Shrub-dominated upland vegetation in the Puget Trough has not been adequately quantitatively sampled because most known examples are related to timber harvest activities. There appear to be extremely few small natural-origin upland shrub-dominated stands of vegetation in the Puget Trough ecoregion. Dry shrub-dominated vegetation, or "shrub barrens" maintained by a particular fire frequency, may have been widespread in the ecoregion prior to Western settlement and the disruption of historic fire regimes (Floberg et al. 2004).

Small, apparently natural-origin fragments of a native shrubland vegetation type have been observed in urbanized western Pierce County (South Tacoma and vicinity). These stands of vegetation are dominated by the tall shrub beaked hazelnut (*Corylus cornuta* var. *californica*). Common to abundant associates include salal (*Gaultheria shallon*) (often forming a dense lower shrub layer), common snowberry (*Symphoricarpos albus*), Douglas-fir (*Pseudotsuga menziesii*), and Pacific madrone (*Arbutus menziesii*), the latter two as widely scattered trees. This vegetation type appears to have been maintained by periodic fires in the vicinity of prairies. It may have been a common feature of the pre-Western settlement South Puget Sound landscape. Interestingly, hazelnut-dominated shrublands with scattered oak and Douglas-fir have been documented as historically occupying huge acreages in the Willamette Valley of Oregon. They were transitional between prairies/savannas and forests and probably had intermediate fire frequencies (Christy et al. 1999, Floberg et al. 2004).

A few older Christmas tree plantations in central Mason County host a unique vegetation type characterized by dominance or co-dominance by kinnikinnick (*Arctostaphylos uva-ursi*) and/or beargrass (*Xerophyllum tenax*). Existing vegetation in these areas is typically open woodland co-dominated by lodgepole pine (*Pinus contorta* var. *contorta*) and Douglas-fir. Openings between the tree crowns support the unique shrub-forb composition. While beargrass is, technically speaking, a forb, in some respects it functions similarly to a shrub in terms of its stature, its evergreen habit, and its contribution to soil forming processes. Salal is abundant in this vegetation type, mostly under tree crowns. Poverty danthonia (*Danthonia spicata*), hairy manzanita (*Arctostaphylos columbiana*), dwarf huckleberry (*Vaccinium caespitosum*), spreading snowberry (*Symphoricarpos hesperius*), and several

SHRUBLANDS AND RELATED VEGETATION

forbs characteristic of prairies are common. Historic records indicate that these areas were probably beargrass savannas with scattered Douglas-fir trees and may have been quite extensive in central and western Mason County prior to Western settlement, maintained by periodic burning by aboriginal people (Peter and Shebitz *in press*). This vegetation type occurs on very gravelly glacial outwash plains.

Vegetation in clearcuts on the Kitsap Peninsula and northeast Olympic Peninsula are often dominated by salal, Pacific rhododendron (*Rhododendron macrophyllum*), evergreen huckleberry (*Vaccinium ovatum*), and/or snow-brush ceanothus (*Ceanothus velutinus*). These areas suggest the possibility of pre-Western settlement shrub-dominated vegetation with similar composition that could have been maintained by periodic fires.

The *Arctostaphylos columbiana* (hairy manzanita) association (Chappell 2006) occurs rarely in western Whatcom County and perhaps elsewhere in the ecoregion. These shrublands associated with herbaceous balds are less dependent on historic fires than the aforementioned shrub vegetation types. This vegetation type occurs on shallow soils in the context of mostly herbaceous-dominated balds and is more frequent in the adjacent more mountainous ecoregions.

The *Arctostaphylos uva-ursi-Fragaria virginiana-(Festuca roemeri)* association (kinnikinnick-broadpetal strawberry-Roemer's fescue) described by Chappell (2006) occurs sometimes within the context of shallow-soiled balds or gravelly prairies (FERO-SERI association) within the Puget Trough. It is dominated or co-dominated by dwarf-shrubs.

Chappell, C.B. 2006. Upland plant associations of the Puget Trough ecoregion, Washington. Washington Department of Natural Resources, Natural Heritage Program, Olympia, WA. [http://www.dnr.wa.gov/nhp/refdesk/communities/pdf/intro.pdf].

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