acris L. [tall buttercup]. Common, developed areas, trailsides, and moist to dry clearings of all types. A moderately significant threat to native communities, but probably ineradicable. 1, 3-6, 8-15, 17-19, 21-25, 27, 29-32, 36, 40-42, 44-46, 48, 51, 52, 54-57, 59-62, 64.

CRUCIFERAE (MUSTARD FAMILY)

Arabis glabra (L.) Bernh. A rare weed, possibly now gone from the island (Slavick & Janke 1993); not seen in present survey.

Armoracia rusticana Gaertn., Meyer, & Scherb. [horseradish].

ROSACEAE (ROSE FAMILY)

Malus pumila Miller [apple]. A relict of cultivation recorded from the following sites (at least historically) in addition to the ones bellow: Greenstone Ridge just southwest of Ishpeming Point (historical), Hat Island (1994), Siskiwit Mine (historical), Star Island, and Three Mile Campground (historical). Spreading slightly into native communities along trails such as on Daisy Farm trail at Ransom Hill. Not a significant threat. 11, 23, 25, 31, 54, 56, 62, 64.

Potentilla argentea L. [silvery cinquefoil]. An uncommon species of developed areas and dry trailsides; locally troublesome in dry glades such as at Lake Richie, but overall not a significant threat to native communities. 9, 34, 36, 40, 45, 46, 52, 54.

Potentilla norvegica L. [common cinquefoil]. A fairly common species of developed areas, sheltered shorelines and rock shoreline crevices, and rocky ridgetops inland; a slight threat to native communities in the latter habitat. 1-5, 7-9, 11, 13, 14, 17, 18, 22, 23, 25, 29, 34, 36, 39-42, 44-46, 48, 49, 52, 56-59, 62, 63.

Potentilla recta L. [sulfur cinquefoil]. Uncommon, developed and cleared areas; not a threat. 41, 44, 46, 52-54, 62.

Potentilla simplex Michaux [old field cinquefoil]. Rare, trailsides at McCargoe Cove and Windigo; not a threat. 41, 62.

Rosa rugosa Thunb. [Japanese rose]. Relict of cultivation by houses at Crystal Cove, Edisen Historic Fishery, Fishermans Home Cove, and Star Island. 10, 17, 19.

LEGUMINOSAE (PULSE FAMILY)

Lupinus polyphyllus L. [garden lupine]. A rare relict of cultivation in the backyard of a cabin on Scoville Point/Tobin Harbor about 400 meters southwest of Dassler House; not a threat.

Medicago lupulina L. [black medic]. Occasional in developed areas and in clearings; not a significant threat. 7, 9, 45, 46, 52, 62.

Medicago sativa L. [alfalfa]. First Isle Royale record from Mott Island, August 1993, but not vouchered; not a significant threat. 46.

Melilotus alba Medikus [white sweet clover]. Locally common in fields at Siskiwit Bay and Windigo; apparently not a threat at this time, but potentially so. 40, 46, 52, 54, 59, 60, 62.

Melilotus officinalis (L.) Pallas [yellow sweet clover]. Locally common, Siskiwit Bay, Windigo, and several other developed areas; apparently not a threat at this time, but potentially so. 17, 51, 54, 62.

Trifolium aureum Pollich [yellow hop clover]. An uncommon to locally common weed of trailside clearings at Coyote Ridge, Siskiwit Bay, McCargoe Cove, and the Greenstone Trail around Ishpeming Point; a moderate threat to native communities on parts of the Feldtmann and Greenstone Ridge Trails. 40, 41, 46.

Trifolium hybridum L. [alsike clover]. Occasional,

trailside populations in a sugar maple forest east of Lake Desor (T64N-R37W, Sec. 1, NW). I could not identify all specimens and so have lumped them under this category; they are probably all of the following species. 9, 13, 17, 19, 44, 51, 52, 64.

Myosotis arvensis (L.) Hill. [a forget-me-not]. Dockside weed at Amygdaloid Island Ranger Station, 4 August 1994 (Judziewicz 10994, MICH). 1.

Myosotis scorpioides L. [forget-me-not]. Locally common along moist trailsides at Malone Bay and perhaps elsewhere. 40.

Myosotis sylvatica Hoffm. [forget-me-not]. A locally common weed in developed areas, especially in moist, partially shaded places and sheltered shores. 60, 62.

LABIATAE (MINT FAMILY)

Galeopsis tetrahit L. [hemp-nettle]. An uncommon weed mostly confined to areas near buildings in developed areas, also on gravelly shores near docks; not a threat. 1, 10, 19, 23, 25, 29, 40, 42, 48, 49, 54, 57, 62, 64.

Glechoma hederacea L. [ground-ivy]. "Uncommon, moist banks and clearings" (Slavick & Janke 1993), with one 1945 specimen from Passage Island. Not seen in present survey and probably extirpated. 48.

Prunella vulgaris L. [heal-all]. Fairly common weed in developed areas, clearings, and moist forest edges; a slight threat on open rocky ridgetops inland. 8, 11, 16, 29, 33, 37, 40, 41, 45, 52, 59, 61-63.

Satureja vulgaris (L.) Fritsch, wild-basil. Common weed in dry, weedy, often rocky clearings and openings throughout the park. 9, 11, 14, 16, 18, 21, 29, 34, 36, 37, 40, 41, 44, 45, 49, 52, 54, 57, 61, 63.

Thymus marschallianus Willd. "Rare, disturbed area on Mott Island" (Slavick & Janke 1993); not seen in present survey. 46.

Thymus pulegioides L. [creeping thyme; T. serpyllum L. in Slavick & Janke 1993]. Found on open dry rocks at dock at McCargoe Cove Campground, still common there in 1994; also a small patch on Scoville Point near the Dassler House; probably not a threat. 12, 41.

SOLANACEAE (NIGHTSHADE FAMILY)

Lycopersicon esculentum L. [tomato]. Cultivated at Edisen Historic Fishery. 17.

SCROPHULARIACEAE (FIGWORT FAMILY)

Linaria vulgaris L. [butter-and-eggs]. An uncommon weed of gravelly disturbed areas on Grace Island, Mott Island, and at Windigo; not a threat. 23, 46, 52, 62.

Verbascum thapsus L. [great mullein]. An occasional weed of developed areas and Greenstone Ridge dry trailsides. There it is most common between Mt. Ojibway and Mt. Franklin and on the southwest flank of Ishpeming Point, where it is a slight to moderate threat to native communities. 41, 44, 46, 48, 51, 52, 57, 62.

following sites: Minong Island, in woods along the trail about 100 meters from dock; Edisen Historic Fishery; Fishermans Home Cove; Star Island (clearing on south side); and most significantly, Passage Island, where a several square meter patch occurs near the top of the tramway and a much larger ca. 100 square meter patch along the boardwalk on the trail leading from the lighthouse to the boat cove, where it has flourished at least since 1973 and probably for several decades before. This latter population appears to be spreading into an adjacent red-osier dogwood shrub swamp and measures should be considered for its eradication. There is also a small colony at the dock on Caribou Island. 9, 17, 19, 44, 48.

COMPOSITAE (COMPOSITE FAMILY)

Achillea millefolium L. [yarrow]. A very common weed of forest margins, shores, and clearings; often hard to distinguish from the native variety (or species) lanulosa. Perhaps a moderately significant threat to some inland native communities. 1-14, 17-19, 21-23, 25, 26, 30, 31, 34, 36, 39-46, 48, 49, 51-54, 56-60, 62, 64.

Arctium minus (Hill) Bernh. [common burdock]. An occasional weed of the larger developed areas. It is most common (and unsightly) at Daisy Farm where it occurs along the Daisy Farm Trail about 100 meters from the dock as well as at the group campsites; scattered individuals have spread westward along the trail for several hundred more meters. A campsite at West Chickenbone had a bad infestation in 1994, and it is locally troublesome on Mott Island. This species is probably more of an aesthetic blight (many visitors know it on sight and some have commented on it to me) than the a biological threat on the island, since it requires deep rich soil to flourish-- a type not common on the island. 8, 11, 41, 46, 52, 61, 64.

Centaurea cyanus L. [batchelor's-buttons]. Locally common and spreading in dry open glades on the west side of Rock Harbor (Snug Harbor) Lodge. Also present in 1994 in Tobin Harbor on Bailey Island at the old cabin site and at the Gale Island cabin. Based on its aggressive spread at Rock Harbor, this species is a potentially serious threat to native vegetation. 21, 52.

Centaurea maculosa DC. [spotted knapweed]. See separate discussion in text. 16, 36, 40, 46, 52, 62, 63.

Chrysanthemum leucanthemum L. [ox-eye daisy]. A very common weed throughout the island, including dry rocky clearings such as the Greenstone Ridge, where it is a moderately severe threat to native communities; probably ineradicable. 1, 3, 5-22, 24, 25, 27, 29, 31, 37, 39-41, 44-46, 48, 49, 51, 52, 54-56, 59-64.

Cirsium arvense (L.) Scop. [Canada thistle]. An occasional weed of developed areas and sheltered shorelines, or dry rocky glades such as the Greenstone Ridge Trail east of Lake Desor (T64N-R37W, Sec. 1, NW); probably not a significant threat to native communities. 5, 8, 11, 13, 17, 18, 25, 31, 40, 41, 46, 48, 52, 54, 57, 61, 62, 64.

Cirsium vulgare (Savi) Tenore [bull thistle]. An uncommon

TABLE 3. LIST OF EXOTIC VASCULAR PLANT SPECIES PRESENT AT EACH DEVELOPED SITE.

Frequency is abbreviated as follows: R = Rare; U = Uncommon; O = Occasional; FC = Fairly Common; C = Common; A = Abundant. Cult. = Currently cultivated or cultivated in the recent past.

Exact locations (Town, Range, and Section) are given for sites not on the standard National Park Service topographic map of Isle Royale National Park.

1. AMYGDALOID ISLAND RANGER STATION (25 May and 2-4 August 1994). This site had a only moderate number and density of exotics.

Achillea millefolium (O)
Allium schoenoprasum (R, a few clumps cult. at edge of lawn)
Barbarea vulgaris (U)
Capsella bursa-pastoris (R, on dock)
Cerastium fontanum (U)
Chrysanthemum leucanthemum (O)
Galeopsis tetrahit (R, by dockhouse)
Hieracium aurantiacum (O)
Hieracium pilloselloides (FC)
Lepidium campestre (R in recent fill)
Matricaria maritima [Brown 1937; not seen in 1994]
Myosotis arvensis (U by shore)
Phleum pratense (O)
Plantago major (U)
Poa annua (O)
Poa compressa (O)
Potentilla norvegica (U)
Ranunculus acris (O)
Rumex acetosella (U)
Rumex crispus (R by shore)
Rumex obtusifolius (R in recent fill)
Sonchus arvensis (U)
Taraxacum officinale (FC)
Trifolium repens (O)

2. BANGSUND FISHERY (28 July 1994), T66N-R34W, Sec. 26, NW of NW. The number and density of exotic species was relatively low.

Achillea millefolium (O)
Cerastium fontanum (O)
Dianthus barbatus (cult. by house)
Hieracium aurantiacum (O)
Hieracium pilloselloides (FC)
Lepidium densiflorum (R)
Phleum pratense (O)
Plantago major (O)
Poa compressa (O)
Potentilla norvegica (O)

Convallaria majalis (relict of cult. at lodge site)
Dactylis glomerata (C)
Hieracium aurantiacum (C)
Hieracium pilloselloides (C)
Iris sp. (relict of cult. at lodge site)
Phalaris arundinacea (U, SW cove)
Phleum pratense (O)
Plantago major (FC)
Poa annua (O)
Poa compressa (C)
Potentilla norvegica (R)
Ranunculus acris (C)
Rumex crispus (O, SW cove)
Syringa vulgaris (cult. by dock)
Taraxacum officinale (FC)
Trifolium pratense (O)
Trifolium repens (O)
Verbascum thapsus (R)
Veronica verna (U, dry rocks near dock)

6. BIRCH ISLAND CAMPGROUND (20 September 1994)

Achillea millefolium (FC)
Chrysanthemum leucanthemum (R)
Hieracium aurantiacum (U)
Hieracium piloselloides (C)
Lepidium densiflorum (FC by dock)
Phleum pratense (C)
Plantago major (C)
Poa annua (U)
Poa compressa (U)
Ranunculus acris (FC)
Rumex crispus (R)
Tanacetum vulgare (Brown 1937; not seen in 1994)
Taraxacum officinale (C)
Trifolium pratense (FC)
Trifolium repens (C)

7. CAPTAIN KIDD ISLAND CABIN (9 August 1994), T67N-R34W, Sec. 25, SW of SW. Relatively few exotics were present.

Achillea millefolium (O)
Cerastium fontanum (U)
Chrysanthemum leucanthemum (O)
Hemerocallis fulva (R, a barely persisting relict of cultivation)
Hieracium pilloselloides (C)
Medicago lupulina (U)
Poa compressa (FC)
Potentilla norvegica (U)
Rheum rhaponticum (R, one dying plant, cult.)
Taraxacum officinale (O)

Lepidium densiflorum [O]
Medicago lupulina [O]
Myosotis sp. [R near "school"]
Phleum pratense [C]
Plantago lanceolata [U by Shelter #2]
Plantago major [O]
Poa annua [O]
Poa compressa [C]
Potentilla argentea [C, trails]
Potentilla norvegica [O]
Ranunculus acris [U]
Rumex acetosella [U]
Rumex crispus [U]
Rumex obtusifolius [R, by "school"]
Satureja vulgaris [O]
Syringa vulgaris [Slavick & Janke 1987; not seen in 1994]
Taraxacum officinale [O]
Trifolium hybridum [U]
Trifolium pratense [U]
Trifolium repens [U]
Veronica verna [O]

10. CRYSTAL COVE (AMYGDALOID ISLAND) CABIN (3 August 1994), T67N-R34W, Sec. 34, NE of SE. There are many relicts of cultivation here, but the density of exotics here is otherwise fairly low.

Achillea millefolium [O]
Chrysanthemum leucanthemum [FC]
Dianthus barbatus [U]
Galeopsis tetrahit [U]
Hemerocallis fulva (cult.)
Phalaris arundinacea [O]
Phleum pratense [O]
Ranunculus acris [FC]
Rheum rhaponticum (recently planted, within the last 20 years, from Star Island [R. Janke, pers. comm.])
Rosa rugosa (cult.)
Rumex acetosella [U]
Silene vulgaris (G. Baggley s.n., 5 August 1944; still present in 1994)
Taraxacum officinale [FC]
Trifolium hybridum [O]
Trifolium repens [O]

11. DAISY FARM CAMPGROUND (23 May 1994, 1 June, 19 July 1994). The old field near the dock has a dense growth of exotics, and burdock (*Arctium minus*) is a continuing problem in several sites. Many exotics species here have apparently died out and are represented only by old herbarium specimens.

Achillea millefolium [FC]
Anthoxanthum odoratum [Shelton 248, 7 July 1962; not seen in

12 May–September 1994). A moderate population of exotics was present.

Achillea millefolium [FC]
Allium schoenoprasum (R; relict of cult., two clumps by NE door of house)
Barbarea vulgaris [R]
Cerastium fontanum [FC]
Chrysanthemum leucanthemum [U]
Cirsium arvense [U]
Convallaria majalis (C on south side of house, a relict of cult.)
Elytrigia repens [U]
Hieracium auranticum [FC]
Hieracium pilloselloides [FC]
Myosotis sp. [O]
Phalaris arundinacea [R]
Phleum pratense [O]
Plantago major [O]
Poa compressa [FC]
Poa pratensis [FC]
Potentilla norvegica [O]
Ranunculus acris [FC]
Rumex crispus [R]
Taraxacum officinale [FC]
Trifolium pratense [U]
Trifolium repens [U]

14. DUNCAN BAY CAMPGROUND (13 July 1994). This small, almost insular campground has relatively few exotics.

Achillea millefolium [U]
Chrysanthemum leucanthemum [U]
Hieracium pilloselloides [FC]
Phalaris arundinacea [U]
Phleum pratense [U]
Poa compressa [FC]
Potentilla norvegica [U]
Ranunculus acris [U]
Satureja vulgaris [U]
Veronica verna [U]

15. DUNCAN BAY NARROWS CAMPGROUND (13 July 1994). Relatively few exotics are present here.

Cerastium fontanum [FC]
Chrysanthemum leucanthemum [FC]
Hieracium aurantiacum [O]
Hieracium pilloselloides [O]
Phleum pratense [O]
Plantago major [U]
Poa annua [O]

Poa annua [FC]
Poa compressa [FC]
Potentilla norvegica [FC]
Ranunculus acris [C]
Rheum rhaponticum [cult.]
Ribes nigrum [cult.]
Ribes sativum [cult.]
Rosa rugosa [cult.]
Rumex crispus [U]
Rumex "longifolius" [R by dock]
Sempervivum tectorum [cult.]
Silene vulgaris [U]
Sonchus arvensis [O]
Taraxacum officinale [FC]
Thlaspi arvense [R by dock]
Trifolium pratense [O]
Trifolium repens [O]
Ulmus americana [Slavick & Janke, 1987; two trees still present in 1994; doubtlessly planted]
Veronica verna [O, rock outcrop 100 meters northeast of Fishery]

18. FELDTMANN LAKE CAMPGROUND (7 June 1994). A moderate number and density of exotics are present here.

Achillea millefolium [U]
Cerastium fontanum [O]
Chrysanthemum leucanthemum [U]
Cirsium arvense [U]
Hieracium pilloselloides [FC]
Plantago major [O]
Poa annua [O]
Poa pratensis [U]
Potentilla norvegica [U]
Ranunculus acris [O]
Rumex acetosella [U]
Satureja vulgaris [O]
Sonchus arvensis [R]
Taraxacum officinale [FC]
Trifolium repens [O]
Veronica serpyllifolia [U]
Veronica verna [R]

19. FISHERMANS HOME COVE CABIN (25 August 1994), T63N-R36W, Sec. 5 NW of NW and Sec. 6 NE of NE. This old fishery has a large number of relicts of cultivation. Creeping bellflower (*Campanula rapunculoides*) might be a slight problem.

Achillea millefolium [FC]
Aconitum napellus [C cult.]
Campanula rapunculoides [C relict of cult.]
Cerastium fontanum [O]

Tanacetum vulgare [U]
 Taraxacum officinale [FC]
 Trifolium repens [O]

22. GLENNIS ISLAND CABIN (TOBIN HARBOR) (16 June 1994), T67N-R33W, Sec. 35, NW of NW. Exotics and relicts of cultivation here do not pose much of a threat.

Achillea millefolium [U]
 Barbarea vulgaris [U]
 Cerastium fontanum [U]
 Chrysanthemum leucanthemum [O]
 Convallaria majalis [well-established relict of cult. on tiny islet off northeast tip of Glenns Island]
 Hieracium pilloselloides [FC]
 Phleum pratense [O]
 Plantago major [U]
 Poa compressa [O]
 Potentilla norvegica [U]
 Ranunculus acris [FC]
 Rumex acetosella [R]
 Taraxacum officinale [O]
 Trifolium repens [U]

23. GRACE ISLAND CAMPGROUND (5 June 1994). Relatively few exotics were noted in 1994 at this small campground.

Achillea millefolium [U]
 Cerastium fontanum [FC]
 Galeopsis tetrahit [U]
 Linaria vulgaris [at northwest end, Martin s.n., 15 August 1960; not seen in 1994]
 Malus pumila [Slavick & Janke 1987; not seen in 1994]
 Matricaria matricarioides [U]
 Phleum pratense [O]
 Plantago major [O]
 Poa annua [O]
 Potentilla norvegica [U]
 Ranunculus acris [U]
 Rumex crispus [R]
 Taraxacum officinale [O]
 Trifolium pratense [U]

24. HATCHET LAKE CAMPGROUND (26 May 1994). This site had a very low number and density of exotics, but the survey was probably partially incomplete because of the early season)

Chrysanthemum leucanthemum [U]
 Hieracium pilloselloides [U]
 Poa annua [O]
 Ranunculus acris [U]
 Taraxacum officinale [O]

Poa annua (FC)

29. ISLAND MINE CAMPGROUND (3 June 1994; PCC = old patrol cabin clearing only). A low number and density of exotics are present, and the old patrol cabin clearing appears to be losing species as it fills in with trees.

Barbarea vulgaris (PCC, Janke s.n., 18 June 1978; not seen, 1994)

Cerastium fontanum (PCC, U)

Chrysanthemum leucanthemum (PCC, U)

Galeopsis tetrahit (PCC, Janke s.n., 18 June 1978; not seen, 1994)

Hieracium pilloselloides (mostly at PCC; O)

Plantago major [O]

Potentilla norvegica (PCC, U)

Prunella vulgaris (PCC, U)

Ranunculus acris [O]

Rumex obtusifolius (PCC, U)

Satureja vulgaris (PCC, R)

Taraxacum officinale [O]

Veronica serpyllifolia (mostly at PCC; O)

30. JOHNS ISLAND CABIN (5 June 1994), T63N-R39W, Sec. 3, NE of NE. A low number of exotics are present.

Achillea millefolium [FC]

Anthoxanthum odoratum [FC, lawn]

Phalaris arundinacea [O, dock]

Phleum pratense [O]

Ranunculus acris [FC]

Rumex crispus [U]

Taraxacum officinale [U]

Trifolium repens [U]

Trifolium pratense [U]

31. JOHNSON ISLAND CABIN (10 July 1994), T66N-R34W, Sec. 2, NE of NW. A moderate number of exotics including relicts of cultivation are present.

Achillea millefolium [O]

Allium schoenoprasum [cult.]

Barbarea vulgaris [U]

Chrysanthemum leucanthemum [FC]

Cirsium arvense [O]

Festuca rubra [U]

Hieracium aurantiacum [U]

Hieracium pilloselloides [FC]

Malus pumila (cult.)

Phalaris arundinacea [O]

Phleum pratense [O]

Plantago major [U]

Centaurea maculosa [one plant reported by campers in 1994;
not seen]
Cerastium fontanum [FC]
Hieracium pilloselloides [C, dry areas]
Phleum pratense [C, dry areas]
Plantago major [O]
Poa annua [FC]
Poa compressa [C, dry rocky areas]
Potentilla argentea [C, dry rocky areas]
Potentilla norvegica [U]
Ranunculus acris [U]
Satureja vulgaris [FC, dry rocky areas]
Taraxacum officinale [U]
Veronica verna [O, dry rocky areas]

37. LAKE WHITTLESEY CANOE CAMPGROUND (30 September 1994)

Cerastium fontanum (C)
Chrysanthemum leucanthemum (O)
Elytrigia repens (O)
Hieracium florentinum (A)
Phleum pratense (O)
Poa annua (FC)
Poa compressa (FC)
Prunella vulgaris (O)
Satureja vulgaris (FC)
Taraxacum officinale (FC)

38. LANE COVE CAMPGROUND (19 May and 10-12 August 1994). This relatively new campground is the "cleanest" in the Park.

Cerastium fontanum [R]
Poa annua [O on trail]
Poa compressa [R]

39. LITTLE TODD CAMPGROUND (29 August 1994). This site has a low number and density of exotics present.

Achillea millefolium [U]
Cerastium fontanum [O]
Chrysanthemum leucanthemum [U]
Lepidium densiflorum [R]
Plantago major [U]
Poa annua [O]
Poa compressa [O]
Potentilla norvegica [U]
Taraxacum officinale [O]
Trifolium pratense [U]
Trifolium repens [U]

40. MALONE BAY RANGER STATION AND CAMPGROUND (29 June-1 July, 21 July, 24-25 August 1994; RF = recent fill introduced to beach

41. MCCARGOE COVE CAMPGROUND (25-27 May and 27 July and 30 August 1994). This is a large site with many exotics, especially in xeric rocky sites near the dock.

Achillea millefolium [FC]
Arctium minus [Brown 1937; not seen in 1994]
Arenaria serpyllifolia [U]
Cerastium fontanum [FC]
Chrysanthemum leucanthemum [U]
Cirsium arvense [U]
Hieracium aurantiacum [FC]
Hieracium pilloselloides [C]
Lepidium campestre [R]
Matricaria matricarioides [U]
Phalaris arundinacea [U]
Phleum pratense [U]
Plantago lanceolata [U near one of the shelters]
Plantago major [FC]
Poa compressa [C]
Polygonum aviculare [R near dock]
Potentilla norvegica [U]
Potentilla recta [U]
Potentilla simplex [U, along trail about 100 meters east of dock]
Prunella vulgaris [O]
Ranunculus acris [FC]
Rumex acetosella [U]
Rumex crispus [R]
Satureja vulgaris [O]
Tanacetum vulgare [Brown 1937; not seen in 1994]
Taraxacum officinale [FC]
Thymus serpyllum (large colony on dry rock next to dock; total area about 10 square meters; a relict of cult., perhaps from mining days)
Tragopogon pratensis [O]
Trifolium aureum [Janke s.n., 7 July 1961; O in 1994]
Trifolium pratense [FC]
Trifolium repens [O]
Verbascum thapsus [O]
Veronica verna [FC in dry rocky areas near dock]

42. MENAGERIE ISLAND (ISLE ROYALE) LIGHTHOUSE (25 August 1994). There are relatively few exotics present, but timothy (*Phleum pratense*) is a dominant in the grass cover of the island.

Achillea millefolium [FC]
Cerastium fontanum [U near landing place]
Galeopsis tetrahit [U near landing place]
Phleum pratense [A]
Poa compressa [C]
Potentilla norvegica [FC]
Ranunculus acris [U near landing place]

Hieracium pilloselloides [C]
Medicago lupulina [FC]
Phleum pratense [C]
Plantago major [FC]
Poa annua [O]
Poa compressa [C]
Potentilla argentea [O]
Potentilla norvegica [O]
Prunella vulgaris [O]
Ranunculus acris [FC]
Rumex acetosella [O]
Satureja vulgaris [C]
Silene antirrhina [C. Wetmore s.n., 6 July 1957; not seen in 1994]
Taraxacum officinale [O]
Trifolium pratense [O]
Trifolium repens [O]
Veronica serpyllifolia [U near dock]
Veronica verna [O on dry rocks near crossing of Moskey Creek]

46. MOTT ISLAND (PARK HEADQUARTERS) (9-21 August 1993; May-September 1994; EQ = Equipment yard and fuel hill). Mott Island has the largest reservoir of exotics in the Park, particularly in the equipment yard, where an infestation of spotted knapweed is an on-going problem on the fuel tank hill.

Achillea millefolium (FC)
Allium schoenoprasum (cult., one clump next to the "Isle Royale Saloon")
Anthoxanthum odoratum (R, seen only in 1993 in recent fill)
Arctium minus (R at EQ)
Barbarea vulgaris (FC at EQ)
Bromus inermis (U at EQ hill)
Capsella bursa-pastoris (O)
Centaurea maculosa (first record: B. Weber s.n., 20 August 1986; in 1994: FC on fuel hill; R in EQ)
Cerastium fontanum (FC)
Chenopodium album (U)
Chrysanthemum leucanthemum (FC)
Cirsium arvense (O)
Cirsium vulgare (U at EQ)
Elytrigia repens (O)
Erysimum cheiranthoides (R)
Festuca pratensis (R near building at dock)
Hieracium aurantiacum (C)
Hieracium pilloselloides (C)
Hypericum perforatum (U at EQ)
Lepidium campestre (U; locally common at EQ and in recent fill near furthest NE houses)
Lepidium densiflorum (O)
Linaria vulgaris (U, but locally common at EQ and in recent

of an old commercial fishery transfer point, where barrels were moved from Pickerel Cove to Herring Bay. It has a moderate amount of exotics, especially xeric species.

Achillea millefolium (FC)
Arenaria serpyllifolia (O)
Chrysanthemum leucanthemum (FC)
Galeopsis tetrahit (U)
Hieracium pilloselloides (C)
Phalaris arundinacea (O)
Phleum pratense (FC)
Poa compressa (C)
Potentilla norvegica (O)
Rumex crispus (Slavick & Janke 1987; not seen in 1994)
Satureja vulgaris (O)
Trifolium pratense (O)
Trifolium repens (O)
Veronica verna (O)

50. RASPBERRY ISLAND DOCK AND TRAIL (11, 19 August 1993). A low number of exotics are present.

Cerastium fontanum (FC)
Hieracium pilloselloides (O)
Poa annua (FC)
Poa compressa (O)

51. ROCK HARBOR LIGHTHOUSE (9 June and 28 July 1994). The clearing around the Lighthouse has a moderate number and density of exotics. See also exotics in nearby Edisen Historic Fishery.

Achillea millefolium (FC)
Chrysanthemum leucanthemum (FC)
Lappula squarrosa (Slavick & Janke 1987; not seen in 1994)
Melilotus officinalis (Brown 1937; not seen in 1994)
Myosotis sp. (O)
Phleum pratense (FC)
Plantago major (O)
Ranunculus acris (C)
Rumex crispus (O)
Silene noctiflora (Slavick & Janke 1987; not seen in 1994)
Sisymbrium altissimum (Slavick & Janke 1987; not seen in 1994)
Taraxacum officinale (FC)
Trifolium pratense (FC)
Trifolium repens (FC)
Verbascum thapsus (R)

52. ROCK HARBOR LODGE AND CAMPGROUND (August 1994; 22 May, 17 June, and 29 July 1994; EQ = Equipment Yard). There are a large number of exotics present here, particularly in the equipment yard and along the dry rock ridges, where Batchelor buttons

Trifolium repens (FC)
Verbascum thapsus (O)
Veronica arvensis (Holcomb s.n., 23 June 1979; not seen in 1994)
Veronica serpyllifolia (O)

53. ROCK OF AGES LIGHTHOUSE (21 July 1994). The few exotics present are dominant here.

Achillea millefolium (C)
Potentilla norvegica (FC)
Taraxacum officinale (FC)

54. SISKIWIT BAY CAMPGROUND (4, 26-29 June and 24 August 1994; including old field southwest of the campground that was the site of the 1936 C.C.C. camp). This is the site of an old lumber and C.C.C. camp field that was sown for hay for horses, and is perhaps the weediest site in the Park. A large field persists and has one of the most numerous and densest growths of exotics in the Park.

Achillea millefolium (FC)
Barbarea vulgaris (FC)
Bromus inermis (O near Shelter #1)
Cerastium fontanum (FC)
Chrysanthemum leucanthemum (C)
Cirsium arvense (U)
Cirsium vulgare (R, on north side of Bay, on south side of Senter Point)
Elytrigia repens (FC)
Galeopsis tetrahit (FC in dockside gravel)
Hieracium aurantiacum (first collected by G. Baggeley s.n., 1 July 1946; A in 1994)
Hieracium pilloselloides (A)
Malus pumila (Trees near campground and in C.C.C. field)
Melilotus alba (FC)
Melilotus officinalis (FC)
Phleum pratense (C)
Plantago major (FC)
Poa annua (O)
Poa compressa (FC)
Poa pratensis (A)
Polygonum convolvulus (V. Bailey s.n., 28 October 1941; not seen in 1994)
Potentilla argentea (Bailey & Bailey s.n., 28 August 1959; not noted in 1994)
Potentilla recta (U at trail junction)
Ranunculus acris (FC)
Rumex acetosella ("introduced in hay in 1934"; FC)
Rumex crispus (R)
Satureja vulgaris (FC)
Silene noctiflora (V. Bailey in 1941; not seen in 1994)

57. TODD HARBOR CAMPGROUND (3 and 29 August 1994). This harbor has a moderate number and density of exotic species present.

Achillea millefolium (O)
 Barbarea vulgaris (O)
 Cerastium fontanum (FC)
 Cirsium arvense (FC)
 Galeopsis tetrahit (U)
 Hieracium pilloselloides (C)
 Phleum pratense (FC)
 Plantago major (O)
 Poa annua (O)
 Potentilla norvegica (O)
 Ranunculus acris (FC)
 Rumex acetosella (U)
 Satureja vulgaris (U)
 Sonchus arvensis (U)
 Taraxacum officinale (FC)
 Trifolium pratense (O)
 Trifolium repens (O)
 Verbascum thapsus (R, Group Site #3)
 Veronica verna (U)
 Veronica sp. (U, Group Site #3)

58. TOOKERS ISLAND CAMPGROUND (8 August 1993). A relatively low number of exotics are present here.

Achillea millefolium (O)
 Bromus inermis (Shelton 164, 24 August 1961; FC, August 1993)
 Elytrigia repens (O)
 Phleum pratense (O)
 Plantago major (O)
 Poa compressa (U)
 Potentilla norvegica (U)
 Taraxacum officinale (FC)
 Trifolium pratense (FC)
 Trifolium repens (FC)

59. WASHINGTON HARBOR CAMPGROUND (5 June 1994; see also Windigo). There is only a moderate number and density of exotics present at this heavily used campground.

Achillea millefolium (O)
 Cerastium fontanum (FC)
 Chrysanthemum leucanthemum (FC)
 Hieracium pilloselloides (FC)
 Hypericum perforatum (U)
 Matricaria matricarioides (U)
 Melilotus alba (R)
 Phleum pratense (O)
 Plantago major (FC)

Trifolium pratense (R)
 Trifolium repens (O)
 Veronica serpyllifolia (R)

62. WINDIGO RANGER STATION AND MARINA (2-8 June, 22 July, 26-27 August 1994; see also Washington Harbor Campground). There is a large number of exotics present here, especially near the dock and in the equipment and generator yards (where small populations of spotted knapweed have persisted from year to year).

Achillea millefolium (U)
 Barbarea vulgaris (U, water tower hill)
 Carum carvi (Bailey & Bailey s.n., 18 June 1942; not seen in 1994)
 Centaurea maculosa (1992-1994, a few plants pulled by Oelfke in the generator yard on 21 July 1994)
 Cerastium fontanum (FC)
 Chrysanthemum leucanthemum (FC)
 Cirsium arvense (O)
 Cirsium vulgare (R, a few in equipment yard)
 Dactylis glomerata (R, on lawn of store)
 Dianthus barbatus (first collected by Martin s.n., 17 July 1960; a few plants still present by seaplane dock in 1994)
 Elytrigia repens (O)
 Festuca pratensis (R, a few on steps to T-dock, 1994)
 Galeopsis tetrahit (G. Baggley s.n., 19 August 1940; not seen in 1994)
 Hieracium pilloselloides (U)
 Hypericum perforatum (C, generator yard)
 Lepidium campestre (Janke s.n., 11 June 1979; not seen in 1994)
 Linaria vulgaris (R in lawn)
 Malus pumila (O tree between Windigo and campground)
 Matricaria matricarioides (R)
 Medicago lupulina (R, generator yard)
 Melilotus alba (U, Group Campground #1)
 Melilotus officinalis (Slavick & Janke 1993; R in 1994)
 Myosotis sylvatica (C at large septic tank mound near campground)
 Pastinaca sativa (Slavick & Janke 1993; not seen in 1994)
 Phleum pratense (FC)
 Plantago major (FC)
 Poa annua (O)
 Poa compressa (O)
 Poa pratensis (FC in lawns)
 Potentilla norvegica (U)
 Potentilla recta (U)
 Potentilla simplex (U along gravel road to residences)
 Prunella vulgaris (FC)
 Ranunculus acris (FC)
 Rumex acetosella (U)

Euphorbia cyparissias (U relict of cult.)
Galeopsis tetrahit (C on beach)
Malus pumila (U, 150 meters west of dock)
Myosotis sylvatica (R)
Phalaris arundinacea (O)
Phleum pratense (C)
Plantago major (C)
Poa pratensis (C)
Polygonum aviculare (Brown 1937; R in 1994)
Ranunculus acris (C)
Rumex acetosella (U)
Rumex crispus (C)
Rumex obtusifolius (as mexicanus? Brown 1937; not seen
in 1994)
Sonchus arvensis (O)
Stellaria media (Brown 1937; not seen in 1994)
Taraxacum officinale (C)
Trifolium pratense (C)
Trifolium repens (C)

Beaver Island Campground	11
Captain Kidd Island	11
Duncan Bay Narrows Campground	11
Island Mine Campground	11
Lake Richie Canoe Campground	11
Little Todd Campground	11
Duncan Bay Campground	10
Lake Whittlesey Canoe Campground	10
Menagerie Island Lighthouse	10
Tookers Island Campground	10
Johns Island Cabin	9
Dassler House	7
Merritt Lane Campground	7
South Lake Desor Campground	7
Five Finger Bay/Duncan Bay Portage Trail	6
Huginnin Cove Campground	6
Hatchet Lake Campground	5
Lake LeSage Portage Trailheads	5
Lake Richie Portage Trailheads	5
Lake Livermore Portage Trailheads	4
Raspberry Island Dock and Trails	4
Intermediate Lake Canoe Campground	3
Hidden Lake Dock and Picnic Area	3
Lane Cove Campground	3
North Lake Desor Campground	3
Rock of Ages Lighthouse	3

Potentilla argentea	7	1	11
Rheum rhaponticum	7		11
Anthoxanthum odoratum	6	1	9
Arctium minus	6	1	9
Tanacetum vulgare	6	1	9
Hypericum perforatum	6		9
Medicago lupulina	6		9
Potentilla recta	6		9
Trifolium hybridum	6		9
Centaurea maculosa	5	2	8
Malus pumila	5	3	7
Tragopogon sp.	5		7
Arenaria serpyllifolia	4		6
Bromus inermis	4		6
Lepidium campestre	4		6
Silene pratensis	4		6
Linaria vulgaris	3	1	5
Melilotus officinalis	3	1	5
Polygonum aviculare	3	1	5
Syringa vulgaris	3	1	5
Aconitum napellus	3		5
Dactylis glomerata	3		5
Silene vulgaris	3		5
Thlaspi arvense	3		5
Trifolium aureum	3		5
Carum carvi	2	2	3
Centaurea cyanus	2		3
Cerastium tomentosum	2		3
Chenopodium album	2		3
Erysimum cheiranthoides	2		3
Euphorbia cyparissias	2		3
Pastinaca sativa	2		3
Plantago lanceolata	2		3
Potentilla simplex	2		3
Thymus serpyllum	2		3
Veronica officinalis	1	2	2
Polygonum convolvulus	1	1	2
Dianthus deltoides	1		2
Dianthus plumarius	1		2
Lupinus polyphyllus	1		2
Ribes nigrum	1		
Ribes sativum	1		
Rumex longifolius	1		2

TABLE 6: EXOTIC VASCULAR PLANT SPECIES NOT OBSERVED IN THE PRESENT SURVEY ALTHOUGH RECORDED IN THE PAST. Several exotics that were documented from herbarium specimens in the past appear to have have been extirpated from the flora or at least were not noted in the present survey.

Arabis glabra (smooth mustard)
Armoracia rusticana (garden horseradish)
Berteroa incana (hoary alyssum)
Crepis tectorum (hawk's-bit)
Cynoglossum officinale (common hound's-tongue)
Cynosurus cristatus (dogtail grass)
Erysimum inconspicuum (Western wallflower)
Glechoma hederacea (ground-ivy)
Hordeum jubatum (squirrel-tail grass)
Lappula squarrosa (stickseed)
Lonicera tatarica (Tartarian honeysuckle)
Lychnis chalcedonica (scarlet lychnis)
Matricaria maritima (wild chamomile)
Sedum acre (mossy stonecrop)
Thymus marschallianus (thyme)
Veronica arvensis (field veronica)

TABLE 7. EXOTIC VASCULAR PLANT SPECIES NEWLY OBSERVED ON THE ISLAND IN THIS SURVEY. None of these are potential threats to invade native communities.

Festuca pratensis (meadow fescue). Mott Island and Windigo.
Lolium perenne (rye grass). Mott Island.
Medicago sativa (alfalfa). Mott Island.
Plantago lanceolata (English plantain). Chippewa Harbor and McCargoe Cove.

TABLE 11. CAMPGROUND VISITATION COMPARED WITH NUMBER OF EXOTIC VASCULAR PLANT SPECIES PRESENT. "Visitation" is the number of parties (not individuals) issued permits for 1993. N.S. = not surveyed.

<u>Campground</u>	<u>1993 Visitation</u>	<u>Exotic species</u>
Beaver Island	297	11
Belle Isle	488	26
Birch Island	155	14
Caribou Island	350	27
Chickenbone East	312	13
Chickenbone West	704	16
Chippewa Harbor	613	29
Daisy Farm	1,620	30
Lake Desor North	183	3
Lake Desor South	412	7
Duncan Bay	225	10
Duncan Bay Narrows	302	11
Feldtmann Lake	463	17
Grace Island	271	14
Hatchet Lake	453	5
Hay Bay	68	22
Huginnin Cove	229	6
Intermediate Lake	83	3
Island Mine	361	11
Lane Cove	357	3
Little Todd	152	11
Malone Bay	515	39
McCargoe Cove	936	32
Merritt Lane	195	7
Moskey Basin	650	22
Pickerel Cove	80	14
Rock Harbor (includes Campground with 1,189 visits and marina ("RH-M") with 520 visits)	1,709	48
Lake Richie Canoe	231	11
Lake Richie Hike	424	16
Siskiwit Bay	755	39
Threemile	950	17
Todd Harbor	450	20
Tookers Island	187	10
Washington Creek (see Windigo)		
Lake Whittlesey	113	10
Windigo (includes marina with 688 visits plus Washington Creek Campground with 920 visits)	1,608	51
Wood Lake	165	12
TOTAL	17,019	ca. 105

