Quick Guide to Plant Families of Western Washington

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A Quick Guide to Plant Families of Western Washington

Revised to include common riparian weeds and invasive plants

By Maggie Hayward, John Tuxill and James M. Helfield
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Introduction

This guide is an expanded version of a booklet designed to help students identify native plants in western Washington. It has been expanded to include invasive and ruderal taxa commonly found in riparian areas. The purpose of this guide is to provide practical help for identifying plant families, and to facilitate a basic understanding of plant morphology. By observing morphological characteristics such as leaf arrangement and structure, the user can narrow an unidentified species down to the family level. Because this book does not go to the species level, it is meant to be used as a companion to other identification guides such as Pojar and Mackinnon’s (2004) Plants of the Pacific Northwest Coast.

Humans have occupied the northern Pacific coastal region for thousands of years. The first peoples to inhabit this area had an intimate relationship with plants and the environment. When European and other non-indigenous people settled and colonized this land, they too relied on plant resources. However, in many cases they did
not develop a personal, intimate knowledge of the species they encountered (Pojar and Mackinnon, 2004). Since their arrival, non-indigenous people have had a profound and largely negative influence on their environment. One of these has been the introduction of invasive plant species, which have become increasingly prevalent and threaten native biodiversity. Riparian zones typically support highly diverse plant communities (Naiman et al. 1993), yet riparian communities are also especially prone to invasion by exotic and ruderal species (Naiman and Decamps 1997). By including common invasive species, this guide is intended to be particularly useful for assessing floodplain and riparian ecosystems.
How to use this guide

This guide places plant families in groups according to growth form, leaf arrangement and leaf structure. Each group is comprised of the families that conform to the group characteristics and occur in western Washington. Under each family is a list of the genera that conform to the group characteristics and occur in western Washington. The genera shown in bold are those that include species that have been observed in floodplain habitats on the Nooksack River. Note that some families and genera will appear in more than one group if they include species with differing leaf arrangements or structures. See below for step-by-step instructions on how to use this guide.

Step 1. Determine whether the unidentified plant is a tree or shrub, herb or vine, fern, grass, horsetail or other.
Step 2. Determine whether the unidentified plant has an opposite, alternate, basal or whorled leaf arrangement
Step 3. Determine whether the unidentified plant has a simple entire, simple lobed or compound leaf structure.
Step 4. Refer to the group indicated by steps 1-3.
Step 5. Once the family of the unidentified plant has been determined, refer to another guide to determine the genus and species.
Helpful diagrams
(All definitions from Hitchcock and Cronquist, 1974)

Leaf arrangement:

Opposite
Leaves are situated directly across from each other at the same node.

Alternate
Leaves are situated singly at each node, ascending the stem in an alternating pattern.
*Basal*
Leaves occurring in a tight cluster or rosette at the base of the stalk.

*Whorled*
Leaves arranged in a ring radiating from a node or a common point.

**Leaf structure:**

*Simple*
Blades of the leaf all in one piece, not compound.
Simple lobed
Leaves have projecting segments that are either rounded or pointed.

Compound
Leaves are divided into 2 or more individual leaflets.

Leaf margin:
Entire
The edge of the leaf is not toothed or otherwise cut
**Group S.** Trees and shrubs

Leaves opposite
- Leaves simple entire..........................S1
- Leaves simple lobed.............................S2
- Leaves compound...............................S3

Leaves alternate or whorled
- Leaves simple entire..........................S4
- Leaves simple lobed.............................S5
- Leaves compound...............................S6
Group S1. Trees and Shrubs with leaves opposite, simple entire:

Buddlejaceae (Buddleja)
   *Buddleia*

Caprifoliaceae (Elderberry and Honeysuckle)
   *Lonicera*
   *Symphiocarpos*

Celastracea (Boxwood)
   *Pachistima*

Cornaceae (Dogwood)
   *Cornus*

Elaeagnaceae (Soapberry)
   *Sheperdia*

Saxifragaceae (Saxifrage)
   *Philadelphus*
**Group S2.** Trees and Shrubs with leaves opposite, simple lobed:

Aceraceae (Maple)
   *Acer*

Caprifoliaceae (Elderberry and Honeysuckle)
   *Viburnum*

**Group S3.** Trees and Shrubs with leaves opposite, compound:

Caprifoliaceae (Elderberry and Honeysuckle)
   *Sambucus*

Oleaceae (Ash)
   *Fraxinus*
Group S4. Trees and Shrubs with leaves alternate or whorled, simple entire:

Aquifoliaceae (Holly)
   *Ilex*

Betulaceae (Alder and Birch)
   *Alnus*
   *Betula*

Corylaceae (Hazelnut)
   *Corylus*

Ericaceae (Huckleberry and Rhododendron)
   *Arbutus*
   *Gaultheria*
   *Menziesia*
   *Rhododendron*
   *Vaccinium*

Myricaceae (Sweet Gale)
   *Myrica*

Rhamnaceae (Buckthorn)
   *Ceanothus*
   *Rhamnus*
Group S4 (cont’d)

Rosaceae (Rose)
   Amelanchier
   Crataegus
   Holodiscus
   Malus
   Oelmaria
   Prunus
   Rubus
   Spirea

Salicaceae (Willow and Cottonwood)
   **Populus**
   **Salix**

Group S5. Trees and Shrubs with leaves alternate or whorled, simple lobed:

Araliaceae (Ginseng)
   Helix

Fagaceae (Oak)
   Quercus

Grossulariaceae (Current)
   Ribes
Group S5 (cont’d)

Rosaceae (Rose)
  *Physocarpus*
  *Rubus*

Group S6. Trees and shrubs with leaves alternate or whorled, compound:

Berberidaceae (Barberry)
  *Mahonia*

Leguminosae (Bean)
  *Cytisus*
  *Ulex*

Rosaceae (Rose)
  *Rosa*
  *Rubus*
  *Sorbus*
Group H. Herbs and Vines

Leaves opposite
- Leaves simple entire.................................H1

Leaves alternate
- Leaves simple entire.........................H2
- Leaves simple lobed...............................H3
- Leaves compound....................................H4

Leaves basal or whorled
- Leaves simple entire.................................H5
- Leaves simple lobed...............................H6
- Leaves compound....................................H7
**Group H1.** Herbs and vines with leaves opposite, simple entire:

Asteraceae (Sunflower)
   - * Arnica
   - * Bidens

Caryophyllaceae (Pink)
   - * Cerastium
   - * Lychnis
   - * Silene

Gentianaceae (Gentian)
   - * Gentiana

Hypericaceae (St. John’s wort)
   - * Hypericum

Lamiaceae (Mint)
   - * Galeopsis
   - * Lamium
   - * Mentha
   - * Prunella
   - * Stachys

Onagraceae (Evening primrose)
   - * Epilobium
   - * Oenothera
Group H1 (cont’d)

Scrophulariaceae (Figwort)
   *Mimulus*
   *Parentucellia*
   *Scrophularia*
   *Veronica*

Urticaceae (Nettle)
   *Urtica*
**Group H2.** Herbs and vines with leaves alternate, simple entire:

Asteraceae (Sunflower)
- *Anaphalis*
- *Chicorium*
- **Lactuca**
- *Lapsana*
- *Leucanthemum*
- *Sonchus*

Boraginaceae (Borage)
- *Borago*
- **Cryptantha**
- *Mertensia*
- *Myosotis*
- *Phacelia*

Brassicaceae (Mustard)
- *Brassica*
- *Capsella*
- **Draba**
- *Lepidium*
- *Sisymbrium*
- *Thlaspi*

Liliaceae (Lily)
- *Smilancina*
- *Streptopus*
Group H2 (cont’d)

Onagraceae (Evening Primrose)
  Circaea
  *Epilobium*
  Oenothera

Polemoniaceae (Phlox)
  Collomia
  Microsteris
  Navarettia
  Phlox
  Polemonium

Polygonaceae (Buckwheat)
  Eriogonum
  *Polygonum*
  Rumex

Scrophulariaceae (Figwort)
  Castilleja
  *Digitalis*
  Linaria
  Pedicularis
  Synthyris
  Verbascum
**Group H3.** Herbs and vines with leaves alternate, simple lobed:

Asteraceae (Sunflower)
- *Artemisia*
- *Eriophyllum*
- *Cirsium*

Malvaceae (Mallow)
- *Malva*

Polygonaceae (Phlox)
- *Rumex*

Ranunculaceae (Buttercup)
- *Ranunculus*

Rosaceae (Rose)
- *Geum*
**Group H4.** Herbs and vines with leaves alternate, compound:

Apiaceae (Carrot)

*Angelica*
*Cicuta*
*Conium*
**Daucus**
*Ligustichum*
*Lomantium*
*Osmorhiza*

Asteraceae (Sunflower)

*Achillea*
*Ambrosia*

Brassicaceae (Mustard)

*Barbarea*
*Cardamine*

Fabaceae (Legume)

*Lathyrus*

Leguminosae (Bean)

*Lotus*
*Lupinus*
*Medicago*
*Melilotus*
*Trifolium*
*Vicia*
Group H4 (cont’d)

Polemoniaceae (Phlox)
   *Collomia*
   *Microsteris*
   *Navarettia*
   *Phlox*
   *Polemonium*

Ranunculaceae (Buttercup)
   *Aquilegia*
   *Thalictrum*

Rosaceae (Rose)
   *Aruncus*

Saxifragaceae (Saxifrage)
   *Tolmiea*

Scrophulariaceae (Figwort)
   *Pedicularis*
Group H5. Herbs and vines with leaves basal or whorled, simple entire:

Asteraceae (Sunflower)
   Aster
   Bellis
   Crepis
   Erigeron
   Hieracium
   Hypochaeris
   Leucanthemum
   Senecio

Brassicaceae (Mustard)
   Arabis
   Brassica
   Draba
   Lepidium

Liliaceae (Lily)
   Allium
   Camassia
   Clintonium
   Erythronium
   Lilium
   Maianthemum

Plantaginaceae (Plantain)
   Plantago
Group H5 (cont’d)

Polygonaceae (Buckwheat)
    *Eriogonum*
    *Rumex*

Ranunculaceae (Buttercup)
    *Caltha*

Rubiaceae (Bedstraw)
    *Galium*

Violaceae (Violet)
    *Viola*
**Group H6.** Herbs and vines with leaves basal or whorled, simple lobed:

**Asteraceae (Sunflower)**
- *Cirsium*
- Centaurea
- Crepis
- *Lactuca*
- *Leucanthemum*
- *Petasites*
- *Senecio*
- *Taraxacum*

**Geraniaceae (Geranium)**
- *Arabis*
- *Brassica*
- *Draba*
- *Lepidium*

**Polygonaceae (Buckwheat)**
- *Rumex*

**Ranunculaceae (Buttercup)**
- *Aconitum*
- *Delphinium*
- *Ranunculus*

**Rosaceae (Rose)**
- *Geum*
Group H6 (cont’d)

Saxifragaceae (Saxifrage)

Heuchera

Mitella

Saxifraga

Tellima

Tiarella

Tolmeia
Group H7. Herbs and vines with leaves basal or whorled, compound:

Apiaceae (Carrot)
   Angelica
   Cicuta
   Conium
   Daucus
   Ligustichum
   Lomantium
   Osmorhiza

Asteraceae (Sunflower)
   Achillea
   Senecio
   Tanacetum

Brassicaceae (Mustard)
   Barbarea
   Capsella
   Cardamine
   Sisymbrium

Geraniaceae (Geranium)
   Geranium

Montiaceae
   Montia
Group H7 (cont’d)

Ranunculaceae (Buttercup)
  *Actaea*
  *Anemone*
  **Aquilegia**
  *Thalictrum*

Rosaceae (Rose)
  *Aruncus*
  *Fragaria*
  *Geum*
  **Potentilla**

Scrophulariaceae (Figwort)
  *Pedicularis*
**Group G.** Grasses

Poaceae (Grasses)

*Agrostis*
*Aira*
*Bromus*
*Dactylis*
*Holcus*
*Phalaris*
*Poa*

**Group F.** Ferns

Polypodiaceae (Common ferns)

*Athyrium*
*Polystichum*

**Group Ho.** Horsetails

Equisetaceae (Horsetails)

*Equisetum*

**Group O.** Oddballs

Crassulaceae (Stonecrop)

*Sedum*
References cited:


