TECHNICAL NOTE

USDA – Natural Resources Conservation Service
Spokane, Washington

Plant Materials Technical Note No. 21 **April 2013**

ROSES

OF THE INLAND PACIFIC NORTHWEST
Native and Invasive Species
Identification, Biology and Control

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Nootka rose (*Rosa nutkana*) flower. Ben Legler, University of Washington Burke Herbarium

The purpose of this Technical Note is to provide information about roses in the Inland Pacific Northwest, which is comprised of eastern Washington, eastern Oregon, and northern Idaho. Keys and comparison charts are provided for identification, detailed information is presented for each species, and methods for control are outlined for invasive species.

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INTRODUCTION

Roses first appeared on Earth around the time dinosaurs went extinct, 60 to 70 million years ago. They spread from their center of origin in Asia throughout the Northern Hemisphere to Europe, northern Africa and North America. Fossil records indicate roses grew in Colorado and Oregon during the Oligocene Epoch, 32 million years ago (Shepherd, 1954).

There are currently over 100 recognized species of roses throughout the world (Encyclopedia Britannica, 2013). We have three common native rose species in the Inland Pacific Northwest: baldhip rose (*Rosa gymnocarpa*), Nootka rose (*R. nutkana*), and Woods' rose (*R. woodsii*). Two other species are native in our region, but are not as common; these are prickly rose (*R. acicularis*) and Arkansas rose (*R. arkansana*). Humans have planted several non-native rose species in the Inland Northwest, including dog rose (*R. canina*), sweetbriar rose (*R. rubiginosa*) and rugosa rose (*R. rugosa*). Dog rose and sweetbriar rose are, in some areas, displacing native and other desirable vegetation and are considered to be invasive. This Technical Note provides detailed information for the most common roses in our region; the native roses: baldhip rose, Nootka rose, Woods' rose, and the invasive roses: dog rose and sweetbriar rose.

Knowledge of rose characteristics and identification is becoming increasingly important, as the invasive roses continue to dominate our landscapes. Reclaiming our pasture land, range land, Conservation Reserve Program (CRP) fields, and riparian areas depends on the correct identification and effective control of invasive roses.

Roses have open-faced flowers and are visited by generalist bees that collect and transfer pollen from flower to flower. Consequently, hybridization can occur between two species that bloom at the same time and are sexually compatible, which is dependent on stigma style, chemistry and gamete pairing (Bunce-Herring et al., 2008). Hybridization is known to occur among our native rose species, but so far, hybridization between our native and invasive species has not been documented. Hybridization could result in variation of the plants' characteristics, causing complications in identification. Variation in rose characteristics is also a result of polyploidy (multiplication of chromosome number due to chromosomes not separating during mitosis or meiosis) and apomixis (reproduction without meiosis or fertilization).

IDENTIFICATION

A rule of thumb for differentiating invasive and native roses is: if the rose has thorns that curve down, it is invasive. If the thorns are straight, it is native. This rule of thumb, like many rules, has exceptions. Native roses in our region sometimes have thorns that curve down. However, the thorns are typically not as large as those on invasive roses. Also, while this rule is usually true in our region, it does not apply to roses outside of our region. There are other subspecies of both Nootka rose and Woods' rose found elsewhere that are defined by their downward curving thorns.

To identify roses to species, it is necessary to observe characteristics besides thorns. Sepals, flower number, flower size, and glands on leaves are important features. The taxonomic key on the following page can be used for identification. It has been adapted from Hitchcock and Cronquist (1973) and includes new classification and names from Lewis and Ertter (2007). See Lewis and Ertter (2007) and other keys for identifying roses outside of our region.

Table 1 on page 5 provides a summary of the characteristics of Inland Northwest roses in a format for quick comparison. Detailed species descriptions can be found in the remainder of this document. A glossary of botanical terms used in this document is on page 22.

***Rosa* L. Rose**

Flowers are large, showy, complete, borne singly or in small (rarely large) clusters; sepals and petals generally 5, or petals numerous in many cultivar double forms, light pink to deep rose (our native spp.) less often white or yellow; stamens numerous; pistils generally numerous (rarely less than 10); styles slender and more or less enclosed within the hypanthium; ovules solitary; seeds bony, enclosed within the hypanthium (hip) which becomes fleshy and generally reddish or purplish and berry-like; more or less prickly shrubs or woody vines, often with a pair of prickles at or just below each node; leaves alternate, pinnate; leaflets 3 to 11 (rarely more), generally toothed; stipules well-developed, generally green and leafy, attached to a petiole.

1a Introduced spp., prickles generally stout and strongly curved; sepals more or less bent backward after anthesis and ultimately deciduous, some sepals have conspicuous lateral lobes

- **2a** Lower surface of leaflets have stalked glands; foliage is sweet-scented; sepals have stalked glands; petals 0.6 to 0.8 in, bright pink; styles more or less densely short-hairy; fruit 0.4 to 0.6 in, bright red; European sp.; formerly named R. eglanteria **1 R. rubiginosa** L.
- **2b** Lower surface of leaflets smooth or nearly so; foliage not sweet-scented; sepals do not have stalked glands; petals 0.8 to 1 in, white or pink; fruit 0.6 to 0.8 cm, bright red; Eurasian sp. **2 R. canina** L.

1b Native spp., prickles stout or weak, but seldom much curved; sepals generally upward or erect after anthesis and typically persistent, seldom with lateral lobes

- **3a** Sepals, top of hypanthium and styles are deciduous as fruit matures; seeds usually 12 or fewer; sepals 0.2 to 0.5 in; fruit is smooth, bright red and about 0.4 in wide when mature; stems 1 to 4 ft; bristly to nearly unarmed, the prickles slender **3 R. gymnocarpa** Nutt.
- **3b** Sepals and styles persistent; sepals often much greater than 0.5 in; seeds generally 15 to 30 or more; stems mostly with well-defined prickles at the base of each leaf, but sometimes nearly unarmed
  - **4a** Flowers relatively small, generally clustered; leaves are coarsely toothed; sepals generally 0.4 to 0.8 in long and 0.08 to 0.14 in wide at the base, undersides are rarely bristly or glandular; petals 0.5 to 1 in; hypanthium 0.12 to 0.2 in thick at anthesis and about 0.4 in thick when mature **4 R. woodsii** Lindl.

    Ours is subsp. **ultramontana**

    Prickles absent or sometimes scattered and/or at the base of leaves singly or in pairs, predominantly straight; stems 3 to 9 ft; flowers in clusters of 3 to 10; grows in intermontane area between the Cascade and Rocky Mountains of British Columbia south to the Great Basin
  - **4b** Flowers relatively large, generally solitary; sepals generally 0.6 to 1.6 in long and 0.12 to 0.24 in wide at base; petals generally 1 to 1.6 in long; hypanthium generally 0.2 to 0.35 in thick at anthesis and 0.5 to 0.8 in thick when mature **5 R. nutkana** Presl

    Ours is subsp. **macdougalii**

    Commonly unarmed or has straight, rarely curved prickles at the base of each leaf; stems 3 to 9 ft; leaflets usually smooth underneath and have singly serrated margins without gland tips; sepals are commonly smooth; grows in intermontane area between the Cascade and Rocky Mountains

Table 1. Characteristics of Roses in the Inland Northwest

Genus	Species	Common Name	Status	Habitat	Height (ft)	Thorns	Petal Color	Sepals	Other
Rosa	*canina*	dog rose	invasive	open areas	3 to 9	stout, flattened, curve down, unequal size	white to pink	do not have stalked glands, have slender lateral lobes, curve outward at anthesis, deciduous	leaves have no scent
	rubiginosa	sweetbriar rose	invasive	open areas	3 to 10	stout, flattened, curve down, unequal size	pale to dark pink	have stalked glands and slender lateral lobes, curve outward at anthesis, deciduous	leaves have sweet scent
	gymnocarpa	baldhip rose	native	forests	1 to 4	slender, straight	pale to dark pink	have stalked glands, ascending or erect at anthesis, deciduous	flowers are usually solitary, small
	nutkana subsp. *macdougalii*	Nootka rose	native	open areas and forests	3 to 9	stout, straight, one pair occurs at the base of each leaf, other thorns are absent or smaller	pale to dark pink	ascending or erect at anthesis, restricted in middle, persistent	flowers are usually solitary, large
	woodsii subsp. *ultramontana*	Woods' rose	native	open areas and forests	3 to 9	straight or sometimes curved, one or a pair often occurs at the base of each leaf	pale to dark pink	ascending or erect at anthesis, persistent	flowers are usually in clusters of 3 to 10

INVASIVE ROSES

Introduction to Invasive Roses
Our invasive roses, dog rose and sweetbriar rose, first appeared on the landscapes of the Inland Northwest when they escaped from home gardens and were planted for wildlife habitat, fences, and soil protection. The invasive roses continue to be planted intentionally or accidentally in our landscape to this day. Many people mistakenly identify all roses as being beneficial and are not aware of the differences between species. Introduced rose species do provide benefits to wildlife in the form of food and cover. However, they spread very rapidly and are able to out-compete native and other desirable vegetation. They eventually reduce the diversity and function of a landscape.

Invasive roses (the dark green mounds) taking over a hillside in Columbia County, WA. Pamela Pavek, NRCS

Environmental Concerns
According to the Center for Invasive Species and Ecosystem Health (2010), dog rose and sweetbriar rose are weedy species that can be invasive in some regions. The Inland Northwest is one of those regions. The roses spread by suckers and layering, and birds and other wildlife consume the fruit and spread the seed. Areas invaded with dog and sweetbriar rose can become dominated by the plants after several years, resulting in a decline in desirable vegetation. The forage value of pastures diminishes rapidly following the invasion and spread of the roses. Plants can be very large, up to 9 to 10 feet tall, and impede the movement of livestock, wildlife and vehicles.

Control of Invasive Roses
Dog and sweetbriar rose are difficult to control due to their large size and regeneration from sprouts. Control often requires a combination of mechanical and chemical treatments and/or multiple years of treatment.

Biological: No biocontrol agents are available for invasive roses because they are closely related to native roses and horticultural varieties.

Cultural: Fire does not effectively control invasive roses because the plants will regrow the following year.

Mechanical: Plants can be removed by extracting with a chain and ATV or other vehicle in the spring, but regrowth will need to be killed with an herbicide. In a large area, mowing the plants with a brush machine will facilitate herbicide application. Mowing alone will not kill the plants unless repeated multiple times. Three to six mowings per year for two to four years may provide control (DiTomaso et al., 2013). Repeated cultivation will prevent rose seedlings from establishing.

Chemical: Herbicides are effective for controlling invasive roses. The following herbicides are from the Pacific Northwest Weed Management Handbook (Peachey, 2012) and Weed Control in Natural Areas in the Western United States (DiTomaso et al., 2013). Contact your local agricultural extension specialist or county weed specialist to learn what works best in your area and how to use it safely. Always read label and safety instructions for each control method. Trade names and control measures appear in this document only to provide specific information. USDA NRCS does not guarantee or warranty the products and control methods named, and other products may be equally effective.

Table 2. Herbicides for Controlling Invasive Roses – from Weed Control in Natural Areas in the Western United States (DiTomaso et al., 2013)

Chemical Name	Timing	Remarks
Aminopyralid (Milestone)	Postemergence after full leaf expansion, around flowering time. Also a preemergent.	Broadleaf-selective herbicide; will kill most plants in Sunflower or Legume families. Can be mixed with 2,4-D or Triclopyr.
Aminopyralid + metsulfuron (Opensight)	Spring leaf development through plant senesence in fall; optimum time is during flowering.	Broadleaf-selective herbicide; will kill most plants in Sunflower or Legume families.
Dicamba (Banvel, Clarity)	Postemergence foliar spot treatment. Optimum time is during flowering.	Add 0.5% v/v non-ionic surfactant. Will injure or kill other broadleaf species.
Glyphosate (Roundup, Accord XRT II, others)	Foliar and cut stem treatments most effective when leaves are expanded and flowers are in full bloom. Cut stem treatments should be applied immediately after cutting.	Add 0.5% v/v non-ionic surfactant. Can be mixed with dicamba for foilar applications. Will injure or kill all other plant species.
Hexazinone (Velpar L)	Preemergence in late winter through spring before bud break.	Mobile in the soil and has a long soil residual. Should not be used in areas with high water table.

Table 2 continued

Chemical Name	Timing	Remarks
Imazapyr (Aresenal, Habitat, Stalker, Chopper, Polaris)	Postemergence foliar spot treatment in mid to late summer.	Requires special mixing and a hand applicator or applicator mounted on a spray boom. Use a low-volume application without runoff to reduce the non-target effects.
Metsulfuron (Escort)	Postemergence foliar application when leaves are fully expanded.	Will injure or kill non-target broadleaf species. Available in premixes with aminopyralid (Opensight) or 2,4-D and dicamba (Cimarron Max).
Picloram (Tordon 22K)	Postemergence to fully expanded leaves in spring through late summer.	Add 0.5% v/v non-ionic surfactant. Most effective when mixed with 2,4-D or fluroxypyr. Will injure or kill other broadleaf species.
Tebuthiuron (Spike)	Preemergence anytime except when soil is frozen or saturated. Most effective time of application is just before active spring growth.	Applied as a pellet at the base of each plant. Has long soil residual and will prevent growth of all plant species. Rainfall is necessary to move herbicide into root zone.
Triclopyr (Garlon 3A, Garlon 4 Ultra)	Postemergence spot treatment. Can be applied to foilage when leaves are fully expanded, to bark when plants become dormant after fall frost, or to cut stems in the fall.	Add 0.5% v/v non-ionic surfactant for foilar application. Can be mixed with fluroxypyr or aminopyralid. Will injure or kill other broadleaf species. Application during fall dormant period will minimize non-target effects.
v/v = volume of procuct per total spray volume		

Pests of Invasive Roses

Numerous galls are often found on dog and sweetbriar rose stems. The galls are caused by a gall-forming wasp (*Diplolepis rosae*) which, like the plant, is a European species (Looney, 2012). The galls do not cause any harm, and are hosts for parasitoid wasps. The plant is also susceptible to fungal diseases such as powdery mildew (*Sphaerotheca pannosa* var. *rosae*) and downy mildew (*Perenospora sparsa*). Neither of these diseases severely limits the plants' ability to reproduce.

Gall caused by the gall-forming wasp *Diplolepis rosae*. Pamela Pavek, NRCS

Cultivars, Improved, and Selected Materials

Dog rose and sweetbriar rose are sold by many garden nurseries. However, **they should not be planted in the Inland Northwest** due to their aggressive nature. Native rose species are available as alternatives that have similar aesthetic attributes and pose no threat to surrounding plant communities.

Comparison of stems and thorns of (left to right) Nootka rose, Woods' rose, and sweetbriar rose. A branch of the sweetbriar rose stem has a *Diplolepis rosae* gall [red mass]. Pamela Pavek, NRCS

INVASIVE ROSE SPECIES DESCRIPTIONS

DOG ROSE

***Rosa canina* L.**
Plant Symbol = ROCA3

***Rosa canina*. Robert Videki, Bugwood.org**

Dog rose flowers. Robert Videki, Bugwood.org

Distribution

Dog rose is found on the east coast of North America, from Quebec to North Carolina and west to Kansas. It is also found on the west coast, from British Columbia to California and east to Utah.

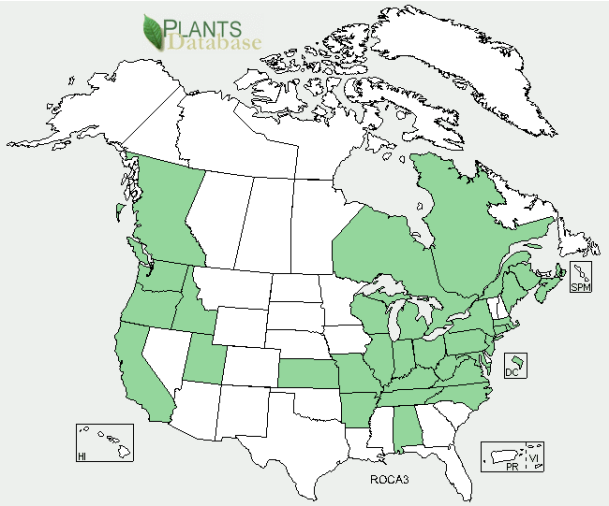
Description

Rose family (Rosaceae). Dog rose is a shrub introduced from Eurasia. It grows up to 9 feet tall and has multiple arching stems. Stems are covered with thorns that are stout, flattened, downward-curving and unequal in size. Leaves are alternate and pinnately divided into 5 to 7 leaflets with serrated margins. Both sides of the leaves are glandless and smooth. Flowers are solitary or in small clusters at the ends of branches and bloom in June to July. Flowers have five white to pink petals 0.8 to 1 inch long, five sepals, usually 10 or more pistils, and multiple stamens. Sepals are glandless, often have slender lateral lobes, curve backward at the time of anthesis and are deciduous. The fruit is an elliptic to pear-shaped hypanthium (hip). Fruits ripen in September to October, are smooth, bright red and 0.6 to 0.8 inches long. Fruits persist on the plant for several months and become black. Plants reproduce sexually by seed, and vegetatively by suckering and layering. (Hitchcock and Cronquist 1973; Young and Young, 1992; Burke Museum of Natural History and Culture 2012).

The genus name *Rosa* is an ancient Latin name for rose (St. John, 1963; Hitchcock and Cronquist, 1973). The plant's species name *canina* is attributed to a belief that the root could cure the bite of a mad dog (Haas, 1995).

Habitat: *Rosa canina* grows along roadsides, in pastures, Conservation Reserve Program fields, and natural areas.

Adaptation
Rosa canina is adapted to a variety of soil types in areas with more than 16 inches annual precipitation at low elevations.



Dog rose distribution from the USDA NRCS PLANTS Database

Dog rose thorns. Richard Old, XIDservices.com

SWEETBRIAR ROSE

***Rosa rubiginosa* L.**
Plant Symbol = RORU82

***Rosa rubiginosa*. Richard Old, XIDservices.com**

***Rosa rubiginosa* flowers. Richard Old, XIDservices.com**

Alternate Scientific Names
Rosa rubiginosa L. was previously known as *Rosa eglanteria* L.

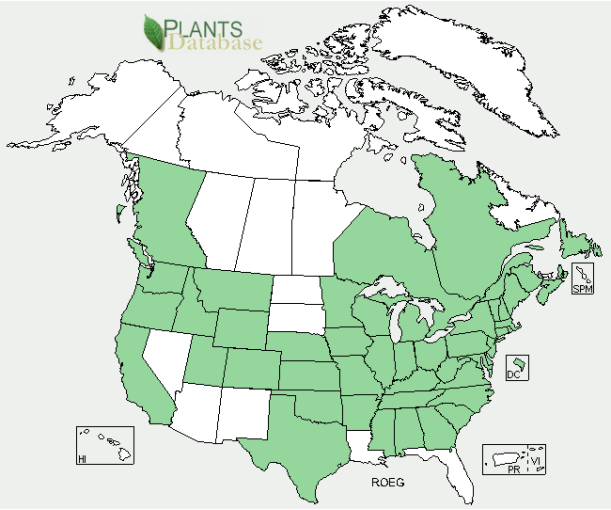
Distribution
Sweetbriar rose may have been one of the first ornamental plant species brought to North America by European colonists (Mack, 2003). It may also have been brought for a utilitarian purpose, to be grown as a hedge row. The botanist Josselyn documented the plant's presence in New England in the late 1600s (Mack 2003). Sweetbriar rose now grows in most states and provinces throughout the U.S. and Canada.

Description
Rose family (Rosaceae). Sweetbriar rose is a shrub introduced from Europe. It grows up to 10 feet tall and has multiple arching stems. Stems have thorns that are stout, flattened, downward-curving and unequal in size. Leaves are alternate and pinnately divided into 5 to 7 leaflets with doubly serrated margins and gland-tipped teeth. The undersides of leaves have hairs and stalked glands that impart a sweet aroma when crushed. Flowers are solitary or in small clusters at the ends of branches and bloom in June to July. Flowers have five pale to dark pink petals 0.6 to 0.8 inches long, five sepals, usually 10 or more pistils, and multiple stamens. Sepals have slender lateral lobes and stalked glands, curve backward at the time of anthesis and are deciduous. The fruit is an elliptic to pear-shaped hypanthium (hip). Fruits ripen in September to October, are smooth, bright red, 0.4 to 0.6 inches long, and persist on the plant after ripening. Plants reproduce sexually by seed and vegetatively by layering and suckering (Hitchcock and Cronquist 1973; Young and Young, 1992; Burke Museum of Natural History and Culture 2012).

The genus name *Rosa* is an ancient Latin name for rose (St. John, 1963; Hitchcock and Cronquist, 1973). The species name *rubiginosa* is a Latin word meaning rusty.

Habitat: This plant is found along roadsides, in pastures, Conservation Reserve Program fields, and natural areas.

Adaptation
Sweetbriar rose is adapted to all soil types with moderate fertility, and can tolerate moderate saline conditions (USDA NRCS, 2013). It requires 18 to 45 inches of annual precipitation. It is not shade tolerant (USDA NRCS, 2013).



Sweetbriar rose distribution from the USDA NRCS PLANTS Database.

Fruit (rose hips) of *Rosa rubiginosa*. Pamela Pavek, NRCS

NATIVE ROSES

Introduction to Native Roses

Native roses are important components of forest and prairie communities within the Inland Pacific Northwest. They stabilize streambanks and hillsides with their rhizomatous growth, and regrow following a disturbance. Thickets formed by roses provide cover for many birds, small and large mammals, and fish (Hauser, 2006). Rose flowers provide pollen for foraging bees (Mader et al., 2011). Rose fruits (hips) remain on the plant throughout the winter, and are a food source for insects, birds, and small and large mammals (Hauser, 2006). Antelope, mule deer, white-tailed deer, elk and moose browse the leaves and branches (Kufeld, 1973; Keay and Peek, 1980; Parish et al., 1996). Roses are also valuable to humans; Native Americans throughout the Pacific Northwest and Rocky Mountain region used wild roses as food, medicine, and for ceremonial purposes (Moerman, 2012). Hips of all wild roses are high in vitamin C and are made into jams, jellies, syrups and teas.

Nootka rose bushes. Brenda Erhardt, Latah Soil and Water Conservation District

Nootka and Woods' rose are ideal plants for revegetating disturbed sites because they produce rhizomes, regenerate quickly, and have excellent survivability. They can be used to rehabilitate mine spoils and road cuts, control soil erosion on hillsides, and stabilize eroded streambanks (Shaw et al., 2004; Hauser, 2006). The roses are attractive shrubs that can be incorporated into landscaped areas around homes and businesses, however they will spread by suckers and rhizomes, and should not be planted where they may become a problem.

Establishment

Freshly cleaned rose seed can be broadcast or drilled at a rate of 0.5 to 1.0 pound per acre and covered with firm soil or mulch (Young and Young, 1992; Shaw et al., 2004). Dried seed needs a cold moist stratification period of 30 to 365 days for optimal germination. The seed can be mixed

with other shrub seed, but should be separated from grass and forb seed (Shaw et al., 2004). Plants can also be established by transplanting seedlings or cuttings (see below).

Seeds

Rosa plants are sexually reproductive after 2 to 5 years of growth (Reed, 1993). Seed is obtained by collecting rose hips after they turn a bright red color (Gill and Pogge, 1974). The seeds can be removed from the hip flesh by macerating the hips in water and allowing the debris to float to the surface. Seeds collected soon after ripening and not allowed to dry will be less dormant than dried seeds (Gill and Pogge, 1974; Young and Young, 1992). Dried seeds require a cold stratification period of 30 to 365 days at 40 degrees Fahrenheit to improve germination (Gill and Pogge, 1974; Shaw et al., 2004; USDA NRCS, 2013). Dried seeds stored in air-tight containers will remain viable for 2 to 4 years (Young and Young, 1992). *R. gymnocarpa* has about 28,000 seeds per pound; *R. nutkana* 45,000 seeds per pound, and *R. woodsii* 51, 000 seeds per pound (USDA NRCS, 2013).

In nature, seeds are eaten and dispersed by birds and other wildlife. The seed coat is broken down by the animals' digestive process, which reduces the overall seed viability, but alleviates the dormancy of unharmed seed (Shaw et al., 2004).

Plant Production

Plants can be produced by sowing seed into pots or flats outdoors in October or November, and moving into a greenhouse in January or February. Seedlings should be moved to a lath house or other structure in the spring and grown for one year to develop an adequate root system before transplanting. Seedlings can be transplanted to the field in containers or as bareroot stock.

Roses can also be reproduced by hardwood cuttings, softwood cuttings, root suckers or layering (Snyder, 1991, as cited by Rose et al., 1998; Shaw et al., 2004). Rose et al. (1998) states one successful method uses semi-hardwood cuttings treated with indole-3-butyric acid (IBA) grown in a mist chamber. All seedlings and propagated plants should be hardened off for two to four weeks prior to transplanting in the desired field location. In the field, young plants may need protection from rodents, livestock and wildlife (Shaw et al., 2004).

Nootka rose hip in winter. Brenda Erhardt, Latah Soil and Water Conservation District

Cultivars, Improved, and Selected Materials

No improved native rose materials are available, but seeds and seedlings are sold by numerous seed dealers and nurseries.

NATIVE ROSE SPECIES DESCRIPTIONS

BALDHIP ROSE

Rosa gymnocarpa Nutt.
Plant Symbol = ROGY

***Rosa gymnocarpa*. Ben Legler, University of Washington Burke Museum of Natural History and Culture**

***Rosa gymnocarpa* pedicel and sepals. Ben Legler, University of Washington Burke Museum of Natural History and Culture**

Distribution

Rosa gymnocarpa is found in southern British Columbia, on both sides of the Cascade Mountains in Washington and Oregon, in the Sierra Nevada of California, in northern and central Idaho, and in western Montana. The genus is divided into two varieties (subspecies): var. *gymnocarpa,* which grows throughout all of the species' range including the Inland Northwest region, and var. *serpentina*, which grows only in California and Oregon (USDA NRCS, 2013).

Description of *Rosa gymnocarpa* var. *gymnocarpa*

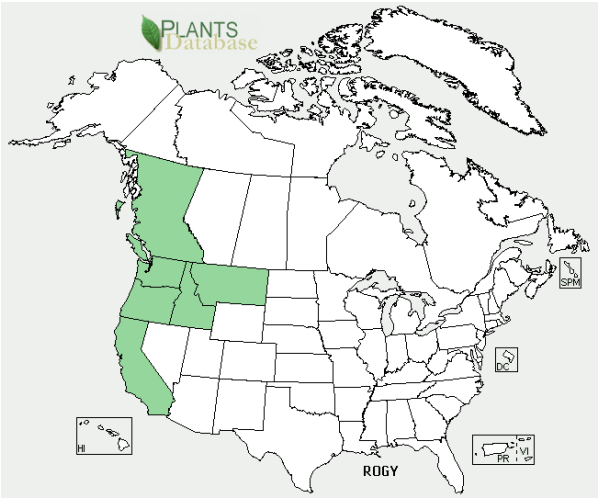
Rose family (Rosaceae). *Rosa gymnocarpa* is an erect to spreading, long-lived native shrub. It grows 1 to 4 feet tall and has multiple slender stems that are covered with straight, weak prickles, or are sometimes unarmed. Leaves are alternate, deciduous, and odd-pinnate with 5 to 9 leaflets. The leaf stems and underside of the leaf midrib have stalked glands. Leaflets are elliptic to elliptic-ovate, and have doubly serrated margins with gland-tipped teeth, otherwise the leaflets are smooth. Flowers occur at the ends of branches, bloom in May through July, and are usually solitary and small. Petals are 0.4 to 0.6 inch long, are light to dark pink, and are broadly notched. Flowers have numerous stamens and pistils, and the styles are deciduous as the fruit matures. The pedicels and sepals have stalked glands, and the sepals are erect or ascending at anthesis, then deciduous. The fruit is a pear-shaped hypanthium (hip) 0.4 inches long. It is bright red when it is mature in August to September. The fruit contains several seeds that are angled achenes. The plant reproduces

sexually by seed and vegetatively by sprouts, rhizomes and layering. (Hitchcock and Cronquist, 1973; Young and Young, 1992; Burke Museum of Natural History and Culture, 2012).

The genus name *Rosa* is an ancient Latin name for rose (St. John, 1963; Hitchcock and Cronquist, 1973). The species name *gymnocarpa* is from Greek gymnos, "naked," and karpos, "fruit" (Charters, 2012), referring to the deciduous characteristic of the sepals (Parish et al., 1996).

Habitat

Rosa gymnocarpa grows as an understory plant in dry and moist forest communities (Burke Museum of Natural History and Culture, 2012; Reed, 1993). It also grows in chaparral and in mountain grasslands (Reed, 1993). It is often found in association with salal (*Gaultheria shallon*), oceanspray (*Holodiscus discolor*), Oregon grape (*Mahonia nervosa*), creeping Oregon grape (*Mahonia repens*), ninebark (*Physocarpus malvaceus*), big thimbleberry (*Rubus parviflorus*), and huckleberry (*Vaccinium membranaceum*) (Reed, 1993).



Baldhip rose distribution map from the USDA NRCS PLANTS Database

Adaptation

Baldhip rose is adapted to soils with medium texture, moderate fertility, and neutral pH (USDA NRCS, 2013). It can tolerate a moderate level of salinity. It grows in areas receiving 12 to 24 inches of annual precipitation (USDA NRCS, 2013) at sea level to 6,000 feet elevation (Hitchcock et al., 1969) and often grows in shade (Piper 1989; and Hungerford, 1986 as cited by Reed, 1993). The plant is adapted to low and medium severity fires (Reed, 1993), and is moderately tolerant of drought (USDA NRCS, 2013).

***Rosa gymnocarpa* thorns. Ben Legler, University of Washington Burke Museum of Natural History and Culture**

***Rosa gymnocarpa* fruit (hip). Ben Legler, University of Washington Burke Museum of Natural History and Culture**

NOOTKA ROSE

Rosa nutkana C. Presl
Plant Symbol = RONU

***Rosa nutkana* flower. Ben Legler, University of Washington Burke Museum of Natural History and Culture**

***Rosa nutkana* flower. Ben Legler, University of Washington Burke Museum of Natural History and Culture**

Distribution

Nootka rose grows in western North America, from the Rocky Mountain states to the Pacific Coast, and in British Columbia and Alaska. The genus is divided into three subspecies: subsp. *macdougalii*, *melina* and *nutkana* (Lewis and Ertter, 2007). Divisions are based on differences in morphological characteristics and geographic regions. The subspecies that grows in the Inland Northwest region is subsp. *macdougalii*. It grows in the intermontane area between the Rocky Mountains and Cascade Mountains from Colorado and Utah to central British Columbia at elevations below 7,500 feet. Subsp. *melina* grows at high elevations (7500 to 11,400 feet) in the southern Rocky Mountains of Colorado, New Mexico and Utah and is rare in Montana, Wyoming and southern Idaho; and subsp. *nutkana* grows at elevations below 7,500 feet west of the Cascade Mountains, along the Pacific Coast from northern California to Alaska (Lewis and Ertter, 2007).

Description of *Rosa nutkana* subsp. *macdougalii*

Rose family (Rosaceae). *Rosa nutkana* subsp. *macdougalii* is an erect to spreading, long-lived native shrub. It grows 3 to 9 feet tall and forms loose thickets. Stems are slender, often very dark brown to black. Stems typically have straight or rarely curved thorns, or are sometimes unarmed. The thorns are often in pairs at the base of each leaf. Leaves are alternate, deciduous, and odd-pinnate with 5 to 9 leaflets. Leaflets are elliptic to elliptic-ovate with smooth undersides and singly serrated margins. Flowers occur at the ends of branches, bloom May through July, and are usually solitary and large. Petals are 1 to 1.6 inches long, light to dark pink, and have broad notches. Sepals are restricted in the middle, then expanded toward the tip and are nearly as long as the petals, and usually do not have glands. Flowers have numerous stamens and pistils, and the styles are deciduous as the fruit matures. The fruit is a round to pear-shaped hypanthium (hip) 0.5 to 0.8 inch wide. It matures in August to September, is bright red to reddish purple, and has persistent sepals.

The fruit contains numerous seeds that are angled achenes. The plant reproduces sexually by seed and vegetatively by sprouts, rhizomes and layering (Hitchcock and Cronquist, 1973; Young and Young, 1992; Parish et al., 1996; Lewis and Ertter, 2007; Burke Museum of Natural History and Culture, 2012; Turner, 2012).

The genus name *Rosa* is an ancient Latin name for rose (St. John, 1963; Hitchcock and Cronquist, 1973). The species name *nutkana* refers to the Nootka Sound on the west coast of Vancouver Island, BC (Charters, 2012).

Habitat

Rosa nutkana is an understory plant in dry and moist forest communities, and grows in mountain and plains grasslands, and in sagebrush (Reed, 1993). It is often found in association with red-osier dogwood (*Cornus sericea*), quaking aspen (*Populus tremuloides*), black cottonwood (*Populus trichocarpa*) and snowberry (*Symphoricarpos albus*) (Aller et al., 1981; Bell et al., 1992).

Adaptation

Nootka rose is adapted to medium and fine textured soils with neutral pH (USDA NRCS, 2013). It can tolerate low levels of fertility but does not tolerate drought (USDA NRCS, 2013). It grows in open and shaded areas receiving 18 to 125 inches of annual precipitation. The plant will recover after a fire, however multiple fires will significantly reduce a population (Reed, 1993).

Nootka rose distribution from the USDA-NRCS PLANTS Database.

***Rosa nutkana* ssp. *macdougalii* thorns. Pamela Pavek, NRCS**

WOODS' ROSE

Rosa woodsii Lindl.
Plant Symbol = ROWO

***Rosa woodsii* flowers. Don Knoke, University of Washington Burke Museum of Natural History and Culture**

***Rosa woodsii* pedicel and sepals. G.D. Carr, Oregon State University**

Distribution
Rosa woodsii grows in Wisconsin south to Texas and west to the Pacific coast and Alaska. It grows in all of the Canadian provinces except in the far north and east. The genus is divided into five subspecies: subsp. *woodsii*, *manca*, *arizonica*, *ultramontana*, and *gratissima* (Lewis and Ertter, 2007). Divisions are based on differences in morphological characteristics and geographic regions. The subspecies that grows in the Inland Northwest is subsp. *ultramontana* . It grows in the intermontane area between the Rocky Mountains and Cascade Mountains, from British Columbia to the Great Basin. Subspecies *woodsii* grows in the prairies and plains of central North America to the low elevations of the Rocky Mountains and adjacent southwest; subsp. *manca* is endemic to the high elevations in the Rocky Mountains and outlying peaks and ridges; subsp. *arizonica* is found in the low mountains and high riparian areas in northern Arizona and New Mexico, and in Colorado to Nevada, with possible disjuncts in southern Idaho; and subsp. *gratissima* is found in the southwestern Great Basin, Mojave desert and nearby mountains (Lewis and Ertter, 2007).

Description of *Rosa woodsii* subsp. *ultramontana*
Rose family (Rosaceae). *Rosa woodsii* subsp. *ultramontana* is a spreading to erect, long-lived native shrub. It grows 3 to 9 feet tall and forms loose or dense thickets. Stems are straight, red to grey-brown and have straight thorns or are unarmed. The thorns are scattered and/or occur singly or in pairs at the base of each leaf. Leaves are alternate, deciduous, and odd-pinnate with 5 to 9 leaflets. Leaflets are elliptic to obovate with singly or doubly serrated margins, and undersides can have short hairs or glands, or are smooth. Flowers occur at the ends of branches, bloom May through July, usually occur in clusters of 3 to 10, and are relatively small. Petals are 0.6 to 1 inch long, are light to dark pink and have broad notches. Sepals are usually smooth and nearly as long as the petals. Flowers have numerous stamens and pistils, and the styles are deciduous as the fruit matures. The fruit is a round, elliptic or pear-shaped hypanthium (hip) 0.25 to 0.5 inch wide. It matures in August to September, is bright red to reddish purple, and has persistent sepals. The fruit contains numerous seeds that are angled achenes. The plant reproduces sexually by seed and

vegetatively by sprouts, rhizomes and layering. (Hitchcock et al., 1969; Hitchcock and Cronquist, 1973; Young and Young, 1992; Parish et al., 1996; Welch, 2004; Hauser, 2006; Lewis and Ertter, 2007; Burke Museum of Natural History and Culture, 2012; Turner, 2012).

The genus name *Rosa* is an ancient Latin name for rose (St. John, 1963; Hitchcock and Cronquist, 1973). The species name *woodsii* is in honor of Joseph Woods (1776-1864), who was an English architect, geologist and botanist. He was a member of the Linnean Society and published several botanical works, including the Synopsis of the British Species of *Rosa* (1818) and The Tourist's Flora: A Descriptive Catalogue of the Flowering Plants and Ferns of the British Islands, France, Germany, Switzerland, Italy, and the Italian Islands (1850) (Charters, 2012).

***Rosa woodsii* distribution from the USDA PLANTS Database**

***Rosa woodsii* hips. Ben Legler, University of Washington Burke Museum of Natural History and Culture**

Habitat

Rosa woodsii is a widely adapted species and grows in many habitat types. It is an understory plant in dry and moist forest communities, and grows in sagebrush (*Artemisia* spp.), mountain, plains and desert grasslands, prairie, and alpine habitats (Hauser, 2006). The plant occurs in several stages of succession, including early seral stages (Hauser, 2006). It often colonizes sites disturbed by fire, land cuts and fills, bank erosion, and animal activity (Hauser, 2006). It is a facultative upland species; it primarily grows on upland sites, but can be found in wetlands (Hansen et al., 1990, as cited by Hauser, 2006). It is found in riparian areas, in marshes, along lakeshores, in rocky ravines and canyons, along roadsides, and on all aspects of upland slopes (Shaw et al., 2004).

Adaptation

Woods' rose is adapted to medium and coarse textured, moderately fertile soils with pH that is moderately acidic (5.0) to slightly basic (8.0) (USDA NRCS, 2013). It grows in open and shaded areas receiving 12 to 40 inches of annual precipitation. It is moderately tolerant of drought (USDA NRCS, 2013) and seasonal flooding (Hauser, 2006). All subspecies grow at low to mid-elevations, except subsp. *manca*, which is endemic to high elevations (Lewis and Ertter, 2007). The plant will regrow following a fire, however intense or multiple fires may damage or kill the crown (Wasser, 1982, as cited by Shaw et al., 2004).

OTHER ROSES

Other Natives

Other native roses that may occur within the Inland Pacific Northwest include **prickly rose** (*Rosa acicularis*) and **Arkansas rose** (*R. arkansana*). They were not included in this Technical Note because they are uncommon in our region.

Other Non-natives

No other roses besides dog rose and sweetbriar rose are currently known to be problematic within the Inland Northwest. People sometimes mistakenly call sweetbriar rose "multiflora rose" however this is a different species (*Rosa multiflora*) and it is extremely rare in our region. **Multiflora rose** more commonly grows in the eastern U.S. It can easily be distinguished from our invasive roses because its flowers are white and are in clusters of 25 to 100.

Multiflora rose flowers. Rich Old, XID Services.com

Rugosa rose flower. Ben Legler, University of Washington Burke Museum of Natural History and Culture

Rugosa rose is a popular rose because it is hardy, has a long bloom period and large rose hips. It is often planted as an ornamental or in wildlife plantings. So far, it does not appear to be escaping or becoming problematic.

Ornamental Hybrid Roses

There are approximately 13,000 ornamental rose varieties (Encyclopedia Britannica, 2013). They are divided into **hybrid tea roses**, which are what most people picture when they think of a rose; **hybrid perpetual roses**, which are more vigorous than the tea roses; **polyantha roses,** that are very hardy and produce dense bunches of tiny blooms; **floribunda roses**, that are a cross between hybrid tea roses and polyanthas; and **grandiflora roses,** that are a cross between hybrid tea roses and floribunda roses and are tall, hardy bushes. There are also climbing roses, shrub roses, and miniature roses. None, so far, have become problematic in natural areas in the Inland Northwest.

GLOSSARY OF BOTANICAL TERMS

Adapted from How to Identify Plants (Harrington and Durrell, 1957)

Alternate: one leaf is at each node.

Anthesis: period when the flower is open.

Deciduous: falling away; not persistent or evergreen.

Gland: a secreting surface or structure.

Hypanthium: an enlargement or elongation of the floral axis below the petals and sepals.

Lateral: borne on the sides of the structure or object.

Leaflet: one of the divisions of a compound leaf.

Lobe: a segment of an organ, especially if rounded.

Node: the place on a stem where leaves or branches usually originate.

Ovary: the part of the pistil that contains the ovules.

Ovule: the structure that develops into the seed.

Petiole: the stalk to a leaf or to a compound leaf.

Pinnate: compound leaf with the leaflets on two opposite sides of an elongated axis.

Pistil: the seed-producing organ, consisting usually of an ovary, style and stigma.

Sepal: one of the parts of the outer whorl of the floral envelope (below the petals), usually green in color.

Stamen: the pollen-bearing organ of a flower.

Stigma: the part of the pistil that receives the pollen, usually at or near the apex of the pistil, hairy or sticky.

Stipule: an appendage at the base of the petiole or leaf at each side of its intersection; often more or less united.

Style: the stalk-like part of a pistil connecting the ovary and stigma.

ACKNOWLEDGEMENTS

We thank Trish Heekin and Brenda Erhardt of the Latah Soil and Water Conservation District for reviewing this document for technical accuracy, and the following people for permission to use their photos: Ben Legler and Don Knoke of the University of Washington Burke Museum of Natural History and Culture, Richard Old of XIDServices.com, Brenda Erhardt of the Latah Soil and Water Conservation District, and G.D. Carr of Oregon State University.

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