



Vascular Plant Inventory of Ebey's Landing National Historical Reserve

Natural Resource Technical Report NPS/NCCN/NRTR—2010/346



ON THE COVER

Photo looking south from the Prairie Overlook across the mosaic of farm fields, prairie, and forests in EBLA.
Photo courtesy of National Park Service.

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Executive Summary

A vascular plant inventory was conducted within Ebey's Landing National Historical Reserve (EBLA) between 2002 and 2005. Inventory methods included data mining and field surveys. The data mining component consisted of bibliographic searches for reports documenting plant species presence and herbarium searches for specimens collected within EBLA. Field surveys, called "Botany Forays", were conducted by experienced volunteers organized by the University of Washington to find and collect new plant specimens from EBLA. Initially, the reserve had a species list of 182 species, all of which had been verified by observation or field study. During the course of the inventory, data mining located 8 herbarium specimens verifying 7 species. During the four Botany Forays 305 specimens were collected, documenting 221 species. The vascular plant species list at the conclusion of the EBLA inventory included 374 species with 61% verified by voucher specimen and the remaining 39% verified by observation or scientific study.

Acknowledgments

Ronald Holmes and Lise Grace input all data into the NPSpecies database and conducted quality checks of all data. Allen McCoy developed the maps used in this report and Joe Oelfke assisted with the summary tables. Chris Chappell shared species observations that he had collected within EBLA. Dr. David Giblin of the University of Washington supervised the Botany Forays to collect vouchers specimens of species in EBLA. Many volunteers collected, identified, and mounted the herbarium specimens. Ben Legler (UW) and Peter Dunwiddie (The Nature Conservancy) assisted Dr. Giblin in leading the forays and they were accompanied by: Molly Bernstein, Pat Chiarelli, Katie Glew, Jesse Johansen, Joe Johansen, Don Knoke, Sharon Rodman, Leigh Smith, Jim Somers, Cindy Spurgeon, Jeff Walker, Barbara Williams, Peter Zika, and Susan Zwinger.

Introduction

Ebey's Landing National Historical Reserve (EBLA) was established in 1978 to preserve and protect a rural community on Whidbey Island. The Reserve is located on central Whidbey Island, approximately 45 miles north of Seattle, at the extreme northern end of Puget Sound. To the east are the North Cascades; north and south are miles of islands, coves, and bays; southwest lie the Olympic Mountains (Figure 1). Whidbey Island varies from 1 to 10 miles in width and offers a rare combination of forests, prairies, and seascapes. A major force in the creation of this landscape was the Pleistocene glacial retreat about 13,000 years ago. The retreating ice left glacial moraines, gravel, sand, and clay. Natural forces continue to erode the beach bluffs and transport sand along the shores. The historical landscape of the reserve today looks much like it did a century ago – a mosaic of farms, forests, and century old buildings and homes. The site encompasses 25 square miles (17,400 acres) and includes federal, state, county, and private property.

The National Park Service's primary mission is to conserve unimpaired the natural and cultural resources and values of the national park system for the enjoyment of this and future generations. In 1992, the National Park Service's (NPS) Inventory and Monitoring Program identified a list of candidate elements and processes for initial inventory in all natural resource parks, proposed the establishment of prototype inventory and monitoring parks, and outlined national implementation guidelines. The National Parks Omnibus Management Act of 1998 recognized the need for good scientific information to manage parks. The act mandated a "program of inventory and monitoring of National Park System resources to establish baseline information and to provide information on the long-term trends in the condition of National Park System resources".

Funding acquired through the Natural Resource Challenge (1999) provided the financial resources for National Park Service to initiate Species Inventory Programs focusing on vertebrates and vascular plants. The basic goal of this program is to provide park managers with comprehensive, scientifically-based information about the nature and status of selected biological resources occurring within park boundaries in a form that increases its accessibility and utility for making management decisions, for scientific research, and for educating the public. The inventories will also lay the groundwork necessary for park managers to develop effective monitoring programs and to formulate effective management strategies for resource management and protection.

The North Coast and Cascades Network (NCCN) of parks developed a plan to inventory and document vertebrate and vascular plant species in the seven network parks and initiated this program in 2001 (Rocheffort et al. 2009). During the development of this plan, we conducted data mining (bibliographic and herbarium searches [data extraction]) to develop a baseline list of vertebrates and vascular plants for each park. The plant inventory for Ebey's Landing National Historical Reserve was focused on large natural areas within the reserve: Fort Casey and Fort Ebey State Parks, Rhododendron County Park, NPS lands (at the time 35 acres), and prairies owned by the Nature Conservancy (Figure 2). These areas comprise the largest expanses of undisturbed areas and contain most of the vegetation types within the Reserve. At that time, we compiled a list of 182 vascular plants for EBLA from observations and studies, but we did not locate any voucher specimens (Del Moral and Hanson 1980, Edain 1990, Klingman and Ross

1990, Ryan 1990, Rochefort et al. 2009). Based on this background, we identified two objectives for the vascular plant inventory of EBLA: 1) to compile a list of potential vascular plants for the park, 2) to verify this list at the 90% level by documented observations, published reports and voucher specimens.

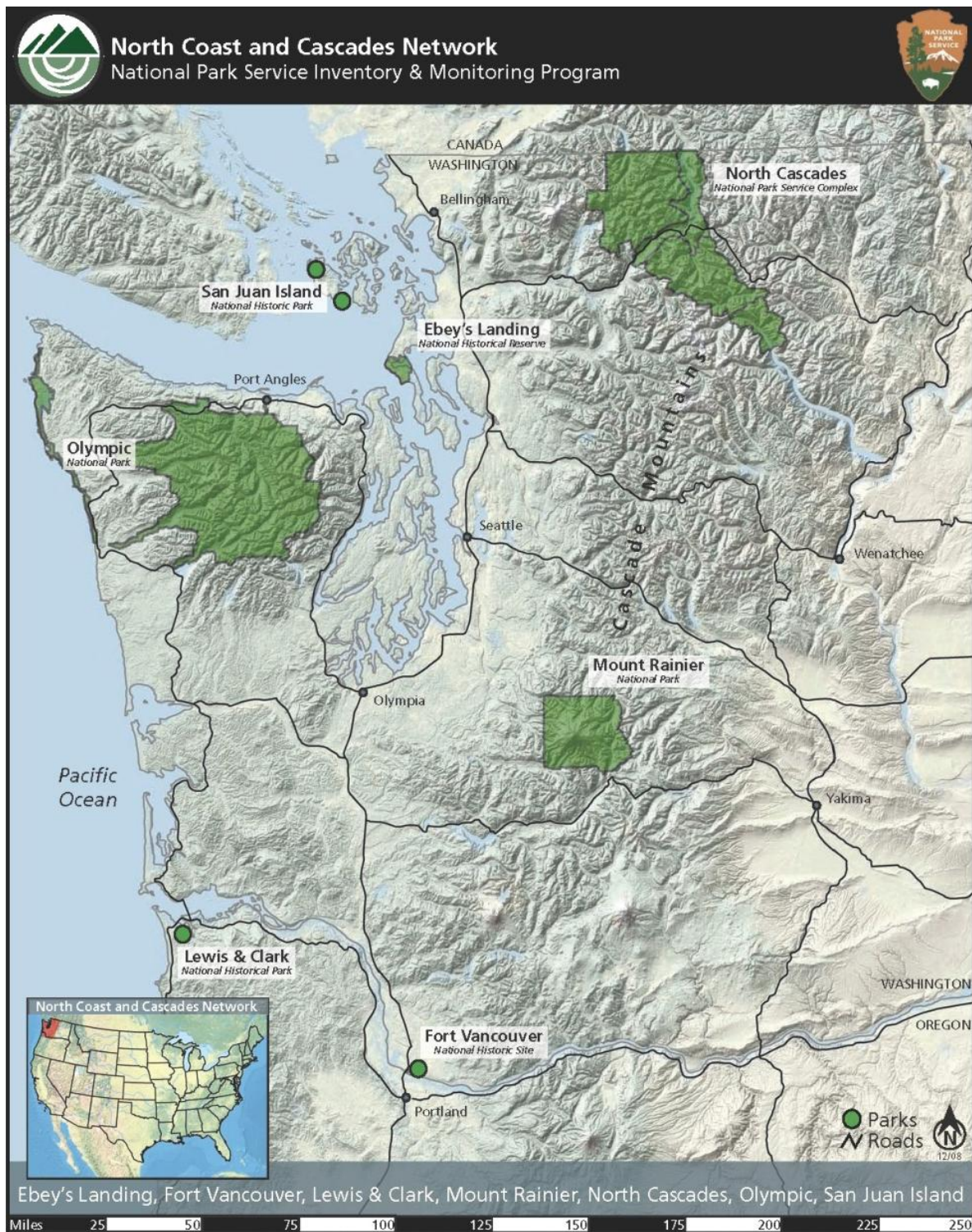


Figure 1. Map illustrating the location of Ebey's Landing National Historical Reserve within the North Coast and Cascades Network (NCCN) of Parks.

Methods

Two methods were utilized to develop the vascular plant list: 1) data mining and 2) field surveys. During 2001, we continued our data mining efforts in collaboration with state agencies, museums, the Natural Conservancy to compile species lists from available data. Field surveys (“Botany Forays”) were conducted in collaboration with the University of Washington herbarium and The Nature Conservancy. Forays were conducted in EBLA on multiple dates (April 30, May 7, June 4, and September 10 2004) to capture the range of phenologies exhibited by species in the area and therefore to increase the species diversity within our collection.



Figure 2. Map illustrating natural areas that were the focus of the inventory.

Results

The initial species list included 182 species, all of which were verified by local botanists or through written reports. During the data mining for the inventory, 7 herbarium specimens were located in the University of Washington herbarium and we received species lists for the state parks (Chappell 1992). The Botany Forays collected 305 specimens representing 221 species; 134 of these species were new to our lists (Figures 3 and 4). The final list included 374 species including Golden Paintbrush (*Castilleja levisecta*) which is listed as Federally Threatened and State Endangered (Figure 5, Appendices A–D). Species were tallied by growth form (i.e. forb, graminoids, shrubs and vines, and trees) and species origin (i.e. native and exotic) (Tables 1 and 2).

Table 1. Summary of documentation type and rate by inventory stage.

Stage of Inventory	No. Species (total % verification)	No. Verified by Voucher (%)	No. Verified by Reference (%)	No. Verified by Observation (%)	No. Without Verification (%)
Initial list (2000)	182 (100%)	0 (0%)	149 (82%)	33 (18%)	0 (0%)
List after Data Mining (2002)	240 (100%)	7 (3%)	211 (88%)	22 (9%)	0 (0%)
Current list (2008)	374 (100%)	228 (61%)	138 (37%)	8 (2%)	0 (0%)

Table 2. Summary of vascular plant species documented by the inventory.

Growth Form	Total (no.)	Native Species (no.)	Exotic Species (no.)	Verified by Voucher (no.)
Forbs	236	150	86	149
Graminoids	74	43	31	46
Shrubs and vines	41	34	7	22
Trees	23	21	2	11
Total	374	248 (75%)	96 (25%)	228 (61%)



Figure 3. View of area inventoried for the 2004 Botany Forays (photograph by Ben Legler, University of Washington).



Figure 4. Dr. David Giblin, Molly Bernstein, and Barbara Williams collecting plants on the Botany Foray (photograph by Ben Legler, University of Washington).



Figure 5. Golden Paintbrush (*Castilleja levisecta*), a Federally Threatened species that grows within EBLA. (photograph by Cheryl Lowe of the Whidbey Land Trust).

Discussion

Planning the EBLA vascular plant inventory was challenging due to the mixture of federal, state, and private property within the Reserve's boundaries. We focused the inventory on areas that were managed for their natural resources such as State and Federal parks and land owned by The Nature Conservancy. We started with a list of 182 species verified by observation or studies and at the end of the inventory, our final list included 374 species of which 228 (61%) were verified by vouchers (Appendices A–D). Surprisingly, only 25% of the species documented were exotic. The majority of species within each growth form were native (Table 1). Prairie restoration and restoration of golden paintbrush habitat is an important management objective for several land management agencies within the Reserve (i.e. Whidbey Land Trust, The Nature Conservancy, and Washington State Parks). Many native prairie species were inventoried within EBLA and the locations of these species may provide information on suitable habitat for these species or at the very least may provide a source of plant material for restoration and protection of the genetic integrity of Island prairies. The Botany Forays led by the University of Washington were a very successful for both increasing and verifying the species list as well as engaging the public in learning about the natural resources of the park. The inventory that was conducted in 2004 should be regarded as the initial phase of the EBLA plant inventory due to the small geographic scope of the surveys. We recommend that the NPS should work with its partners within the Reserve and with the University of Washington to conduct more forays on state park lands and other areas protected for their natural resources.

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Appendix A. Checklist of forbs of EBLA

Family	Scientific Name	Common Name	Origin ¹
Apiaceae	<i>Angelica genuflexa</i>	Kneeling Angelica	N
Apiaceae	<i>Angelica hendersonii</i>	Henderson's Angelica	N
Apiaceae	<i>Anthriscus caucalis</i>	Bur Chervil	E
Apiaceae	<i>Conium maculatum</i>	Poison Hemlock	E
Apiaceae	<i>Daucus carota</i>	Queen Anne's Lace	E
Apiaceae	<i>Daucus pusillus</i>	American Wild Carrot	E
Apiaceae	<i>Foeniculum vulgare</i>	Sweet Fennel	E
Apiaceae	<i>Glehnia littoralis ssp. leiocarpa</i>	American Silvertop	N
Apiaceae	<i>Heracleum maximum</i>	Common Cowparsnip	N
Apiaceae	<i>Lomatium nudicaule</i>	Barstem Biscuitroot	N
Apiaceae	<i>Lomatium utriculatum</i>	Common Lomatium	N
Apiaceae	<i>Oenanthe sarmentosa</i>	Water Parsely	N
Apiaceae	<i>Osmorhiza berteroi</i>	Sweetcicely	N
Apiaceae	<i>Sanicula bipinnatifida</i>	Purple Sanicle	N
Apiaceae	<i>Sanicula crassicaulis</i>	Pacific Blacksnakeroot	N
Apocynaceae	<i>Vinca major</i>	Bigleaf Periwinkle	E
Asteraceae	<i>Achillea millefolium</i>	Common Yarrow	N
Asteraceae	<i>Achillea millefolium var. occidentalis</i>	Western Yarrow	N
Asteraceae	<i>Adenocaulon bicolor</i>	American Trailplant	N
Asteraceae	<i>Ambrosia chamissonis</i>	Silver Bur Ragweed	N
Asteraceae	<i>Anaphalis margaritacea</i>	Western Pearly Everlasting	N
Asteraceae	<i>Anthemis cotula</i>	Stinking Chamomile	E
Asteraceae	<i>Arctium lappa</i>	Greater Burdock	E
Asteraceae	<i>Arctium minus</i>	Lesser Burdock	E
Asteraceae	<i>Artemisia campestris</i>	Field Sagewort	N
Asteraceae	<i>Artemisia campestris ssp. caudata</i>	Field Sagewort	N
Asteraceae	<i>Artemisia campestris var. scouleriana</i>	Field Sagewort	N
Asteraceae	<i>Artemisia suksdorfii</i>	Coastal Wormwood	N
Asteraceae	<i>Cirsium arvense</i>	Canada Thistle	E
Asteraceae	<i>Cirsium vulgare</i>	Bull Thistle	E
Asteraceae	<i>Conyza canadensis</i>	Canadian Horseweed	N
Asteraceae	<i>Cotula coronopifolia</i>	Common Brassbuttons	E
Asteraceae	<i>Crepis capillaris</i>	Smooth Hawksbeard	E
Asteraceae	<i>Erigeron speciosus</i>	Aspen Fleabane	N
Asteraceae	<i>Eriophyllum lanatum</i>	Common Woolly Sunflower	N
Asteraceae	<i>Eriophyllum lanatum var. lanatum</i>	Common Woolly Sunflower	N
Asteraceae	<i>Gamochaeta purpurea</i>	Spoonleaf Purple Everlasting	N

Appendix A. Checklist of forbs of EBLA (continued)

Family	Scientific Name	Common Name	Origin ¹
Asteraceae	<i>Grindelia integrifolia</i>	Puget Sound Gumweed	N
Asteraceae	<i>Grindelia stricta</i> var. <i>stricta</i>	Oregon Gumweed	N
Asteraceae	<i>Heterotheca villosa</i> var. <i>minor</i>	Hairy False Goldenaster	N
Asteraceae	<i>Heterotheca villosa</i> var. <i>villosa</i>	Hairy False Goldenaster	N
Asteraceae	<i>Hypochaeris radicata</i>	Hairy Cat's Ear	E
Asteraceae	<i>Lactuca serriola</i>	Prickly Lettuce	E
Asteraceae	<i>Leucanthemum vulgare</i>	Oxeye Daisy	E
Asteraceae	<i>Matricaria discoidea</i>	Disc Mayweed	E
Asteraceae	<i>Matricaria recutita</i>	German Chamomile	E
Asteraceae	<i>Microseris laciniata</i>	Cutleaf Silverpuffs	N
Asteraceae	<i>Mycelis muralis</i>	Wall-Lettuce	E
Asteraceae	<i>Pseudognaphalium stramineum</i>	Cottonbatting Plant	N
Asteraceae	<i>Senecio jacobaea</i>	Stinking Willie	E
Asteraceae	<i>Senecio sylvaticus</i>	Woodland Ragwort	E
Asteraceae	<i>Senecio vulgaris</i>	Old-Man-In-The-Spring	E
Asteraceae	<i>Solidago canadensis</i>	Canada Goldenrod	N
Asteraceae	<i>Solidago canadensis</i> var. <i>salebrosa</i>	Rough Canada Goldenrod	N
Asteraceae	<i>Solidago spathulata</i> var. <i>spathulata</i>	Coastaldune Goldenrod	N
Asteraceae	<i>Sonchus arvensis</i>	Field Sowthistle	E
Asteraceae	<i>Sonchus asper</i>	Spiny Sowthistle	E
Asteraceae	<i>Sonchus oleraceus</i>	Common Sowthistle	E
Asteraceae	<i>Symphotrichum subspicatum</i> var. <i>subspicatum</i>	Douglas Aster	N
Asteraceae	<i>Tanacetum vulgare</i>	Common Tansy	E
Asteraceae	<i>Taraxacum officinale</i>	Common Dandelion	E
Asteraceae	<i>Tragopogon porrifolius</i>	Salsify	E
Blechnaceae	<i>Blechnum spicant</i>	Deer Fern	N
Boraginaceae	<i>Amsinckia menziesii</i>	Menzie's Fiddleneck	N
Boraginaceae	<i>Myosotis discolor</i>	Changing Forget-Me-Not	E
Brassicaceae	<i>Arabidopsis thaliana</i>	Mouseear Cress	E
Brassicaceae	<i>Arabis glabra</i>	Tower Rockcress	N
Brassicaceae	<i>Barbarea orthoceras</i>	American Yellowrocket	N
Brassicaceae	<i>Barbarea vulgaris</i>	Garden Yellowrocket	E
Brassicaceae	<i>Brassica rapa</i> var. <i>rapa</i>	Field Mustard	E
Brassicaceae	<i>Cakile edentula</i>	American Searocket	E
Brassicaceae	<i>Cakile maritima</i>	European Searocket	E
Brassicaceae	<i>Capsella bursa-pastoris</i>	Shepherd's Purse	E
Brassicaceae	<i>Cardamine hirsuta</i>	Hairy Bittercress	E
Brassicaceae	<i>Cardamine oligosperma</i> var. <i>oligosperma</i>	Little Western Bittercress	N
Brassicaceae	<i>Coronopus didymus</i>	Lesser Swinecress	E

Appendix A. Checklist of forbs of EBLA (continued)

Family	Scientific Name	Common Name	Origin ¹
Brassicaceae	<i>Lepidium virginicum</i>	Virginia Pepperweed	N
Brassicaceae	<i>Lobularia maritima</i>	Sweet Alyssum	E
Brassicaceae	<i>Sisymbrium altissimum</i>	Tall Tumblemustard	E
Brassicaceae	<i>Sisymbrium officinale</i>	Hedgemustard	E
Brassicaceae	<i>Thlaspi montanum</i> var. <i>fendleri</i>	Fendler's Pennycress	N
Caprifoliaceae	<i>Linnaea borealis</i>	Twinflower	N
Caprifoliaceae	<i>Lonicera hispidula</i>	Pink Honeysuckle	N
Caryophyllaceae	<i>Atriplex gmelinii</i> var. <i>gmelinii</i>	Gmelin's Saltbrush	N
Caryophyllaceae	<i>Cerastium arvense</i>	Field Chickweed	N
Caryophyllaceae	<i>Cerastium fontanum</i> ssp. <i>vulgare</i>	Big Chickweed	E
Caryophyllaceae	<i>Cerastium glomeratum</i>	Sticky Chickweed	E
Caryophyllaceae	<i>Honckenya peploides</i>	Seaside Sandplant	N
Caryophyllaceae	<i>Sagina apetala</i>	Annual Pearlwort	E
Caryophyllaceae	<i>Sagina procumbens</i>	Birdeye Pearlwort	E
Caryophyllaceae	<i>Sarcocornia perennis</i>	Chicken Claws	N
Caryophyllaceae	<i>Silene conoidea</i>	Weed Silene	E
Caryophyllaceae	<i>Silene dioica</i>	Red Catchfly	E
Caryophyllaceae	<i>Silene gallica</i>	Common Catchfly	E
Caryophyllaceae	<i>Silene latifolia</i> ssp. <i>alba</i>	Bladder Champion	E
Caryophyllaceae	<i>Silene scouleri</i> var. <i>scouleri</i>	Simple Champion	N
Caryophyllaceae	<i>Spergularia canadensis</i>	Canadian Sandspurry	N
Caryophyllaceae	<i>Spergularia rubra</i>	Red Sandspurry	E
Caryophyllaceae	<i>Stellaria crispa</i>	Curled Starwort	N
Caryophyllaceae	<i>Stellaria media</i>	Common Chickweed	E
Chenopodiaceae	<i>Atriplex patula</i>	Spear Saltbrush	N
Chenopodiaceae	<i>Atriplex prostrata</i>	Triangle Orache	N
Chenopodiaceae	<i>Chenopodium album</i>	Lambsquarters	E
Chenopodiaceae	<i>Chenopodium rubrum</i>	Red Goosefoot	N
Chenopodiaceae	<i>Endolepis dioica</i>	Suckley's Endolepis	N
Chenopodiaceae	<i>Salicornia virginica</i>	Virginia Glasswort	N
Clusiaceae	<i>Hypericum perforatum</i>	Common St. Johnswort	E
Convolvulaceae	<i>Convolvulus arvensis</i>	Field Bindweed	E
Cornaceae	<i>Cornus canadensis</i>	Bunchberry Dogwood	N
Crassulaceae	<i>Sedum acre</i>	Goldmoss Stonecrop	E
Cuscutaceae	<i>Cuscuta salina</i>	Saltmarsh Dodder	N
Dennstaedtiaceae	<i>Pteridium aquilinum</i>	Western Brackenfern	N
Dennstaedtiaceae	<i>Pteridium aquilinum</i> var. <i>pubescens</i>	Hairy Brackenfern	N
Dryopteridaceae	<i>Athyrium filix-femina</i>	Common Ladyfern	N
Dryopteridaceae	<i>Dryopteris expansa</i>	Spreading Woodfern	N

Appendix A. Checklist of forbs of EBLA (continued)

Family	Scientific Name	Common Name	Origin ¹
Dryopteridaceae	<i>Gymnocarpium dryopteris</i>	Western Oakfern	N
Dryopteridaceae	<i>Polystichum munitum</i>	Western Swordfern	N
Equisetaceae	<i>Equisetum arvense</i>	Field Horsetail	N
Equisetaceae	<i>Equisetum hyemale</i>	Scouringrush Horsetail	N
Equisetaceae	<i>Equisetum telmateia</i>	Giant Horsetail	N
Fabaceae	<i>Lathyrus japonicus</i>	Beach Pea	N
Fabaceae	<i>Lathyrus latifolius</i>	Perennial Pea	E
Fabaceae	<i>Lotus unifoliolatus</i> var. <i>unifoliolatus</i>	American Bird's-Foot Trefoil	N
Fabaceae	<i>Lupinus bicolor</i>	Miniature Lupine	N
Fabaceae	<i>Lupinus densiflorus</i> var. <i>densiflorus</i>	Whitewhorl Lupine	N
Fabaceae	<i>Lupinus littoralis</i>	Seashore Lupine	N
Fabaceae	<i>Lupinus rivularis</i>	Riverbank Lupine	N
Fabaceae	<i>Medicago lupulina</i>	Black Medick	E
Fabaceae	<i>Medicago sativa</i>	Alfalfa	E
Fabaceae	<i>Trifolium arvense</i>	Rabbitfoot Clover	E
Fabaceae	<i>Trifolium campestre</i>	Field Clover	E
Fabaceae	<i>Trifolium dubium</i>	Suckling Clover	E
Fabaceae	<i>Trifolium hybridum</i>	Alsike Clover	E
Fabaceae	<i>Trifolium microdon</i>	Thimble Clover	N
Fabaceae	<i>Trifolium pratense</i>	Red Clover	E
Fabaceae	<i>Trifolium repens</i>	White Clover	E
Fabaceae	<i>Trifolium willdenowii</i>	Tomcat Clover	N
Fabaceae	<i>Vicia americana</i>	American Vetch	N
Fabaceae	<i>Vicia americana</i> ssp. <i>americana</i>	American Vetch	N
Fabaceae	<i>Vicia hirsuta</i>	Tiny Vetch	E
Fabaceae	<i>Vicia nigricans</i> ssp. <i>gigantea</i>	Giant Vetch	N
Fabaceae	<i>Vicia sativa</i> ssp. <i>nigra</i>	Garden Vetch	E
Fabaceae	<i>Vicia sativa</i> ssp. <i>sativa</i>	Garden Vetch	E
Fabaceae	<i>Vicia villosa</i>	Winter Vetch	E
Geraniaceae	<i>Erodium cicutarium</i>	Redstem Stork's Bill	E
Geraniaceae	<i>Geranium molle</i>	Dovefoot Geranium	E
Iridaceae	<i>Iris missouriensis</i>	Rocky Mountain Iris	N
Iridaceae	<i>Sisyrinchium bellum</i>	Western Blue-Eyed Grass	N
Juncaceae	<i>Juncus balticus</i>	Baltic Rush	N
Lamiaceae	<i>Brodiaea coronaria</i>	Crown Brodiaea	N
Lamiaceae	<i>Marrubium vulgare</i>	Horehound	E
Lamiaceae	<i>Lamium purpureum</i>	Purple Deadnettle	E
Lamiaceae	<i>Nepeta cataria</i>	Catnip	E
Liliaceae	<i>Allium acuminatum</i>	Tapertip Onion	N

Appendix A. Checklist of forbs of EBLA (continued)

Family	Scientific Name	Common Name	Origin ¹
Liliaceae	<i>Allium cernuum</i>	Nodding Onion	N
Liliaceae	<i>Asparagus officinalis</i>	Garden Asparagus	E
Liliaceae	<i>Camassia quamash</i>	Small Camas	N
Liliaceae	<i>Clinopodium douglasii</i>	Yerba Buena	E
Liliaceae	<i>Dichelostemma congestum</i>	Ookow	N
Liliaceae	<i>Erythronium oregonum</i>	Giant White Fawnlily	N
Liliaceae	<i>Fritillaria affinis</i> var. <i>affinis</i>	Checker Lily	N
Liliaceae	<i>Lilium columbianum</i>	Columbia Lily	N
Liliaceae	<i>Maianthemum dilatatum</i>	False Lily of the Valley	N
Liliaceae	<i>Maianthemum stellatum</i>	Starry False Lily of the Valley	N
Liliaceae	<i>Trillium ovatum</i>	Pacific Trillium	N
Liliaceae	<i>Triteleia grandiflora</i> var. <i>howellii</i>	Howell's Tritelia	N
Liliaceae	<i>Triteleia hyacinthina</i>	White Brodiaea	N
Liliaceae	<i>Zigadenus venenosus</i>	Meadow Deathcamas	N
Liliaceae	<i>Zigadenus venenosus</i> var. <i>venenosus</i>	Meadow Deathcamas	N
Malvaceae	<i>Sidalcea hendersonii</i>	Henderson's Checkerbloom	N
Monotropaceae	<i>Monotropa uniflora</i>	Indianpipe	N
Nyctaginaceae	<i>Abronia latifolia</i>	Coastal Sand Verbena	N
Onagraceae	<i>Epilobium angustifolium</i>	Fireweed	N
Onagraceae	<i>Epilobium minutum</i>	Chaparral Willowherb	N
Orchidaceae	<i>Calypso bulbosa</i>	Fairy Slipper	N
Orchidaceae	<i>Goodyera oblongifolia</i>	Western Rattlesnake Plantain	N
Orchidaceae	<i>Piperia elegans</i> ssp. <i>elegans</i>	Elegant Piperia	N
Papaveraceae	<i>Eschscholzia californica</i>	California Poppy	E
Papaveraceae	<i>Papaver somniferum</i>	Opium Poppy	E
Plantaginaceae	<i>Plantago lanceolata</i>	Narrowleaf Plantain	E
Plantaginaceae	<i>Plantago major</i>	Common Plantain	E
Plantaginaceae	<i>Plantago maritima</i>	Goose Tongue	N
Plantaginaceae	<i>Plantago maritima</i> var. <i>juncoides</i>	Goose Tongue	N
Plumbaginaceae	<i>Armeria maritima</i> ssp. <i>californica</i>	California Seapink	N
Polygonaceae	<i>Polygonum arenastrum</i>	Oval-Leaf Knotweed	E
Polygonaceae	<i>Polygonum hydropiper</i>	Marshpepper Knotweed	E
Polygonaceae	<i>Polygonum paronychia</i>	Beach Knotweed	N
Polygonaceae	<i>Rumex acetosella</i>	Common Sheep Sorrel	E
Polygonaceae	<i>Rumex aquaticus</i> var. <i>fenestratus</i>	Western Dock	N
Polygonaceae	<i>Rumex crispus</i>	Curly Dock	E
Polygonaceae	<i>Rumex maritimus</i>	Golden Dock	N
Polypodiaceae	<i>Polypodium glycyrrhiza</i>	Licorice Fern	N
Portulacaceae	<i>Calandrinia ciliata</i>	Fringed Redmaids	N

Appendix A. Checklist of forbs of EBLA (continued)

Family	Scientific Name	Common Name	Origin ¹
Portulacaceae	<i>Claytonia perfoliata</i> ssp. <i>perfoliata</i>	Miner's Lettuce	N
Portulacaceae	<i>Claytonia rubra</i> ssp. <i>depressa</i>	Redstem Springbeauty	N
Portulacaceae	<i>Claytonia sibirica</i>	Siberian Springbeauty	N
Primulaceae	<i>Dodecatheon hendersonii</i>	Mosquito Bills	N
Primulaceae	<i>Trientalis borealis</i> ssp. <i>latifolia</i>	Broadleaf Starflower	N
Pteridaceae	<i>Cryptogramma crispa</i>	Parsley Fern	N
Ranunculaceae	<i>Delphinium menziesii</i> ssp. <i>menziesii</i>	Menzies' Larkspur	N
Ranunculaceae	<i>Ranunculus occidentalis</i>	Western Buttercup	N
Ranunculaceae	<i>Ranunculus occidentalis</i> var. <i>occidentalis</i>	Western Buttercup	N
Ranunculaceae	<i>Ranunculus repens</i>	Creeping Buttercup	E
Ranunculaceae	<i>Ranunculus sceleratus</i>	Cursed Buttercup	N
Ranunculaceae	<i>Ranunculus uncinatus</i>	Woodland Buttercup	N
Rosaceae	<i>Aphanes australis</i>	Slender Parsley	E
Rosaceae	<i>Argentina egedii</i> ssp. <i>egedii</i>	Pacific Silverweed	N
Rosaceae	<i>Geum macrophyllum</i> var. <i>macrophyllum</i>	Largeleaf Laven	N
Rosaceae	<i>Geum triflorum</i> var. <i>campanulatum</i>	Old Man's Whiskers	N
Rosaceae	<i>Rubus ursinus</i>	California Blackberry	N
Rosaceae	<i>Rubus ursinus</i> ssp. <i>macropetalus</i>	California Blackberry	N
Rubiaceae	<i>Galium aparine</i>	Stickywilly	N
Rubiaceae	<i>Galium triflorum</i>	Fragrant Bedstraw	N
Saxifragaceae	<i>Lithophragma parviflorum</i>	Smallflower Woodland-Star	N
Saxifragaceae	<i>Tellima grandiflora</i>	Bigflower Tellima	N
Saxifragaceae	<i>Tiarella trifoliata</i>	Threeleaf Foamflower	N
Saxifragaceae	<i>Tiarella trifoliata</i> var. <i>trifoliata</i>	Threeleaf Foamflower	N
Saxifragaceae	<i>Tolmiea menziesii</i>	Youth On Age	N
Scrophulariaceae	<i>Castilleja hispida</i>	Harsh Indian Paintbrush	N
Scrophulariaceae	<i>Castilleja levisecta</i> ²	Golden Indian Paintbrush	N
Scrophulariaceae	<i>Castilleja hispida</i>	Harsh Indian Paintbrush	N
Scrophulariaceae	<i>Castilleja miniata</i>	Giant Red Indian Paintbrush	N
Scrophulariaceae	<i>Castilleja miniata</i> ssp. <i>dixonii</i>	Giant Red Indian Paintbrush	N
Scrophulariaceae	<i>Collinsia parviflora</i>	Maiden Blue Eyed Mary	N
Scrophulariaceae	<i>Triphysaria pusilla</i>	Dwarf Owl's-Clover	N
Scrophulariaceae	<i>Veronica arvensis</i>	Corn Speedwell	E
Scrophulariaceae	<i>Veronica serpyllifolia</i>	Thymeleaf Speedwell	N
Scrophulariaceae	<i>Veronica serpyllifolia</i> ssp. <i>humifusa</i>	Brightblue Speedwell	N
Solanaceae	<i>Solanum physalifolium</i>	Hoe Nightshade	E
Sparganiaceae	<i>Sparganium angustifolium</i>	Narrowleaf Bur-Reed	N
Typhaceae	<i>Typha latifolia</i>	Broadleaf Cattail	N
Urticaceae	<i>Urtica dioica</i>	Stinging Nettle	N

Appendix A. Checklist of forbs of EBLA (continued)

Family	Scientific Name	Common Name	Origin ¹
Urticaceae	<i>Urtica dioica ssp. gracilis</i>	Stinging Nettle	N
Valerianaceae	<i>Plectritis congesta</i>	Shortspur Seablush	N
Violaceae	<i>Viola adunca</i>	Hookedspur Violet	N
Zosteraceae	<i>Phyllospadix scouleri</i>	Scouler's Surfgrass	N

¹N = Native, E = exotic

²Federal Threatened, State Endangered

Appendix B. Checklist of graminoids of EBLA

Family	Scientific Name	Common Name	Origin
Cyperaceae	<i>Carex cusickii</i>	Cusick's Sedge	N
Cyperaceae	<i>Carex hendersonii</i>	Henderson's Sedge	N
Cyperaceae	<i>Carex inops ssp. inops</i>	Long-Stolon Sedge	N
Cyperaceae	<i>Carex leptopoda</i>	Taperfruit Shortscale Sedge	N
Cyperaceae	<i>Carex lyngbyei</i>	Lynghby's Sedge	N
Cyperaceae	<i>Carex macrocephala</i>	Largehead Sedge	N
Cyperaceae	<i>Carex obnupta</i>	Slough Sedge	N
Cyperaceae	<i>Carex rossii</i>	Ross' Sedge	N
Cyperaceae	<i>Carex tumulicola</i>	Splitawn Sedge	N
Cyperaceae	<i>Carex unilateralis</i>	Lateral Sedge	N
Cyperaceae	<i>Schoenoplectus acutus var. acutus</i>	Hardstem Bulrush	N
Cyperaceae	<i>Schoenoplectus americanus</i>	Chairmaker's Bulrush	N
Cyperaceae	<i>Schoenoplectus maritimus</i>	Cosmopolitan Bulrush	N
Cyperaceae	<i>Schoenoplectus robustus</i>	Sturdy Bulrush	N
Juncaceae	<i>Juncus bufonius</i>	Toad Rush	N
Juncaceae	<i>Juncus effusus</i>	Common Rush	N
Juncaceae	<i>Luzula campestris</i>	Field Woodrush	E
Juncaceae	<i>Luzula comosa</i>	Pacific Woodrush	N
Juncaginaceae	<i>Triglochin maritima</i>	Seaside Arrowgrass	N
Poaceae	<i>Agrostis capillaris</i>	Colonial Bentgrass	E
Poaceae	<i>Agrostis gigantea</i>	Redtop	E
Poaceae	<i>Agrostis scabra</i>	Rough Bentgrass	N
Poaceae	<i>Agrostis stolonifera</i>	Creeping Bentgrass	E
Poaceae	<i>Aira caryophyllea</i>	Silver Hairgrass	E
Poaceae	<i>Aira praecox</i>	Yellow Hairgrass	E
Poaceae	<i>Anthoxanthum odoratum</i>	Sweet Vernal Grass	E
Poaceae	<i>Arrhenatherum elatius</i>	Tall Oatgrass	E
Poaceae	<i>Avena fatua</i>	Wild Oat	E
Poaceae	<i>Bromus hordeaceus ssp. hordeaceus</i>	Soft Brome	E
Poaceae	<i>Bromus maritimus</i>	Seaside Brome	N
Poaceae	<i>Bromus rigidus</i>	Rippgut Brome	E
Poaceae	<i>Bromus sitchensis</i>	Alaska Brome	N
Poaceae	<i>Bromus sterilis</i>	Poverty Brome	E
Poaceae	<i>Bromus tectorum</i>	Cheatgrass	E
Poaceae	<i>Bromus vulgaris</i>	Columbia Brome	N
Poaceae	<i>Dactylus glomerata</i>	Orchard Grass	E
Poaceae	<i>Deschampsia caespitosa</i>	Tufted Hairgrass	N

Appendix B. Checklist of graminoids of EBLA (continued)

Family	Scientific Name	Common Name	Origin
Poaceae	<i>Distichlis spicata</i>	Saltgrass	N
Poaceae	<i>Elymus glaucus</i>	Blue Wildrye	N
Poaceae	<i>Elymus glaucus</i> ssp. <i>glaucus</i>	Blue Wildrye	N
Poaceae	<i>Elymus repens</i>	Quackgrass	E
Poaceae	<i>Festuca roemerii</i>	Roemer's Fescue	N
Poaceae	<i>Festuca occidentalis</i>	Western Fescue	N
Poaceae	<i>Festuca rubra</i>	Red Fescue	N
Poaceae	<i>Festuca subuliflora</i>	Crinkleawn Fescue	N
Poaceae	<i>Glyceria leptostachya</i>	Davy Mannagrass	N
Poaceae	<i>Holcus lanatus</i>	Common Velvetgrass	E
Poaceae	<i>Holcus mollis</i>	Creeping Velvetgrass	E
Poaceae	<i>Hordeum brachyantherum</i>	Meadow Barley	N
Poaceae	<i>Hordeum depressum</i>	Dwarf Barley	N
Poaceae	<i>Hordeum murinum</i>	Mouse Barley	E
Poaceae	<i>Leymus mollis</i>	American Dunegrass	N
Poaceae	<i>Leymus mollis</i> ssp. <i>mollis</i>	American Dunegrass	N
Poaceae	<i>Lolium arundinaceum</i>	Tall Fescue	E
Poaceae	<i>Lolium perenne</i>	Perennial Ryegrass	E
Poaceae	<i>Lolium perenne</i> ssp. <i>multiflorum</i>	Italian Ryegrass	E
Poaceae	<i>Lolium pratense</i>	Meadow Fescue	E
Poaceae	<i>Melica subulata</i> var. <i>subulata</i>	Alaska Oniongrass	N
Poaceae	<i>Phalaris arundinacea</i>	Reed Canarygrass	E
Poaceae	<i>Phleum pratense</i>	Timothy	E
Poaceae	<i>Phragmites australis</i>	Common Reed	N
Poaceae	<i>Poa annua</i>	Annual Bluegrass	E
Poaceae	<i>Poa bulbosa</i>	Bulbous Bluegrass	E
Poaceae	<i>Poa confinis</i>	Coastline Bluegrass	N
Poaceae	<i>Poa macrantha</i>	Seashore Bluegrass	N
Poaceae	<i>Poa pratensis</i>	Kentucky Bluegrass	E
Poaceae	<i>Poa trivialis</i>	Rough Bluegrass	E
Poaceae	<i>Polypogon monspeliensis</i>	Annual Rabbitsfoot Grass	E
Poaceae	<i>Puccinellia kurilensis</i>	Dwarf Alkaligrass	N
Poaceae	<i>Puccinellia nuttalliana</i>	Nuttall's Alkaligrass	N
Poaceae	<i>Trisetum canescens</i>	Tall Trisetum	N
Poaceae	<i>Trisetum cernuum</i> var. <i>cernuum</i>	Nodding Oatgrass	N
Poaceae	<i>Vulpia bromoides</i>	Brome Fescue	E
Poaceae	<i>Vulpia myuros</i>	Rat-Tail Fescue	E

Appendix C. Checklist of shrubs and vines of EBLA

Family	Scientific Name	Common Name	Origin
Berberidaceae	<i>Mahonia aquifolium</i>	Hollyleaved Barberry	N
Berberidaceae	<i>Mahonia nervosa</i>	Cascade Barberry	N
Cactaceae	<i>Opuntia engelmanni</i>	Cactus Apple	E
Cactaceae	<i>Opuntia fragilis</i>	Brittle Pricklypear	N
Caprifoliaceae	<i>Lonicera ciliosa</i>	Orange Honeysuckle	N
Caprifoliaceae	<i>Lonicera involucrata</i>	Twinberry Honeysuckle	N
Caprifoliaceae	<i>Sambucus nigra ssp. cerulea</i>	Blue Elderberry	N
Caprifoliaceae	<i>Sambucus racemosa var. racemosa</i>	Red Elberberry	N
Caprifoliaceae	<i>Symphoricarpos albus</i>	Common Snowberry	N
Caprifoliaceae	<i>Symphoricarpos albus var. laevigatus</i>	Common Snowberry	N
Celastraceae	<i>Paxistima myrsinites</i>	Oregon Boxleaf	N
Cornaceae	<i>Cornus sericea ssp. sericea</i>	Redosier Dogwood	N
Ericaceae	<i>Gaultheria shallon</i>	Salal	N
Ericaceae	<i>Rhododendron macrophyllum</i>	Pacific Rhododendron	N
Ericaceae	<i>Vaccinium ovatum</i>	California Huckleberry	N
Ericaceae	<i>Vaccinium parvifolium</i>	Red Huckleberry	N
Fabaceae	<i>Cytisus scoparius</i>	Scotch Broom	E
Fabaceae	<i>Ulex europaeus</i>	Common Gorse	E
Grossulariaceae	<i>Ribes bracteosum</i>	Stink Currant	N
Grossulariaceae	<i>Ribes divaricatum</i>	Spreading Gooseberry	N
Grossulariaceae	<i>Ribes lacustre</i>	Prickly Currant	N
Grossulariaceae	<i>Ribes sanguineum</i>	Redflower Currant	N
Rosaceae	<i>Amelanchier alnifolia</i>	Saskatoon Serviceberry	N
Rosaceae	<i>Amelanchier alnifolia var. alnifolia</i>	Saskatoon Serviceberry	N
Rosaceae	<i>Holodiscus discolor</i>	Oceanspray	N
Rosaceae	<i>Oemleria cerasiformis</i>	Indian Plum	N
Rosaceae	<i>Rosa gymnocarpa</i>	Dwarf Rose	N
Rosaceae	<i>Rosa nutkana</i>	Nootka Rose	N
Rosaceae	<i>Rosa nutkana var. hispida</i>	Bristly Nootka Rose	N
Rosaceae	<i>Rosa nutkana var. nutkana</i>	Nootka Rose	N
Rosaceae	<i>Rosa pisocarpa</i>	Cluster Rose	N
Rosaceae	<i>Rosa rugosa</i>	Rugosa Rose	E
Rosaceae	<i>Rubus discolor</i>	Himalayan Blackberry	E
Rosaceae	<i>Rubus laciniatus</i>	Cutleaf Blackberry	E
Rosaceae	<i>Rubus leucodermis</i>	Whitebark Raspberry	N
Rosaceae	<i>Rubus parviflorus</i>	Timbleberry	N
Rosaceae	<i>Rubus spectabilis</i>	Salmonberry	N

Appendix C. Checklist of shrubs and vines of EBLA (continued)

Family	Scientific Name	Common Name	Origin
Rosaceae	<i>Sorbus sitchensis</i>	Western Mountain Ash	N
Rosaceae	<i>Spiraea douglasii</i>	Rose Spirea	N
Rosaceae	<i>Spiraea douglasii</i> var. <i>douglasii</i>	Rose Spirea	N
Salicaceae	<i>Salix hookeriana</i>	Dune Willow	N
Salicaceae	<i>Salix lasiandra</i>	Pacific Willow	N
Salicaceae	<i>Salix scouleriana</i>	Scouler's Willow	N
Solanaceae	<i>Solanum dulcamara</i>	Climbing Nightshade	E

Note: All willows are listed as shrubs.

Appendix D. Checklist of trees of EBLA

Family	Scientific Name	Common Name	Origin
Ericaceae	<i>Arbutus menziesii</i>	Pacific Madrone	N
Betulaceae	<i>Alnus rubra</i>	Red Alder	N
Cupressaceae	<i>Thuja plicata</i>	Western Redcedar	N
Pinaceae	<i>Abies grandis</i>	Grand Fir	N
Pinaceae	<i>Picea sitchensis</i>	Sitka Spruce	N
Pinaceae	<i>Pinus monticola</i>	Western White Pine	N
Pinaceae	<i>Pseudotsuga menziesii</i>	Douglas-Fir	N
Pinaceae	<i>Pseudotsuga menziesii</i> var. <i>menziesii</i>	Douglas-Fir	N
Pinaceae	<i>Tsuga heterophylla</i>	Western Hemlock	N
Salicaceae	<i>Populus balsamifera</i> ssp. <i>trichocarpa</i>	Black Cottonwood	N
Aceraceae	<i>Acer macrophyllum</i>	Bigleaf Maple	N
Taxaceae	<i>Taxus brevifolia</i>	Pacific Yew	N
Aquifoliaceae	<i>Ilex aquifolium</i>	English Holly	E
Fagaceae	<i>Quercus garryana</i>	Oregon White Oak	N
Rhamnaceae	<i>Frangula purshiana</i>	Cascara Buckthorn	N
Rosaceae	<i>Crataegus douglasii</i>	Black Hawthorn	N
Rosaceae	<i>Malus fusca</i>	Oregon Crab Apple	N
Rosaceae	<i>Malus x dawsoniana</i>	Malus Dawsoniana	E
Rosaceae	<i>Prunus emarginata</i>	Bitter Cherry	N
Rosaceae	<i>Prunus emarginata</i> var. <i>mollis</i>	Bitter Cherry	N

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