Vascular Plants of the Hanford Site

M. R. Sackschewsky
J. L. Downs

September 2001

Prepared for the U.S. Department of Energy
under Contract DE-AC06-76RL01830
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Pacific Northwest National Laboratory
Richland, Washington  99352
Executive Summary

This report provides an updated listing of the vascular plants present on and near the U.S. Department of Energy (DOE) Hanford Site. This document updates a listing of plants prepared by Sackschewsky et al. (1992). Since that time, the botanical knowledge of the Hanford Site has significantly increased. The current listing is based on an examination of herbarium collections held at Pacific Northwest National Laboratory (PNNL), Washington State University (WSU)-Tri Cities, WSU-Pullman, Brigham Young University, and the University of Washington, and on examination of ecological literature derived from the Hanford Site and Benton County areas over the last 100 years.

Based on the most recent analysis, there are approximately 725 different plant species that have been documented on or around the Hanford Site. This represents an approximate 20% increase in the number of species reported in Sackschewsky et al. (1992).

This listing directly supports DOE and contractor efforts to assess the potential impacts of Hanford Site operations on the biological environment, including impacts to rare habitats and species listed as endangered or threatened. This document includes a listing of plants currently listed as endangered, threatened, or otherwise of concern to the Washington Natural Heritage Program or the U.S. Fish and Wildlife Service, as well as those that are currently listed as noxious weeds by the state of Washington.

Also provided is an overview of how plants on the Hanford Site can be used by people. This information may be useful in developing risk assessment models and as supporting information for clean-up level and remediation decisions.
Acknowledgments

The preparation of this document would not have been possible without the contributions of many people. The contributions of Dan Landeen and Gary Baird to the 1992 version of *The Vascular Plants of the Hanford Site* formed much of the basis for this document. Katy Beck and Florence Caplow of Calypso Consulting were very generous with the data they collected on the Hanford Site during the mid to late 1990s. Katy Beck also reviewed this document several times, and provided many useful comments and suggestions. Georganne O’Connor provided a much needed editorial review. Lila Andor, Kathy Neiderhiser, and Elaine Schneider provided text processing support. The cover drawing of *Oenothera pallida* was prepared by Melaine Hess-Robinson. Programmatic support as well as personal encouragement for this project was provided by Dana Ward. Finally, we would both like to acknowledge the guidance and mentoring that we have received over the years from Dr. Bill Rickard.
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1.0 Introduction

The 586-square-mile (1,517-square-kilometer) Hanford Site, owned by the U.S. Department of Energy (DOE), represents one of the largest undisturbed tracts of native sagebrush steppe remaining in Washington State. A wide variety of habitat types and associated plant communities can be found on the Hanford Site, ranging from talus slopes, unstabilized dunes, riparian, wetlands, and high-elevation basalt outcrops to vast expanses of sagebrush/bunchgrass communities. Associated with these various habitat types is a surprising array of plant species.

An understanding of the local flora is critical if DOE is to make important decisions regarding cleanup, land management, and land use. An accurate listing of local plant species is a fundamental part of the environmental characterization activities performed in support of these types of decisions. These characterizations are performed to determine if any rare or endangered species are present in project areas, delineate any sensitive community types, aid in the identification and determination of transport pathways for ecological and human health risk assessments, and help in determining endpoints and goals for environmental cleanup.

Although several earlier lists were available, the first truly comprehensive plant list for the Hanford Site was Sackschewsky et al. (1992). That document included 596 species and was the first to combine listings covering all parts of the Hanford Site and the first to take a historical look at the regional flora to predict what other species are likely to occur in the area. Since the publication of Sackschewsky et al. (1992), the amount of botanical knowledge about the Hanford Site has increased significantly. This document is intended to build on the foundation of Sackschewsky et al. (1992) and update that list with the additional information learned from 1992 through 2001. Sackschewsky et al. (1992) went through at least three printings, and over 3,000 copies have been distributed to individuals and organizations throughout the Northwest. We hope that this revision proves to be as useful to as many people as the original.

The land area covered by this plant listing (“our region”) includes all lands within the boundaries of the Hanford Site (which now includes the Hanford Reach National Monument, managed by the U.S. Fish and Wildlife Service and DOE), plus the islands of the Columbia River within the Hanford Reach, and the White Bluffs on the eastern side of the river from the Hanford townsite to the 300 Area (Figures 1.1 and 1.2). The western limit is less well defined, but includes the portions of Umtanum Ridge and Rattlesnake Ridge that are within Benton County, including the upper portions of the western slope of Rattlesnake Mountain. The south and west side of the Columbia River from the vicinity of midway, Priest Rapids Dam, and extending essentially to Saddle Mountain Gap is also included. This encompasses slightly more area to the northwest of the Hanford Site boundaries than did Sackschewsky et al. (1992) and includes the areas examined by Mastrogiuseppe and Gill (1983). The northern boundary is the crest of the Saddle Mountains. The southern limit is not well defined, but is essentially the Yakima River. However, the list includes a few species found along the Columbia River near Kennewick and at a few other locations within the Tri-Cities. Figure 1.2 provides locations for many of the geographic features mentioned in the text.
Figure 1.1. Approximate Boundaries of the Region Included in the Hanford Site Plant List
Figure 1.2. Major Geographic Features of the Hanford Site
1.1 Basis for the Hanford Site Plant List

The list of vascular plants of the Hanford Site provided in Section 3.0 is based primarily on specimens collected by numerous Hanford Site workers from 1950 to 2001. This includes the excellent botanical work conducted by Kathryn Beck and Florence Caplow, who surveyed large areas on the Hanford Site as part of the biodiversity inventory conducted by The Nature Conservancy (TNC) during the mid- to late-1990s (Caplow and Beck 1994, 1996, 1997). Additional species were culled from other published lists for the region and other reports on local plant ecology. Attempts were made to locate and examine locally collected specimens for each of the listed species; over 95% of the listed species are documented by preserved specimens. A few species that have been observed by the authors, but have not been collected or reported elsewhere, are also included.

There have been significant changes in the taxonomic nomenclature for a number of groups of plants in our area, including a number of the most common and dominant grasses and shrubs. However, because workers in our area do not have a complete, technical replacement, the taxonomy used in this document follows Hitchcock and Cronquist (1973). We have provided the currently accepted name for each species if it is different from that in Hitchcock and Cronquist (1973); we derived these synonyms from Kartesz and Meacham (1999). In some cases, differentiation of currently accepted taxa requires the use of other references such as Hickman (1993) or Cronquist et al. (1977-1994). Hitchcock et al. (1955-1969) provided additional information about some species. We followed Bailey (1949) for domesticated plants. Horticultural plants that are part of currently maintained landscapes (i.e., around buildings) were not included in this list; those that have persisted without active cultivation are included.

The earliest listing of local plant species specific to our region is the St. John and Jones (1928) catalog for Benton County. This list is derived primarily from specimens collected by J. S. Cotton from 1901 to 1903, prior to the formation of Benton County. Many of his specimens were collected in the Rattlesnake Hills. From the elevation data provided on the specimens (2,500 ft-3,500 ft), he must have been working on or very near the present day Hanford Site. St. John and Jones also referred to a number of specimens from Lake and Hull, who collected in the vicinity of White Bluffs during early August 1892; to Miss Ruth Bennett, a local woman who collected around her home in the Rattlesnake Hills during the 1920s; and to their own collections from the 1920s. Several other collectors were referenced for smaller numbers of species.

For our purposes, we have included only those species from the St. John and Jones listing that we are reasonably sure were collected on or very near the present day Hanford Site. We did make an exception for a couple of species that were collected along the Columbia River near Kennewick but were probably also present elsewhere along the river. Many of the St. John and Jones collections were made in the vicinities of White Bluffs and the Hanford townsite. Most specimens used as the basis for St. John and Jones (1928) were deposited in the Washington State University Herbarium, now the Marion Owenby Herbarium. The specimens for most species that have not been found in subsequent years were examined at Washington State University Herbarium. Specimens for five of those could not be found. The species on the St. John and Jones (1928) list were included for two primary reasons: First, their listing is perhaps the best available record of the true native vegetation of the region, and is thus a good indicator of what may be present in the area today. Second, relatively little of the Hanford Site has been thoroughly
examined botanically, and many of the species on this earlier list may still be found on site. A number of species on the Sackschewsky et al. (1992) list that were included solely because of St. John and Jones (1928) have been reconfirmed during recent years.

Before the publication of Sackschewsky et al. (1992), the most comprehensive list of vascular plants of the Hanford Site was included as Appendix II.3-G, part 2, in ERDA (1975). That list included approximately 270 taxa, but did not include information about the distributions of these species. Another list, Price and Rickard (1973), documented the flora associated with the 200 Areas waste storage sites. They produced a list of approximately 100 species with some general distribution characteristics.

The ERDA (1975) list was primarily based on the collections of J. T. and T. P. O’Farrell, who collected on the Fitzner/Eberhardt Arid Land Ecology (ALE) Reserve during the early 1970s (O’Farrell 1972). The majority of their collection was donated to the Washington State University Herbarium. At the time that Sackschewsky et al. (1992) was published, 35 of the 270 species included in ERDA (1975) had not been subsequently documented by other workers—most of these have now been confirmed either during recent biological investigations or by the extension of our defined region represented by the work near Priest Rapids by Mastrogiuseppe and Gill (1983).

Mastrogiuseppe and Gill (1983) prepared an excellent analysis of the vegetation on the south and west side of the Columbia River in the vicinity of Priest Rapids. Portions of their study area included the extreme western edge of the Hanford Site and the part of the eastern edge of the Yakima Training Center. We have chosen to include the species from their listing because the study area at least partially overlapped the region covered within Sackschewsky et al. (1992), and because their list provides confirmation or redundancy for a number of observations on the Hanford Site proper. In some cases, Mastrogiuseppe and Gill (1983) provides confirmatory observations for species that have not been observed on the Hanford Site for 70 to 100 years. Much of their study area, at least at the time, may have been even less disturbed than the Hanford Site, and was therefore a partial surrogate area for our native plant communities. Specimens for most of the species reported by Mastrogiuseppe and Gill were found at the Marion Owenby Herbarium at WSU, Pullman.

Price and Rickard (1973) lists approximately 100 plant species from the 200 Areas. Most specimens collected in support of this list are currently held in the herbarium curated by PNNL. This herbarium was formerly maintained by Westinghouse Hanford Company and was referred to as “WHC” in Sackschewsky et al. (1992). Other major contributors to the PNNL herbarium include G. I. Baird, J. Lietz, V. A. Uresk, and M. R. Sackschewsky. These workers collected specimens from the late 1970s to the present. G. I. Baird also donated over 1,000 Hanford Site plant specimens to the herbarium at Brigham Young University (BRY).

The herbarium formerly maintained by PNNL at the ALE Reserve (“PNL” in Sackschewsky et al. [1992]) is now located on the WSU-Tri Cities campus (PNNL-TC). It contains a number of specimens collected by J. J. Davis in the early 1950s and by Pendleton in the late 1950s. Other major contributors include J. L. Warren, R. H. Sauer (and associates), R. E. Fitzner, W. H. Rickard, and J. F. Cline. Most of these workers collected during the mid-1970s to the early 1980s in support of a variety of projects.
1.2 Summary of the Hanford Plant List

Based on the sources described in Section 1.1, 725 species are included on the current listing of vascular plants of the Hanford Site. These species are spread over 355 genera in 90 families. The largest family is the Asteraceae, with 108 species in 53 genera, followed by the Poaceae with 85 species in 41 genera. These are followed by (with species/genera): Brassicaceae (42/23), Fabaceae (39/16), Cyperaceae (32/6), Boraginaceae (29/12), Scrophulariaceae (29/14), Polygonaceae (26/5), and Rosaceae (23/11). These 9 families (10% of all families) account for 57% of the total species and 51% of all the genera. Thirty-four families are monospecific in our region. The largest genus is Carex with 16 species, followed by Eriogonum with 12 species, and Astragalus with 11 species, Juncus, Poa, and Cryptantha have 10 species each. Salix, Polygonum, and Lomatium are each represented by 9 species; 6 genera are represented by 8 species each, and 2 genera have 7 species each. Six genera are represented by 6 species each, and 13 genera have 5 species each. The largest 10% of the genera account for 36% of the total number of species; 222 genera (63% of our genera) are monospecific in our region. The family, genus, and species distribution among higher levels of classification is provided in Table 1.1.

Table 1.1. Phylogenetic Distribution of Hanford Site Vascular Plants

<table>
<thead>
<tr>
<th>Vascular Cryptogams</th>
<th>Gymnosperms</th>
<th>Angiosperms (Magnoliophyta)</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Pinophyta</td>
<td>Monocots - Liliopsida</td>
<td>Dicots - Magnoliopsida</td>
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<td>2</td>
<td>14</td>
</tr>
<tr>
<td>Genera</td>
<td>6</td>
<td>3</td>
<td>68</td>
</tr>
<tr>
<td>Species</td>
<td>10</td>
<td>4</td>
<td>165</td>
</tr>
</tbody>
</table>

1.3 Document Contents and Uses

This document is intended to be useful for a broad range of applications and users. Appendices A and B are compact, alphabetical listings of the known Hanford flora (Appendix A by genus, Appendix B by family); these are designed to function as a quick reference for biologists working in the field. Section 2.0 of this report provides an overview of the plant communities on Hanford Site, including their characteristics and distribution, as well as the overall ecological and geological setting of the Hanford Site. Section 3.0 presents the annotated plant list. Section 4.0 provides a brief overview of the Hanford Site plant species currently listed by either Washington State or the federal government as threatened, endangered, sensitive, or otherwise of concern. Because the official status of any species is always subject to change, the comprehensive list that makes up the bulk of this document will allow for the presence or absence of new species of concern on the Hanford Site to be readily determined. The general distribution and abundance of such species could also be deduced based on the information included in Sections 2.0 and 3.0. Section 4.0 also lists species that are currently considered noxious weeds by the state of Washington. An overview of the interactions between humans and the local flora is provided in Section 5.0. This section is provided as an introduction to the variety of uses that people have and will find for the local flora and as an aid to developing risk assessments and modeling potential pathways to humans that may occur through the use of local plants for food or medicinal purposes.
2.0 Plant Communities on the Hanford Site

The semi-arid lands of the Hanford Site represent one of the last, large relatively undisturbed tracts of shrub-steppe in eastern Washington. Shrub-steppe vegetation once covered more than 200,000 square miles of the American West and represented the largest non-forested region in North America. However, many stands of native vegetation have been replaced since Lewis and Clark first described the shrubs, grasses, and herbs found in our area in 1805. As a result of expanded agricultural and urban development, much of the native shrub-steppe in Washington has been eliminated or fragmented. The shrub-steppe lands of the Hanford Site represent a valuable resource that has been afforded relative protection from private development for agriculture, grazing, and industry.

The designation shrub-steppe refers to the plants classed as dominants within the vegetative communities, that is, shrubs and steppe grasses. In describing the vegetation zones and plant associations of the eastern Washington steppe, Daubenmire (1970) originally included all the Hanford Site in the zone he called the *Artemisia tridentata*/*Agropyron spicatum* zone or big sagebrush/bluebunch wheatgrass zone (*Agropyron spicatum* has since been reclassified as *Pseudoroegneria spicata* [Pursh] A. Löve). This large zone covers the most arid interior of eastern Washington extending west to the Cascade Mountains, north into the Okanogan Valley, and south into portions of northcentral Oregon. Within this zone a number of different shrub-steppe plant community types exist according to climatic conditions, topographic conditions, soil type and depth, and land disturbance history.

At Hanford, the climate is semi-arid with hot, dry summers and cold, wet winters. Most of the effective precipitation is received between October and April, and a precipitation gradient coincides with the elevation gradient (Stone et al. 1983). The highest elevation on the Hanford Site is on the crest of Rattlesnake Mountain (3,500 ft; 1,150 m), which receives approximately 12 to 14 in. (30 to 35 cm) of precipitation annually. This northeast-facing anticlinal ridge falls steeply about 1,600 ft (487 m) elevation, where slopes become more moderate (8 to 10 in. [20 to 25 cm] of precipitation), but continue to descend to approximately 500 ft (152 m) in Cold Creek Valley and eastward to the Columbia River where annual average precipitation is 4.7 in. (12 cm) (Rickard et al. 1988). The 200 Area Plateau rises a few hundred feet above the rest of the central portion of the site, with Gable Butte and Gable Mountain rising fairly steeply to 773 ft (236 m) and 1,085 ft (331 m) respectively (Figure 2.1). Soils range from silt loams, stony silt loams, talus and basalt scree on the slopes of Rattlesnake Mountain and Gable Mountain to sandy loams, loamy sands, and dune sands on the Columbia River Plain (Figure 2.2) (Rickard et al. 1988; Hajek 1966). The different soils found on Hanford along with the elevation and precipitation gradient from the river to the top of Rattlesnake Mountain allow a variety of shrub-steppe plant communities to exist within a relatively short distance. Soil maps for the portions of the Hanford site lying within Franklin and Grant counties are not currently available.

In addition to shrub-steppe vegetation, riparian (streamside) vegetation on the Hanford Site is found along the banks of the Columbia River, along several intermittent streams occurring on the ALE Reserve, and on the shores of several irrigation waste-water ponds on the Saddle Mountain National Wildlife Refuge. Riparian vegetation is limited in extent, with narrow bands or buffers near the water consisting
Figure 2.1. Shaded Relief Map of the Hanford Site Indicating Dominant Topographic Features (Major roads and outlines of the Hanford Site areas are included for reference.)
Figure 2.2. Soils Map for the Benton County Portion of the Hanford Site (after Hajek 1966)
of a number of forbs, grasses, sedges, reeds, rushes, cattails, and deciduous trees and shrubs. Much of the riparian zone has also been successfully invaded by exotic plant species that can act to displace native species. Along the Hanford Reach, mulberry (*Morus alba* L.) and Russian olive (*Elaeagnus angustifolia* L.) trees are more frequent than the native black cottonwood (*Populus trichocarpa* Torr. & Gray ex Hook). In places along the Columbia River shoreline, the native cattails (*Typha latifolia* L.), sedges, and rushes may be displaced by reed canarygrass (*Phalaris arundinacea*).

During the past decade, the existing and potential plant communities of the upland areas on the Hanford Site have been mapped in detail through cooperative efforts supported by DOE, Washington Department of Fish and Wildlife, TNC of Washington, and PNNL. The following section describes the plant associations most commonly found on the uplands of the Hanford Site.

## 2.1 Shrub-Steppe Plant Communities

Plant communities of the shrub-steppe region are usually named and recognized according to the dominant shrub and grass species found within the community (Figure 2.3). Within the shrub-steppe plant communities on Hanford, big sagebrush (*Artemisia tridentata* Nutt.) is often the dominant shrub with herbaceous grasses and forbs (herbaceous plants other than grasses) growing between and beneath shrub canopies (understory species). Other shrub species also occur in sagebrush steppe communities or may be the dominant shrub in seral or edaphic plant communities on Hanford. Common shrub species on Hanford besides sagebrush include the following:

- Gray rabbitbrush (*Chrysothamnus nauseosus* [Pallas ex Pursh.] Britt.)
- Green rabbitbrush (*Chrysothamnus viscidiflorus* [Hook.] Nutt.)
- Antelope bitterbrush (*Purshia tridentata* [Pursh.] DC.)
- Spiny hopsage (*Grayia spinosa* [Hook.] Moq.)
- Threetip sagebrush (*Artemisia tripartita* Rydb.)
- Black greasewood (*Sarcobatus vermiculatus* [Hook.] Torr.).

In some areas, particularly in ecotones at the boundaries of stands or in areas with soil mosaics, big sagebrush can co-occur with bitterbrush, threetip sagebrush, rigid sagebrush, and buckwheat species. Franklin and Dyrness (1973) expanded Daubenmire’s (1970) classification to also recognize several of these shrubs as dominant species in shrub/Sandberg’s bluegrass (*Poa sandbergii*) climax vegetation associations within the sagebrush/bluebunch wheatgrass vegetation zone.

Sagebrush is a particularly important plant in eastern Washington and throughout the Intermountain West. Mature stands of big sagebrush (where plants are large enough to have developed a woody branching structure) provide important habitat for species that rely on sagebrush to survive. The loggerhead
Figure 2.3. Vegetation Cover Types Found on the Hanford Site before the 2000 Command Fire. Because mapping was conducted over a 5-year period between 1994 and 1999, cover types may not reflect the current conditions. Readers are referred to the Ecosystem Monitoring web page (http://www.pnl.gov/ecology/ecosystem) to obtain the most current versions available for map layers.
### LEGEND

- Abandoned Old Agricultural Fields
- Alkali Saltgrass - Cheatgrass
- Big Sagebrush - Bitterbrush / Bunchgrass
- Big Sagebrush - Bitterbrush / Needle-and-Thread Grass
- Big Sagebrush - Bitterbrush / Sandberg's Bluegrass
- Big Sagebrush - Rigid Sagebrush / Bunchgrass
- Big Sagebrush - Rock Buckwheat / Bunchgrass
- Big Sagebrush - Spiny Hopsage / Bunchgrass
- Big Sagebrush - Spiny Hopsage / Sandberg's Bluegrass - Cheatgrass
- Big Sagebrush / Bluebunch Wheatgrass
- Big Sagebrush / Bunchgrass
- Big Sagebrush / Needle-and-Thread Grass
- Big Sagebrush / Sand Dropseed
- Big Sagebrush / Sandberg's Bluegrass - Cheatgrass
- Bitterbrush / Bunchgrass
- Bitterbrush / Indian Ricegrass
- Bitterbrush / Needle-and-Thread Grass
- Black Greasewood / Alkali Saltgrass
- Bluebunch Wheatgrass - Needle-and-Thread Grass
- Bluebunch Wheatgrass - Sandberg's Bluegrass
- Bunchgrass - Cheatgrass
- Crested Wheatgrass
- Disturbed
- Gray Rabbitbrush - Snow Buckwheat / Bunchgrass
- Gray Rabbitbrush / Bunchgrass
- Gray Rabbitbrush / Cheatgrass
- Gray Rabbitbrush / Needle-and-Thread Grass
- Gray Rabbitbrush / Sand Dropseed
- Gray Rabbitbrush / Sandberg's Bluegrass - Cheatgrass
- Needle-and-Thread Grass - Indian Ricegrass
- Needle-and-Thread Grass - Sandberg's Bluegrass
- Non-Riverine Wetlands and Associated Deepwater Habitats
- Rabbitbrush / Bunchgrass
- Rigid Sagebrush / Sandberg's Bluegrass
- Riparian
- Riverine Wetlands and Associated Deepwater Habitats
- Sand Dropseed - Sandberg's Bluegrass - Cheatgrass
- Sandberg's Bluegrass - Cheatgrass
- Snow Buckwheat - Bitterbrush / Bunchgrass
- Snow Buckwheat / Bunchgrass
- Snow Buckwheat / Sandberg's Bluegrass - Cheatgrass
- Spiny Hopsage / Sandberg's Bluegrass - Cheatgrass
- Talus
- Threetip Sagebrush / Bunchgrass
- Thymeleaf Buckwheat / Sandberg's Bluegrass
- Vernal Pool
- White Bluffs
- Winterfat / Bunchgrass

**Figure 2.3.** (contd)
shrike, sage thrasher, and sage sparrow all require mature shrubs for nesting. Other species of conservation concern in Washington, such as the greater sage grouse, require the leaves of big sagebrush as a food source. Black-tailed jackrabbits also rely heavily on big sagebrush for food, protective cover, and shade. Of the three sagebrushes found on the Hanford Site, only stiff sagebrush is deciduous. Big sagebrush and threetip sagebrush are not deciduous, and their leaves can be an important food source for some wildlife in winter months when other shrubs are leafless. Stiff sagebrush (*Artemisia rigida*), which is less common on the Hanford Site because it is restricted to rock outcrops and rocky, shallow soils, is a winter deciduous shrub. The sagebrush communities of the Hanford Site represent a particularly important natural resource for the state because other lands within eastern Washington have been developed for agriculture and industry.

On the Hanford Site, bluebunch wheatgrass (*Agropyron spicatum* [Pursh.] Scribn. & J.G. Sm.), Sandberg’s bluegrass (*Poa sandbergii* Vasey), a variety of flowering plants (forbs), and a cryptogamic soil crust form the understory of the big sagebrush/bluebunch wheatgrass zone. The understory vegetation comprises those species that grow below the tallest shrubs or trees in a plant community, that is, the forbs and grass species. Most native perennial grass species commonly found on the Hanford Site are cool-season bunchgrasses, including needle-and-thread grass (*Stipa comata* Trin. & Rupr.), Indian ricegrass (*Oryzopsis hymenoides* Roemer & J.A. Schultes), Cusick’s bluegrass (*Poa cusickii* Vasey), and Idaho fescue (*Festuca idahoensis* Elmer). When no shrubs are present in the community, the dominant grass species are used to describe the habitat, as shown in Figure 2.3—the bluebunch wheatgrass/Sandberg’s bluegrass community. Table 2.1 shows the common shrub-steppe plant communities of the lower Columbia Basin. The general soil type and elevation for each community type also are listed. The predominant plant communities depicted in Figure 2.3 are described in more detail in the following paragraphs.

### Table 2.1. Common Shrub-Steppe Plant Communities of the Hanford Site

<table>
<thead>
<tr>
<th>Plant Community Type</th>
<th>Soils</th>
<th>Elevation (m)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Big sagebrush/Sandberg’s bluegrass</td>
<td>Loams and sandy loams</td>
<td>100 - 300</td>
</tr>
<tr>
<td>Big sagebrush/cheatgrass</td>
<td>Loams and sandy loams</td>
<td>Above 100</td>
</tr>
<tr>
<td>Big sagebrush/needle-and-thread grass</td>
<td>Sands and loamy sands</td>
<td>100 - 300</td>
</tr>
<tr>
<td>Big sagebrush bluebunch wheatgrass</td>
<td>Loams and silt loams</td>
<td>Above 200</td>
</tr>
<tr>
<td>Bitterbrush/bluebunch wheatgrass</td>
<td>Sands, loams, silt loams</td>
<td>100 - 300</td>
</tr>
<tr>
<td>Bitterbrush/needle-and-thread grass</td>
<td>Sands and loamy sands</td>
<td>100 - 300</td>
</tr>
<tr>
<td>Bitterbrush/Indian ricegrass</td>
<td>Sands</td>
<td>100 - 300</td>
</tr>
<tr>
<td>Hopsage/Sandberg’s bluegrass</td>
<td>Loams, silt loams</td>
<td>100 - 300</td>
</tr>
<tr>
<td>Greasewood/saltgrass</td>
<td>Loams, silt loams</td>
<td>100 - 300</td>
</tr>
<tr>
<td>Threetip sagebrush/bluebunch wheatgrass</td>
<td>Loams, silt loams</td>
<td>400 - 800</td>
</tr>
<tr>
<td>Threetip sagebrush/Idaho fescue</td>
<td>Loams, silt loams</td>
<td>400 - 1,000</td>
</tr>
<tr>
<td>Stiff sagebrush/Sandberg’s bluegrass</td>
<td>Stony loams/lithosol</td>
<td>100 - 500</td>
</tr>
<tr>
<td>Thyme buckwheat/Sandberg’s bluegrass</td>
<td>Stony loams/lithosol</td>
<td>Above 500</td>
</tr>
<tr>
<td>Rock buckwheat/Sandberg’s bluegrass</td>
<td>Stony loams/lithosol</td>
<td>Above 250</td>
</tr>
<tr>
<td>Narrow-leaved goldenweed/Sandberg’s bluegrass</td>
<td>Stony loams/lithosol</td>
<td>Above 250</td>
</tr>
</tbody>
</table>

(a) Elevation bands described here are intended only to describe the approximate distribution of the communities on the Hanford Site; exceptions are likely to occur.
2.1.1 **Big Sagebrush/Sandberg’s Bluegrass**

Communities dominated by big sagebrush/Sandberg’s bluegrass occur below elevations of 800 to 900 ft (about 250 to 275 m) above sea level in the driest parts of the Columbia Basin. The extremes in temperature and low precipitation levels found in the lower Columbia Basin create one of the driest and harshest environments dominated by the evergreen big sagebrush. In some places where significant human-related disturbances (intense livestock grazing, construction) have occurred, the introduced winter annual grass cheatgrass becomes the dominant or co-dominant grass species. Other native bunchgrasses, including Indian ricegrass, needle-and-thread grass, and bottlebrush squirreltail may be scattered throughout this community type.

Spiny hopsage also occurs often in this community, and in some areas it may co-dominate the shrub layer. Green rabbitbrush, gray rabbitbrush, and bitterbrush may also represent a minor component within the community. Common native forb species include Carey’s balsamroot (*Balsamorhiza careyana* Gray), long-leaved phlox (*Phlox longifolia* Nutt.), yarrow (*Achillea millefolium* L.), and daisy fleabane (*Erigeron* spp.). Turpentine springparsley (*Cymopterus terebinthinus* Hook.) also often occurs on sandy soils dominated by this community type. Species diversity often is lower in this community than in communities found in the surrounding foothills.

Across some portions of the Hanford Site, the understory grasses have been replaced to some degree by cheatgrass resulting in Sandberg’s bluegrass-cheatgrass complexes. The big sagebrush/Sandberg’s bluegrass-cheatgrass cover type is common across central Hanford.

2.1.2 **Big Sagebrush or Bitterbrush/Needle-and-Thread Grass**

In limited areas of the Columbia River Plain, sandy soils and loamy sands support plant communities where needle-and-thread grass is the dominant understory species with a shrub component of mostly big sagebrush or antelope bitterbrush or a mix of the two shrubs. Other perennial native grasses in the understory include Sandberg’s bluegrass and prairie junegrass (*Koelaria cristata*). Many of the forbs found in the bitterbrush/Indian ricegrass and dune complex communities can also be found in these communities. The low-growing snow buckwheat (*Eriogonum niveum* Dougl. Ex Benth.) is commonly found within these communities in the sandy loams and sands found on central Hanford. Snow buckwheat may become the dominant shrub component in this habitat when the larger shrubs are removed by wildfire. Gray rabbitbrush may also be a dominant shrub in these communities if big sagebrush is removed by wildfire. This climax community is not well represented in the rest of eastern Washington, and areas on Hanford consisting of big sagebrush/needle-and-thread grass are considered an element occurrence by the Washington State Natural Heritage Program (see Rare Plant Communities and Element Occurrences).

2.1.3 **Bitterbrush/Indian Ricegrass and Dune Complex**

This shrub-steppe plant community is associated with stabilized sand dunes such as those found on the Hanford Site. Unstabilized sand dunes occur over a large area on the west side of the Columbia River just north of Energy Northwest. Indian ricegrass and needle-and-thread grass are particularly well suited for growing in these dry sandy soils and help stabilize dune sands. Other dune-stabilizing species are pale
evening primrose (*Oenothera pallida*), sand dock (*Rumex venosus*), thickspike wheatgrass (*Agropyron dasystachyum* [Hook.] Scribn. & J.G. Sm.), scurfpea (*Psoralea lanceolata* Pursh.), turpentine spring-parsley, and green rabbitbrush (*Chrysothamnus viscidiflorus* [Hook.] Nutt.). Snow buckwheat can also be a significant component of these community types and can be the most obvious species in the stand following wildfires. In sandy or cobbly portions of central Hanford, big sagebrush may co-dominate with bitterbrush to varying degrees with bunchgrasses in the understory.

Sand dunes can be a difficult place for plants to colonize because the dunes are constantly shifting, and plant seeds can easily blow away or be covered too deeply to germinate. Other constraints also exist that may decrease seed germination and recruitment on dune soils, including the soil texture and water holding capacity. Because the dune soils are so coarse, water quickly infiltrates, and the soil surface dries rapidly after precipitation events. Even so, over time dunes can support a richly diverse plant community of species that are well adapted to sandy soils. These sandy soil areas with varying topography create a number of microclimates, and thus, niches that support different plant life forms. The aspect and slope of the dune influence which plants grow where. For example, north-facing slopes of the sand dunes often support a dense stand of needle-and-thread grass, whereas the crests of the sand dunes support a mix of shrubs and grasses.

### 2.1.4 Sand Dropseed-Sandberg’s Bluegrass

Sand dropseed (*Sporobolus cryptandrus* [Torr.] Gray) growing in association with Sandberg’s bluegrass likely represents a climax community at the interface between riparian and upland areas of the shrub-steppe. It is found in cobble and sandy soils near the river. Many of these areas have also been heavily disturbed either during the years when those areas were farmed or during Hanford reactor construction and Hanford Site operations. In some stands, gray rabbitbrush or big sagebrush shrubs provide a shrub component.

### 2.1.5 Greasewood/Saltgrass and Spiny Hopsage/Sandberg’s Bluegrass

In low-lying, flat areas of the Columbia Basin with silt loam and loam soils, spiny hopsage- and greasewood-dominated plant communities occur. These two shrubs are salt- or alkali-tolerant plants (called halophytes) that can thrive in areas where other shrubs cannot. Greasewood plant communities are usually found adjacent to either above-ground or near-surface water such as creeks and springs because greasewood requires root contact with groundwater for survival. Sodium accumulates and is partitioned in the leaves of the winter deciduous greasewood shrubs. Spiny hopsage tolerates alkaline soils and accumulates significant amounts of potassium in its leaves before the leaves senesce and drop to the ground during the dry summer months.

Greasewood/saltgrass (*Distichlis stricta* [Torr.] Rydb.) plant communities on the Hanford Site occur in association with ephemeral and permanent water courses such as Rattlesnake Springs and irrigation waste-water lakes on the Wahluke Slope. Sandberg’s bluegrass often co-occurs with saltgrass in the understory. Intershrub spaces may support grasses or contain small areas where alkaline compounds coat the soil surface. Greasewood is a winter deciduous shrub and resprouts from the root crown after burning.
Spiny hopsage/Sandberg’s bluegrass communities are less common in the Columbia Basin landscape. Several stands on central Hanford were burned during the 2000 wildfire, but spiny hopsage still occurs as a dominant shrub in communities found on the Franklin County side of the Hanford Reach. The understory of hopsage stands is often invaded by cheatgrass and other exotic annual species. Spiny hopsage drops its leaves in the dry summer months and remaining brownish grey branches appear dead until the following spring. Hopsage is usually killed by wildfires and appears to have a very poor chance of re-establishing naturally during the following decades. The reasons prohibiting establishment are not well understood, but possible explanations for the lack of seedling recruitment of this shrub include seed predation, competition with non-native species, and herbivory.

2.1.6 Big Sagebrush/Bluebunch Wheatgrass

The slopes of Rattlesnake Mountain, as well as the north-facing slopes of Gable Mountain support big sagebrush/bluebunch wheatgrass plant communities. This community occurs primarily above elevations of 800 to 900 ft (250 to 275 m) on Hanford in deep loam and silt loam soils. When wildfires kill big sagebrush, the perennial bunchgrasses usually survive, producing communities dominated by bluebunch wheatgrass growing with Sandberg’s and Cusick’s bluegrass, and Thurber’s needle-and-thread grass (*Stipa thurberiana* Piper). This community usually supports a richer species diversity than big sagebrush communities at lower elevations. Common forbs include Carey’s balsamroot (*Balsamorhiza careyana* Gray), long-leaved phlox, yarrow (*Achillea millefolium* L.), cushion pussytoes (*Antennaria dimorpha* [Nutt.] Torr. & Gray), Cusick’s sunflower (*Helianthus cusickii* Gray), slender hawksbeard (*Crepis atribraba* Heller), silver and sulphur lupine (*Lupinus leucophyllus* Dougl. Ex Lindl. and *Lupinus sulphureus* Dougl. Ex Hook.), and several daisy fleabanes (*Erigeron* species). Microbiotic crusts consisting of lichens, mosses, cyanobacteria, and green algae cover interplant spaces between bunchgrasses and shrubs.

2.1.7 Threetip Sagebrush/Bluebunch Wheatgrass

At the highest elevations in the hills surrounding the lower Columbia Basin and the Yakima Valley, threetip sagebrush sometimes replaces big sagebrush as the dominant shrub. Bluebunch wheatgrass and Sandberg’s bluegrass are still important grasses in the understory of threetip sagebrush; however, Idaho fescue (*Festuca idahoensis* Elmer) another bunchgrass, becomes abundant only at higher elevations and on north-facing slopes where more soil moisture is available. The presence of threetip sagebrush and increased abundance of Idaho fescue is related to increased precipitation and decreased air and soil temperatures occurring at higher elevations. Threetip sagebrush and big sagebrush can also often occur as co-dominant shrub species on the hillsides of the Columbia Basin. Unlike big sagebrush, threetip sagebrush can resprout following wildfires.

2.1.8 Plant Communities on Lithosols (stony soils)

Lithosol is a term for the gravelly, rocky, talus soils associated with basalt outcrops and cliffs. Basalt outcrops, cliffs (scarps), and loose rock at the base of cliffs or on slopes (called scree) are found along the crests and slopes of the Rattlesnake Hills, Yakima Ridge, Umtanum Ridge, the Saddle Mountains, Manashtash Ridge, and Gable Mountain. This type of habitat is also common in the areas known as the
channeled scablands, Yakima Canyon, and along the eastern end of the Columbia River Gorge. This type of landform in the lower Columbia Basin is determined by the underlying basalts, which may be exposed above the soil on ridgetops or where wind and water erode the fine soils away. As the basalt weathers, a rocky soil type is formed—lithosol. On Hanford, these soils are found on Gable Butte, Gable Mountain, Umtanum Ridge, Yakima Ridge, and Rattlesnake Mountain.

The plant communities that establish on these stony soils can be quite diverse. Usually lithosols support scattered short-statured shrubs and grasses such as those found in communities dominated by rock buckwheat (Eriogonum sphaerocephalum Dougl. Ex Benths.)/Sandberg’s bluegrass, thyme buckwheat (Eriogonum thymoides Benths.)/Sandberg’s bluegrass, rigid sagebrush/Sandberg’s bluegrass, and narrowleaf goldenweed (Haplopappus stenophyllus Gray)/Sandberg’s bluegrass. Characteristic species found on ridgetops include rosy balsamroot (Balsamorhiza rosea A. Nels. & J.F. Macbr.), thyme buckwheat, Hood’s phlox (Phlox hoodii Richards.), and daggerpod (Phoenicaulis cheiranthoides Nutt.). Many wildflowers found on deeper soils at lower elevations also occur on lithosols, but plants growing along the wind-swept ridgetops are usually shorter than similar ones found at lower elevations.

The shrub component of several of these communities is often co-dominated by big sagebrush especially at the margins or ecotonal boundaries of the community where soils may become deeper and less rocky. Rigid (or stiff) sagebrush communities may occur as islands where pockets of lithosols or basalt outcrops occur within the boundaries of larger big sagebrush stands. Rock and slender (Eriogonum microthecum Nutt.) buckwheat may also have similar distributions within big sagebrush stands, or may exist as co-dominant shrubs on shallow rocky soils.

2.1.9 Abandoned Fields

Cultivated fields along the western and eastern shores of the Columbia River, along the Cold Creek Valley, and in the Snively Basin on the ALE Reserve were abandoned in 1943 when the federal government acquired the land for what is now the Hanford Site. The most extensive of these old-field habitats are located west of the Columbia River near the Hanford townsite and White Bluffs townsite. Residents were relocated, and farming and livestock grazing ceased. Exotic annual species, particularly cheatgrass, tumble mustard (Sisymbrium altissimum), jagged chickweed (Holosteum umbellatum), and Russian thistle (Salsola kali) now dominate the vegetation on these fields. On the Snively Ranch above 1,950 ft (600 m) in the Rattlesnake Hills, black rye (Secale cereale) dominates the old fields, while lower elevation old fields are occupied by cheatgrass (Bromus tectorum L.) and bulbous bluegrass (Poa bulbosa L.).

Other areas of the lower Columbia Basin that have been disturbed by wildfire, livestock grazing, and heavy machinery or construction activities may support similar vegetation as that seen in old fields. Cheatgrass and other exotic annuals often dominate these communities because they have excellent seed germination and dispersal and are adapted to the climate. Shrub species such as green and gray rabbitbrush are sometimes able to colonize these sites. In some abandoned fields along the Columbia River, the native warm-season bunchgrass, sand dropseed has successfully re-established in sandy and cobble substrates. Shade trees planted around scattered farm houses on the Hanford Site and other areas of the Basin—mostly black locust, Siberian elm, and white poplar—have survived for more than 50 years without irrigation water.
2.1.10 Rare Plant Communities and Element Occurrences

Because the Hanford Site has not been subject to the same pressures for agricultural and urban development over the past 50 years, some plant communities on site are relatively rare outside the Site boundaries. In addition, the protection from grazing and other types of land use has allowed plant communities within the Hanford Site boundaries to retain native forb species and biotic soil crusts that are lacking or poorly represented in other areas in eastern Washington. When the vegetation cover mapping for the Hanford Site was conducted (Figure 2.3), plant communities were rated as to the condition and size of the stand as well as the rarity of the stand. Community characteristics were evaluated, and certain stands were designated as element occurrences within Washington State by the Washington Natural Heritage Program (part of the Department of Natural Resources). Characteristics evaluated for each shrub-steppe community included the acreage of the community within the state, the relative amount of alien species in the community, and the condition of the microbiotic crust. Figure 2.4 indicates the element occurrences designated on the Hanford Site.

Other plant community types or features exist that have special habitat status on the site. These include vernal ponds—small bodies of water that exist seasonally and have distinctive vegetational patterns that occur below the ridgelines of Gable Butte and Gable Mountain and at the extreme eastern end of Umtanum Ridge. The Nature Conservancy has also designated portions of the plant communities found at the base of the north side of Gable Mountain as special habitat areas because they potentially include populations of rare annual native species not found elsewhere on the site. The top of Umtanum Ridge is also designated as a special habitat area for similar reasons.

Another special habitat area encompasses the sand dune complex found just west of the Columbia River. This area represents one of the few moving sand dune areas in Washington State and harbors a great deal of plant species diversity. Few invasive alien species are present within the dunes, and the plant communities represent unique resources within the state. This area has also been included as part of the Hanford National Monument.

2.2 Disturbance Effects on Habitats and Seral Stages

Certain landscape-scale events and types of land use can drastically alter the composition and structure of the native shrub-steppe plant communities found on the Hanford Site. One of the most dramatic influences in the shrub-steppe is wildfire. Wildfires typically occur in late summer and early fall in the Mid-Columbia region. At this time of year, most of the perennial cool-season grasses and perennial forbs have completed a reproductive cycle and are beginning to senesce and become dormant until either fall rains provide additional moisture or spring growth occurs the following year. Many Hanford Site native plants are not seriously damaged by wildfire because they are dormant or semi-dormant, and many
Figure 2.4. Locations and Types of Element Occurrences on the Hanford Site
Figure 2.4. (contd)
perennial plants can resprout from roots in the late fall or early spring following the fire. This is not the case for big sagebrush, which must propagate from seed, and is typically killed by wildfire. Sagebrush seeds can germinate and begin to re-establish in the spring months following the fire if environmental and vegetative conditions are favorable—that is, precipitation, soil moisture and temperature and adequate for germination, and the area has not been heavily invaded by competing alien weed species. Sagebrush seedlings do not appear to be successful in establishing within cheatgrass or other alien species monocultures. Gray and green rabbitbrush can resprout after fires and often establish as the dominant shrub in the years following wildfires.

Other disturbances that impact community structure and function are those associated with prior construction and development activities. Areas that have been graveled or paved as parking lots, old streets (such as those at the Hanford townsite) and homesteads exhibit a number of different species and cover types. Gray and green rabbitbrush appear to be particularly well-suited to re-invading areas where soils were compressed, the top soils removed, and gravels or asphalt applied. Many such areas now support gray rabbitbrush/Sandberg’s bluegrass cover.

In describing the current plant communities found on the Hanford Site, it is important to recognize and understand the role of introduced invasive plant species. A number of exotic or alien species have been introduced to the Intermountain West since the turn of the century that can successfully invade sagebrush-dominated communities and drastically change community composition, structure and function. When native plants are displaced by Mediterranean exotic species, the introduced plants can become the dominant or common species in many places. Of the over 700 species of vascular plants in this area, approximately 20% are considered non-native.

Exotic species that invade communities and readily displace native forbs include a number of noxious weeds such as rush skeletonweed (*Chondrilla juncea*) and especially the knapweeds: white knapweed (*Centaurea diffusa* Lam.), Russian knapweed (*Centaurea repens* L.), yellow star-thistle (*Centaurea solstitialis* L.), and spotted knapweed (*Centaurea maculosa* Lam.). The term noxious is actually a legal description, and these weeds are regulated by state and county weed boards depending on the distribution of the species and its potential threat. A noxious weed is a non-native plant that is generally highly aggressive, which can cause problems for natural areas, agriculture, and/or recreation. See Section 4.2 for a list of noxious weeds currently found here.

Another type of invasion most often occurs after some type of ground breaking disturbance or stress to soils and vegetation. Cheatgrass or downy brome, Russian thistle (*Salsola kali* L.), and tumble mustard (*Sisymbrium altissimum* L.) are common weedy species introduced in the late 1800s and early 1900s that can rapidly invade and dominate disturbed soils on the site. Historical farm sites along the Columbia River on the Hanford Site that were abandoned in 1943 were invaded by cheatgrass and tumble mustard and are still identified as monocultures of these alien species.

In the lower Columbia Basin, distribution and abundance of native plants has been significantly altered by the introduction of cheatgrass. Plant communities dominated by cheatgrass are a persistent and widespread feature of the Columbia Basin landscape. These monocultures and the persistence and dominance of cheatgrass in native shrub stands compound the effects of wildfires on the shrub-steppe.
Although most plants of the shrub-steppe survive wildfires to grow again the following year, a number of shrub species do not. Because cheatgrass is a winter annual grass, it grows, flowers, and produces seed very early in the growing season. Most cheatgrass at elevations below 984 ft (300 m) will senesce and die before the middle of May in a normal rainfall year in the Columbia Basin. The remaining standing dead grass is highly flammable and can act to carry the fire more efficiently from shrub to shrub or produce very hot, fast fires in monocultures of cheatgrass. Unfortunately, cheatgrass seeds that are buried in the soil or even lying on the soil surface are seldom all burned and killed by the fire. This seed source can then germinate after fall rains, and the annual cheatgrass begins to establish and may dominate a site in the years following a fire. The progression of succession and the invasion of the shrub-steppe plant communities by invasives such as cheatgrass after wildfire is highly dependent on the composition and condition of the plant community before the fire as well as the climate during the years following the fire.

Grazing is another type of disturbance that can impact the composition of shrub-steppe communities found in the Columbia Basin. Shrub-steppe land evolved without the influence or presence of large grazing mammals. Before the 1800s, grazing in the lower Columbia Basin was limited to small numbers of deer, wapiti (elk), and antelope. Livestock-palatable native bunchgrasses, which form the understory of the shrub-steppe, are easily damaged by overgrazing, and the grass often is unable to recover. Trampling by livestock can destroy the microbiotic crust and damage the grasses leaving the bare soils open to invasion by non-natives. In places that have been heavily grazed, non-native plant species such as cheatgrass and tumble mustard quickly invade.
3.0  Vascular Plants of the Hanford Site

In the following pages, we have provided information about each species that has been identified on or near the Hanford Site. Species are listed alphabetically within families, which are also listed alphabetically. We, therefore, have made no attempt to arrange the taxa in any phylogenetic or systematic fashion.

Information provided for each species includes the scientific name with taxonomic authority, varietal designations, where appropriate, and an accepted common name. Common synonyms for the scientific name are also provided. In most cases, we have assigned scientific names based on Hitchcock and Cronquist (1973), acknowledging that there are more recent taxonomic treatments of many groups. We feel that as long as Hitchcock and Cronquist (1973) remains the most commonly used and most authoritative guide to the flora of the Pacific Northwest, these names will be most often encountered by persons attempting to identify plants in our area. We have attempted to provide the most current and appropriate synonym for all species, which we have most often obtained from the *Synthesis of the North American Flora* (Kartesz and Meacham 1999). We hope this information will be useful to those who are interested in becoming more familiar with recent developments in plant taxonomy. We have also provided the accepted U.S. Department of Agriculture (USDA) code for each species (USDA 2001); when more than one code is listed, the official USDA code is listed first, followed by the code usually used during field work on Hanford.

Additional information provided for each species includes the life form (graminoid, herb, tree, shrub, etc.), life span (annual or perennial), and origin (introduced or native). Determination of native or alien status is relative and not always obvious. Many plants that may not have been present prior to European settlement of the Columbia Basin, may still be natives of the general region. Species that are clearly of Eurasian origin, or clearly brought in from other parts of North America, are considered introduced; otherwise, species are considered native. We have probably been fairly liberal in assigning native status to some species. Where possible, we followed indications about species origin provided in Hitchcock et al. (1955-1969). Finally, we have provided a brief description of the Hanford Site distribution, taxonomic notes, and other information about each species, followed by a list of specimens collected on or near the Hanford Site, with the herbarium where each can be found.

There have been several changes in the herbarium designations used since the previous Hanford plant list was published (Sackschewsky et al. 1992). The herbarium that was previously housed at the ALE Headquarters and formerly designated as “PNL” is now housed at the WSU Tri-Cities campus and is designated as “PNNL-TC.” The herbarium formerly maintained by Westinghouse Hanford Company (WHC) is now maintained by PNNL, and is designated “PNNL.” Other herbariums where specimens are located include “WS” – the Marion Owenby Herbarium at Washington State University, Pullman, WA; “WTU” – University of Washington Herbarium, Seattle, WA; and “BRY” – Brigham Young University Herbarium, Provo, UT.
Vascular Plants of the Hanford Site

**Aceraceae**

*Acer saccharinum* L.  
**lifeform:** tree  
**origin:**Introduced  
**duration:** perennial  
**Distribution/Notes:** Introduced tree, persisting at Hanford townsite.  
**Collections:** (BRY): Baird 1284; (PNNL): CZM 348

**Aizoaceae (Molluginaceae)**

*Mollugo verticillata* L.  
**lifeform:** forb  
**origin:** Introduced  
**duration:** annual  
**Distribution/Notes:** Uncommon in wet ground along the Columbia River at 100-B Area and around buildings in north Richland.  
**Collections:** (BRY): Baird 1345a; (PNNL): MRS 295

**Alismataceae**

*Alisma gramineum* Lej.  
**lifeform:** forb  
**origin:** Native  
**duration:** perennial  
**Distribution/Notes:** Occasional in wetland areas, collected on the Wahluke Slope.  
**Collections:** (PNNL): MRS 276  

*Sagittaria cuneata* Sheldon  
**lifeform:** forb  
**origin:** Native  
**duration:** perennial  
**Distribution/Notes:** Known from older specimens collected near Kennewick and reported by TNC along the Columbia River through Hanford and on ALE.  
**Collections:** (WS): Jones 375; (WTU): Caplow & Beck 95121

**Amaranthaceae**

*Amaranthus albus* L.  
**lifeform:** forb  
**origin:** Introduced  
**duration:** annual  
**Distribution/Notes:** Introduced, widespread weed of disturbed areas, collected in Dry Creek Valley and at 100-H Area.  
**Collections:** (BRY): Baird 1277, 1245; (WS): O’Farrell 72-246

*Amaranthus graecizans* L.  
**lifeform:** forb  
**origin:** Native  
**duration:** annual  
**Distribution/Notes:** Reported from central Hanford by TNC.  
**Collections:** (WTU): Caplow & Beck 95049
**Anacardiaceae**

*Rhus glabra* L.  
smooth sumac  
**USDA Code:** Rhgl  
**lifeform:** tree  
**origin:** Native  
**duration:** perennial  
**Distribution/Notes:** Commonly scattered along waterways, occasionally planted and persisting, e.g., Snively Springs and south of the 300 Area.  
**Collections:**  
(BRY): Baird 1138; (PNNL): CZM 441; (PNNL-TC): Warren 8-16-78; (WS): O’Farrell 72-251

*Rhus radicans* L.  
poison ivy  
**Toxicodendron rydbergii** (Small ex. Rydb.) Greene  
**USDA Code:** Tory (Rhra6)  
**lifeform:** vine  
**origin:** Native  
**duration:** perennial  
**Distribution/Notes:** Common, widespread species, reported from ALE during the 1970s, but the O’Farrell specimen was not found at WSU, also reported by Mastrogiuseppe and Gill (1983) from Priest Rapids area, but a specimen was not found at WSU.  
**Collections:**  
(WS): O’Farrell 74-307

**Apiaceae**

bur chervil  
*Anthriscus caucalis* Bieb.  
**USDA Code:** Anca14 (Ansc)  
**lifeform:** forb  
**origin:** Introduced  
**duration:** annual  
**Distribution/Notes:** Introduced weedy species, widespread in shady bottom land, collected along the Yakima River at Richland and reported by TNC on ALE.  
**Collections:**  
(BRY): Baird 14

*Berula erecta* (Huds.) Coville  
cut-leaf water parsnip  
**USDA Code:** Beer  
**lifeform:** forb  
**origin:** Native  
**duration:** perennial  
**Distribution/Notes:** Reported by Mastrogiuseppe and Gill (1983) from wet areas in the Priest Rapids region.  
**Collections:**  
Mastrogiuseppe 2592, 2643

*Cicuta douglasii* (DC.) Coult. & Rose  
westeren water hemlock  
**USDA Code:** Cido  
**lifeform:** forb  
**origin:** Native  
**duration:** perennial  
**Distribution/Notes:** Reported by Mastrogiuseppe and Gill (1983) from wet areas in the Priest Rapids region. Also observed along Yakima River.  
**Collections:**  
Mastrogiuseppe 2425, 2641

*Cymopterus terebinthinus* (Hook.) Torr. & Gray  
turpentine springparsley  
*Pteryxia terebinthina* (Hook.) Coult. & Rose var. *terebinthina*  
**USDA Code:** Pttet (Cyte)  
**lifeform:** forb  
**origin:** Native  
**duration:** perennial
Distribution/Notes: Very common in sandy areas throughout Hanford.

Collections: (PNNL): MRS-51; P&R-55; JGL-1, 2, 3, 4, 5, 6; (BRY): Baird 26, 199, 539, 569, 649; (PNNL-TC): Davis 4-2-52; Rickard 4-16-86; (WS): O’Farrell 72-179, 71-180; St. John 8111, 8130

**Daucus carota** L. **Queen Anne’s lace**

**USDA Code:** Daca4 (Daca)  
**lifeform:** forb  
**origin:** Introduced  
**duration:** perennial

Distribution/Notes: Reported by Mastrogiuseppe and Gill (1983) from wet areas in the Priest Rapids region.

Collections: None Available

**Lilaeopsis occidentalis** Coult. & Rose  
**lifeform:** forb  
**origin:** Native  
**duration:** perennial

Distribution/Notes: Scattered in mudflats along Columbia River.

Collections: (PNNL): GLF 170; (WTU): Caplow & Beck 94067

**Lomatium canbyi** (Coult. & Rose) Coult. & Rose  
**-lifeform:** forb  
**origin:** Native  
**duration:** perennial

Distribution/Notes: Local on dry, rocky areas on top of Rattlesnake and Umtanum ridges.

Collections: (PNNL): Baird-1553; (BRY): Baird 786; (PNNL-TC): Johnson & Rickard 4-22-56; (WS): O’Farrell 72-188; Cotton 567

**Lomatium dissectum** (Nutt.) Mathias & Constance  
**lifeform:** forb  
**origin:** Native  
**duration:** perennial

Distribution/Notes: Local on rocky north slopes and talus near the top of Rattlesnake Mountain.

Collections: (PNNL): Baird-789; (PNNL-TC): Woodley & Sauer 5-18-76; (WS): O’Farrell 71-45, 72-196; Cotton 332

**Lomatium geyeri** (S. Wats.) Coult. & Rose  
**lifeform:** forb  
**origin:** Native  
**duration:** perennial

Distribution/Notes: Local on loamy talus slopes of Umtanum Ridge.

Collections: (PNNL): Baird-1544; (BRY): Baird 635; (WTU): Caplow & Beck 95016

**Lomatium gormanii** (T.J. Hoell) Coult. & Rose  
**lifeform:** forb  
**origin:** Native  
**duration:** perennial

Distribution/Notes: Scattered on loamy, often rocky areas, primarily on the slopes and top of Rattlesnake Mountain, but also collected on north slope of Gable Mountain. TNC also found this species at various locations on the North Slope and along the Columbia River.
**Collections:**
(BRY): Baird 557, 584, 757, 785; (PNNL-TC): Sauer 4-9-76; Schlessmann 3-24-76; Schlessmann 3-29-76; Pendleton 3-11-59; (WS): St. John 8090; (WTU): Caplow & Beck 95007

**Lomatium grayi** (Coult. & Rose) Coult. & Rose

Gray’s desertparsley

**USDA Code:** Logr

**lifeform:** forb
**origin:** Native
**duration:** perennial

**Distribution/Notes:** Very common and widespread throughout Hanford, especially in rocky-silty soils along moist or drying drainages and water courses, e.g., Rattlesnake Mountain, Snively Canyon, China Bar, and 100 Areas.

**Collections:**
(PNNL): Baird-787; MRS-99; JGL-07; (BRY): Baird 604, 608, 712, 968; (PNNL-TC): Davis 4-2-52; Schlessmann 4-9-76; Sauer 5-30-75 #4, 6-17-75 #11, 4-12-78, 5-15-80; Rickard & Cline 5-1-70; McShane 4-29-79; (WS): O’Farrell 71-1; St. John 8118, Beattie 3960

**Lomatium hambleniae** Mathias & Constance

Coeur d’Alene desertparsley

**USDA Code:** Lofah (Loha)

**lifeform:** forb
**origin:** Native
**duration:** perennial

**Distribution/Notes:** Uncommon on Hanford, collected on ALE, and reported from the Wahluke Slope and the Priest Rapids vicinity.

**Collections:**
(WS): O’Farrell 72-173, 72-177; (WTU): Caplow & Beck 94023

**Lomatium macrocarpum** (Nutt. Ex Torr. & Gray)

Bigseed desertparsley

**USDA Code:** Loma3 (Loma)

**lifeform:** forb
**origin:** Native
**duration:** perennial

**Distribution/Notes:** Common and widespread in a number of habitats, as on Rattlesnake and Gable mountains, the Central Plateau, and across the Wahluke Slope.

**Collections:**
(PNNL): MRS-78; P&R-56; JGL-08; (BRY): Baird 550, 575, 622, 694, 784; (PNNL-TC): no name 4-11-73; (WS): O’Farrell 71-8, 72-178; Cotton 564, Beattie 3961

**Lomatium triternatum** (Pursh) Coult. & Rose

Nineleaf desertparsley

**USDA Code:** Lotr2 (Lotr)

**lifeform:** forb
**origin:** Native
**duration:** perennial

**Distribution/Notes:** Common and widespread in rocky-loamy soils on slopes of main hills and ridges in area, mostly with bunchgrasses, e.g., Rattlesnake Mountain, Snively Basin, and Umtanum Ridge.

**Collections:**
(BRY): Baird 580, 641, 722, 754, 796; (PNNL-TC): Sauer 6-17-75 #12; Rickard & Cline 5-1-70; (WS): St. John 8082; O’Farrell 71-76, 74-298

**Lomatium tuberosum** Hoover

Hoover’s desertparsley

**USDA Code:** Lotu

**lifeform:** forb
**origin:** Native
**duration:** perennial

**Distribution/Notes:** Washington State threatened species endemic on steep basalt talus slopes in the Umtanum Ridge/Priest Rapids area. Found on the extreme western edge of the Hanford Site.

**Collections:**
(PNNL): Baird-1543, 1552, 1558; (PNNL-TC): Sauer 4-20-78; (WS): Mastrogiuseppe 3236, 3237

3.5
**Perideridia gairdneri** (Hook. & Arn.) Mathias

Gairdner’s yampah

*USDA Code:* Pega3 (Pega)  
*lifeform:* forb  
*origin:* Native  
*duration:* perennial

*Distribution/Notes:* Collected at White Bluffs and in the Rattlesnake Hills. Not observed on or near Hanford Site since the early 20th century.

*Collections:* (WS): Lake & Hull 8-1-1892; Cotton 661

**Apocynaceae**

*Apocynum cannabinum* L.

common dogbane

*USDA Code:* Apca  
*lifeform:* forb  
*origin:* Native  
*duration:* perennial

*Distribution/Notes:* Very common in wet areas along the Columbia River, around springs, and at Cold Creek.

*Collections:* (PNNL): MRS-161; CZM 387, 466; (BRY): Baird 1229, 1372; (PNNL-TC): Sauer & Durham 8-7-75 #16; (WS): O’Farrell 71-104

*Apocynum sibiricum* Jacq.

Indian hemp

*USDA Code:* Apca (Apsi)  
*lifeform:* forb  
*origin:* Native  
*duration:* perennial

*Distribution/Notes:* Collected at Rattlesnake Springs, now included within *A. cannabinum*.

*Collections:* (WS): O’Farrell 71-104

**Asclepiadaceae**

*Asclepias fascicularis* Dcne.

narrow-leaved milkweed

*USDA Code:* Asfa  
*lifeform:* forb  
*origin:* Native  
*duration:* perennial

*Distribution/Notes:* Rare in our area; collected on Island 11 in the Columbia River.

*Collections:* (PNNL-TC): Sauer 6-6-80

*Asclepias speciosa* Torr.

showy milkweed

*USDA Code:* Assp  
*lifeform:* forb  
*origin:* Native  
*duration:* perennial

*Distribution/Notes:* Local, often in moist disturbed areas near the Columbia River, the Hanford townsite, river islands, and ALE.

*Collections:* (BRY): Baird 1098; (PNNL-TC): Sauer & Durham 8-7-75 #10, (PNNL): CZM 394

**Asteraceae**

*Achillea millefolium* L.

yarrow

*USDA Code:* Acmi  
*lifeform:* forb  
*origin:* Native  
*duration:* perennial

*Distribution/Notes:* Very common and widespread in a number of habitats, especially with sagebrush and bunchgrass.
Collections: (PNNL): P&R-38, PB-01; (BRY): Baird 20, 1050, 1144b, 1187;
(PNNL-TC): Newsome & Sauer 9-27-77; Sauer 6-10-75 #11; Sauer
5-30-75 #10; Sauer & Durham 8-7-75 #3; no name 5-7-80; Rickard
5-22-86; (WS): O’Farrell 71-84

Agoseris glauca (Pursh) Raf. pale mountain dandelion
USDA Code: Aggl lifeform: forb origin: Native duration: perennial
Distribution/Notes: Relatively uncommon, collected in dry sites in the 200 Areas.
Collections: (PNNL): P&R-37; CZM 362, JGL-09

Agoseris grandiflora (Nutt.) Greene showy mountain dandelion
USDA Code: Aggr lifeform: forb origin: Native duration: perennial
Distribution/Notes: Occasional in moist soil, collected along the Columbia River at 100-K
Area and on Rattlesnake Ridge in and above Snively Basin.
Collections: (PNNL): Baird-1130; (BRY): Baird 1202, 1304; (PNNL-TC): Uresk
5-29-73

Agoseris heterophylla (Nutt.) Greene annual mountain dandelion
USDA Code: Aghe2 (Aghe) lifeform: forb origin: Native duration: annual
Distribution/Notes: Scattered throughout central Hanford and ALE, often in disturbed areas.
Collections: (BRY): Baird 973; (PNNL): MRS 214

Ambrosia acanthicarpa Hook. bur ragweed
USDA Code: Amac2 (Amac) lifeform: forb origin: Native duration: annual
Distribution/Notes: Common, widespread native weed of disturbed sandy or gravelly areas.
Collections: (PNNL): P&R-15; JGL-10, 11; /RFG-01; /VAU-01; (BRY): Baird 1444;
(PNNL-TC): Pendleton 9-16-58; Sauer & Newsome 9-27-77; (WS):
O’Farrell 71-152; Cotton 630

Anaphalis margaritacea (L.) Benth. pearly everlasting
USDA Code: Anma lifeform: forb origin: Native duration: perennial
Distribution/Notes:Introduced ornamental, persisting at Hanford townsite.
Collections: (PNNL-TC): Sauer & Newsome 9-27-77

Antennaria dimorpha (Nutt.) Torr. & Gray low pussytoes
USDA Code: Andi2 (Andi) lifeform: forb origin: Native duration: perennial
Distribution/Notes: Common on dry loamy slopes and stony areas on top of the main hills and
ridges in the region; occasionally observed among sagebrush at lower
elevations.
Collections: (PNNL): MRS 214; JGL-12; (BRY): Baird 551, 577, 643, 721; (PNNL-
TC): Pendleton 4-10-59; Warren 4-18-78; (WS): O’Farrell 71-10;
Langham 209; St. John 8085, 8099

3.7
Antennaria microphylla Rydb.  
**USDA Code:** Anmi3 (Anmi)  
**lifeform:** forb  
**origin:** Native  
**duration:** perennial  
**Distribution/Notes:** Reported on the ALE Reserve by TNC.  
**Collections:** (PNNL): Caplow & Beck 94038

Antennaria umbrinella Rydb.  
**USDA Code:** Anum  
**lifeform:** forb  
**origin:** Native  
**duration:** perennial  
**Distribution/Notes:** Collected on northern slopes of Rattlesnake Hills; also observed by TNC.  
**Collections:** (WS): Cotton 1280, 570

Arctium minus Bernh.  
**USDA Code:** Armi2 (Armi)  
**lifeform:** forb  
**origin:** Introduced  
**duration:** perennial  
**Distribution/Notes:** Introduced weed of disturbed areas, collected at Snively Springs and reported on Wahluke Slope and along the Columbia River by TNC.  
**Collections:** (WS): O’Farrell 72-241

Arnica sororia Greene  
**USDA Code:** Arso2 (Arso)  
**lifeform:** forb  
**origin:** Native  
**duration:** perennial  
**Distribution/Notes:** Reported by Mastrogiuseppe and Gill (1983) from wet areas in the Priest Rapids region.  
**Collections:** Mastrogiuseppe 2422

Artemisia campestris L.  
ssp. borealis (Pallas) Hall & Clements var. scouleriana (Hook.)  
**USDA Code:** Arca12 (Arca)  
**lifeform:** forb  
**origin:** Native  
**duration:** perennial  
**Distribution/Notes:** Var. scouleriana - common along the Columbia River, primarily above the high water mark. Variety wormskioldii - very rare taxon known from near Beverly, WA; probably does not occur on the Hanford Site proper.  
**Collections:** (PNNL): Baird-1432; MRS-179; JGL-13; GIB-40; (PNNL-TC): Warren 8-12-80; Sauer et al. 5-12-80

Artemisia douglasiana Bess.  
**USDA Code:** Ardo3 (Ardo)  
**lifeform:** sub-shrub  
**origin:** Native  
**duration:** perennial  
**Distribution/Notes:** Located in Cold Creek in the vicinity of gate 120.  
**Collections:** (PNNL): MRS-8-1-97; (WTU): Caplow & Beck 94050

Artemisia dracunculus L.  
**USDA Code:** Ardr4 (Ardr)  
**lifeform:** sub-shrub  
**origin:** Native  
**duration:** perennial  
**Distribution/Notes:** Widespread, often of waste or disturbed places, observed along the Columbia River, scattered in the 100 Areas, within the former 1100 Area, and collected at Snively Springs.  
**Collections:** (WS): O’Farrell 72-256

3.8
**Artemisia lindleyana** Bess  
*Columbia River mugwort*

**USDA Code:** Arli2 (Arli)  
**lifeform:** sub-shrub  
**origin:** Native  
**duration:** perennial

**Distribution/Notes:** State Watch List species scattered in moist ground along the shore of the Columbia River, e.g., 100-D Area and China Bar; can be confused with *A. ludoviciana*.

**Collections:**  
(PNNL-TC): Davis 9-28-51; Warren 8-5-80, 8-12-80; Sauer 5-1-80;  
(WTU): Caplow & Beck 95135, 95137

**Artemisia ludoviciana** Nutt.  
*prairie sagebrush*

**USDA Code:** Arlu  
**lifeform:** sub-shrub  
**origin:** Native  
**duration:** perennial

**Distribution/Notes:** Common and widespread in a variety of habitats, both dry and wet, but primarily along the shores of the Columbia River.

**Collections:**  
(PNNL): MRS-109, 114, 142, 167; GIB-41; (BRY): Baird 174, 1231, 1309, 1330, 1399, 1431; (PNNL-TC): Warren, 8-12-80, 8-5-80; Pendleton 8-25-59; Sauer & Durham 8-7-75 #19; Newsome & Sauer 9-27-77; no collector 5-7-80; Sauer et al. 5-12-80

**Artemisia rigida** (Nutt.) Gray  
*stiff sagebrush*

**USDA Code:** Arri2 (Arri)  
**lifeform:** shrub  
**origin:** Native  
**duration:** perennial

**Distribution/Notes:** Locally common on dry, rocky outcrops such as Gable Mountain, Gable Butte, and Umtanum Ridge.

**Collections:**  
(PNNL): JGL-14, 15, 16; (BRY): Baird 179; (PNNL-TC): Sauer & Thorp 4-22-77

**Artemisia tridentata** Nutt.  
*big sagebrush*

**USDA Code:** Artr2 (Artr)  
**lifeform:** shrub  
**origin:** Native  
**duration:** perennial

**Distribution/Notes:** Dominant shrub over most of the Hanford Site. On the Site, most are assignable to subspecies *wyomingensis*, but some (i.e., near Yakima River delta) are assignable to subspecies *tridentata*.

**Collections:**  
(PNNL): P&R-11; JGL-17, 18, 19; VAU-02; (BRY): Baird 1279, 1335, 1443; (WS): O’Farrell 71-171; (PNNL-TC): Sauer & Durham 8-7-75 #12; Sauer 8-5-74, 8-24-76

**Artemisia tridentata** Nutt.  
*threetip sagebrush*

**USDA Code:** Artr4 (Artrp)  
**lifeform:** shrub  
**origin:** Native  
**duration:** perennial

**Distribution/Notes:** Local on rocky loam; the dominant shrub at many locations along the upper slopes of Rattlesnake Ridge.

**Collections:**  
(PNNL): CZM 455; (BRY): Baird 1305; (WS): O’Farrell 73-275;  
(PNNL-TC): Pendleton 4-10-59

3.9
Aster campestris Nutt.
   *Symphyotrichum campestre* (Nutt.) Nesom var. *campestre*

**USDA Code:** Sycac (Ascam)  
**lifeform:** forb  
**origin:** Native  
**duration:** perennial

**Distribution/Notes:** Scattered along the Columbia River in moist or wet ground, as at Hanford Slough and 100-D Area gravel bar.

**Collections:**  
(PNNL-T)C: Warren & Sauer 10-6-80; Warren 8-12-80; Sauer & Durham 8-7-75 #15

Aster frondosus (Nutt.) Torr. & Gray  
   *Symphyotrichum frondosum* (Nutt.) Nesom

**USDA Code:** Syfr2 (Asfr)  
**lifeform:** forb  
**origin:** Native  
**duration:** annual

**Distribution/Notes:** Occasional in wet areas, collected at Hanford townsite, reported from Priest Rapids.

**Collections:**  
(PNNL-T)C: Newsome & Sauer 9-29-77

Aster hesperius Gray  
   *Symphyotrichum lanceolatum* (Willd.) Nesom ssp. *hesperium* (Gray) Nesom

**USDA Code:** Syla6 (Ashe)  
**lifeform:** forb  
**origin:** Native  
**duration:** perennial

**Distribution/Notes:** Common in wet areas, especially along the Columbia River.

**Collections:**  
(PNNL): Baird-1320, 1392; MRS-182, 192; GIB-46; (BRY): Baird 1076, 1121, 1374; (PNNL-T)C: Warren & Sauer 10-6-80; Warren no date

Aster occidentalis (Nutt.) Torr. & Gray var. *intermedius* Gray  
   *Symphyotrichum spathulatum* (Lindl.) Nesom var. *intermedium* (Gray) Nesom

**USDA Code:** Syspi (Asoc)  
**lifeform:** forb  
**origin:** Native  
**duration:** perennial

**Distribution/Notes:** Occasional near the Columbia River, as on slopes of Umtanum Ridge.

**Collections:**  
(PNNL-T)C: Davis 10-18-51; Pendleton 9-10-58; (PNNL): MRS 257

Aster pansus (Blake) Cronq.  
   *Symphyotrichum ericoides* (L.) Nesom var. *pansum* (Blake) Nesom

**USDA Code:** Syerp2 (Aspa)  
**lifeform:** forb  
**origin:** Native  
**duration:** perennial

**Distribution/Notes:** Reported by Mastrogiuseppe and Gill (1983) from flood bars in the Priest Rapids region.

**Collections:**  
None Available

Aster subspicatus Nees  
   *Symphyotrichum subspicatum* (Nees) Nesom var. *subspicatum*

**USDA Code:** Sysu4 (Assub)  
**lifeform:** forb  
**origin:** Native  
**duration:** perennial

**Distribution/Notes:** Local in waste areas, collected at Hanford townsite.

**Collections:**  
(PNNL-T)C: Sauer & Newsome 9-29-77
Balsamorhiza careyana Gray
Lifeform: forb Origin: Native Duration: perennial
Distribution/Notes: Common and widespread in sandy and loamy areas throughout Hanford, often with sagebrush.
Collections: (PNL): P&R-31; JGL-20, 21; RFG-02; (BRY): Baird 15, 540, 560, 623; (WS): O’Farrell 71-34; (PNL-TC): Pendleton 4-17-59; Sauer 5-17-75; Davis 4-10-52

Balsamorhiza hookeri (Hook.) Nutt.
Lifeform: forb Origin: Native Duration: perennial
Distribution/Notes: Local on steep rocky-loamy slopes of Umtanum Ridge.
Collections: (BRY): Baird 634; (PNL-TC): unknown collector 4-2-80

Balsamorhiza rosea A. Nels. & J.F. Macbr.
Lifeform: forb Origin: Native Duration: perennial
Distribution/Notes: State Watch List species local in rocky areas, on tops of highest hills and ridges, such as Rattlesnake and Umtanum ridges, Badger Mountain, and Jump-off-Joe. Occasionally hybridizes with B. careyana.
Collections: (PNL): Baird-763; (BRY): Baird 558, 578, 590, 784, 798; (WS): O’Farrell 71-16; (PNL-TC): Johnson & Rickard 4-22-78; Pendleton 4-20-59; Sauer 5-17-76

Bidens cernua L.
Lifeform: forb Origin: Native Duration: annual
Distribution/Notes: Collected from wet areas along the Columbia River near Kennewick. Not reported from Hanford vicinity since the 1920s.
Collections: (WS): Jones 376

Bidens frondosa L.
Lifeform: forb Origin: Native Duration: annual
Distribution/Notes: Widespread in wet areas, collected in 200 Area, reported along the Columbia River and on Wahluke Slope.
Collections: (PNL): P&R-28; (PNL-TC): Warren and Sauer 6-10-80

Brickellia oblongifolia Nutt.
Lifeform: sub-shrub Origin: Native Duration: perennial
Distribution/Notes: Collected in rocky gulches in the Rattlesnake Hills, also recently observed in Pit 30 within the Central Plateau.
Collections: (WS): Cotton 710
Centaurea diffusa Lam.  
*tumble knapweed*  
**USDA Code:** Cedi3 (Cedi)  
**Lifeform:** forb  
**Origin:** Introduced  
**Duration:** perennial  
**Distribution/Notes:** Introduced noxious weed of disturbed areas; widespread, especially along the Columbia River and the 100-F and 100-H Areas.  
**Collections:** (PNNL): Baird-1209

Centaurea maculosa auct. Non Lam.  
*Centaurea biebersteinii* DC.  
*spotted knapweed*  
**USDA Code:** Cebi2 (Cema)  
**Lifeform:** forb  
**Origin:** Introduced  
**Duration:** perennial  
**Distribution/Notes:** Introduced noxious weed; observed near Energy Northwest and the Hanford townsite.  
**Collections:** None Available

Centaurea repens L.  
*Russian knapweed*  
*Acroptilon repens* (L.) DC.  
**USDA Code:** Acre3 (Cere)  
**Lifeform:** forb  
**Origin:** Introduced  
**Duration:** perennial  
**Distribution/Notes:** Introduced noxious weed of disturbed areas; widespread, as at White Bluffs townsite, 100-F Area, McGee Ranch, and along Army Loop Road.  
**Collections:** (PNNL): Baird-1208, DL 1; (BRY): Baird 198; (PNNL-TC): Sauer 6-5-80; Klepper & Sauer 6-26-74; Davis 5-18-52

Centaurea solstitialis L.  
*yellow starthistle*  
**USDA Code:** Ceso3 (Ceso)  
**Lifeform:** forb  
**Origin:** Introduced  
**Duration:** annual  
**Distribution/Notes:** Introduced noxious weed of disturbed areas; locally common, as at Hanford townsite.  
**Collections:** (PNNL): GIB-01, 02, 03; CZM 390; (BRY): Baird 1268, 1282

Chaenactis douglasii (Hook.) Hook. & Arn.  
*hoary falseyarrow*  
**USDA Code:** Chdo  
**Lifeform:** forb  
**Origin:** Native  
**Duration:** perennial  
**Distribution/Notes:** Common and widespread throughout the Hanford Site, often in sand.  
**Collections:** (PNNL): Baird-875; MRS-119; P&R-70; JGL-22, 23, 24; (BRY): Baird 923, 932, 964, 982, 1042; (WS): O’Farrell 71-62; (PNNL-TC): Warren 5-22-80; Rickard & Cline 6-1-70; Sauer 6-26-74, 5-30-75 #15, 6-10-75 #3; Rickard 5-23-86

Chondrilla juncea L.  
*rush skeletonweed*  
**USDA Code:** Chju  
**Lifeform:** forb  
**Origin:** Introduced  
**Duration:** perennial  
**Distribution/Notes:**Introduced noxious weed, primarily scattered throughout southern portions of the Hanford Site.  
**Collections:** None Available
**Chrysopsis villosa** (Pursh) Nutt. Ex DC  
**Heterotheca villosa** (Pursh) Shinnerners.  
**USDA Code:** Hevi4 (Hevi)  
**lifeform:** forb  
**origin:** Native  
**duration:** perennial  
**Distribution/Notes:** Local in sandy-gravels along the Columbia River, as at White Bluffs and 100-H Area.  
**Collections:**  
(PNNL): Baird-1087; MRS-156; GIB-45; (BRY): Baird 195, 204, 997;  
(PNNL-TC): Sauer 5-30-75 #23; Sauer & Durham 8-7-75 #2; Sauer 5-28-80; Fitzner 5-11-78; Sauer et al. 5-12-80; Hall 5-21-85

**Chrysothamnus nauseosus** (Pallas ex Pursh) Britt. ssp. *albicaulis* (Nutt.) Hall & Clements  
**Ericameria nauseosa** (Pallas ex Pursh) Nesom & Baird ssp. *nauseosa* var. *speciosa* (Nutt.)  
**USDA Code:** Ernas2 (Chna)  
**lifeform:** shrub  
**origin:** Native  
**duration:** perennial  
**Distribution/Notes:** Common shrub found throughout Hanford in a variety of habitats; dominates some disturbed areas.  
**Collections:**  

**Chrysothamnus viscidiflorus** (Hook.) Nutt.  
**USDA Code:** Chvi8 (Chvi)  
**lifeform:** shrub  
**origin:** Native  
**duration:** perennial  
**Distribution/Notes:** Common shrub found throughout Hanford in a variety of habitats. Primarily var. *viscidiflorus*, but some plants on ALE appear to be var. *lanceolatus* (Nutt.) Hall & Clements.  
**Collections:**  
(PNNL): P&R-17; JGL-26, 27; VAU-04, 05; (BRY): Baird 1302; (WS): O’Farrell 71-170; (PNNL-TC): Sauer 5-31-78, Sauer 5-30-75 #23; Sauer & Durham 8-7-75 #2; Sauer 5-28-80; Fitzner 5-11-78; Sauer et al. 5-12-80; Hall 5-21-85

**Cichorium intybus** L. chicory  
**USDA Code:** Ciin  
**lifeform:** forb  
**origin:** Introduced  
**duration:** perennial  
**Distribution/Notes:** Introduced weed; scattered along the Columbia River and at Snively Canyon Springs.  
**Collections:**  
(PNNL): GIB-32; (WS): O’Farrell 72-255a; (PNNL-TC): Warren 8-16-78

**Cirsium arvense** (L.) Scop. Canada thistle  
**USDA Code:** Ciar4 (Ciar)  
**lifeform:** forb  
**origin:** Introduced  
**duration:** perennial  
**Distribution/Notes:** Introduced troublesome weed; widespread, mostly near water courses, as at Bobcat Springs, Cold Creek, and Hanford townsitie.  
**Collections:**  
(PNNL): Baird-1286; (BRY): Baird 1232, 1337; (WS): O’Farrell 72-234; (PNNL-TC): Warren 8-16-78
Cirsium undulatum (Nutt.) Spreng. wavyleaved thistle

**USDA Code:** Ciun  
**Lifeform:** forb  
**Origin:** Native  
**Duration:** perennial  
**Distribution/Notes:** Scattered in a variety of habitats on Hanford, e.g., Bobcat Canyon Spring, Priest Rapids, and White Bluffs townsite.  
**Collections:** (BRY): Baird 1094, 1185; (PNNL-TC): Pendleton 6-19-59; Sauer & Durham 8-7-75 #6; Warren 8-16-78

Cirsium vulgare (Savi) Ten. bull thistle

**USDA Code:** Civu  
**Lifeform:** forb  
**Origin:** Introduced  
**Duration:** perennial  
**Distribution/Notes:** Introduced weed, scattered in disturbed sites, near the Columbia River, Cold Creek Valley, and north Richland.  
**Collections:** (PNNL): CZM 400; (BRY): Baird 1241; (WS): O’Farrell 72-235; (PNNL-TC): Davis 7-20-52

Ciryes canadensis (L.) Cronq. horseweed

**USDA Code:** Coca5 (Coca)  
**Lifeform:** forb  
**Origin:** Native  
**Duration:** annual  
**Distribution/Notes:** Common weed of moist sites, widespread including along the Columbia River, White Bluffs townsite, West Lake, and Wahluke Slope.  
**Collections:** (PNNL): MRS 291; P&R-20; VAU-06; (BRY): Baird 1430, 1437; (WS): O’Farrell 72-245

Coreopsis atkinsoniana Doug. Ex Lindl. Columbia tickseed

Coreopsis tinctoria Nutt. var. atkinsoniana (Doug. Ex Lindl.) H.M. Parker ex E.B. Sm.

**USDA Code:** Cotia (Coat)  
**Lifeform:** forb  
**Origin:** Native  
**Duration:** annual  
**Distribution/Notes:** Common along the shores of the Columbia River, mostly below high water mark.  
**Collections:** (PNNL): MRS 154; GIB-04, 05; (BRY): Baird 166, 192, 1079, 1181, 1207, 1395; (PNNL-TC): Warren & Sauer 10-6-80; Newsome and Sauer 9-27-77; Sauer and Durham 8-7-75 #20; Sauer & Owzarski 5-15-80

Crepis atrabarba Heller slender hawksbeard

Crepis atrabarba Heller ssp. originalis (Babcock & Stebbins) Babcock & Stebbins

**USDA Code:** Crato (Crat)  
**Lifeform:** forb  
**Origin:** Native  
**Duration:** perennial  
**Distribution/Notes:** Scattered but common in sagebrush communities in sandy and silty soils.  
**Collections:** (PNNL): MRS-71, 248; P&R-63; CZM 358; JGL-28; (BRY): Baird 838, 905, 1060; (WS): O’Farrell 71-106; (PNNL-TC): Rogers & DW Uresk 5-31-73; Rickard & Cline no date; Rickard & Fitzner 5-22-86

Crepis barbigera Leib. Ex Coville Leiberg’s hawksbeard

Crepis barbigera Leib. Ex Coville ssp. originalis (Babcock & Stebbins) Babcock & Stebbins

**USDA Code:** Crato (Crba)  
**Lifeform:** forb  
**Origin:** Native  
**Duration:** perennial
Distribution/Notes: Local, collected on Rattlesnake Ridge within snow patch vegetation. This taxon is now included within *C. atrirbarba* ssp. *originalis*.

Collections: (PNNL-TC): D. Watson 6-10-59; (WS): Daubenmire 59156

*Crepis intermedia* Gray

Gray’s hawksbeard

USDA Code: *Crin4 (Crpin)*    lifeform: forb     origin: Native     duration: perennial

Distribution/Notes: Local, collected on the White Bluffs.

Collections: (BRY): Baird 699

*Crepis modocensis* Greene

low hawksbeard

*Crepis modocensis* Greene ssp. *rostrata* (Coville) Babcock & Stebbins

USDA Code: *Crmor (Crmo)*    lifeform: forb     origin: Native     duration: perennial

Distribution/Notes: Local in rocky areas on top of main hills and ridges in the area.


*Crepis occidentalis* Nutt. ssp. *conjuncta* (Jepson)

western hawksbeard

USDA Code: *Crocc (Croc)*    lifeform: forb     origin: Native     duration: perennial

Distribution/Notes: Local; collected on top of Rattlesnake Ridge; reported on lithosols in the Priest Rapids vicinity.

Collections: (PNNL-TC): Sauer 6-10-75 #12

*Crepis runcinata* (James) Torr. & Gray

dandelion hawksbeard

ssp. *hispidulosa* (T.J. Howell ex Rydb.) Babcock & Stebbins

USDA Code: *Crruh2 (Crru)*    lifeform: forb     origin: Native     duration: perennial

Distribution/Notes: Reported from wet areas in the Priest Rapids vicinity by Mastrogiuseppe and Gill (1983).

Collections: Mastrogiuseppe 2450

*Crocidium multicaule* Hook.

spring gold

USDA Code: *Crmu*    lifeform: forb     origin: Native     duration: annual

Distribution/Notes: Occasional along the Columbia River, possibly collected on Hanford but no location given on specimen label (other specimens at PNNL-TC are from Umatilla, OR).

Collections: (PNNL-TC): no collector 5-80

*Eatonella nivea* (D.C. Eat.) Gray

white eatonella

USDA Code: *Eani*    lifeform: forb     origin: Native     duration: annual

Distribution/Notes: Washington State threatened species; local on steep, sandy slopes near Vernita Bridge.

Collections: (WTU): Caplow & Beck 95036
Erigeron annuus (L.) Pers.  
daisy fleabane  
**USDA Code:** Eran  
**lifeform:** forb  
**origin:** Introduced  
**duration:** annual  
**Distribution/Notes:** Uncommon; found along the Columbia River, collected near Coyote Rapids.  
**Collections:** (PNNL): MRS-313

Erigeron corymbosus Nutt.  
longleaf fleabane  
**USDA Code:** Erco5 (Ercor)  
**lifeform:** forb  
**origin:** Native  
**duration:** perennial  
**Distribution/Notes:** Local on upper slopes of Rattlesnake Ridge.  
**Collections:** (PNNL-TC): Thorp 7-13-76; (WS): O’Farrell 71-140; Cotton 689; (WTU): Caplow & Beck 95061

Erigeron divergens Torr. & Gray  
diffuse fleabane  
**USDA Code:** Erdi4 (Erdi)  
**lifeform:** forb  
**origin:** Native  
**duration:** perennial  
**Distribution/Notes:** Scattered along the shore of the Columbia River, as at Vernita and 100-F Area, also collected in Snively Canyon.  
**Collections:** (PNNL): Baird-1120, CZM 665; (BRY): Baird 168

Erigeron filifolius (Hook.) Nutt.  
threadleaf fleabane  
**USDA Code:** Erfi2 (Erfi)  
**lifeform:** forb  
**origin:** Native  
**duration:** perennial  
**Distribution/Notes:** Common, widespread, mostly with sagebrush and bunchgrass, throughout the Hanford Site.  
**Collections:** (PNNL): Baird-889, 921; MRS-73, 77, 130; P&R-65; PB-02; /VAU-07; /GIB-06; (BRY): Baird 930, 953, 965, 1045, 1113; (WS): O’Farrell 71-64; Cotton 363, 701; (PNNL-TC): Sauer 5-16-75 #5; Rickard & Cline 6-1-70; unknown collector 5-31-73; Rickard 5-22-86

Erigeron linearis (Hook.) Piper  
desert yellowdaisy  
**USDA Code:** Erli  
**lifeform:** forb  
**origin:** Native  
**duration:** perennial  
**Distribution/Notes:** Scattered throughout Hanford, as along Cold Creek, on the White Bluffs, along the Columbia River near Vernita, and near top of Rattlesnake Ridge.  
**Collections:** (PNNL): Baird-884, 976; MRS-134; CZM 340, 666; JGL-29; (BRY): Baird 159, 773, 1046, 1295; (WS): O’Farrell 71-110; Lake & Hull 8-9-1892; (PNNL-TC): Sauer 6-10-75 #6, #28

Erigeron piperianus Cronq.  
Piper’s daisy  
**USDA Code:** Erpi3 (Erpi)  
**lifeform:** forb  
**origin:** Native  
**duration:** perennial  
**Distribution/Notes:** Scattered throughout Hanford, collected at 100-H Area, Horn Rapids, and the 200 Areas; Washington State sensitive species, but quite common among bunchgrass along the lower to middle slopes of Rattlesnake Ridge.
**Erigeron poliospermus** Gray  
*Gray cushion fleabane*

**USDA Code:** Erpo2 (Erpo)  
**lifeform:** forb  
**origin:** Native  
**duration:** perennial

**Distribution/Notes:** Common and widespread, often on gravelly substrates, from hilltops to the Columbia River.

**Collections:**  
(PNNL): MRS-128, 129; CZM 320; JGL-30; (BRY): Baird 143, 725, 728, 996; (WS): O’Farrell 71-145, 74-296; (PNNL-TC): Warren 5-3-79; Sauer 5-16-75; (WTU): Caplow & Beck 94029

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**Erigeron pumilus** Nutt.  
*shaggy fleabane*

**USDA Code:** Erpu2 (Erpu)  
**lifeform:** forb  
**origin:** Native  
**duration:** perennial

**Distribution/Notes:** Common and widespread, mostly with sagebrush-bunchgrass, throughout Hanford.

**Collections:**  
(PNNL): Baird-995; CZM 664; MRS-53, 74; /VAU-08; P&R-75; (BRY): Baird 841, 874, 966, 971, 988, 1047, 1160; (PNNL-TC): Sauer 6-16-75; no collector 5-7-80

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**Eriophyllum lanatum** (Pursh) Forbes var. *integrifolium* (Hook.) Smiley  
*woolly sunflower*

**USDA Code:** Erlai (Erla)  
**lifeform:** forb  
**origin:** Native  
**duration:** perennial

**Distribution/Notes:** Local in rocky-silty sites in drainages of Rattlesnake Ridge, Snively Basin, and at Priest Rapids.

**Collections:**  
(BRY): Baird 601, 769, 860; (WS): O’Farrell 71-109, 74-299; Cotton 405; Bennett no #; (PNNL): Pendleton 6-19-59; Davis 5-6-53; Rickard & Cline 5-1-70; Rotenberry 5-29-75 #4; Warren 5-31-78

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**Filago arvensis** L.  
*field fluffweed*

**Logfia arvensis** (L.) Holub

**USDA Code:** Loar5 (Fiar)  
**lifeform:** forb  
**origin:** Introduced  
**duration:** annual

**Distribution/Notes:** Introduced weed. Uncommon on Hanford; collected on lower slopes of Umtanum Ridge and at the Basalt Waste Isolation Project borehole site, west of the 200 West Area.

**Collections:**  
(BRY): Baird 177, 1269

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**Gaillardia aristata** Pursh  
*blanket flower*

**USDA Code:** Gaar  
**lifeform:** forb  
**origin:** Native  
**duration:** perennial

**Distribution/Notes:** Common among cobbles all along the Columbia River.

**Collections:**  
(PNNL): MRS-93, 208; CZM 354; (BRY): Baird 153, 709, 886, 999, 1008, 1077, 1394; (PNNL-TC): Sauer 5-30-75 #1, #11; Pendleton 9-10-58; Davis 5-11-53; Sauer 8-7-75 #18; Warren 5-80; Sauer & Owzarski 5-15-80; Warren 5-6-80; (WS): Beattie 3959
Gaillardia X grandiflora Van Houtte

**USDA Code:** Gagr  
**Lifeform:** forb  
**Origin:** Introduced  
**Duration:** perennial

**Distribution/Notes:** Hybrid garden plant; escaped and persisting along Horn Rapids Road.

**Collections:**  
(BRY): Baird 170, 1129

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Gnaphalium chilense Spreng.

**Pseudognaphalium stramineum** (Kunth) W.A. Weber  
**USDA Code:** Psst7 (Gnch)  
**Lifeform:** forb  
**Origin:** Native  
**Duration:** annual

**Distribution/Notes:** Scattered in wet areas near the Columbia River and at West Lake, ALE, and Wahluke Slope.

**Collections:**  
(PNNL): Baird-1357; P&R-21, 29; GIB-07, 08; (BRY): Baird 1411, 1436; (WS): O’Farrell 72-239; (PNNL-TC): Warren 8-12-80

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Gnaphalium microcephalum  
Nutt. var. thermale  
(E. Nels.) Kartesz

**Pseudognaphalium canescens** (DC.) W.A. Weber ssp. thermale  
(E. Nels.) Kartesz  
**USDA Code:** Pscat (Gnmi)  
**Lifeform:** forb  
**Origin:** Native  
**Duration:** perennial

**Distribution/Notes:** Reported from wet areas near Priest Rapids by Mastrogiuseppe and Gill (1983).

**Collections:**  
Mastrogiuseppe 2680

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Gnaphalium palustre  
Nutt.

**USDA Code:** Gnpa  
**Lifeform:** forb  
**Origin:** Native  
**Duration:** annual

**Distribution/Notes:** Common on wet gravel-bars along Columbia River, as at 100-B, 100-H, and 100-K Areas and other moist areas.

**Collections:**  
(PNNL): MRS-178; GIB-57; (BRY): Baird 175, 959, 1314, 1347, 1375; (PNNL-TC): Warren & Sauer 10-6-80

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Grindelia columbiana  
(Piper) Rydb.

**Columbia River gumweed**

**USDA Code:** Grco  
**Lifeform:** forb  
**Origin:** Native  
**Duration:** perennial

**Distribution/Notes:** Widespread, mostly along the Columbia River but occasional in drier disturbed areas, e.g., 100-D and 100-H Areas, White Bluffs townsite, and 200 East Area.

**Collections:**  
(PNNL): JGL-33; (BRY): Baird 1377, 1397, 1433; (PNNL-TC): Sauer 6-6-80; (WS): Lake & Hull 8-11-1892

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Haplopappus resinosus  
(Nutt.) Gray

**Ericameria resinosana** Nutt.

**USDA Code:** Erre8 (Hare)  
**Lifeform:** sub-shrub  
**Origin:** Native  
**Duration:** perennial

**Distribution/Notes:** Local on basalt cliffs and talus slopes of Umtanum Ridge.

**Collections:**  
(BRY): Baird 178
**Haplopappus stenophyllus** Gray

*narrowleaf goldenweed*

*Stenotus stenophyllus* (Gray) Greene

**USDA Code:** Stst5 (Hast)  
**lifeform:** sub-shrub  
**origin:** Native  
**duration:** perennial

**Distribution/Notes:** Common in rocky areas on the tops of main hills and ridges.

**Collections:** (BRY): Baird 720, 750, 765, 772; (WS): O’Farrell 71-53; Bennett 36; Cotton 346; (PNNL-TC): Johnson & Rickard 4-22-66; Sauer 6-10-75 #10; Warren 4-18-78; Gano 5-1-79

**Helenium autumnale** L.

*sneezeweed*

**USDA Code:** Heau  
**lifeform:** forb  
**origin:** Native  
**duration:** perennial

**Distribution/Notes:** Common in wet areas along the Columbia River, as at 100-D, 100-B, and 100-H Areas.

**Collections:** (PNNL): MRS-185, 191; GIB-33; (BRY): Baird 1324, 1393; (PNNL-TC): Warren & Sauer no date; Newsome & Sauer; unknown collector 9-10-58

**Helianthus annuus** L.

*common sunflower*

**USDA Code:** Hean3 (Hean)  
**lifeform:** forb  
**origin:** Native  
**duration:** annual

**Distribution/Notes:** Widespread in disturbed sites, mostly along the Columbia River or near roads, as White Bluffs townsite.

**Collections:** (PNNL): VAU-9; (BRY): Baird 1312

**Helianthus cusickii** Gray

*Cusick’s sunflower*

**USDA Code:** Hecu2 (Hecus)  
**lifeform:** forb  
**origin:** Native  
**duration:** perennial

**Distribution/Notes:** Common in silty soil at middle elevations of Rattlesnake Mountain, and along the Cold Creek drainage and McGee Ranch areas; scattered elsewhere, as on the White Bluffs.

**Collections:** (PNNL): Baird-970; MRS-152; JGL-34, 35; (BRY): Baird 700, 726, 800; (PNNL-TC): Sauer 6-21-74; Warren 5-22-80; Sauer 6-5-80; no collector 5-79; (WS): O’Farrell 71-60; (WTU): Caplow & Beck 94021, 97037

**Hieracium cynoglossoides** Arv.-Touv.

*houndstongue hawkweed*

**USDA Code:** Hicy  
**lifeform:** forb  
**origin:** Native  
**duration:** perennial

**Distribution/Notes:** Collected in early 1900s on steep north slope of Rattlesnake Hills; elevation 3,500 feet, also observed on ALE by TNC.

**Collections:** (WS): Cotton 677

**Hymenopappus filifolius** Hook.

*Columbia cutleaf*

**USDA Code:** Hyfi  
**lifeform:** forb  
**origin:** Native  
**duration:** perennial

**Distribution/Notes:** Common in sandy areas and dunes, as along Army Loop Road, the 300 Area, and White Bluffs townsite.
Collections: (PNNL): CZM 406A; JGL-36, 37; (BRY): Baird 818, 1092; (WS): O’Farrell 73-264; (PNNL-TC): Klepper & Sauer 6-21-74; Davis 5-21-53; Pendleton 10-3-58; Davis 5-23-53; Pendleton 6-18-54; Sauer 6-10-75 #4; Sauer & Owzarski 5-15-80

*Iva axillaris* Pursh

*USDA Code:* Ivax  
*lifeform:* forb  
*origin:* Native  
*duration:* perennial  

*Distribution/Notes:* Collected along Highway 24 north of the Yakima barricade.

*Collections:*  
(PNNL): MRS 7-25-00

*Iva xanthifolia* Nutt

*USDA Code:* Ivxa  
*lifeform:* forb  
*origin:* Native  
*duration:* annual  

*Distribution/Notes:* Collected in Snively Canyon.

*Collections:*  
(PNNL): CZM 443; (WS): O’Farrell 72-252

*Lactuca serriola* L.

*USDA Code:* Lase  
*lifeform:* forb  
*origin:* Introduced  
*duration:* annual  

*Distribution/Notes:* Introduced; common, widespread, and sometimes troublesome weed of disturbed areas throughout the Hanford Site.

*Collections:*  
(PNNL): JGL-38; VAU-10, 11; (BRY): Baird 1416; (PNNL-TC): Rickard & Cline 9-4-70; Warren 8-16-78; Rickard 7-17-86

*Lagophylla ramosissima* Nutt.

*USDA Code:* Lara  
*lifeform:* forb  
*origin:* Native  
*duration:* annual  

*Distribution/Notes:* Uncommon; widely scattered in uplands, 100 and 200 Areas.

*Collections:*  
(PNNL): MRS 321

*Layia glandulosa* (Hook.) Hook. & Arn.

*USDA Code:* Lagl5 (Lagl)  
*lifeform:* forb  
*origin:* Native  
*duration:* annual  

*Distribution/Notes:* Relatively common in sandy areas, throughout central and southern Hanford.

*Collections:*  
(PNNL): MRS-43; P&R-34; JGL-39; /RFG-03, 04; (BRY): Baird 707; (WS): O’Farrell 74-286; (PNNL-TC): Warren 4-14-78; Warren & Sauer 10-6-80; Anderson 4-20-85; Sauer & Owzarski 5-15-80

*Machaeranthera canescens* (Pursh) Gray

*USDA Code:* Maca2 (Maca)  
*lifeform:* forb  
*origin:* Native  
*duration:* perennial  

*Distribution/Notes:* Widespread in both natural and disturbed places, mainly in sandy soil, throughout Hanford.

*Collections:*  
(PNNL): MRS-145; P&R-13; JGL-40; /RFG-05; (BRY): O’Farrell 71-151; (PNNL-TC): Combs 8-1-75 #1; Sauer & Newsome 9-27-77; Pendleton 10-3-58; Davis 10-1-52; Anderson 25-85; Rickard 7-17-86; Combs 8-1-75

3.20
**Madia exigua** (Sm.) Gray  
*lifeform*: forb  
*origin*: Native  
*duration*: annual  
**Distribution/Notes:** Collected at crest of Rattlesnake Mountain.  
**Collections:** (WS): O’Farrell 72-229

**Matricaria chamomilla** L. 1755 & 1763, non 1753  
*lifeform*: forb  
*origin*: Introduced  
*duration*: annual  
**Distribution/Notes:** Introduced and uncommon; collected at Bennett Spring.  
**Collections:** (BRY): Baird 1340

**Matricaria matricarioides** auct. Non (Less.) Porter  
*lifeform*: forb  
*origin*: Introduced  
*duration*: annual  
**Distribution/Notes:** Introduced weed; collected at waste places near the Columbia River at Richland.  
**Collections:** (BRY): Baird 674

**Microseris troximoides** Gray  
*lifeform*: forb  
*origin*: Native  
*duration*: perennial  
**Distribution/Notes:** Rocky areas on Rattlesnake Ridge, Umtanum Ridge, and Wahluke Slope.  
**Collections:** (PNNL): MRS 196; (BRY): Baird 556, 616, 761; (WS): O’Farrell 72-197; Cotton 323; (PNNL-TC): Pendleton 4-17-59

**Onopordum acanthium** L.  
*lifeform*: forb  
*origin*: Introduced  
*duration*: perennial  
**Distribution/Notes:** Very large species of thistle observed near south gate of 300 Area.  
**Collections:** None Available

**Senecio hydrophilus** Nutt.  
*lifeform*: forb  
*origin*: Native  
*duration*: perennial  
**Distribution/Notes:** Collected in wet areas along the Columbia River at Kennewick and on ALE.  
**Collections:** (WS): O’Farrell 71-72; Jones 371

**Senecio integerrimus** Nutt. var. *exaltatus* (Nutt.) Cronq.  
*lifeform*: forb  
*origin*: Native  
*duration*: perennial  
**Distribution/Notes:** Local in bunchgrass areas on upper slopes and top of Rattlesnake Ridge and in washes near Priest Rapids.  
**Collections:** (BRY): Baird 777; (PNNL-TC): Sauer 6-10-75 #9
**Senecio pauperculus** Michx.  
*balsam groundsel*  
*Packera paupercula* (Michx.) A. & D. Löve

**USDA Code:** Papa20 (Sepa)  
**lifeform:** forb  
**origin:** Native  
**duration:** perennial  

**Distribution/Notes:** Occasional along the shore of the Columbia River, such as at Vernita and White Bluffs townsite.

**Collections:**  
(BRY): Baird 880, 1007;  
(WS): Beattie 3963;  
(PNNL-TC): Sauer 5-15-80; no collector 5-7-80

**Senecio serra** Hook.  
*butterweed groundsel*

**USDA Code:** Sese2 (Sese)  
**lifeform:** forb  
**origin:** Introduced  
**duration:** annual  

**Distribution/Notes:** Collected on north slopes of Rattlesnake Hills. Not observed in Hanford vicinity since the early 20th century.

**Collections:**  
(WS): Cotton 675

**Senecio vulgaris** L.  
*common groundsel*

**USDA Code:** Sevu  
**lifeform:** forb  
**origin:** Introduced  
**duration:** annual  

**Distribution/Notes:** Widespread garden/lawn weed reported along the Columbia River.

**Collections:**  
None Available

**Solidago canadensis** L.  
*meadow goldenrod*


**USDA Code:** Soca6 (Soca)  
**lifeform:** forb  
**origin:** Native  
**duration:** perennial  

**Distribution/Notes:** Local in wet areas; collected along the stream at Rattlesnake Springs. Mastrogiuseppe and Gill (1983) reported two varieties in the Priest Rapids vicinity.

**Collections:**  
(PNNL): MRS 183;  
(BRY): Baird 1358

**Solidago gigantea** Ait.  
*smooth goldenrod*

**USDA Code:** Sogi  
**lifeform:** forb  
**origin:** Native  
**duration:** perennial  

**Distribution/Notes:** Local in wet areas; collected south of Hanford townsite.

**Collections:**  
(PNNL-TC): Pendleton 10-7-58

**Solidago graminifolia** (L.) Salisb.  
*bushy goldenrod*

*Euthamia graminifolia* (L.) Greene var. *graminifolia*

**USDA Code:** Eugr5(Sogr)  
**lifeform:** forb  
**origin:** Native  
**duration:** perennial  

**Distribution/Notes:** Scattered in wet areas, as at 100-D Area gravel bar and Hanford slough.

**Collections:**  
(PNNL): MRS 310;  
(PNNL-TC): Warren & Sauer 10-6-80

**Solidago missouriensis** Nutt.  
*Missouri goldenrod*

**USDA Code:** Somi2 (Somi)  
**lifeform:** forb  
**origin:** Native  
**duration:** perennial  

**Distribution/Notes:** Scattered in wet areas, as at 100-F Area gravel bar and streams in the Rattlesnake Hills.

**Collections:**  
(WS): Cotton 480; St. John 8091;  
(PNNL-TC): Warren no date

3.22
Solidago occidentalis (Nutt.) Torr. & Gray
western goldenrod
Euthamia occidentalis Nutt.

**USDA Code:** Euoc4 (Sooc)  
**lifeform:** forb  
**origin:** Native  
**duration:** perennial

**Distribution/Notes:** Common in wet or moist areas, as at Hanford slough, Hanford townsite, and Snively Springs.

**Collections:** (PNNL): MRS-190; GIB-47; (BRY): Baird 1400; (WS): O’Farrell 71-156; (PNNL-TC): Warren 8-12-80; Newsome & Sauer 9-27-77; Warren 8-16-78

Sonchus asper (L.) Hill
prickly sowthistle

**USDA Code:** Soas  
**lifeform:** forb  
**origin:** Introduced  
**duration:** annual

**Distribution/Notes:** Introduced weed of wet or moist areas; collected at Rattlesnake Springs; reported from ALE and Wahluke Slope.

**Collections:** (WS): O’Farrell 71-236, 71-238

Sonchus oleraceus L.
common sowthistle

**USDA Code:** Sool  
**lifeform:** forb  
**origin:** Introduced  
**duration:** annual

**Distribution/Notes:** Local on disturbed sites; collected in North Richland.

**Collections:** (PNNL): MRS-224

Sonchus uliginosus Bieb.
marsh sowthistle

Sonchus arvensis L. ssp. uliginosus (Bieb.) Nyman

**USDA Code:** Soaru (Soul)  
**lifeform:** forb  
**origin:** Introduced  
**duration:** perennial

**Distribution/Notes:** Introduced weed of wet or moist areas; collected in 200 Areas ditches, West Lake, and north Richland.

**Collections:** (PNNL): MRS 324; GIB-34; (BRY): Baird 1199

Stephanomeria paniculata Nutt.
stiff wirelettuce

**USDA Code:** Stpa2 (Stpan)  
**lifeform:** forb  
**origin:** Native  
**duration:** annual

**Distribution/Notes:** Scattered in dry areas, mostly where sandy, e.g., Dry Creek Valley, 200 Areas, and Basalt Waste Isolation Project borehole site; reported from flood bars near Priest Rapids.

**Collections:** (PNNL): unknown collector; (BRY): Baird 1218, 1243, 1270; (WS): Lake & Hull 690

Stephanomeria tenuifolia (Raf.) Hall
bush wirelettuce

Stephanomeria minor (Hook.) Nutt.

**USDA Code:** Stmi13 (Stte)  
**lifeform:** sub-shrub  
**origin:** Native  
**duration:** perennial

**Distribution/Notes:** Scattered in loamy or silty soils on slopes of Rattlesnake and Umtanum ridges, Gable Mountain, and along Cold Creek.

**Collections:** (PNNL): GIB-09, 10; (BRY): Baird 165, 201, 1233, 1240, 1306, 1336; (WS): O’Farrell 71-143; Lake & Hull 812
**Taraxacum officinale** G.H. Weber ex Wiggers
dandelion

*USDA Code: Taof*

**lifeform:** forb  **origin:** Introduced  **duration:** perennial

**Distribution/Notes:** Introduced ubiquitous weed of many habitats, primarily moist areas.

**Collections:**
(PNNL): P&R-45; (WS): O’Farrell 72-181; St. John 8127; (PNNL-TC): Rickard & Cline 5-1-70; Rickard 4-16-86

**Tetradymia canescens** DC.
gray horsebrush

*USDA Code: Teca2 (Teca)*

**lifeform:** shrub  **origin:** Native  **duration:** perennial

**Distribution/Notes:** Locally dominant shrub of sagebrush-bunchgrass areas on and near the top of Rattlesnake Ridge.

**Collections:**
(PNNL): CZM 454; (BRY): Baird 1299, 1333; (WS): O’Farrell 72-141, 74-308; Cotton 695; (PNNL-TC): Pendleton 6-19-59

**Townsendia florifer** (Hook.) Gray
showy Townsend-daisy

*Townsendia florifera* (Hook.) Gray

*USDA Code: Tofl2 (Tofl)*

**lifeform:** forb  **origin:** Native  **duration:** annual

**Distribution/Notes:** Common and widespread in sandy-gravelly areas, as at the bergmounds near the Yakima barricade, the west end of Gable Mountain, and south of the Hanford townsite.

**Collections:**
(PNNL): MRS-40, 80, 219; P&R-50; GIB-11; /JGL-41; (BRY): Baird 44, 600, 828, 931, 952, 1044, 1108; (WS): O’Farrell 71-43; Beattie 3955; Bennett 44; (PNNL-TC): Whittaker 5-6-52; Sauer 6-16-75 #3

**Tragopogon dubius** Scop.
yellow salsify

*USDA Code: Trdu*

**lifeform:** forb  **origin:** Introduced  **duration:** annual

**Distribution/Notes:** Introduced, common and widespread weed, especially in disturbed areas, throughout Hanford.

**Collections:**
(PNNL): JGL-42, 43, 44; VAU-12; (BRY): Baird 906; (PNNL-TC): Sauer 4-12-78; Rickard & Fitzner 5-22-86

**Xanthium strumarium** L.
cocklebur

*USDA Code: Xast*

**lifeform:** forb  **origin:** Native  **duration:** annual

**Distribution/Notes:** Widespread weed of disturbed areas, especially near the Columbia River, i.e., near 100-D Area.

**Collections:**
(PNNL): GIB-11a; (BRY): Baird 1396; (WS): O’Farrell 71-163; (PNNL-TC): Warren & Sauer 10-6-80; Sauer & Durham 8-7-75 #7

**Betulaceae**

**Betula occidentalis** Hook.
red birch

*USDA Code: Beoc2 (Beoc)*

**lifeform:** tree  **origin:** Native  **duration:** perennial

**Distribution/Notes:** Reported by Mastrogiuseppe and Gill (1983) in washes and other wetter areas in the Priest Rapids vicinity.

**Collections:**
Mastrogiuseppe 2134
**Bignoniaceae**

*Catalpa bignonioides* Walt.

**USDA Code:** Cabi8 (Cabi)  
**lifeform:** tree  
**origin:** Introduced  
**duration:** perennial  

**Distribution/Notes:** Introduced ornamental tree, persisting on the floodplain at White Bluffs townsite and near the Columbia River north of Ringold.

**Collections:**  
(BRY): Baird 1266; (PNL): CZM 375

**Boraginaceae**

*Amsinckia intermedia* Fisch. & C.A. Mey.  
*Amsinckia menziesii* (Lehm.) A. Nels. & J.F. Macbr. var. *intermedia* (Fisch & C.A. Mey.)

**USDA Code:** Ammei2 (Amin)  
**lifeform:** forb  
**origin:** Native  
**duration:** annual  

**Distribution/Notes:** Reported by Mastrogiuseppe and Gill (1983) near Priest Rapids.

**Collections:**  
Mastrogiuseppe 1340

*Amsinckia lycopsoides* Lehm.

**USDA Code:** Amly  
**lifeform:** forb  
**origin:** Native  
**duration:** annual  

**Distribution/Notes:** Common, widespread weed, often in disturbed areas, throughout Hanford.

**Collections:**  
(PNL): Baird-1086; MRS-26; (BRY): Baird 527, 581, 811, 993;  
(PNL-TC): Sauer 4-12-78; Pendleton, 4-21-59; McShane 4-30-79;  
Gano 5-2-79

*Amsinckia retrorsa* Suksdorf  
*Amsinckia menziesii* (Lehm.) A. Nels. & J.F. Macbr. var. *menziesii*

**USDA Code:** Amme (Amre)  
**lifeform:** forb  
**origin:** Native  
**duration:** annual  

**Distribution/Notes:** Reported by Mastrogiuseppe and Gill (1983) near Priest Rapids.

**Collections:**  
Mastrogiuseppe 2375

*Amsinckia tessellata* Gray

**USDA Code:** Amte3 (Amte)  
**lifeform:** forb  
**origin:** Native  
**duration:** annual  

**Distribution/Notes:** Common, widespread weed, often in disturbed areas, throughout Hanford.

**Collections:**  
(PNL): MRS-34; P&R-76; JGL-45, 46; (BRY): Baird 2, 535, 693, 945, 1051, 1156; (WS): O’Farrell 71-23; (PNL-TC): no collector 5-10-73;  
Rogers 5-6-75

*Asperugo procumbens* L.

**USDA Code:** Aspr  
**lifeform:** forb  
**origin:** Introduced  
**duration:** annual  

**Distribution/Notes:** Reported by Mastrogiuseppe and Gill (1983) from wet areas in the Priest Rapids vicinity.

**Collections:**  
Mastrogiuseppe 2402

3.25
Coldenia nuttallii Hook.

_Tiquilia nuttallii_ (Hook.) A. Richards.

**USDA Code:** Tinu2 (Conu)  **lifeform:** forb  **origin:** Native  **duration:** annual

_Distribution/Notes:_ Scattered in sandy areas near Gable Mountain, 200 West Area, and Army Loop Road.

_Collections:_ (PNNL): CZM-645; Baird-1064; MRS-151; JGL-47; (BRY): Baird 1069, 1274; (PNNL-TC): Sauer 5-13-77; Pendleton 8-29-59

Cryptantha ambigua (Gray) Greene  

**USDA Code:** Cram3 (Cram)  **lifeform:** forb  **origin:** Native  **duration:** annual

_Distribution/Notes:_ Uncommon; collected in sagebrush area along Route 11-A and in Rattlesnake Hills.

_Collections:_ (PNNL): MRS-72, 236; (WS): Griffiths & Cotton 24

Cryptantha circumscissa (Hook. & Arn.) I.M. Johnston  

**USDA Code:** Crci2 (Crci)  **lifeform:** forb  **origin:** Native  **duration:** annual

_Distribution/Notes:_ Common and widespread on sand with sagebrush and in dune areas.

_Collections:_ (PNNL): MRS-48; P&R-51; VAU-13; /GJL-48, 49, 50; (BRY): Baird 141, 328, 804, 989, 1063, 1071; (WS): O’Farrell 71-56; (PNNL-TC): Rickard 5-20-86

Cryptantha fendleri (Gray) Greene  

**USDA Code:** Crfe3 (Crfe)  **lifeform:** forb  **origin:** Native  **duration:** annual

_Distribution/Notes:_ Widespread, although relatively uncommon in sandy areas, as at the 200 and 300 Areas and Hanford townsite.

_Collections:_ (PNNL): Baird-1139; MRS-64, 223, 237; VAU-14; /GJL-12, 13; /JGL-51, 52; (BRY): Baird 975; (PNNL-TC): Thorpe 6-5-75; Whittaker 4-29-52; Warren & Hinds 5-20-80; (WTU): Caplow & Beck 95070, 97034

Cryptantha flaccida (Dougl. Ex Lehm.) Greene  

**USDA Code:** Crfl4 (Crfl)  **lifeform:** forb  **origin:** Native  **duration:** annual

_Distribution/Notes:_ Reported by TNC on ALE and central Hanford.

_Collections:_ (WTU): Caplow & Beck 94025, 95032

Cryptantha interrupta (Greene) Payson  

**USDA Code:** Crin4 (Cryn)  **lifeform:** forb  **origin:** Native  **duration:** perennial

_Distribution/Notes:_ Local on the White Bluffs and reported from the Rattlesnake Hills. These specimens are probably assignable to _C. spiculifera_.

_Collections:_ (BRY): Baird 148; (WS): Cotton 359
Cryptantha leuophaea (Dougl. Ex Lehm.) Payson

**USDA Code:** Crle6 (Crle)  
**lifeform:** forb  
**origin:** Native  
**duration:** perennial

**Distribution/Notes:** Locally common on open sand and sand dunes, as south of the Hanford townsite. Washington State sensitive species.

**Collections:**
(PNNL): Baird-898, 1106; MRS-32, 144; ARJ-01; (BRY): Baird 35; (PNNL-TC): Sauer 5-13-77; Warren & McShane 5-12-80; (WTU): Caplow & Beck 94031

Cryptantha pterocarya (Torr.) Greene

**USDA Code:** Crpt  
**lifeform:** forb  
**origin:** Native  
**duration:** annual

**Distribution/Notes:** Common and widespread, especially on sand and sandy areas.

**Collections:**
(PNNL): CZM 648; MRS-29, 55, 69; P&R-47; JGL-53, 54, 55; (BRY): Baird 32, 526, 545, 592, 702, 725a, 833, 1110; (WS): O’Farrell 71-24, 71-58; (PNNL-TC): Sauer 4-26-76; Whitaker 4-29-52; Rickard 5-20-86

Cryptantha scoparia A. Nels.

**USDA Code:** Crsc2 (Crsc)  
**lifeform:** forb  
**origin:** Native  
**duration:** annual

**Distribution/Notes:** Reported from ALE by TNC. This species is on the 1997 Washington State Review 1 list.

**Collections:**
(WTU): Caplow & Beck 95010

Cryptantha spiculifera (Piper) Payson

**USDA Code:** Crsp4 (Crsp)  
**lifeform:** forb  
**origin:** Native  
**duration:** perennial

**Distribution/Notes:** Due to taxonomic revisions, previous reports of C. interrupta on the Hanford Site probably refer to this species; the true C. interrupta occurs in northeast Nevada and adjacent Idaho. Local on the White Bluffs; reported from Rattlesnake Hills. Washington State sensitive species.

**Collections:**
(BRY): Baird 148; (WS): Cotton 359; (WTU): Caplow & Beck 94027, 94071, 94072

Cryptantha torreyana (Gray) Greene

**USDA Code:** Crto4 (Crto)  
**lifeform:** forb  
**origin:** Native  
**duration:** annual

**Collections:**
(WTU): Caplow & Beck 94033, 94044

Hackelia arida (Piper) I.M. Johnston

**USDA Code:** Hadia (Haar)  
**lifeform:** forb  
**origin:** Native  
**duration:** perennial

**Distribution/Notes:** Rocky-gravelly areas on north side of Rattlesnake and Umtanum ridges. Using Hitchcock and Cronquist (1973) some populations will key to this; all are probably var. cottonii (Piper) Carr X var. arida intermediates. The variety cottonii is not recognized by Hitchcock and Cronquist; see Gentry and Carr (1976) for additional information.

**Collections:**
(BRY): Baird 628, 780; (WS): Cotton 360, 579, 650
Hackelia diffusa (Lehm.) I.M. Johnston
  Hackelia diffusa (Lehm.) I.M. Johnston var. cottonii (Piper) R.L. Carr
  USDA Code: Hadic (Hadi)  lifeform: forb  origin: Native  duration: perennial
  Distribution/Notes: Uncommon; collections from the base of Umtanum Ridge (Davis) and from ALE; as with the preceding species, populations are probably var. arida X var. cottonii intermediates.

Heliotropium curassavicum L.
  USDA Code: Hecu3 (Hecur)  lifeform: forb  origin: Native  duration: annual
  Distribution/Notes: Weed of waste places; collected at Richland.
  Collections: (PNNL): WHR 8-23-95; (BRY): Baird 172; (WTU): Caplow & Beck 97049

Lappula redowskii auct. Non (Hornem.) Greene
  Lappula occidentalis (S. Wats.) Greene var. occidentalis
  USDA Code: Laoco (Lare)  lifeform: forb  origin: Native  duration: annual
  Distribution/Notes: Uncommon but widespread throughout Hanford in a number of habitats, as at Hanford townsite, Priest Rapids, and slopes of Rattlesnake Ridge.
  Collections: (PNNL): MRS-39; JGL-56, 57; (BRY): Baird 46, 548a, 584a, 724a; (WS): O’Farrell 74-305; Cotton 407; (PNNL-TC): Rickard & Cline 6-22-70; Sauer 4-12-78; Warren & Hines 5-20-80

Lithospermum arvense L.
  Buglossoides arvensis (L.) I.M. Johnston
  USDA Code: Buar3 (Litar)  lifeform: forb  origin: Introduced  duration: annual
  Distribution/Notes: Introduced weed; scattered on the upper slopes of the Rattlesnake Ridge in bunchgrass areas.
  Collections: (BRY): Baird 771

Lithospermum ruderale Dougl. Ex Lehm.
  USDA Code: Liru4 (Liru)  lifeform: forb  origin: Native  duration: perennial
  Distribution/Notes: Common on slopes and hills, mostly with bunchgrass, such as Rattlesnake Ridge.
  Collections: (BRY): Baird 713, 727, 779; (WS): O’Farrell 71-37; (PNNL-TC): Rickard & Cline 5-1-70; Sauer 6-17-75 #2, 5-31-78; Warren 5-2-79

Mertensia longiflora Greene
  USDA Code: Melo4 (Melo)  lifeform: forb  origin: Native  duration: perennial
  Distribution/Notes: Local along drainages near the top of Rattlesnake Ridge; collected near Bennett Ranch.
  Collections: (BRY): Baird 751; (WS): O’Farrell 72-191
Mertensia oblongifolia (Nutt.) G. Don leafy bluebells
USDA Code: Meob lifeform: forb origin: Native duration: perennial
Distribution/Notes: Local on slopes of Rattlesnake and Umtanum ridges.
Collections: (BRY): Baird 1557; (WS): O’Farrell 71-74; Cotton 328; (PNNL-TC): Pendleton 4-20-59

Myosotis laxa Lehm. small forget-me-not
USDA Code: Myla lifeform: forb origin: Native duration: annual
Distribution/Notes: Local in moist areas along the Columbia River.

Myosotis micrantha auct. Non Pallas ex Lehm. blue forget-me-not
Myosotis strica Link ex Roemer & J.A. Schultes
USDA Code: Myst2 (Mymi) lifeform: forb origin: Introduced duration: annual
Distribution/Notes:Introduced weed of moist areas; scattered near the Columbia River; reported by TNC on ALE and the Wahluke Slope.
Collections: (PNNL): MRS-87

Pectocarya linearis (Ruiz & Pavó) DC. winged combseed
var. penicillata (Hook. & Arn.) M.E. Jones
Pectocarya penicillata (Hook. & Arn.) A. DC.
USDA Code: Pepi26 (Peli) lifeform: forb origin: Native duration: annual
Distribution/Notes: Uncommon; collected on major ridges, Cold Creek Valley, and near 100-N Area. Currently on the Washington State Review 1 list.
Collections: (PNNL): GLF 177; MRS 217; (BRY): Baird 594; (WS): Griffiths & Cotton 22; (WTU): Caplow & Beck 95043

Pectocarya setosa Gray bristly combseed
USDA Code: Pese lifeform: forb origin: Native duration: annual
Distribution/Notes: State Watch List species local on steep slopes above Vernita Bridge.
Collections: (WTU): Caplow & Beck 95037, 95052

Plagiobothrys tenellus (Nutt. ex Hook.) Gray Pacific popcornflower
USDA Code: Plte lifeform: forb origin: Native duration: annual
Distribution/Notes: Uncommon; collected in sandy areas north of Richland.
Collections: (BRY): Baird 844
Brassicaceae

Arabidopsis thaliana (L.) Heynh.  common wallcress
USDA Code: Arth  lifeform: forb origin: Introduced duration: annual
Distribution/Notes: Introduced weed of waste places; collected at Richland near the Columbia River; also observed on Wahluke Slope.
Collections: (BRY): Baird 675

Arabis cusickii S. Wats.  Cusick’s rockcress
USDA Code: Arcu  lifeform: forb origin: Native duration: perennial
Distribution/Notes: Local in rocky areas on slopes and tops of Rattlesnake and Umtanum ridges, Wahluke Slope.
Collections: (BRY): Baird 1555, 1563; (WS): O’Farrell 72-189; (PNNL-TC): Warren 4-7-78

Arabis sparsiflora Nutt.  elegant rockcress
USDA Code: Arsp  lifeform: forb origin: Native duration: perennial
Distribution/Notes: Observed and collected at Rattlesnake Hills and Priest Rapids.
Collections: (WS): O’Farrell 71-73, 72-198, 73-261; St. John 8095; Cotton 562

Camelina microcarpa DC.  littlepod falseflax
USDA Code: Cami2 (Camic)  lifeform: forb origin: Introduced duration: annual
Distribution/Notes: Local on Wahluke Slope.
Collections: (PNNL): Caplow & Beck 94043

Capsella bursa-pastoris (L.) Medik.  shepherd’s purse
USDA Code: Cabu2 (Cabu)  lifeform: forb origin: Introduced duration: annual
Distribution/Notes: Introduced, widespread weed of disturbed areas throughout the west, but uncommon on Hanford.
Collections: (BRY): Baird 12; (PNNL-TC): Rickard 4-20-78

Cardamine oligosperma Nutt.  little western bittercress
USDA Code: Caol  lifeform: forb origin: Native duration: annual
Distribution/Notes: Scattered along the Columbia River and moist areas on the Wahluke Slope.
Collections: (PNNL): MRS 296

Cardamine pensylvanica Muhl. Ex Willd.  Pennsylvania bittercress
USDA Code: Cape3 (Cape)  lifeform: forb origin: Native duration: annual
Distribution/Notes: Scattered along the Columbia River; collected near the 300 Area and west of 100-K Area.
Collections: (PNNL): MRS 209 213; (PNNL-TC): Davis 5-7-53

3.30
Cardaria chalapensis (L.) Hand.-Maz.  hoarycress
USDA Code: Cach10 (Cach)  lifeform: forb  origin: Introduced  duration: perennial
Distribution/Notes: Introduced weed of disturbed areas, as at White Bluffs townsite; also reported on ALE and Wahluke Slope.
Collections: (PNNL): Baird-993A; JGL-58

Cardaria draba (L.) Desv.  whitetop
USDA Code: Cadr  lifeform: forb  origin: Introduced  duration: perennial
Distribution/Notes: Noxious weed, infesting Rattlesnake Springs.
Collections: (WS): O’Farrell 71-105

Cardaria pubescens (C.A. Mey.) Jarmolenko  globepodded hoarycress
USDA Code: Capu6 (Capu)  lifeform: forb  origin: Introduced  duration: perennial
Distribution/Notes: Locally common at 100-F Area; reported from ALE and Priest Rapids.
Collections: (PNNL): GLF-181

Chorispora tenella (Pallas) DC.  blue mustard
USDA Code: Chte2 (Chte)  lifeform: forb  origin: Introduced  duration: annual
Distribution/Notes: Introduced weed; widespread and common in disturbed areas.

Descurainia pinnata (Walt.) Britt.  western tansymustard
USDA Code: Depi2 (Depi)  lifeform: forb  origin: Native  duration: annual
Distribution/Notes: Common; widespread in many areas and habitat types; tends to increase with disturbance.
Collections: (PNNL): MRS-106; P&R-61; VAU-15; 16; RFG-06; JGL-59, 60, 61, 62, 63, 64, 65, 66; (BRY): Baird 25, 537, 542, 561, 582, 701; (WS): O’Farrell 71-19, 73-277; Beattie 3967; Cotton 364; (PNNL-TC): Davis 4-23-52; Sauer 4-12-78, 4-18-78; Rickard 5-20-86, 4-16-86, 4-18-86

Descurainia richardsonii O.E. Schulz  Richardson’s tansymustard
Descurainia incana (Bernh. Ex Fisch. & C.A. Mey.) Dorn
ssp. incisa (Engelm.) Kartesz & Ghahdi
ssp. viscosa (Ryd.) Kartesz & Gandhi
USDA Code: Dein5 (Deri)  lifeform: forb  origin: Native  duration: perennial
Distribution/Notes: Observed primarily in the Priest Rapids/Umtanum Ridge area; TNC reported var. sonnei (Robins.) Hitchc.; Mastrogiuseppe and Gill (1983) reported var. viscosa (Rydb.) Peck.
Collections: (PNNL-TC): Sauer 4-20-78; (WTU): Caplow & Beck 97001
Descurainia sophia (L.) Webb ex Prantl  
**USDA Code:** Deso2 (Deso)  
**lifeform:** forb  
**origin:** Introduced  
**duration:** annual  
**Distribution/Notes:** Introduced weed; common and widespread in disturbed areas.  
**Collections:** (PNL): MRS-25; rfg-07; VAU-17; JGL-67; (BRY): Baird 664; (WS): O’Farrell 73-273; (PNL-TC): no collector 5-10-73; Davis 4-16-52; Rickard & Cline 5-1-70; Sauer 4-18-78

Draba nemorosa L.  
**USDA Code:** Drne  
**lifeform:** forb  
**origin:** Native  
**duration:** annual  
**Distribution/Notes:** Local and uncommon along the Columbia River, as at White Bluffs townsites.  
**Collections:** (PNL): unknown collector (3-29-59); (PNL-TC): Davis 4-21-53, 5-7-53, Pendleton 4-13-59

Draba verna L.  
**USDA Code:** Drve2 (Drve)  
**lifeform:** forb  
**origin:** Introduced  
**duration:** annual  
**Distribution/Notes:** Common; early spring herb widespread throughout Hanford.  
**Collections:** (PNL): P&R-46; RFG-08; (BRY): Baird 39, 583, 753; (WS): O’Farrell 71-4; (PNL-TC): Sauer 4-12-78, 3-30-76; Pendleton 3-15-59

Erucastrum gallicum (Willd.) O.E. Schulz  
**USDA Code:** Erga  
**lifeform:** forb  
**origin:** Introduced  
**duration:** annual  
**Distribution/Notes:** Reported by TNC from ALE, central Hanford, and Wahluke Slope.  
**Collections:** None Available

Erysimum asperum (Nutt.) DC.  
**Erysimum capitatum** (Dougl. Ex Hook.) Greene var. capitatum  
**USDA Code:** Ercac (Eras)  
**lifeform:** forb  
**origin:** Native  
**duration:** perennial  
**Distribution/Notes:** Common spring wildflower of sandy areas throughout Hanford.  
**Collections:** (PNL): MRS-62; P&R-60; JGL-68, 69, 70; RFG-09; ARJ-02; (BRY): Baird 18, 536, 567, 1112; (WS): O’Farrell 71-20; (PNL-TC): Sauer 4-12-78; McShane 4-30-79; Gano 4-27-79; Hinds 5-20-80; Rickard 4-16-86, 5-20-86

Erysimum occidentale (S. Wats.) B.L. Robins.  
**USDA Code:** Eroc3 (Eroc)  
**lifeform:** forb  
**origin:** Native  
**duration:** perennial  
**Distribution/Notes:** Occasional and scattered; easily confused with the preceding species; collected in the Rattlesnake Hills and at Hanford along the Columbia River and at Priest Rapids.  
**Collections:** (BRY): Baird 935; (WS): Bennett 26; St. John 8112; (PNL-TC): Sauer 5-22-75 #3; Davis 5-5-52, 5-5-52; Rickard & Cline 6-1-70
**Hutchinsia procumbens** (L.) Desv.  
*lifeform:* forb  
*origin:* Native  
*duration:* annual

**USDA Code:** Hupr  
**Distribution/Notes:** Reported by TNC on central Hanford (probably in the vicinity of Umtanum Ridge); also reported at Priest Rapids by Mastrogiuseppe and Gill (1983).

**Collections:**  
(WS): Mastrogiuseppe 2254; (WTU): Caplow & Beck 97004

**Idahoa scapigera** (Hook.) A. Nels. & J.F. Macbr.  
*lifeform:* forb  
*origin:* Native  
*duration:* annual

**USDA Code:** Idsc  
**Distribution/Notes:** Reported by Mastrogiuseppe and Gill (1983) in lithosols and washes near Priest Rapids.

**Collections:**  
(WS): Mastrogiuseppe 2260

**Lepidium densiflorum** Schrad.  
*polygonum:* forben  
*origin:* Native  
*duration:* annual

**USDA Code:** Lede  
**Distribution/Notes:** Local in sandy areas near the Columbia River east of 100-D Area.

**Collections:**  
(PNNL): MRS-18; CZM 322

**Lepidium dictyotum** Gray  
*lifeform:* forb  
*origin:* Native  
*duration:* annual

**USDA Code:** Ledi2 (Ledi)  
**Distribution/Notes:** Reported by TNC on central Hanford.

**Collections:**  
None Available

**Lepidium latifolium** L.  
*lifeform:* forb  
*origin:* Introduced  
*duration:* perennial

**USDA Code:** Lela2 (Lela)  
**Distribution/Notes:** Introduced weed; widespread in disturbed areas, mostly in deep soils and bottomlands, rarely or not in sand.

**Collections:**  
(PNNL): MRS 322; (BRY): Baird 208, 1230

**Lepidium perfoliatum** L.  
*lifeform:* forb  
*origin:* Introduced  
*duration:* annual

**USDA Code:** Lepe2 (Lepe)  
**Distribution/Notes:** Common; widespread weed of disturbed areas.

**Collections:**  
(PNNL): JGL-71; VAU-18; (BRY): Baird 11, 639; (WS): O’Farrell 72-208; (PNNL-TC): Sauer 6-26-75 #1, 4-18-78

**Lepidium virginicum** L.  
*lifeform:* forb  
*origin:* Native  
*duration:* annual

**USDA Code:** Levi3 (Levi)  
**Distribution/Notes:** Scattered on gravelbars and wet areas near the Columbia River, e.g., 100-F and 100-K Areas. Reported from Wahluke Slope.

**Collections:**  
(PNNL): MRS-82; (BRY): Baird 1126, 1131
Lesquerella douglasii S. Wats.  
Columbia bladderpod  
**USDA Code:** Ledo2 (Ledo)  
**lifeform:** forb  
**origin:** Native  
**duration:** perennial  
**Distribution/Notes:** Common along the Columbia River, above and below the high water mark, Priest Rapids (China Bar), 100-B Area, between 100-D and 100-H Areas, and the White Bluffs.  
**Collections:** (PNNL): CZM 377; Baird-887; JGL-72, 73; (BRY): Baird 107, 606, 651, 610, 887; (PNNL-TC): Sauer 5-26-76, 5-30-75 #16a,b; Hanson 5-18-61; Davis 4-22-53; Fitzner, 5-11-78; Warren 4-30-79

Lesquerella tuplashensis Rollins, F. Beck & F. Caplow  
White Bluffs bladderpod  
**USDA Code:** Letu7 (Letu)  
**lifeform:** forb  
**origin:** Native  
**duration:** perennial  
**Distribution/Notes:** Washington State endangered species endemic to the White Bluffs; first discovered by TNC in 1994.  
**Collections:** (WTU): Caplow & Beck 94001, 94002, 95004, 95005, 95053, 97052

Malcolmia africana (L.) Ait. F.  
malcolmia  
**USDA Code:** Maaf  
**lifeform:** forb  
**origin:** Introduced  
**duration:** annual  
**Distribution/Notes:** Observed on ALE along the 1,200-foot road; TNC noted the plant on Umtanum Ridge.  
**Collections:** None Available

Phoenicaulis cheiranthoides Nutt.  
daggergerpod  
**USDA Code:** Phch  
**lifeform:** forb  
**origin:** Native  
**duration:** perennial  
**Distribution/Notes:** Local on rocky slopes and hilltops, e.g., Rattlesnake and Umtanum ridges.  
**Collections:** (PNNL): Baird-1548; (BRY): Baird 774; (WS): O’Farrell 71-18; (PNNL-TC): Warren 4-7-78

Raphanus sativus L.  
wild radish  
**USDA Code:** Rasa2 (Rasa)  
**lifeform:** forb  
**origin:** Introduced  
**duration:** annual  
**Distribution/Notes:** Reported by TNC on the Wahluke Slope.  
**Collections:** None Available

Rorippa columbiae (Suksdorf ex B.L. Robins.) Suksdorf ex T.J. Howell  
Columbia yellowcress  
Hitchcock and Cronquist lists this taxa as:  
Rorippa calycina (Engelm.) Rydb. var. columbiae (Suksdorf ex B.L. Robins.) Rollins  
**USDA Code:** Roco3 (Roco)  
**lifeform:** forb  
**origin:** Native  
**duration:** perennial  
**Distribution/Notes:** Local in gravel and cobble of the Columbia River’s edge; submerged for much of the year but must be above water to successfully reproduce. Extirpated from much of its range and now primarily known only from the section of the Columbia River flowing through the Hanford Site. Listed as threatened in Washington State.
**Collections:** (PNNL): Baird-1401, 1423, 1429; MRS-173, 330; (BRY): Baird 1010, 1089, 1351, 1369, 1420, 1421, 1422, 1424; (PNNL-TC): Warren 8-12-80, 5-30-80; Davis 5-8-53; Sauer 9-10-82, 10-22-82, 10-29-82

**Rorippa curvisiliqua** (Hook.) Bess. Ex Britt.  
usda code: Rocu  
lifeform: forb  
origin: native  
duration: annual  
Distribution/Notes: Local on gravelbars and wet areas along the Columbia River, as at 100-B Area.

**Collections:** (PNNL): MRS 210; (BRY): Baird 1009, 1354, 1365; (WS): St. John 8121

**Rorippa islandica** (Oeder) Borbás  
Marsh yellowcress  
Rorippa palustris (L.) Bess.

**Rorippa palustris**  
usda code: Ropa2 (Rois)  
lifeform: forb  
origin: native  
duration: annual  
Distribution/Notes: Somewhat common on gravelbars and wet areas along the Columbia River; collected at 100-B and 100-D Areas and Hanford townsite.

**Collections:** (PNNL): Baird-1355; MRS-174, 298, 302, 308; GLF-173; GIB-35; (BRY): Baird 1310, 1328, 1367, 1403; (PNNL-TC): Sauer & Warren 10-6-80; Newsome & Sauer 9-27-77; Warren & Hinds 5-20-80

**Rorippa nasturtium-aquaticum** (L.) Hayek  
Watercress  
Rorippa palustris (L.) Bess.

**Rorippa obtusa** (Nutt.) Britt.  
Bluntleaf yellowcress  
Rorippa curvipes Greene var. truncata (Jepson) Rollins

**Rorippa obtusa**  
usda code: Rocut (Roob)  
lifeform: forb  
origin: native  
duration: annual  
Distribution/Notes: Common on gravelbars and wet areas along the Columbia River, as at 100-B, 100-D, 100-K, and 100-H Areas.

**Collections:** (PNNL): Baird-1326; GLF-169; MRS-293; GIB-48; (BRY): Baird 1027, 1144, 1327, 1352, 1353, 1366, 1402; (PNNL-TC): Warren 8-5-80

**Schoenocrambe linifolia** (Nutt.) Greene  
Lavacress  
Schoenocrambe pauciflora

**Schoenocrambe linifolia**  
usda code: Sc1  
lifeform: forb  
origin: native  
duration: perennial  
Distribution/Notes: Local on slopes of Umtanum Ridge at Priest Rapids.

**Collections:** (PNNL): MRS 245; (PNNL-TC): Davis 5-6-53; Warren 4-20-78

3.35
**Sisymbrium altissimum** L.  
*Jim Hill’s tumble mustard*

*USDA Code: Sial*  
*lifeform:* forb  
*origin:* Introduced  
*duration:* annual  

*Distribution/Notes:* Introduced; ubiquitous weed of disturbed areas.

*Collections:*  
(PNNL): P&R-79; JGL-74, 75; VAU-20, 21;  
(BRY): Baird 3, 538;  
(WS): O’Farrell 72-213;  
(PNNL-TC): Fitzner 5-11-78; Sauer 5-30-75 #24;  
Rickard 5-20-86

**Sisymbrium loeselii** L.  
*Loesel’s tumble mustard*

*USDA Code: SiLo3 (Silo)*  
*lifeform:* forb  
*origin:* Introduced  
*duration:* annual  

*Distribution/Notes:* Introduced weed; local and uncommon along the Columbia River, at base of Umtanum Ridge, and at Hanford townsit.

*Collections:*  
(PNNL): MRS-246; Baird-913;  
(BRY): Baird 200, 202, 913;  
(PNNL-TC): Sauer 5-30-80

**Streptanthella longirostris** (S. Wats.) Rydb.  
*beaked sandcress*

*USDA Code: Stlo4 (Strlo)*  
*lifeform:* forb  
*origin:* Native  
*duration:* annual  

*Distribution/Notes:* Uncommon; collected in Cold Creek Valley and dunes north of the Wye barricade. Reported from Wahluke Slope.

*Collections:*  
(PNNL): MRS 27, 206;  
(WS): O’Farrell 74-287;  
(WTU): Caplow & Beck 95003

**Thelypodium integrifolium** (Nutt) Endl. Ex Walp.  
*entireleaved thelypody*

*USDA Code: Thin*  
*lifeform:* forb  
*origin:* Native  
*duration:* perennial  

*Distribution/Notes:* Reported by Mastrogiuseppe and Gill (1983) in wet areas near Priest Rapids.

*Collections:*  
Mastrogiuseppe 2683, 2652

**Thelypodium laciniatum** (Hook.) Endl. Ex Walp.  
*cutleaf ladysfoot mustard*

*USDA Code: Thla*  
*lifeform:* forb  
*origin:* Native  
*duration:* perennial  

*Distribution/Notes:* Scattered and locally common in sandy areas, often with sagebrush, i.e., 200 Area, Wahluke Slope, and Umtanum Ridge.

*Collections:*  
(PNNL): P&R-41; RFG-10, /VAU-22; (BRY): Baird 17, 565, 646, 950;  
(WS): O’Farrell 71-32; Cotton 1109;  
(PNNL-TC): Rickard 4-16-86;  
Gano 5-6-79

**Cactaceae**

**Opuntia erinacea** Engelm. & Bigelow ex Engelm.  
*prickly pear*

var. **columbianum** (Griffiths) L. Benson

*USDA Code: Operc2 (Oper)*  
*lifeform:* forb  
*origin:* Native  
*duration:* perennial  

*Distribution/Notes:* Probably occurs on the Hanford Site and may be common form, although not included in Hitchcock and Cronquist (1973). More specimens from the area need to be examined to determine abundance and distribution.

*Collections:*  
None Available
Opuntia fragilis (Nutt.) Haw.  
*brittle pricklypear*

**USDA Code:** Opfr  
**Lifeform:** forb  
**Origin:** Native  
**Duration:** perennial

**Distribution/Notes:** Reported growing on roadside in 100 Areas and possibly near 100-B/C Area; no collection made. Possibly misidentified as per discussion under *O. polyacantha*. *O. fragilis* is currently on the Washington State Review 1 list.

**Collections:** None Available

Opuntia polyacantha Haw.  
*starvation pricklypear*

**USDA Code:** Oppo  
**Lifeform:** forb  
**Origin:** Native  
**Duration:** perennial

**Distribution/Notes:** Common and widespread in sandy areas, mostly with sagebrush, throughout Hanford. However, populations may represent either *O. erinacea* var. *columbiana* (which is not included in Hitchcock and Cronquist 1973) or could be hybrids of *O. polyacantha*, *O. erinacea* var. *columbiana*, and/or *O. fragilis* (Benson 1982).

**Collections:** (PNNL): 848A; CZM 640; (BRY): Baird 848a; (WS): O’Farrell 73-266; Dunn 203

Pediocactus simpsonii (Engelm.) Britt. & Rose var. robustior (Coult.) L. Benson  
*hedgehog cactus*

**USDA Code:** Pesir (Pesi)  
**Lifeform:** forb  
**Origin:** Native  
**Duration:** perennial

**Distribution/Notes:** Found mainly to the west and northwest of the Hanford Site; reported by Mastrogiuseppe and Gill (1983) from lithosols near Priest Rapids. Currently on the Washington State Review 1 list.

**Collections:** None Available

*Callitrichaceae*

Callitriche palustris L.  
*water starwort*

**USDA Code:** Capa52 (Capa)  
**Lifeform:** forb  
**Origin:** native  
**Duration:** perennial

**Distribution/Notes:** Known only from older (1920s) collection along the Columbia River at Kennewick; specimen not found at Washington State University.

**Collections:** (WS): Jones 369

*Cannabinaceae*

Cannabis sativa L.  
*hemp*

**USDA Code:** Casa3 (Casa)  
**Lifeform:** forb  
**Origin:** Introduced  
**Duration:** annual

**Distribution/Notes:** Introduced; once cultivated for fiber and now an occasional weed. Found growing on lower slopes of Umtanum Ridge; local and uncommon.

**Collections:** (BRY): Baird 181
Capparidaceae

*Cleome lutea* Hook.  
**yellow bee-plant**  
**USDA Code:** Clu2 (Clu)  
**Lifeform:** forb  
**Origin:** Native  
**Duration:** annual  
**Distribution/Notes:** Scattered, mainly in dry soil near the Columbia River, as at 100-D Area and Hanford townsite.  
**Collections:** (PNNL): MRS-101; CZM 472; GIB-14, 15; (BRY): Baird 158, 203, 1068, 1182; (WS): O’Farrell 71-164; (PNNL-TC): Warren & Hines 5-20-80

Caprifoliaceae

*Sambucus caerulea* Raf.  
**blue elderberry**  
*Sambucus nigra* L. ssp. *caerulea* (Raf.) R. Bolli  
**USDA Code:** Saca3 (Saca)  
**Lifeform:** shrub  
**Origin:** Native  
**Duration:** perennial  
**Distribution/Notes:** Local in drainages of Rattlesnake and Umtanum ridges.  
**Collections:** (PNNL): CZM 444; (BRY): Baird 183; (WS): O’Farrell 71-132; (PNNL-TC): Sauer 5-31-78; Warren 8-16-78

*Symphoricarpos albus* (L.) Blake  
**common snowberry**  
**USDA Code:** Syal  
**Lifeform:** shrub  
**Origin:** Native  
**Duration:** perennial  
**Distribution/Notes:** Reported from ALE by TNC.  
**Collections:** (WTU): Caplow & Beck 94035

*Symphoricarpos oreophilus* Gray  
**mountain snowberry**  
**USDA Code:** Syor2 (Syor)  
**Lifeform:** shrub  
**Origin:** Native  
**Duration:** perennial  
**Distribution/Notes:** Observed in moist areas in the Rattlesnake Hills; uncommon.  
**Collections:** (WS): O’Farrell 71-117; Cotton 694

Caryophyllaceae

*Arenaria franklinii* Dougl. Ex Hook.  
**Franklin’s sandwort**  
**USDA Code:** Arfr  
**Lifeform:** forb  
**Origin:** Native  
**Duration:** perennial  
**Distribution/Notes:** Local in sandy areas, e.g., dune fields, 200 West Area, Umtanum Ridge. Some specimens may key to var. *thompsonii*, which is a rare species.  
**Collections:** (PNNL): JGL-76, 77; (BRY): Baird 33, 859; (WS): O’Farrell 71-28; (PNNL-TC): Sauer 6-10-75 #27; Rickard 5-23-86 - potentially var. *thompsonii*; (PNNL): Baird-895; MRS-30; (BRY): Baird 926; (PNNL-TC): Sauer et al. 4-12-80; Sauer et al. 5-22-8

3.38


*Arenaria pusilla* S. Wats.  
*dwarf sandwort*  

*Minuaria pusilla* (S. Wats.) Mattf.

**USDA Code:** Mipu7 (Arpu)  
**lifeform:** forb  
**origin:** Native  
**duration:** annual

**Distribution/Notes:** Reported by TNC within central Hanford.

**Collections:** (WTU): Caplow & Beck 97007, 97013

*Cerastium nutans* Raf.  
*nodding chickweed*

**USDA Code:** Cenu2 (Cenu)  
**lifeform:** forb  
**origin:** Native  
**duration:** annual

**Distribution/Notes:** Uncommon along the Columbia River; collected at the Hanford townsite, reported from the Wahluke Slope by TNC.

**Collections:** (WS): St. John 8124; (PNNL-TC): Davis 5-7-53

*Cerastium viscosum* auct. Non L.  
*sticky chickweed*

*Cerastium glomeratum* Thuill.

**USDA Code:** Cegl2 (Cevi)  
**lifeform:** forb  
**origin:** Introduced  
**duration:** annual

**Distribution/Notes:** Uncommon introduced weed; collected along the Columbia River at Hanford townsite.

**Collections:** (PNNL): MRS-118; (BRY): Baird 911

*Cerastium vulgatum* L. 1762, non 1755  
*common chickweed*

*Cerastium fontanum* Baumg. ssp. vulgare (Hartman) Greuter Burdet

**USDA Code:** Cefov2 (Cevu)  
**lifeform:** forb  
**origin:** Introduced  
**duration:** perennial

**Distribution/Notes:** Scattered weed of disturbed and cultivated areas; collected at Richland and Allard.

**Collections:** (PNNL): MRS-211; (PNNL-TC): Davis 5-9-53

*Dianthus armeria* L.  
*grass pink*

**USDA Code:** Diar  
**lifeform:** forb  
**origin:** Introduced  
**duration:** annual

**Distribution/Notes:** Introduced weed, or escaped from cultivation, locally persisting along the Columbia River. Collected along the Columbia River at 100-H Area.

**Collections:** (PNNL): MRS-158

*Gypsophila paniculata* L.  
*baby’s breath*

**USDA Code:** Gypa  
**lifeform:** forb  
**origin:** Introduced  
**duration:** perennial

**Distribution/Notes:**Introduced weed, often cultivated; locally established at Hanford townsite and elsewhere on central Hanford.

**Collections:** (PNNL): Baird-1285; CZM 411

*Holosteum umbellatum* L.  
*jagged chickweed*

**USDA Code:** Houm  
**lifeform:** forb  
**origin:** Introduced  
**duration:** annual

**Distribution/Notes:**Introduced and naturalized; very common throughout Hanford.

**Collections:** (PNNL): MRS-84; JGL-78, 79; (BRY): Baird 525; (WS): O’Farrell 71-6; (PNNL-TC): Rickard 4-18-86

3.39
Loeflingia squarrosa Nutt. ssp. squarrosa

USDA Code: Losqs (Losq)  lifeform: forb origin: Native  duration: annual

Distribution/Notes: Populations in the vicinity of Gable Mountain are disjunct from primary distribution of the species; Hanford has the only known populations in Washington of this state threatened species.

Collections: (PNNL): Caplow & Beck 95023; (WTU): Caplow & Beck 95039, 97023

Sagina procumbens L. procumbent pearlwort

USDA Code: Sapr  lifeform: forb origin: Introduced  duration: perennial

Distribution/Notes: Introduced weed collected in north Richland.

Collections: (PNNL): MRS 266

Saponaria officinalis L. bouncingbet

USDA Code: Saof4 (Saof)  lifeform: forb origin: Introduced  duration: perennial

Distribution/Notes: Escaped from cultivation; persisting in north Richland.

Collections: (PNNL): CZM 672

Silene douglasii Hook. Douglas’ catchfly

USDA Code: Sido  lifeform: forb origin: Native  duration: perennial

Distribution/Notes: Local in bunchgrass areas on Rattlesnake Ridge.

Collections: (BRY): Baird 1301; (WS): O’Farrell 71-119; Cotton 676

Silene menziesii Hook Menzies’ catchfly

ssp. menziesii var. viscosa (Greene) C.L. Hitchc. & Maguire

USDA Code: Simev2 (Sime)  lifeform: forb origin: Native  duration: perennial

Distribution/Notes: Uncommon; found in Cold Creek Valley, near Priest Rapids, and at Rattlesnake Springs.

Collections: (WS): O’Farrell 71-97, 73-278; Cotton 398

Spergularia marina (L.) Griseb. saltmarsh sandspurry

Spergularia salina J.& K. Presl

USDA Code: Spma5 (Spma)  lifeform: forb origin: Native  duration: annual

Distribution/Notes: Reported by TNC - central Hanford.

Collections: (WTU): Caplow & Beck 97047

Stellaria longipes Goldie longstalk starwort

USDA Code: Stlo2 (Stlo)  lifeform: forb origin: Native  duration: Perennial

Distribution/Notes: Collected near Cold Creek in early 20th century; not reported since.

Collections: (WS): Cotton 397
**Stellaria nitens** Nutt. shining starwort  
**USDA Code:** Stni  
**lifeform:** forb  
**origin:** Native  
**duration:** annual  
**Distribution/Notes:** Diminutive herb; often overlooked; local on grassy slopes at base of Umtanum Ridge and along the Columbia River.  
**Collections:** (BRY): Baird 633a

**Ceratophyllaceae**

**Ceratophyllum demersum** L.  
**USDA Code:** Cede4 (Cede)  
**lifeform:** forb  
**origin:** Native  
**duration:** perennial  
**Distribution/Notes:** Reported in Watson et al. (1984) to occur in the Columbia River.  
**Collections:** None Available

**Chenopodiaceae**

**Atriplex nuttallii** S. Wats. ssp. *falcata* (M.E. Jones)  
**Atriplex falcata** (M.E. Jones) Standl.  
**USDA Code:** Atfa (Atnu)  
**lifeform:** shrub  
**origin:** Native  
**duration:** perennial  
**Distribution/Notes:** Collected on White Bluffs north of Ringold.  
**Collections:** (PNNL): CZM-374; RR-1, 2; Beck & Caplow 94026; (WTU): Caplow & Beck 97030

**Atriplex patula** L. var. *hastata* auct. Non (L.) Gray  
**Atriplex prostrata** Bouchér ex DC.  
**USDA Code:** Atpr (Atpa)  
**lifeform:** forb  
**origin:** Native  
**duration:** annual  
**Distribution/Notes:** Widespread weed; collected at Rattlesnake Springs.  
**Collections:** (BRY): Baird 1360

**Atriplex rosea** L.  
**USDA Code:** Atro  
**lifeform:** forb  
**origin:** Introduced  
**duration:** annual  
**Distribution/Notes:**Introduced weed; collected at Rattlesnake Springs.  
**Collections:** (WS): O'Farrell 71-161

**Atriplex truncata** (Torr. Ex S. Wats.) Gray  
**USDA Code:** Attr  
**lifeform:** forb  
**origin:** Native  
**duration:** annual  
**Distribution/Notes:** Reported by TNC from central Hanford.  
**Collections:** (WTU): Caplow & Beck 97050

**Bassia hyssopifolia** (Pallas) Kuntz  
**USDA Code:** Bahy  
**lifeform:** forb  
**origin:** Introduced  
**duration:** annual  
**Distribution/Notes:** Introduced weed; locally common in alkaline areas, as at West Lake, Rattlesnake Springs, and near Priest Rapids.

**Chenopodium album** L. lamb’s quarters
**USDA Code:** Chal7 (Chal) **lifeform:** forb **origin:** Introduced **duration:** annual
**Distribution/Notes:** Common, widespread weed of disturbed and waste places.
**Collections:** (PNNL): GIB-36, 42; (PNNL-TC): Sauer 8-9-74

**Chenopodium botrys** L. Jerusalem oak
**USDA Code:** Chbo2 (Chbo) **lifeform:** forb **origin:** Introduced **duration:** annual
**Distribution/Notes:** Introduced weed; widespread, often along moist drainages and streams where sandy or gravelly.
**Collections:** (PNNL-TC): Sauer 8-9-74

**Chenopodium leptophyllum** (Moq.) Nutt. ex S. Wats. slimleaf goosefoot
**USDA Code:** Chle4 (Chle) **lifeform:** forb **origin:** Native **duration:** annual
**Distribution/Notes:** Scattered in a variety of moist to dry habitats, as at the 200 Areas, along the Columbia River at 100-K Area, Dry Creek Valley, and slopes of Rattlesnake Ridge.
**Collections:** (PNNL): CZM-653; MRS-75; P&R-42; (BRY): Baird 830, 1210, 1244, 1334; (WS): O’Farrell 71-101; (PNNL-TC): Sauer & Hines 7-5-74

**Chenopodium rubrum** L. red goosefoot
**USDA Code:** Chru **lifeform:** forb **origin:** Native **duration:** annual
**Distribution/Notes:** Local in saline marshes around West Lake.
**Collections:** (BRY): Baird 1435

**Corispermum hyssopifolium** L. p.p. common bugseed
**Corispermum pacificum** Mosyakin
**USDA Code:** Copa37 (Cohy) **lifeform:** forb **origin:** Native **duration:** annual
**Distribution/Notes:** Introduced; uncommon; collected in dunes north of the Wye Barricade.
**Collections:** (PNNL-TC): Pendleton 10-3-58

**Ceratoides lanata** (Pursh) J.T. Howell winterfat
**Krascheninnikovia lanata** (Pursh) A.D.J. Meeuse & Smit Listed as *Eurotia lanata* (Pursh) Moq. In Hitchcock and Cronquist (1973)
**USDA Code:** Krla2 (Cela) **lifeform:** shrub **origin:** Native **duration:** perennial
**Distribution/Notes:** Common shrub, mostly with bunchgrass and sagebrush; widespread on Hanford, as on Gable Mountain, the White Bluffs, Saddle Mountains, and slopes of Rattlesnake Ridge.
**Collections:** (PNNL): MRS-270; CZM 376; GIB-58; (BRY): Baird 146, 695, 723, 1248; (WS): O’Farrell 71-144; Dunn 184; (PNNL-TC): Gano 5-2-79
Grayia spinosa (Hook.) Moq.  
spiny hopsage

Listed as Atriplex spinosa in Hitchcock and Cronquist (1973)

**USDA Code:** Grsp  
**lifeform:** shrub  
**origin:** Native  
**duration:** perennial

**Distribution/Notes:** Common shrub; often found with sagebrush in more alkaline or clay soils; widespread on Hanford.

**Collections:** (PNNL): P&R-80; JGL-80; VAU-23; ARJ-03 WJW-01; (BRY): Baird 27, 541, 568, 619, 946; (WS): O’Farrell 71-82; Scott 5-31-22; St. John 8109; (PNNL-TC): Davis 5-5-52; Pendleton 4-13-59; Warren 4-27-78, 5-1-79; Sauer 4-20-78; McShane 4-30-79; Rickard & Fitzner 5-22-86; Rickard 4-18-86

Kochia scoparia (L.) Schrad.  
summer cypress

*Bassia scoparia* (L.) A.J. Scott

**USDA Code:** Basc5 (Kosc)  
**lifeform:** forb  
**origin:** Introduced  
**duration:** annual

**Distribution/Notes:** Common around the southern and eastern edges of the Hanford Site and throughout Richland.

**Collections:** (PNNL): CZM 373

Salsola kali L.  
Russian thistle

*Salsola tragus* L. (?)

**USDA Code:** Satr12 (Saka)  
**lifeform:** forb  
**origin:** Introduced  
**duration:** annual

**Distribution/Notes:** Introduced, ubiquitous, troublesome weed. Normally one of the first colonizers of disturbed areas throughout Hanford. Confusing taxonomy; species has also been assigned to *S. iberica*, which is currently subsummed by *S. traegus*.

**Collections:** (PNNL): P&R-08, 44; JGL-81, 82, 83, 84, 85; /VAU-24; /WJW-02; (BRY): Baird 1140, 1273; (WS): O’Farrell 71-162

Sarcobatus vermiculatus (Hook.) Torr.  
greasewood

**USDA Code:** Save4 (Save)  
**lifeform:** shrub  
**origin:** Native  
**duration:** perennial

**Distribution/Notes:** Dominant shrub of alkaline soils; often found in soils with higher clay content, as at Rattlesnake Springs and on the White Bluffs; also reported from the Priest Rapids area.

**Collections:** (PNNL): CZM-445; Baird-1364; (WS): O’Farrell 71-148

Suaeda occidentalis (S. Wats.) S. Wats.  
slender seepweed

*Suaeda calceoliformis* (Hook.) Moq.

**USDA Code:** Suca2 (Suoc)  
**lifeform:** forb  
**origin:** Native  
**duration:** perennial

**Distribution/Notes:** Known from very old collections along the Columbia River at White Bluffs townsite; also observed at Borden Spring above Priest Rapids by Mastrogiuseppe and Gill (1983).

**Collections:** (WS): Lake & Hull 678 (8-9-1892); Mastrogiuseppe 2645
**Convolvulaceae**

*Convolvulus arvensis* L.  
field bindweed  
**USDA Code:** Coar4 (Coar)  
**lifeform:** forb  
**origin:** Introduced  
**duration:** perennial  
**Distribution/Notes:** Introduced weed in a wide range of habitats, both wet and dry. Often near the Columbia River; sometimes growing where periodically submerged. Widespread on Hanford.  
**Collections:** (PNNL): GIB-16; (BRY): Baird 1163, 1915; (PNNL-TC): Sauer & Durham 8-7-75 #5

**Cornaceae**

*Cornus stolonifera* Michx.  
red-osier dogwood  
*Cornus sericea* L.  
**USDA Code:** Cost  
**lifeform:** shrub  
**origin:** Native  
**duration:** perennial  
**Distribution/Notes:** Tall shrub of moist or wet areas, especially on bottom land near streams known from Snively and Bobcat canyons, and canyons near Priest Rapids.  
**Collections:** (WS): O’Farrell 73-258; (PNNL-TC): Warren 8-16-78, 8-16-78, 5-11-79; Gano 5-2-79

**Crassulaceae**

*Crassula aquatica* (L.) Schoenl.  
pigmy-weed  
**USDA Code:** Craq  
**lifeform:** forb  
**origin:** Native  
**duration:** annual  
**Distribution/Notes:** Reported from along the Columbia River by TNC.  
**Collections:** None Available

*Sedum leibergii* Britt.  
Leiberg’s stonecrop  
**USDA Code:** Sele  
**lifeform:** forb  
**origin:** Native  
**duration:** perennial  
**Distribution/Notes:** Locally common on rocky or gravelly areas on top Rattlesnake Ridge.  
**Collections:** (PNNL): CZM 677; (WS): O’Farrell 73-280; Cotton 703

**Cucurbitaceae**

*Echinocystis lobata* (Michx.) Torr. & Gray  
wild cucumber  
**USDA Code:** Eclo  
**lifeform:** vine  
**origin:** Native  
**duration:** annual  
**Distribution/Notes:** Common on moist bottom land along rivers; collected at Richland along the Yakima River.  
**Collections:** (BRY): Baird 1389
Cupressaceae

Juniperus occidentalis Hook  Western Juniper
USDA Code: Juoc  lifeform: tree  origin: Native  duration: perennial
Distribution/Notes: Collected west of Richland near the Yakima River; one individual located south of Gable Butte.
Collections: (WS): Willmsen 11-23-26

Juniperus scopulorum Sarg.  Rocky Mountain juniper
USDA Code: Jusc2 (Jusc)  lifeform: tree  origin: Native  duration: perennial
Distribution/Notes: Scattered and relatively uncommon on the Hanford Site; mainly found near the Columbia River between Priest Rapids Dam and the 100-B Area.
Collections: (PNNL): Baird-1198; MRS-105; GIB-17, 18; (BRY): Baird 207, 1155; (WS): Jones 421; (PNNL-TC): Sauer 5-15-80

Thuja orientalis L.  Oriental arborvitae
Platycladus orientalis (L.) Franco
USDA Code: Plor80 (Thjoc)  lifeform: tree  origin: Introduced  duration: perennial
Distribution/Notes: Introduced tree; persisting where planted, as at homestead north of Ringold, and Army sites on the Wahluke Slope.
Collections: (PNNL): CZM 484; MRS-328

Cuscutaceae

Cuscuta denticulata Engelm.  desert dodder
USDA Code: Cude2 (Cude)  lifeform: vine  origin: Native  duration: perennial
Distribution/Notes: A Washington State sensitive species. Very local, small population found along a dry drainage in Cold Creek Valley in early 1980s. Also found by TNC on the White Bluffs during mid-1990s; parasitic on desert shrubs.
Collections: (PNNL): Baird-1238; Caplow & Beck 94047; (WTU): Caplow & Beck 94047, 94048, 94051

Cuscuta epithymum (L.) L.  common dodder
USDA Code: Cuep  lifeform: vine  origin: Introduced  duration: perennial
Distribution/Notes: Introduced parasite, often on crop plants; collected growing on Artemisia ludoviciana on Locke Island in the Columbia River.
Collections: (PNNL-TC): Sauer 5-30-80

Cuscuta indecora Choisy  plain dodder
USDA Code: Cuin  lifeform: vine  origin: Introduced  duration: perennial
Distribution/Notes: Widespread parasite; troublesome on crop plants; local on roadside weeds at Hanford townsite; probably not native to this region.
Collections: (BRY): Baird 1281; (PNNL-TC): Davis 7-30-53
Cuscuta pentagona Engelm. var. calycina Engelm.

Cuscuta pentagona Engelm. var. pentagona

**USDA Code:** Cupep2 (Cupe)  **lifeform:** vine  **origin:** Native  **duration:** perennial

**Distribution/Notes:** Reported from a variety of locations on the Hanford Site by TNC.

**Collections:** None Available

**Cyperaceae**

Carex amplifolia Boott

**USDA Code:** Caam10 (Caam)  **lifeform:** graminoid  **origin:** Native  **duration:** perennial

**Distribution/Notes:** Collected in Snively Creek on ALE.

**Collections:** (PNNL): Caplow & Beck 94049

Carex aperta Boott

**USDA Code:** Caap3 (Caap)  **lifeform:** graminoid  **origin:** Native  **duration:** perennial

**Distribution/Notes:** Uncommon in wet areas along the Columbia River, e.g., gravelbars at 100-F Area.

**Collections:** (PNNL): MRS-24; (BRY): Baird 1123a; (WS): Beattie 3936

Carex aquatilis Wahl. enb.

**USDA Code:** Caaq  **lifeform:** graminoid  **origin:** Native  **duration:** perennial

**Distribution/Notes:** Uncommon; reported by TNC from along the Columbia River.

**Collections:** None Available

Carex athrostachya Olney

**USDA Code:** Caat3 (Caat)  **lifeform:** graminoid  **origin:** Native  **duration:** perennial

**Distribution/Notes:** Common sedge found along the Columbia River and in other wet areas.

**Collections:** (PNNL): MRS-194; (BRY): Baird 1001, 1014, 1034, 1260; (PNNL-TC): Warren & Sauer 10-6-80; Warren 8-12-80

Carex aurea Nutt.

**USDA Code:** Caau3 (Caau)  **lifeform:** graminoid  **origin:** Native  **duration:** perennial

**Distribution/Notes:** Collected in the Rattlesnake Hills during the early 20th century.

**Collections:** (WS): Cotton 709

Carex brevior (Dewey) Mackenzie

**USDA Code:** Cabr10 (Cabr)  **lifeform:** graminoid  **origin:** Native  **duration:** perennial

**Distribution/Notes:** Uncommon; scattered along the Columbia River; collected between 100-N and 100-D Areas.

**Collections:** (PNNL): MRS-259
<table>
<thead>
<tr>
<th>Common Name</th>
<th>USDA Code</th>
<th>Lifeform</th>
<th>Origin</th>
<th>Duration</th>
<th>Distribution/Notes</th>
<th>Collections</th>
</tr>
</thead>
<tbody>
<tr>
<td>Carex diandra Schrank Lesser Panicled Sedge</td>
<td>Cadi4 (Cadi)</td>
<td>Graminoid</td>
<td>Native</td>
<td>Perennial</td>
<td>Reported by Mastrogiuseppe and Gill (1983) from wet areas in the Priest Rapids vicinity.</td>
<td>None Available</td>
</tr>
<tr>
<td>Carex douglasii Boott Douglas’ Sedge</td>
<td>Cado2 (Cado)</td>
<td>Graminoid</td>
<td>Native</td>
<td>Perennial</td>
<td>Common along the Columbia River and other wet areas.</td>
<td>(PNNL): MRS-91, 115, 116, 117; (BRY): Baird 611, 1033; (WS): O’Farrell 71-111; Cotton 572</td>
</tr>
<tr>
<td>Carex filifolia Nutt. Threadleaf Sedge</td>
<td>Cafi</td>
<td>Graminoid</td>
<td>Native</td>
<td>Perennial</td>
<td>Older collection from moist areas in the Rattlesnake Hills. Also observed by TNC on ALE.</td>
<td>(WS): Cotton 329</td>
</tr>
<tr>
<td>Carex lanuginosa auct. Non Michx. Woolly Sedge</td>
<td>Cala30 (Cala)</td>
<td>Graminoid</td>
<td>Native</td>
<td>Perennial</td>
<td>Collected in wet areas along the Columbia River, as at 100-F and 100-K Areas.</td>
<td>(PNNL): MRS -207, 240, 258, 261; (BRY): Baird 1035, 1123</td>
</tr>
<tr>
<td>Carex lenticularis Michx. Kellogg’s Sedge</td>
<td>Cale8 (Cale)</td>
<td>Graminoid</td>
<td>Native</td>
<td>Perennial</td>
<td>Collected in wet areas along the Columbia River, as at Vernita and east White Bluffs.</td>
<td>(PNNL): MRS-227; Baird-1015; (BRY): Baird 1261</td>
</tr>
<tr>
<td>Carex microptera MacKenzie Smallwinged Sedge</td>
<td>Capr5 (Capr)</td>
<td>Graminoid</td>
<td>Native</td>
<td>Perennial</td>
<td>Collected in moist areas in the Rattlesnake Hills, 3,500-foot elevation. Not reported since the early 20th century.</td>
<td>(WS): Cotton 700</td>
</tr>
<tr>
<td>Common Name</td>
<td>Latin Name</td>
<td>USDA Code</td>
<td>Lifeform</td>
<td>Origin</td>
<td>Duration</td>
<td>Distribution/Notes</td>
</tr>
<tr>
<td>-----------------------------------</td>
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<td>-----------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Carex praegracilis</td>
<td>W. Boott</td>
<td>Capr5 (Capr)</td>
<td>graminoid</td>
<td>Native</td>
<td>perennial</td>
<td>Uncommon; collected at McGee Well and reported at Priest Rapids by Mastrogiuseppe and Gill (1983).</td>
</tr>
<tr>
<td>Carex siccata</td>
<td>Dewey</td>
<td>Casi12 (Casi)</td>
<td>graminoid</td>
<td>Native</td>
<td>perennial</td>
<td>Reported by Mastrogiuseppe and Gill (1983) from wet areas in the Priest Rapids vicinity.</td>
</tr>
<tr>
<td>Carex vulpinoidea</td>
<td>Michx.</td>
<td>Cavu2 (Cavu)</td>
<td>graminoid</td>
<td>Native</td>
<td>perennial</td>
<td>Scattered along shore of the Columbia River.</td>
</tr>
<tr>
<td>Cyperus aristatus</td>
<td>Rottb.</td>
<td>Cyar3 (Cyar)</td>
<td>graminoid</td>
<td>Native</td>
<td>annual</td>
<td>Somewhat common on gravelbars and flats along the Columbia River, as at Coyote Rapids and 100-F Area.</td>
</tr>
<tr>
<td>Cyperus erythrorhizos</td>
<td>Muhl.</td>
<td>Cyer2 (Cyer)</td>
<td>graminoid</td>
<td>Native</td>
<td>perennial</td>
<td>Collected at Hanford townsit along the Columbia River near high water mark.</td>
</tr>
<tr>
<td>Cyperus esculentus</td>
<td>L.</td>
<td>Cyes</td>
<td>graminoid</td>
<td>Introduced</td>
<td>perennial</td>
<td>Uncommon weedy species of gardens and waste places such as near Richland and on Wahluke Slope.</td>
</tr>
<tr>
<td>Cyperus rivularis</td>
<td>Kunth</td>
<td>Cybi6 (Cyri)</td>
<td>graminoid</td>
<td>Native</td>
<td>annual</td>
<td>State sensitive species found scattered in wetlands along the Columbia River.</td>
</tr>
</tbody>
</table>

**Collections:**
- (BRY): Baird 802
- None Available
- (PNNL): MRS-260, 278, 290, 304, 309
- (PNNL): MRS-172, 268; GIB-49, 59; (BRY): Baird 1380; (PNNL-TC): Warren 8-12-80
- (BRY): Baird 1388; (WTU): Caplow & Beck 95141
- (PNNL): GLF-174; (UW?): R. Schuller 2090, 8-29-84; (WTU): Caplow & Beck 94055, 95110, 95123
Cyperus strigosus L. straw-colored flatsedge

**USDA Code**: Cyst
**lifeform**: graminoid **origin**: Native **duration**: perennial
**Distribution/Notes**: Reported by Mastrogiuseppe and Gill (1983) from flood bars in the Priest Rapids vicinity and by the TNC.
**Collections**: (WTU): Caplow & Beck 95134

Eleocharis acicularis (L.) Roemer & J.A. Schultes needle spikerush
**USDA Code**: Elac
**lifeform**: graminoid **origin**: Native **duration**: perennial
**Distribution/Notes**: Somewhat common in wet gravels near the Columbia River, i.e., 100-B Area, Hanford townsie, and Wahluke Slope.
**Collections**: (BRY): Baird 1293, 1349

Eleocharis ovata (Roth) Roemer & J.A. Schultes ovoid spikerush could be *E. ovata*, *E. englemanii* Steud. or *E. obtusa* (Willd.) J.A. Schultes
**USDA Code**: Elov
**lifeform**: graminoid **origin**: Native **duration**: annual
**Distribution/Notes**: Uncommon; collected along the Columbia River at 100-D Area.
**Collections**: (PNNL): Baird-1405; (WTU): Caplow & Beck 94062

Eleocharis palustris (L.) Roemer & J.A. Schultes common spikerush
**USDA Code**: Elpa3 (Elpa)
**lifeform**: graminoid **origin**: Native **duration**: perennial
**Distribution/Notes**: Common in wet areas all along the Columbia River.
**Collections**: (PNNL): MRS-83; (BRY): Baird 1000, 1016, 1032, 1292, 1331, 1338; (WS): O'Farrell 72-220a; (PNNL-TC): Warren 8-12-80

Eleocharis rostellata (Torr.) Torr. beaked spikerush
**USDA Code**: Elro2 (Elro)
**lifeform**: graminoid **origin**: Native **duration**: perennial
**Distribution/Notes**: Reported by Mastrogiuseppe and Gill (1983) from wet areas in the Priest Rapids vicinity.
**Collections**: None Available

Eriophorum gracile W.D.J. Koch slender cottongrass
**USDA Code**: Ergr8 (Ergr)
**lifeform**: graminoid **origin**: Native **duration**: perennial
**Distribution/Notes**: Reported by Mastrogiuseppe and Gill (1983) from wet areas in the Priest Rapids vicinity.
**Collections**: Mastrogiuseppe 3254

Hemicarpha micrantha (Vahl) Pax aristulate lipocarpha

Lipocarpha aristulata (Coville) G. Tucker
**USDA Code**: Liar6 (Hemi)
**lifeform**: graminoid **origin**: Native **duration**: annual
**Distribution/Notes**: Scattered in mudflats along the Columbia River.
**Collections**: (PNNL): GLF-171; (WTU): Caplow & Beck 94054

3.49
**Scirpus acutus** Muhl. Ex Bigelow  
*Schoenoplectus acutus* (Muhl. Ex Bigelow) A. & D. Löve var. *acutus*

**USDA Code:** Scac3  
**lifeform:** graminoid  
**origin:** Native  
**duration:** perennial

**Distribution/Notes:** Widespread in wet areas, such as Gable Mountain Pond, West Lake, Rattlesnake Springs, and Bennett Springs.

**Collections:** (PNNL): P&R-19; (BRY): Baird 892, 1136, 1339, 1361; (PNNL-TC): Fitzner 7-15-74

**Scirpus americanus** Pers.  
*Schoenoplectus americanus* (Pers.) Volk. Ex Schinz & R. Keller

(but ours may be a variety of *S. pungens* Vahl)

**USDA Code:** Scam6 (Scam)  
**lifeform:** graminoid  
**origin:** Native  
**duration:** perennial

**Distribution/Notes:** Widespread in wet areas, as on ALE, West Lake, and Wahluke Slope.

**Collections:** (PNNL): P&R 22; (BRY): Baird 894, 1441; (WS): O’Farrell 71-99; (PNNL-TC): Fitzner 7-15-74

**Scirpus maritimus** L.  
*Schoenoplectus maritimus* (L.) Lye

**USDA Code:** Scma8 (Scma)  
**lifeform:** graminoid  
**origin:** Native  
**duration:** perennial

**Distribution/Notes:** Widespread in wet areas such as along the Columbia River, on Wahluke Slope; formerly at Gable Mountain Pond.

**Collections:** (PNNL): P&R-04, 69; GIB-37; (BRY): Baird 1440; (PNNL-TC): Fitzner 7-15-74

**Scirpus microcarpus** J.& K. Presl  
**lifeform:** graminoid  
**origin:** Native  
**duration:** perennial

**Distribution/Notes:** Reported by Mastrogiuseppe and Gill (1983) from wet areas in the Priest Rapids vicinity.

**Collections:** None Available

**Scirpus validus** Vahl  
*Schoenoplectus tabernaemontani* (K.C. Gmel.) Palla

**USDA Code:** Scta2 (Scva)  
**lifeform:** graminoid  
**origin:** Native  
**duration:** perennial

**Distribution/Notes:** Widespread in wet areas, as at White Bluffs slough and Hanford townsite; formerly at Gable Mountain Pond.

**Collections:** (PNNL): P&R-68; (WS): O’Farrell 72-214; (PNNL-TC): Newsome & Sauer 9-27-77; Warren 8-12-80; Fitzner 7-15-74
**Dipsicaceae**

*Dipsacus sylvestris* Huds.  
*Dipsacus fullonum* L.

**USDA Code:** Difu2 (Disy)  
**lifeform:** forb  
**origin:** Introduced  
**duration:** perennial  
**Distribution/Notes:** Scattered along the Yakima River.  
**Collections:** None Available

**Elaeagnaceae**

*Elaeagnus angustifolia* L.  
Russian olive

**USDA Code:** Elan  
**lifeform:** tree  
**origin:** Introduced  
**duration:** perennial  
**Distribution/Notes:** Introduced tree; now well established along rivers and wetter areas throughout the region.  
**Collections:** (PNNL): CZM-382; unknown collector; (BRY): Baird 983

**Equisetaceae**

*Equisetum arvense* L.  
common horsetail

**USDA Code:** Eqar  
**lifeform:** forb  
**origin:** Native  
**duration:** perennial  
**Distribution/Notes:** Occasional along the Columbia River in wet sites, as at 100-H and 100-K Areas.  
**Collections:** (PNNL): CZM-658; (BRY): Baird 1038, 1315, 1385; (WS): O’Farrell 71-102

*Equisetum hyemale* L.  
Dutch scouringrush

**USDA Code:** Eqhy  
**lifeform:** forb  
**origin:** Native  
**duration:** perennial  
**Distribution/Notes:** Scattered along the Columbia River in wet areas, north Richland, and Island 12.  
**Collections:** (PNNL): /JGL-87; (PNNL-TC): Pendleton 6-18-59; Sauer & Durham 8-7-75 #9

*Equisetum laevigatum* A. Braun  
smooth scouringrush

**USDA Code:** Eqla  
**lifeform:** forb  
**origin:** Native  
**duration:** perennial  
**Distribution/Notes:** Common along the Columbia River in wet sites, Hanford townsite, 100-D and 100-H Areas.  
**Collections:** (PNNL): CZM-346; Baird-917; P&R-67; (BRY): Baird 1124, 1154, 1168
Equisetum palustre L. marsh horsetail
USDA Code: Eqpa lifeform: forb origin: Native duration: perennial
Distribution/Notes: Uncommon along the Columbia River in wet areas; collected at 100-B Area.
Collections: (PNNL): GIB-60

Equisetum variegatum Schleich. Ex F. Weber & D.M.H. Mohr northern scouringrush
USDA Code: Eqva lifeform: forb origin: Native duration: perennial
Distribution/Notes: Occasional along the Columbia River in wet sites, such as at the Hanford townsite, 100-H and 100-K Areas.
Collections: (BRY): Baird 917a, 1332, 1386

Euphorbiaceae

Eremocarpus setigerus (Hook.) Benth. doveweed
Croton setigerus Hook.
USDA Code: Crse11 (Erse) lifeform: forb origin: Native duration: annual
Distribution/Notes: Very local, but common, on dry, sparsely vegetated desert pavement, near the Columbia River east of Vernita, and along roadways north of Vernita Bridge.
Collections: (PNNL): GIB-61; MRS-326

Euphorbia esula L. leafy spurge
USDA Code: Eues lifeform: forb origin: Introduced duration: perennial
Distribution/Notes: Noxious weed reported on ALE by TNC.
Collections: None Available

Euphorbia glyptosperma Engelm. corrugate-seed spurge
Chamaesyce glyptosperma (Engelm.) Small
USDA Code: Chgl13 (Eugl) lifeform: forb origin: Native duration: annual
Distribution/Notes: Scattered in dry, sandy areas, as near Basalt Waste Isolation Project borehole site.
Collections: (PNNL): VAU-25; (BRY): Baird 1272; (WS): Lake & Hull 641

Euphorbia serpyllifolia Pers. thymeleaf spurge
Chamaesyce serpyllifolia (Pers.) Small
USDA Code: Chs6 (Euse) lifeform: forb origin: Native duration: annual
Distribution/Notes: Common weed; occasionally found in moist sand and gravel along the Columbia River, on ALE, and the Wahluke Slope.
Collections: (BRY): Baird 1317, 1373, 1404; (PNNL-TC): Sauer & Durham 8-7-75 #8
**Euphorbia supina** Raf.  
*milk spurge*

_Chamaesyce maculata_ (L.) Small  
**USDA Code:** Chma15 *(Eusu)*  
**lifeform:** forb  
**origin:** Native  
**duration:** annual  

**Distribution/Notes:** Collected in Richland.  
**Collections:** (PNNL): Zufelt 7-24-00

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**Fabaceae**

**Alhagi pseudalhagi** (Bieb.) Desv. ex B.Keller & Schaparenko  
_camelthorn*

**Alhagi maurorum** Medik.  
**USDA Code:** Alma12 *(Alps)*  
**lifeform:** forb  
**origin:** Introduced  
**duration:** perennial  

**Distribution/Notes:** Noxious weed reported from along irrigation canals on Wahluke Slope; may have been eradicated.  
**Collections:** None Available

**Astragalus caricinus** (M.E. Jones) Barneby  
_buckwheat milkvetch*

**USDA Code:** Asca12 *(Asca)*  
**lifeform:** forb  
**origin:** Native  
**duration:** perennial  

**Distribution/Notes:** Common and widespread in sagebrush areas on sandy loams.  
**Collections:** (PNNL): CZM-320; Baird-888, 978; MRS-33, 38; P&R-87; (BRY): Baird 36, 431, 534, 543, 602, 704, 724, 813, 908, 920, 933, 978, 980, 986, 1053; Caplow & Beck 97027; (PNNL-TC): Baird 36

**Astragalus columbianus** Barneby  
_Columbia milkvetch*

**USDA Code:** Asco9 *(Asco)*  
**lifeform:** forb  
**origin:** Native  
**duration:** perennial  

**Distribution/Notes:** Washington State threatened species; endemic to the northwest part of the Hanford Site and southeast portion of the Yakima Training Center, from near the Columbia River to the top of Umtanum and Yakima ridges.  
**Collections:** (PNNL): MRS 201, 202; CZM 418; Baird-605; (BRY): Baird 169, 599, 629, 642, 648, 1239; Beck & Caplow 94004; (PNNL-TC): Sauer 4-22-77, Mastrogiuseppe 1288

**Astragalus conjunctus** S. Wats.  
_var. rickardii* Welsh, F. Caplow and K. Beck  
_Dr. Bill’s locoweed*

**USDA Code:** Ascor2 *(Ascor)*  
**lifeform:** forb  
**origin:** Native  
**duration:** perennial  

**Distribution/Notes:** Endemic to the northwest faces of Rattlesnake Mountain, Horse Heaven Hills, and in Wasco County, Oregon. Currently on the Washington State Review 1 list. Earlier reports of *A. reventiformis* and possibly *A. arrectus* from our area may actually refer to this taxon. Variety not in Hitchcock and Cronquist (1973).  
**Collections:** (PNNL): Baird-775; (WTU): Caplow & Beck 94046, 95083; (BRY): Caplow & Beck 95038
**Astragalus geyeri Gray**

Geyer’s milkvetch

**USDA Code:** Asge  
**lifeform:** forb  
**origin:** Native  
**duration:** annual

**Distribution/Notes:** An annual milkvetch that occurs on the Wahluke Slope, near the top of the White Bluffs. Listed as sensitive in Washington State.

**Collections:**  
(WTU): Caplow & Beck 94042

**Astragalus lentiginosus** Dougl. Ex Hook.

freckled milkvetch

**USDA Code:** Asle8 (Aslen)  
**lifeform:** forb  
**origin:** Native  
**duration:** perennial

**Distribution/Notes:** Uncommon; collected on Rattlesnake Ridge near Bennett Ranch.

**Collections:**  
(BRY): Baird 755

**Astragalus purshii** Dougl. Ex Hook.

woolly-pod milkvetch  
vars. glareosus (Dougl.) Barnaby and purshii.

**USDA Code:** Aspu9 (Aspu)  
**lifeform:** forb  
**origin:** Native  
**duration:** perennial

**Distribution/Notes:** Common and widespread with sagebrush; most collections assignable to var. purshii, but some collections, mainly from the top of the Rattlesnake Ridge, are var. glareosus (Dougl.) Barneby (Baird 795, Johnson & Rickard 4-22-66, and Genoway 4-9-53).

**Collections:**  
(PNNL): JGL-88, 89; (BRY): Baird 101, 107, 547, 576, 617, 703, 718, 759, 795; (WS): O’Farrell 71-11, 71-17, 71-27; Cotton 552; Bennett 23; (PNNL-TC): Johnson & Rickard 4-22-66; Genoway 4-9-53; Sauer 4-26-76, 5-16-75, 6-10-75 #23, 4-20-78; Warren 4-18-78, 4-7-78; no collector 4-2-80; (WTU): Caplow & Beck 95006

**Astragalus reventiformis** (Rydb.) Barneby

Yakima milkvetch

**USDA Code:** Asre6 (Asre)  
**lifeform:** forb  
**origin:** Native  
**duration:** perennial

**Distribution/Notes:** Many of the earlier reports of this species from the Rattlesnake Hills are now probably referable to *A. conjunctus* var. rickardii. Otherwise, this species occurs on all major ridges and hills in the area.

**Collections:**  
(BRY): Baird 109, 633, 794; (PNNL-TC): no collector 6-11-76

**Astragalus sclerocarpus** Gray

stalked-pod milkvetch

**USDA Code:** ASSC6 (ASSe)  
**lifeform:** forb  
**origin:** Native  
**duration:** perennial

**Distribution/Notes:** State Watch List species that is common and widespread throughout Hanford, primarily on open sand with sagebrush and dunes.

**Collections:**  
(PNNL): Baird-900, 908, 979; MRS-16, 52, 54, 65, 70; P&R-82, 90; JGL-90, 91, 92, 93, 94; (BRY): Baird 16, 521, 806, 826, 851, 934, 942, 1061, 1096, 1109; (WS): O’Farrell 71-31, 71-55, 71-57; (PNNL-TC): Pendleton 4-15-58; Sauer 5-20-75; Warren, 5-9-78; Sauer 6-6-80, 5-9-78, 5-20-80; Sauer & Owzarski 5-80; Rickard 5-20-86
Astragalus spaldingii  
**Gray**  
Spalding’s milkvetch  
**USDA Code:** Assp4 (Assp)  
**lifeform:** forb  
**origin:** Native  
**duration:** perennial  
**Distribution/Notes:** Local in bunchgrass areas near the top of Rattlesnake Ridge.  
**Collections:**  
(PNNL): CZM 446, 663; (BRY): Baird 768, 862, 1298; (PNNL-TC): Sauer 6-17-75, 5-31-78; Rickard 6-1-70; (WS): Griffiths & Cotton 3, 23; L Smith 6-23-29

Astragalus speirocarpus  
**Gray**  
medick milkvetch  
**USDA Code:** Assp7 (Asspe)  
**lifeform:** forb  
**origin:** Native  
**duration:** perennial  
**Distribution/Notes:** Locally common in canyons and drainages just to the west and northwest of Hanford; collected at Priest Rapids. Some reports of this species in Cold Creek Valley (e.g., Brandt et al. 1990) probably refer to *A. sclerocarpus*.  
**Collections:**  
(PNNL-TC): Sauer 4-28-78

Astragalus succumbens  
**Dougl. Ex Hook.**  
crouching milkvetch  
**USDA Code:** Assu7 (Assu)  
**lifeform:** forb  
**origin:** Native  
**duration:** perennial  
**Distribution/Notes:** State Watch List species that is common, widespread and often abundant in sagebrush areas. Perhaps the showiest milkvetch in our area.  
**Collections:**  
(PNNL): CZM 324, 418; Baird-920, 977; MRS-50, 56, 138; P&R-35; GIB-19; /JGL-95, 96; (BRY): Baird 21, 42, 549, 571, 572, 645, 697, 719, 729, 919, 951, 981, 1041; (PNNL-TC): Sauer 5-22-75, 6-5-80; Whittaker 5-12-52; Warren 4-20-78

Caragana arborescens  
**Lam.**  
Siberian peatree  
**USDA Code:** Caar18 (Caar)  
**lifeform:** tree  
**origin:** Introduced  
**duration:** perennial  
**Distribution/Notes:** Introduced tree; persisting where planted around old building sites off of Army Loop Road, near the Yakima barricade.  
**Collections:**  
(BRY): Baird 969

Gleditsia triacanthos  
**L.**  
honey locust  
**USDA Code:** Gltr  
**lifeform:** tree  
**origin:** Introduced  
**duration:** perennial  
**Distribution/Notes:**Introduced tree; persisting along the Columbia River as at 100-H Area.  
**Collections:**  
(PNNL): CZM-396; (BRY): Baird 1276

Glycyrrhiza lepidota  
**Pursh**  
licorice  
**USDA Code:** Glle  
**lifeform:** forb  
**origin:** Native  
**duration:** perennial  
**Distribution/Notes:**Reportedly common along the Yakima River, near Richland and Horn Rapids.  
**Collections:**  
(PNNL): MRS 265; (WS): H.E. Willmsen 10-23-26; (WTU): Caplow & Beck 97038
**Lotus purshianus** F.E. & E.G. Clem.  
*Lotus unifoliatum* (Hook.) Benth.  
*Spanish clover*  

**USDA Code:** Loun (Lopu)  
**lifeform:** forb  
**origin:** Native  
**duration:** annual  

**Distribution/Notes:** Occasional along the Columbia River, as at China Bar and 100-B Area.  

**Collections:**  
(PNNL): MRS-311; Baird-1251; (BRY): Baird 1357a; (WS): Cotton 692  

**Lotus unifoliatatus** (Hook.) Benth.  

**Lupinus laxiflorus** Dougl. Ex Lindl.  
*spurred lupine*  

**USDA Code:** Luar6 (Lula)  
**lifeform:** forb  
**origin:** Native  
**duration:** perennial  

**Distribution/Notes:** Locally abundant on upper slopes of the Rattlesnake Ridge, Bennett Spring.  

**Collections:**  
(BRY): Baird 872; (WS): O’Farrell 71-71, 72-212; (PNNL-TC): Sauer 6-10-75 #8  

**Lupinus arbus tus** Dougl. Ex Lindl. ssp. *calcaratus* (Kellogg) D. Dunn  

**Lupinus lepidus** Dougl. Ex Lindl. var. *aridus* (Dougl.) Jepson  
*prairie lupine*  

**USDA Code:** Luara6 (Lulep)  
**lifeform:** forb  
**origin:** Native  
**duration:** perennial  

**Distribution/Notes:** Common along the Columbia River, in dry gravels and cobbles near high water mark.  

**Collections:**  
(PNNL): Baird-1159; MRS-20, 92, 98, 110; (BRY): Baird 609, 711, 1180; (WS): O’Farrell 74-291; Beattie 3946, 3947, 3948; (PNNL-TC): Warren 8-12-80  

**Lupinus leucophyllus** Dougl. Ex Lindl.  
*velvet lupine*  

**USDA Code:** Lule3 (Luleu)  
**lifeform:** forb  
**origin:** Native  
**duration:** perennial  

**Distribution/Notes:** Common on slopes of Rattlesnake and Umtanum ridges. Some years flowering abundantly enough to give a lavender shade to the hills.  

**Collections:**  
(PNNL): CZM 430, 478; (BRY): Baird 630, 863; (WS): O’Farrell 71-83; (PNNL-TC): Rotenberry 6-23-75 #1; Sauer 9-8-74, 6-21-74, 7-5-74, 6-17-75 #9, 10; 5-16-75 #9  

**Lupinus pusillus** Pursh  
*low lupine*  

**USDA Code:** Lupu  
**lifeform:** forb  
**origin:** Native  
**duration:** annual  

**Distribution/Notes:** Annual species, common in spring on open sand and dunes especially throughout the 200 Areas.  

**Collections:**  
(PNNL): CZM-388; Baird-807; MRS-61; P&R-86; JGL-97, 98; (BRY): Baird 563, 909, 927, 940, 1066; (PNNL-TC): Sauer 5-22-75 #4
Lupinus saxosus T.J. Howell  
**lifeform:** forb  
**origin:** Native  
**duration:** perennial  
**Distribution/Notes:** Widespread species, primarily on basalt, known from Hanford by a single, unusual collection on Locke Island.  
**Collections:** (PNNL-TC): Pendleton 4-18-58

Lupinus sericeus  
**lifeform:** forb  
**origin:** Native  
**duration:** perennial  
**Distribution/Notes:** Uncommon in sandy areas near the Columbia River, as at base of Umtanum Ridge.  
**Collections:** (PNNL): MRS-122; (BRY): Baird 197; (PNNL-TC): Rickard & Hanson 5-5-70; Sauer & Durham 8-7-75; Sauer 5-30-75 #19, 5-22-75 #1a; Fitzner 5-11-78; no collector

Lupinus sulphureus  
**lifeform:** forb  
**origin:** Native  
**duration:** perennial  
**Distribution/Notes:** Common and widespread with sagebrush, as on Rattlesnake Ridge and other main hills in region.  
**Collections:** (PNNL): MRS-203; CZM 342; JGL-99, 100, 101; (BRY): Baird 1, 102, 103, 104, 552, 587, 603, 647, 715, 776; (WS): O’Farrell 71-28, 71-40, 71-42, 71-112; Bennett 41; (PNNL-TC): Rickard & Cline 5-1-70, 5-5-70, 4-11-73; Sauer 6-17-75 #5, 5-16-75 #6, 6-10-75 #21; no collector 4-11-73, 6-22-70, 5-79

Lupinus wyethii S. Wats.  
**lifeform:** forb  
**origin:** Native  
**duration:** perennial  
**Distribution/Notes:** Common along the Columbia River in sandy-cobble of the riverbank, as at China Bar, White Bluffs townsite, and 100-H and 100-K Areas.  
**Collections:** (PNNL): MRS-96, 97, 292; (BRY): Baird 154, 610, 882, 998, 1023, 1078, 1091

Medicago lupulina L.  
**lifeform:** forb  
**origin:** Introduced  
**duration:** annual  
**Distribution/Notes:** Introduced weed of moist waste places, widespread.  
**Collections:** (PNNL): MRS-125; (BRY): Baird 792, 1019; (WS): O’Farrell 72-247; (PNNL-TC): Newsome & Sauer 9-27-77
**Medicago sativa** L. (alfalfa)
- **USDA Code:** Mesa
- **Lifeform:** Forb
- **Origin:** Introduced
- **Duration:** Perennial
- **Distribution/Notes:** Introduced forage plant, escaping and established widely.
- **Collections:** (PNNL): MRS 323; (BRY): Baird 974

**Melilotus alba** Medik. (white sweetclover)
- **USDA Code:** Meof2 (Meal)
- **Lifeform:** Forb
- **Origin:** Introduced
- **Duration:** Perennial
- **Distribution/Notes:** Introduced forage plant; established all along the Columbia River, occasionally forming dense stands, often along old roads. White flowers. Now subsumed within *M. officinalis*.
- **Collections:** (PNNL): Baird-904; MRS-155; (BRY): Baird 1184, 1223; (WS): O’Farrell 72-237

**Melilotus officinalis** (L.) Lam. (yellow sweetclover)
- **USDA Code:** Meof2 (Meof)
- **Lifeform:** Forb
- **Origin:** Introduced
- **Duration:** Perennial
- **Distribution/Notes:** Similar in appearance and distribution as *M. alba*, but with yellow flowers, perhaps not quite as abundant.
- **Collections:** (PNNL): Baird-903; GIB-20; VAU-26

**Onobrychis viciaefolia** Scop. (holyclover)
- **USDA Code:** Onvi
- **Lifeform:** Forb
- **Origin:** Introduced
- **Duration:** Perennial
- **Distribution/Notes:** Introduced weed; collected along a roadside east of Benton City.
- **Collections:** (BRY): Baird 78

**Petalostemon ornatum** Dougl. Ex Hook. (western prairieclover)
- **USDA Code:** Daor2 (Peor)
- **Lifeform:** Forb
- **Origin:** Native
- **Duration:** Perennial
- **Distribution/Notes:** Widespread, mainly in sandy areas, as along Horn Rapids Road, Rattlesnake Mountain, and the Columbia River near Energy Northwest pump house.
- **Collections:** (PNNL): JGL-102; VAU-27, 28; (BRY): Baird 856; (WS): O’Farrell 73-265; (PNNL-TC): Sauer 6-10-75 #5, 6-26-74; Pendleton 6-18-59; Sauer & Owzarski 5-15-80

**Psoralea lanceolata** Pursh (dune scurf pea)
- **PSRALIDIIUM LANCEOLATUM** (Pursh) Rydb.
- **USDA Code:** Psla3 (Psla)
- **Lifeform:** Forb
- **Origin:** Native
- **Duration:** Perennial
- **Distribution/Notes:** Common and widespread in sandy areas, especially sand dunes.
- **Collections:** (PNNL): MRS-68; CZM 370; CJK-sn; JGL-103; (BRY): Baird 814, 910; (PNNL-TC): Sauer 6-17-75 #1; Pendleton 10-7-58; Warren & Hines
Robinia pseudo-acacia L.  
USDA Code: Rops  
lifeform: tree  
origin: Introduced  
duration: perennial  
Distribution/Notes: Introduced tree; well established in region, but also often planted and persisting, especially along the Columbia River throughout the 100 Areas.  
Collections: (PNNL): Baird-808; CZM-351; (WS): O’Farrell 73-263; (PNNL-TC): Warren 8-16-78  

Swainsona salsula (Pallas) Taubert  
Sphaerophysa salsula (Pallas) DC.  
USDA Code: Spsa3 (Swsa)  
lifeform: forb  
origin: Introduced  
duration: perennial  
Distribution/Notes: Introduced weed; forming dense patches in heavy, alkaline soils, as at West Lake and Rattlesnake Springs; also observed near White Bluffs boat launch.  
Collections: (PNNL): CZM-384; P&R-30; ARJ-04, 05; GIB-50; (BRY): Baird 110, 1134, 1363; (WS): O’Farrell 71-98; (PNNL-TC): Newsome & Sauer 6-11-76; Sauer & Newsome 9-27-77; Fitzner 7-15-74; Sauer 7-16-74  

Trifolium fragiferum L.  
USDA Code: Trfr2 (Trfr)  
lifeform: forb  
origin: Introduced  
duration: perennial  
Distribution/Notes: Reported by Mastrogiuseppe and Gill (1983) on flood bars near Priest Rapids.  
Collections: Mastrogiuseppe 2635  

Trifolium macrocephalum (Pursh) Poir.  
USDA Code: Trma3 (Trfma)  
lifeform: forb  
origin: Native  
duration: perennial  
Distribution/Notes: Reported by Mastrogiuseppe and Gill (1983) on lithosols near Priest Rapids.  
Collections: None Available  

Trifolium repens L.  
USDA Code: Trre3 (Trre)  
lifeform: forb  
origin: Introduced  
duration: perennial  
Distribution/Notes: Introduced; widespread weed in moist places near the Columbia River.  
Collections: (PNNL): Baird-1018  

Vicia americana Muhl. Ex Willd.  
USDA Code: Viam  
lifeform: forb  
origin: Native  
duration: perennial  
Distribution/Notes: Local; collected in Snively Basin and Cold Creek, reported from Priest Rapids.  
Collections: (WS): O’Farrell 73-259; Cotton 399; (PNNL-TC): Sauer 5-31-78; Rickard and Cline 6-1-70  

5-20-80; (WS): Snodgrass 07-1903; Dunn 9-16-1902; Lake & Hull 664; (WTU): Caplow & Beck 97036
Vicia cracca L.  
**lifeform:** forb  **origin:** Introduced  **duration:** perennial

**Distribution/Notes:** Introduced weed; locally common, mostly in disturbed areas and around old buildings, potentially occurring at Hanford townsite and near Vernita.

**Collections:** (PNNL): Baird 879, 910; MRS-102; (BRY): Baird 138, 139

**Vicia villosa Roth**  
**lifeform:** forb  **origin:** Introduced  **duration:** annual

**Distribution/Notes:** Reported by TNC from various locations near the Columbia River. Some specimens previously identified as *V. cracca* may be assignable here.

**Collections:** (PNNL-TC): Newsome & Sauer 9-27-77; J. A. Hall 5-26-85

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**Fagaceae**

**Juglans nigra L.**  
**lifeform:** tree  **origin:** Introduced  **duration:** perennial

**Distribution/Notes:** Introduced tree; planted and persisting at White Bluffs townsite.

**Collections:** (PNNL): CZM 485; (BRY): Baird 1022

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**Quercus sp.**  
**lifeform:** tree  **origin:** Introduced  **duration:** perennial

**Distribution/Notes:** Reported by TNC near shoreline of the Columbia River.

**Collections:** None Available

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**Gentianaceae**

**Centaurium exaltatum** (Griseb.) W. Wight ex Piper  
**lifeform:** forb  **origin:** Native  **duration:** annual

**Distribution/Notes:** Uncommon; found along drainages; collected along Cold Creek and in drainage ponds on Wahluke Slope.

**Collections:** (PNNL): MRS-277; (BRY): Baird 1221; (WS): O’Farrell 72-243; Cotton 665

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**Geraniaceae**

**Erodium cicutarium** (L.) L’Hér. Ex Ait.  
**lifeform:** forb  **origin:** Introduced  **duration:** annual

**Distribution/Notes:** Introduced; very common weed of early spring; very widespread in a number of habitats.

**Collections:** (PNNL): CZM-355; JGL-108, 109; (BRY): Baird 34; (WS): O’Farrell 71-26; (PNNL-TC): Fitzner 5-11-78; Sauer 5-30-75 #22
Geranium viscosissimum Fisch. & C.A. Mey. Ex C.A. Mey.

**lifeform:** forb  
**origin:** Introduced  
**duration:** annual

**Distribution/Notes:** Collected in the Rattlesnake Hills during the early 20th century; not reported since then.

**Collections:**  
(WS): Cotton 467

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**Grossulariaceae**

Ribes aureum Pursh
golden currant

**lifeform:** shrub  
**origin:** Native  
**duration:** perennial

**Distribution/Notes:** Scattered along drainages, water courses, and the Columbia River; widespread on Hanford.

**Collections:**  
(PNNL): CZM 436; (BRY): Baird 13, 764; (WS): O’Farrell 71-35; Cotton 561; Bennett 32; (PNNL-TC): Pendleton 4-18-59; Rickard & Cline 5-1-70; Warren 8-16-78

Ribes cereum Dougl.
squaw currant

**lifeform:** shrub  
**origin:** Native  
**duration:** perennial

**Distribution/Notes:** Scattered on hills and slopes of Rattlesnake and Umtanum ridges.

**Collections:**  
(PNNL): CZM-337; (BRY): Baird 162, 781, 865; (WS): O’Farrell 71-44; Cotton 553, 559, 560; Bennett 2; (PNNL-TC): Pendleton 6-19-59; Rickard and Cline 5-1-70; Sauer 4-13-78; Warren 8-16-78

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**Haloragaceae**

Myriophyllum spicatum L.
spiked water-milfoil

**lifeform:** forb  
**origin:** Introduced  
**duration:** perennial

**Distribution/Notes:** Scattered in the Columbia River.

**Collections:**  
(PNNL): CZM- 408

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**Hydrangeaceae**

Philadelphus lewisii Pursh
mockorange

**lifeform:** shrub  
**origin:** Native  
**duration:** perennial

**Distribution/Notes:** Local in canyons and drainages of Rattlesnake and Umtanum ridges.

**Collections:**  
(PNNL): CZM 442; (BRY): Baird 190; (WS): O’Farrell 71-125; (PNNL-TC): Sauer & Newsonme 6-11-76; Rickard & Cline 6-1-70; Sauer 5-31-78; Warren 8-16-78
**Hydrocharitaceae**

**Elodea canadensis** Michx.  
Canadian waterweed

**USDA Code:** Elca7 (Elca)  
**lifeform:** forb  **origin:** Native  **duration:** perennial

**Distribution/Notes:** Reported by TNC as well as in Watson et al. (1984) as occurring in the Columbia River and waste ponds; no specimen cited; also reported along Priest Rapids by Mastrogiuseppe and Gill (1983).

**Collections:** Mastrogiuseppe 2733

**Elodea nuttallii** (Planch.) St. John  
Nuttall’s waterweed

**USDA Code:** Elnu2 (Elnu)  
**lifeform:** forb  **origin:** Native  **duration:** perennial

**Distribution/Notes:** Widespread species; occasionally found on Hanford; collected in the Columbia River at 100-F Area.

**Collections:** (BRY): Baird 1128

**Hydrophyllaceae**

**Hydrophyllum capitatum** Dougl. Ex Benth.  
Ballhead waterleaf

**USDA Code:** Hyca4 (Hyca)  
**lifeform:** forb  **origin:** Native  **duration:** perennial

**Distribution/Notes:** Reported by Mastrogiuseppe and Gill (1983) in wet areas, Priest Rapids.

**Collections:** Mastrogiuseppe 2420

**Nama densum** J.G. Lemmon var. parviflorum (Greenm.) C.L. Hitchc.  
purplemat

**USDA Code:** Nade (Nade)  
**lifeform:** forb  **origin:** Native  **duration:** annual

**Distribution/Notes:** Occasional on open sands and dunes, especially in 200 Areas; currently on the Washington State Review 1 list.

**Collections:** (PNNL): MRS-150; CZM 650; (BRY): Baird 527, 770, 805, 836, 1065, 1072; (WTU): Caplow & Beck 97005, 97019

**Phacelia glandulifera** Piper  
sticky scorpionweed

**USDA Code:** Phgl2 (Phgl)  
**lifeform:** forb  **origin:** Native  **duration:** annual

**Distribution/Notes:** Uncommon; collected in sandy areas west of 200 West Area.

**Collections:** (PNNL): CZM 651A; (PNNL-TC): Rickard 5-20-86

**Phacelia hastata** Dougl. Ex Lehm.  
whiteleaf scorpionweed

**USDA Code:** Phha  
**lifeform:** forb  **origin:** Native  **duration:** perennial

**Distribution/Notes:** Common on open sand and dunes; widespread on Hanford.

**Collections:** (PNNL): Baird-809, 897; MRS-63; JGL-104, 105; (BRY): Baird 38, 850, 861, 928, 991; (WS): O’Farrell 71-129; Griffiths & Cotton 26; (PNNL-TC): Rickard & Cline 6-1-70; Sauer 6-10-75 #29, 6-1-70 #15; Pendleton 6-18-59, 6-8-59, 6-19-59; Sauer et al. 5-12-80; no collector 5-7-80

3.62
Phacelia heterophylla Pursh  
**virgate scorpionweed**

**USDA Code:** Phhe2 (Phhe)  
**lifeform:** forb  
**origin:** Native  
**duration:** perennial  

**Distribution/Notes:** Local; collected on rocky slopes at base of Umtanum Ridge.  
**Collections:** (PNNL): MRS-244; (BRY): Baird 164

Phacelia linearis (Pursh) Holz.  
**threadleaf scorpionweed**

**USDA Code:** Phli  
**lifeform:** forb  
**origin:** Native  
**duration:** annual  

**Distribution/Notes:** Common and widespread in a variety of habitats; found often where sandy but also in rocky sites.  
**Collections:** (PNNL): GLF-182; Baird-896; MRS-31; P&R-36; JGL-106, 107; /VAU-29, 30; /RFG-11; (BRY): Baird 187, 588, 625, 708, 842, 870; (WS): O’Farrell 71-113; Cotton 330; (PNNL-TC): Sauer 4-18-78, 4-27-76; Davis 5-7-53; Rickard 6-22-70; Rotenberry 5-29-75 #1; Warren 4-18-78, 5-8-79; Rogers 5-6-75; Gano 5-7-79; Warren & Hinds 5-20-80

Phacelia ramosissima Dougl. ex Lehm.  
**basalt scorpionweed**

**USDA Code:** Phra2 (Phra)  
**lifeform:** forb  
**origin:** Native  
**duration:** perennial  

**Distribution/Notes:** Local on basalt talus at base of Umtanum Ridge.  
**Collections:** (PNNL): MRS-160; (BRY): Baird 163; (WS): O’Farrell 73-276

Hypericum formosum Kunth  
**western St. John’s-wort**

Hypericum scouleri Hook.

**USDA Code:** Hysc5 (Hyfo)  
**lifeform:** forb  
**origin:** Native  
**duration:** perennial  

**Distribution/Notes:** Known from older collections from moist ground in the Rattlesnake Hills. Also reported from Priest Rapids by Mastrogiuseppe and Gill (1983).  
**Collections:** (WS): Cotton 693; St. John 8093

Hypericum majus (Gray) Britt.  
**Canadian St. John’s-wort**

**USDA Code:** Hyma2 (Hyma)  
**lifeform:** forb  
**origin:** Native  
**duration:** annual  

**Distribution/Notes:** Washington State sensitive species. Uncommon; scattered in wet areas along the Columbia River.  
**Collections:** (PNNL): Caplow & Beck 95108; (WTU): Caplow & Beck 94069, 95115

Hypericum perforatum L.  
**Klamath weed**

**USDA Code:** Hype  
**lifeform:** forb  
**origin:** Introduced  
**duration:** perennial  

**Distribution/Notes:** Common along the shore of the Columbia River, often below the high water mark, as at Priest Rapids, 100-D and 100-K Areas, and White Bluffs townsite.  
**Collections:** (PNNL): CZM-406; GIB-62; (BRY): Baird 191, 1088, 1125, 1183, 1206
**Iridaceae**

*Iris missouriensis* Nutt. western blue flag

**USDA Code:** Irmi  
**Lifeform:** forb  
**Origin:** Native  
**Duration:** perennial  
**Distribution/Notes:** Observed in bottom lands along the Yakima River; no collections made. Reported in wet areas near Priest Rapids.

**Collections:** None Available

*Iris pseudacorus* L. yellow flag

**USDA Code:** Irps  
**Lifeform:** forb  
**Origin:** Introduced  
**Duration:** perennial  
**Distribution/Notes:** Along the Columbia River in the Hanford townsite slough; also present in the Yakima River delta.

**Collections:** None Available

**Juncaceae**

*Juncus articulatus* L. jointed rush

**USDA Code:** Juar4 (Juar)  
**Lifeform:** graminoid  
**Origin:** Native  
**Duration:** perennial  
**Distribution/Notes:** Scattered along the shore of the Columbia River, as at Hanford townsite and White Bluffs slough; also on ALE and Wahluke Slope.

**Collections:** (PNNL): MRS-263; CZM-469; (BRY): Baird 1003, 1036, 1234; (PNNL-TC): Newsome & Sauer 9-27-77; Warren 8-12-80

*Juncus balticus* Willd. Baltic rush

**USDA Code:** Juba  
**Lifeform:** graminoid  
**Origin:** Native  
**Duration:** perennial  
**Distribution/Notes:** Scattered along the shore of the Columbia River, as at White Bluffs slough and Priest Rapids.

**Collections:** (PNNL): MRS-90, 229; (BRY): Baird 652, 1036a; (PNNL-TC): Warren 8-12-80; Davis 4-24-52; Sauer 5-15-80

*Juncus bufonius* L. toad rush

**USDA Code:** Jubu  
**Lifeform:** graminoid  
**Origin:** Native  
**Duration:** perennial  
**Distribution/Notes:** Local, wet areas along the Columbia River and elsewhere; collected in moist ground along Cold Creek.

**Collections:** (BRY): Baird 960

*Juncus ensifolius* Wikstr. var. *montanus* (Engelm.) dagger-leaf rush

*Juncus saximontanus* A. Nels.

**USDA Code:** Juen  
**Lifeform:** graminoid  
**Origin:** Native  
**Duration:** perennial  
**Distribution/Notes:** Reported by Mastrogiuseppe and Gill (1983) from wet areas in the vicinity of Priest Rapids.

**Collections:** Mastrogiuseppe 2445
Juncus mertensianus Bong. Merten’s rush
USDA Code: Jim (June) lifeform: graminoid origin: Native duration: perennial
Distribution/Notes: Occasional along the shore of the Columbia River; collected near White Bluffs townsite.
Collections: (BRY): Baird 1084, 1085

Juncus nevadensis S. Wats. var. columbianus (Coville) St. John Sierra rush
USDA Code: Junec (June) lifeform: graminoid origin: Native duration: perennial
Distribution/Notes: Wetland areas along the Columbia River and in moist drainages in the Rattlesnake Hills.
Collections: (PNNL): MRS-294; (WS): Cotton 668, 669 in part

Juncus nodosus L. tuberous rush
USDA Code: Junos (Juno) lifeform: graminoid origin: Native duration: perennial
Distribution/Notes: Scattered along the Columbia River in moist ground, as at Hanford townsite.
Collections: (PNNL): GIB-63; (PNNL-TC): Newsome & Sauer 9-27-77

Juncus regelii Buch. Regel’s rush
USDA Code: Jure lifeform: graminoid origin: Native duration: perennial
Distribution/Notes: Known only from very old reports from along Snipes Creek on west side of Rattlesnake Mountain; specimen not found at WSU herbarium.
Collections: (WS): Cotton 669 in part

Juncus tenuis Willd. slender rush
Juncus tenuis Willd.; Juncus occidentalis Wieg.; or Juncus dudleyi Wieg.
USDA Code: Jute lifeform: graminoid origin: Native duration: perennial
Distribution/Notes: Common along the shore of the Columbia River; widespread on Hanford. Mastrogiuseppe and Gill (1983) report both var. congestus and var. dudleyi from the Priest Rapids area.
Collections: (PNNL): MRS-262; Baird-1002, 1037; (BRY): Baird 1017, 1153, 1211, 1262; (WS): O’Farrell 71-95

Juncus torreyi Coville Torrey’s rush
USDA Code: Juto lifeform: graminoid origin: Native duration: perennial
Distribution/Notes: Occasional along the shore of the Columbia River; collected at Coyote Rapids.
Collections: (BRY): Baird 1381; (WS): O’Farrell 72-250
Juncaginaceae

**Triglochin maritimum** L.  
seaside arrowgrass  
*USDA Code: Trma4 (Trgma)*  
*lifeform: graminoid*  
*origin: Native*  
*duration: perennial*  
*Distribution/Notes: Scattered along the Columbia River, and in drainage ponds on Wahluke Slope. Collected near Allard pump house.*  
*Collections: (PNNL): MRS-287; (PNNL-TC): Pendleton 8-25-59; (PNNL): Caplow & Beck 95122*

**Triglochin palustre** L.  
marsh arrowgrass  
*USDA Code: Trpa6 (Trpa)*  
*lifeform: graminoid*  
*origin: Native*  
*duration: perennial*  
*Distribution/Notes: Uncommon along the shore of the Columbia River; collected at White Bluffs town site.*  
*Collections: (BRY): Baird 1080*

Lamiaceae

**Agastache occidentalis** (Piper) Heller  
western horsemint  
*USDA Code: Agoc*  
*lifeform: forb*  
*origin: Native*  
*duration: perennial*  
*Distribution/Notes: Common in rocky-loamy soils atop Rattlesnake Ridge.*  
*Collections: (PNNL): CZM-676; (BRY): Baird 1303; (WS): O’Farrell 71-116; (PNNL-TC): Pendleton 6-19-59; Watson 6-10-59; Warren 8-16-78*

**Glechoma hederacea** L.  
field balm  
*USDA Code: Glhe2 (Glhe)*  
*lifeform: forb*  
*origin: Introduced*  
*duration: perennial*  
*Distribution/Notes: Introduced species, reported from ALE by TNC.*  
*Collections: None Available*

**Lycopus americanus** Muhl. Ex W. Bart.  
cut-leaf bugleweed  
*USDA Code: Lyam*  
*lifeform: forb*  
*origin: Native*  
*duration: perennial*  
*Distribution/Notes: Uncommon; scattered along the Columbia River near 100-N Area.*  
*Collections: (PNNL): MRS-316*

**Lycopus asper** Greene  
rough bugleweed  
*USDA Code: Lyas*  
*lifeform: forb*  
*origin: Native*  
*duration: perennial*  
*Distribution/Notes: Uncommon, along the Columbia River in moist ground such as near 100-B Area and Priest Rapids.*  
*Collections: (PNNL): GIB-56*
Marrubium vulgare L.  
**lifeform:** forb  **origin:** Introduced  **duration:** perennial  
**Distribution/Notes:** Introduced weed; occasional in disturbed areas; collected in Snively Canyon.  
**Collections:** (PNNL): CZM-440; (WS): O’Farrell 71-123; (PNNL-TC): Rickard & Cline 9-4-70

Mentha arvensis L.  
**lifeform:** forb  **origin:** Native  **duration:** perennial  
**Distribution/Notes:** Collected in the Rattlesnake Hills, elevation 3,400 feet. Reported from central Hanford, along the Columbia River, and from Wahluke Slope by TNC.  
**Collections:** (WS): Cotton 699

Mentha piperita L.  
**lifeform:** forb  **origin:** Introduced  **duration:** perennial  
**Distribution/Notes:** Collected near upper Snively Spring.  
**Collections:** (PNNL): CZM-476

Mentha spicata L.  
**lifeform:** forb  **origin:** Introduced  **duration:** perennial  
**Distribution/Notes:** Introduced and cultivated, often escaping; found at Rattlesnake Springs.  
**Collections:** (WS): O’Farrell 71-154

Monardella odoratissima Benth.  
**lifeform:** forb  **origin:** Native  **duration:** perennial  
**Distribution/Notes:** Local on rocky slopes and canyons of Umtanum Ridge and reported from Rattlesnake Ridge and White Bluffs.  
**Collections:** (BRY): Baird 185; (WS): O’Farrell 72-233; Cotton 760; St. John 8089; Lake & Hull 705

Nepeta cataria L.  
**lifeform:** forb  **origin:** Introduced  **duration:** perennial  
**Distribution/Notes:** Introduced weed; occasional in moist areas, as at Hanford townsite, Coyote Rapids, and elsewhere.  
**Collections:** (BRY): Baird 1224, 1290, 1371

Physostegia parviflora Nutt. Ex Gray  
**lifeform:** forb  **origin:** Native  **duration:** perennial  
**Distribution/Notes:** Uncommon; collected at Hanford townsite.  
**Collections:** (PNNL-TC): Warren no date
Prunella vulgaris L.  
**lifeform:** forb  
**origin:** Native  
**duration:** perennial  
**Distribution/Notes:** Common weed elsewhere; rare; often of disturbed areas; collected at White Bluffs townsite; reported from Wahluke Slope.  
**Collections:** (PNNL): GIB-43

Salvia dorrii (Kellogg) Abrams  
**lifeform:** shrub  
**origin:** Native  
**duration:** perennial  
**Distribution/Notes:** Occasional and scattered in gravelly or rocky areas, often with sagebrush.  
**Collections:** (PNNL): MRS-146; JGL-110, 111, 112, 113; (BRY): Baird 41, 692, 857, 967; (WS): O’Farrell 71-85; Cotton 388, 467; Griffiths & Cotton 25; (PNNL-TC): Sauer 6-17-75 #14; Davis no date; Hanson 6-10-61; Gano 5-2-79; McShane 5-12-79

Stachys palustris L.  
**lifeform:** forb  
**origin:** Native  
**duration:** perennial  
**Distribution/Notes:** Uncommon; scattered along the Columbia River.  
**Collections:** (PNNL): GLF-172; (WTU): Caplow & Beck 95120

Stachys pilosa Nutt.  
**lifeform:** forb  
**origin:** Native  
**duration:** perennial  
**Distribution/Notes:** Widespread floating aquatic plant of ponds and pools; sometimes forming large mats on still water.  
**Collections:** (BRY): Baird 873; (WS): O’Farrell 72-240

Lemnaceae

Lemna minor L.  
**lifeform:** forb  
**origin:** Native  
**duration:** perennial  
**Distribution/Notes:** Widespread floating aquatic plant of ponds and pools; sometimes forming large mats on still water.  
**Collections:** (BRY): Baird 873; (WS): O’Farrell 72-240

Liliaceae

Allium acuminatum Hook.  
**lifeform:** forb  
**origin:** Native  
**duration:** perennial  
**Distribution/Notes:** Reported from the Rattlesnake Hills by TNC and others; neither of the older referenced specimens could be located at WS. Also reported from various habitats in the Priest Rapids area by Mastrogiuseppe and Gill (1983).  
**Collections:** (WS): O’Farrell 73-274; Bennett 4-26; (WTU): Caplow & Beck 94039

Allium cernuum Roth  
**lifeform:** forb  
**origin:** Native  
**duration:** perennial  
**Distribution/Notes:** Occasional along the shores of the Columbia River, as at Vernita  
**Collections:** (PNNL): MRS-169, 288; GIB-21, 22; (WS): Lake & Hull 8-11-1892
Allium douglasii Hook.  
**USDA Code:** Aldo  
**lifeform:** forb  
**origin:** Native  
**duration:** perennial  
**Distribution/Notes:** Local; collected on upper slopes of Rattlesnake Ridge.  
**Collections:** (PNNL): CZM-667; (BRY): Baird 1294

Allium macrum S. Wats.  
**USDA Code:** Alma5 (Alma)  
**lifeform:** forb  
**origin:** Native  
**duration:** perennial  
**Distribution/Notes:** Scattered on rocky flats on top of Rattlesnake Ridge and other main ridges and hills in region.  
**Collections:** (BRY): Baird 762, 1562; (WS): O’Farrell 71-15; Bennett 4-13-26; Daubenmire 5817; (PNNL-TC): Pendleton 4-27-59

Allium robinsonii Henderson  
**USDA Code:** Alro  
**lifeform:** forb  
**origin:** Native  
**duration:** perennial  
**Distribution/Notes:** Common and scattered in a variety of habitats, usually near the Columbia River, as at China Bar, Hanford slough, and Coyote Rapids, but also with sagebrush, as on the Wahluke Slope, Horn Rapids, and Badger Mountain; State Watch List species.  
**Collections:** (PNNL): MRS-194; JGL-114; (BRY): Baird 564, 573, 614; (PNNL-TC): Sauer 6-4-80, 4-17-76, 4-20-78; Davis 4-22-53; Pendleton 4-17-59; no collector 4-79; (WTU): Caplow & Beck 95002

Allium schoenoprasum L.  
**USDA Code:** Alsc (Alsch)  
**lifeform:** forb  
**origin:** Native  
**duration:** perennial  
**Distribution/Notes:** Common and widespread along the shores of the Columbia River, mostly in gravels.  
**Collections:** (PNNL): MRS-314; JGL-115, 116; (BRY): Baird 193, 607, 825, 1090, 1398; (WS): Beattie 3964; St. John 3319; Lake & Hull 8-9-1892; (PNNL-TC): Sauer 6-5-80; Sauer & Durham 8-7-75 #14; Rickard 4-20-61; Davis 4-24-53, 4-24-52; Sauer et al. 5-12-80; Warren 5-8-79

Allium scilloides Doug. Ex S. Wats.  
**USDA Code:** Alsc2 (Alsci)  
**lifeform:** forb  
**origin:** Native  
**duration:** perennial  
**Distribution/Notes:** State Watch List species; local on lower slopes and canyons of Umtanum Ridge.  
**Collections:** (PNNL): MRS-216; Baird-1550; (WTU): Caplow & Beck 95008

Asparagus officinalis L.  
**USDA Code:** Asof  
**lifeform:** forb  
**origin:** Introduced  
**duration:** perennial  
**Distribution/Notes:** Introduced crop plant; escaping and now widespread in deep soils near the Columbia River, as at Hanford townsite and Horn Rapids.  
**Collections:** (PNNL): CZM-352; P&R-01, VAU-31; (BRY): Baird 839; (PNNL-TC): Newsome and Sauer 9-27-77
**Brodiaea douglasii** S. Wats. [Douglas’ clusterlily]

*Triteleia grandiflora* Lindl. var. *grandiflora*

**USDA Code:** Trgrg2 (Brdo)  
**Lifeform:** forb  
**Origin:** Native  
**Duration:** perennial

**Distribution/Notes:** Common and widespread, especially in sandy or loamy soils as on Rattlesnake Ridge and throughout the 200 Area plateau.

**Collections:** (PNNL): MRS-44; P&R-39; VAU-32; JGL-117, 118, 119; (BRY): Baird 19, 523; (WS): O’Farrell 71-29; Bennett 4-19-26; (PNNL-TC): Sauer 6-10-75 #20, 4-18-78; Pendleton 4-21-59; Rickard & Cline 5-1-70; no collector 5-11-73

**Brodiaea howellii** S. Wats. [Howell’s clusterlily]

*Triteleia grandiflora* Lindl. var. *howellii* (S. Wats) Hoove

**USDA Code:** Trgrh (Brho)  
**Lifeform:** forb  
**Origin:** Native  
**Duration:** perennial

**Distribution/Notes:** Collected on 200 Area plateau, not as common as *B. douglasii*.

**Collections:** (PNNL): P&R-53

**Calochortus macrocarpus** Dougl.  
**Sagebrush mariposa lily**

**USDA Code:** Cama5 (Cama)  
**Lifeform:** forb  
**Origin:** Native  
**Duration:** perennial

**Distribution/Notes:** Common late-spring flower, mostly with sagebrush; widespread on Hanford.

**Collections:** (PNNL): CZM-337; Baird-922; MRS-148; JGL-120; /GIB-23; /RFG-12,13; (BRY): Baird 144, 1048; (WS): O’Farrell 71-88; (PNNL-TC): Rickard & Cline 6-1-70; Rickard & Fitzner 5-22-86; (WTU): Caplow & Beck 97078

**Fritillaria pudica** (Pursh) Spreng.  
**Yellow bell**

**USDA Code:** Frpu2 (Frpu)  
**Lifeform:** forb  
**Origin:** Native  
**Duration:** perennial

**Distribution/Notes:** Scattered in a variety of habitats, sometimes becoming locally abundant, as in 200 Areas.

**Collections:** (PNNL): Baird-1554; JGL-121, 122; VAU-33, 34; RFG-14; (BRY): Baird 696, 723a, 783, 1554; (WS): O’Farrell 72-174, 72-187; Bennett 4-19-26; St. John 8113; (PNNL-TC): Sauer 4-9-76; Pendleton 4-10-59; Davis 3-26-53, 4-2-52; Rickard 3-21-61; Warren & McShane 5-12-80

**Smilacina stellata** (L.) Desf.  
**Starflower**

**USDA Code:** Mast4 (Smst)  
**Lifeform:** forb  
**Origin:** Native  
**Duration:** perennial

**Distribution/Notes:** Local; collected at Bobcat Spring and the Rattlesnake Hills.

**Collections:** (WS): O’Farrell 72-205; Cotton 578; (PNNL-TC): Gano 5-79

**Yucca filamentosa** L.  
**Adam’s needle**

**USDA Code:** Yufi  
**Lifeform:** sub-shrub  
**Origin:** Introduced  
**Duration:** perennial

**Distribution/Notes:** Introduced ornamental, persisting around old buildings and building sites; collected near 100-D Area.

**Collections:** (BRY): Baird 1179
Yucca glauca

Yucca glauca Nutt. soapweed

**USDA Code:** Yugl

**lifeform:** sub-shrub **origin:** Introduced **duration:** perennial

**Distribution/Notes:** Introduced ornamental, persisting around old buildings or building sites; collected in sandy areas of north Richland.

**Collections:** (PNNL): CZM-427; (BRY): Baird 853, 1137

Zigadenus paniculatus (Nutt.) S. Wats. foothill deathcamas

**USDA Code:** Zipa2 (Zipa) **lifeform:** forb **origin:** Native **duration:** perennial

**Distribution/Notes:** Uncommon; collected on Gable Butte and the ALE Reserve.

**Collections:** (PNNL): JGL-124; (WS): O’Farrell 71-30; Cotton 336; Bennett

Zigadenus venenosus S. Wats. meadow deathcamas

**USDA Code:** Zive **lifeform:** forb **origin:** Native **duration:** perennial

**Distribution/Notes:** Common and widespread in dry to moist sites, especially on Rattlesnake Ridge.

**Collections:** (PNNL): MRS-42; JGL-123; VAU-35; (BRY): Baird 100; (PNNL-TC): Rickard & Cline 5-1-70; Gano 5-30-79

**Linaceae**

Linum perenne L. wild blueflax

**USDA Code:** Lipe2 (Lipe) **lifeform:** forb **origin:** Introduced **duration:** perennial

**Distribution/Notes:** Local, mainly in grassy areas, as on slopes of Rattlesnake Ridge.

**Collections:** (WS): Cotton 424; Bennett 50; (PNNL-TC): Sauer 5-20-80; McShane 5-7-79; Gano 5-7-79; Warren 5-11-79

**Loasaceae**

Mentzelia albicaulis (Dougl. Ex Hook.) Doug. Ex Torr. & Gray whitestem stickleaf

**USDA Code:** Meal6 (Menal) **lifeform:** forb **origin:** Native **duration:** annual

**Distribution/Notes:** Common and widespread, mostly in sandy areas.

**Collections:** (PNNL): CZM-641; Baird-832; MRS-45; P&R-32; JGL-126, 127; /VAU-36, 37; /PB-03; (BRY): Baird 706, 803, 938, 1062, 1107; (WS): O’Farrell 71-33, 71-59; (PNNL-TC): Sauer 4-26-76; Rickard 5-3-61, 5-20-86; Whittaker 5-6-52; McShane 4-30-79; Gano 5-10-79; Warren 5-2-79

Mentzelia laevicaulis (Dougl. Ex Hook.) Torr. & Gray blazingstar

**USDA Code:** Mela2 (Mela) **lifeform:** forb **origin:** Native **duration:** perennial

**Distribution/Notes:** Scattered, mostly in gravelly areas, as at Gable Butte, Priest Rapids, Bobcat Canyon, and along roadcuts south of West Lake; also reported from Wahluke Slope.
**Collections:** (PNNL): CZM-410; GIB-24, 25, 38; (BRY): Baird 150, 1226; (WS): O’Farrell 71-66; (PNNL-TC): Davis 6-26-52; Warren 8-16-78, Sauer 8-9-74

### Lythraceae

**Ammannia coccinea** Rotb
- **scarlet ammannia**

**Ammannia robusta** Heer & Regel

**USDA Code:** Amro (Amro)  **lifeform:** forb  **origin:** Native  **duration:** annual

**Distribution/Notes:** Scattered along the Columbia River in wet ground; currently on the Washington State Review 1 list.

**Collections:** (WTU): Caplow & Beck 94065

**Lythrum hyssopifolium** L.
- **Hyssop loosestrife**

**USDA Code:** Lyhy2 (Lyhy)  **lifeform:** forb  **origin:** Introduced  **duration:** annual

**Distribution/Notes:** Reported by TNC along the Columbia River.

**Collections:** (WTU): Caplow & Beck 97048

**Lythrum salicaria** L.
- **purple loosestrife**

**USDA Code:** Lysa2 (Lysa)  **lifeform:** forb  **origin:** Introduced  **duration:** perennial

**Distribution/Notes:** Introduced, noxious weed. Increasing at many wetland areas along the Columbia River.

**Collections:** (PNNL): MRS-284, 289

**Rotala ramosior** (L.) Koehne
- **toothcup**

**USDA Code:** Rora  **lifeform:** forb  **origin:** Native  **duration:** annual

**Distribution/Notes:** Uncommon and local in wet ground of the Columbia River’s edge; currently on the Washington State Review 1 list.

**Collections:** (PNNL): GLF-8-29-95; (BRY): Baird 1406; (PNNL-TC): Warren & Sauer 10-6-80; (WTU): Caplow & Beck 94060

### Malvaceae

**Sphaeralcea ambigua** Gray
- **apricot globemallow**

**USDA Code:** Spam2 (Spam)  **lifeform:** forb  **origin:** Introduced  **duration:** perennial

**Distribution/Notes:** Cultivated, but escaped and occasionally persisting; north Richland.

**Collections:** (PNNL): CZM-397

**Sphaeralcea grossulariifolia** (Hook. & Arn.) Rydb.
- **gooseberry-leaved globemallow**

**USDA Code:** Spgr2 (Sphgr)  **lifeform:** forb  **origin:** Native  **duration:** perennial

**Distribution/Notes:** Report by Mastrogiuseppe and Gill (1983) from shrub-steppe area near Priest Rapids; also collected west of the Yakima barricade.

**Collections:** Mastrogiuseppe 2358; Grable 2538
**Sphaeralcea munroana** (Dougl. Ex Lindl.) Spach ex Gray

*USDA Code: Spmu2 (Spmu)*  *lifeform:* forb  *origin:* Native  *duration:* perennial

**Distribution/Notes:** Common and widespread, mostly in dry silty soils, as along Cold Creek Valley and in the 100 Areas.

**Collections:**
(PNNL): CZM-336; P&R-39; JGL-128, 129, 130, 131;
(BRY): Baird 801 812, 854, 876, 985; (WS): O’Farrell 71-81;
(PNNL-TC): Fitzner 5-11-78; Sauer 5-30-75 #13; Rickard & Cline 6-1-70; Davis 5-28-53; Pendleton 5-7-58; Sauer & Owzarski 5-15-80; McShane 5-17-79; Warren 5-8-79; Rickard 5-22-86; Rickard and Fitzner 5-22-86

**Marsileaceae**

**Marsilea vestita** Hook. & Grev.

*USDA Code: Mave2 (Mave)*  *lifeform:* forb  *origin:* Native  *duration:* perennial

**Distribution/Notes:** Common in wet or, at least seasonally wet areas; often in gravel, mostly along the shore of the Columbia River but also on Wahluke Slope.

**Collections:**
(PNNL): Baird-1143; MRS-89, 121; (BRY): Baird 1158, 1197, 1204, 1316; (PNNL-TC): Davis 7-30-53

**Moraceae**

**Morus alba** L.

*USDA Code: Moal*  *lifeform:* tree  *origin:*Introduced  *duration:* perennial

**Distribution/Notes:** Introduced tree; widely planted and occasionally escaping along the Columbia River.

**Collections:**
(PNNL): CZM 344, 398; (BRY): Baird 822

**Nyctaginaceae**

**Abronia mellifera** Dougl. Ex Hook.

*USDA Code: Abme*  *lifeform:* forb  *origin:* Native  *duration:* perennial

**Distribution/Notes:** Common in open sand and dunes; widespread in region.

**Collections:**
(PNNL): MRS-28; P&R-72; JGL-132, 133; VAU-40, 41, 42; (BRY): Baird 941; (PNNL-TC): Newsome and Sauer 6-11-76; Davis 5-15-53, 5-28-53; Sauer 5-9-78; Sauer et al. 5-12-80; (WTU): Caplow & Beck 97022

**Oleaceae**

**Fraxinus pennsylvanica** Marsh.

*USDA Code: Frpe*  *lifeform:* tree  *origin:* Introduced  *duration:* perennial

**Distribution/Notes:** Introduced tree; planted and persisting at 100-H Area.

**Collections:**
(PNNL): CZM-431; Baird-994
Syringa vulgaris L.  
**lifeform:** shrub  
**origin:** Introduced  
**duration:** perennial  
**Distribution/Notes:** Introduced ornamental shrub; persisting at Snively Springs and occasionally around abandoned buildings in the 200 Areas.  
**Collections:**  
(PNNL): CZM-397; (WS): O’Farrell 73-260; (PNNL-TC): Rickard and Cline 5-1-70; Warren 8-16-78

**Onagraceae**

Boisduvalia glabella (Nutt.) Walp.  
**lifeform:** smooth spikeprimrose  
**Distribution/Notes:** Reported from near the Columbia River by TNC.  
**Collections:**  
(WTU): Caplow & Beck 95109

Boisduvalia stricta (Gray) Greene  
**lifeform:** stiff spikeprimrose  
**Distribution/Notes:** Collected in canyons of the Rattlesnake Hills during very early 20th century; not observed on Hanford since that time.  
**Collections:**  
(WS): Cotton 690

Epilobium angustifolium L.  
**lifeform:** fireweed  
**Distribution/Notes:** Local along water courses; collected at head of Z-ditch, in Upper Snively Basin, and reported from Snipes Creek.  
**Collections:**  
(PNNL): CZM-477; Baird-1200; (WS): Cotton 883; (PNNL-TC): Sauer 5-31-78

Epilobium glaberrimum Barbey  
**lifeform:** smooth willowherb  
**Distribution/Notes:** Uncommon; found along water courses; collected along Cold Creek.  
**Collections:**  
(BRY): Baird 961; (WS): O’Farrell 71-150

Epilobium glandulosum Lehm. var. tenue (Trel.) C.L. Hitchc.  
**lifeform:** common willowherb  
**Distribution/Notes:** Reported on flood bars near Priest Rapids by Mastrogiuseppe and Gill (1983).  
**Collections:**  
Mastrogiuseppe 2602, 2620
**Epilobium minutum** Lindl. Ex Lehm.  
*small willowherb*

**USDA Code:** Epmi  
*lifeform:* forb  
*origin:* Native  
*duration:* annual

**Distribution/Notes:** Uncommon; collected along Cold Creek Wash and along Horn Rapids Road.

**Collections:**  
(BRY): Baird 176; (PNNL-TC): Hinds 4-25-80

**Epilobium palustre** L.  
*swamp willowherb*

*Epilobium palustre* L. or *Epilobium leptophyllum* Raf.

**USDA Code:** Eppa (Eppl)  
*lifeform:* forb  
*origin:* Native  
*duration:* perennial

**Distribution/Notes:** Reported in wet areas at Priest Rapids by Mastrogiuseppe and Gill (1983).

**Collections:** Mastrogiuseppe 2433

**Epilobium paniculatum** Nutt. ex Torr. & Gray  
*tall willowherb*

*Epilobium brachycarpum* K. Presl

**USDA Code:** Epbr3 (Eppa)  
*lifeform:* forb  
*origin:* Native  
*duration:* annual

**Distribution/Notes:** Common and widespread in sandy soil, especially disturbed areas in sagebrush.

**Collections:**  
(PNNL): P&R-07; JGL-134; VAU-43, 44; (WS): O’Farrell 71-165, 72-255b; (PNNL-TC): Sauer 8-5-75 #1a; Combs 8-1-75 #2; Rickard 7-17-86; Sauer 8-8-74

**Epilobium watsonii** Barbey  
*Watson’s willowherb*

*Epilobium ciliatum* Raf. ssp. watsonii (Barbey) Hoch & Raven  
or ssp. glandulosum (Lehm.)

**USDA Code:** Epci (Epwa)  
*lifeform:* forb  
*origin:* Native  
*duration:* perennial

**Distribution/Notes:** Very common in wet areas along the Columbia River and other water courses.

**Collections:**  
(PNNL): CZM-473; MRS-188, 282, 315; (BRY): Baird 1203, 1225, 1291, 1308, 1319, 1341, 1414; (PNNL-TC): Warren & Sauer 10-6-80

**Gayophytum diffusum** Torr. & Gray  
*spreading gayophytum*

**USDA Code:** Gadi2 (Gadi)  
*lifeform:* forb  
*origin:* Native  
*duration:* annual

**Distribution/Notes:** Reported by TNC on central Hanford.

**Collections:**  
(WTU): Caplow & Beck 95025

**Gayophytum ramosissimum** Torr. & Gray  
*hairstem gayophytum*

**USDA Code:** Gara2 (Gara)  
*lifeform:* forb  
*origin:* Native  
*duration:* annual

**Distribution/Notes:** Cold Creek valley; reported by TNC from central Hanford.

**Collections:**  
(WTU): Caplow & Beck 95057; (PNNL-TC): Sauer 6-11-75
**Ludwigia palustris** (L.) Ell.  
*lifeform:* forb  
*origin:* Native  
*duration:* perennial  
**Distribution/Notes:** Reported by TNC from moist areas along the Columbia River, central Hanford, and Wahluke Slope.  
**Collections:** (WTU): Caplow & Beck 94061, 95113, 95118

**Oenothera andina** Nutt.  
*Camissonia andina* (Nutt.) Raven  
*lifeform:* forb  
*origin:* Native  
*duration:* annual  
**Distribution/Notes:** Uncommon; collected in the 200 Areas, and Rattlesnake Hills; scattered elsewhere.  
**Collections:** (PNNL): P&R-88; (WS) Cotton 415

**Oenothera caespitosa** Nutt. (var. caespitosa and purpurea)  
*Camissonia caespitosa* Nutt. ssp. caespitosa  
*lifeform:* forb  
*origin:* Native  
*duration:* perennial  
**Distribution/Notes:** Washington State sensitive species occurring in cobbled soil near the Columbia River, mostly above the high water mark, as at China Bar. Also found on steep rocky slopes and ridges, i.e., Yakima Ridge near Rattlesnake Springs.  
**Collections:** (PNNL): Baird-1253; (PNNL-TC): Davis 5-6-53; (WTU): Caplow & Beck 94030

**Oenothera contorta** Dougl. Ex Lehm.  
*Camissonia contorta* (Dougl. Ex Lehm.) Kearney  
*lifeform:* forb  
*origin:* Native  
*duration:* annual  
**Distribution/Notes:** Uncommon; collected in Cold Creek Valley; reported from ALE.  
**Collections:** (WS): O’Farrell 74-292; (WTU): Caplow & Beck 95019, 95027

**Oenothera hilgardii** Greene  
*Camissonia hilgardii* (Greene) Raven  
*lifeform:* forb  
*origin:* Native  
*duration:* annual  
**Distribution/Notes:** Uncommon; collected at crest of Rattlesnake Mountain and Cold Creek Valley.  
**Collections:** (WS): O’Farrell 71-137; Cotton 400

**Oenothera minor** (A. Nels.) Munz  
*Camissonia minor* (A. Nels.) Raven  
*lifeform:* forb  
*origin:* Native  
*duration:* annual  
**Distribution/Notes:** Washington State review list species. Uncommon: scattered on ALE, near Gable Mountain, and in a gravel pit between the 200 Areas.  
**Collections:** (PNNL): CZM-392; GLF-179; (WTU): Caplow & Beck 95026, 95067, 95074
Oenothera pallida Lindl.  
lifeform: forb origin: Native duration: perennial

USDA Code: Oepa  
Distribution/Notes: Common on open sand and sand dunes; widespread.

Collections: (PNNL): CZM-331; MRS-46; P&R-81; JGL-135; PB-04; (BRY): Baird 9, 929, 992; (WS): O’Farrell 71-86; Snodgrass 7-1903; Beattie 3945; (PNNL-TC): Fitzner 5-11-78; Sauer 6-13-75 #1, 5-30-75 #17; Sauer and Durham 8-7-75 #4; McShane 4-30-79; Gano 5-3-79; Warren 5-8-79

Oenothera parvula Nutt. ex Torr. & Gray
Camissonia parvula (Nutt. ex Torr. & Gray) Raven  
lifeform: forb origin: Native duration: annual

USDA Code: Capa39 (Capa)
Distribution/Notes: Uncommon; collected on stable sand dunes, 200 Areas; reported from Wahluke Slope by TNC.

Collections: (BRY): Baird 835; (PNNL-TC): specimen, but no information ID by Caplow & Beck; (WTU): Caplow & Beck 95018

Oenothera pygmaea Dougl. Ex Lehm.  
Camissonia pygmaea (Dougl. Ex Lehm.) Raven  
lifeform: forb origin: Native duration: annual

USDA Code: Capy5 (Capy)
Distribution/Notes: Washington State threatened species. Local in dry, silty soil on the White Bluffs, near Vernita Bridge, and Pit 11. Reported from ALE.

Collections: (PNNL): MRS 255, 267; (BRY): Baird 151; (WTU): Caplow & Beck 95029, 95033, 97026

Oenothera strigosa (Rydb.) Mackenzie & Bush  
Oenothera villosa Thunb. ssp. strigosa (Rydb.) W. Dietr. & Raven  
lifeform: forb origin: Native duration: perennial

USDA Code: Oevi (Oest)
Distribution/Notes: Scattered along the shores of the Columbia River.

Collections: (PNNL): CZM-356; MRS-162, 180; (BRY): Baird 206, 1205; (PNNL-TC): Sauer 6-6-80

Orchidaceae

Epipactis gigantea Dougl. Ex Hook.  
lifeform: forb origin: Native duration: perennial

USDA Code: Epgi
Distribution/Notes: Reported by Mastrogiuseppe and Gill (1983) at springs near Priest Rapids.

Collections: Mastrogiuseppe 2438, 2677

Spiranthes romanzoffiana Cham.  
lifeform: forb origin: Native duration: perennial

USDA Code: Spro  
Distribution/Notes: Reported by TNC along the Columbia River, central Hanford.

Collections: (New York State Museum): Caplow & Beck 95128
Orobanchaceae

Orobanche corymbosa (Rydb.) Ferris  flattop broomrape
USDA Code: Orco5 (Orco)  lifeform: forb  origin: Native  duration: perennial
Distribution/Notes: Common and widespread in sandy soil with sagebrush; a root parasite.
Collections: (PNNL): Baird-944; MRS-147; GIB-26; /JGL-136, 137; /VAU-45;
(BRY): Baird 1061, 1074, 1217, 1237a, 1257; (PNNL-TC): Thiede 7-80

Orobanche fasciculata Nutt. clustered broomrape
USDA Code: Orfa  lifeform: forb  origin: Native  duration: perennial
Distribution/Notes: Scattered in mostly rocky-silty soil, as on Umtanum Ridge, the White Bluffs, and Gable Mountain, but also collected in sand at Hanford townsite and the western portion of 200 West Area.
Collections: (PNNL): CZM-643; GLF-5-16-96; (BRY): Baird 156, 1052, 1111, 1118; (PNNL-TC): Sauer 6-14-76

Orobanche grayana G. Beck  Gray’s broomrape
Orobanche californica Cham. & Schlecht. ssp. grayana (G. Beck) Heckard
USDA Code: Orgr  lifeform: forb  origin: Native  duration: perennial
Distribution/Notes: Reported from ALE. Similar in appearance to O. corymbosa; unusual collection in that this species normally does not occur with sagebrush.
Collections: (WS): O’Farrell 71-126

Orobanche ludoviciana Nutt. Suksdorf’s broomrape
USDA Code: Orlu  lifeform: forb  origin: Native  duration: perennial
Distribution/Notes: Reported on Wahluke Slope by TNC.
Collections: None Available

Oxalidaceae

Oxalis corniculata L. creeping yellow wood-sorrel
USDA Code: Oxco  lifeform: forb  origin: Introduced  duration: perennial
Distribution/Notes: Occasional along the Columbia River. Collected at F slough.
Collections: (PNNL): Caplow & Beck 95124.

Plantaginaceae

Plantago lanceolata L. English plantain
USDA Code: Plla  lifeform: forb  origin: Introduced  duration: perennial
Distribution/Notes: Introduced weed of moist areas; widespread and common.
Collections: (PNNL): MRS-140; JGL-138; (BRY): Baird 1005, 1263
**Plantago major** L.  
common plantain  
*USDA Code: Plmaj*  
*lifeform:* forb  
*origin:* Native  
*duration:* perennial  
*Distribution/Notes:* Common widespread weed along rivers and other moist areas.  
*Collections:* (BRY): Baird 1321, 1378

**Plantago patagonica** Jacq.  
Indian wheat  
*USDA Code: Plpa2 (Plpa)*  
*lifeform:* forb  
*origin:* Native  
*duration:* annual  
*Distribution/Notes:* Common, widespread native; found in a variety of habitats, such as ALE, White Bluffs and Hanford townsites, 100 Areas, and Horn Rapids Park.  
*Collections:* (PNNL): CZM-356; MRS-127; P&R-73; JGL-139, 140; (BRY): Baird 142, 810, 878, 987; (WS): O’Farrell 73-267; (PNNL-TC): Fitzner 5-11-78; DW Uresk 5-31-73

**Platanus occidentalis** L.  
sycamore  
*USDA Code: Ploc*  
*lifeform:* tree  
*origin:* Introduced  
*duration:* perennial  
*Distribution/Notes:* Introduced, cultivated shade tree; widely planted on Hanford and often persisting.  
*Collections:* (PNNL): CZM-426

**Poaceae**

*Agropyron caninum* (L.) Beauv. ssp. *majus* (Vasey)  
slender wheatgrass  
*USDA Code: Agcr*  
*lifeform:* graminoid  
*origin:* Native  
*duration:* perennial  
*Distribution/Notes:* Introduced grass, used for revegetation projects on Hanford, occasionally escaping and persisting.  
*Collections:* (PNNL): JGL-141; (BRY): Baird 145, 816, 1132; (WS): O’Farrell 71-122; (PNNL-TC): Rickard 6-11-70

**Elymus trachycaulus** (Link) Goud ex Shinners ssp. *trachycaulus*  
*USDA Code: Eltrt (Agca)*  
*lifeform:* graminoid  
*origin:* Native  
*duration:* perennial  
*Distribution/Notes:* Local along the Columbia River, as at 100-F Area, but also reported from the Rattlesnake Hills and Wahluke Slope.  
*Collections:* (PNNL): MRS-81, 94; (PNNL-TC): Warren 8-12-80; Sauer 5-28-80; (WS): Cotton 667

*Agropyron cristatum* (L.) Gaertn.  
crested wheatgrass  
*USDA Code: Agcr*  
*lifeform:* graminoid  
*origin:* Introduced  
*duration:* perennial  
*Distribution/Notes:* Introduced grass, used for revegetation projects on Hanford, occasionally escaping and persisting.  
*Collections:* (PNNL): JGL-141; (BRY): Baird 145, 816, 1132; (WS): O’Farrell 71-122; (PNNL-TC): Rickard 6-11-70
**Agropyron dasystachyum** (Hook.) Scribn. & J.G. Sm.  
**Elymus lanceolatus** (Scribn. & J.G. Sm.) Gould ssp. lanceolatus

**USDA Code:** Ellal (Agda)  
**lifeform:** graminoid  
**origin:** Native  
**duration:** perennial

**Distribution/Notes:** Native grass; scattered in sandy soil and sand dunes and often used in revegetation mixes. A form of this species is also common in riparian areas where it is sometimes referred to as *A. riparium* Scribn. & Smith.

**Collections:**  
(PNNL): MRS-79, 94; VAU-46, 47; AS-1; (BRY): Baird 1115;  
(PNNL-TC): Sauer & Owzarski 5-15-80; Warren 8-12-80

**Agropyron intermedium** (Host) Beauv.  
**Thinopyrum intermedium** (Host) Barkworth &D.R. Dewey

**USDA Code:** Thin6 (Agin)  
**lifeform:** graminoid  
**origin:** Introduced  
**duration:** perennial

**Distribution/Notes:** Introduced grass; uncommon and likely brought in as a part of or as a contaminant in a seed mixture; observed along roadsides. Collected in 200 Areas and on top of Saddle Mountains.

**Collections:**  
(WHC): MRS-27; Baird-1175

**Agropyron repens** (L.) Beauv.  
**Elymus repens** (L.) Gould

**USDA Code:** Elre4 (Agre)  
**lifeform:** graminoid  
**origin:** Introduced  
**duration:** perennial

**Distribution/Notes:** Introduced lawn grass; sporadic, not of dry desert areas but of more moist areas, as near the Columbia River at 100-D Area.

**Collections:**  
(PNNL): Baird-1161

**Agropyron sibiricum** (Willd.) Beauv.  
**Agropyron fragile** (Roth) P. Candargy

**USDA Code:** Agfr (Agsi)  
**lifeform:** graminoid  
**origin:** Introduced  
**duration:** perennial

**Distribution/Notes:** Introduced grass; widely used in revegetation mixes, but probably closely related to *A. cristatum* (*A. desertorum*).

**Collections:**  
(PNNL): JGL-142; (BRY): Baird 1133, 1148, 1161

**Agropyron spicatum** Pursh  
**Pseudoroegneria spicata** (Pursh) A. Löve

**USDA Code:** Pssp6 (Agsp)  
**lifeform:** graminoid  
**origin:** Native  
**duration:** perennial

**Distribution/Notes:** Very common, dominant native grass at higher elevations of the Hanford Site; important range element; found mostly in loamy or sandy soils, as on Rattlesnake Ridge, but also along the Columbia River, as at 100-D Area and around the 300 Area.

**Collections:**  
(PNNL): MRS-108, 111, 112; (BRY): Baird 847, 1057, 1147, 1162;  
(WS): O’Farrell 71-66, 71-146; (PNNL-TC): Sauer 6-17-75 #6; Warren 8-16-78; Beedlow & McShane 6-83
Vascular Plants of the Hanford Site

Agropyron triticeum Gaertn.  
annual wheatgrass  
Eremopyrum triticeum (Gaertn.) Nevski  

USDA Code: Ertr13 (Agtr) lifeform: graminoid origin: Introduced duration: annual  
Distribution/Notes: Reported by TNC on the Wahluke Slope.  
Collections: None Available  

Agrostis alba L.  
redtop bentgrass  

Agrostis gigantea Roth or Agrostis stolonifera L.  

USDA Code: Agst2 (Agal) lifeform: graminoid origin: Introduced duration: perennial  
Distribution/Notes: Introduced grass of moist areas, especially near the Columbia River, as at 100-D and 100-H Areas.  
Collections: (PNNL): Baird-1191; (BRY): Baird 1146, 1235; (PNNL-TC): Warren 8-12-80  

Agrostis exarata Trin.  
spike bentgrass  

Agrostis interrupta L.  
interrupted bentgrass  
Apera interrupta (L.) Beauv.  

USDA Code: Apin (Agin) lifeform: graminoid origin: Native duration: perennial  
Distribution/Notes: Collected in Upper Snively Basin and reported by TNC along the Columbia River.  
Collections: (WS): O’Farrell 72-254; Cotton 707  

Agrostis scabra Willd.  
ticklegrass  

Agrostis tenuis Sibthorp  
colonial bentgrass  
Agrostis capillaris L.  

USDA Code: Agca5 (Agsc) lifeform: graminoid origin: Native duration: perennial  
Distribution/Notes: Common in wet areas along the Columbia River: occasionally found in standing water.  
Collections: (PNNL): Baird-1193; (BRY): Baird 1149, 1259, 1382, 1383; (PNNL-TC): Newsome & Sauer 9-22-77; Warren 8-12-80; Warren and Sauer 10-6-80  

Agrostis tenuis Sibthorp  
colonial bentgrass  
Agrostis capillaris L.  

USDA Code: Agca5 (Agte) lifeform: graminoid origin: Introduced duration: perennial  
Distribution/Notes: Scattered, introduced lawn grass; collected in wet areas at White Bluffs townsite.  
Collections: (PNNL-TC): Warren 8-12-80  

3.81
**Alopecurus aequalis** Sobol.  
*meadow foxtail*

**USDA Code:** Alae  
**lifeform:** graminoid  
**origin:** Native  
**duration:** perennial  

**Distribution/Notes:** Uncommon in wet, gravelly areas along the Columbia River; only known from older reports and collections, as at Richland, Hanford, and 300 Area. TNC reported an unidentified species of *Alopecurus* on the Wahluke Slope.

**Collections:**  
(WS): St. John 8122; Beattie 3939; Davis 136; (PNNL-TC): Davis 5-7-53

**Aristida longiseta** Steud.  
*red three-awn*

*Aristida purpurea* Nutt. var. *longiseta* (Steud.) Vasey  

**USDA Code:** Arpul (Arlo)  
**lifeform:** graminoid  
**origin:** Native  
**duration:** perennial  

**Distribution/Notes:** Scattered along the shore of the Columbia River in drier situations, i.e., China Bar and 100-D Area.

**Collections:**  
(PNNL): Baird-1192; MRS-123; (BRY): Baird 1254; (PNNL-TC): Sauer 5-28-80

**Avena sativa** L.  
*oat*

**USDA Code:** Avsa  
**lifeform:** graminoid  
**origin:** Introduced  
**duration:** annual  

**Distribution/Notes:** Introduced cereal crop; widely escaping, not common; collected along side Highway 241 in Cold Creek Valley.

**Collections:**  
(BRY): Baird 1249

**Bromus carinatus** Hook. & Arn.  
*mountain brome*

**USDA Code:** Brca5 (Brca)  
**lifeform:** graminoid  
**origin:** Native  
**duration:** perennial  

**Distribution/Notes:** Known from older collections at Hanford townsite, Cold Creek, and Rattlesnake Hills; reported from Priest Rapids by Mastrogiuseppe and Gill (1983).

**Collections:**  
(WS): Beattie 3950; Cotton 401, 680, 688; Griffiths & Cotton 6

**Bromus inermis** Leyss.  
*smooth brome*

**USDA Code:** Brin2 (Brin)  
**lifeform:** graminoid  
**origin:** Introduced  
**duration:** perennial  

**Distribution/Notes:** Introduced in reseeding mixture; collected in 200 Areas on disturbed sites.

**Collections:**  
(PNNL): Baird 1171

**Bromus japonicus** Thunb. Ex Murr.  
*Japanese brome*

**USDA Code:** Brja  
**lifeform:** graminoid  
**origin:** Introduced  
**duration:** annual  

**Distribution/Notes:** Introduced grass; collected at E-12 burial ground in 200 West Area.

**Collections:**  
(PNNL): RCR-01; WJW-03
Bromus mollis auct. Non L.  
Bromus hordeaceus L. ssp. hordeaceus

USDA Code: Brhoh (Brmo)  lifeform: graminoid  origin: Introduced  duration: annual
Distribution/Notes: Introduced grass; reported by TNC from ALE, older collections at Cold Creek, and west slope Rattlesnake Mountain.
Collections: (WS): Cotton 495; Griffiths & Cotton 9

Bromus tectorum L.  

USDA Code: Brte  lifeform: graminoid  origin: Introduced  duration: annual
Distribution/Notes: Species introduced to eastern Washington in late 1800s; now one of the dominant species throughout the Columbia Basin and much of the Intermountain West.
Collections: (PNNL): P&R-59; VAU-48, 49; (BRY): Baird 531, 591; (WS): O’Farrell 72-209; (PNNL-TC): Whittaker 4-23-52; Sauer 5-30-75 #25; McShane 5-14-79; Rickard 4-18-86, 5-20-86

Cenchrus longispinus (Hack.) Fern.  

USDA Code: Celo3 (Celo)  lifeform: graminoid  origin: Native  duration: annual
Distribution/Notes: Occasional on disturbed sites with sandy soil.
Collections: (PNNL): Baird-1267; MRS-319

Dactylis glomerata L. 

USDA Code: Dagl  lifeform: graminoid  origin: Introduced  duration: perennial
Distribution/Notes: Introduced grass; occasional on Hanford in disturbed areas or as a contaminant in seed mixtures.
Collections: (BRY): Baird 1172

Deschampsia atropurpurea (Wahlenb.) Scheele  
Vahlodea atropurpurea (Wahlenb.) Fries ex Hartman

USDA Code: Vaat2 (Deat)  lifeform: graminoid  origin: Native  duration: perennial
Distribution/Notes: Rare in area; collected along the Columbia River at 100-D Area.
Collections: (PNNL-TC): Warren 8-12-80; Warren & Sauer 10-6-80

Distichlis stricta (Torr.) Rydb.  
Distichlis spicata (L.) Greene

USDA Code: Dist3 (Dist)  lifeform: graminoid  origin: Native  duration: perennial
Distribution/Notes: Locally common in moist, alkaline areas, as at West Lake and around Rattlesnake Springs, but also scattered along the shore of the Columbia River.
Collections: (BRY): Baird 893, 1102, 1212; (PNNL-TC): Sauer 5-28-80, 6-6-80; Fitzner 7-15-74
**Echinochloa crus-galli** (L.) Beauv.  
**lifeform:** graminoid  
**origin:** Introduced  
**duration:** annual  
**Vascular Plants of the Hanford Site**

**USDA Code:** Eccr  
**Distribution/Notes:** Common and widespread weed; found on Hanford in moist disturbed areas.  
**Collections:** (PNNL): MRS-275; P&R-09; (BRY): Baird 1362; (PNNL-TC): Warren 
& Sauer 10-6-80; Sauer & Newsome 9-27-79; Sauer & McShane 5-21-80

**Elymus cinereus** Scribn. & Merr.  
**Leymus cinereus** (Scribn. & Merr.) A. Löve  
**lifeform:** graminoid  
**origin:** Native  
**duration:** perennial  

**USDA Code:** Leci4 (Elci)  
**Distribution/Notes:** Scattered in a variety of habitats throughout Hanford, e.g., Snively Canyon, 300 Area, East White Bluffs, and 100-D Area.  
**Collections:** (PNNL): MRS-95; (BRY): Baird 817, 1103, 1104, 1164; (PNNL-TC): Hanson 6-16-59; Warren 8-16-78; Sauer 5-31-78; Beedlow & McShane 6-83

**Elymus flavescens** Scribn. & J.G. Sm.  
**Leymus flavescens** (Scribn. & J.G. Sm.) Pilger  
**lifeform:** graminoid  
**origin:** Native  
**duration:** perennial  

**USDA Code:** Lefl4 (Elfl)  
**Distribution/Notes:** Locally common on sand dunes.  
**Collections:** (BRY): Baird 1116; (PNNL-TC): Pendleton 6-18-59

**Elymus glaucus** Buckl.  
**lifeform:** graminoid  
**origin:** Native  
**duration:** perennial  

**USDA Code:** Elgl  
**Distribution/Notes:** Scattered; collected at White Bluffs ferry and reported from ALE.  
**Collections:** (BRY): Baird 1105; (WS): O’Farrell 71-131

**Eragrostis hypnoides** (Lam.) B.S.P.  
**lifeform:** graminoid  
**origin:** Native  
**duration:** annual  

**USDA Code:** Erhy  
**Distribution/Notes:** Reported by TNC along river and Wahluke Slope.  
**Collections:** (WTU): Caplow & Beck 95133

**Eragrostis lutescens** Scribn.  
**lifeform:** graminoid  
**origin:** Native  
**duration:** annual  

**USDA Code:** Erlu2 (Erlu)  
**Distribution/Notes:** Scattered along the Columbia River in moist to wet ground, as at 100-D and 100-K Areas.  
**Collections:** (BRY): Baird 1384; (PNNL-TC): Warren & Sauer 10-6-80; Warren 8-12-80

**Eragrostis pectinacea** (Michx.) Nees ex Steud.  
**lifeform:** graminoid  
**origin:** Native  
**duration:** annual  

**USDA Code:** Erpe  
**Distribution/Notes:** Scattered along the Columbia River in moist to wet ground, as at Hanford slough, 100-D Area, and Wahluke Slope.  
**Collections:** (PNNL-TC): Warren & Sauer 10-6-80
**Festuca arundinacea** Schreb.  
*Festuca arundinacea* (Schreb.) S.J. Darbyshire

**USDA Code:** Loar10 (Fear)  
**lifeform:** graminoid  
**origin:** Introduced  
**duration:** perennial

**Distribution/Notes:** Introduced; historically reported from along irrigation ditches at Hanford townsite; now persisting in old cultivated areas near the Columbia River, e.g., 100-D Area.

**Collections:**  
(PNNL): MRS-143; (WS): Webber 7-2-25

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**Festuca bromoides** L.  
*Vulpia bromoides* (L.) S.F. Gray

**USDA Code:** Vubr (Febr)  
**lifeform:** graminoid  
**origin:** Introduced  
**duration:** annual

**Distribution/Notes:** Collected on ALE near gate 106; reported by TNC from all portions of the Hanford Site. Reported from a variety of habitats at Priest Rapids by Mastrogiuseppe and Gill (1983).

**Collections:**  
(WS): O’Farrell 71-50

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**Festuca idahoensis** Elmer  
*Festuca idahoensis*  

**USDA Code:** Feid  
**lifeform:** graminoid  
**origin:** Native  
**duration:** perennial

**Distribution/Notes:** Collected in the Rattlesnake Hills; uncommon here; important species to the east of Hanford.

**Collections:**  
(WS): Griffiths & Cotton 21; (Barb Wilson): Caplow & Beck 96027

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**Festuca microstachys** Nutt.  
*Vulpia microstachys* (Nutt.) Munro

**USDA Code:** Vumi (Femi)  
**lifeform:** graminoid  
**origin:** Native  
**duration:** annual

**Distribution/Notes:** Common, widespread grass of early spring.

**Collections:**  
(PNNL): MRS-234, 320; P&R-58; VAU-50; (BRY): Baird 546a, 597, 1030, 1049; (WS): O’Farrell 72-226; Cotton 472

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**Festuca octoflora** Walt.  
*Vulpia octoflora* (Walt.) Rydb.

**USDA Code:** Vuoc (Feoc)  
**lifeform:** graminoid  
**origin:** Native  
**duration:** annual

**Distribution/Notes:** Common, widespread grass of early spring.

**Collections:**  
(PNNL): MRS-59, 256, 320; CZM 389, 642; JGL-143; (BRY): Baird 546, 562, 831; (PNNL-TC): Beedlow & McShane 6-30-83; Rickard 4-14-86, 5-20-86

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**Festuca ovina** L.  

**USDA Code:** Feov  
**lifeform:** graminoid  
**origin:** Introduced  
**duration:** perennial

**Distribution/Notes:** May have been introduced in reseeding mixtures; uncommon in 200 Areas on disturbed sites.

**Collections:**  
(PNNL): RCR-02, 03; (BRY): Baird 1174

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3.85
**Festuca pratensis** Huds.  
*Lolium pratense* (Huds.) S.J. Darbyshire  
**USDA Code:** Lopr7 (Fepr)  
**lifeform:** graminoid  
**origin:** Introduced  
**duration:** perennial  
**Distribution/Notes:** Reported by Mastrogiuseppe and Gill (1983) on flood bars near Priest Rapids.  
**Collections:** Mastrogiuseppe 2373

**Festuca washingtonica** Alexeev  
**USDA Code:** Fewa  
**lifeform:** graminoid  
**origin:** Native  
**duration:** perennial  
**Distribution/Notes:** Found in the snowmelt zone on the northwest slopes of Rattlesnake Mountain. Species not listed in Hitchcock and Cronquist (1973); occurs at scattered locations along the east slope of the Cascades. See Aiken et al. (1998) for information.  
**Collections:** (Barb Wilson): Caplow and Beck 96025, 96026

**Helochloa alopecuroides** (Piller & Mitterp.) Host ex Roemer  
**USDA Code:** Cral2 (Heal)  
**lifeform:** graminoid  
**origin:** Introduced  
**duration:** annual  
**Distribution/Notes:** Introduced species reported by TNC along the Columbia River and the Wahluke Slope.  
**Collections:** None Available

**Hierochloe odorata** (L.) Beauv.  
**USDA Code:** Hihia (Hiod)  
**lifeform:** graminoid  
**origin:** Native  
**duration:** perennial  
**Distribution/Notes:** Local in moist soil along the Columbia River at Priest Rapids (China Bar).  
**Collections:** (PNNL): Baird-1258

**Hordeum brachyantherum** Nevski  
**USDA Code:** Hobr2 (Hobr)  
**lifeform:** graminoid  
**origin:** Native  
**duration:** perennial  
**Distribution/Notes:** Uncommon along the shore of the Columbia River; older collection, probably from the 300 Area.  
**Collections:** (PNNL-TC): Davis 5-7-53

**Hordeum glaucum** Steud.  
**USDA Code:** Homug (Hogl)  
**lifeform:** graminoid  
**origin:** Introduced  
**duration:** annual  
**Distribution/Notes:** Introduced grass; uncommon along the shore of the Columbia River; collected at Richland and White Bluffs townsite.  
**Collections:** (PNNL): MRS-104; (BRY): Baird 669

3.86
Hordeum jubatum L.  
**squirreltail barley**

*USDA Code: Hoju*  
**lifeform:** graminoid  
**origin:** Native  
**duration:** perennial  

*Distribution/Notes:* Uncommon in moist areas, as at West Lake and White Bluffs townsite; reported from ALE.

*Collections:* (PNNL): Baird-1135; (BRY): Baird 1082; (WS): O’Farrell 72-249

Hordeum leporinum Link  
**seaside barley**

*Hordeum murinum* ssp. *leporinum* (Link) Arcang.  

*USDA Code: Homul (Hole)*  
**lifeform:** graminoid  
**origin:** Introduced  
**duration:** annual  

*Distribution/Notes:* Observed in lower portions of Snively Canyon and lower Snively field.

*Collections:* None Available

**prairie Junegrass**

*Koeleria macrantha* (Ledeb.) J.A. Schultes  

*USDA Code: Koma (Kocr)*  
**lifeform:** graminoid  
**origin:** Native  
**duration:** perennial  

*Distribution/Notes:* Scattered in a variety of habitats, especially in sandy soils, throughout the 200 Areas, ALE, White Bluffs townsite, and 100-F Area.

*Collections:* (PNNL): P&R-90; VAU-55; MRS-253; Baird-936; (BRY): Baird 1122; (WS): Beattie 3957; (PNNL-TC): Rickard 5-23-86

Leersia oryzoides (L.) Sw.  
**cutgrass**

*USDA Code: Leor*  
**lifeform:** graminoid  
**origin:** Native  
**duration:** perennial  

*Distribution/Notes:* Local; found in moist soil, as at Hanford townsite.


Leptochloa fascicularis (Lam.) Gray  
**loose-flowered sprangletop**

*Leptochloa fusca* (L.) Kunth ssp. *fascicularis* (Lam.) N. Snow  

*USDA Code: Lefuf (Lefa)*  
**lifeform:** graminoid  
**origin:** Native  
**duration:** annual  

*Distribution/Notes:* Reported by TNC along the Columbia River and Wahluke Slope.

*Collections:* (WTU): Caplow & Beck 95126

Lolium multiflorum Lam.  
**perennial rye**

*Lolium perenne* L. ssp. *multiflorum* (Lam.) Husnot  

*USDA Code: Lopem2 (Lomu)*  
**lifeform:** graminoid  
**origin:** Introduced  
**duration:** perennial  

*Distribution/Notes:* Collected within hydroseded, revegetated borrow pit in 200 West Area.

*Collections:* (PNNL): MRS-100

Melica bulbosa Geyer ex Porter & Coult.  
**oniongrass**

*USDA Code: Mebu*  
**lifeform:** graminoid  
**origin:** Native  
**duration:** perennial  

*Distribution/Notes:* Reported by TNC from ALE.

*Collections:* (WTU): Caplow & Beck 94034, 94036, 94040

3.87
**Melica spectabilis** Scribn.  
**showy oniongrass**

*USDA Code: Mesp (Melsp)*  
**lifeform:** graminoid  
**origin:** Native  
**duration:** perennial  

*Distribution/Notes:* Uncommon; collected on northeast slope of Rattlesnake Mountain.  
*Collections:*  
(WS): O’Farrell 71-120

**Muhlenbergia asperifolia** (Nees & Meyen ex Trin.) Parodi  
**alkali muhly**

*USDA Code: Muas*  
**lifeform:** graminoid  
**origin:** Native  
**duration:** perennial  

*Distribution/Notes:* Uncommon in moist sites; collected in 200 Areas.  
*Collections:*  
(PNNL): P&R-16; CZM-489

**Muhlenbergia filiformis** (Thurb. Ex S. Wats.) Rydb.  
**slender muhly**

*USDA Code: Mufi2 (Mufi)*  
**lifeform:** graminoid  
**origin:** Native  
**duration:** annual  

*Distribution/Notes:* Reported by TNC along the Columbia River, Wahluke Slope.  
*Collections:*  
(WTU): Caplow & Beck 95132

**Oryzopsis hymenoides** (Roemer & J.A. Schultes)  
**Indian ricegrass**

*USDA Code: Achy (Orhy)*  
**lifeform:** graminoid  
**origin:** Native  
**duration:** perennial  

*Distribution/Notes:* Very common and widespread in sandy areas.  
*Collections:*  
(PNNL): MRS-67; P&R-64; VAU-51, 52, 53; JGL-144; (BRY): Baird 815, 852, 891, 948, 1006, 1055; (WS): O’Farrell 71-65; Cotton 421;  
(PNNL-TC): Fitzner 5-11-780; Rickard & Fitzner 5-22-86

**Panicum capillare** L.  
**common witchgrass**

*USDA Code: Paca6 (Paca)*  
**lifeform:** graminoid  
**origin:** Native  
**duration:** annual  

*Distribution/Notes:* Common weed of waste areas or disturbed sites where moist, as at Wahluke Slope, Hanford townsite, and the 200 Areas.  
*Collections:*  
(PNNL): MRS-308; P&R-18; (BRY): Baird 1425; (PNNL-TC): Warren 10-6-80; Sauer & Newsome 9-27-77

**Panicum dichotomiflorum** Michx.  
**fall panicum**

*USDA Code: Pandi*  
**lifeform:** graminoid  
**origin:** Native  
**duration:** perennial  

*Distribution/Notes:* Reported by TNC on islands in the Columbia River.  
*Collections:*  
(PNNL): Caplow & Beck 95125

**Panicum miliaceum** L.  
**broomcorn millet**

*USDA Code: Pami2 (Pami)*  
**lifeform:** graminoid  
**origin:** Introduced  
**duration:** annual  

*Distribution/Notes:*Introduced grass; uncommon; collected at Hanford townsite.  
*Collections:*  
(PNNL-TC): Newsome & Sauer 9-27-79
Panicum occidentale Scribn.  
western witchgrass

*Dichanthelium acuminatum* (Sw.) Gould & C.A. Clark var. *fasciculatum* (Torr.) Freckmann

**USDA Code**: Diacf (Paoc)  
**lifeform**: graminoid  
**origin**: Native  
**duration**: perennial

**Distribution/Notes**: Scattered and locally common; found along the shore of the Columbia River, often in wet or drying gravels.

**Collections**:  
(PNNL): JGL-145; (BRY): Baird 194, 1081, 1144a, 1189, 1318;  
(PNNL-TC): Sauer 6-6-80; Warren 5-22-80

*Paspalum distichum* L.

**USDA Code**: Padi6 (Pasdi)  
**lifeform**: graminoid  
**origin**: Native  
**duration**: perennial

**Distribution/Notes**: Occasional in wet areas; collected along the Yakima River at West Richland and along the Columbia River/Wahluke Slope.

**Collections**:  
(PNNL): Caplow & Beck 94068; (BRY): Baird 1391

*Phalaris arundinacea* L.

**USDA Code**: Phar3 (Phar)  
**lifeform**: graminoid  
**origin**: Native  
**duration**: perennial

**Distribution/Notes**: Common in wet or moist areas along the Columbia River.

**Collections**:  
(BRY): Baird 916, 1195, 1311; (PNNL-TC): Sauer 6-3-80

*Phleum pratense* L.

**USDA Code**: Phpr3 (Phlpr)  
**lifeform**: graminoid  
**origin**: Introduced  
**duration**: perennial

**Distribution/Notes**: Introduced pasture grass; persisting in old cultivated areas near 100-D Area.

**Collections**:  
(BRY): Baird 1169

*Phragmites communis* Trin.

**Phragmites australis** (Cav.) Trin. Ex Steud.

**USDA Code**: Phau7 (Phco)  
**lifeform**: graminoid  
**origin**: Native  
**duration**: perennial

**Distribution/Notes**: Occasional in swampy areas; observed at Rattlesnake Springs and on Wahluke Slope, but no specimens were collected. Also reported from Priest Rapids (Mastrogiuseppe and Gill 1983).

**Collections**: None Available

*Poa annua* L.

**USDA Code**: Poan (Poaan)  
**lifeform**: graminoid  
**origin**: Introduced  
**duration**: annual

**Distribution/Notes**: Widespread; occasionally common; found along the shores of the Columbia River; collected at Richland.

**Collections**:  
(BRY): Baird 668
**Poa bulbosa** L. bulbous bluegrass

*USDA Code: Pobu*

*lifeform:* graminoid  *origin:* Introduced  *duration:* perennial

*Distribution/Notes:* Widespread introduced grass; occasionally becomes locally common such as in 100 Areas and Benson Ranch.

*Collections:* (PNNL): MRS-212; JGL-146, 147; (BRY): Baird 612; (WS): O’Farrell 71-36; (PNNL-TC): Rickard and Cline 5-1-70

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**Poa compressa** L. Canada bluegrass

*USDA Code: Poco (Pocom)*  

*lifeform:* graminoid  *origin:* Introduced  *duration:* perennial

*Distribution/Notes:* Scattered in moist places along the shore of the river, e.g., Priest Rapids (China Bar), 100-D and 100-H Areas.

*Collections:* (PNNL): Baird-1194; (BRY): Baird 1145, 1150, 1264

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**Poa cusickii** Vasey  Cusick’s bluegrass

*USDA Code: Pocu3 (Pocu)*  

*lifeform:* graminoid  *origin:* Native  *duration:* perennial

*Distribution/Notes:* Occasionally mixed with bluebunch wheatgrass; collected in the Rattlesnake Hills, but also reported from central Hanford and Wahluke Slope.

*Collections:* (WS): O’Farrell 71-12; Cotton 557; Griffiths & Cotton 4, 20;  
(PNNL-TC): Beedlow & McShane 7-83; (WTU): Caplow & Beck 94022

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**Poa juncifolia** Scribn.  alkali bluegrass

**Poa secunda** J. Presl

*USDA Code: Pose (Poju)*  

*lifeform:* graminoid  *origin:* Native  *duration:* perennial

*Distribution/Notes:* Part of the *Poa secunda* complex. Widespread, supposedly mostly from alkaline soils; collected on Rattlesnake Ridge, Cold Creek, and Hanford townsire. As treated in Hitchcock and Cronquist (1973), this taxon also includes *P. ampla*.

*Collections:* (PNNL): P&R-71; (WS): O’Farrell 72-195, 72-203; Cotton 402, 664;  
(PNNL-TC): Beedlow & McShane 6-83, 6-30-83; Sauer 6-20-80, 5-31-78

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**Poa nevadensis** Vasey ex Scribn.  Nevada bluegrass

**Poa secunda** J. Presl

*USDA Code: Pose (Pone)*  

*lifeform:* graminoid  *origin:* Native  *duration:* perennial

*Distribution/Notes:* Part of the *Poa secunda* complex. Widespread, supposedly mostly from moister soils; collected on top of Rattlesnake Ridge, Cold Creek, and along the Columbia River near 100-D Area.

*Collections:* (PNNL): MRS-23, 120; (BRY): Baird 790, 1250
**Poa palustris** L.  fowl bluegrass  
*USDA Code: Popa2 (Poapa)*  *lifeform:* graminoid  *origin:* Native  *duration:* perennial  
**Distribution/Notes:** Introduced grass; established and widespread in damp areas, mainly near the Columbia River.  
**Collections:** (BRY): Baird 1983, 1151, 1152, 1188, 1190; (WS): O’Farrell 71-130, 73-269  

**Poa pratensis** L.  Kentucky bluegrass  
*USDA Code: Popr*  *lifeform:* graminoid  *origin:* Native  *duration:* perennial  
**Distribution/Notes:** Common and widespread; often used as a lawn grass; mostly found in moist areas near the Columbia River.  
**Collections:** (PNNL): MRS-86; (BRY): Baird 855, 1031; (PNNL-TC): Beedlow & McShane 7-12-83  

**Poa sandbergii** Vasey  
*Poa secunda* J. Presl  
*USDA Code: Pose (Posa)*  *lifeform:* graminoid  *origin:* Native  *duration:* perennial  
**Distribution/Notes:** Possibly the most common and widespread of the bluegrasses in our area; occurs in nearly all upland habitat types on the Hanford Site. More common in drier areas than other members of the *P. secunda* complex.  
**Collections:** (PNNL): P&R-62; VAU-54; RCR-04, 05; (BRY): Baird 8, 532, 595, 871, 937, 1114, 1173; (WS): O’Farrell 71-13, 72-193, 204; (PNNL-TC): Rickard no date; Rickard 4-16-86, 4-18-86  

**Poa scabrella** (Thurb.) Benth. Ex Vasey  
*Poa secunda* J. Presl  
*USDA Code: Pose (Posc)*  *lifeform:* graminoid  *origin:* Native  *duration:* perennial  
**Distribution/Notes:** Scattered in sandy areas, throughout the 200 Areas and near the Columbia River by Energy Northwest. Part of the *Poa secunda* complex. As treated in Hitchcock and Cronquist (1973), this taxon also includes *P. canbyi*.  
**Collections:** (PNNL): ARJ-06; (PNNL-TC): Sauer et al. 5-12-80  

**Polypogon monspeliensis** (L.) Desf.  rabbitfoot grass  
*USDA Code: Pomo5 (Pomo)*  *lifeform:* graminoid  *origin:* Introduced  *duration:* annual  
**Distribution/Notes:** Introduced grass: scattered in moist areas, as at Cold Creek, Snively Canyon, and various places along the Columbia River.  
**Collections:** (PNNL): MRS-274; (BRY): Baird 157, 962, 1236; (WS): O’Farrell 71-136; (PNNL-TC): Warren & Sauer 10-6-80; Warren 8-16-78
**Puccinellia lemmonii** (Vasey) Scribn.  
*Puccinellia lemmonii* (Vasey) Scribn. Leommon’s alkaligrass  
*USDA Code:* Pule  
*lifeform:* graminoid  
*origin:* Native  
*duration:* perennial  
*Distribution/Notes:* Reported by Mastrogiuseppe and Gill (1983) in various wet areas near Priest Rapids.  
*Collections:* None Available

**Sclerochloa dura** (L.) Beauv.  
**hardgrass**  
*USDA Code:* Scdu2 (Scdu)  
*lifeform:* graminoid  
*origin:* Introduced  
*duration:* annual  
*Distribution/Notes:* Introduced species that is uncommon in dry ground near the Columbia River; collected at Richland.  
*Collections:* (BRY): Baird 666

**Secale cereale** L.  
*rye*  
*USDA Code:* Sece  
*lifeform:* graminoid  
*origin:* Introduced  
*duration:* annual  
*Distribution/Notes:* Introduced cereal crop; occasionally persisting widespread; often used in reseeding mixtures. Dominant in upper Snively field.  
*Collections:* (PNNL): CZM-449; MRS-103; (BRY): Baird 1141, 1170; (WS): O’Farrell 71-135; (PNNL-TC): Sauer 5-31-78

**Setaria lutescens** (Weigel) F.T. Hubbard  
**bristly foxtail**  
*Pennisetum glaucum* (L.) R. Br.  
**USDA Code:** Pegl2 (Selu)  
*lifeform:* graminoid  
*origin:* Introduced  
*duration:* annual  
*Distribution/Notes:* Introduced grass; occasional in disturbed and often moist areas.  
*Collections:* (PNNL): P&R-05; (BRY): Baird 1407; (PNNL-TC): Sauer 6-27-74

**Sitanion hystrix** (Nutt.) J.G. Sm.  
**bottlebrush grass**  
*Elymus elymoides* (Raf.) Swezey ssp. elymoides  
*USDA Code:* Elel5 (Sihy)  
*lifeform:* graminoid  
*origin:* Native  
*duration:* perennial  
*Distribution/Notes:* Common and widespread throughout Hanford, especially in sandy areas.  
*Collections:* (PNNL): MRS-58, 60, 139; P&R-43; VAU-56; JGL-148; (BRY): Baird 6, 845, 947, 1054; (WS): O’Farrell 71-51, 71-121; (PNNL-TC): Sauer 5-20-80, 6-5-80, 6-10-75 #25; Whittaker 5-9-52; Rickard 5-20-86; Rickard and Cline 6-1-70

**Spartina gracilis** Trin.  
**alkali cordgrass**  
*USDA Code:* Spgr (Spagr)  
*lifeform:* graminoid  
*origin:* Native  
*duration:* perennial  
*Distribution/Notes:* Reported by Mastrogiuseppe and Gill (1983) in alkaline and other wet areas near Priest Rapids.  
*Collections:* None Available
Sphenopholis obtusata (Michx.) Scribn.  
*Sphenopholis obtusata* (Michx.) Scribn. Or *S. intermedia* (Rydb.) Rydb.

**USDA Code:** Spob  
**lifeform:** graminoid  
**origin:** Native  
**duration:** perennial  
**Distribution/Notes:** Reported by Mastrogiuseppe and Gill (1983) in alkali and other wet areas near Priest Rapids.

**Collections:** Mastrogiuseppe 2451

Sporobolus cryptandrus (Torr.) Gray  
**USDA Code:** Spcr  
**lifeform:** graminoid  
**origin:** Native  
**duration:** perennial  
**Distribution/Notes:** Common in sandy areas throughout Hanford, especially the 100 Areas.

**Collections:** (PNNL): MRS-157, 285; JGL-149, 150; (BRY): Baird 1157; (PNNL-TC): Sauer 6-6-80; Newsome & Sauer 9-27-77

Stipa comata Trin. & Rupr.  
*Hesperostipa comata* (Trin. & Rupr.) Barkworth  
**USDA Code:** Heco26 (Stco)  
**lifeform:** graminoid  
**origin:** Native  
**duration:** perennial  
**Distribution/Notes:** Common; often dominant, on sandy soils or mostly open sand and dunes.

**Collections:** (PNNL): MRS-66; P&R-85; JGL-151; (BRY): Baird 848, 890, 949, 1056; (WS): O’Farrell 71-107

Stipa thurberiana Piper  
*Achnatherum thurberianum* (Piper) Barkworth  
**USDA Code:** Acth7 (Stth)  
**lifeform:** graminoid  
**origin:** Native  
**duration:** perennial  
**Distribution/Notes:** Locally common on dry rocky-loamy soils of basalt outcrops, as on Gable Mountain and Gable Butte.

**Collections:** (PNNL): WJW-05; (BRY): Baird 1058, 72-217; (PNNL-TC): Rickard & Fitzner 5-22-86; Sauer 6-28-74

Triticum aestivum L.  
**USDA Code:** Trae  
**lifeform:** graminoid  
**origin:** Introduced  
**duration:** annual  
**Distribution/Notes:** Introduced cereal crop; occasionally escaping but not persisting. Sometimes volunteering from straw; used for soil stabilization.

**Collections:** (BRY): Baird 7; (WS): O’Farrell 71-89; (PNNL-TC): Sauer 6-5-80, 6-5-80; Warren & Sauer 5-22-80

**Polemoniaceae**

Collomia grandiflora Dougl. Ex Lindl.  
**USDA Code:** Cogr4 (Comgr)  
**lifeform:** forb  
**origin:** Native  
**duration:** annual  
**Distribution/Notes:** Local in moist shady areas, such as Snively Canyon and Priest Rapids.

**Collections:** (PNNL): MRS-242; (WS): O’Farrell 71-124, 73-272; (PNNL-TC): Rickard & Cline 6-1-70; Davis 5-6-53; Rotenberry 9-29-75 #5

3.93
Collomia linearis Nutt.  
**USDA Code:** Coli2 (Coli)  
**lifeform:** forb  
**origin:** Native  
**duration:** annual  
**Distribution/Notes:** Scattered along the Columbia River in moist areas and on top of Rattlesnake Mountain.  
**Collections:**  
(PNNL): MRS-124, 221; CZM-479; (BRY): Baird 189, 1026; (WS): O'Farrell 74-309; (PNNL-TC): Sauer 6-10-75

Eriastrum sparsiflorum (Eastw.) Mason var. wilcoxii (A. Nels.) Cronq.  
**USDA Code:** Erwi (Erspa)  
**lifeform:** forb  
**origin:** Native  
**duration:** annual  
**Distribution/Notes:** Local in sandy flats and dunes north of Gable Mountain. Scattered elsewhere such as in Pit 30.  
**Collections:**  

Gilia inconspicua (Sm.) Sweet  
**USDA Code:** Giin2 (Giin)  
**lifeform:** forb  
**origin:** Native  
**duration:** annual  
**Distribution/Notes:** Reported by TNC from ALE and Wahluke Slope, included within G. sinuata in Hitchcock and Cronquist (1973).  
**Collections:**  
(WTU): Caplow & Beck 97028

Gilia leptomeria Gray  
**USDA Code:** Gile3 (Gile)  
**lifeform:** forb  
**origin:** Native  
**duration:** annual  
**Distribution/Notes:** Most specimens that key to G. leptomeria in Hitchcock and Cronquist (1973) are now classified as G. lottiae. True G. leptomeria have been reported near Gable Mountain, and at various locations on the Wahluke Slope; currently on the Washington State Review 1 list.  
**Collections:**  
(PNNL): Caplow & Beck 95048; (WTU): Caplow & Beck 95041, 95048, 95055, 95076

Gilia lottiae Day  
**USDA Code:** Gilo3 (Gilo)  
**lifeform:** forb  
**origin:** Native  
**duration:** annual  
**Distribution/Notes:** Scattered in sandy soils throughout the 200 Areas. See discussion under G. leptomeria.  
**Collections:**  
(WTU): Caplow & Beck 95047, 95060, 95069, 95081

Gilia minutiflora Benth.  
**USDA Code:** Ipni2 (Gimi)  
**lifeform:** forb  
**origin:** Native  
**duration:** annual  
**Distribution/Notes:** Scattered; sometimes found in sandy areas, e.g., near the Columbia River at 100-D Area, Cold Creek, and the White Bluffs.  
**Collections:**  
(PNNL): MRS-166; (BRY): Baird 149, 1186, 1237; (WS): O'Farrell 71-168; (PNNL-TC): Newsome & Sauer 8-23-76; Sauer 6-11-75, 6-12-75#1; (WTU): Caplow & Beck 95068
Gilia sinuata Doug. Ex Benth.  
**lifeform:** forb  **origin:** Native  **duration:** annual  
**Distribution/Notes:** Common and widespread in sandy areas throughout Hanford.

**Collections:** (PNNL): MRS-47; GLF-180; P&R-49; JGL-152, 153, 154, 155; PB-05;  
(BRY): Baird 521, 837, 1559, 71-21; (PNNL-TC): Sauer 3-30-76, 4-18-78; Hinds 5-20-80; Rickard & Fitzner 5-22-86; (WS): O’Farrell 71-21, 72-202; Beattie 3591; (WTU): Caplow & Beck 97009

Leptodactylon pungens (Torr.) Torr. Ex Nutt.  
**lifeform:** sub-shrub  **origin:** Native  **duration:** perennial  
**Distribution/Notes:** Scattered, but not especially common; found in dry situations, as near western Army Loop Road and near Horn Rapids Road.

**Collections:** (PNNL): MRS-232; JGL-156; VAU-57; (WS): O’Farrell 71-55;  
(PNNL-TC): Warren 5-15-80; Rickard 5-23-86

Linanthus pharnaceoides (Benth.) Greene  
**lifeform:** forb  **origin:** Native  **duration:** annual  
**Distribution/Notes:** Common in rocky soils, as on slopes of Rattlesnake Ridge.

**Collections:** (WS): O’Farrell 72-225; Cotton 473; (PNNL-TC): Sauer 6-17-75 #13

Linanthus liniflorus Benth.  
**lifeform:** forb  **origin:** Native  **duration:** annual  
**Distribution/Notes:** Common and widespread, especially with sagebrush, throughout Hanford.

**Collections:** (PNNL): P&R-48; VAU-58; /PB-06; JGL-157, 158, 159, 160; (WS): O’Farrell 71-2, 71-7; Cotton 308; St. John 8128; (PNNL-TC): Davis 4-23-53; Pendleton 4-20-59, 3-15-59; Rickard 4-18-86

Navarretia intertexta (Benth.) Hook.  
**lifeform:** forb  **origin:** Native  **duration:** annual  
**Distribution/Notes:** Collected in dry, gravelly soil in canyons of the Rattlesnake Hills during very early 20th century; not reported since that time.

**Collections:** (WS): Cotton 663

Phlox hoodii Richards.  
**lifeform:** forb  **origin:** Native  **duration:** perennial  
**Distribution/Notes:** Locally common to dominant in rocky soil on top of Rattlesnake Ridge and the Saddle Mountains.

**Collections:** (BRY): Baird 111, 758; (WS): O’Farrell 71-14; Cotton 347, 566; Bennett 18; (PNNL-TC): Johnson & Rickard 4-22-66; Sauer 6-10-75 #24; Pendleton 4-17-59; no collector
**Phlox longifolia** Nutt.  
*lifeform:* forb  
*origin:* Native  
*duration:* perennial  

**Distribution/Notes:**  
Common and widespread; found mostly in sandy areas; very conspicuous blooming during springtime throughout Hanford.

**Collections:**  
(PNNL): CZM-323; MRS-37; P&R-57; JGL-161,162; /VAU-59; /RFG-15, 16; (BRY): Baird 23, 31, 533, 544, 621, 717, 840, 924; (WS): O’Farrell 71-9; Cotton 348; (PNNL-TC): Davis 4-10-53, 5-11-53; Rogers 3-13-75; Sauer 6-10-75 #22; McShane 4-17-79; Rickard 5-22-86, 4-16-86

**Phlox speciosa** Pursh  
*lifeform:* forb  
*origin:* Native  
*duration:* perennial  

**Distribution/Notes:**  
Local in moist canyon of Umtanum Ridge near Priest Rapids and the Rattlesnake Hills.

**Collections:**  
(BRY): Baird 624; (WS): Cotton 573; (WTU): Caplow & Beck 94037

**Polemonium micranthum** Benth.  
*lifeform:* annual  

**Distribution/Notes:**  
Scattered in various habitats, e.g., Umtanum Ridge, base of Rattlesnake Mountain, 200 Areas, and 100 Areas.

**Collections:**  
(PNNL): MRS-198; Baird-1560; JGL-163, 164, 165, 166; (WS): O’Farrell 71-5; (PNNL-TC): Sauer 4-11-79; Rickard 4-18-86

**Polygonaceae**

**Chorizanthe watsonii** Torr. & Gray  
*lifeform:* annual  

**Distribution/Notes:**  
Reported by TNC near Gable Mountain and on the Wahluke Slope.

**Collections:**  
(WTU): Caplow & Beck 95050, 95051, 95058, 95077, 97024

**Eriogonum baileyi** S. Wats.  
*lifeform:* annual  

**Distribution/Notes:**  
Many of the specimens formerly referred to as E. vimineum are probably better referred to this species. Common on sandy soils throughout Hanford, especially the 200 Areas and just north of Gable Mountain.

**Collections:**  
(PNNL): MRS-149; VAU-60; JGL-177, 178, 179, 180; (BRY): Baird 1275

**Eriogonum codium** Reveal, Caplow, & K. Beck  
*lifeform:* perennial  

**Distribution/Notes:**  
Washington State endangered species discovered in 1995; endemic to thin rocky soils along crest of Umtanum Ridge on the Hanford Site; only one population in existence.

**Collections:**  
(PNNL): CZM-417A; (WTU): Caplow & Beck 95011, 95084, 95103
Eriogonum compositum Doug. Ex Benth. var. leianthum Hook.  
**USDA Code:** Ercol2 (Ercom)  
**lifeform:** sub-shrub  
**origin:** Native  
**duration:** perennial  
**Distribution/Notes:** Common in cobbled areas along the shore of the Columbia River.  
**Collections:** (PNNL): Baird-1093, 1252; MRS-126; (BRY): Baird 1252, 1883; (WS): Beattie 3958, 3968; (PNNL-TC): Sauer 5-30-75 #6, #7, #18; Pendleton 4-4-58; Fitzner 5-11-78; Davis 5-6-53; Hall 5-1-85; Sauer & Warren 5-13-80; no collector 4-79, 5-7-80; Warren 5-6-80

Eriogonum elatum Doug. Ex Benth.  
**USDA Code:** Erel5 (Erel)  
**lifeform:** sub-shrub  
**origin:** Native  
**duration:** perennial  
**Distribution/Notes:** Collected near the White Bluffs ferry during the late 19th century; not reported from Hanford vicinity since that time.  
**Collections:** (WS): Lake & Hull 8-11-1892

Eriogonum heracleoides Nutt.  
**USDA Code:** Erhe2 (Erhe)  
**lifeform:** sub-shrub  
**origin:** Native  
**duration:** perennial  
**Distribution/Notes:** Locally common on the slopes of Rattlesnake Ridge.  
**Collections:** (BRY): Baird 1297; (WS): O’Farrell 71-238; Cotton 404; (PNNL-TC): Sauer 6-10-75 #7, #13

Eriogonum microthecum Nutt.  
**USDA Code:** Ermi4 (Ermi)  
**lifeform:** sub-shrub  
**origin:** Native  
**duration:** perennial  
**Distribution/Notes:** Scattered in dry, rocky areas, i.e., the White Bluffs, Gable Mountain, and Gable Butte.  
**Collections:** (PNNL): MRS-272, 327; JGL-167, 168; (BRY): Baird 152, 1280; (WS): O’Farrell 72-228; (PNNL-TC): Pendleton 10-20-58, 8-25-59

Eriogonum niveum Doug. Ex Benth.  
**USDA Code:** Erni2 (Erni)  
**lifeform:** sub-shrub  
**origin:** Native  
**duration:** perennial  
**Distribution/Notes:** Common in sandy areas throughout Hanford, especially north of the Wye barricade and along Horn Rapids Road.  
**Collections:** (PNNL): GIB-28; (WS): O’Farrell 71-167; (PNNL-TC): Whittaker 10-1-52

Eriogonum ovalifolium Nutt. var. celsum A. Nels.  
Eriogonum ovalifolium Nutt. var. purpureum (Nutt.) Dur.  
**USDA Code:** Erov2 (Erov)  
**lifeform:** sub-shrub  
**origin:** Native  
**duration:** perennial  
**Distribution/Notes:** Reported by TNC on ALE.  
**Collections:** None Available

Eriogonum sphaerocephalum Doug. Ex Benth.  
**USDA Code:** Ersp7 (Ersp)  
**lifeform:** sub-shrub  
**origin:** Native  
**duration:** perennial  
**Distribution/Notes:** Locally common in rocky areas throughout Hanford.
Eriogonum strictum Benth. strict buckwheat

ssp. proliferum (Torr. & Gray) S. Stokes
var. anserinum (Greene) R.J. Davis
var. glabrum C. L. Hitchc.

USDA Code: Erst4 (Erst)  lifeform: sub-shrub origin: Native duration: perennial

Distribution/Notes: Common and widespread on Hanford, except on sand; three varieties of subspecies proliferum have occasionally been recognized from this area and are noted below; however, most, if not all, specimens are probably assignable to var. glabrum.

Collections: (WTU): Caplow & Beck 95034; (PNNL): MRS-57; JGL-174; (BRY): Baird 620, 722a, 1040; (PNNL-TC): Pendleton 6-19-59; Gano 5-3-79, 5-6-79 var. anserinum; (WS): O’Farrell 72-227; var. glabrum; (PNNL): MRS-132; (BRY): Baird 147; var. proliferum; (PNNL): JGL-175, 176; (WS): O’Farrell 71-63; Cotton 711; Beattie 3969

Eriogonum thymoides Benth. thymeleaf buckwheat

USDA Code: Erth  lifeform: sub-shrub origin: Native duration: perennial

Distribution/Notes: Common in rocky soil on top of the main ridges and hills in area.

Collections: (PNNL): MRS-136, 137; (BRY): Baird 110, 797, 799; (WS): O’Farrell 71-52; Cotton 361, 362; (PNNL-TC): Warren 4-18-78; Davis 5-19-53; Sauer 6-10-75 #14, #26

Eriogonum vimineum Doug. Ex Benth. broom buckwheat

USDA Code: Ervi5 (Ervi)  lifeform: forb origin: Native duration: annual

Distribution/Notes: Some of our annual Eriogonum’s may key here; may occur in our area. See discussion under E. baileyi.

Collections: (PNNL-TC): Rickard 7-31-86

Oxytheca dendroides Nutt. false buckwheat

Oxytheca dendroides Nutt.

USDA Code: Oxde  lifeform: forb origin: Native duration: annual

Distribution/Notes: Local on open sand and dunes, especially just north of Gable Mountain.


Polygonum amphibium L. water smartweed

USDA Code: Poam8 (Poam)  lifeform: forb origin: Native duration: perennial

Distribution/Notes: Uncommon; collected along the Columbia River near Allard.

Collections: (PNNL): MRS-286
Polygonum aviculare L.  
**lifeform:** forb  **origin:** Introduced  **duration:** annual

**Distribution/Notes:** Widespread weed of dry, waste places; collected alongside of Highway 241, Dry Creek Valley. Reported along the Columbia River and on Wahluke Slope.

**Collections:** (BRY): Baird 1246

Polygonum coccineum Muhl. Ex Willd.  
**lifeform:** forb  **origin:** Native  **duration:** perennial

**Distribution/Notes:** Widespread aquatic plant; collected along the Columbia River at Richland.

**Collections:** (PNNL-TC): Davis 1951

Polygonum convolvulus L.  
**lifeform:** vine  **origin:** Introduced  **duration:** annual

**Distribution/Notes:** Introduced weed; local in old orchards along the Columbia River north of 100-D Area.

**Collections:** (PNNL): MRS-165

Polygonum hydropiper L.  
**lifeform:** forb  **origin:** Introduced  **duration:** annual

**Distribution/Notes:** Reported by TNC along the Columbia River and on the Wahluke Slope.

**Collections:** None Available

Polygonum lapathifolium L.  
**lifeform:** forb  **origin:** Introduced (?)  **duration:** annual

**Distribution/Notes:** Introduced in moist ground; easily confused with *P. persicaria*; collected at Hanford townsite. Occasional elsewhere along the Columbia River.

**Collections:** (PNNL-TC): Newsome & Sauer 9-27-77

Polygonum majus (Meisn.) Piper  
**lifeform:** vine  **origin:** Native  **duration:** annual

**Distribution/Notes:** Occasional along the Columbia River, especially around Priest Rapids.

**Collections:** (PNNL): GLF-8-96; T. Feldman 10-02-95; (PNNL-TC): Davis 10-3-51

Polygonum persicaria L.  
**lifeform:** forb  **origin:** Native  **duration:** annual

**Distribution/Notes:** Common along the Columbia River in moist ground.

**Collections:** (PNNL): MRS-181; CZM-487; P&R-10; GIB-44; (BRY): Baird 1247, 1350, 1442; (PNNL-TC): Warren 8-12-80; Sauer & Warren 10-6-80
**Polygonum ramosissimum** Michx.

*USDA Code:* Pora3 (Pora)  
*lifeform:* forb  
*origin:* Native  
*duration:* annual

**Distribution/Notes:** Uncommon; collected at Hanford slough.

**Collections:** (PNNL-TC): Warren & Sauer 10-6-80

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**Rumex crispus** L.

*USDA Code:* Rucr  
*lifeform:* forb  
*origin:* Introduced  
*duration:* perennial

**Distribution/Notes:** Introduced weed of moist, often disturbed areas; collected at McGee well.

**Collections:** (PNNL): CZM-633; JGL-181

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**Rumex salicifolius** Weinm. (possibly var. *mexicanus* (Meisn.) C.L. Hitchc.)  

*USDA Code:* Rusa  
*lifeform:* forb  
*origin:* Native  
*duration:* perennial

**Distribution/Notes:** Common and widespread along the Columbia River in moist ground.

**Collections:** (PNNL): Baird 881; MRS-280; CZM-446; (BRY): Baird 821, 881, 915, 1028; (PNNL-TC): Pendleton 9-10-58; Sauer 5-30-75 #21; no collector 5-7-80; Sauer & Owzarski 5-15-80

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**Rumex venosus** Pursh

*USDA Code:* Ruve2 (Ruve)  
*lifeform:* forb  
*origin:* Native  
*duration:* perennial

**Distribution/Notes:** Common and widespread in sandy soil and dunes.

**Collections:** (PNNL): MRS-41; CZM-414; VAU-61, 62; JGL-182; (BRY): Baird 10;  
(WS): O’Farrell 71-87; (PNNL-TC): Fitzner 5-11-78; Davis 5-12-52;  
Sauer 5-30-75 #8

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**Polypodiaceae (Dennstaedtiaceae)**

**Pteridium aquilinum** (L.) Kuhn var. *pubescens* Underwood  

*USDA Code:* Ptaq  
*lifeform:* forb  
*origin:* Native  
*duration:* perennial

**Distribution/Notes:** Unusual for Hanford; collected in moist ground in the 200 Areas.

**Collections:** (PNNL): P&R-27

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**Polypodiaceae (Dryopteridaceae)**

**Woodsia oregana** D.C. Eat.

*USDA Code:* Woor  
*lifeform:* forb  
*origin:* Native  
*duration:* perennial

**Distribution/Notes:** Collected in rocky areas of Rattlesnake Hills and at Snively Springs. Reported from Wahluke Slope.

**Collections:** (WS): O’Farrell 72-194; Cotton 422; St. John 8101

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3.100
Polypodiaceae (Pteridaceae)

Adiantum pedatum L. maiden-hair fern
USDA Code: Adpe
lifeform: forb origin: Native duration: perennial
Distribution/Notes: Reported during the 1920s from Rattlesnake Hills, but the specimen could not be found at WSU.
Collections: (WS): Bennett

Pellaea glabella Mett. Ex Kuhn var. simplex Butters A. & D. Löve smooth cliffbrake
USDA Code: Pegls2 (Pelgl)
lifeform: forb origin: Native duration: perennial
Distribution/Notes: State Watch List species; local in moist, shady areas of canyons along base of Umtanum Ridge.
Collections: (BRY): Baird 186

Portulacaceae

Calyptridium roseum S. Wats. rosy calyptridium
Cistanthe rosea (S. Wats.) Hershkovitz
USDA Code: Ci2ro (Caro)
lifeform: forb origin: Native duration: annual
Distribution/Notes: The very small populations on Hanford represent a significant range extension for this species from northern Nevada/southeast Oregon. Localized in sands north of Gable Mountain. Washington State sensitive species.
Collections: (WTU): Caplow & Beck 95078

Lewisia rediviva Pursh bitterroot
USDA Code: Lere7 (Lere)
lifeform: forb origin: Native duration: perennial
Distribution/Notes: Local on rocky slopes of Umtanum Ridge and Rattlesnake Ridge.
Collections: (BRY): Baird 644; (WS): O’Farrell 72-224; St. John 8103

Montia cordifolia (S. Wats.) Pax & K. Hoffmann broadleaf springbeauty
Claytonia cordifolia S. Wats.
USDA Code: Cleo3 (Moco)
lifeform: forb origin: Native duration: perennial
Distribution/Notes: Uncommon; found in rocky areas on top of Rattlesnake Ridge.
Collections: (BRY): Baird 752

Montia linearis (Dougl. Ex Hook.) Greene Indian lettuce
USDA Code: Moli4 (Moli)
lifeform: forb origin: Native duration: annual
Distribution/Notes: Uncommon; found locally near the Columbia River at Priest Rapids (China Bar).
Collections: (BRY): Baird 613
Montia perfoliata (Donn ex Willd.) T.J. Howell  

miner’s lettuce

Claytonia perfoliata Donn ex Willd.

USDA Code: Clpe (Mope)  
lifeform: forb  
origin: Native  
duration: annual

Distribution/Notes: Common and widespread in moist or shady areas; occasional along the Columbia River, e.g., Priest Rapids, the White Bluffs, 1100 Area, and on Rattlesnake Ridge.

Collections: (PNNL): MRS-141; (BRY): Baird 868; (WS): O’Farrell 72-200; (PNNL-TC): Sauer 4-20-78, 4-26-76; Warren 5-3-79; Gano 5-2-79

Portulaca oleracea L.  
common purslane

USDA Code: Pool  
lifeform: forb  
origin: Introduced  
duration: annual

Distribution/Notes: Widespread; introduced weed of disturbed areas, mainly along the Columbia River.

Collections: (BRY): Baird 1376, 1412

Talinum spinescens Torr.  
spiny flameflower

USDA Code: Tasp  
lifeform: forb  
origin: Native  
duration: perennial

Distribution/Notes: Local in rocky areas on top of Rattlesnake Mountain and lithosols near Priest Rapids.


Potamogetonaceae

Potamogeton berchtoldii Fieber  
Berchtold’s pondweed

Potamogeton pusillus L. ssp. tenuissimus (Mert. & Koch) Haynes & C.B. Hellquist

USDA Code: Poput3 (Pobe)  
lifeform: forb  
origin: Native  
duration: perennial

Distribution/Notes: Aquatic plant; collected at Gable Mountain Pond.

Collections: (PNNL-TC): Fitzner 7-15-74

Potamogeton crispus L.  
curled pondweed

USDA Code: Pocr3 (Pocr)  
lifeform: forb  
origin: Introduced  
duration: perennial

Distribution/Notes: Introduced and widespread aquatic plant.

Collections: (PNNL): Baird-1025; (PNNL-TC): Fitzner 7-15-74

Potamogeton filiformis Pers.  
slender pondweed

Stuckenia filiformis (Pers) Boerner ssp. filiformis

USDA Code: Stfif (Pofi)  
lifeform: forb  
origin: Native  
duration: perennial

Distribution/Notes: Aquatic plant; collected at Bennett Spring.

Collections: (BRY): Baird 1343
**Potamogeton foliosus** Raf.  
*lifeform*: forb  
*origin*: Native  
*duration*: perennial  
**Distribution/Notes**: Aquatic plant; collected in the Columbia River at 100-F Area.  
**Collections**: (BRY): Baird 1127

**Potamogeton gramineus** L.  
*lifeform*: forb  
*origin*: Native  
*duration*: perennial  
**Distribution/Notes**: Reported by TNC along the Columbia River.  
**Collections**: None Available

**Potamogeton pectinatus** L.  
*Stuckenia pectinatus* (L.) Boerner  
*lifeform*: forb  
*origin*: Native  
*duration*: perennial  
**Distribution/Notes**: Aquatic plant; collected at Gable Mountain Pond and in the Columbia River at 100-F Area.  
**Collections**: (BRY): Baird 1127a, 1342; (PNNL-TC): Fitzner 77-15-74

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**Primulaceae**

**Centunculus minimus** L.  
*Anagallis minima* (L.) Krause  
*lifeform*: forb  
*origin*: Native  
*duration*: annual  
**Distribution/Notes**: Reported by TNC in wetland areas along the Columbia River; currently on the Washington State Review 1 list.  
**Collections**: (PNNL): Caplow & Beck 94059; (WTU): Caplow & Beck 95119

**Dodecatheon cusickii** Greene  
*Dodecatheon pulchellum* (Raf.) Merr. ssp. *cusickii* (Greene) Calder & Taylor  
*lifeform*: forb  
*origin*: Native  
*duration*: perennial  
**Distribution/Notes**: Locally common in loamy soil along the upper slopes of Rattlesnake Ridge.  
**Collections**: (BRY): Baird 105, 760, 766, 767; (WS): O’Farrell 71-38, 72-192; Cotton 357; Bennett 14; (PNNL-TC): Pendleton 4-20-59

**Lysimachia ciliata** L.  
*lifeform*: forb  
*origin*: Native  
*duration*: perennial  
**Distribution/Notes**: Uncommon; found along the Columbia River; collected at 100-B Area.  
**Collections**: (PNNL): Baird-1356; (WTU): Caplow & Beck 95116

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**Ranunculaceae**

*Aquilegia formosa* Fisch. Ex DC.  
**red columbine**

**USDA Code:** Aqfo  
**lifeform:** forb  
**origin:** Native  
**duration:** perennial  

**Distribution/Notes:** Local in moist soil of canyons on Umtanum Ridge and reported from the Rattlesnake Hills.

**Collections:** (BRY): Baird 180; (WS): Cotton 395

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*Clematis ligusticifolia* Nutt.  
**western virginsbower**

**USDA Code:** Clli2 (Clli)  
**lifeform:** vine  
**origin:** Native  
**duration:** perennial  

**Distribution/Notes:** Widespread along moist water courses in the area.

**Collections:** (PNNL): CZM-452; (BRY): Baird 1220, 1359; (WS): O’Farrell 71-90; St. John 8131; (PNNL-TC): Warren 8-16-78

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*Delphinium multiplex* (Ewan) C.L. Hitchc.  
**Kittitas larkspur**

**USDA Code:** Demu  
**lifeform:** forb  
**origin:** Native  
**duration:** perennial  

**Distribution/Notes:** State Watch List species; local on steep slopes at base of Umtanum Ridge.

**Collections:** (PNNL): MRS-251; Baird-1549

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*Delphinium nuttallianum* Pritz. Ex Walp.  
**upland larkspur**

**USDA Code:** Denu2 (Denu)  
**lifeform:** forb  
**origin:** Native  
**duration:** perennial  

**Distribution/Notes:** Common and widespread in sandy soil, and occasional on dunes.

**Collections:** (PNNL): MRS-36, 250; P&R-54; VAU-63; RFG-17, 18; (BRY): Baird 29, 522, 553, 579; (WS): O’Farrell 71-49, 71-115, 71-118, 72-281, 74-289; Bennett 46; (PNNL-TC): Sauer 4-26-76; Rotenberry 5-29-75 #3; Warren 4-14-78, 5-11-79; Gano 4-27-79; Anderson 4-20-85

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*Myosurus aristatus* auct. Non Benth.  
**edge mousetail**

**Myosurus apetalus** C. Gay var. *borealis* Whittemore

**USDA Code:** Myapb (Myar)  
**lifeform:** forb  
**origin:** Native  
**duration:** annual  

**Distribution/Notes:** Uncommon; collected in the 100 Areas, at Bennett Spring in moist shade; reported from near Hanford townsitne and Priest Rapids.

**Collections:** (PNNL): GLF-178; (BRY): Baird 869; (WS): O’Farrell 74-285; St. John 8129

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**little mouse-tail**

**Myosurus minimus** L.

**USDA Code:** Mymi2 (MyXc)  
**lifeform:** forb  
**origin:** Native  
**duration:** annual  

**Distribution/Notes:** A small population found in a vernal pool on Umtanum Ridge.

**Collections:** (U.S. National Arboretum): Caplow and Beck 97010; (WTU): Caplow & Beck 97014

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### Vascular Plants of the Hanford Site

<table>
<thead>
<tr>
<th>Scientific Name</th>
<th>Common Name</th>
<th>USDA Code</th>
<th>Lifeform</th>
<th>Origin</th>
<th>Duration</th>
<th>Distribution/Notes</th>
<th>Collections</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Ranunculus cymbalaria</strong> Pursh</td>
<td>Shore buttercup</td>
<td>Racy</td>
<td>Forb</td>
<td>Native</td>
<td>Perennial</td>
<td>Collected at Snipes Creek on west slope of Rattlesnake Mountain during early 20th century.</td>
<td>(WS): Cotton 414</td>
</tr>
<tr>
<td><strong>Ranunculus flammula</strong> L.</td>
<td>Creeping buttercup</td>
<td>Rafl2 (Rafl)</td>
<td>Forb</td>
<td>Native</td>
<td>Perennial</td>
<td>Scattered along the shore of the Columbia River in wet ground, e.g., 100-K and 100-H Areas and White Bluffs.</td>
<td>(PNNL): MRS-281; Baird 1370; (BRY): Baird 1075, 1323; (PNNL-TC): Davis 9-28-57</td>
</tr>
<tr>
<td><strong>Ranunculus glaberrimus</strong> Hook.</td>
<td>Sagebrush buttercup</td>
<td>Ragl</td>
<td>Forb</td>
<td>Native</td>
<td>Perennial</td>
<td>Local in rocky slopes and canyons of Rattlesnake and Umtanum ridges.</td>
<td>(PNNL): Baird-1546; (BRY): Baird 1561; (WS): O’Farrell 71-175, 71-176; Cotton 307</td>
</tr>
<tr>
<td><strong>Ranunculus sceleratus</strong> L.</td>
<td>Celeryleaf buttercup</td>
<td>Rasc3 (Rasc)</td>
<td>Forb</td>
<td>Native</td>
<td>Annual</td>
<td>Scattered in moist areas around springs and along the Columbia River.</td>
<td>(BRY): Baird 791, 957; (WS): O’Farrell 72-218; Beattie 3935</td>
</tr>
<tr>
<td><strong>Ranunculus subrigidus</strong> W. Drew</td>
<td>Stiffleaf buttercup</td>
<td>Ralo2 (Rasu)</td>
<td>Forb</td>
<td>Native</td>
<td>Perennial</td>
<td>Aquatic plant; collected in Gable Mountain Pond.</td>
<td>(PNNL-TC): Fitzner 7-15-74</td>
</tr>
<tr>
<td><strong>Ranunculus testiculatus</strong> Crantz</td>
<td>Bur buttercup</td>
<td>Cete5 (Rate)</td>
<td>Forb</td>
<td>Introduced</td>
<td>Annual</td>
<td>Introduced weed; widespread in disturbed areas.</td>
<td>(BRY): Baird 530, 596, 793; (WS): O’Farrell 74-284; (PNNL-TC): Rickard 4-18-86</td>
</tr>
<tr>
<td><strong>Thalictrum occidentale</strong> Gray</td>
<td>Western meadowrue</td>
<td>Thloc</td>
<td>Forb</td>
<td>Native</td>
<td>Perennial</td>
<td>Reported by Mastrogiuseppe and Gill (1983) from washes in the vicinity of Priest Rapids.</td>
<td>Mastrogiuseppe 2299</td>
</tr>
</tbody>
</table>

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**Ranunculus longirostris** Godr.
**Rosaceae**

*Amelanchier alnifolia* (Nutt.) Nutt. ex M. Roemer  
western serviceberry  
**USDA Code:** Amal2 (Amaln)  
**lifeform:** shrub  
**origin:** Native  
**duration:** perennial  
**Distribution/Notes:** Locally common in canyons and near springs of Rattlesnake and Umtanum ridges.  
**Collections:** (PNNL): CZM-438; Baird-1547; (BRY): Baird 626a; (WS): O’Farrell 71-39, 72-210; Bennett 15, 39; Cotton 365, 571, 576; L Smith 124; (PNNL-TC): Rickard & Cline 5-1-70; Warren 4-19-79

*Crataegus douglasii* Lindl.  
black hawthorn  
**USDA Code:** Crdo2 (Crdo)  
**lifeform:** tree  
**origin:** Native  
**duration:** perennial  
**Distribution/Notes:** Scattered in moist areas along the Columbia River, e.g., Hanford townsite and Locke Island.  
**Collections:** (WS): Beattie 3956; St. John 8098; (PNNL-TC): Hanson 4-18-61; Pendleton 4-13-59

*Geum macrophyllum* Willd.  
Oregon avens  
**USDA Code:** Gema4 (Gema)  
**lifeform:** forb  
**origin:** Native  
**duration:** perennial  
**Distribution/Notes:** Collected in upper Snively basin.  
**Collections:** (WS): O’Farrell 72-219

*Geum triflorum* Pursh  
old man’s whiskers  
**USDA Code:** Getr  
**lifeform:** forb  
**origin:** Native  
**duration:** perennial  
**Distribution/Notes:** Local on upper slopes of Rattlesnake Ridge.  
**Collections:** (BRY): Baird 778; (WS): Cotton 544; (PNNL-TC): Watson 6-10-59

*Malus pumila* P. Mill.  
apple  
**USDA Code:** Mapu  
**lifeform:** tree  
**origin:** Introduced  
**duration:** perennial  
**Distribution/Notes:** Introduced fruit tree; persisting and occasionally escaping along the Columbia River.  
**Collections:** (PNNL): CZM-399; (BRY): Baird 1265

*Physocarpus malvaceus* (Greene) Kuntze  
ninebark  
**USDA Code:** Phma5 (Phma)  
**lifeform:** shrub  
**origin:** Native  
**duration:** perennial  
**Distribution/Notes:** Uncommon; reported by TNC on ALE; collected in Snively Canyon.  
**Collections:** (PNNL-TC): no collector named 4-79

*Potentilla anserina* L.  
common silverweed  
Argentina anserina (L.) Rydb.  
**USDA Code:** Aran7 (otan)  
**lifeform:** forb  
**origin:** Native  
**duration:** perennial  
**Distribution/Notes:** Uncommon; collected along the Columbia River near 100-B Area.  
**Collections:** (PNNL): MRS-230
Potentilla arguta Pursh  
**lifeform:** forb  
**origin:** Native  
**duration:** perennial

**USDA Code:** Poar7 (Poar)  
**Distribution/Notes:** Known from very old collection in Rattlesnake Hills and reported by Mastrogiuseppe and Gill in the vicinity of Priest Rapids.  
**Collections:** (WS): Cotton 470

Potentilla biennis Greene  
**lifeform:** forb  
**origin:** Native  
**duration:** perennial

**USDA Code:** Pobi7 (Pobi)  
**Distribution/Notes:** Scattered near moist areas, e.g., 100-B Area and at Bennett Spring.  
**Collections:** (BRY): Baird 866, 1419; (WS): O’Farrell 73-270; St. John 8094; (PNNL-TC): no collector 5-7-80

Potentilla glandulosa Lindl.  
**lifeform:** forb  
**origin:** Native  
**duration:** perennial

**USDA Code:** Pogl9 (Pogl)  
**Distribution/Notes:** Collected by TNC from northeast slope of Rattlesnake Ridge.  
**Collections:** (PNNL): Caplow & Beck 94041

Potentilla gracilis Dougl. Ex Hook.  
**lifeform:** forb  
**origin:** Native  
**duration:** perennial

**USDA Code:** Pogr9 (Pogr)  
**Distribution/Notes:** Collected at Snipes Creek on west slope of Rattlesnake Mountain during the very early 20th century.  
**Collections:** (WS): Cotton 662

Potentilla norvegica L. ssp. monspeliensis (L.) Aschers. & Graebn.  
**lifeform:** forb  
**origin:** Native  
**duration:** annual

**USDA Code:** Ponom (Pono)  
**Distribution/Notes:** Scattered along the Columbia River, e.g., Hanford slough.  
**Collections:** (PNNL-TC): Davis 6-18-52 (in part); Warren 8-12-80

Potentilla paradoxa Nutt.  
**lifeform:** forb  
**origin:** Native  
**duration:** annual

**USDA Code:** Popa15 (Potpa)  
**Distribution/Notes:** Scattered along the shore of the Columbia River, e.g., Hanford townsite and 100-D Area; reported from Wahluke Slope.  
**Collections:** (PNNL): CZM-385; Baird-1278; (BRY): Baird 912; (PNNL-TC): Warren 8-12-80

Potentilla rivalis Nutt.  
**lifeform:** forb  
**origin:** Native  
**duration:** annual

**USDA Code:** Pori3 (Pori)  
**Distribution/Notes:** Scattered along the shore of the Columbia River.  
**Collections:** (PNNL): MRS-88, 239; (PNNL-TC): Newsome & Sauer 9-27-77; Davis 4-8-53, 6-1-52 (in part)
Prunus armeniaca L. apricot
**USDA Code:** Prar3 (Prar)  
**lifeform:** tree  
**origin:** Introduced  
**duration:** perennial  
**Distribution/Notes:** Introduced fruit tree; persisting in old cultivated areas, e.g., north of 100-D Area.  
**Collections:** (PNNL): CZM-350; (BRY): Baird 1167

Prunus avium (L.) L. sweet cherry
**USDA Code:** Prav  
**lifeform:** tree  
**origin:** Introduced  
**duration:** perennial  
**Distribution/Notes:** Introduced fruit tree; persisting in old cultivated areas, e.g., north of 100-D Area near the Columbia River.  
**Collections:** (BRY): Baird 1166

Prunus emarginata (Dougl. Ex Hook.) D. Dietr. bitter cherry
**USDA Code:** Prem  
**lifeform:** tree  
**origin:** Native  
**duration:** perennial  
**Distribution/Notes:** Collected along the White Bluffs in the late 19th century.  
**Collections:** (WS): Lake & Hull 8-9-1892

Prunus persica (L.) Batsch peach
**USDA Code:** Prpe3 (Prpe)  
**lifeform:** tree  
**origin:** Introduced  
**duration:** perennial  
**Distribution/Notes:** Introduced fruit tree; persisting in old cultivated areas.  
**Collections:** (BRY): Baird 1418

Prunus virginiana L. var. melanocarpa (A. Nels.) Sarg. chokecherry
**USDA Code:** Prvim (Prvi)  
**lifeform:** tree  
**origin:** Native  
**duration:** perennial  
**Distribution/Notes:** Widespread in moist areas, e.g., Priest Rapids, Snively Canyon, and Hanford townsite.  
**Collections:** (PNNL): CZM-345; (BRY): Baird 182, 618, 820, 1288; (WS): O’Farrell 71-67, 72-222, 72-223; St. John 8097; (PNNL-TC): Davis 5-6-53; Warren 8-16-78, 8-16-78, 5-2-79, 5-11-79; Gano 5-2-79; Sauer & Owzarski 5-20-80

Purshia tridentata (Pursh) DC. bitterbrush
**USDA Code:** Putr2 (Putr)  
**lifeform:** shrub  
**origin:** Native  
**duration:** perennial  
**Distribution/Notes:** Common; often co-dominant with sagebrush in sandy areas primarily in the southern portions of the Hanford Site and on Wahluke Slope.  
**Collections:** (PNNL): /RMM-01, 02, 03, 04, 05, 06, 07, 08; (BRY): Baird 520, 650, 827; (WS): O’Farrell 71-48; (PNNL-TC): Warren 4-14-78; Sauer 5-30-75#14; Gano 3-27-79
**Pyrus communis** L. pear
USDA Code: Pyco  
lifeform: tree  origin:Introduced  duration: perennial  
Distribution/Notes: Introduced fruit tree; persisting in old orchards, e.g., north of 100-D Area near the Columbia River.  
Collections: (BRY): Baird 1165

**Rosa woodsii** Lindl. var. *ultramontana* (S. Wats.) Jepson Wood’s rose
USDA Code: Rowou (Rowo)  
lifeform: shrub  origin: Native  duration: perennial  
Distribution/Notes: Widespread; mostly near springs or moist areas, e.g., Snively Canyon and along the Columbia River near Energy Northwest pumping station.  
Collections: (PNNL): CZM-341; (BRY): Baird 823, 1255; (WS): O’Farrell 71-94; Cotton 469; (PNNL-TC): Sauer 5-30-75#11; Rickard & Cline 6-1-70; Warren 8-16-78; Sauer & Owzarski 5-15-80

**Rubus discolor** Weihe & Nees Himalayan blackberry
USDA Code: Rudi2 (Rudi)  
lifeform: shrub  origin: Introduced  duration: perennial  
Distribution/Notes: Introduced; often weedy and troublesome; collected near White Bluffs.  
Collections: (BRY): Baird 1097

### Rubiaceae

**Galium aparine** L. cleavers
USDA Code: Gaap2 (Gaap)  
lifeform: vine  origin: Native  duration: annual  
Distribution/Notes: Local on moist slopes and near springs on Rattlesnake and Umtanum ridges.  
Collections: (PNNL): MRS-249; CZM-657; (BRY): Baird 640, 1344; (WS): O’Farrell 72-201; (PNNL-TC): Sauer 4-20-78

**Galium multiflorum** Kellogg shrubby bedstraw
USDA Code: Gamu2 (Gamu)  
lifeform: forb  origin: Native  duration: perennial  
Distribution/Notes: Collected in Rattlesnake Hills and reported from Wahluke Slope.  
Collections: (WS): O’Farrell 71-68; Cotton 696

### Ruppiaceae

**Ruppia maritima** L. ditch grass
USDA Code: Ruma5 (Ruma)  
lifeform: forb  origin: Native  duration: perennial  
Distribution/Notes: Aquatic plant; collected at West Lake.  
Collections: (PNNL-TC): Fitzner 7-16-74
Salicaceae

**Populus alba** L. silver poplar

*USDA Code: Poal7 (Poal)*  
*lifeform: tree  origin: Introduced  duration: perennial*

*Distribution/Notes:*
Introduced tree; widely escaping and becoming established in moist areas.

*Collections:*
(PNNL): CZM-425; Baird-1095; (WS): O’Farrell 72-184; (PNNL-TC): Rickard & Cline 5-1-70; Warren 8-16-78

**Populus deltoides** Bartr. Ex Marsh. plains cottonwood

*USDA Code: Pode3 (Pode)  lifeform: tree  origin: Introduced  duration: perennial*

*Distribution/Notes:*
Reported by Price and Rickard (1973) to occur in the 200 Areas and by TNC along the Columbia River.

*Collections:*
None Available

**Populus nigra** L. Lombardy poplar

*USDA Code: Poni  lifeform: tree  origin: Introduced  duration: perennial*

*Distribution/Notes:*
Introduced tree; widely and commonly planted as a wind break; often persisting as at White Bluffs.

*Collections:*
(PNNL): CZM-349, 409; Baird-984

**Populus tremuloides** Michx. quaking aspen

*USDA Code: Potr5 (Potre)  lifeform: tree  origin: Native  duration: perennial*

*Distribution/Notes:*
Local in Snively Canyon and in washes near Priest Rapids.

*Collections:*
(PNNL): RR-2; (WS): O’Farrell 72-183; (PNNL-TC): Rickard & Cline 5-1-70

**Populus trichocarpa** Torr. & Gray ex Hook. black cottonwood

*Populus balsamifera* L. ssp. *trichocarpa* (Torr. & Gray ex Hook.) Brayshaw

*USDA Code: Pobat (Potri)  lifeform: tree  origin: Native  duration: perennial*

*Distribution/Notes:*
Widespread; native tree of moist areas, especially near the Columbia River.

*Collections:*
(PNNL): CZM-407; Baird-885; (WS): O’Farrell 71-133, 72-186; (PNNL-TC): Sauer 5-30-75 #5; Warren 8-16-78

**Salix amygdaloides** Anderss. peachleaf willow

*USDA Code: Saam2 (Saam)  lifeform: tree  origin: Native  duration: perennial*

*Distribution/Notes:*
Widespread tree; common along water courses and around springs.

*Collections:*
(PNNL): CZM-635; P&R-02, 52; VAU-64; (BRY): Baird 4, 5, 1227; (PNNL-TC): Rickard & Cline 5-1-70
Salix babylonica L.  
**USDA Code:** Saba2 (Saba)  
**lifeform:** tree  
**origin:** Introduced  
**duration:** perennial  
**Distribution/Notes:** Commonly cultivated tree; occasionally persisting or escaping, as along the Columbia River at Richland.  
**Collections:** (BRY): Baird 665

Salix bebbiana Sarg.  
**USDA Code:** Sabe2 (Sabe)  
**lifeform:** tree  
**origin:** Introduced  
**duration:** perennial  
**Distribution/Notes:** Collected in gulches of the Rattlesnake Hills during the very early 20th century.  
**Collections:** (WS): Cotton 325

Salix discolor Muhl.  
**USDA Code:** Sadi  
**lifeform:** tree  
**origin:** Introduced  
**duration:** perennial  
**Distribution/Notes:** Reported from flood bars near Priest Rapids by Mastrogiuseppe and Gill (1983).  
**Collections:** None Available

Salix exigua Nutt.  
**USDA Code:** Saex  
**lifeform:** tree  
**origin:** Native  
**duration:** perennial  
**Distribution/Notes:** Common and widespread in moist habitats throughout the area; most specimens are assignable to subspecies exigua, but one collection (Baird 1379) from along the Columbia River at Coyote Rapids may be assignable to subspecies melanopsis (Nutt.) Cronq.  
**Collections:** (PNNL): CZM-383; P&R-25; (BRY): Baird 819, 963, 1379; (PNNL-TC): Sauer 5-30-75 #9; Warren 8-16-78

Salix fragilis L.  
**USDA Code:** Safr  
**lifeform:** tree  
**origin:** Introduced  
**duration:** perennial  
**Distribution/Notes:** Introduced, weedy tree; widely planted and escaping in moist bottom land, as along the Yakima River delta.  
**Collections:** None Available

Salix lasiandra Benth.  
**USDA Code:** Salu (Salad)  
**lifeform:** tree  
**origin:** Native  
**duration:** perennial  
**Distribution/Notes:** Scattered in moist areas, as at Priest Rapids, Cold Creek, and Wahluke Slope.  
**Collections:** (BRY): Baird 1228; (WS): O’Farrell 72-182; (PNNL-TC): Davis 5-6-53
Salix lasiolepis Benth.  
*arroyo willow*

**USDA Code:** Sala6 (Salal)  
**lifeform:** tree  
**origin:** Native  
**duration:** perennial

**Distribution/Notes:** Local in moist areas of Rattlesnake and Umtanum ridges.

**Collections:** (PNNL): Baird-1551; (WS): Cotton 326

*Salix scouleriana* Barratt ex Hook.  
*Scouler’s willow*

**USDA Code:** Sasc  
**lifeform:** tree  
**origin:** Native  
**duration:** perennial

**Distribution/Notes:** Local; collected in Snivley Canyon.

**Collections:** (WS): O’Farrell 72-185; St. John 8086, 8087; (PNNL-TC): Rickard & Cline 5-1-70; Warren 8-16-78

### Santalaceae

*Comandra umbellata* (L.) Nutt. var. *pallida* (A. DC.)  
*bastard toadflax*

**USDA Code:** Coump2 (Coum)  
**lifeform:** forb  
**origin:** Native  
**duration:** perennial

**Distribution/Notes:** Common and widespread in a variety of habitats, often in sand but almost always with sagebrush.

**Collections:** (PNNL): CZM-328; MRS-35; P&R-33; VAU-65, 66; JGL-183, 184; (BRY): Baird 24, 566, 943; (WS): O’Farrell 72-216; St. John 8114

### Saxifragaceae

*Heuchera cylindrica* Dougl. Ex Hook.  
*lava alumroot*

**USDA Code:** Hecy2 (Hecy)  
**lifeform:** forb  
**origin:** Native  
**duration:** perennial

**Distribution/Notes:** Local on basalt talus slopes and cliffs, Rattlesnake and Umtanum ridges.

**Collections:** (PNNL): MRS-252; (BRY): Baird 184, 621; (WS): O’Farrell 71-69; (PNNL-TC): Davis 5-6-53; Pendleton 7-19-59

*Lithophragma bulbifera* Rydb.  
*bulbiferous fringe cup*

**USDA Code:** Ligl2 (Libu)  
**lifeform:** forb  
**origin:** Native  
**duration:** perennial

**Distribution/Notes:** Occasional in variety of habitats, e.g., bunchgrass areas on Rattlesnake Ridge, Wahluke Slope, and central Hanford. Now grouped with the following species under the name *L. glabrum*.

**Collections:** (PNNL): MRS-199, 200; (BRY): Baird 585, 756; (WS): O’Farrell 72-190; M Warner 4-18-79; (PNNL-TC): Schlessmann 3-24-76 #2

*Lithophragma glabra* Nutt.  
*smooth fringe cup*

**USDA Code:** Ligl2 (Ligl)  
**lifeform:** forb  
**origin:** Native  
**duration:** perennial

**Distribution/Notes:** Uncommon; collected on Gable Mountain and Rattlesnake Ridge.

**Collections:** (WS): O’Farrell 71-3; Bennett 5; St. John 808; (PNNL-TC): Pendleton 3-15-59
**Lithophragma parviflora** (Hook.) Nutt. ex Torr. & Gray

*Lithophragma parviflorum* (Hook.) Nutt. ex Torr. & Gray

**USDA Code:** Lipa5 (Lipa)  
**lifeform:** forb  
**origin:** Native  
**duration:** perennial

**Distribution/Notes:** Uncommon; collected in Bobcat Canyon; reported from central Hanford.

**Collections:** (WS): O’Farrell 72-207

**Saxifraga integrifolia** Hook. var. *claytoniaefolia* (Canby ex Small) Rosendahl  
Swamp saxifrage

**Saxifraga nidifica** Greene var. *claytoniifolia* (Canby ex Small) Elvander

**USDA Code:** Sanic2 (Sain)  
**lifeform:** forb  
**origin:** Native  
**duration:** perennial

**Distribution/Notes:** Local around seeps and springs on Rattlesnake and Umtanum ridges.

**Collections:** (BRY): Baird 627, 864; (WS): O’Farrell 72-199

**Saxifraga oregana** T.J. Howell  
Bog saxifrage

**USDA Code:** Saor2 (Saor)  
**lifeform:** forb  
**origin:** Native  
**duration:** perennial

**Distribution/Notes:** Uncommon; collected on ALE.

**Collections:** (WS): O’Farrell 72-221

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**Scrophulariaceae**

**Castilleja exilis** A. Nels.

**Castilleja minor** (Gray) Gray ssp. minor

**USDA Code:** Cami13 (Caex)  
**lifeform:** forb  
**origin:** Native  
**duration:** annual

**Distribution/Notes:** Local in alkaline marshes; collected at West Lake and on Wahluke Slope; currently on the Washington State Review 1 list.

**Collections:** (PNNL): MRS-273; (BRY): Baird 1435

**Castilleja thompsonii** Pennell  
Thompson’s paintbrush

**USDA Code:** Cath4 (Cath)  
**lifeform:** forb  
**origin:** Native  
**duration:** perennial

**Distribution/Notes:** Common and widespread in sagebrush areas, especially on Rattlesnake and Umtanum ridges.

**Collections:** (PNNL): MRS-133; WJW-04; (BRY): Baird 586, 782, 1300; (WS): O’Farrell 71-77; Cotton 671; (PNNL-TC): Sauer 4-18-78; Watson 6-10-59; Warren 4-18-78

**Collinsia grandiflora** Lindl.

**Collinsia parviflora** Lindl.

**USDA Code:** Cogr4 (Congr)  
**lifeform:** forb  
**origin:** Native  
**duration:** annual

**Distribution/Notes:** Reported by TNC from ALE.

**Collections:** None Available

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3.113
**Gratiola neglecta** Torr.  
*American hedge-hyssop*

**USDA Code:** Grne  
**Lifeform:** forb  
**Origin:** Native  
**Duration:** annual

**Distribution/Notes:** Common in nearly all the wetland areas along the Columbia River and the Wahluke Slope.

**Collections:**  
(PNNL): MRS-165, 177, 187, 307; GIB-30; (BRY): Baird 1325, 1345, 1413; (PNNL-TC): Warren 8-5-80; Sauer & Warren 10-6-80

**Limosella acaulis** Sessé & Moc  
*mudwort*

**USDA Code:** Lia2 (Liac)  
**Lifeform:** forb  
**Origin:** Native  
**Duration:** annual

**Distribution/Notes:** State Watch List species. Hitchcock and Cronquist (1973) does not differentiate between *L. acaulis* and *L. aquatica* – listing only *L. aquatica*. TNC researchers suggest that *L. acaulis* is more common than *L. aquatica* (K. Beck personal communication); both occur on muddy flats adjacent to the Columbia River.

**Collections:**  
(PNNL): MRS-297; (Univ. Cal.): Beck & Caplow 94053

**Limosella aquatica** L.  
*southern mudwort*

**USDA Code:** Liaq  
**Lifeform:** forb  
**Origin:** Native  
**Duration:** annual

**Distribution/Notes:** See discussion under *L. acaulis*.

**Collections:**  
(PNNL): MRS-189; GIB 54; (BRY): Baird 1322, 1348; (UC): Caplow & Beck 94066

**Linaria dalmatica** (L.) P. Mill.  
*dalmatian toadflax*

**USDA Code:** Lida  
**Lifeform:** forb  
**Origin:** Introduced  
**Duration:** perennial

**Distribution/Notes:** Introduced weed of dry waste places; uncommon; collected near 100-B Area and along Horn Rapids Road; observed around Energy Northwest.

**Collections:**  
(PNNL): GIB-54; (PNNL-TC): Sauer & Hinds 5-26-77

**Linaria vulgaris** P. Mill.  
*butter-and-eggs*

**USDA Code:** Livu2 (Livu)  
**Lifeform:** forb  
**Origin:** Introduced  
**Duration:** perennial

**Distribution/Notes:** Reported to be persisting near abandoned homesteads south of the Hanford townsite.

**Collections:**  
None Available

**Lindernia anagallidea** (Michx.) Pennell  
*false pimpernel*

*Lindernia dubia* (L.) Pennell var. *anagallidea* (Michx.) Cooperrider

**USDA Code:** Lidua (Lian)  
**Lifeform:** forb  
**Origin:** Native  
**Duration:** annual

**Distribution/Notes:** State Review Group 2 species because of taxonomic difficulties. Many of our specimens will key to *L. anagallidea* in Hitchcock and Cronquist (1973) and in Hickman (1993) but may technically belong to variety *dubia*. Found in moist to wet areas along shores of the Columbia River.

**Collections:**  
(PNNL): MRS-184; (BRY): Baird 1346, 1408
Lindernia dubia (L.) Pennell

*Lindernia dubia* (L.) Pennell var. *dubia*

**USDA Code:** Lidud (Lidu)  
**lifeform:** forb  
**origin:** Native  
**duration:** annual

**Distribution/Notes:** All of our *Lindernia* may be of variety *dubia* (K. Beck personal communication). Moist to wet areas along the Columbia River.

**Collections:** (WTU): Caplow & Beck 94056, 94057; (UC): Caplow & Beck 94064

*Mazus japonicus* (Thunb.) Kuntze

*Mazus pumilus* (Burm. F.) Steenis

**USDA Code:** Mapu7 (Maja)  
**lifeform:** forb  
**origin:** Introduced  
**duration:** annual

**Distribution/Notes:** Observed near 100-H Area and reported along the Columbia River by TNC.

**Collections:** None Available

*Mimetanthe pilosa* (Benth.) Greene

**USDA Code:** Mipi5 (Mipi)  
**lifeform:** forb  
**origin:** Native  
**duration:** annual

**Distribution/Notes:** Collected in the canyons and Corral Creek in the Rattlesnake Hills during the very early 20th century; not observed since.

**Collections:** (WS): Cotton 880, 911

*Mimulus floribundus* Lindl.

**USDA Code:** Mifl2 (Mifl)  
**lifeform:** forb  
**origin:** Native  
**duration:** annual

**Distribution/Notes:** Collected on ALE and at Snipes Creek; reported from Umtanum Ridge.

**Collections:** (WS): O'Farrell 71-103, 71-147, 72-244; Cotton 418

*Mimulus guttatus* DC.

**USDA Code:** Migu  
**lifeform:** forb  
**origin:** Native  
**duration:** perennial

**Distribution/Notes:** Common and widespread in moist and wet habitats.

**Collections:** (PNNL): CZM-474; (BRY): Baird 140, 636, 958; (WS): O'Farrell 71-991

*Mimulus ringens* L.

**USDA Code:** Miri  
**lifeform:** forb  
**origin:** Introduced  
**duration:** perennial

**Distribution/Notes:** Reported from along the Columbia River; collected in Savage Island slough.

**Collections:** (PNNL): Caplow & Beck 95114; (WTU): Caplow & Beck 95114

*Mimulus suksdorfii* Gray

**USDA Code:** Misu2 (Misu)  
**lifeform:** forb  
**origin:** Native  
**duration:** annual

**Distribution/Notes:** Washington State sensitive species; scattered in small populations among sagebrush, near Gable Mountain, Gable Butte, and Vernita grade.

**Collections:** (WTU): Caplow & Beck 95024, 95040, 95046, 95056, 97011
Orthocarpus barbatus Cotton Grand Coulee owl-clove
USDA Code: Orba2 (Orba) lifeform: forb origin: Native duration: annual
Distribution/Notes: Observed by TNC on Umtanum Ridge.
Collections: (WTU): Caplow & Beck 95072

Penstemon acuminatus Doug. Ex Lindl. sand beardtongue
USDA Code: Peac lifeform: forb origin: Native duration: perennial
Distribution/Notes: Common and widespread throughout Hanford, primarily on sand.
Collections: (PNNL): MRS-49, 218; CZM-319; P&R-85; VAU-67; JGL-185; (BRY): Baird 37, 570, 829, 925; (WS): O’Farrell 71-54; (PNNL-TC): Sauer 5-22-75 #2, 5-9-78; Davis 5-11-53; Sauer et al. 5-12-80; Warren & Hines 5-20-80; Sauer 5-9-78; Davis 5-10-52; (WTU): Caplow & Beck 97031, 97033

Penstemon eriantherus Pursh var. whiteii (Piper) A. Nels. fuzzy beardtongue
USDA Code: Peerw (Peer) lifeform: forb origin: Native duration: perennial
Distribution/Notes: Local on the White Bluffs; currently on the Washington State Review list.
Collections: (BRY): Baird 155, 698; (WTU): Caplow & Beck 97017, 97025

Penstemon gairdneri Hook. Gairdner’s beardtongue
USDA Code: Pega (Penga) lifeform: forb origin: Native duration: perennial
Distribution/Notes: Local on top of Rattlesnake Ridge and lithosols near Priest Rapids.
Collections: (WS): O’Farrell 71-78; (PNNL-TC): Sauer 6-10-75 #16

Penstemon glandulosus Dougl. var. chilanensis (Keck) Cronq. stickystem beardtongue
USDA Code: Pegl4 (Pegl) lifeform: forb origin: Native duration: perennial
Distribution/Notes: Local on Rattlesnake Ridge, e.g., near Bennett Spring.
Collections: (BRY): Baird 858; (WS): O’Farrell 71-70; (PNNL-TC): Sauer 6-10-75 #17; (WTU): Caplow & Beck 94032

Penstemon richardsonii Doug. Ex Lindl. basalt beardtongue
USDA Code: Peri lifeform: forb origin: Native duration: perennial
Distribution/Notes: Widespread on rocky slopes, cliffs, and gullies on Rattlesnake and Umtanum ridges. Scattered in the Cold Creek streambed.
Collections: (PNNL): CZM-457; MRS-159; (BRY): Baird 173, 1219, 1242; (WS): O’Farrell 71-169; (PNNL-TC): Newsome & Sauer 8-23-76; Davis 6-26-52; Warren 8-16-78; Pendleton 4-9-59

Penstemon speciosus Doug. Ex Lindl. showy beardtongue
USDA Code: Pesp lifeform: forb origin: Native duration: perennial
Distribution/Notes: Local on top of Rattlesnake Ridge.
Collections: (PNNL): CZM-458; (WS): O’Farrell 71-108; Bennett; (PNNL-TC): Sauer 6-10-75 #8
**Scrophularia lanceolata** Pursh  
**lifeform:** forb  
**origin:** Native  
**duration:** perennial  
**Distribution/Notes:** Local in the Rattlesnake Hills. Known from older collection, but also reported by TNC.  
**Collections:** (WS): St. John 8084

**Verbascum thapsus** L.  
**lifeform:** forb  
**origin:** Introduced  
**duration:** perennial  
**Distribution/Notes:** Introduced weed of waste places and disturbed areas throughout Hanford; most common along water courses.  
**Collections:** (PNRL): P&R-12; (WS): O’Farrell 71-155; (PNRL-TC): Warren 8-16-78

**Veronica americana** Schwein. Ex Benth.  
**lifeform:** forb  
**origin:** Native  
**duration:** perennial  
**Distribution/Notes:** Widespread in moist to wet habitats; probably less common than other species of *Veronica* on the Hanford Site.  
**Collections:** (BRY): Baird 867; (WS): O’Farrell 71-92; (PNRL-TC): Warren & Sauer 10-6-80; Rotenberry 5-29-75

**Veronica anagallis-aquatica** L.  
**lifeform:** forb  
**origin:** Native  
**duration:** perennial  
**Distribution/Notes:** Common and widespread in moist to wet areas along the Columbia River and around springs.  
**Collections:** (PNRL): MRS-164, 171, 176, 317; P&R-26; JGL-186; (BRY): Baird 956, 1410; (PNRL-TC): Warren & Sauer 10-6-80; Newsome & Sauer 9-27-77

**Veronica peregrina** L. var. *xalapensis* (Kunth) Pennell  
**lifeform:** forb  
**origin:** Native  
**duration:** annual  
**Distribution/Notes:** Common along the shore of the Columbia River and in wetland areas on the Wahluke Slope.  
**Collections:** (PNRL): Baird-1313; MRS-186, 225; GIB-39, 51; (BRY): Baird 1021, 1407; (PNRL-TC): Warren 8-12-80; Davis 5-7-53

**Simarubaceae**

**Ailanthus altissima** (P. Mill.) Swingle  
**lifeform:** tree  
**origin:** Introduced  
**duration:** perennial  
**Distribution/Notes:** Introduced tree; widespread; collected at White Bluffs townsite.  
**Collections:** (PNRL): CZM-429; (BRY): Baird 1101
Solanaceae

*Datura stramonium* L.  
Jimson-weed  
**USDA Code:** Dast  
**lifeform:** forb  
**origin:**Introduced  
**duration:** annual  
**Distribution/Notes:** Observed within former village of Vernita at the Midway substation.  
**Collections:** None Available  

*Lycium halimifolium* P. Mill.  
Matrimony vine  
**USDA Code:** Lyba4 (Lyha)  
**lifeform:** shrub  
**origin:** Introduced  
**duration:** perennial  
**Distribution/Notes:** Introduced ornamental; persisting around abandoned homesteads, and occasionally spreading in disturbed habitats.  
**Collections:**  
(PNNL): MRS-175; CZM-671  

*Nicotiana acuminata* (Graham) Hook.  
Wild tobacco  
**USDA Code:** Niac  
**lifeform:** forb  
**origin:** Native  
**duration:** annual  
**Distribution/Notes:** Reported by TNC from ALE.  
**Collections:** None Available  

*Nicotiana attenuata* Torr. Ex S. Wats.  
Coyote tobacco  
**USDA Code:** Niat  
**lifeform:** forb  
**origin:** Native  
**duration:** annual  
**Distribution/Notes:** Until the collection by Lewinsohn in the Cold Creek Valley, this Washington State sensitive species had not been recorded from the Hanford vicinity for nearly 100 years. Germination appears to be stimulated by smoke residues (Baldwin et al. [1994]).  
**Collections:**  
(PNNL): J.S. Lewinsohn; (WS): Cotton 477  

*Physalis pubescens* L.  
Ground cherry  
**USDA Code:** Phpu7 (Phys.)  
**lifeform:** forb  
**origin:** Introduced  
**duration:** annual  
**Distribution/Notes:** Collected along the Columbia River between 100-D and 100-H Areas.  
**Collections:**  
(PNNL): MRS-331  

*Solanum dulcamara* L.  
Bittersweet  
**USDA Code:** Sodu  
**lifeform:** vine  
**origin:** Introduced  
**duration:** perennial  
**Distribution/Notes:** Introduced and widely established along water courses and around buildings.  
**Collections:**  
(PNNL): CZM-380, 470; (BRY): Baird 824  

*Solanum nigrum* L.  
Black nightshade  
**USDA Code:** Soam (Soni)  
**lifeform:** forb  
**origin:** Native  
**duration:** annual  
**Distribution/Notes:** Widespread weed of mostly moist disturbed habitats, e.g.,100-D Area.  
**Collections:**  
(PNNL): GIB-55
Solanum sarachoides auct. Non Sendtner  
*Solanum physalifolium* Rusby  
hairy nightshade

**USDA Code:** Soph (Sosa)  
**lifeform:** forb  
**origin:** Introduced(?)  
**duration:** annual

**Distribution/Notes:** Occasional; collected in Cold Creek Valley and along the Columbia River near Vernita Bridge.

**Collections:**
- (PNNL): Caplow & Beck 95066; GLF-8-6-96; (PNNL-TC): Warren & Sauer 10-6-80

*Solanum triflorum* Nutt.  
cutleaf nightshade

**USDA Code:** Sotr  
**lifeform:** forb  
**origin:** Native  
**duration:** annual

**Distribution/Notes:** Uncommon; collected on ALE and in Richland.

**Collections:**
- (PNNL): MRS-269; GLF-5-31-96; (WS): O’Farrell 72-253; (PNNL-TC): Sauer & Owzarski 5-16-80

**Tamaricaceae**

*Tamarix parviflora* DC.  
tamarisk

**USDA Code:** Tapa4 (Tapa)  
**lifeform:** tree  
**origin:** Introduced  
**duration:** perennial

**Distribution/Notes:** Introduced weedy tree of moist areas; widespread.

**Collections:**
- (PNNL): CZM-371, 386; Baird 918; JGL-187; (PNNL-TC): Sauer & Owzarski 5-16-80

**Taxaceae**

*Taxus cuspidata* Sieb. & Zucc.  
Japanese yew

**USDA Code:** Tacu  
**lifeform:** tree  
**origin:** Introduced  
**duration:** perennial

**Distribution/Notes:** Introduced ornamental; occasionally persisting.

**Collections:**
- (BRY): Baird 918, 990

**Typhaceae**

*Typha angustifolia* L.  
lesser cattail

**USDA Code:** Tyan  
**lifeform:** forb  
**origin:** Native  
**duration:** perennial

**Distribution/Notes:** Uncommon in wet areas; collected in B-ditch.

**Collections:**
- (PNNL): Baird 1201

*Typha latifolia* L.  
common cattail

**USDA Code:** Tyla  
**lifeform:** forb  
**origin:** Native  
**duration:** perennial

**Distribution/Notes:** Common and widespread in wet areas throughout Hanford.

**Collections:**
- (PNNL): P&R-23; (BRY): Baird 1445; (WS): O’Farrell 72-242
**Ulmaceae**

*Ulmus americana* L.  
**USDA Code:** Ulam  
**lifeform:** tree  
**origin:** Introduced  
**duration:** perennial  
**Distribution/Notes:** Introduced shade tree; persisting around old buildings and townsites.  
**Collections:**  
(PNNL): CZM-347, 393; (BRY): Baird 1283  

*Ulmus pumila* L.  
**USDA Code:** Ulpu  
**lifeform:** tree  
**origin:** Introduced  
**duration:** perennial  
**Distribution/Notes:** Introduced weedy tree; persisting and spreading around old townsites.  
**Collections:**  

**Urticaceae**

*Urtica dioica* L.  
ssp. gracilis (Ait.) Seland (includes var. angustifolia and var. lyallii)  
ssp. holosericea (Nutt.) Thorne  
**USDA Code:** Urdi  
**lifeform:** forb  
**origin:** Native  
**duration:** perennial  
**Distribution/Notes:** Common weed of disturbed, moist ground; three varieties have been reported on Hanford.  
**Collections:** var. angustifolia Schlecht. Common and widespread in moist to wet habitats throughout Hanford. (BRY): Baird 1222; (WS): O’Farrell 71-134; (WS): St. John 8081; (PNNL-TC): Warren 8-16-78  
var. lyallii (Wats.) Hitchc. (Lyall’s nettle). Local in Snively Canyon; more commonly found in western Washington. (PNNL-TC): Warren 8-16-78  
ssp (var.) holosericea reported by TNC on ALE.

**Valerianaceae**

*Plectritis macrocera* Torr. & Gray  
**USDA Code:** Plma4 (Plmac)  
**lifeform:** forb  
**origin:** Native  
**duration:** annual  
**Distribution/Notes:** Common and widespread in sandy areas throughout Hanford.  
**Collections:**  
(PNNL): MRS-76; P&R-84; VAU-68; JGL-188, 189, 190; (BRY): Baird 30, 554, 593, 843; (WS): O’Farrell 71-22; (PNNL-TC): Sauer 4-12-78; Rickard & Cline 5-1-70; Warren et al. 5-1-80
Verbenaceae

Verbena bracteata Lag. & Rodr.
USDA Code: Vebr
lifeform: forb origin: Native duration: perennial
Distribution/Notes: Widespread throughout Hanford, primarily in disturbed habitats both moist and drier sites.
Collections: (PNNL): MRS-113, 170; GIB-31; (BRY): Baird 877, 914, 1271; (WS): O’Farrell 71-153; (PNNL-T): Newsome & Sauer 9-27-77; Sauer & Durham 8-7-75; Davis 6-18-52; Sauer 5-28-80; Warren 8-16-78

Verbena hastata L. var. scabra Moldeke
USDA Code: Vehas (Veha)
lifeform: forb origin: Native duration: perennial
Distribution/Notes: Occasional in wet areas along the Columbia River and on Wahluke Slope.
Collections: (PNNL): CZM-481; GIB-52; (BRY): Baird 1329

Violaceae

Viola adunca Sm.
USDA Code: Viad
lifeform: forb origin: Native duration: perennial
Distribution/Notes: Collected near the White Bluffs ferry landing during the late 19th century.
Collections: (WS): Lake & Hull 8-10-1892

Viola palustris L.
USDA Code: Vipa4 (Vipa)
lifeform: forb origin: Native duration: perennial
Distribution/Notes: Reported by Mastrogiuseppe and Gill (1983) in wet areas in the vicinity of Priest Rapids.
Collections: None Available

Viola sp.
USDA Code: Visp.
lifeform: forb origin: Native duration: perennial
Distribution/Notes: Reported by TNC along the Columbia River, central Hanford.
Collections: None Available

Viola trinervata (T.J. Howell) T.J. Howell ex Gray
USDA Code: Vitr3 (Vitr)
lifeform: forb origin: Native duration: perennial
Distribution/Notes: Old report from the Hanford townsite, but specimen could not be located; also reported at Priest Rapids by Mastrogiuseppe and Gill (1983).
Collections: (WS): Gessell
### Vitaceae

**Parthenocissus quinquefolia** (L.) Planch.  
**Virginia creeper**  
**USDA Code:** Paqu2 (Paqu)  
**lifeform:** vine  
**origin:** Introduced  
**duration:** perennial  
**Distribution/Notes:**Introduced ornamental vine; persisting in disturbed habitats near the Columbia River, e.g., Hanford townsite.  
**Collections:** (PNNL): MRS-325; (BRY): Baird 1289

**Vitis vinifera** L.  
**grape**  
**USDA Code:** Vivi5 (Vivin)  
**lifeform:** vine  
**origin:** Introduced  
**duration:** perennial  
**Distribution/Notes:**Introduced and occasionally persisting in abandoned vineyards such as the 1100 Area and near Vernita Bridge.  
**Collections:** (PNNL): CZM-420

### Zannichelliaceae

**Zannichellia palustris** L.  
**horned pondweed**  
**USDA Code:** Zapa  
**lifeform:** forb  
**origin:** Native  
**duration:** perennial  
**Distribution/Notes:**Aquatic plant; known from older collection along the Columbia River near Kennewick and collected by TNC across from the Hanford townsite.  
**Collections:** (WS): Jones 368; (WTU): Caplow & Beck 95140

### Zygophyllaceae

**Tribulus terrestris** L.  
**puncture vine**  
**USDA Code:** Trte  
**lifeform:** forb  
**origin:** Introduced  
**duration:** annual  
**Distribution/Notes:**Introduced; widespread and troublesome weed of waste places and disturbed habitats throughout Hanford.  
**Collections:** (PNNL): CZM-420; (BRY): Baird 1417; (PNNL-TC): Sauer & Durham 8-7-75#1
4.0 Hanford Site Plant Species of Special Concern

The chapter briefly discusses species that are of special concern on the Hanford Site. Plant species may be of special concern either because they are 1) rare and listed by the state or federal government as endangered, threatened, or otherwise of concern; or 2) considered highly disruptive to the native flora.

4.1 Rare Plants of the Hanford Site

At least 47 plant species on or near the Hanford Site (Table 4.1) are listed by the Washington Natural Heritage Program as endangered, threatened, sensitive, review, or watch list (Washington Natural Heritage Program 1997). Three of these species are also listed by the federal government as candidates for protection under the Endangered Species Act of 1973 (65 FR 57534-47), and at least four additional species are considered federal species of concern (former candidate species). The list of species in Table 4.1 is current as of the preparation of this document; however, the status of a particular species is always subject to change at the discretion of the responsible state and federal agencies.

Several additional species have not been included in Table 4.1, although they have been previously reported from the Hanford Site (Table 4.2). *Astragalus arrectus*, or Palouse milkvetch, was reported by St. John and Jones (1928) to occur in the Rattlesnake Hills; however, the specimen they refer to (collected by Miss Ruth Bennett) has not been found, and the specimen in question may be referable to *A. leibergii*, *A. reventiformis*, or even *A. conjunctus* var. *rickardii*. *A. arrectus* is otherwise not known from Benton County; it primarily occurs in Lincoln and Whitman counties to the north and east of the Hanford Site, and in Klickitat County southwest of Hanford.

*Collinsia sparsiflora* was reported in ERDA (1975), apparently based on a collection by the O’Farrells (O’Farrell 74-304) that could not be located. The only confirmed occurrences of this species in Washington State have been in Klickitat County. Most likely, the O’Farrell specimen is the very similar *C. parviflora*. *Carex densa* has been previously reported from the Hanford Site, but all collections formerly referred to this species are now identified as *C. vulpinoidea*. In Washington State, *Carex densa* is otherwise only known in Wahkiakum County near the mouth of the Columbia River. *Arenaria franklinii* var. *thompsonii* probably does not occur within Washington State, although some of our specimens may have characteristics suggesting this taxon.

*Nicotiana attenuata* was reported by St. John and Jones (1928) to occur in the Rattlesnake Hills, but it had not been relocated within the Hanford Site, or even Benton County since the specimen they referenced (Cotton 477) was collected in 1901. This species was believed to be extirpated from Benton County until it was rediscovered in August 1999 by Lewinsohn and Durham in the Cold Creek Valley within a portion of the ALE Reserve that had burned in 1998. There are indications that seed germination in some strains of *N. attenuata* may be stimulated by smoke or fire (Baldwin et al. 1994). No individuals were found in the same area the following year.

A special note should also be made of *Hackelia diffusa*, the variety *diffusa* of this species is recognized by the Washington Natural Heritage Program as a sensitive species. Hitchcock and Cronquist
Table 4.1. Plant Species of Concern on and Around the Hanford Site

<table>
<thead>
<tr>
<th>Species</th>
<th>Common Name</th>
<th>Family</th>
<th>Federal Status (a)</th>
<th>State Status (b)</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td><em>Artemisia campestris</em> ssp. borealis var. wormskioldii</td>
<td>Northern wormwood</td>
<td>Asteraceae</td>
<td>C</td>
<td>E</td>
<td>Known near Beverly, probably not on Hanford</td>
</tr>
<tr>
<td><em>Lesquerella tuplashensis</em></td>
<td>White bluffs bladderpod</td>
<td>Brassicaceae</td>
<td>C</td>
<td>E</td>
<td>White Bluffs</td>
</tr>
<tr>
<td><em>Eriogonum codium</em></td>
<td>Umtanum buckwheat</td>
<td>Polygonaceae</td>
<td>C</td>
<td>E</td>
<td>Umtanum Ridge</td>
</tr>
<tr>
<td><em>Astragalus columbianus</em></td>
<td>Columbia milkvetch</td>
<td>Fabaceae</td>
<td>SC</td>
<td>T</td>
<td>Umtanum, Yakima Ridges</td>
</tr>
<tr>
<td><em>Camisonia (Oenothera) pygmaea</em></td>
<td>Dwarf eveningprimrose</td>
<td>Onagraceae</td>
<td>-</td>
<td>T</td>
<td>Pit 11, Ringold, Wahluke Slope</td>
</tr>
<tr>
<td><em>Eatonella nivea</em></td>
<td>White eatonella</td>
<td>Asteraceae</td>
<td>-</td>
<td>T</td>
<td>Wahluke Slope</td>
</tr>
<tr>
<td><em>Loeflingia squarrosa</em> var. squarrosa</td>
<td>Loeflingia</td>
<td>Caryophyllaceae</td>
<td>-</td>
<td>T</td>
<td>North of Gable Mountain</td>
</tr>
<tr>
<td><em>Lomatium tuberosum</em></td>
<td>Hoover’s desertparsley</td>
<td>Brassicaceae</td>
<td>SC</td>
<td>T</td>
<td>Talus slopes, Umtanum Ridge</td>
</tr>
<tr>
<td><em>Rorippa columbiæ</em></td>
<td>Columbia yellowcess</td>
<td>Brassicaceae</td>
<td>SC</td>
<td>T</td>
<td>Gravel shorelines, Hanford Reach</td>
</tr>
<tr>
<td><em>Astragalus geyeri</em></td>
<td>Geyer’s milkvetch</td>
<td>Fabaceae</td>
<td>-</td>
<td>S</td>
<td>White Bluffs</td>
</tr>
<tr>
<td><em>Calytridium roseum</em></td>
<td>Rosy calytridium</td>
<td>Portulacaceae</td>
<td>-</td>
<td>S</td>
<td>North of Gable Mountain</td>
</tr>
<tr>
<td><em>Cryptantha leucophaea</em></td>
<td>Gray cryptantha</td>
<td>Boraginaceae</td>
<td>SC</td>
<td>S</td>
<td>Dune sands</td>
</tr>
<tr>
<td><em>Cryptantha spiculifera</em> (C. interrupta)</td>
<td>Bristly cryptantha</td>
<td>Boraginaceae</td>
<td>-</td>
<td>S</td>
<td>Wahluke Slope</td>
</tr>
<tr>
<td><em>Cuscuta denticulata</em></td>
<td>Desert dodder</td>
<td>Cuscutaceae</td>
<td>-</td>
<td>S</td>
<td>Found again on Wahluke Slope</td>
</tr>
<tr>
<td><em>Cyperus bipartitus</em> (rivularis)</td>
<td>Shining flatsedge</td>
<td>Cyperaceae</td>
<td>-</td>
<td>S</td>
<td>Common along Columbia River</td>
</tr>
<tr>
<td><em>Erigeron piperianus</em></td>
<td>Piper’s daisy</td>
<td>Asteraceae</td>
<td>-</td>
<td>S</td>
<td>Common on ALE</td>
</tr>
<tr>
<td><em>Hypericum majus</em></td>
<td>Canadian St. John’s-Wort</td>
<td>Hypericaceae</td>
<td>-</td>
<td>S</td>
<td>Riparian/wetlands</td>
</tr>
<tr>
<td><em>Minulus suksdorfi</em></td>
<td>Suksdorf’s monkeyflower</td>
<td>Scrophulariaceae</td>
<td>-</td>
<td>S</td>
<td>North of Gable Mountain</td>
</tr>
<tr>
<td><em>Nicotiana attenuata</em></td>
<td>Coyote tobacco</td>
<td>Solanaceae</td>
<td>-</td>
<td>S</td>
<td>Found on ALE 1999</td>
</tr>
<tr>
<td><em>Oenothera cespitosa</em> ssp. cespitosa</td>
<td>Desert (Cespitose) eveningprimrose</td>
<td>Onagraceae</td>
<td>-</td>
<td>S</td>
<td>We may have two varieties - both are listed as sensitive</td>
</tr>
</tbody>
</table>
Table 4.1. (contd)

<table>
<thead>
<tr>
<th>Species</th>
<th>Common Name</th>
<th>Family</th>
<th>Federal Status&lt;sup&gt;(a)&lt;/sup&gt;</th>
<th>State Status&lt;sup&gt;(b)&lt;/sup&gt;</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td><em>Amminia robusta</em></td>
<td>Ammania</td>
<td>Lythraceae</td>
<td>-</td>
<td>R1</td>
<td>Wetlands</td>
</tr>
<tr>
<td><em>Astragalus conjunctus var, rickardii</em></td>
<td>Dr. Bill’s locoweed</td>
<td>Fabaceae</td>
<td>-</td>
<td>R1</td>
<td>ALE, Horse Heaven Hills</td>
</tr>
<tr>
<td><em>Camissonia (Oenothera) minor</em></td>
<td>Small-flowered</td>
<td>Onagraceae</td>
<td>-</td>
<td>R1</td>
<td>Wahluke Slope, 200 Plateau</td>
</tr>
<tr>
<td><em>Castilleja exilis</em></td>
<td>Annual paintbrush</td>
<td>Scrophulariaceae</td>
<td>-</td>
<td>R1</td>
<td>Wetlands on the Wahluke Slope, and at West Lake</td>
</tr>
<tr>
<td><em>Centunculus minimus</em></td>
<td>Chaffweed</td>
<td>Primulaceae</td>
<td>-</td>
<td>R1</td>
<td>Riparian, Wetlands</td>
</tr>
<tr>
<td><em>Cryptantha scoparia</em></td>
<td>Desert cryptantha</td>
<td>Boraginaceae</td>
<td>-</td>
<td>R1</td>
<td>ALE, Yakima Ridge</td>
</tr>
<tr>
<td><em>Gilia leptomeria</em></td>
<td>Great Basin gilia</td>
<td>Polemoniaceae</td>
<td>-</td>
<td>R1</td>
<td>What we formerly called <em>G. leptomeria</em> is now <em>G. latea.</em></td>
</tr>
<tr>
<td><em>Lipocarpha (=Hemicarpha) aristulata</em></td>
<td>Small-flowered</td>
<td>Cyperaceae</td>
<td>-</td>
<td>R1</td>
<td>Wetlands</td>
</tr>
<tr>
<td><em>Nama densum var. parviflorum</em></td>
<td>Purple mat</td>
<td>Hydrophyllaceae</td>
<td>-</td>
<td>R1</td>
<td>Occasional throughout central Hanford</td>
</tr>
<tr>
<td><em>Opuntia fragilis</em></td>
<td>Brittle prickly-pear</td>
<td>Cactaceae</td>
<td>-</td>
<td>R1</td>
<td>Probably not on Hanford</td>
</tr>
<tr>
<td><em>Pectocarya linearis</em></td>
<td>Winged comseed</td>
<td>Boraginaceae</td>
<td>-</td>
<td>R1</td>
<td>Ridges, Cold Creek Valley</td>
</tr>
<tr>
<td><em>Pediocactus simpsonii var. robustior</em></td>
<td>Hedge hog cactus</td>
<td>Cactaceae</td>
<td>-</td>
<td>R1</td>
<td>Reportedly on ALE and in other basalt areas</td>
</tr>
<tr>
<td><em>Penstemon eriantherus whitei</em></td>
<td>Fuzzy beardtongue</td>
<td>Scrophulariaceae</td>
<td>-</td>
<td>R1</td>
<td>White Bluffs</td>
</tr>
<tr>
<td><em>Rotala ramosior</em></td>
<td>Toothcup</td>
<td>Lythraceae</td>
<td>-</td>
<td>R1</td>
<td>Wetlands</td>
</tr>
<tr>
<td><em>Lindernia dubia anagallidea</em></td>
<td>False pimpernel</td>
<td>Scrophulariaceae</td>
<td>-</td>
<td>R2</td>
<td>Taxonomically problematic</td>
</tr>
<tr>
<td><em>Allium robinsonii</em></td>
<td>Robinson’s onion</td>
<td>Liliaceae</td>
<td>-</td>
<td>W</td>
<td>Near river</td>
</tr>
<tr>
<td><em>Allium scilloides</em></td>
<td>Scilla onion</td>
<td>Liliaceae</td>
<td>-</td>
<td>W</td>
<td>Slopes of ridges</td>
</tr>
<tr>
<td><em>Artemesia lindleyana</em></td>
<td>Columbia River mugwort</td>
<td>Asteraceae</td>
<td>-</td>
<td>W</td>
<td>Common in riparian areas, along Columbia River</td>
</tr>
<tr>
<td><em>Astragalus sclerocarpus</em></td>
<td>Stalked-pod milkvetch</td>
<td>Fabaceae</td>
<td>-</td>
<td>W</td>
<td>Common central Hanford</td>
</tr>
<tr>
<td>Species</td>
<td>Common Name</td>
<td>Family</td>
<td>Federal Status</td>
<td>State Status</td>
<td>Notes</td>
</tr>
<tr>
<td>---------------------</td>
<td>-------------------</td>
<td>--------------</td>
<td>----------------</td>
<td>--------------</td>
<td>----------------------------------------------------------------------</td>
</tr>
<tr>
<td>Astragalus speirocarpus</td>
<td>Medic milkvetch</td>
<td>Fabaceae</td>
<td>-</td>
<td>W</td>
<td>Known to be just west of the Hanford Site</td>
</tr>
<tr>
<td>Astragalus succumbens</td>
<td>Crouching milkvetch</td>
<td>Fabaceae</td>
<td>-</td>
<td>W</td>
<td>Common central Hanford</td>
</tr>
<tr>
<td>Balsamorhiza rosea</td>
<td>Rosy balsamroot</td>
<td>Asteraceae</td>
<td>-</td>
<td>W</td>
<td>Lithosolic areas, tops of ridges</td>
</tr>
<tr>
<td>Cirsium brevifolium</td>
<td>Palouse thistle</td>
<td>Asteraceae</td>
<td>-</td>
<td>W</td>
<td>Not seen for a long time on Hanford – may not be present</td>
</tr>
<tr>
<td>Delphinium multiplex</td>
<td>Kittitas larkspur</td>
<td>Ranunculaceae</td>
<td>-</td>
<td>W</td>
<td>North facing slopes of Umtanum Ridge</td>
</tr>
<tr>
<td>Limosella acaulis</td>
<td>Southern mudwort</td>
<td>Scrophulariaceae</td>
<td>-</td>
<td>W</td>
<td>Mudflats along Columbia River</td>
</tr>
<tr>
<td>Pectocarya setosa</td>
<td>Bristly combseed</td>
<td>Boraginaceae</td>
<td>-</td>
<td>W</td>
<td>Wahluke Slope</td>
</tr>
<tr>
<td>Pellaea glabella simplex</td>
<td>Smooth cliffbrake</td>
<td>Polypodiaceae</td>
<td>-</td>
<td>W</td>
<td>Base of Umtanum Ridge</td>
</tr>
</tbody>
</table>


**(a) Federal Definitions**

- **C** - Candidate. Taxa for which enough substantive information is available to support listing as threatened or endangered by the federal government, but preparation of a listing proposal is precluded because of higher priority species or actions.
- **SC** - Unofficial listing category, primarily consists of species listed as candidate level 2 under an abandoned listing classification system.

**(b) State Definitions**

- **E** - Endangered. Taxa that are in danger of becoming extinct within the near future if factors contributing to their decline continue.
- **T** - Threatened. Taxa that is likely to become endangered within the near future if factors contributing to its population decline or habitat degradation continue.
- **S** - Sensitive. Taxa that is vulnerable or declining, and could become endangered or threatened without active management or removal of threats.
- **R1** - Review Group 1. Taxa that may be quite rare and/or threatened, but there is insufficient data to determine if listing as threatened, endangered, or sensitive appropriate, or at what level.
- **R2** - Review Group 2. Taxa with unresolved taxonomic questions – i.e., taxa that may not meet the definition of “species.”
- **W** - Watch List. Taxa that are of concern, but have been determined to be more abundant and/or less threatened than previously assumed.
Table 4.2. Species of Concern Previously Reported but not Presently Considered to Occur on or Near Hanford

<table>
<thead>
<tr>
<th>Species</th>
<th>Common Name</th>
<th>Family</th>
<th>Federal Status$^{(a)}$</th>
<th>State Status$^{(a)}$</th>
</tr>
</thead>
<tbody>
<tr>
<td><em>Astragalus arrectus</em></td>
<td>Palouse milkvetch</td>
<td>Fabaceae</td>
<td>-</td>
<td>S</td>
</tr>
<tr>
<td><em>Carex densa</em></td>
<td>Dense sedge</td>
<td>Cyperaceae</td>
<td>-</td>
<td>S</td>
</tr>
<tr>
<td><em>Collinsia sparsiflora var. bruciae</em></td>
<td>Few-flowered collinsia</td>
<td>Scrophulariaceae</td>
<td>-</td>
<td>S</td>
</tr>
<tr>
<td><em>Arenaria franklinii thompsonii</em></td>
<td>Thompson’s sandwort</td>
<td>Caryophyllaceae</td>
<td>-</td>
<td>R2</td>
</tr>
</tbody>
</table>

(a) See Table 4.1 for definitions of status values.
(1973) recognize *H. diffusa* and *H. arida* as separate species; however, in a subsequent taxonomic treatment Gentry and Carr (1976) grouped both of these species under *H. diffusa* and recognized each as separate varieties. Plants found on or near the Hanford Site tend to key out to either *H. diffusa* or *H. arida*, depending on the population, when the flora by Hitchcock and Cronquist is used. Gentry and Carr recognized an additional variety, *cottonii*, which gradates into var. *arida* in the Hanford vicinity. The type specimen for variety *cottonii* (Cotton 360) was collected in the Rattlesnake Hills on or very near what is now the Hanford Site by J. S. Cotton in 1901. All the specimens from the Hanford vicinity can probably be defined as intermediate between vars. *cottonii* and *arida*. The Hanford Site plant list provided in ERDA (1975) correctly included *H. diffusa* var. *cottonii*, even though this taxa is not included in the standard flora for the region (Hitchcock and Cronquist 1973).

### 4.2 Noxious Weeds on the Hanford Site

At least one-fourth of the plant species observed on the Hanford Site are not native to the area and are thus considered to be alien and/or weedy species. Some of these, such as cheatgrass, Russian thistle, and tumble mustard have become so ubiquitous that they can be considered essentially “naturalized.” These species have caused significant changes to the regional flora and ecology over the last 100 years. It is interesting to note that in the first comprehensive flora of Washington State (Piper 1906), cheatgrass is not even mentioned (although it was first recorded in the state in the early 1890s (Klemmedsen and Smith 1964). The first plant list for Benton County (St. John and Jones 1928) indicated that cheatgrass “has been collected at Paterson and reported near Kennewick.”

The ecology of the Columbia Basin has been significantly changed because of the introduction of alien species. However, not all alien species are considered to be threats to the local flora and ecology, and in fact some, such as many of the riparian trees, have probably had a positive effect on local wildlife diversity and abundance. However, Washington State recognizes certain species as noxious weeds if they have a high potential for serious devastation of natural areas, agricultural lands, and rangelands. Noxious weeds are species that have the potential to drastically alter the regional ecology if they are not controlled before they can spread and in many cases are capable of invading relatively pristine areas as well as more disturbed lands. For certain classes of noxious weeds, landowners are legally mandated to control these weeds. Listing and regulations pertaining to noxious weeds are contained in Chapter 16-750 of the Washington Administrative Code “State Noxious Weed List and Schedule of Monetary Penalties” and Chapter 17.10 of the Revised Code of Washington “Noxious Weeds - Control Boards.” We have at least 28 species on the Hanford Site that are currently listed as noxious weeds by the Washington State Department of Agriculture (Table 4.3).

The state of Washington defines the various classes of noxious weeds as:

- **Class A** noxious weeds are those noxious weeds not native to the state that are of limited distribution or are unrecorded in the state and that pose a serious threat to the state.

- **Class B** noxious weeds are those noxious weeds not native to the state that are of limited distribution or are unrecorded in a region of the state and that pose a serious threat to that region.
• Class B designate means those Class B noxious weeds whose populations in a region or area are such that all seed production can be prevented within a calendar year.

• Class C includes any other noxious weeds.

State law requires eradication of Class A noxious weeds wherever they occur, and control of all Class B designate weeds in those regions where they are so designated. Control of Washington State Class B (non-designate) and Class C weeds are dictated by the local noxious weed control boards, and weeds of these classes that are of priority to the local board are included on the local boards weed list.

In addition to the species listed in Table 4.3 there are several species that are listed by the Benton County Noxious Weed Control Board that have, as yet, not been documented from the Hanford Site. These species are listed in Table 4.4.

Table 4.3. Washington State Listed Noxious Weeds Known to Occur on the Hanford Site

<table>
<thead>
<tr>
<th>Species</th>
<th>Common Name</th>
<th>Weed Class</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td><em>Alhagi pseudalhagi</em> (A. maurorum)</td>
<td>camelthorn</td>
<td>Class B designate</td>
<td>Presumed extirpated from Wahluke Slope</td>
</tr>
<tr>
<td><em>Cardaria draba</em></td>
<td>whitetop, hoarycress</td>
<td>Class C</td>
<td>Locally common, Rattlesnake Springs and other locations</td>
</tr>
<tr>
<td><em>Cardaria pubescens</em></td>
<td>globepodded hoarycress</td>
<td>Class C</td>
<td>Occasional and scattered</td>
</tr>
<tr>
<td><em>Cenchrus longispinus</em></td>
<td>longspine sandbur</td>
<td>Class B</td>
<td>Occasional, observed near Hanford Met. Station</td>
</tr>
<tr>
<td><em>Centaurea diffusa</em></td>
<td>diffuse knapweed</td>
<td>Class B designate</td>
<td>Widespread in riparian areas, and throughout the 100 Areas</td>
</tr>
<tr>
<td><em>Centaurea maculosa</em> (C. biebersteinii)</td>
<td>spotted knapweed</td>
<td>Class B designate</td>
<td>Occasional – observed near Columbia Generating Station</td>
</tr>
<tr>
<td><em>Centaurea repens</em> (Acroptilon repens)</td>
<td>Russian knapweed</td>
<td>Class B</td>
<td>Widespread – throughout 100 Areas, McGee Ranch</td>
</tr>
<tr>
<td><em>Centaurea solstitialis</em></td>
<td>yellow starthistle</td>
<td>Class B designate</td>
<td>Widespread – especially around Hanford townsite</td>
</tr>
<tr>
<td><em>Chondrilla juncea</em></td>
<td>rush skeletonweed</td>
<td>Class B designate</td>
<td>Widespread – especially in southern portions of the Hanford Site</td>
</tr>
<tr>
<td><em>Cirsium arvense</em></td>
<td>Canada thistle</td>
<td>Class C</td>
<td>Occasional in disturbed areas, especially near Columbia River</td>
</tr>
<tr>
<td><em>Cirsium vulgare</em></td>
<td>bull thistle</td>
<td>Class C</td>
<td>Occasional in disturbed areas</td>
</tr>
<tr>
<td><em>Convolvulus arvensis</em></td>
<td>field bindweed</td>
<td>Class C</td>
<td>Primarily in riparian areas on the Hanford Site</td>
</tr>
<tr>
<td><em>Cyperus esculentus</em></td>
<td>yellow nutsedge</td>
<td>Class B designate</td>
<td>Disturbed areas, especially landscaped areas, also on Wahluke Slope</td>
</tr>
<tr>
<td>Species</td>
<td>Common Name</td>
<td>Weed Class</td>
<td>Comments</td>
</tr>
<tr>
<td>-------------------------</td>
<td>----------------</td>
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<td>----------------------------------------------------</td>
</tr>
<tr>
<td><em>Daucus carota</em></td>
<td>wild carrot</td>
<td>Class B designate</td>
<td>Noted in Priest Rapids area</td>
</tr>
<tr>
<td><em>Euphorbia esula</em></td>
<td>leafy spurge</td>
<td>Class B designate</td>
<td>Reported on Wahluke Slope</td>
</tr>
<tr>
<td><em>Gypsophila paniculata</em></td>
<td>babysbreath</td>
<td>Class C Occasional in 100 Areas</td>
<td>Common in riparian areas</td>
</tr>
<tr>
<td><em>Hypericum perforatum</em></td>
<td>common St. John’s-Wort</td>
<td>Class C</td>
<td>Common in riparian areas</td>
</tr>
<tr>
<td><em>Kochia scoparia</em></td>
<td>kochia</td>
<td>Class B Primarily along periphery of the Hanford Site and in and around Richland</td>
<td></td>
</tr>
<tr>
<td><em>Lepidium latifolium</em></td>
<td>perennial</td>
<td>Class B Disturbed areas, typically not in sand</td>
<td></td>
</tr>
<tr>
<td><em>Linaria dalmatica ssp. dalmatica</em></td>
<td>dalmatian toadflax</td>
<td>Class B designate</td>
<td>Locally common near Energy Northwest, scattered elsewhere</td>
</tr>
<tr>
<td><em>Linaria vulgaris</em></td>
<td>butter-and-eggs, yellow toadflax</td>
<td>Class C Common in riparian areas</td>
<td></td>
</tr>
<tr>
<td><em>Lythrum salicaria</em></td>
<td>purple loosestrife</td>
<td>Class B Wet riparian areas</td>
<td></td>
</tr>
<tr>
<td><em>Myriophyllum spicatum</em></td>
<td>Eurasian watermilfoil</td>
<td>Class B designate</td>
<td>Slack water areas of Columbia River</td>
</tr>
<tr>
<td><em>Onopordum acanthium</em></td>
<td>Scotch thistle</td>
<td>Class B designate</td>
<td>Observed near south end of the 300 Area</td>
</tr>
<tr>
<td><em>Phalaris arundinacea</em></td>
<td>reed canarygrass</td>
<td>Class C Common along Columbia River shoreline</td>
<td></td>
</tr>
<tr>
<td><em>Secale cereale</em></td>
<td>cereal rye</td>
<td>Class C Snively Field</td>
<td></td>
</tr>
<tr>
<td><em>Sphaerophysa salsula</em></td>
<td>Swainsonpea</td>
<td>Class B Local at Rattlesnake Springs, White Bluffs ferry site</td>
<td></td>
</tr>
<tr>
<td><em>Tribulus terrestris</em></td>
<td>puncturevine</td>
<td>Class B Mainly around buildings and roadways</td>
<td></td>
</tr>
</tbody>
</table>

**Table 4.4.** Washington State Noxious Weeds Listed for Benton County and Potentially Occurring, but not Confirmed, on the Hanford Site

<table>
<thead>
<tr>
<th>Scientific Name</th>
<th>Common Name</th>
<th>Weed Class</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td><em>Alopecurus myosuroides</em></td>
<td>blackgrass</td>
<td>Class B designate</td>
<td>Not confirmed on the Hanford Site</td>
</tr>
<tr>
<td><em>Amorpha fruticosa</em></td>
<td>indigobush</td>
<td>Class B designate except within 200 feet of the Columbia River</td>
<td>Potentially invading riparian areas but not currently known from the Hanford Site</td>
</tr>
<tr>
<td><em>Carduus acanthoides</em></td>
<td>plumeless thistle</td>
<td>Class B designate</td>
<td>Not confirmed on the Hanford Site</td>
</tr>
<tr>
<td><em>Sonchus arvensis ssp. arvensis</em></td>
<td>perennial sowthistle</td>
<td>Class B designate</td>
<td>Not confirmed on the Hanford Site</td>
</tr>
<tr>
<td><em>Sorghum halepense</em></td>
<td>johnsongrass</td>
<td>Class A</td>
<td>Not confirmed on the Hanford Site</td>
</tr>
<tr>
<td><em>Tamarix ramosissima</em></td>
<td>saltcedar</td>
<td>Class A</td>
<td>Potentially occurring in wet areas on Hanford</td>
</tr>
</tbody>
</table>
5.0 Ethnobotany of the Hanford Site

This chapter has been temporarily removed from this website.

For questions or information, please contact Mr. Dana Ward, U.S. Department of Energy, dana_c_ward@rl.gov.
6.0 References

65 FR 57534-47 “Endangered and Threatened Wildlife and Plants: Review of Plant and Animal Taxa that are Candidates or Proposed for Listing as Endangered or Threatened. Annual Notice of Findings on Recycled Petitions, and Annual Description of Progress on Listing Actions.” Federal Register


Appendix A

Alphabetical Listing By Genus
# Appendix A

## Alphabetical Listing By Genus

<table>
<thead>
<tr>
<th>Genus Species</th>
<th>Common Name</th>
<th>Code</th>
<th>Family</th>
</tr>
</thead>
<tbody>
<tr>
<td>Abronia millefera</td>
<td>white sand verbena</td>
<td>Abme</td>
<td>Nyctaginaceae</td>
</tr>
<tr>
<td>Achillea millefolium</td>
<td>yarrow</td>
<td>Acmi</td>
<td>Asteraceae</td>
</tr>
<tr>
<td>Acer saccharinum</td>
<td>silver maple</td>
<td>Acsa</td>
<td>Aceraceae</td>
</tr>
<tr>
<td>Adiantum pedatum</td>
<td>maiden-hair fern</td>
<td>Adpe</td>
<td>Polypodiaceae (Pteridaceae)</td>
</tr>
<tr>
<td>Agrostis alba</td>
<td>redtop bentgrass</td>
<td>Agal</td>
<td>Poaceae</td>
</tr>
<tr>
<td>Agropyron caninum</td>
<td>slender wheatgrass</td>
<td>Agca</td>
<td>Poaceae</td>
</tr>
<tr>
<td>Agropyron cristatum</td>
<td>crested wheatgrass</td>
<td>Agcr</td>
<td>Poaceae</td>
</tr>
<tr>
<td>Agropyron dasyrychyum</td>
<td>thickspike wheatgrass</td>
<td>Agda</td>
<td>Poaceae</td>
</tr>
<tr>
<td>Agrostis exarata</td>
<td>spike bentgrass</td>
<td>Agex</td>
<td>Poaceae</td>
</tr>
<tr>
<td>Agoseris glauca</td>
<td>pale mountain dandelion</td>
<td>Aggl</td>
<td>Asteraceae</td>
</tr>
<tr>
<td>Agoseris grandiflora</td>
<td>showy mountain dandelion</td>
<td>Aggr</td>
<td>Asteraceae</td>
</tr>
<tr>
<td>Agoseris heterophylla</td>
<td>annual mountain dandelion</td>
<td>Aghe</td>
<td>Asteraceae</td>
</tr>
<tr>
<td>Agropyron intermedium</td>
<td>intermediate wheatgrass</td>
<td>Agpin</td>
<td>Poaceae</td>
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<tr>
<td>Agrostis interrupta</td>
<td>interrupted bentgrass</td>
<td>Agsin</td>
<td>Poaceae</td>
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<td>Agastache occidentalis</td>
<td>western horsemint</td>
<td>Agoc</td>
<td>Lamiaceae</td>
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<tr>
<td>Agropyron repens</td>
<td>quackgrass</td>
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<td>Poaceae</td>
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<td>Agrostis scabra</td>
<td>ticklegrass</td>
<td>Agsc</td>
<td>Poaceae</td>
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<tr>
<td>Agropyron sibericum</td>
<td>Siberian wheatgrass</td>
<td>Agsi</td>
<td>Poaceae</td>
</tr>
<tr>
<td>Agropyron spicatum</td>
<td>bluebunch wheatgrass</td>
<td>Agsp</td>
<td>Poaceae</td>
</tr>
<tr>
<td>Agrostis tenuis</td>
<td>colonial bentgrass</td>
<td>Agte</td>
<td>Poaceae</td>
</tr>
<tr>
<td>Agropyron triticeum</td>
<td>annual wheatgrass</td>
<td>Agtr</td>
<td>Poaceae</td>
</tr>
<tr>
<td>Alliathus altissima</td>
<td>tree-of-heaven</td>
<td>Aial</td>
<td>Simarubaceae</td>
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<tr>
<td>Allium acuminatum</td>
<td>Hooker’s onion</td>
<td>Alac</td>
<td>Liliaceae</td>
</tr>
<tr>
<td>Alopecurus aequalis</td>
<td>meadow foxtail</td>
<td>Alae</td>
<td>Poaceae</td>
</tr>
<tr>
<td>Allium cernuum</td>
<td>nodding onion</td>
<td>Alce</td>
<td>Liliaceae</td>
</tr>
<tr>
<td>Allium douglasii</td>
<td>Douglas’ onion</td>
<td>Aldo</td>
<td>Liliaceae</td>
</tr>
<tr>
<td>Alisma graminium</td>
<td>narrow-leaf waterplantain</td>
<td>Algr</td>
<td>Alismataceae</td>
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<tr>
<td>Allium macrum</td>
<td>rock onion</td>
<td>Alma</td>
<td>Liliaceae</td>
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<tr>
<td>Alhagi maurorum</td>
<td>camelthorn</td>
<td>Alps</td>
<td>Fabaceae</td>
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<tr>
<td>Allium robinsonii</td>
<td>Robinson’s onion</td>
<td>Alro</td>
<td>Liliaceae</td>
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<td>Genus Species</td>
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<td>Allium schoenoprasum</td>
<td>chives</td>
<td>Alsh</td>
<td>Liliaceae</td>
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<td>Allium scillioides</td>
<td>squill onion</td>
<td>Alsl</td>
<td>Liliaceae</td>
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<td>Ambrosia acanthicarpa</td>
<td>bur ragweed</td>
<td>Amac</td>
<td>Asteraceae</td>
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<td>Amaranthus albus</td>
<td>white pigweed</td>
<td>Amalb</td>
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<td>Amelanchier alnifolia</td>
<td>western serviceberry</td>
<td>Amaln</td>
<td>Rosaceae</td>
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<td>Boraginaceae</td>
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<td>Amsinckia lycopsoides</td>
<td>fiddleneck</td>
<td>Amly</td>
<td>Boraginaceae</td>
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<td>rigid fiddleneck</td>
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<td>low pussytoes</td>
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<td>Apiaceae</td>
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<td>twin arnica</td>
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<td>common wallcress</td>
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<td>Brassicaceae</td>
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<td>Artemisia tridentata</td>
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<td>Asteraceae</td>
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<td>Artemisia tripartita</td>
<td>threetip sagebrush</td>
<td>Artrp</td>
<td>Asteraceae</td>
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<td>Aster campestris</td>
<td>western meadow aster</td>
<td>Ascam</td>
<td>Asteraceae</td>
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<td>Fabaceae</td>
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<td>Columbia milkvetch</td>
<td>Ascol</td>
<td>Fabaceae</td>
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<td>Ascon</td>
<td>Fabaceae</td>
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<td>Asclepias fasicularis</td>
<td>narrow-leaved milkweed</td>
<td>Asfa</td>
<td>Asclepiadaceae</td>
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<td>Aster frondosus</td>
<td>alkali aster</td>
<td>Asfr</td>
<td>Asteraceae</td>
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<td>Astragalus geyeri</td>
<td>Geyer’s milkvetch</td>
<td>Asge</td>
<td>Fabaceae</td>
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<td>Aster hesperius</td>
<td>western marsh aster</td>
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<td>Asteraceae</td>
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<tr>
<td>Astragalus lentiginosus</td>
<td>freckled milkvetch</td>
<td>Aslen</td>
<td>Fabaceae</td>
</tr>
<tr>
<td>Aster occidentalis</td>
<td>western mountain aster</td>
<td>Asoc</td>
<td>Asteraceae</td>
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Appendix B

Alphabetical Listing By Family
## Appendix B

### Alphabetical Listing By Family

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