Phytogeography of Hevenor Inlet and surrounds on Pitt Island, BC

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Introduction

The North Coast of BC

The North Coast of British Columbia (BC) is home to some of the most rugged and inaccessible terrain in North America. Extending roughly 500 km from the northern tip of Vancouver Island to the Alaska-BC border in western Canada, this region is characterized by the highest mean annual precipitation in North America and consists of a series of mountain ranges, flooded valleys, and coastal islands (Klock & Mullock, 2001). A defining feature of this landscape is the relatively recent withdrawal of the Cordilleran ice sheet (CIS) at the onset of the Holocene, resulting in an impoverished flora composed primarily of species that have recently colonized the region from elsewhere (Ogilvie & Ceska, 1984; Peinado et al., 2009). Bounded by the Coast Ranges on the east and by the Hecate Strait and Haida Gwaii on the west, most of the region is blanketed in dense evergreen forests and bogs and falls within the Coastal Western Hemlock (CWH) or Mountain Hemlock (MH) biogeoclimatic zones, the former below 600m and the latter above 600m (Radcliffe et al., 1994). It is sparsely populated and served by only three main roads: Highways 16 and 37 to Prince Rupert and Kitimat in the north, and Highway 20 to Bella Coola in the south. Thus, the vast majority of the terrain can only be accessed by boat, aircraft, or foot.

Pitt Island

Pitt Island, at 1,373 km^2 , is the fifth largest island in BC (Scott, 2009), and is underlain by syn- and post- terrane accretion plutonic rocks of the Captain's Cove suite - primarily tonalite (Crawford et al., 1999). Named by Captain George Vancouver after William Pitt, the British PM at the time of his voyage, the island falls within the traditional and unceded territory of the Git lax m'oon or Gitxaała First Nation, a Sm'álgyax-speaking people within the Tsimshian group (Menzies, 2016). Currently, there is no human habitation on the island, although small fishing vessels frequent certain areas and small hunting cabins are present. Logging and mining operations are ongoing in the region, but are not immediately underway in the vicinity of the study area, located up Hevenor Inlet.

Hevenor Inlet (Figure 1) is a long oceanic inlet about two-thirds of the way up the island that provides convenient marine access to its rugged alpine interior. The presence of old village sites, fish traps, canoe pullouts, and estuarine root gardens along the shoreline of the inlet confirm former habitation and use of this area by Gitxaała; in addition, unpublished

ethnographic accounts indicate that alpine resources, including mountain goats (*Oreamnos americanus*) and useful plants,

Figure 1: Overlooking Hevenor Inlet on Pitt Island, BC

were harvested annually by Gitxaała people here in the early 20th century (C. R. Menzies, personal communication, June 28 2017). The study area lies at the head of Hevenor Inlet and extends northwards to Hevenor Peak, the highest point on the island at 1099 m.

Perhaps the most notable feature of the island is its small population of mountain goats, which present the only natural, extant insular population on the northwest coast (Nagorsen & Keddie, 2000), although there are now several introduced populations on Alaskan Islands, including Baranof Island (but see Shafer et al., 2010a). There are presently two hypotheses to explain this anomalous population: infrequent immigration and supplementation from Kitimat Range populations across the 0.5 km Grenville Channel (Nagorsen & Keddie, 2000); or persistence following rapid post-glacial insular colonization from southerly, northerly, and/or cryptic refugial populations, for which there exists fossil (ibid.) and genetic evidence (Shafer et al, 2010a). The lack of data for the Pitt Island population precludes any conclusions at this point. A third, unexplored hypotheses - that the population was transplanted from mainland populations by Tsimshian hunters long ago - was one of several primary motivating factors for the field work that gave rise to this paper.

Postglacial Colonization

Pitt Island was completely blanketed by the CIS during the Last Glacial Maximum (LGM), which occurred between 25,000 and 20,000 years before present (BP) on the coast (Lacourse et al., 2012). Deglaciation in the Hecate lowland, where Pitt Island is located, proceeded in fits and bursts starting, minimally, at 12,700 BP and terminating by 10,000 BP (Clague, 1984); however, the Hecate Strait and significant portions of Haida Gwaii and the Alexander Archipelago of Alaska were free of glacial ice between 15,000 and 18,000 BP (Ager et al., 2009; Lacourse et al., 2012). It is likely that portions of Pitt Island were deglaciated somewhere between these two time ranges, although isostatic fluctuations in sea level

Figure 2: Geographic location of study area in coastal BC relative to putative cryptic refugia and CIS extent at LGM. Based on Shafer et al., 2010b.

may have inundated some of these areas prior to 8,000 BP, when present-day sea levels were established (Clague, 1984).

At the onset of the Wisconsin glaciation, species retreated north or south to ice-free refugia in Beringia (Brubaker et al., 2005; DeChaine, 2008) and the Pacific Northwest (Shafer et al., 2010b). In recent years, phylogeographic and paleoecological support for the presence of cryptic refugia on the western margin of the CIS has grown (ibid.;

Dixon, 2013). The Alexander Archipelago (Carrera et al., 2007; Ager et al., 2009), Haida Gwaii and the Hecate Strait (Mathewes et al., 2015), and northern Vancouver Island (Ogilvie & Ceska, 1984) are all considered to have potentially supported refugial populations of plants, animals, and insects (Shafer et al., 2010b). Pitt Island's geographic position (Figure 2) places it centrally in relation to these cryptic refugia and nearly equidistant between Beringian and Pacific Northwest refugia. While it is extremely unlikely that it supported glacial refugia during the LGM (but see Roberts & Hamann et al., 2015), Pitt Island's proximity to cryptic refugia and remoteness from northerly and southerly refugia makes it an excellent case study of insular postglacial recolonization on the BC coast.

This paper explores the dynamics of the postglacial recolonization of the North Coast of BC by examining the phylogeography of the vegetation of Pitt Island. It combines data from 51 new collections, an informal inventory of 137 species, and an analysis of herbarium collections from this region. A discussion of the development of regional floral biogeographic elements, using examples from Pitt Island, will follow.

Methods

Field Work

Field work on Pitt Island took place over four consecutive expeditions between May and July of 2017. Activities included cutting trails, surveying for mountain goats, getting wet and drying off again, resetting wildlife cameras, and looking for signs of pre-contact human use. Plant inventories and collections were peripheral tasks performed during spare time. In all, 51 vascular plant specimens were collected, and 137 vascular plants were identified and noted. Field identifications were made with reference to Pojar and MacKinnon (2016). Specimens were pressed in lightweight, homemade presses, and relevant data, including flowering dates at varying altitudes, was recorded in a field notebook. In addition, 196 observations of around 119 species were uploaded into an iNaturalist project, which is viewable at https://www.inaturalist.org/projects/hevenor-inlet-study. The GPS coordinates of these observations are scrambled on the public pages to discourage would-be hunters from retracing our steps.

Collections

All specimens were keyed with reference to Hitchcock and Cronquist (1973), Cody (1996),

and Hultén (1968); modern binomials were assigned with according to Klinkenberg (2017). Collections will be housed at the University of Victoria Herbarium.

Inventories

The Pitt Island vascular plant field inventory was conducted informally on "trails" crossing very nearly the full contingent of site series present on the island, from the shoreline of Hevenor Inlet to the peak of Hevenor Mountain. It is by no means complete, especially with regards to graminoid species. In addition, a thorough inventory of vascular plants was performed on Hevenor Islet, a tiny rock protrusion with rich soils and an impressive collection of species located near the mouth of Hevenor Inlet.

After field work was complete, a regional inventory was prepared. A search was performed for all vascular plant collections from the north coast of BC on the Consortium of Pacific Northwest Herbaria database, yielding 2,524 specimens. The boundaries of the search zone (Figure 3) were roughly as follows: Greaves Island and Owikeno Lake to the south; the Alaska-BC border to the north; the Hecate strait to the west; and Kitimat and Bella Coola to the east. These boundaries loosely conform to the boundaries of the North Coast Forest District (a district of the Prince Rupert Forest Region) and the Great Bear Rainforest, but omit the Portland Inlet and include northern parts of the Central Coast. Haida Gwaii and Vancouver Island are excluded due to their unique geographic contexts and glacial histories. Collections that were georeferenced within this area but were clearly collected elsewhere were excluded.

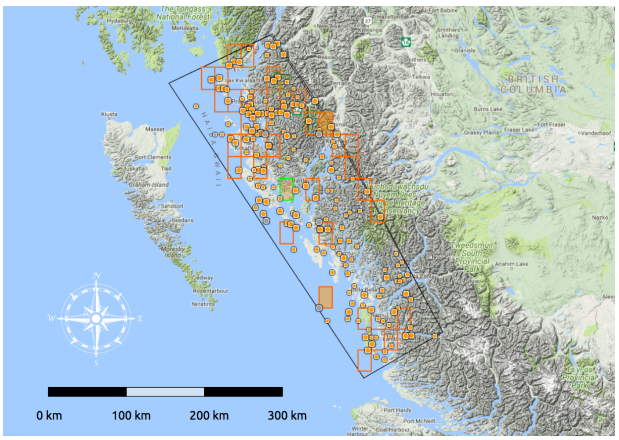

Figure 3: Boundaries of the search zone and locations of collections from the Consortium of Pacific Northwest Herbaria database.

The data was transferred to a spreadsheet, duplicate species entries were eliminated, and obsolete taxons were updated. Next, EFlora BC, the USDA plants database, CalFlora, and the Flora of North America were cross-referenced to determine habitat and distribution for each species. The distributions were each categorized within a generalized North American floristic element: these include Cosmopolitan (C), North American (NA), Western (W), West Coast (CW), Pacific Northwest (PNW), coastal Pacific

Northwest (CPNW), northern North American (NNA), northern and western North American (NNAW), and coastal British Columbian (CBC) distributions. Additionally, species with amphiberingian, circumboreal, or disjunct ranges were noted. See Appendix D for a visual representation of these distributions. The number of species within each of these floristic elements was tallied and then calculated as a percentage of the total. The same calculation was performed for the Pitt Island inventory for comparison purposes.

Site Series Classification

Pitt Island's vegetation communities fall within the Coastal Western Hemlock Very Wet Hypermaritime (CWHvh2) BGC zone below around 600 m elevation, the Mountain Hemlock Wet Hypermaritime windward (MHwh1) BGC zone between 600 and 900 m elevation, and the as-yet undescribed Mountain Hemlock Wet Hypermaritime parkland (MHwh1p) and Alpine Tundra (AT) BGC zones above about 900 m elevation (Radcliffe et al., 1994). Slope and groundwater table are the main determinants of vegetation type regionally, with unforested areas tending towards paludification (Asada et al., 2003). Individual site series were assigned to the areas visited with reference to Banner et al. (1993) based on field observations of vegetation communities recorded in a field notebook. As thorough SMR and SNR analyses were not performed, these assignments are provisional and are provided to inform future studies.

Results

Collections

These collections, to my knowledge, are the first in the study area and the first on Pitt Island since those made in June 1979 by W. B. Schofield. In all, 51 specimens were identified to (sub)species - these are listed in Appendix A. Many of the specimens represent species that are very common regionally, but endemic to the northwest coast: *Carex circinata*, *Ranunculus cooleyae*, *Ligiusticum calderi*, *Lupinus nootkatensis*, *Coptis aspleniifolia*, *Pedicularis ornithorhyncha*, *Gentiana douglasiana*, and *Fritillaria camschatcensis* are examples. Others are amphiberingian - *Geum calthifolium*, *Harrimanella stelleriana,* and *Carex macrochaeta*, for example - and still others are more broadly distributed in North America and elsewhere: examples include *Triantha glutinosa*, *Empetrum nigrum*, and *Eriophorum angustifolium.*

A few specimens represent range extensions. Populations of *Penstemon davidsonii*, discovered on rock outcrops along a lone ridgeline in the study area, are well north of

previous collections, including those on Haida Gwaii. Robust populations of *Anemone narcissiflora* and *Gentiana platypetala* are among the southernmost collected, with exception to northern Vancouver Island, which may have been a refugial area (Ogilvie & Ceska, 1984). *Luzula arcuata unalaschcensis*, in particular, had not been collected in coastal BC outside of northern Vancouver Island.

North Coast Inventory

Overall, 567 species are represented by the 2,524 specimens from the Consortium of Pacific Northwest Herbaria. Of these, 71, or 12.42%, were recently introduced from Eurasia, Africa, Australia, South America, or eastern North America. The remaining 496 species are considered native and are used for subsequent calculations. Species numbers and percentages for various floristic elements can be found in Table 1; broader distribution attributes are considered in Table 2. The inventory is included in Appendix B.

Several trends are worth noting. First, almost exactly half (48.4%) of the species are found only in North America, while the other half (51.6%) are found in North America and elsewhere in the world. The most significant trend is that over a half, or 27.42% of the total, of these species have a circumboreal distribution. Of the total, 14.72% have an amphiberingian distribution, 7.46% have significant disjunct populations (primarily on the southern tip of South America), and only 2.02% are cosmopolitan.

With regards to distribution within North America, 58.87% of the species are confined to the western half of North America, with almost half of these – 25.60% of the total – occurring only in the Pacific Northwest; many of these are also amphiberingian. Slightly less than half, or 41.13%, of the species occur across northern North America; many of these are circumboreal. Just 4.84% are found only along the coast of the northern Pacific Northwest, and a majority of these are also amphiberingian, with several being obligate coastline species of circumboreal distribution.

Pitt Island Inventory

137 species were noted in the informal inventory of the study area. In a noticeable departure from the trends captured by the North Coast inventory, not a single one of these species is known to have been introduced. Species numbers and percentages for various floristic elements can be found in Table 1; broader distribution attributes are considered in Table 2. The inventory is included in Appendix C.
Trends in this inventory mirror the regional trends from the North Coast inventory, with a

Table 1: Comparison of Pitt Island inventory and North Coast inventory species and percent of total falling within identified floristic elements. Percentage of introduced species taken using the total; other percentages are taken using the total minus introduced species. States / Provinces are abbreviated, with parentheses indicating placement at the periphery of the floristic element.

Floristic Element	Description	Pitt Island Species	Pitt Island Percent	North Co. Species	North Co. Percent
C	Cosmopolitan	4	2.92%	10	2.02%
NA	Throughout North America	15	10.95%	80	16.13%
W	North America, w of the Rocky Mtns.	27	19.71%	107	21.57%
CW	(Baja CA), CA, w OR and w W, BC, (AK)	16	11.68%	43	8.67%
PNW	(N CA), (OR), WA, BC, AK, (ID), (AB), (MO), (NV)	14	10.22%	60	12.10%
CPNW	(N CA), (w OR), w WA, w BC, AK	28	20.44%	58	11.69%
NNA	North America, n of ~40°	23	16.79%	69	13.91%
NNAW	North America, n of ~40° and incl. areas w of the Rocky Mtns.	2	1.46%	45	9.07%
CBC	(w WA), W BC (endemic), (AK)	8	5.84%	24	4.84%
I	Introduced	0	0.00%	71	12.52%
TOTAL		137		567	

Table 2: Comparison of Pitt Island inventory and North Coast inventory species and percent of total with additional notable distribution attributes. Percentages are taken using the total from above minus introduced species.

Distribution Attribute	Description	Pitt Island Species	Pitt Island Percent	North Co. Species	North Co. Percent
a	Amphiberingian	23	16.79%	73	14.72%
cb	Circumboreal / Circumpolar	35	25.55%	136	27.42%
ic	Confined to the immediate coast	8	5.84%	27	5.44%
d	Disjuncts in other ranges	9	6.57%	37	7.46%

slightly higher (67.88%) proportion of species being confined to western North America. This is likely due to the elevated percentage of species confined to the coastal Pacific Northwest and lower percentages of species found throughout most of North America in this versus the regional inventory.

Site Series Classification

Site series for the study area are shown in Figure 4. These assignments are provisional and require more thorough on-site sampling. High elevation assignments are limited by their placement in undescribed BGC units.

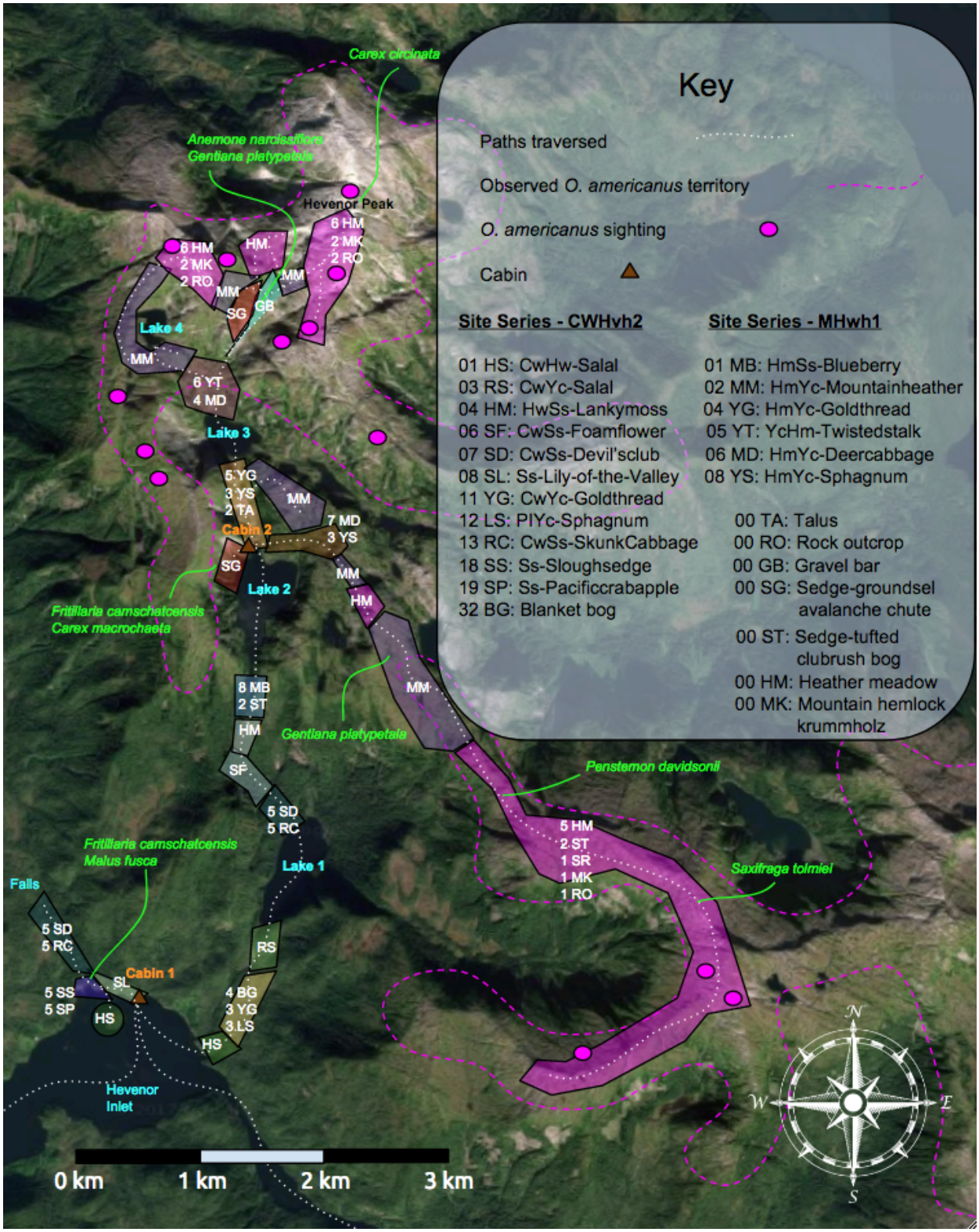

Figure 4: Map of the Hevenor Inlet study area, showing paths traversed during fieldwork, provisional site series designations, landscape features, notable plant collections, mountain goat sightings, and indirect observations of mountain goat territory. Unnumbered site series are from undescribed BGC zones. BGC units in standard format.

Discussion

Marr et al. (2012) describe northern BC as a contact zone between five floristic elements: circumpolar, amphiberingian, Yukon-Alaska-northwest B.C. endemics, North American radiants, and Cordilleran groups. The local and regional inventories, while admittedly coarse, are mutually reinforcing and capture several of these critical phylogeographic trends within the regional flora. These can be summarized as follows:

- Roughly half of the species present in the region are endemic to North America; the other half are shared with other continents. This trend is corroborated by Peinado et al. (2009).
- Around 60-70% of the species occur only west of the Rocky Mountains in North America; of these, about half are restricted to the Pacific Northwest.
- A quarter of the species are circumboreal.
- 15% of the species are amphiberingian
- Minor contingents of species are confined to the immediate coastlines, or have disjuncts on other continents, primarily southern South America.
- A small proportion of the species (<5%) is endemic to the North Coast.

There are two significant departures between the inventories. First, there is a slightly higher proportion of species confined to the coastal Pacific Northwest (CPNW) in the Pitt Island inventory than in the regional inventory, with a reciprocal higher proportion of broadly distributed North American (NA, NNAW) species in the regional inventory than in the Pitt Island inventory. This may be due to the close proximity of Pitt Island to putative cryptic refugia, discussed later. Second, roughly 12% of the total in the regional inventory are introduced species, while not a single introduced species was noted in the study area on Pitt Island. This can be attributed the infrequency of anthropogenic disturbance on Pitt Island.

The relative lack of regional floral endemism, noted elsewhere (Peinado et al., 2009), is a direct result of recurrent glaciation in the recent geologic history of the North Coast of BC. The flora of Pitt Island, and the North Coast in general, is composed of species that weathered these “ice ages” in select refugia: these include North America south of the ice sheets, Beringia, and putative cryptic refugia on nunataks within the ice sheets and along the western margin of the CIS (Shafer et al., 2010b). These three refugial “zones” will be discussed below, using representative collections from Pitt Island for illustration.

From the North: Beringia

A significant species contingent weathered the recent glaciations in the dry, unglaciated expanse of northwestern Alaska and northeastern Siberia known as Beringia. During the LGM, eustatic lowering sea levels exposed large portions of the continental shelf in this region, creating a land bridge between Asia and North America (Brubaker et al., 2005) that is widely considered to have served as a bridge for species exchange between the continents (Dixon, 2013; DeChaine, 2008). Ancestors of indigenous North Americans are thought to have crossed this land bridge from Asia to North America (Dixon, 2013).

Many of the species that recolonized BC from Beringia are characteristic of a circumboreal "arctic-alpine" flora (Marr et al., 2012) that is restricted to arctic regions during glacial periods and expands southwards through alpine habitat corridors during warmer interludes. When ice sheets form following warm intervals, southerly populations of these species may be isolated but persist in high-altitude environments: *Anemone narcissiflora* is an example of a species that is largely confined to circumboreal latitudes (and is found only infrequently on the coast south of Alaska) but has relict populations in Montana and Colorado (ibid.). A number of these arctic-alpine lineages appear to have originated in Asia and dispersed from there (Marr et al., 2008; Marr et al., 2013; Allen et al. 2012; Allen et al. 2015; Guest & Allen, 2014), although considerable population structuring within refugia can complicate analyses (Brubaker et al., 2005; Allen et al., 2012). This reciprocal dispersal pattern is also responsible for the distribution of amphiberingian species such as *Harrimanella stelleriana* and *Carex macrochaeta*, the latter of which appears to be retreating northwards as the climate warms (Wilson et al., 2008).

Beringia also served as a refugium for boreal forest species, including *Pinus contorta ssp. contorta, Picea spp. Populus spp., Betula spp.,* and *Larix spp.* (Brubaker et al., 2005; Roberts & Hamann, 2015; Godbout et al., 2008). Of these, only *P. contorta ssp. contorta* is found on Pitt Island. Other species that likely dispersed south to Pitt Island from Beringian refugia include *Vaccinium uliginosum* (Eidesen et al., 2007) and *Empetrum nigrum* (Popp et al., 2011). The latter species is one of several that have disjunct populations in the southern hemisphere; this can be explained by chance avian long-distance dispersal events from north to south (ibid.).

Not all of the arctic-alpine species on Pitt Island came from Beringian refugia: in fact,

many of these species appear to have recolonized BC from populations both north and south of the CIS (Marr et al. 2008; Marr et al., 2013; Allen et al. 2012; Godbout et al., 2008; Guest & Allen, 2014; Shafer et al. 201a). *Sibbaldia procumbens* survived in North America south of the CIS and followed the ice sheets north as they melted (Allen et al., 2015), which is surprising given its current range. The list of species considered to have inhabited Beringian refugia (Shafer et al., 2010b; Roberts & Hamann, 2015) is actually notable for how few of its species were observed on Pitt Island. It is likely that the majority of species found on Pitt Island and along the North Coast of BC dispersed northwards along the coast from the south.

From the South: North America

North America, south of the CIS, is best considered not as a single refugium, but rather a number of distinct refugia separated by north-south trending mountain chains (Shafer et al., 2010b; Roberts & Hamann, 2015). For example, most of the tree species found on Pitt Island - including *Abies amabilis, Picea sitchensis, Tsuga heterophylla, Tsuga mertensiana, Tsuga heterophylla,* and *Xanthocyparis nootkatensis* - display minimal genetic variation suggestive of a relatively small, isolated Pacific Northwest refugium during the LGM (Roberts & Hamann, 2015). Other refugial areas in North America include the Rocky Mountains (Guest & Allen, 2014), Montana and the Beartooth Plateau (Marr et al., 2012), the Columbia Basin (Godbout et al., 2008), and California (Roberts & Hamann, 2015). Species from these refugia primarily colonized the interior of BC or became relicts. Species and lineages in coastal BC mostly originated in refugia west of the Cascades and north of the Klamath Mountains (Shafer et al., 2010b). Many of the species observed and collected on Pitt Island recolonized the North Coast from southerly refugia: examples include *Penstemon davidsonii*, *Dodecatheon jeffreyi*, and *Castilleja spp.*

From the West?: Cryptic refugia

Although fossil evidence is still lacking, genetic and circumstantial evidence has accumulated to suggest that refugia occurred along the western margin of the CIS during the LGM (Shafer et al., 2010b) and previous glaciations (Mathewes et al., 2015). These “cryptic refugia” are thought to have occurred in the Alexander Archipelago of Alaska (Ager et al., 2010; Carrara et al., 2007), Haida Gwaii and the Hecate Strait (LaCourse et al., 2012; Mathewes et al., 2015), and northern Vancouver Island (Ogilvie & Ceska, 1984). Large sections of the continental shelf were exposed during the LGM in these areas, which were also the first to be deglaciated as the

climate warmed. Favorable exposures on the western faces of these islands may have been ice-free even during the LGM (Ager et al., 2010; Carrara et al., 2007; Dixon, 2013). Some species, including mountain goats (Nagorsen & Keddie, 2000) and *Pinus contorta ssp. contorta* (Godbout et al., 2008) were present and even widespread so soon after deglaciation (and were more common then than now) that dispersal from northerly or southerly refugia would have had to have been extremely rapid to make sense.

Pitt Island is unlikely to have served as a refugium during the LGM (but see Figure 5). Nevertheless, it is positioned centrally between the three best-supported putative cryptic refugia, and would have been rapidly colonized by any refugial species as the glaciers receded. There is genetic and circumstantial evidence to support refugial populations of *Pinus contorta ssp. contorta* in this region (Godbout et al., 2008; Roberts & Hamann, 2015), although these genetic reconstructions are contested by prior study (Macdonald & Cwynar, 1985). Haida Gwaii, in particular, is recognized for its unusual endemic plant (and moss) species. *Ligusticum calderi* is a good example of a species that is known to have been endemic to Haida Gwaii but has since radiated eastward to the North Coast and Pitt Island (Mathewes et al., 2015).

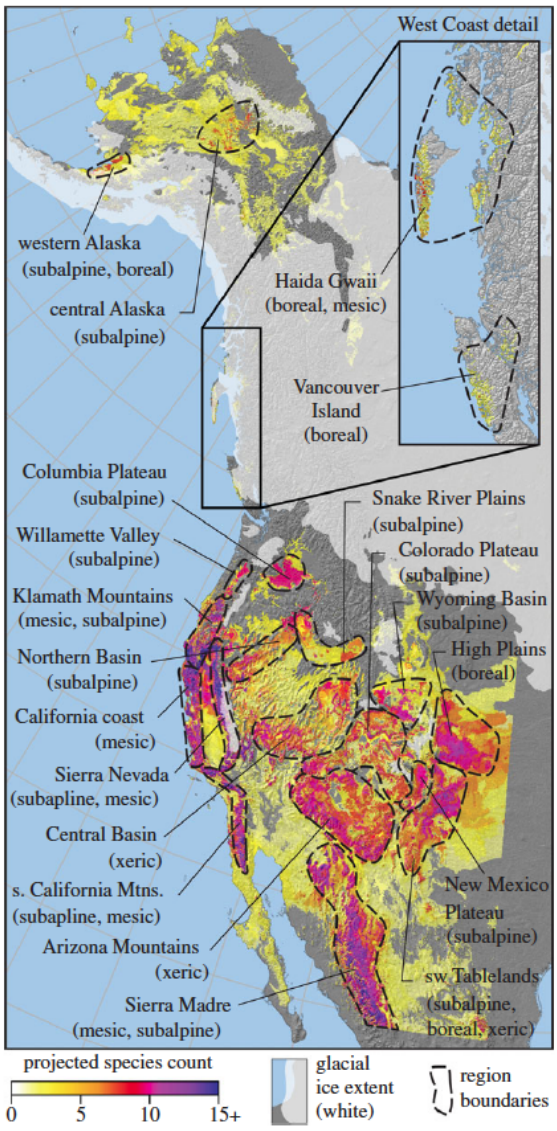

Figure 5: Reconstructed glacial refugia at LGM based on GCM paleoclimate simulations and genetic data. Note the inclusion of Pitt Island within the Haida Gwaii - Hecate Strait - Alexander Archipelago refugial zone. From Roberts & Hamann, 2015.

Enemion savilei is found only on Haida Gwaii, Brooks Peninsula on Vancouver Island, and Porcher Island (Pojar & MacKinnon, 2016) - which is just north of Pitt Island. This unusual distribution is characteristic of a number of

species - including *Luzula arcuata* and *Gentiana platypetala*, which were collected on Pitt Island - which have been explicitly referenced as evidence for glacial refugia (Ogilvie & Ceska, 1984). And, of course, the singular, anomalous presence and persistence of mountain goats on Pitt Island cannot be discounted, especially given fossil (Nagorsen & Keddie, 2000) and genetic (Shafer et al., 2010a) evidence supporting cryptic refugia for this species.

It is worth noting that a small handful of species - many of which are uncommon or nonexistent outside of the coastal Pacific Northwest - were observed to be dominant on Pitt Island, especially at higher elevations: these include *Lupinus nootkatensis, Gentiana douglasiana, Gentiana platypetala, Ranunculus cooleyae, Carex circinata,* and *Geum calthifolium.* These are the same species that dominate similar areas on northern Vancouver Island (Ogilvie & Ceska, 1984). While evidence is lacking, the nearly monocultural dominance of these taxa on Pitt Island with respect to their apparently absent relatives and surrogates is suggestive of rapid colonization by available species from nearby refugia. These observations, however, could also be partly explained by the dominance of extreme moisture regimes in determining the composition of regional plant communities (Asada et al., 2003).

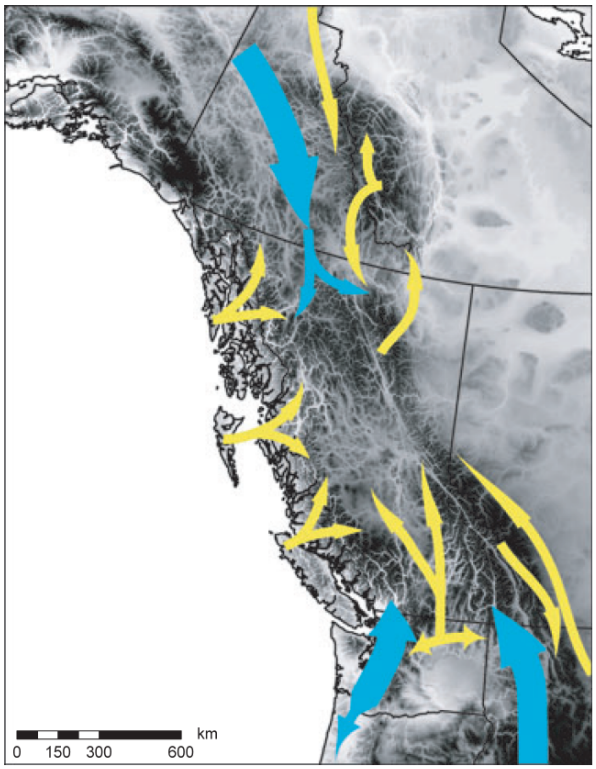

Figure 6: Postulated postglacial colonization routes, with blue arrows indicating primary pathways and yellow arrows indicating secondary pathways. From Shafer et al., 2010b.

Finally, there is some evidence to suggest that cryptic refugia might have existed on nunataks *within* the CIS in Northern BC during the LGM (Marr et al., 2008; Shafer et al., 2010a; Godbout et al., 2008). It would be extremely challenging to find fossil evidence to confirm this. Furthermore, these refugia probably have little bearing on the postglacial colonization of the North Coast or Pitt Island, which are proximate to more established cryptic refugia.

Human Intervention?

There is a growing body of evidence demonstrating that coastal First Nations communities were heavily involved in the active management of coastal ecosystems (Turner et al., 2013). Documented activities include(d) transplantation of species - especially *Fritillaria camschatcensis* (Figure 7), which is locally abundant on Pitt Island in meadow habitats - to new locations, pruning, coppicing, tilling, and fertilization. While documentation of Gitxaała ecosystem management has been primarily focused on marine resources (Menzies, 2016), regionally important species such as *Fritillaria camschatcensis, Malus fusca*, *Taxus brevifolia,* and other fruiting species were likely transplanted within the study area, where they tend to occur in accessible, highly visible locations. Hevenor Islet (Figure 8), in particular, has remarkably well-developed organic soils for a rocky protrusion of its size, and is vegetated almost exclusively by useful species (Figure 9), recalling the description of "orchard gardens" in Turner et al. (2013). This little outcrop is a prime fishing site and is a central feature of Hevenor Inlet, which was once a Gitxaała thoroughfare. A complete vascular inventory of Hevenor Islet is included in Appendix E. Further study should elucidate the extent of regional cultural management.

Figure 7: *Fritillaria camschatcensis* harvest on Pitt Island.

Figure 8: Hevenor Islet (center) in Hevenor Inlet beneath the mountainous study area, viewed facing due East.

Figure 9: Human amongst *Malus fusca, Rubus parviflorus, Vaccinium alaskaense, Vaccinium ovalifolium, Vaccinium parvifolium, Ribes laxiflorum, Sambucus racemosa,* and *Polypodium glycyrrhiza* on Hevenor Islet.

Limitations and Future Directions

Study of the postglacial colonization of BC, long stymied by a poor fossil record, has picked up in recent years with the adoption of genetic analyses. While these methods have revolutionized the fields of botany, biology, and paleoecology, they are not without limitations. In particular, it has been noted that different sets of genetic markers within the same species can suggest different conclusions; as such, it is best practice to combine datasets (Eidesen et al., 2007). This dynamic can be glimpsed in the discrepancies between restriction fragment (Marr et al., 2008) and cpDNA sequence (Allen et al., 2012) analyses of *Oxyria digyna* phylogeography. In addition, recurrent range expansions and contractions, vicariance, and introgression can complicate these analyses (Eidesen et al., 2007; Marr et al., 2008; Allen et al., 2015).

A further limitation particular to the North Coast of BC is its inherent inaccessibility and the resulting paucity of collections in the region. A number of the species that were collected on Pitt Island were not even represented in the Consortium of Pacific Northwest Herbaria search for the North Coast. Regional alpine environs, in particular, are understudied, especially with respect to human use. Given that the coast of BC is thought to be *the* corridor that facilitated human colonization of the Americas (Dixon, 2013), it is essential that archeological and botanical exploration continue in the region.

Pitt Island presents many avenues for ongoing study. As a large, topographically complex island located near proposed cryptic refugia, it could provide a great deal of valuable information about the history of glaciation and deglaciation in the region. As a documented site of First Nations inhabitation and management, it could shed further light on the histories and lives of the coast's first inhabitants. Several lines of inquiry present themselves. First, simple botanical explorations like this would be beneficial to our understanding of the regional flora and likely turn up a few surprises. Second, genetic sampling of the local mountain goats (which are often ignored in larger studies) and comparison to data from throughout BC (see Shafer et al., 2010a) might elucidate the history of this unusual population. Peat cores from Pitt Island, like those from Mitkof and Hippa Islands (Ager et al., 2009; Lacourse et al., 2012), would clarify the postglacial chronology for this part of the 'inner outer coast.' Genetic and morphological examination of species at the periphery of their range on Pitt Island, such as *Penstemon davidsonii* and *Luzula arcuata*, could reveal novel trends in regional phylogeography,

much like those discussed in Marr et al. (2012). Finally, ongoing anthropological and archaeological exploration of the island is almost sure to turn up additional evidence of human use through the millenia.

Conclusion

The North Coast of BC is, in many respects, one of North America's final frontiers for exploration. In recent years, it has captured the attention and imagination of scientists and nonscientists alike for its proposed role in facilitating human colonization of the Americas (Dixon, 2013), as well as the unique species and subspecies that may have inhabited its refugia during glacial episodes (Shafer et al., 2010b). Yet, it is also the home and backyard of coastal First Nations who are increasingly recognized as having developed some of the most sophisticated and successful systems of terrestrial and marine resource management in the world (Turner et al., 2013; Menzies, 2016). The informal inventories, collections, and observations discussed here would be of marginal value were they gathered nearly anywhere else in North America; however, given the relative paucity of field work on the North Coast, they represent a valuable, if minor, addition to our understanding of the history and phylogeography of the region.

The flora of the North Coast of BC is relatively depauperate due to a history of recurrent glaciation (Peinado et al., 2009; Ogilvie & Ceska, 1984) and restrictive climatic conditions (Asada et al. 2003). It was deglaciated early on after the LGM and was rapidly colonized, primarily from southerly refugia in present-day Washington and Oregon (Roberts & Hamann, 2015), but also from Beringian refugia in the north (Brubaker et al., 2005) and cryptic refugia along the margin of the CIS (Carrara et al., 2007; Mathewes et al., 2015). Patterns of vegetation turnover appear consistent, if temporally staggered, across the region (Ager et al., 2009; Lacourse et al., 2012). Patterns of vegetation on Pitt Island reflect these regional trends and provide circumstantial evidence in support of the presence of cryptic refugia nearby during the LGM (Ogilvie & Ceska, 1984). Coastal First Nations likely manipulated plant communities at specific sites through transplantation and other management activities; it is also possible that these interventions had broader effects on the regional flora (Turner et al., 2013). Future investigations should enrich our understanding of regional phytogeography, cryptic refugia, colonization corridors, traditional management activities, and the antiquity of humanity in the Americas.

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Appendix A: Pitt Island Collections List

Table 3: List of numbered collections from Pitt Island included with this paper, with iNaturalist references.

Collection #	Genus	Species	Subspecies / Variety	iNat Reference
1	*Moneses*	*uniflora*		6571785
2	*Cochlearia*	*groenlandica*		6571795
3	*Trientalis*	*europaea*	*arctica*	
4	*Harrimanella*	*stelleriana*		6571921
5	*Coptis*	*aspleniifolia*		6571804
6	*Huperzia*	*haleakalae*		6571848
7	*Empetrum*	*nigrum*		
8	*Ranunculus*	*cooleyae*		6572010
9	*Gentiana*	*douglasiana*		6571926
10	*Geum*	*calthifolium*		6572011
11	*Trichophorum*	*cespitosum*		
12	*Listera*	*caurina*		6576676
13	*Eriophorum*	*angustifolium*		
14	*Dodecatheon*	*jeffreyi*		6572014
15	*Streptopus*	*lanceolata*		6950948
16	*Pinguicula*	*vulgaris*		
17	*Pedicularis*	*ornithorhyncha*		6950941
18	*Platanthera*	*aquilonis*		
19	*Carex*	*macrochaeta*		
20	*Eriophorum*	*angustifolium*		
21	*Anemone*	*narcissiflora*		6951562
22	*Luzula*	*arcuata*	*unalaschcensis*	6973956
23	*Trientalis*	*europaea*	*arctica*	6973963
24	*Castilleja*	*parviflora*		6973919
25	*Viola*	*langsdorffii*		6951659
26	*Viola*	*glabella*		6951482
27	*Tiarella*	*trifoliata*	*unifoliata*	
28	*Castilleja*	*miniata*	*miniata*	6951203
29	*Fritillaria*	*camschatcensis*		6951171

30	*Stelleria*	*crispa*		6951133
31	*Cardamine*	*oligosperma*	*kamtschatica*	6951082
32	*Lupinus*	*nootkatensis*	*nootkatensis*	
33	*Micranthes*	*nelsoniana*	*carlottae*	6951227
34	*Claytonia*	*sibirica*		6951071
35	*Carex*	*mertensii*		6956380
36	*Carex*	*macrochaeta*		6956177
37	*Leptarrhena*	*pyrolifolia*		
38	*Carex*	*circinata*		8747782
39	*Arnica*	*latifolia*		6956185
40	*Calamagrostis*	*canadensis*	*canadensis / scabra*	7319680
41	*Erigeron*	*peregrinus*	*peregrinus*	7319677
42	*Ligusticum*	*calderi*		7319545
43	*Triantha*	*glutinosa*		7319553
44	*Saxifraga*	*tolmiei*		7321953
45	*Penstemon*	*davidsonii*	*menziesii*	7321891
46	*Gentiana*	*platypetala*		7322009
47	*Deschampsia*	*elongata*	*(possible hybrid)*	7322062
48	*Gentiana*	*douglasiana*		7321862
49	*Epilobium*	*anagallidifolium*		6951058
50	*Artemisia*	*norvegica*	*saxatilis*	7319532
51	*Saxifraga*	*ferruginea*		7319705

Appendix B: Specimen inventory of the North Coast of BC

Table 4: Annotated vascular flora species list of the North Coast of BC from Consortium of Pacific Northwest Herbaria, with notes on floristic element, distribution attributes, and habitat. Floristic element and attribute abbreviations are described in Tables 1 and 2. Quotes (") following a species element indicate that the range refers to the subspecies and was not considered in calculations.

Family	Scientific Name	Element	Notes on range and habitat preferences
Adoxaceae	*Sambucus racemosa*	NAcb	Widespread throughout N America; circumboreal
Adoxaceae	*Sambucus racemosa var. arborescens (racemosa) (pubens)*	CWcb"	Widespread throughout the coastal West from CA north to AK; circumboreal
Adoxaceae	*Sambucus racemosa var. leucocarpa*	NA"	Mostly SE BC and throughout E NA; probably planted
Adoxaceae	*Sambucus racemosa var. melanocarpa*	W"	Primarily an interior species of the West; rare and local on the BC coast, probably planted
Adoxaceae	*Viburnum edule*	NNA	Frequent across northern N America from the PNW to the NE
Amaranthaceae	*Atriplex dioica (Atriplex subspicata)*	NA	Shorelines and saline soils throughout N America
Amaranthaceae	*Atriplex gmelinii*	CPNW	Shorelines throughout the coastal PNW from OR to AK
Amaranthaceae	*Atriplex patula*	NAcb	Shorelines and saline soils throughout N America; circumboreal
Amaranthaceae	*Salicornia pacifica (Salicornia virginica)*	NAic	Beaches and marshes of the coastal West from MX north to AK; also Atlantic and Gulf coasts
Apiaceae	*Angelica arguta*	PNW	Wet areas of the PNW from N CA north to S BC; probably planted

Apiaceae	*Angelica genuflexa*	CPNWa	Wet areas of the coastal PNW from N CA north to AK; amphiberingian
Apiaceae	*Angelica lucida*	CPNWa	Wet areas of the coastal PNW from N CA north to AK; amphiberingian
Apiaceae	*Cicuta douglasii*	W	Wet areas of the West from CA north to AK
Apiaceae	*Conioselinum gmelinii (Conioselinum pacificum)*	W	Wet areas of the lowland coastal West from CA north to AK
Apiaceae	*Glehnia littoralis ssp. leiocarpa*	CWica	Coastal dunes and beaches of the coastal West from CA north to AK; amphiberingian
Apiaceae	*Ligusticum calderi*	CBC	Endemic to islands of coastal BC from Vancouver Island north to SE AK
Apiaceae	*Ligusticum scoticum*	CBCa	Beaches and bluffs of coastal BC north to AK; amphiberingian
Apiaceae	*Ligusticum scoticum ssp. hultenii*	CBCa"	Beaches and bluffs of coastal BC north to AK; amphiberingian
Apiaceae	*Oenanthe sarmentosa*	W	Wet areas of the West from CA north to AK
Apiaceae	*Osmorhiza berteroi (Osmorhiza chilensis)*	Wd	Widespread throughout the West from CA north to AK; disjunct in S America
Apiaceae	*Osmorhiza purpurea*	PNW	Widespread throughout the PNW from N CA north to AK
Apiaceae	*Sium suave*	NA	Wet areas of N America; apparently uncommon on north coast of BC
Araliaceae	*Oplopanax horridus*	PNWd	Wet areas of the PNW from OR north to AK; disjunct in Great Lakes region
Aristolochiaceae	*Asarum caudatum*	PNW	Frequent in the PNW from N CA north to BC; apparently uncommon on the north coast of BC
Asparagaceae	*Maianthemum dilatatum*	PNW	Widespread in the coastal PNW from N CA north to AK

Asparagaceae	*Maianthemum racemosum ssp. amplexicaule*	W	Widespread throughout the West from CA north to AK; apparently uncommon on the north coast of BC
Asparagaceae	*Maianthemum stellatum*	NA	Widespread throughout N America; apparently uncommon on the north coast of BC
Aspleniaceae	*Asplenium trichomanes*	NAcb	Rocky areas of N America; circumboreal
Aspleniaceae	*Asplenium viride*	NAcb	Rocky areas of N America; circumboreal
Asteraceae	*Achillea millefolium*	NAcb	Widespread throughout N America and the Northern Hemisphere
Asteraceae	*Achillea millefolium ssp. borealis*	CBCa"	North coast of BC north to AK; amphiberingian
Asteraceae	*Achillea millefolium var. pacifica*	CW"	Sporadic along the pacific coast of N America
Asteraceae	*Ambrosia chamissonis*	CWic	Beaches of the coastal West from CA north to AK
Asteraceae	*Anaphalis margaritacea*	NA	Widespread throughout N America
Asteraceae	*Antennaria howellii*	NA	Montane zones throughout N America
Asteraceae	*Antennaria rosea*	NNAW	Widespread throughout the West from CA north to AK and across northern N America
Asteraceae	*Arctium minus*	I	Widely introduced throughout N America from Eurasia
Asteraceae	*Arnica amplexicaulis*	W	Wet areas of the West from CA north to AK
Asteraceae	*Arnica amplexicaulis ssp. amplexicaulis*	W"	Widespread in montane zones of the West from CA north to AK
Asteraceae	*Arnica chamissonis ssp. foliosa*	W	Widespread in montane and alpine zones of the West from CA north to AK
Asteraceae	*Arnica cordifolia*	W	Widespread in montane and alpine zones of the West from CA north to AK

Asteraceae	*Artemisia norvegica ssp. saxatilis (Artemisia arctica)*	Wcb	Montane and alpine zones of the West from CA north to AK; circumboreal
Asteraceae	*Canadanthus modestus (Aster modestus)*	NNAW	Widespread throughout the West from CA north to AK and across northern N America
Asteraceae	*Cirsium vulgare*	I	Introduced throughout N America from Eurasia
Asteraceae	*Conyza canadensis*	I	Widespread throughout N America; probably introduced
Asteraceae	*Erigeron acris var. asteroides*	NNAcb	Wet montane and subalpine zones across northern N America; circumboreal
Asteraceae	*Erigeron corymbosus*	PNW	Interior PNW from OR north to SE BC; probably planted
Asteraceae	*Erigeron peregrinus*	W	Widespread throughout montane and subalpine zones of the West from CA north to AK
Asteraceae	*Erigeron peregrinus ssp. callianthemus*	W"	Widespread throughout montane and subalpine zones of the West from CA north to AK; mostly west of Coast-Cascade mountains
Asteraceae	*Erigeron peregrinus ssp. peregrinus*	W"	Widespread throughout montane and subalpine zones of the West from CA north to AK; common throughout BC
Asteraceae	*Hieracium aurantiacum*	I	Introduced throughout N America from Eurasia
Asteraceae	*Hieracium gracile*	W	Montane and alpine zones of the West from CA north to AK
Asteraceae	*Hieracium maculatum*	I	Introduced throughout N America from Eurasia
Asteraceae	*Hieracium scouleri var. griseum*	W	Widespread throughout the West from CA north to AK

Asteraceae	*Hieracium triste*	Wa	Subalpine and alpine zones of the West from CA north to AK; amphiberingian
Asteraceae	*Hieracium umbellatum*	NNAcb	Widespread across northern N America; circumboreal
Asteraceae	*Hypochaeris radicata*	I	Introduced throughout N America from Eurasia
Asteraceae	*Lactuca biennis (Lactuca spicata)*	NA	Throughout N America
Asteraceae	*Leucanthemum vulgare (Chrysanthemum leucanthemum)*	I	Introduced throughout N America from Eurasia
Asteraceae	*Matricaria matricarioides*	I	Introduced throughout N America from Eurasia
Asteraceae	*Microseris borealis*	CW	Wet meadows and bogs of the coastal West from CA north to AK
Asteraceae	*Nabalus alata (Prenanthes alata)*	CPNW	Coastal PNW from OR north to AK
Asteraceae	*Packera paupercula*	NNA	Widespread throughout the PNW from OR north to AK and across northern N America; also SE N America
Asteraceae	*Packera plattensis*	NA	Rare in interior BC; disjunct from eastern N America; possibly planted?
Asteraceae	*Packera subnuda (Senecio moresbiensis)*	PNW	Montane and subalpine zones of the PNW from N CA north to AK
Asteraceae	*Petasites frigidus ssp. nivalis*	Wcb	Widespread throughout the West from CA north to AK; circumboreal
Asteraceae	*Senecio pseudoarnica*	CBCadic	Beaches and dunes of extreme NW BC north to AK; amphiberingian; disjunct on the North Atlantic coast
Asteraceae	*Senecio triangularis*	W	Wet areas of the West from CA north to AK

Asteraceae	*Senecio viscosus*	I	Introduced throughout N America from Eurasia
Asteraceae	*Senecio vulgaris*	I	Introduced throughout N America from Eurasia
Asteraceae	*Solidago lepida var. lepida*	NNAW	Widespread throughout the West from CA north to AK and across northern N America
Asteraceae	*Sonchus arvensis*	I	Introduced throughout N America from Eurasia
Asteraceae	*Sonchus arvensis var. glabrescens*	I	Introduced throughout N America from Eurasia
Asteraceae	*Symphyotrichum foliaceum (Aster foliaceus)*	W	Widespread throughout the West from CA north to AK
Asteraceae	*Symphyotrichum spathulatum (Aster occidentalis)*	W	Widespread throughout the West from CA north to AK
Asteraceae	*Symphyotrichum subspicatum (Aster subspicatus)*	W	Widespread throughout wet areas of the West from CA north to AK
Asteraceae	*Tanacetum vulgare*	I	Introduced throughout N America from Eurasia
Asteraceae	*Taraxacum officinale*	I	Introduced throughout N America from Eurasia
Athyriaceae	*Athyrium distentifolium*	NAcb	Subalpine and alpine zones of N America; circumpolar
Athyriaceae	*Athyrium filix-femina*	NAa	Widespread in wet areas of N America; amphiberingian
Athyriaceae	*Athyrium filix-femina var. cyclosorum*	NAa	Widespread in wet areas of N America; amphiberingian

Balsaminaceae	*Impatiens noli-tangere*	CWcb	Coastal West from CA north to AK; circumboreal
Betulaceae	*Alnus rubra*	CW	Wet areas of the (mostly) coastal West from CA north to AK
Betulaceae	*Alnus viridis*	NNAWcb	Wet areas of the West from CA north to AK and across northern N America; circumboreal
Betulaceae	*Alnus viridis ssp. crispa (Alnus crispa)*	CBC"	Wet areas of N BC
Betulaceae	*Alnus viridis ssp. sinuata (Alnus sinuata)*	NNAWcb"	Wet areas of the West from CA north to AK and across northern N America; circumboreal
Betulaceae	*Betula glandulosa*	NA	Common throughout northern N America
Blechnaceae	*Blechnum spicant*	CWcbd	Widespread in the coastal West from CA north to AK; circumboreal with disjuncts in N Africa and Eurasia
Boraginaceae	*Amsinckia spectabilis*	CWic	Beaches of the coastal West from CA north to BC
Boraginaceae	*Hackelia deflexa*	NNAcb	Northern N America; circumboreal
Boraginaceae	*Mertensia longiflora*	PNW	Interior PNW from OR north to SE BC; faulty record?
Boraginaceae	*Myosotis discolor*	I	Introduced throughout N America from Eurasia
Boraginaceae	*Myosotis laxa*	Wcbd	Wet areas of the West from CA north to AK; circumboreal; also S America
Boraginaceae	*Myosotis scorpioides*	I	Introduced throughout N America from Eurasia
Boraginaceae	*Myosotis sylvatica*	I	Introduced throughout N America from Eurasia

Brassicaceae	*Arabidopsis lyrata ssp. kamchatica (Arabis kamchatica)*	PNWa	Montane and subalpine zones of the PNW from WA north to AK; amphiberingian
Brassicaceae	*Arabis eschscholtziana (Arabis hirsuta)*	PNW	Widespread throughout the PNW from OR north to AK
Brassicaceae	*Barbarea orthoceras*	NA	Widespread throughout N America
Brassicaceae	*Barbarea verna*	I	Introduced throughout N America from Eurasia
Brassicaceae	*Barbarea vulgaris*	I	Introduced throughout N America from Eurasia
Brassicaceae	*Cakile edentula*	CWd	Beaches and shorelines of the coastal West from CA north to AK; also shorelines of the Great Lakes and Atlantic coast
Brassicaceae	*Cakile edentula var. californica*	CW"	Beaches and shorelines of the coastal West from CA north to AK
Brassicaceae	*Cakile maritima*	I	Introduced to beaches of the coastal West from Eurasia
Brassicaceae	*Cardamine angulata*	CPNW	Coastal PNW from N CA north to BC; known only from Vancouver Island and Haida Gwaii in BC
Brassicaceae	*Cardamine oligosperma*	Wa	Widespread throughout the West from CA north to AK; amphiberingian
Brassicaceae	*Cardamine oligosperma var. kamtschatica*	CBCa"	Coastal BC north to AK; amphiberingian
Brassicaceae	*Cardamine oligosperma var. oligosperma*	W"	Widespread throughout the West from CA north to S BC
Brassicaceae	*Cardamine pensylvanica*	NA	Widespread throughout N America
Brassicaceae	*Cochlearia groenlandica (Cochlearia officinalis)*	CPNWcbic	Beaches, tidal marshes, and mudflats of the coastal PNW from WA north to AK; circumboreal

Brassicaceae	*Draba hyperborea (Draba grandis)*	CBCa	Shorelines of coastal BC north to AK; amphiberingian
Brassicaceae	*Lepidium virginicum var. pubescens*	NA	Widespread throughout N America; probably introduced
Brassicaceae	*Nasturtium officinale*	I	Introduced to wet areas throughout N America from Eurasia
Brassicaceae	*Rorippa curvipes var. integra*	W	Widespread throughout the West from CA north to BC
Brassicaceae	*Rorippa palustris*	NAcb	Widespread in wet areas throughout N America; circumboreal
Brassicaceae	*Rorippa palustris ssp. hispida*	NAcb"	Widespread in wet areas throughout N America; circumboreal
Brassicaceae	*Rorippa palustris ssp. palustris (occidentalis)*	NA"	Widespread in wet areas throughout N America
Brassicaceae	*Subularia aquatica ssp. americana*	NA	Infrequent in wet areas throughout N America
Brassicaceae	*Turritis glabra*	NAcb	Widespread throughout N America; circumboreal; status uncertain
Campanulaceae	*Campanula rotundifolia*	NAcb	Widespread throughout N America; circumboreal
Campanulaceae	*Lobelia dortmanna*	NNAcb	Wet areas across northern N America; circumboreal
Caprifoliaceae	*Lonicera involucrata*	NA	Widespread throughout N America
Caprifoliaceae	*Symphoricarpos albus*	NA	Widespread throughout N America
Caprifoliaceae	*Valeriana sitchensis*	W	Widespread in wet areas of the montane and subalpine zones of the West from CA north to AK
Caryophyllaceae	*Cerastium fontanum ssp. vulgare (Cerastium holosteoides)*	I	Introduced throughout N America from Eurasia

Caryophyllaceae	*Honckenya peploides ssp. major*	PNWcbic	Sandy beaches of the PNW from OR north to AK; circumboreal
Caryophyllaceae	*Sagina maxima*	CWica	Rocky bluffs and gravel beaches of the coastal West from WA north to AK; amphiberingian
Caryophyllaceae	*Sagina maxima ssp. crassicaulis*	CWic"	Rocky bluffs and gravel beaches of the coastal West from CA north to AK
Caryophyllaceae	*Sagina maxima ssp. maxima*	CWica"	Rocky bluffs and gravel beaches of the coastal West from WA north to AK; amphiberingian
Caryophyllaceae	*Sagina procumbens*	NAcb	Widespread in wet areas throughout N America; circumboreal
Caryophyllaceae	*Silene latifolia (Silene alba)*	I	Introduced throughout N America from Eurasia
Caryophyllaceae	*Silene vulgaris*	I	Introduced throughout N America from Eurasia
Caryophyllaceae	*Spergularia canadensis*	NAic	Beaches and mudflats of the coastal West from CA north to AK; also beaches in NE N America
Caryophyllaceae	*Spergularia canadensis ssp. canadensis*	NNAic"	Beaches and mudflats from BC north to AK; also beaches of northeastern N America
Caryophyllaceae	*Spergularia rubra*	I	Introduced throughout N America from Eurasia
Caryophyllaceae	*Stellaria borealis ssp. sitchana*	W	Widespread throughout the West from CA north to AK
Caryophyllaceae	*Stellaria calycanthus*	Wa	Widespread throughout wet areas of the West from CA north to AK; amphiberingian
Caryophyllaceae	*Stellaria crispa*	Wcb	Widespread in the west from CA north to AK; circumboreal

Caryophyllaceae	*Stellaria humifusa*	CBCcbic	Mudflats and salt marshes of coastal BC and AK; circumboreal
Caryophyllaceae	*Stellaria longipes ssp. longipes*	NAcb	Widespread throughout wet areas of N America; circumboreal
Caryophyllaceae	*Stellaria media*	I	Introduced throughout N America from Eurasia
Celastraceae	*Parnassia fimbriata*	W	Widespread throughout wet areas of the West from CA north to AK
Convolvulaceae	*Calystegia sepium*	I	Introduced to wet areas of the West from eastern N America
Cornaceae	*Cornus canadensis*	NNAa	Widespread throughout northern N America; amphiberingian
Cornaceae	*Cornus stolonifera (Cornus sericea)*	NNAW	Widespread in wet areas across northern N America and the coastal West from CA north to AK
Cornaceae	*Cornus suecica*	CBCcb	Wet areas of extreme NW BC north to AK; circumboreal
Cornaceae	*Cornus unalaschkensis*	PNWa	Widespread throughout the PNW from N CA north to AK; amphiberingian
Crassulaceae	*Crassula aquatica*	Wcb	Infrequent in wet areas throughout the West from CA north to AK; circumboreal
Crassulaceae	*Rhodiola integrifolia ssp. integrifolia*	Wa	Subalpine and alpine zones of the West from CA north to AK; amphiberingian
Crassulaceae	*Sedum divergens*	CPNW	Coastal PNW from OR north to SE AK
Cupressaceae	*Chamaecyparis nootkatensis*	CPNW	Coastal PNW from CA north to SE AK
Cupressaceae	*Juniperus communis*	NAcb	Widespread throughout N America; circumboreal
Cupressaceae	*Juniperus communis var. kelleyi*	PNW"	PNW from OR north to AK

Cupressaceae	*Juniperus scopulorum*	PNW	Interior PNW and Great Basin; rare in N BC
Cupressaceae	*Thuja plicata*	PNW	Widespread throughout the PNW from N CA north to SE AK
Cyperaceae	*Carex anthoxanthea*	CPNW	Frequent in alpine areas of coastal WA, BC, and AK
Cyperaceae	*Carex aperta*	PNW	Inland PNW; rare near the coast
Cyperaceae	*Carex aquatilis ssp. aquatilis*	W	Widespread throughout the West; 2 subspecies
Cyperaceae	*Carex arcta*	PNW	From NW CA north to BC
Cyperaceae	*Carex arctiformis*	CBC	Coastal BC north to AK
Cyperaceae	*Carex atrata ssp. atrosquama*	PNW	Subalpine and alpine zones of the inland PNW and Rocky Mountains
Cyperaceae	*Carex aurea*	W	Widespread throughout the West
Cyperaceae	*Carex bebbii*	PNW	Primarily inland PNW
Cyperaceae	*Carex bolanderi*	W	Widespread throughout the West
Cyperaceae	*Carex canescens*	PNWcbd	Frequent from Sierra Nevadas north throughout PNW; circumboreal; also S. America and Australia
Cyperaceae	*Carex canescens ssp. canescens*	PNWcbd"	Frequent from Sierra Nevadas north throughout PNW; circumboreal; also S. America and Australia
Cyperaceae	*Carex chordorrhiza*	PNW	Alpine areas of C BC; rare in immediate coastal OR and WA
Cyperaceae	*Carex circinata*	CPNW	Coastal PNW from Puget Sound north
Cyperaceae	*Carex crawfordii*	PNW	Throughout the PNW
Cyperaceae	*Carex disperma*	PNW	Inland ranges from the Sierra Nevadas north
Cyperaceae	*Carex echinata*	NAcb	Widespread throughout wet areas of N America; circumboreal

Cyperaceae	*Carex echinata ssp. echinata (Carex phyllomanica)*	NAcb"	Widespread throughout N America; circumboreal
Cyperaceae	*Carex echinata ssp. phyllomanica*	W"	Widespread throughout wet areas of the West from CA north to AK
Cyperaceae	*Carex glareosa*	CBCcbic	Rare in coastal salt marshes from N BC north; circumpolar
Cyperaceae	*Carex glareosa var. amphigena*	CBCcbic"	Rare in coastal salt marshes from N BC north; circumpolar
Cyperaceae	*Carex gmelinii*	CBCica	Rare in extreme-coastal areas of BC and AK; amphiberingian
Cyperaceae	*Carex gynocrates*	PNWa	Rare south of BC; scattered throughout BC; amphiberingian
Cyperaceae	*Carex hoodii*	W	From the Sierra Nevadas and N Coast Ranges north throughout the PNW
Cyperaceae	*Carex laeviculmis*	W	Central CA north throughout the PNW
Cyperaceae	*Carex lasiocarpa*	PNW	From N CA north throughout the PNW
Cyperaceae	*Carex lenticularis (Carex enanderi)*	NNAW	Widespread throughout the West and northern N America; several subspecies
Cyperaceae	*Carex lenticularis var. limnophila (Carex hindsii)*	PNW"	Widespread throughout the PNW from N CA north to AK
Cyperaceae	*Carex lenticularis var. lipocarpa (Carex kelloggii)*	W"	Widespread throughout the West from CA north to AK
Cyperaceae	*Carex leptalea ssp. pacifica*	CBC	Coastal BC and AK
Cyperaceae	*Carex limosa*	W	Sierra Nevadas north to the Cascades and SW BC
Cyperaceae	*Carex livida*	PNW	Infrequent and local south of coastal BC
Cyperaceae	*Carex lyngbyei*	CWica	Salt marshes and estuaries of the coastal West from CA north to AK; amphiberingian

Cyperaceae	*Carex lyngbyei ssp. cryptocarpa*	CWica"	Salt marshes and estuaries of the coastal West from CA north to AK; amphiberingian
Cyperaceae	*Carex macloviana*	PNW	Rare and local in the PNW, more common farther north
Cyperaceae	*Carex macrocephala*	CPNWa	Sand beaches and dunes of the PNW; amphiberingian
Cyperaceae	*Carex macrochaeta*	PNWa	Uncommon south of BC; amphiberingian
Cyperaceae	*Carex magellanica*	NNAcb	Frequent throughout WA and BC; circumpolar
Cyperaceae	*Carex magellanica ssp. irrigua (Carex paupercula)*	NNAcb"	Frequent throughout WA and BC; circumpolar
Cyperaceae	*Carex mertensii*	Wa	Wet areas of the West from CA north to AK; amphiberingian
Cyperaceae	*Carex nigricans*	W	From the Sierra Nevadas north throughout the Cascades and mountainous areas
Cyperaceae	*Carex obnupta*	CW	Widespread throughout the near-coastal West
Cyperaceae	*Carex pauciflora*	NNAcb	Wet areas of the PNW from NW WA north to AK; circumpolar
Cyperaceae	*Carex pluriflora*	CPNWa	Near coastal PNW; amphiberingian
Cyperaceae	*Carex podocarpa*	PNWa	Alpine areas of the PNW; amphiberingian
Cyperaceae	*Carex pyrenaica ssp. micropoda*	PNW	Common in the PNW and Rockies
Cyperaceae	*Carex rostrata*	NNAcb	Peat bogs in montane areas of WA and BC; circumpolar
Cyperaceae	*Carex saxatilis*	NNAcb	Widespread in the PNW; circumpolar
Cyperaceae	*Carex saxatilis ssp. laxa*	NNAcb"	Widespread in the PNW; circumpolar
Cyperaceae	*Carex sitchensis*	CPNW	Widespread throughout the coastal PNW
Cyperaceae	*Carex spectabilis*	W	Sierra Nevadas north throughout the PNW

Cyperaceae	*Carex stipata*	W	Common from central CA north throughout the PNW
Cyperaceae	*Carex stylosa*	CBCa	NW WA north along near-coastal BC; amphiberingian
Cyperaceae	*Carex utriculata*	W	Sierra Nevadas and Bay Area north throughout the PNW
Cyperaceae	*Carex vesicaria*	W	Widespread in the West from the Sierra Nevadas north
Cyperaceae	*Carex viridula*	CPNWa	NW CA north along the coast to AK; common in S BC; amphiberingian
Cyperaceae	*Eleocharis kamtschatica*	CBCa	Near-coastal N BC; amphiberingian
Cyperaceae	*Eleocharis macrostachya*	W	Widespread in wet areas of the West
Cyperaceae	*Eleocharis mamillata*	CPNW	Near-coastal PNW
Cyperaceae	*Eleocharis obtusa*	CW	Common from central CA north throughout the coastal PNW
Cyperaceae	*Eleocharis palustris*	W	Widespread in wet areas of the West
Cyperaceae	*Eleocharis quinqueflora*	W	Common from the Sierra Nevadas throughout the interior PNW
Cyperaceae	*Eriophorum angustifolium*	PNW	Widespread in wet areas of the PNW
Cyperaceae	*Eriophorum chamissonis*	NNA	Widespread in wet areas across northern N America
Cyperaceae	*Eriophorum chamissonis var. albidum*	PNW"	Infrequent in N BC
Cyperaceae	*Eriophorum chamissonis var. chamissonis*	NNA"	Widespread in wet areas in BC; less common in coastal OR and WA; also E Canada
Cyperaceae	*Eriophorum gracile*	W	Wet areas from the Sierra Nevadas north throughout the PNW
Cyperaceae	*Rhynchospora alba*	W	Wet areas from Central CA north to AK

Cyperaceae	*Schoenoplectus subterminalis (Scirpus subterminalis)*	W	Infrequent in wet areas from the Sierra Nevadas north
Cyperaceae	*Schoenoplectus tabernaemontani*	W	Frequent in wet areas of the West
Cyperaceae	*Scirpus microcarpus*	W	Widespread in wet areas of the West
Cyperaceae	*Trichophorum cespitosum (Scirpus cespitosus)*	NAcb	Wet areas throughout N America; circumboreal
Cystopteridaceae	*Gymnocarpium disjunctum*	PNWa	Widespread throughout the PNW from W OR north to AK; amphiberingian
Cystopteridaceae	*Gymnocarpium dryopteris*	NNAcb	Montane and subalpine zones throughout northern N America; circumpolar
Dennstaedtiaceae	*Pteridium aquilinum*	C	Cosmopolitan
Droseraceae	*Drosera anglica*	NNAcb	Widespread in wet areas throughout northern N America; circumboreal
Droseraceae	*Drosera rotundifolia*	NNAcb	Widespread in wet areas throughout N America; circumpolar
Dryopteridaceae	*Dryopteris carthusiana (Dryopteris austriaca var. dilatata)*	NNAcb	Widespread throughout northern N America; circumboreal
Dryopteridaceae	*Dryopteris expansa*	NNAcb	Widespread throughout northern N America; circumpolar
Dryopteridaceae	*Dryopteris filix-mas*	C	Cosmopolitan
Dryopteridaceae	*Polystichum andersonii*	CPNW	Infrequent in the (mostly) coastal PNW from OR north to AK
Dryopteridaceae	*Polystichum braunii*	CBCcb	Infrequent in coastal BC and AK; circumpolar
Dryopteridaceae	*Polystichum lonchitis*	Wcb	Widespread in montane, subalpine, and alpine zones of the West from CA north to AK; circumpolar

Dryopteridaceae	*Polystichum munitum*	W	Widespread throughout the West from CA north to SE AK
Equisetaceae	*Equisetum arvense*	NAcb	Widespread throughout the northern hemisphere
Equisetaceae	*Equisetum fluviatile*	NAcb	Shallow water throughout northern N America; circumboreal
Equisetaceae	*Equisetum hyemale*	NA	Widespread throughout N America
Equisetaceae	*Equisetum hyemale var. affine*	NA"	Widespread throughout N America
Equisetaceae	*Equisetum pratense*	NNAcb	Widespread across montane and subalpine zones of northern N America; circumpolar
Equisetaceae	*Equisetum variegatum*	NNAcb	Widespread throughout the PNW and northern N America; circumpolar
Ericaceae	*Andromeda polifolia (Kalmia polifolia)*	NNAcb	Bogs throughout northern N America; circumboreal
Ericaceae	*Andromeda polifolia var. polifolia*	NNAcb"	Bogs throughout northern N America; circumboreal
Ericaceae	*Cassiope lycopodioides*	CBCa	Infrequent and local in coastal BC from N Vancouver Island north to AK; amphiberingian
Ericaceae	*Cassiope mertensiana*	W	Subalpine and alpine heath of the West from CA north to SE AK
Ericaceae	*Cassiope mertensiana ssp. mertensiana*	W"	Subalpine and alpine heath of the West from CA north to SE AK
Ericaceae	*Elliottia pyroliflorus (Cladothamnus pyroliflorus)*	CPNW	Montane, subalpine, and alpine zones of the coastal PNW from OR north to AK
Ericaceae	*Empetrum nigrum*	NNAcb	Widespread throughout northern N America; circumpolar

Ericaceae	*Empetrum nigrum ssp. nigrum*	NNAcb"	Widespread throughout northern N America; circumpolar
Ericaceae	*Gaultheria shallon*	CPNW	Widespread throughout the coastal PNW from N CA north to AK
Ericaceae	*Harrimanella stelleriana (Cassiope stelleriana)*	CPNWa	Subalpine and alpine heath of the coastal PNW from WA north to AK; amphiberingian
Ericaceae	*Kalmia microphylla*	W	Bogs of the West from CA north to AK
Ericaceae	*Kalmia microphylla var. occidentalis (Kalmia occidentalis)*	W"	Bogs of the West from CA north to AK
Ericaceae	*Kalmia procumbens (Loiseleuria procumbens)*	NNAcb	Bogs and alpine heath throughout northern N America; circumpolar
Ericaceae	*Menziesia ferruginea*	PNW	Widespread throughout the PNW from N CA north to AK
Ericaceae	*Menziesia ferruginea ssp. ferruginea*	PNW"	Widespread throughout the PNW from N CA north to AK
Ericaceae	*Moneses uniflora*	NNAcb	Widespread throughout northern N America; circumboreal
Ericaceae	*Monotropa hypopithys (Hypopitys monotropa)*	NNAcb	Widespread throughout N America; circumboreal
Ericaceae	*Orthilia secunda (Pyrola secunda)*	NNAcb	Widespread throughout northern N America; circumboreal
Ericaceae	*Orthilia secunda var. secunda*	NNAcb"	Widespread throughout northern N America; circumboreal
Ericaceae	*Phyllodoce aleutica ssp. glanduliflora*	CBCa	AK; amphiberingian
Ericaceae	*Phyllodoce empetriformis*	PNW	Montane, subalpine, and alpine zones of the PNW from N CA north to AK
Ericaceae	*Phyllodoce glanduliflora*	PNW	Montane, subalpine, and alpine zones of the PNW from OR north to AK

Ericaceae	*Pyrola asarifolia ssp. asarifolia*	NNAa	Widespread across northern N America; amphiberingian
Ericaceae	*Rhododendron groenlandicum (Ledum groenlandicum)*	NNA	Bogs throughout northern N America
Ericaceae	*Vaccinium alaskaense*	CPNW	Coastal PNW from NW OR north to AK
Ericaceae	*Vaccinium caespitosum*	NNA	Widespread throughout northern N America
Ericaceae	*Vaccinium membranaceum*	PNW	Widespread in montane and subalpine zones of the PNW from N CA north to N BC; locally infrequent on the north coast of BC
Ericaceae	*Vaccinium ovalifolium*	PNWad	Widespread throughout the PNW from OR north to AK; amphiberingian; disjunct to E Canada
Ericaceae	*Vaccinium oxycoccos (Oxycoccos oxycoccos)*	NNAcb	Bogs throughout northern N America; circumboreal
Ericaceae	*Vaccinium parvifolium*	CPNW	Widespread throughout the coastal PNW from N CA north to SE AK
Ericaceae	*Vaccinium uliginosum*	NNAcb	Bogs and alpine heath throughout northern N America; circumboreal
Ericaceae	*Vaccinium uliginosum ssp. occidentale*	NNAcb"	Bogs and alpine heath throughout northern N America; mostly coastal BC; circumboreal
Ericaceae	*Vaccinium uliginosum ssp. pubescens*	NNAcb"	Bogs and alpine heath throughout northern N America; mostly N BC; circumboreal
Ericaceae	*Vaccinium vitis-idaea*	NNAcb	Bogs and alpine heath throughout northern N America; circumboreal
Ericaceae	*Vaccinium vitis-idaea ssp. minus*	NNAcb"	Bogs and alpine heath throughout northern N America; circumboreal

Euphorbiaceae	*Euphorbia esula*	I	Introduced throughout N America from Eurasia
Fabaceae	*Cytisus scoparius*	I	Introduced throughout the coastal PNW from Eurasia
Fabaceae	*Lathyrus japonicus*	CPNWcbicd	Beaches of the PNW from N CA north to AK; circumboreal; also S America
Fabaceae	*Lathyrus palustris*	CPNW	Wet areas of the coastal PNW from N CA north to AK
Fabaceae	*Lupinus nootkatensis*	CBC	Coastal BC and AK; also Canadian Rockies
Fabaceae	*Lupinus nootkatensis var. nootkatensis*	CBC"	Coastal BC and AK
Fabaceae	*Lupinus polyphyllus*	NNAW	Widespread throughout the West from CA north to AK and across northern N America
Fabaceae	*Lupinus polyphyllus ssp. polyphyllus*	NNAW"	Widespread throughout the West from CA north to AK and across northern N America
Fabaceae	*Melilotus albus*	I	Introduced throughout N America from Eurasia
Fabaceae	*Melilotus officinalis*	I	Introduced throughout N America from Eurasia
Fabaceae	*Trifolium hybridum*	I	Introduced throughout N America from Eurasia
Fabaceae	*Trifolium pratense*	I	Introduced throughout N America from Eurasia
Fabaceae	*Trifolium wormskioldii*	W	Infrequent in wet areas of the West from CA north to NW BC
Fabaceae	*Vicia cracca*	I	Introduced throughout N America from Eurasia

Fabaceae	*Vicia nigricans ssp. gigantea*	CW	Widespread in the coastal West from CA north to AK
Gentianaceae	*Gentiana douglasiana*	CPNW	Wet areas of the coastal PNW from WA north to AK
Gentianaceae	*Gentiana platypetala*	CBC	Wet areas of subalpine and alpine zones of coastal BC from N Vancouver Island north to SE AK
Gentianaceae	*Gentiana sceptrum*	CPNW	Wet areas of the coastal PNW from N CA north to NW BC
Grossulariaceae	*Ribes bracteosum*	CW	Wet areas of the coastal West from CA north to AK
Grossulariaceae	*Ribes divaricatum*	CW	Widespread throughout the coastal West from CA north to coastal BC
Grossulariaceae	*Ribes hudsonianum*	NNAW	Widespread throughout the interior West and across northern N America
Grossulariaceae	*Ribes lacustre*	NNAW	Widespread throughout wet montane and subalpine zones of the West from CA north to AK and across northern N America
Grossulariaceae	*Ribes laxiflorum*	PNW	Widespread throughout the PNW from N CA north to AK
Haloragaceae	*Myriophyllum sibiricum*	Wcb	Widespread throughout wet areas of the West from CA north to AK; circumboreal
Hypericaceae	*Hypericum anagalloides*	W	Wet areas of the west from CA north to AK
Iridaceae	*Iris pseudacorus*	I	Introduced throughout N America from Eurasia
Iridaceae	*Sisyrinchium angustifolium*	I	Introduced throughout the West from eastern N America
Iridaceae	*Sisyrinchium littorale*	CPNWic	From SW WA north to Alaska along the immediate coast

Isoetaceae	*Isoetes maritima*	CPNWa	Wet areas of the coastal PNW from W WA north to AK; amphiberingian
Isoetaceae	*Isoetes tenella (Isoetes echinospora)*	NNAWcb	Wet areas throughout the West from CA north to AK and across northern N America; circumboreal
Juncaceae	*Juncus acuminatus*	CPNWd	Common in wet areas of the PNW; less common in CA; disjunct in eastern N America
Juncaceae	*Juncus alpinoarticulatus*	NNAcb	Infrequent in wet areas across northern N America; circumboreal
Juncaceae	*Juncus arcticus*	NAcbd	Wet areas throughout N America; circumboreal; also S America
Juncaceae	*Juncus arcticus ssp. alaskanus*	CBC"	Infrequent in wet areas of BC north to AK
Juncaceae	*Juncus arcticus ssp. sitchensis*	CBCa"	Infrequent in wet areas of BC north to AK; amphiberingian
Juncaceae	*Juncus articulatus*	NNAWcb	Widespread in wet areas of the West from CA north to AK and across northern N America; circumboreal
Juncaceae	*Juncus balticus*	NAcb	Widespread in wet areas of the N America; circumboreal
Juncaceae	*Juncus balticus ssp. ater*	NAcb"	Widespread in wet areas of the N America; circumboreal
Juncaceae	*Juncus breweri*	CWic	Sand dunes of the immediate coastal West from CA north to NW BC
Juncaceae	*Juncus bufonius*	C	Cosmopolitan
Juncaceae	*Juncus bulbosus*	I	Introduced throughout the coastal PNW
Juncaceae	*Juncus conglomeratus*	I	Introduced to wet areas of the coastal PNW
Juncaceae	*Juncus covillei*	CW	Wet areas from CA north throughout the coastal PNW

Juncaceae	*Juncus drummondii*	W	Common in wet areas of the alpine West
Juncaceae	*Juncus effusus*	C	Cosmopolitan plant of wet areas
Juncaceae	*Juncus effusus ssp. effusus*	Wd"	Widespread and common in wet areas of the West from CA north to AK; also Eurasia
Juncaceae	*Juncus effusus ssp. pacificus*	CW"	Widespread in the coastal West from CA north to AK
Juncaceae	*Juncus ensifolius*	NNAWa	Widespread and common in wet areas of the West from CA north to AK and across northern N America; amphiberingian
Juncaceae	*Juncus falcatus*	CWad	Frequent in wet areas of the near-coastal West from CA north to AK; amphiberingian; also Australia
Juncaceae	*Juncus falcatus ssp. sitchensis*	CWad"	Frequent in wet areas of the near-coastal West from CA north to AK; amphiberingian; also Australia
Juncaceae	*Juncus filiformis*	NNAcb	Infrequent in wet areas across northern N America; circumboreal
Juncaceae	*Juncus haenkei*	CBCa	Rare and local to wet areas of Haida Gwaii and coastal Alaska; amphiberingian
Juncaceae	*Juncus mertensianus*	Wa	Wet areas in montanze zones from the Sierra Nevadas north throughout the PNW; amphiberingian
Juncaceae	*Juncus stygius*	NNAcb	Bogs of northern Vancouver Island and N BC and across northern N America; circumpolar
Juncaceae	*Juncus stygius ssp. americanus*	NNAcb"	Bogs of northern Vancouver Island and N BC and across northern N America; circumpolar
Juncaceae	*Juncus supiniformis*	CW	Wet areas of the near-coast from Marin County CA north to AK

Juncaceae	*Juncus tenuis*	NA	Common throughout wet areas of N America
Juncaceae	*Luzula arcuata*	PNWa	Infrequent in alpine BC; amphiberingian
Juncaceae	*Luzula campestris*	I	Introduced throughout the PNW
Juncaceae	*Luzula comosa*	W	Widespread throughout the West; 2 subspecies
Juncaceae	*Luzula comosa var. comosa*	W"	Widespread throughout the West
Juncaceae	*Luzula multiflora*	C	Common in the PNW, but rare and local in CA; cosmopolitan
Juncaceae	*Luzula multiflora ssp. frigida*	C"	Common in the PNW, but rare and local in CA; cosmopolitan
Juncaceae	*Luzula multiflora ssp. multiflora*	C"	Common in the PNW, but rare and local in CA; cosmopolitan
Juncaceae	*Luzula parviflora*	NNAWcb	Frequent in alpine areas from the Sierra Nevadas north to Alaska throughout the PNW
Juncaceae	*Luzula parviflora ssp. fastigiata*	NNAWcb"	Frequent in alpine areas from the Sierra Nevadas north to Alaska throughout the PNW and across northern N America; circumboreal
Juncaceae	*Luzula piperi*	PNWa	Frequent in alpine areas of extreme NW CA and the PNW; amphiberingian
Juncaginaceae	*Lilaea scilloides*	Wd	Infrequent in wet areas of the West from CA north to NW BC; also S. America
Juncaginaceae	*Triglochin concinna*	CWic	Tidal marshes and alkali flats of the coastal West from CA north to NW BC; also S. America
Juncaginaceae	*Triglochin concinna var. concinna*	CWic"	Tidal marshes and alkali flats of the coastal West from CA north to NW BC; also S. America

Juncaginaceae	*Triglochin maritima*	C	Cosmopolitan plant of wet areas
Juncaginaceae	*Triglochin palustris*	C	Cosmopolitan plant of wet areas; infrequent along the coast
Lamiaceae	*Lycopus uniflorus*	NAa	Widespread in wet areas throughout N America; amphiberingian
Lamiaceae	*Prunella vulgaris*	NAcb	Widespread throughout N America; circumboreal
Lamiaceae	*Prunella vulgaris ssp. lanceolata*	NA"	Widespread throughout N America
Lamiaceae	*Stachys chamissonis var. cooleyi (Stachys cooleyae)*	CPNW	Wet areas of the coastal PNW from W OR north to NW BC
Lamiaceae	*Stachys mexicana (Stachys emersonii)*	CW	Widespread in wet areas of the coastal West from CA north to SE AK
Lentibulariaceae	*Pinguicula vulgaris*	NNAcb	Wet areas throughout northern N America; circumboreal
Lentibulariaceae	*Pinguicula vulgaris ssp. macroceras (Pinguicula macroceras)*	CWa"	Wet areas throughout the coastal West from CA north to AK; amphiberingian
Lentibulariaceae	*Pinguicula vulgaris ssp. vulgaris*	NNAcb"	Wet areas throughout northern N America; circumboreal
Lentibulariaceae	*Utricularia intermedia*	NNAcb	Wet areas throughout northern N America; circumboreal
Lentibulariaceae	*Utricularia macrorhiza (Utricularia vulgaris)*	NNAa	Wet areas throughout N America; amphiberingian
Lentibulariaceae	*Utricularia minor*	NNAcb	Wet areas throughout northern N America; circumboreal
Lentibulariaceae	*Utricularia ochroleuca*	PNWcb	Infrequent in wet montane areas of the PNW and E Canada; circumboreal
Liliaceae	*Clintonia uniflora*	PNW	Widespread throughout the PNW from N CA north to AK

Liliaceae	*Fritillaria camschatcensis*	CPNW	Wet areas of coastal BC and AK; rare and local in coastal OR and WA
Liliaceae	*Fritillaria camschatcensis ssp. camschatcensis*	CPNW"	Wet areas of coastal BC and AK; rare and local in coastal OR and WA
Liliaceae	*Streptopus amplexifolius*	NAcb	Widespread throughout N America; circumboreal
Liliaceae	*Streptopus lanceolatus (Streptopus roseus var. curvipes)*	CPNW	Widespread throughout the coastal PNW from OR north to SE AK
Liliaceae	*Streptopus streptopoides var. brevipes*	CPNWa	Montane and subalpine zones of the coastal PNW from WA north to AK; amphiberingian
Linnaeaceae	*Linnaea borealis*	NAcb	Widespread throughout N America; circumboreal
Linnaeaceae	*Linnaea borealis ssp. longiflora (americana)*	NA"	Widespread throughout N America
Lycopodiaceae	*Diphasiastrum alpinum (Lycopodium alpinum)*	NNAcb	Subalpine and alpine zones throughout northern N America; circumpolar
Lycopodiaceae	*Diphasiastrum complanatum (Lycopodium complanatum)*	NNAcbd	Widespread throughout northern N America; circumpolar; S America
Lycopodiaceae	*Huperzia chinensis (Huperzia miyoshiana)*	PNWa	Wet areas of the PNW from OR north to AK; amphiberingian
Lycopodiaceae	*Huperzia haleakalae*	PNWa	Subalpine and alpine zones of the PNW from OR north to AK; amphiberingian?
Lycopodiaceae	*Huperzia occidentalis*	PNW	Wet areas of the PNW from OR north to AK
Lycopodiaceae	*Lycopodiella inundata (Lycopodium inundatum)*	NNAcb	Wet areas across northern N America; circumboreal

Lycopodiaceae	*Lycopodium annotinum*	NNAcb	Widespread throughout northern N America; circumpolar
Lycopodiaceae	*Lycopodium clavatum*	C	Cosmopolitan
Lycopodiaceae	*Lycopodium clavatum ssp. clavatum*	C"	Cosmopolitan
Lycopodiaceae	*Lycopodium clavatum var. monostachyon*	C"	Cosmopolitan
Lycopodiaceae	*Lycopodium dendroideum*	NNAa	Widespread throughout northern N America; amphiberingian
Lycopodiaceae	*Lycopodium lagopus*	NNAcb	Widespread throughout northern N America; circumboreal
Lycopodiaceae	*Lycopodium sitchense (Diphasiastrum sitchense)*	NNAa	Subalpine and alpine zones throughout northern N America; amphiberingian
Melanthiaceae	*Veratrum viride var. eschscholzianum (Veratrum eschscholtzii)*	Wd	Widespread in wet areas of the West from CA north to AK; disjunct in east N America
Menyanthaceae	*Menyanthes trifoliata*	NNAWcb	Wet areas throughout the West and across northern N America; circumboreal
Menyanthaceae	*Nephrophyllidium crista-galli (Fauria crista-galli)*	CPNWa	Wet areas of the coastal PNW from WA north to AK; amphiberingian
Montiaceae	*Claytonia lanceolata*	W	Wet areas throughout the West from CA north to NW BC
Montiaceae	*Claytonia sibirica ssp. sibirica*	CWa	Wet areas of the (mostly) coastal West from CA north to AK; amphiberingian
Montiaceae	*Montia fontana*	NNAWcb	Wet areas throughout the West and across northern N America; circumboreal
Montiaceae	*Montia parviflora*	W	Wet areas throughout the West from CA north to SE AK

Montiaceae	*Montia parviflora var. flagellaris*	W"	Wet areas throughout the West from CA north to SE AK
Montiaceae	*Montia parvifolia var. parvifolia*	W"	Wet areas throughout the West from CA north to SE AK
Myricaceae	*Myrica gale*	NNAcb	Wet areas throughout northern N America; circumboreal
Nymphaeaceae	*Nuphar polysepala (Nuphar lutea ssp. polysepala)*	W	Wet areas throughout the West from CA north to AK
Nymphaeaceae	*Nymphaea tetragona*	PNW	Rare in wet areas of the PNW from WA north to AK
Onagraceae	*Circaea alpina*	NAcb	Widespread throughout N America; circumboreal
Onagraceae	*Circaea alpina ssp. alpina*	NAcb"	Widespread throughout N America; circumboreal
Onagraceae	*Epilobium anagallidifolium*	NAcb	Widespread throughout montane and subalpine N America; circumboreal
Onagraceae	*Epilobium angustifolium (Chamerion angustifolium)*	NAcb	Widespread throughout N America; circumboreal
Onagraceae	*Epilobium ciliatum*	NAa	Widespread throughout N America; amphiberingian
Onagraceae	*Epilobium ciliatum ssp. ciliatum*	NAa"	Widespread throughout N America; amphiberingian
Onagraceae	*Epilobium ciliatum ssp. glandulosum (Epilobium glandulosum)*	NAa"	Widespread throughout N America; amphiberingian
Onagraceae	*Epilobium ciliatum ssp. watsonii*	NAa"	Widespread throughout N America; amphiberingian
Onagraceae	*Epilobium hornemannii ssp. hornemannii*	NNAWcb	Wet areas throughout the West and across northern N America; circumboreal

Onagraceae	*Epilobium latifolium*	NNAWcb	Wet montane and subalpine zones throughout the West and across northern N America; circumboreal
Onocleaceae	*Matteuccia struthiopteris*	NNAcb	Wet areas across northern N America; locally abundant in the Skeena River valley; circumboreal
Orchidaceae	*Calypso bulbosa*	NNAWcb	Widespread throughout the West and across northern N America; circumboreal
Orchidaceae	*Corallorhiza maculata*	NA	Widespread throughout N America; also C America
Orchidaceae	*Corallorhiza mertensiana (Corallorhiza maculata ssp. mertensiana)*	W	Widespread throughout the West from CA north to AK
Orchidaceae	*Malaxis brachypoda*	NNAad	Infrequent in wet areas across northern N America; disjunct in CA; amphiberingian
Orchidaceae	*Malaxis paludosa (Hammarbya paludosa)*	NNAcb	Infrequent in wet areas across northern N America; circumboreal
Orchidaceae	*Neottia caurina (Listera caurina)*	W	Wet areas in the montane and subalpine zones of the West from CA north to AK
Orchidaceae	*Neottia cordata (Listera cordata)*	NAcb	Wet areas throughout N America; circumboreal
Orchidaceae	*Piperia unalascensis*	NNAW	Wet areas throughout the West and across northern N America
Orchidaceae	*Platanthera aquilonis (Platanthera / Habenaria hyperborea)*	NNA	Widespread in wet montane and subalpine areas across northern N America
Orchidaceae	*Platanthera chorisiana*	CPNWa	Wet areas of the coastal PNW from W WA north to AK; amphiberingian
Orchidaceae	*Platanthera dilatata*	NNAW	Wet areas throughout the West and across northern N America

Orchidaceae	*Platanthera dilatata var. leucostachys*	CPNW	Wet areas of the coastal PNW from N CA north to AK
Orchidaceae	*Platanthera orbiculata*	NA	Wet montane areas throughout N America
Orchidaceae	*Platanthera stricta (Platanthera saccata)*	W	Wet montane areas of the West from CA north to AK
Orchidaceae	*Spiranthes romanzoffiana*	NNAWd	Widespread throughout the West and across northern N America; also the British Isles
Orchidaceae	*Spiranthes romanzoffiana var. romanzoffiana*	NNAWd"	Widespread throughout the West and across northern N America; also the British Isles
Orobanchaceae	*Castilleja miniata*	Wd	Widespread throughout the West from CA north to AK; also NE N America
Orobanchaceae	*Castilleja miniata var. miniata*	Wd"	Widespread throughout the West from CA north to AK; also NE N America
Orobanchaceae	*Castilleja parviflora*	W	Wet areas of subalpine and alpine zones of the West from CA north to AK
Orobanchaceae	*Castilleja parviflora var. parviflora*	W"	Wet areas of subalpine and alpine zones of the West from CA north to AK
Orobanchaceae	*Euphrasia nemorosa*	I	Introduced throughout the coastal PNW from Eurasia
Orobanchaceae	*Melampyrum lineare*	NNA	Infrequent across northern N America
Orobanchaceae	*Pedicularis ornithorhyncha*	CPNW	Subalpine and alpine zones of the coastal PNW from WA north to AK
Orobanchaceae	*Pedicularis parviflora*	NNAcb	Rare in wet montane and subalpine zones across northern N America; circumboreal
Orobanchaceae	*Pedicularis parviflora var. parviflora*	NNAcb"	Rare in wet montane and subalpine zones across northern N America; circumboreal
Orobanchaceae	*Pedicularis sudetica*	CBCcb	Wet subalpine and alpine zones of N BC north to AK; circumpolar

Phrymaceae	*Erythranthe guttata (Erythranthe microphylla)*	Wd	Widespread in wet areas of the West from CA north to AK; disjunct in east N America
Pinaceae	*Abies amabilis*	CPNW	Widespread throughout the coastal PNW from N CA north to SE AK; absent from Haida Gwaii
Pinaceae	*Picea engelmannii* × *Picea glauca*	PNW"	Occurs where the ranges of these two species meet in central BC
Pinaceae	*Picea sitchensis*	CPNW	Widespread throughout the coastal PNW from N CA north to SE AK
Pinaceae	*Pinus contorta*	W	Widespread throughout the West from CA north to AK
Pinaceae	*Pinus contorta var. contorta*	W"	Widespread throughout the West from CA north to AK
Pinaceae	*Tsuga heterophylla*	CPNW	Widespread throughout the coastal PNW from N CA north to SE AK
Pinaceae	*Tsuga mertensiana*	CW	Montane and subalpine zones of the coastal West from CA north to SE AK
Plantaginaceae	*Callitriche heterophylla ssp. bolanderi*	CW	Wet areas of the coastal West from CA north to AK
Plantaginaceae	*Callitriche palustris (Callitriche verna)*	NAcb	Wet areas throughout N America; circumboreal
Plantaginaceae	*Digitalis purpurea*	I	Introduced throughout N America from Eurasia
Plantaginaceae	*Hippuris montana*	PNWa	Wet areas of the PNW from W WA north to AK; amphiberingian
Plantaginaceae	*Penstemon davidsonii*	CPNW	Montane, subalpine, and alpine zones of the coastal PNW from N CA north to BC
Plantaginaceae	*Penstemon serrulatus*	CPNW	Wet areas of the coastal PNW from W OR north to NW BC
Plantaginaceae	*Plantago macrocarpa*	CPNWa	Wet areas of the coastal PNW from W OR north to AK; amphiberingian

Plantaginaceae	*Plantago major*	I	Introduced throughout N America from Eurasia
Plantaginaceae	*Plantago maritima*	Cic	Coastal - Cosmopolitan
Plantaginaceae	*Plantago maritima ssp. juncoides*	CWic"	Beaches and salt marshes of the Pacific coast from S America north to AK
Plantaginaceae	*Veronica anagallis-aquatica*	I	Introduced throughout N America from Eurasia
Plantaginaceae	*Veronica beccabunga ssp. americana (Veronica americana)*	NA	Wet areas throughout N America
Plantaginaceae	*Veronica beccabunga ssp. beccabunga*	I	Introduced throughout N America from Eurasia
Poaceae	*Aegilops tauschii*	I	Introduced throughout N America from Eurasia
Poaceae	*Agrostis capillaris*	I	Introduced throughout N America from Eurasia
Poaceae	*Agrostis exarata*	Wad	Widespread throughout the West from CA north to AK; amphiberingian; also S America
Poaceae	*Agrostis gigantea*	I	Introduced throughout N America from Eurasia
Poaceae	*Agrostis mertensii*	NNAcb	Widespread across northern N America; circumboreal
Poaceae	*Agrostis oregonensis*	PNW	Wet areas of the PNW from N CA north to NW BC
Poaceae	*Agrostis pallens*	W	Rocky slopes and dunes of the lowland West from CA north to NW BC
Poaceae	*Agrostis scabra (Agrostis hiemalis)*	NAa	Widespread throughout N America; amphiberingian; also Greenland
Poaceae	*Agrostis stolonifera*	I	Introduced throughout N America from Eurasia

Poaceae	*Agrostis stolonifera var. majus*	I	Introduced throughout N America from Eurasia
Poaceae	*Agrostis variabilis*	W	Subalpine and alpine zones of the West from CA north to N BC
Poaceae	*Alopecurus geniculatus*	I	Introduced throughout N America from Eurasia
Poaceae	*Arctopoa eminens (Poa eminens)*	CBCad	Wet areas of immediate coastal NW BC north to AK; amphiberingian; disjunct to NE N America
Poaceae	*Bromus carinatus*	W	Widespread throughout the West from CA north to AK
Poaceae	*Bromus carinatus var. carinatus*	W"	Widespread throughout the West from CA north to AK
Poaceae	*Bromus carinatus var. marginatus*	W"	Widespread throughout the West from CA north to AK
Poaceae	*Bromus pacificus*	CPNW	Coastal PNW from W OR north to SE AK
Poaceae	*Bromus sitchensis (Bromus aleutensis)*	CPNW	Coastal PNW from W OR north to AK
Poaceae	*Bromus squarrosus var. squarrosus*	I	Introduced throughout N America from Eurasia
Poaceae	*Bromus tectorum*	I	Introduced throughout N America from Eurasia
Poaceae	*Bromus vulgaris*	W	Widespread throughout the West from CA north to NW BC
Poaceae	*Calamagrostis canadensis*	NAcb	Widespread throughout N America; circumboreal
Poaceae	*Calamagrostis canadensis var. canadensis*	NA"	Widespread throughout N America

Poaceae	*Calamagrostis canadensis var. langsdorfii*	NAcb"	Widespread throughout N America; circumboreal
Poaceae	*Calamagrostis nutkaensis*	CW	Widespread in the near-coastal West from CA north to AK
Poaceae	*Calamagrostis stricta ssp. inexpansa*	NNAWa	Widespread throughout the West from CA north to AK and across northern N America; amphiberingian
Poaceae	*Cinna latifolia*	NNAWcb	Widespread throughout the West from CA north to AK and across northern N America; circumboreal
Poaceae	*Dactylis glomerata*	I	Introduced throughout N America from Eurasia
Poaceae	*Danthonia intermedia*	NNAW	Widespread throughout the West from CA north to AK and across northern N America
Poaceae	*Danthonia spicata*	NA	Widespread throughout N America
Poaceae	*Deschampsia cespitosa*	NAcb	Widespread in wet areas throughout N America; circumboreal
Poaceae	*Deschampsia cespitosa var. beringensis (Deschampsia beringensis)*	CWa	Wet areas of the coastal West from CA north to AK; amphiberingian
Poaceae	*Dichanthelium acuminatum ssp. fasciculatum*	NA	Widespread throughout N America
Poaceae	*Elymus glaucus*	NA	Widespread throughout N America
Poaceae	*Elymus glaucus ssp. glaucus*	NA"	Widespread throughout N America
Poaceae	*Elymus hirsutus*	CPNW	Coastal PNW from W OR north to SE AK

Poaceae	*Elymus repens (Elytrigia pungens)*	I	Introduced throughout N America from Eurasia
Poaceae	*Festuca filiformis (Festuca tenuifolia)*	I	Introduced throughout N America from Eurasia
Poaceae	*Festuca rubra*	NAcb	Widespread in wet areas throughout N America; circumboreal
Poaceae	*Festuca rubra ssp. pruinosa*	CWa	Wet areas of the coastal West from CA north to AK; amphiberingian
Poaceae	*Festuca subulata*	W	Widespread throughout the West from CA north to SE AK
Poaceae	*Glyceria borealis*	NNAW	Wet areas throughout the West from CA north to AK and across northern N America
Poaceae	*Glyceria grandis*	NNAW	Wet areas throughout the West from CA north to AK and across northern N America
Poaceae	*Glyceria striata*	NA	Wet areas throughout N America
Poaceae	*Glyceria x occidentalis*	W	Wet areas of the West from CA north to NW BC
Poaceae	*Hierochloe hirta*	NNAWcb	Widespread throughout the West from CA north to AK and across northern N America; circumboreal
Poaceae	*Holcus lanatus*	I	Introduced throughout N America from Eurasia
Poaceae	*Hordeum brachyantherum*	NA	Widespread throughout N America
Poaceae	*Hordeum jubatum ssp. jubatum*	NAcbd	Widespread throughout N America; circumboreal; also S America
Poaceae	*Leymus mollis (Elymus mollis) (Leymus arenarius)*	CWcbic	Beaches and dunes of the coastal West from CA north to AK; circumboreal

Poaceae	*Leymus mollis ssp. mollis*	CWcbic"	Beaches and dunes of the coastal West from CA north to AK; circumboreal
Poaceae	*Phalaris arundinacea*	I	Introduced throughout N America from Eurasia
Poaceae	*Phleum alpinum*	NAcbd	Widespread throughout N America; circumboreal; also S America
Poaceae	*Phleum pratense*	I	Introduced throughout N America from Eurasia
Poaceae	*Poa annua*	I	Introduced throughout N America from Eurasia
Poaceae	*Poa arctica ssp. arctica*	NNAcb	Wet montane and subalpine zones across northern N America; circumboreal
Poaceae	*Poa compressa*	I	Introduced throughout N America from Eurasia
Poaceae	*Poa cusickii ssp. epilis*	W	Montane and subalpine zones of the West from CA north to AK
Poaceae	*Poa laxiflora*	PNW	Infrequent throughout the PNW from W OR north to SE AK
Poaceae	*Poa macrantha*	CWic	Beaches and dunes of the coastal West from CA north to AK
Poaceae	*Poa nemoralis (Poa interior)*	NA	Montane zones throughout N America
Poaceae	*Poa palustris*	NAcb	Widespread in wet areas throughout N America; circumboreal
Poaceae	*Poa paucispicula*	PNWa	Alpine zones of the PNW from WA north to AK; amphiberingian
Poaceae	*Poa pratensis*	NAcb	Northern hemisphere
Poaceae	*Poa pratensis ssp. irrigata*	I	Introduced throughout N America from Eurasia
Poaceae	*Poa pratensis ssp. pratensis*	I	Introduced throughout N America from Eurasia

Poaceae	*Poa stenantha*	PNW	PNW from OR north to AK
Poaceae	*Podagrostis aequalis (Agrostis aequivalvis)*	CPNW	Wet areas of the coastal PNW from W OR north to SE AK
Poaceae	*Podagrostis humilis (Agrostis thurberiana)*	W	Wet montane and subalpine zones throughout the West from CA north to AK
Poaceae	*Puccinellia nutkaensis*	CWicd	Beaches and wet areas of the coastal West from CA north to AK; disjunct at the mouth of the St. Lawrence
Poaceae	*Puccinellia nuttalliana*	NNAW	Wet alkaline areas throughout the West from CA north to AK and across northern N America
Poaceae	*Puccinellia pumila*	CWic	Beaches and wet areas of the coastal West from CA north to AK
Poaceae	*Schedonorus arundinaceus*	I	Introduced throughout N America from Eurasia
Poaceae	*Thinopyrum intermedium*	I	Introduced throughout N America from Eurasia
Poaceae	*Torreyochloa pauciflora (Puccinellia pauciflora)*	W	Wet areas throughout the West from CA north to AK
Poaceae	*Trisetum canescens*	W	Widespread throughout the West from CA north to AK
Poaceae	*Trisetum cernuum*	W	Infrequent throughout the West from CA north to AK
Poaceae	*Trisetum spicatum*	NAcbd	Widespread throughout N America; circumboreal; also S America
Poaceae	*Vahlodea atropurpurea*	NNAWcbd	Wet montane and subalpine zones of the West from CA north to AK and across northern N America; circumboreal; also S America

Polemoniaceae	*Polemonium pulcherrimum ssp. lindleyi*	W	Montane, subalpine, and alpine zones of the West from CA north to AK
Polygonaceae	*Bistorta vivipara (Polygonum viviparum)*	NNAcb	Montane subalpine zones across northern N America; circumboreal
Polygonaceae	*Fallopia convolvulus (Polygonum convolvulus)*	I	Introduced throughout N America from Eurasia
Polygonaceae	*Persicaria wallichii (Polygonum polystachyum)*	I	Introduced throughout N America from Eurasia
Polygonaceae	*Rumex acetosella*	I	Introduced throughout N America from Eurasia
Polygonaceae	*Rumex aquaticus var. fenestratus (Rumex fenestratus) (Rumex occidentalis)*	NNAW	Wet areas of the West from CA north to AK and across northern N America
Polygonaceae	*Rumex salicifolius (Rumex transitorius)*	W	Wet areas of the West from CA north to AK
Polypodiaceae	*Polypodium glycyrrhiza*	CW	Widespread throughout the coastal West from CA north to SE AK
Polypodiaceae	*Polypodium hesperium*	W	Widespread throughout the West from CA north to AK
Potamogetonaceae	*Potamogeton alpinus*	NNAWcb	Wet areas of the West from CA north to AK and across northern N America; circumboreal
Potamogetonaceae	*Potamogeton epihydrus*	NAd	Wet areas throughout N America; disjunct in parts of Europe
Potamogetonaceae	*Potamogeton gramineus*	NNAWcb	Wet areas of the West from CA north to AK and across northern N America; circumboreal

Potamogetonaceae	*Potamogeton natans*	NNAWcb	Wet areas of the West from CA north to AK and across northern N America; circumboreal
Potamogetonaceae	*Potamogeton pusillus ssp. tenuissimus*	NAcbd	Wet areas throughout N America; circumboreal; also Africa
Primulaceae	*Dodecatheon jeffreyi*	CPNW	Wet areas of the coastal PNW from N CA north to AK
Primulaceae	*Dodecatheon jeffreyi ssp. jeffreyi*	CPNW"	Wet areas of the coastal PNW from N CA north to AK
Primulaceae	*Dodecatheon pulchellum ssp. pulchellum*	W	Widespread in wet areas of the West from CA north to AK
Primulaceae	*Dodecatheon pulchellum var. macrocarpum*	W"	Widespread in wet areas of the West from CA north to AK
Primulaceae	*Glaux maritima*	NAcb	Widespread in wet areas throughout N America; circumboreal
Primulaceae	*Trientalis europaea ssp. arctica (Lysimachia europaea)*	CWd	Wet areas of the coastal West from CA north to AK; also Eurasia
Pteridaceae	*Adiantum aleuticum (Adiantum pedatum ssp. aleuticum)*	Wad	Widespread throughout the West from CA north to AK; amphiberingian; disjunct to NE N America
Pteridaceae	*Cryptogramma acrostichoides*	NNAWa	Widespread throughout rocky areas of the West from CA north to AK and across northern N America; amphiberingian
Pteridaceae	*Cryptogramma stelleri*	NNAcb	Wet rocks across northern N America; circumboreal
Ranunculaceae	*Aconitum delphinifolium ssp. chamissonianum*	CBCa	Montane and subalpine zones of N BC north to AK; amphiberingian
Ranunculaceae	*Anemone narcissiflora*	CBC	N BC north to AK; infrequent in coastal BC from N Vancouver island north

Ranunculaceae	*Anemone parviflora*	NNAcb	Wet montane and subalpine zones across northern N America; circumboreal
Ranunculaceae	*Aquilegia formosa*	W	Widespread in wet areas of the West from CA north to AK
Ranunculaceae	*Caltha leptosepala (Caltha biflora)*	W	Widespread in wet areas of the West from CA north to AK
Ranunculaceae	*Caltha leptosepala ssp. howellii*	W"	Widespread in wet areas of the West from CA north to AK
Ranunculaceae	*Caltha leptosepala var. biflora*	W"	Widespread in wet areas of the West from CA north to AK
Ranunculaceae	*Caltha palustris ssp. asarifolia*	NNAcb	Infrequent in wet areas across northern N America; circumboreal
Ranunculaceae	*Coptis aspleniifolia*	CPNW	Wet areas of the coastal PNW from NW WA north to AK
Ranunculaceae	*Coptis trifolia*	NNAa	Wet areas of across northern N America; amphiberingian
Ranunculaceae	*Kumlienia cooleyae (Ranunculus cooleyae)*	CPNW	Wet areas of subalpine and alpine zones of the coastal PNW from W WA north to AK
Ranunculaceae	*Ranunculus acris*	I	Introduced throughout N America from Eurasia
Ranunculaceae	*Ranunculus aquatilis*	NAcbd	Wet areas throughout N America; circumboreal; also S America
Ranunculaceae	*Ranunculus cymbalaria*	NAcb	Wet areas throughout N America; circumboreal
Ranunculaceae	*Ranunculus eschscholtzii var. eschscholtzii*	W	Montane and subalpine zones throughout the West from CA north to AK
Ranunculaceae	*Ranunculus flammula*	NNAWcb	Wet areas throughout the West from CA north to AK and across northern N America; circumboreal

Ranunculaceae	*Ranunculus flammula var. reptans (Ranunculus reptans)*	NNAWcb"	Wet areas throughout the West from CA north to AK and across northern N America; circumboreal
Ranunculaceae	*Ranunculus macounii*	NNAW	Wet areas throughout the West from CA north to AK and across northern N America
Ranunculaceae	*Ranunculus macounii var. macounii*	NNAW"	Wet areas throughout the West from CA north to AK and across northern N America
Ranunculaceae	*Ranunculus occidentalis*	W	Widespread throughout the West from CA north to AK
Ranunculaceae	*Ranunculus ornithorhyncha*	W	Wet areas throughout the West from CA north to SE AK
Ranunculaceae	*Ranunculus ornithorhyncha var. platyphyllus*	W"	Wet areas throughout the West from CA north to SE AK; more frequent inland
Ranunculaceae	*Ranunculus uncinatus (Ranunculus bongardii)*	W	Wet areas of the West from CA north to AK
Ranunculaceae	*Trautvetteria caroliniensis*	NAa	Widespread in wet areas throughout N America; amphiberingian
Ranunculaceae	*Trollius albiflorus (Trollius laxus)*	PNW	Subalpine and alpine zones of the PNW from WA north to BC
Rosaceae	*Amelanchier alnifolia*	NNAW	Widespread throughout the West from CA north to AK and across northern N America
Rosaceae	*Aruncus dioicus (Aruncus sylvester)*	CWcb	Wet areas of the coastal West from CA north to AK; circumboreal
Rosaceae	*Comarum palustre (Potentilla palustris)*	NNAcb	Wet areas across northern N America; circumboreal
Rosaceae	*Crataegus douglasii var. douglasii*	NNAW	Wet areas of the West from CA north to AK and across northern N America

Rosaceae	*Filipendula ulmaria*	I	Introduced throughout N America from Eurasia
Rosaceae	*Fragaria chiloensis*	CWicd	Wet sand dunes and rocky bluffs of the coastal West from CA north to AK; also S America
Rosaceae	*Fragaria chiloensis ssp. lucida*	CWicd"	Wet sand dunes and rocky bluffs of the coastal West from CA north to AK; also S America
Rosaceae	*Fragaria chiloensis ssp. pacifica*	CWicd"	Wet sand dunes and rocky bluffs of the coastal West from CA north to AK; also S America
Rosaceae	*Fragaria virginiana var. glauca*	NA	Widespread throughout N America
Rosaceae	*Geum calthifolium*	CBCa	Coastal BC north to AK; amphiberingian
Rosaceae	*Geum macrophyllum*	NAa	Widespread throughout N America; amphiberingian
Rosaceae	*Geum macrophyllum var. macrophyllum*	NAa"	Widespread throughout N America; amphiberingian
Rosaceae	*Luetkea pectinata*	W	Subalpine and alpine zones of the West from CA north to AK
Rosaceae	*Malus fusca*	CW	Wet lowland areas of the coastal West from CA north to AK
Rosaceae	*Potentilla anserina ssp. pacifica*	NNAcb	Wet areas across northern N America; circumboreal
Rosaceae	*Potentilla egedii*	CWic	Beaches and wet areas of the coastal West from CA north to AK
Rosaceae	*Potentilla gracilis*	NA	Widespread throughout N America
Rosaceae	*Potentilla villosa*	CPNWa	Coastal PNW from WA north to AK; amphiberingian
Rosaceae	*Rosa nutkana var. nutkana*	W	Wet areas of the West from CA north to AK

Rosaceae	*Rubus chamaemorus*	NNAcb	Wet areas across northern N America; circumboreal
Rosaceae	*Rubus laciniatus*	I	Introduced throughout N America from Eurasia
Rosaceae	*Rubus parviflorus*	NNAW	Widespread throughout the West from CA north to AK; also across northern N America
Rosaceae	*Rubus parviflorus grandiflorus*	NNAW"	Widespread throughout the West from CA north to AK; also across northern N America
Rosaceae	*Rubus parviflorus ssp. parviflorus*	NNAW"	Widespread throughout the West from CA north to AK; also across northern N America
Rosaceae	*Rubus pedatus*	PNW	Widespread throughout the PNW from OR north to AK
Rosaceae	*Rubus spectabilis*	CPNW	Widespread throughout wet areas of the coastal PNW from N CA north to AK
Rosaceae	*Sanguisorba canadensis ssp. latifolia (Sanguisorba stipulata)*	PNWd	Wet areas of the montane and subalpine zones throughout the PNW and E N America
Rosaceae	*Sanguisorba menziesii*	CPNW	Wet areas of the coastal PNW from WA north to AK
Rosaceae	*Sanguisorba officinalis*	CW	Wet areas of the coastal West from CA north to AK
Rosaceae	*Sibbaldia procumbens*	NNAWcb	Montane, subalpine, and alpine zones of the West from CA north to AK and across northern N America; circumboreal
Rosaceae	*Sorbus sitchensis*	PNW	Montane, subalpine, and alpine zones of the PNW from N CA north to AK
Rosaceae	*Sorbus sitchensis var. grayi*	PNW"	Montane, subalpine, and alpine zones of the PNW from N CA north to AK

Rosaceae	*Spiraea douglasii*	W	Widespread in wet areas of the West from CA north to SE AK
Rosaceae	*Spiraea douglasii var. menziesii*	W"	Widespread in wet areas of the West from CA north to SE AK
Rosaceae	*Spiraea pyramidata*	PNW	Montane zones of the interior PNW; bad coordinates?
Rubiaceae	*Galium kamtschaticum*	NNAa	Wet areas across northern N America; amphiberingian
Rubiaceae	*Galium trifidum*	NAcb	Wet areas of the northern hemisphere
Rubiaceae	*Galium trifidum ssp. columbianum*	W	Wet areas of the West from CA north to NW BC
Rubiaceae	*Galium triflorum*	NAcb	Widespread throughout N America; circumboreal
Ruppiaceae	*Ruppia cirrhosa (Ruppia spiralis)*	NAcbd	Wet areas throughout N America; circumboreal; also S America
Ruppiaceae	*Ruppia maritima*	NAcbd	Wet areas throughout N America; circumboreal; also S America
Salicaceae	*Salix fragilis*	I	Introduced throughout N America from Eurasia
Salicaceae	*Salix lucida ssp. lasiandra (Salix lasiandra)*	W	Widespread in wet areas of the West from CA north to AK
Salicaceae	*Salix scouleriana*	W	Widespread in wet areas of the West from CA north to AK
Salicaceae	*Salix sitchensis*	W	Widespread in wet areas of the West from CA north to AK
Santalaceae	*Geocaulon lividum*	NNA	Wet areas across northern N America
Sapindaceae	*Acer glabrum var. douglasii*	PNW	Widespread throughout the PNW from OR north to AK
Saxifragaceae	*Boykinia occidentalis*	CW	Widespread throughout the coastal West from CA north to NW BC

Saxifragaceae	*Chrysosplenium tetrandrum*	NNAcb	Wet montane and subalpine zones across northern N America; circumboreal
Saxifragaceae	*Hemieva ranunculifolia (Suksdorfia ranunculifolia)*	PNW	Montane and subalpine zones of the PNW from N CA north to NW BC
Saxifragaceae	*Heuchera glabra*	CPNW	Wet areas of the montane, subalpine, and alpine zones of the coastal PNW from OR north to AK
Saxifragaceae	*Heuchera micrantha*	CW	Widespread throughout the coastal West from CA north to NW BC
Saxifragaceae	*Leptarrhena pyrolifolia*	CPNW	Wet areas of the montane, subalpine, and alpine zones of the coastal PNW from OR north to AK
Saxifragaceae	*Micranthes ferruginea (Saxifraga ferruginea)*	W	Wet areas of the West from CA north to AK
Saxifragaceae	*Micranthes nelsoniana (Saxifraga nelsoniana)*	CPNWa	Wet areas of the montane, subalpine, and alpine zones of the coastal PNW from OR north to AK; amphiberingian
Saxifragaceae	*Micranthes nelsoniana var. carlottae*	CPNWa"	Wet areas of the montane, subalpine, and alpine zones of the coastal PNW from OR north to AK; amphiberingian
Saxifragaceae	*Mitella breweri*	W	Wet montane and subalpine zones of the West from CA north to BC
Saxifragaceae	*Saxifraga bronchialis ssp. austromontana*	CBC	Subalpine areas from BC north to AK; cordilleran
Saxifragaceae	*Saxifraga caespitosa*	NNAWcb	Widespread throughout the West from CA north to AK and across northern N America; circumboreal
Saxifragaceae	*Saxifraga mertensiana*	W	Wet areas of the West from CA north to AK

Saxifragaceae	*Saxifraga tolmiei*	CW	Wet areas of the subalpine and alpine zones of the coastal West from CA north to AK
Saxifragaceae	*Saxifraga tricuspidata*	NNA	Montane and subalpine zones across northern N America
Saxifragaceae	*Tellima grandiflora*	CW	Wet areas of the coastal West from CA north to AK
Saxifragaceae	*Tiarella trifoliata*	W	Widespread in moist areas of the West from CA north to AK
Saxifragaceae	*Tiarella trifoliata var. laciniata (Tiarella laciniata)*	CPNW"	Coastal PNW from WA OR north to AK
Saxifragaceae	*Tiarella trifoliata var. trifoliata*	W"	Widespread in wet areas of the West from CA north to AK; more common at lower elevations
Saxifragaceae	*Tiarella trifoliata var. unifoliata*	W"	Widespread in wet areas of the West from CA north to AK; more common at higher elevations
Saxifragaceae	*Tolmiea menziesii*	CW	Widespread in wet areas of the coastal West from CA north to AK
Scrophulariaceae	*Limosella aquatica*	NNAWcb	Infrequent in wet areas of the West from CA north to AK and across northern N America; circumboreal
Selaginellaceae	*Selaginella selaginoides*	NNAcb	Wet areas across northern N America; circumboreal
Selaginellaceae	*Selaginella wallacei*	PNW	Wet areas of the PNW from N CA north to NW BC
Taxaceae	*Taxus brevifolia*	CPNW	Coastal PNW from N CA north to SE AK
Thelypteridaceae	*Phegopteris connectilis (Thelypteris phegopteris)*	NAd	Wet areas throughout N America; also Eurasia

Thelypteridaceae	*Thelypteris quelpaertensis (Thelypteris limbosperma) (Thelypteris oreopteris)*	CPNWad	Wet areas of the coastal PNW from WA north to AK; amphiberingian; disjunct in NE N America
Tofieldiaceae	*Triantha glutinosa (Tofieldia glutinosa)*	NNA	Wet areas across northern N America
Tofieldiaceae	*Triantha occidentalis ssp. brevistyla*	PNW	Wet areas of the PNW from OR north to AK
Typhaceae	*Sparganium angustifolium*	NNAWcb	Wet areas of the West from CA north to AK and across northern N America; circumboreal
Typhaceae	*Sparganium emersum*	NNAWcb	Wet areas of the West from CA north to AK and across northern N America; circumboreal
Typhaceae	*Sparganium emersum ssp. emersum*	NNAWcb"	Wet areas of the West from CA north to AK and across northern N America; circumboreal
Typhaceae	*Sparganium hyperboreum*	NNAcb	Wet areas across northern N America; circumboreal
Typhaceae	*Sparganium natans (Sparganium minimum)*	NNAWcb	Wet areas of the West from CA north to AK and across northern N America; circumboreal
Violaceae	*Viola glabella*	W	Widespread in wet areas of the West from CA north to AK
Violaceae	*Viola langsdorfii*	CPNWa	Wet areas of the coastal PNW from OR north to AK; amphiberingian
Zosteraceae	*Phyllospadix scouleri*	Wic	Intertidal zones of the West from MX north to AK
Zosteraceae	*Phyllospadix serrulatus*	PNWic	Intertidal zones of the PNW from OR north to AK

Zosteraceae	*Phyllospadix torreyi*	Wic	Intertidal zones of the West from MX north to AK
Zosteraceae	*Zostera marina (Zostera angustifolia)*	Cic	Cosmopolitan species of intertidal zones

Appendix C: Vascular plant inventory of Pitt Island, BC

Table 5: Informal inventory of vascular plant species in study area on Pitt Island, BC.

Family	Genus	Species	Common Name
Adoxaceae	*Sambucus*	*racemosa*	Red Elderberry
Apiaceae	*Angelica*	*lucida*	Sea-watch
Apiaceae	*Conioselinum*	*pacifica*	Pacific Hemlock-Parsley
Apiaceae	*Ligusticum*	*calderi*	Calder's Mountain Lovage
Apiaceae	*Ligusticum*	*scoticum*	Beach Lovage
Apiaceae	*Osmorhiza*	*purpurea*	Purple Sweet-Cicely
Araceae	*Lysichiton*	*americanus*	Skunk Cabbage
Araliaceae	*Oplopanax*	*horridus*	Devil's Club
Asparagaceae	*Maianthemum*	*dilatatum*	False Lily-of-the-Valley
Asteraceae	*Achillea*	*millefolium*	Yarrow
Asteraceae	*Arnica*	*latifolia*	Broadleaf Arnica
Asteraceae	*Artemisia*	*norvegica ssp. saxatilis*	Mountain Sagewort
Asteraceae	*Hieracium*	*triste*	Hairy Hawkweed
Asteraceae	*Microseris*	*borealis*	Apargidium
Asteraceae	*Nabalus*	*alatus*	Western Rattlesnake Root
Asteraceae	*Petasites*	*frigidus ssp. nivalis*	Sweet Coltsfoot
Asteraceae	*Senecio*	*triangularis*	Arrowleaf Groundsel
Athyriaceae	*Athyrium*	*filix-femina*	Lady Fern
Betulaceae	*Alnus*	*rubra*	Red Alder
Betulaceae	*Alnus*	*viridis ssp. sinuata*	Sitka Alder
Blechnaceae	*Blechnum*	*spicant*	Deer Fern
Brassicaceae	*Cardamine*	*oligosperma var. kamtschatica*	Little-seeded Bittercress
Brassicaceae	*Cochlearia*	*groenlandica*	Scurvy Grass

Caprifoliaceae	*Valeriana*	*sitchensis*	Sitka Valerian
Caryophyllaceae	*Sagina*	*maxima*	Coastal Pearlwort
Caryophyllaceae	*Spergularia*	*canadensis*	Canadian Sand-spurry
Caryophyllaceae	*Stellaria*	*crispa*	Crisp Starwort
Caryophyllaceae	*Stellaria*	*humifusa*	Salt Marsh Starwort
Cornaceae	*Cornus*	*canadensis*	Bunchberry
Cupressaceae	*Chamaecyparis*	*nootkatensis*	Yellow Cedar
Cupressaceae	*Juniperus*	*communis*	Common Juniper
Cupressaceae	*Thuja*	*plicata*	Western Redcedar
Cyperaceae	*Carex*	*circinata*	Coiled Sedge
Cyperaceae	*Carex*	*macrochaeta*	Big-awned Sedge
Cyperaceae	*Carex*	*mertensii*	Merten's' Sedge
Cyperaceae	*Carex*	*lyngbyei*	Salt Marsh Sedge
Cyperaceae	*Eriophorum*	*angustifolium*	Narrow Cotton Grass
Cyperaceae	*Trichophorum*	*caespitosum*	Tufted Clubrush
Cystopteridaceae	*Cystopteris*	*fragilis*	Fragile Fern
Cystopteridaceae	*Gymnocarpium*	*dryopteris*	Oak Fern
Dennstaedtiaceae	*Pteridium*	*aquilinum*	Bracken Fern
Droseraceae	*Drosera*	*rotundifolia*	Round-leaved Sundew
Dryopteridaceae	*Dryopteris*	*expansa*	Shield Fern
Dryopteridaceae	*Dryopteris*	*filix-mas*	Male Fern
Dryopteridaceae	*Polystichum*	*munitum*	Sword Fern
Ericaceae	*Andromeda*	*polifolia*	Bog Rosemary
Ericaceae	*Cassiope*	*mertensiana*	White Mountain-Heather
Ericaceae	*Elliottia*	*pyrolifolia*	Copperbush
Ericaceae	*Empetrum*	*nigrum*	Crowberry
Ericaceae	*Gaultheria*	*shallon*	Salal

Ericaceae	*Harrimanella*	*stelleriana*	Alaska Mountain-Heather
Ericaceae	*Kalmia*	*microphylla*	Western Bog-Laurel
Ericaceae	*Kalmia*	*procumbens*	Alpine-Azalea
Ericaceae	*Menziesia*	*ferruginea*	False Azalea
Ericaceae	*Moneses*	*uniflora*	Wax-flower
Ericaceae	*Phyllodoce*	*glanduliflora*	Yellow Mountain-Heather
Ericaceae	*Rhododendron*	*groenlandicum*	Labrador Tea
Ericaceae	*Vaccinium*	*alaskense*	Alaska Blueberry
Ericaceae	*Vaccinium*	*caespitosum*	Dwarf Blueberry
Ericaceae	*Vaccinium*	*ovalifolium*	Oval-leaf Blueberry
Ericaceae	*Vaccinium*	*oxycoccus*	Bog Cranberry
Ericaceae	*Vaccinium*	*parvifolium*	Red Huckleberry
Ericaceae	*Vaccinium*	*uliginosum*	Bog Blueberry
Ericaceae	*Vaccinium*	*vitis-idaea*	Lingonberry
Fabaceae	*Lupinus*	*nootkatensis*	Nootka Lupine
Gentianaceae	*Gentiana*	*douglasiana*	Swamp Gentian
Gentianaceae	*Gentiana*	*platypetala*	Broad-leaved Gentian
Grossulariaceae	*Ribes*	*bracteosum*	Stink Currant
Grossulariaceae	*Ribes*	*laxiflorum*	Trailing Currant
Lentibulariaceae	*Pinguicula*	*vulgaris*	Common Butterwort
Liliaceae	*Fritillaria*	*camschatcensis*	Rice Root
Liliaceae	*Streptopus*	*amplexifolius*	Clasping Twisted-Stalk
Liliaceae	*Streptopus*	*lanceolatus var. roseus*	Rosy Twisted-Stalk
Lycopodiaceae	*Diphasiastrum*	*alpinum*	Alpine Clubmoss
Lycopodiaceae	*Diphasiastrum*	*complanatum*	Ground-Cedar
Lycopodiaceae	*Huperzia*	*haleakale (selago)*	Fir Clubmoss
Lycopodiaceae	*Lycopodium*	*annotinum*	Stiff Clubmoss

Lycopodiaceae	*Lycopodium*	*clavatum*	Running Clubmoss
Lycopodiaceae	*Lycopodium*	*dendroideum*	Ground-Pine
Lycopodiaceae	*Lycopodium*	*sitchense*	Alaska Clubmoss
Melanthiaceae	*Veratrum*	*viride*	Corn Lily
Menyanthaceae	*Nephrophyllidium*	*crista-galli*	Deer Cabbage
Myricaceae	*Myrica*	*gale*	Sweet Gale
Onagraceae	*Epilobium*	*anagallidifolium*	Small Willowherb
Onagraceae	*Epilobium*	*angustifolium*	Fireweed
Orchidaceae	*Listera*	*caurina*	Broad-leaf Twayblade
Orchidaceae	*Listera*	*cordata*	Heartleaf Twayblade
Orchidaceae	*Platanthera*	*aquilonis*	Northern Green Bog Orchid
Orobanchaceae	*Castilleja*	*miniata*	Common Red Paintbrush
Orobanchaceae	*Castilleja*	*parviflora ssp. oreopola*	Magenta Paintbrush
Orobanchaceae	*Pedicularis*	*ornithorhyncha*	Birds-beak Lousewort
Pinaceae	*Abies*	*amabilis*	Amabilis Fir
Pinaceae	*Picea*	*sitchensis*	Sitka Spruce
Pinaceae	*Pinus*	*contorta*	Shore Pine / Lodgepole Pine
Pinaceae	*Tsuga*	*heterophylla*	Western Hemlock
Pinaceae	*Tsuga*	*mertensiana*	Mountain Hemlock
Plantaginaceae	*Penstemon*	*davidsonii*	Davidson's Penstemon
Plantaginaceae	*Plantago*	*maritima*	Sea Plantain
Poaceae	*Calamagrostis*	*canadensis*	Bluejoint Reedgrass
Poaceae	*Deschampsia*	*elongata*	Slender Hairgrass
Polypodiaceae	*Polypodium*	*glycyrrhiza*	Licorice Fern
Portulacaceae	*Claytonia*	*sibirica*	Siberian Miner's Lettuce

Primulaceae	*Dodecatheon*	*jeffreyi*	Tall Mountain Shooting-Star
Primulaceae	*Trientalis*	*europaea ssp. arctica*	Arctic Starflower
Ranunculaceae	*Anemone*	*narcissiflora*	Narcissus Anemone
Ranunculaceae	*Aquilegia*	*formosa*	Western Columbine
Ranunculaceae	*Caltha*	*leptosepala*	Marsh-Marigold
Ranunculaceae	*Coptis*	*asplenifolia*	Few-leaved Goldthread
Ranunculaceae	*Coptis*	*trifolia*	Three-leaf Goldthread
Ranunculaceae	*Kumlienia*	*cooleyae*	Cooley's False Buttercup
Ranunculaceae	*Ranunculus*	*uncinatus*	Small-flowered Buttercup
Rosaceae	*Aruncus*	*dioicus*	Goatsbeard
Rosaceae	*Geum*	*calthifolium*	Caltha-leaved Avens
Rosaceae	*Luetkea*	*pectinata*	Partridge-Foot
Rosaceae	*Malus*	*fusca*	Pacific Crabapple
Rosaceae	*Potentilla*	*anserina ssp. pacifica*	Silverweed
Rosaceae	*Rosa*	*nutkana*	Nootka Rose
Rosaceae	*Rubus*	*parviflora*	Thimbleberry
Rosaceae	*Rubus*	*pedatus*	Five-leaf Bramble
Rosaceae	*Rubus*	*spectabilis*	Salmonberry
Rosaceae	*Sanguisorba*	*canadensis*	Sitka Burnett
Rosaceae	*Sorbus*	*sitchensis*	Sitka Mountain Ash
Rubiaceae	*Galium*	*trifidum*	Small Bedstraw
Saxifragaceae	*Heuchera*	*glabra*	Smooth Alumroot
Saxifragaceae	*Leptarrhena*	*pyrolifolia*	Leatherleaf Saxifrage
Saxifragaceae	*Micranthes*	*nelsoniana*	Heartleaf Saxifrage
Saxifragaceae	*Saxifraga*	*ferruginea*	Rusty-leaf Saxifrage
Saxifragaceae	*Saxifraga*	*tolmiei*	Tolmie's Saxifrage
Saxifragaceae	*Tellima*	*grandifolia*	Fringecups

Saxifragaceae	*Tiarella*	*trifoliata var. trifoliata*	Foamflower
Saxifragaceae	*Tiarella*	*trifoliata var. unifoliata*	One-leaf Foamflower
Taxaceae	*Taxus*	*brevifolia*	Pacific Yew
Thelypteridaceae	*Phegopteris*	*connectilis*	Narrow Beech Fern
Tofieldiaceae	*Triantha*	*glutinosa*	Sticky False-Asphodel
Violaceae	*Viola*	*glabella*	Stream Violet
Violaceae	*Viola*	*langsdorfii*	Alaska Violet

Appendix D: Generalized Extent of Floristic Elements

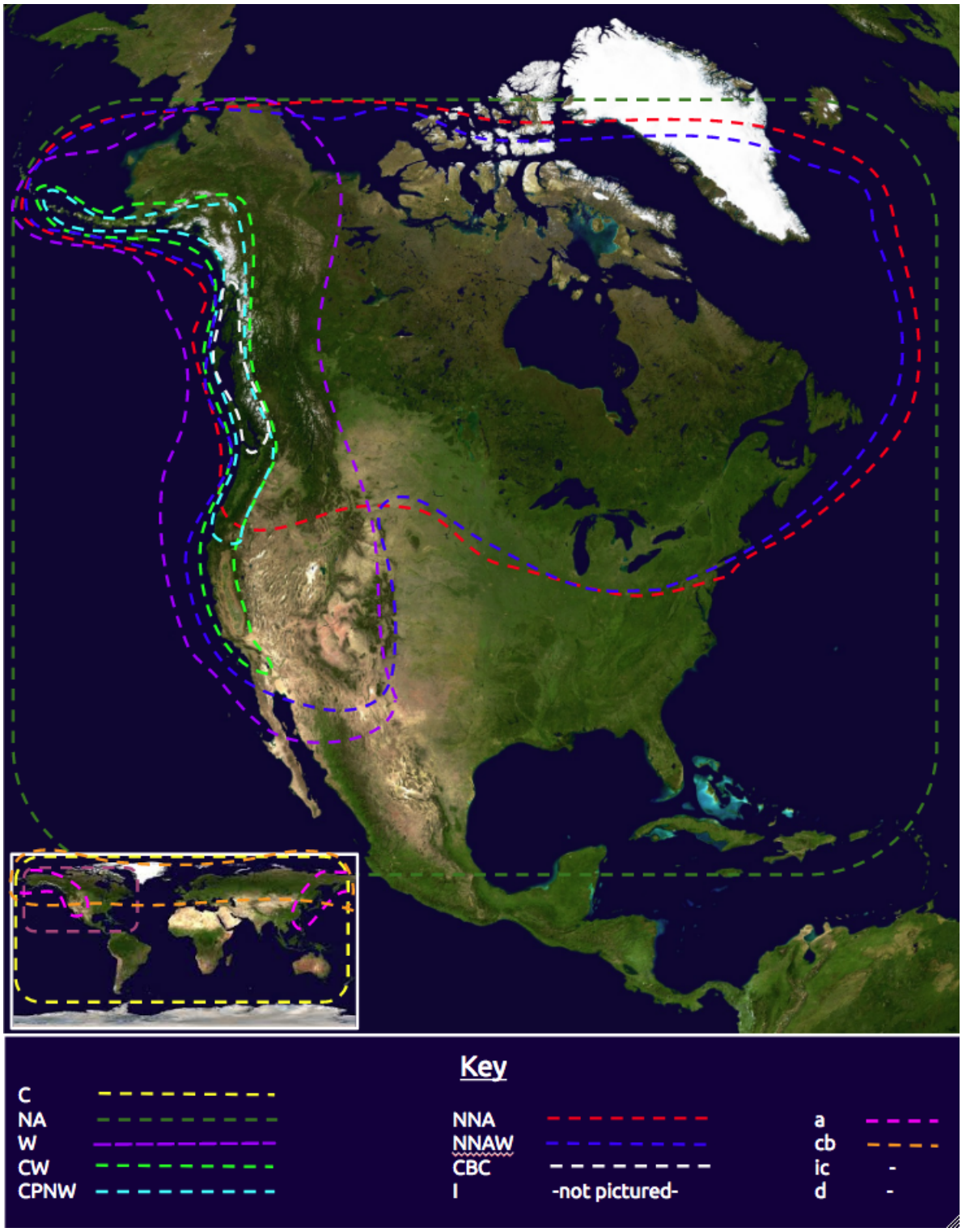

Figure 10: Generalized representation of floristic elements employed in the local and regional inventories.

Appendix E: Vascular Plant Inventory of Hevenor Islet, BC

Table 6: Informal inventory of vascular plant species on Hevenor Islet, BC; graminoids not included.

Family	Genus	Species	Common Name
Adoxaceae	*Sambucus*	*racemosa*	Red Elderberry
Asparagaceae	*Maianthemum*	*dilatatum*	False Lily-of-the-Valley
Athyriaceae	*Athyrium*	*filix-femina*	Lady Fern
Cupressaceae	*Thuja*	*plicata*	Western Redcedar
Dryopteridaceae	*Dryopteris*	*expansa*	Shield Fern
Ericaceae	*Gaultheria*	*shallon*	Salal
Ericaceae	*Vaccinium*	*alaskense*	Alaska Blueberry
Ericaceae	*Vaccinium*	*ovalifolium*	Oval Leaf Blueberry
Ericaceae	*Vaccinium*	*parvifolium*	Red Huckleberry
Grossulariaceae	*Ribes*	*laxiflorum*	Trailing Currant
Pinaceae	*Picea*	*sitchensis*	Sitka Spruce
Polypodiaceae	*Polypodium*	*glycyrrhiza*	Licorice Fern
Ranunculaceae	*Ranunculus*	*uncinatus*	Small-flowered Buttercup
Rosaceae	*Malus*	*fusca*	Pacific Crabapple
Rosaceae	*Rubus*	*parviflorus*	Thimbleberry
Rosaceae	*Rubus*	*spectabilis*	Salmonberry
Saxifragaceae	*Micranthes*	*nelsoniana*	Nelson's Saxifrage
Saxifragaceae	*Tellima*	*grandiflora*	Fringecups
Taxaceae	*Taxus*	*brevifolia*	Pacific Yew