Shrubs

Black-tail jackrabbit | *Lepus californicus*

What is a Shrub?

Shrubs are long-lived perennial plants with woody above-ground structures that persist from one growing season to the next.

The size and shape of shrubs are useful characteristics for initial identification. Many of the most common shrub species across the INL Site range in size from knee- to waist-height. Dwarf shrubs may be locally abundant in certain areas and are on average shorter than knee height. A few shrubs species may reach shoulder height or taller, but these species are generally restricted to habitats with deeper soils or increased water availability.

The branching pattern of stems and the amount of above-ground biomass that is woody are also good characteristics for identifying shrubs. Subshrubs mostly branch from the base and stems are herbaceous above the base; subshrubs are often also characterized as dwarf shrubs.

A final characteristic that is useful for initial identification is whether the species has both male and female flowers on the same individual. Monoecious species have flowers of both sexes on the same plant while dioecious species have male and female flowers on separate plants. With respect to identifying characteristics, species that are monoecious will appear homogeneous across the stand and species that are dioecious form stands where some individuals bear showier flowers than others.

Field Notes

COMMON NAME
low sagebrush

FAMILY
Sunflower (*Asteraceae*)

IDENTIFYING CHARACTERISTICS

Flowers: Are densely clustered in a flower head (capitulum). Only flowers with 5-lobed tubes (disc) occur in the capitula (discoid). Each capitulum is 2-5 mm wide by 4-7 mm tall, bell shaped, and has 5-10 disc flowers. The leaves that are appressed to the capitulum (phyllaries) are 3-5 mm long, covered in short, soft, matted hairs (tomentose). Capitula are attached to stalks (pedicels) that are spike-like in their attachment to the flowering stalk (spiciform). Flowering stalks are 2-10 cm tall by 0.5-2 cm wide, are leafless, and usually fall off overwinter; they are grey.

Leaves: From the perennial (persistent) bundles (fascicles), they have 3 shallowly toothed lobes and are 2-5 mm wide, are hairy (pubescent), and are grey-green.

Stems: Are irregularly branched from a decentralized base (deliquescent).

Plants: Are a dwarf shrub, are 10-30 cm tall, have a rounded crown, are rarely capable of resprouting after fire, and bloom from June to August.

SITE AND HABITAT

Found on the INL Site in playas on fine-textured clay soils to rocky foothills.

NOT TO BE MISTAKEN FOR

ARNO: Leaves are green with glandular hair, plants retain flower stalks, have flat crowns, and stems spread from a centralized base (divericate). **ARTR:** Plants retain flower stalks, stems are divaricate, and plants are 20-50 cm tall.

AKA: None

Fun Facts: This species is the most palatable of the woody Artemisia species. Foragers include greater sage-grouse, pronghorn, pygmy rabbit, elk, deer, and sheep.

NATIVE

ARNO (NP) *Artemisia nova*

COMMON NAME
black sagebrush

FAMILY
Sunflower (*Asteraceae*)

IDENTIFYING CHARACTERISTICS

Flowers: Are densely clustered in a flower head (capitulum). Only flowers with 5-lobed tubes (disc) occur in the capitula (discoid). Each capitulum is 1-2 mm wide by 2-4 mm tall, are shaped like a skinny bouquet (turbinate), and have 2-6 disc flowers. The leaves that are appressed to the capitulum (phyllaries) are often in two rows, and the innermost are resinous and hairless (glabrous). Capitula are attached to stalks (pedicels) on laterally branching stems that are panicle-like in their attachment to the flowering stalk (paniculate). Flowering stalks are 4-10 cm tall by 0.5-3 cm wide, are leafy, and are retained over winter; they are reddish-brown.

Leaves: From the perennial (persistent) bundles (fascicles), they have 3 shallow lobed teeth, and have a green surface that is sparsely covered in glandular hairs.

Stems: Originate from a centralized base (divaricate).

Plants: Are a dwarf shrub, are 10-30 cm tall, have a flat-topped crown, do not sprout after fire, and bloom July to November.

SITE AND HABITAT

Occurs near the buttes and foothills on shallow, rocky soils.

NOT TO BE MISTAKEN FOR

ARAR: Plants have rounded crowns, stems are irregularly branched from a decentralized base (deliquescent), and flowering stalks fall off over winter.

Fun Facts: Many Artemisia species can be used as natural dyes, creating beautiful yellow hues, and to extract aromatic camphor scented oils. Harvest only what you need, choose resilient plants, use sterile methods, and educate the public to be a responsible steward of ethnobotanical knowledge to maintain ecological balance.

NATIVE

COMMON NAME
threetip sagebrush

FAMILY
Sunflower (*Asteraceae*)

IDENTIFYING CHARACTERISTICS

Flowers: Are densely clustered in a flower head (capitulum). Only flowers with 5-lobed tubes (disc) occur in the capitulum (discoid). Each capitulum is 2 mm wide by 2-3 tall, is shaped like a skinny bouquet (turbinate) or an orb (globose), and has 4-8 disc flowers. The leaves that are appressed to the capitulum (phyllaries) are lance shaped and have frosted, grey hairs (hoary). Capitula are attached to stalks (pedicels) that are spike-like in their attachment to the flowering stalk (spiciform). Flowering stalks are 6-15 cm tall by 4-5 cm wide, are leafy, and are retained over winter.

Leaves: From the perennial (persistent) bundles (fascicles), they have 3 deeply lobed teeth that are < 2 mm wide and are 1.5-4 cm long by 0.5-1.5 cm wide.

Stems: Are irregularly branched from a decentralized base (deliquescent).

Plants: Are 20-250 cm tall, have rounded crowns, can resprout after fire, and bloom July to November.

SITE AND HABITAT

Commonly found around the buttes and foothills in a wide range of soil textures.

NOT TO BE MISTAKEN FOR

ARFR2: Leaves have 6-12 deep lobes. **ARAR:** Flowering stalks are 2-10 cm tall by 0.5-2 cm wide and plants are 10-30 cm tall. **SPAR:** Disc flowers are yellow, plants are 5-20 cm tall, and stems originate from a centralized base (divaricate).

AKA: *Artemisia trifida*

Fun Facts: Artemisia tripartita has been used medicinally to treat colds, headaches, and clean lesions.

NATIVE

ARTR (NP) *Artemisia tridentata*

COMMON NAME
big sagebrush

FAMILY
Sunflower (*Asteraceae*)

IDENTIFYING CHARACTERISTICS

Flowers: Are densely clustered in a flower head (capitulum). Only flowers with 5-lobed tubes (disc) occur in the capitula (discoid). Each capitulum is 1.5-2 mm wide and tall, oval to bell-shaped, and has 4-8 disc flowers. The leaves that are appressed to the capitulum (phyllaries) are covered in short, soft, matted hairs (tomentose) and are lance shaped. Capitula are attached to stalks (pedicels) on laterally branching stems that are panicle-like in their attachment to the flowering stalk (paniculate) and are narrow. Flowering stalks are 2-8 cm tall by 2-6 cm wide, are leafy, and are retained over winter; they are tan and are distinctly visible against the shorter, densely leafy stems.

Leaves: From the perennial (persistent) bundles (fascicles), they are flat, tapered, and wedge-shaped (cuniform) that are broadly truncated; they have 3 shallow to deeply lobed teeth.

Stems: Originate from a centralized base (divaricate).

Plants: Are 20-50 cm tall; have an uneven, round, twiggy crown; do not sprout after fire; and bloom from July to November.

SITE AND HABITAT

Common across the INL Site on shallow, fine-textured soils.

NOT TO BE MISTAKEN FOR

ARTRT: Flowering stalks are shorter than leafy stems, are 8-15 cm tall, and plants are 100-250 cm tall. **ARAR:** Plants are 10-30 cm tall, stems are irregularly branched from decentralized trunks (deliquescent), and flowering stalks fall off over winter.

Fun Facts: This species is the foundation for the shrublands in the Intermountain West.

NATIVE

COMMON NAME
basin big sagebrush

FAMILY
Sunflower (*Asteraceae*)

IDENTIFYING CHARACTERISTICS

Flowers: Are densely clustered in a flower head (capitulum). Only flowers with 5-lobed tubes (disc) occur in the capitula (discoid). Each capitulum is 1.5-2.5 mm wide and tall, oval shaped, and has 4-6 disc flowers. The leaves that are appressed to the capitulum (phyllaries) are covered in short, soft, matted hairs (tomentose). Capitula are attached to stalks (pedicels) on laterally branching stems that are panicle-like in their attachment to the flowering stalk (paniculate) and are broadly pyramidal. Flowering stalks are 8-15 cm tall by 5-6 cm wide, are leafy, and are retained over winter; they are a beige-fawn and are often hidden by the taller, densely leafy stems.

Leaves: From the perennial (persistent) bundles (fascicles), they are flat, tappered, and wedge-shaped (cuniform) and are narrowly elongated; they have 3 shallow to deeply lobed teeth.

Stems: Originate from a centralized base (divaricate).

Plants: Are 100-250 cm tall, have rounded crowns, do not sprout after fire, and bloom July to November.

SITE AND HABITAT

Occurs across the INL Site on deep, coarse soils, especially in sand.

NOT TO BE MISTAKEN FOR

ARTR: Flowering stalks are taller than leafy stems, are 2-8 cm tall, and plants are 20-50 cm tall. **ARCA2, ARLU:** Plants are forbs and leaves lack lobes.

Fun Facts: Hybridization is common across the Artemisia species complex; among the 18 woody species, there are 27 recognized subspecies, highlighting the importance of taxonomic studies in understanding the evolutionary impacts of speciation.

NATIVE

ATCO (NP) *Atriplex confertifolia*

COMMON NAME
shadscale saltbush

FAMILY
Goosefoot (*Chenopodiaceae*)

IDENTIFYING CHARACTERISTICS

Flowers: Are tightly packed into bundles (glomerule) that attach directly to the flowering stalk (spike). Glomerules develop from the angle formed at the leaf and stem (axillary). Female flowers (pistillate) and male flowers (staminate) are often on separate plants (dioecious). Pistillate flowers lack true petals and sepals but instead are enclosed by 2 small leaves (bracteoles) that increase in size as they age (accrescent), are fused basally, are 5-11 mm long by 4.5-10 mm wide, and papery. Staminate flowers have yellow anthers.

Leaves: Are oval shaped, pointed near the tip, alternate, attached on distinct stalks (petioles), and taste salty. They are light grey-green.

Stems: Originate from a centralized base (divaricate), are highly branched, are yellow-brown, and are prominently spined.

Plants: Are 15-50 cm tall, often dioecious, bloom April to July, and fruits mature well into September.

SITE AND HABITAT

Occurs across the INL Site on medium to fine-textured, alkaline soils.

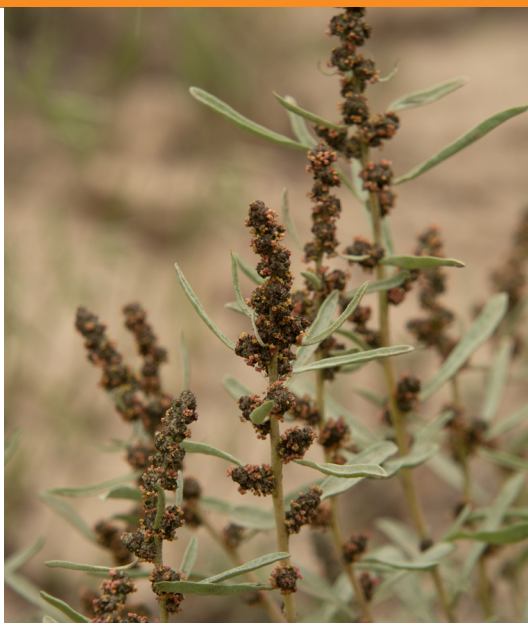
NOT TO BE MISTAKEN FOR

ATCA: Leaves are attached directly to the stem (sessile) and its pistillate flowers have bracteoles that are 13-25 mm wide. **GRSP:** Bracteoles are 6-12 mm wide.

AKA: *Atriplex jonesii, Atriplex subconferta, Atriplex collina*

Fun Facts: This species has been used to treat epilepsy and sore muscles.

NATIVE



COMMON NAME
sickle saltbush

FAMILY
Goosefoot (*Chenopodiaceae*)

IDENTIFYING CHARACTERISTICS

Flowers: Are tightly packed into bundles (glomerule) that attach directly to the flowering stalk (spike). Glomerules develop from the angle formed at the leaf and stem (axillary). Female flowers (pistillate) and male flowers (staminate) are often on separate plants (dioecious). Pistillate flowers lack true petals and sepals but instead are enclosed by 2 small leaves (bracteoles) that increase in size as they age (accrescent), are fused all the way to the tip, and are 2.5-7.5 mm long by 1-7 mm wide. Staminate flowers have tan to brown anthers.

Leaves: Are alternate, oblong to linear shaped, often in clusters, and either attached directly to the stem (sessile) or on distinct stalks (petioles).

Stems: Are erect, spineless, and irregularly branch from a decentralized base (deliquescent) that is woody.

Plants: Are 10-40 cm tall, often dioecious, and bloom April through July.

SITE AND HABITAT

Found in the center and on the north end of the INL Site in medium to fine-textured soils, especially in playas.

NOT TO BE MISTAKEN FOR

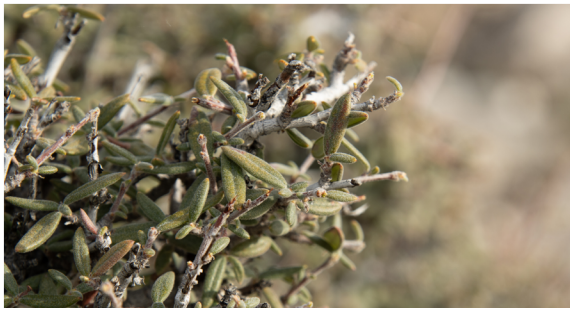
ATCA: Pistillate flowers have 4 winged bracteoles that are 13-25 mm wide, and plants are 80-200 cm tall.

AKA: *Atriplex gardneri var. falcata, A. nuttallii ssp. falcata, A. n. var. falcata*

Fun Facts: The dried fruit from saltbush can be ground down and made into pinole flour.

NATIVE

CELE (NP) *Cercocarpus ledifolius*



COMMON NAME
curl-leaf mountain mahogany

FAMILY
Rose (*Roseaceae*)

IDENTIFYING CHARACTERISTICS

Flowers: Occur in clusters that develop from the angle formed at the leaf and stem (axillary) and are not showy.

Fruits: Are a hard sealed hull with one seed (achene) and the pistil that extends a single long, curly plume.

Leaves: Are alternate, 10-30 mm long, and lance shaped. The upper leaf surface is darker green and resinous compared to the lower leaf surface that has firmly attached interwoven woolly hairs (lanate) that are white.

Branches: Are stiff and robust. The young stems are red, aging to an ashy-grey.

Plants: Are large shrubs to small trees, evergreen, 2-8 m tall, and bloom from May to June.

SITE AND HABITAT

Found in the Lemhi Mountain Range foothills where they extend onto the INL Site often in calcareous soils.

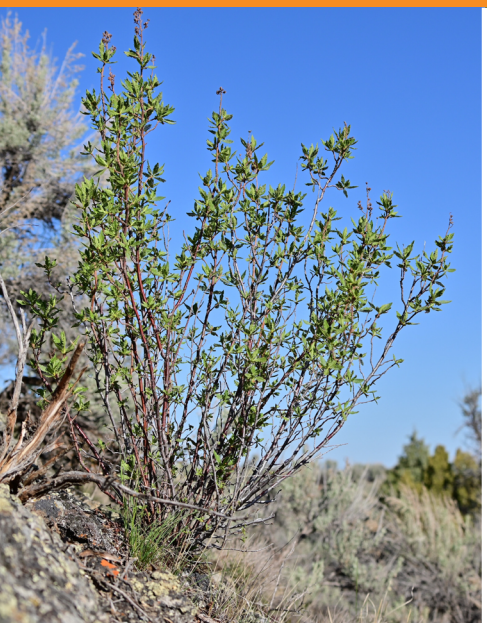
NOT TO BE MISTAKEN FOR

N/A

AKA: *None*

Fun Facts: This species was first collected in 1834 by botanist Thomas Nuttall (1786-1859) near Soda Springs, Idaho. Its dense wood is used ethnobotanically for digging tools and as a natural dye to achieve rich terracotta hues. This species is also favored in horticultural nativescaing for its tolerance to extreme temperatures and drought, and for adding visual focal points to designs.

NATIVE



COMMON NAME
fern bush

FAMILY
Rose (*Roseaceae*)

IDENTIFYING CHARACTERISTICS

Flowers: Are small and showy with 5 white petals, 5 green sepals, and numerous stamens. The flowers are attached to distinct stalks (pedicels) and form solitary terminal blooms on laterally branching stems in a panicle arrangement.

Leaves: Are alternate, are covered in sticky resinous glands, and have edges lobed at two levels (bipinnatifid).

Stems: Are flexible, are reddish brown, shed paper-thin flakes as they age, are irregularly branched from a decentralized base (deliquescent) and are highly branched.

Plants: Are 1-3 m tall, are deciduous, and bloom from June to August.

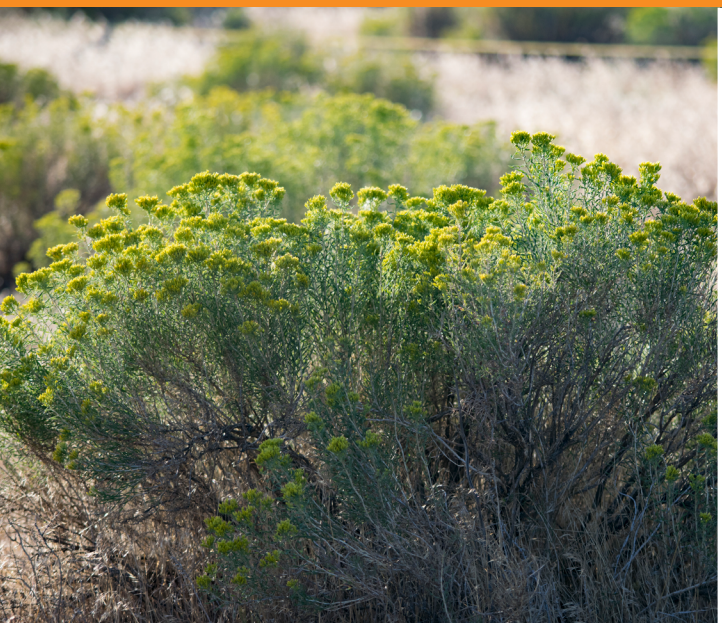
SITE AND HABITAT
Found in the southern portion of INL Site in deep basalt crevasses and in open rocky areas.

NOT TO BE MISTAKEN FOR
N/A

AKA: *None*

Fun Facts: This species is a favorite choice for horticultural nativescaing because it produces many flowers, is easy to prune, and tolerates extreme temperatures and drought. It is the only species in this genus (monotypic) and is more closely related to the tribe Sorbariaeae despite its morphological resemblance to its namesake genus Chamaebatia, which is endemic to California and is in the Dryadeae tribe.

NATIVE



COMMON NAME
green rabbitbrush

FAMILY
Sunflower (*Asteraceae*)

IDENTIFYING CHARACTERISTICS

Flowers: Are densely clustered in a flower head (capitulum). Only flowers with 5-lobed tubes (disc) occur in the capitula (discoid). Capitulum have 3-5 yellow disc flowers. Capitula grow from different points on the flower stalk and form loose clusters of terminal blossoms in a corymb arrangement.

Leaves: Are alternately arranged along the stem, are linear, hairless (glabrous), green, and twist like a corkscrew.

Stems: Are glabrous to slightly soft hairs (pubescent) and are irregularly branched from a decentralized base (deliquescent). Old stems have grey to brown shredding bark near their base and brittle greyish-white bark near the stem tips, while only new stems are green.

Plants: Are 20-120 cm tall and bloom from July through September.

SITE AND HABITAT

Extremely abundant across the INL Site across a wide variety of soils.

NOT TO BE MISTAKEN FOR

ERNA: Stems are flexible, pale green, covered in softly matted hairs, and leaves are flat and straight. **GUSA:** Leaves are flat and straight.

AKA: *Crinitaria viscidiflora, Ericameria viscidiflora*

Fun Facts: This species is an important food source for many pollinators in late summer and early fall. Native Americans have used this species to treat colds, coughs, and skin conditions. The leaves and flowers have been used to make natural dyes.

NATIVE

COMMON NAME
shrubby buckwheat

FAMILY
Buckwheat (*Polygonaceae*)

IDENTIFYING CHARACTERISTICS

Flowers: Occur in clusters inside a whorl of fused leaves (involucre) on a highly branched primary flowering stalk (peduncle) and are in a pedunculate arrangement. The sepals and petals are indistinguishable (tepals) and are white to pale pink.

Leaves: Are alternately arranged, occur individually or in bundles (fascicles), are narrowly lance shaped, and have firmly attached interwoven woolly hairs (lanate).

Stems: Are dark reddish-brown, are highly forked, and originate from a centralized base (divaricate) that is woody.

Plants: Are 10-50 cm tall and bloom as early as June but continue well into October.

SITE AND HABITAT
Found across the INL Site, but especially in medium to coarse-textured soils.

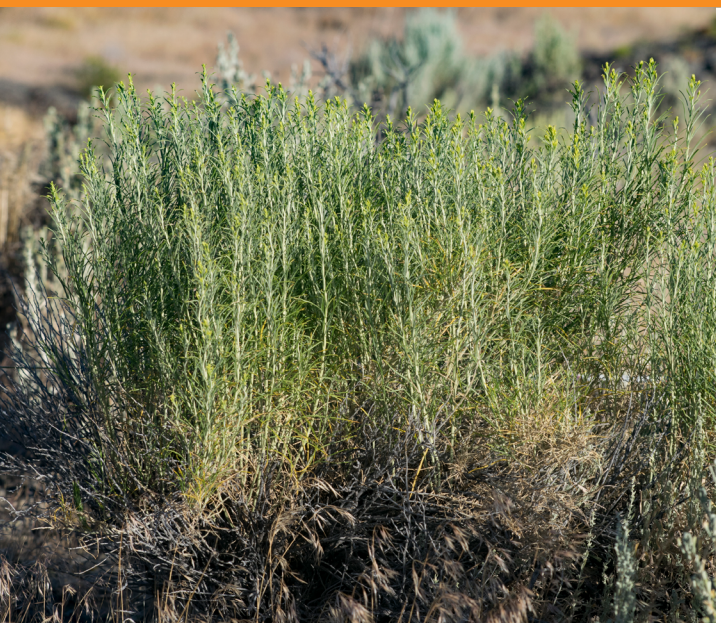
NOT TO BE MISTAKEN FOR
N/A

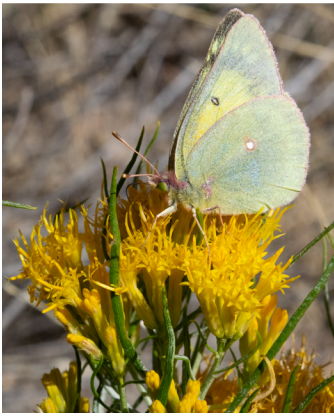
AKA: *Eriogonum microtheca*

Fun Facts: This species is an important food source for many pollinators in late summer and early fall. This species is a favorite choice for horticultural use in nativescaping because it adds visual focal structures, bright fall colors, and habitats to drought tolerant landscape designs.

NATIVE

ERNA (NP) *Ericameria nauseosa*





COMMON NAME
rubber rabbitbrush

FAMILY
Sunflower (*Asteraceae*)

IDENTIFYING CHARACTERISTICS

Flowers: Are densely clustered in a flower head (capitulum). Only flowers with 5-lobed tubes (disc) occur in the capitula (discoid). Capitulum have 4-6 yellow disc flowers. The highly branched elongating flowering stalks grow new distal flower clusters in a cyme arrangement.

Leaves: Are alternately arranged along the stem, have smooth edges, are linear, flat, light green, and are covered in dense short, soft hairs (tomentose).

Stems: Are flexible, pale green, tomentose, highly forked, are photosynthetic, and are irregularly branched from a decentralized base (deliquescent).

Plants: Are 10-200 cm tall and bloom August through October.

SITE AND HABITAT

Common across the INL Site; especially in deep, gravelly soils.

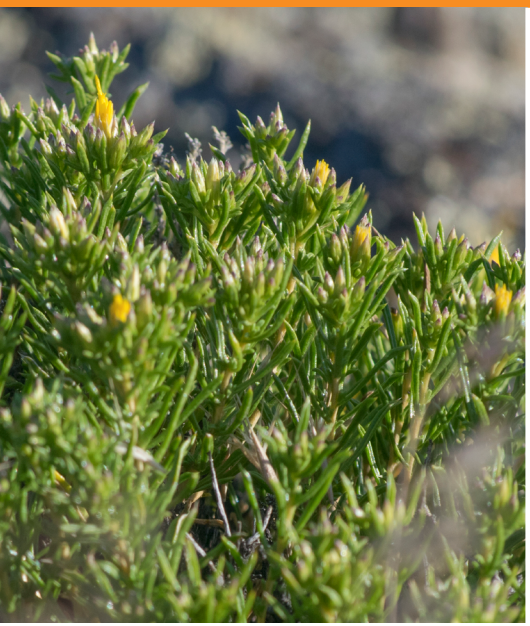
NOT TO BE MISTAKEN FOR

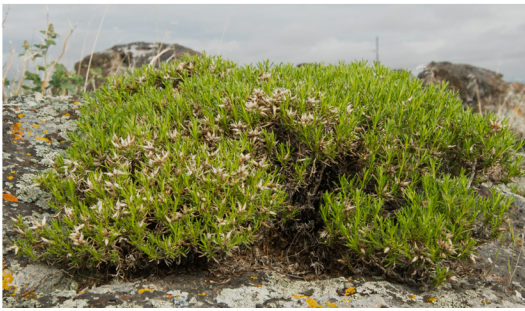
CHVI: Leaves are twisted, deep green, and hairless, and stems have brittle greyish-white bark near the stem tips.

AKA: *Chrysothamnus nauseosus*

Fun Facts: This species is an important food source for many pollinators in fall. It has also been an important plant for commercial industry. It was first studied to be a commercial rubber substitute during WW2 and is still used today as a small commercial rubber source.

NATIVE





COMMON NAME
dwarf goldenbush

FAMILY
Sunflower (*Asteraceae*)

IDENTIFYING CHARACTERISTICS

Flowers: Are densely clustered in a flower head (capitulum). There are flowers with 5-lobed tubes (disc) encircled by flowers with long tongue-like lobe (ray) in each capitulum (radiate). Capitula have 4-10 yellow disc flowers and up to 10 bright yellow ray flowers.

Leaves: Are alternately arranged on the stem, 1-1.5 cm long, bright green, linear, attach directly to the stems (sessile), and produce a resinous substance that has a lemon-like odor.

Stems: Are leafy, are equal in length to flowering stalks, densely spreading from a centralized base (divaricate) that is woody.

Plants: Are 5-20 cm tall, have a neat cushion-like growth shape, and bloom from July to September.

SITE AND HABITAT

Found throughout the INL Site on basalt outcroppings and cliff walls.

NOT TO BE MISTAKEN FOR

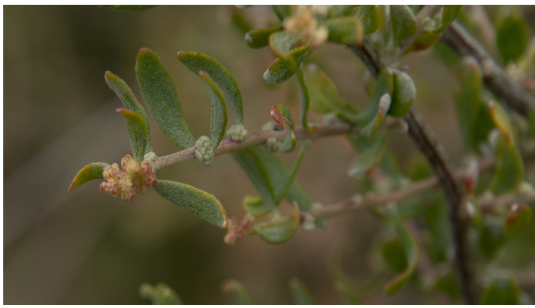
STAC: Stems are leafless and the basal leaves are stiff, ridged, and can be sharply tipped.
GUSA: Stems are irregularly branched from a decentralized base (deliquescent), leaves are 2-4 cm long, and plants have an unkempt wiry growth shape.

AKA: *Haplopappus nanus*

Fun Facts: This species is an important food source for many pollinators in the fall.

NATIVE

GRSP (NP) *Grayia spinosa*



COMMON NAME
spiny hopsage

FAMILY
Goosefoot (*Chenopodiaceae*)

IDENTIFYING CHARACTERISTICS

Flowers: Are tightly packed into bundles (glomerule) that attach directly to the flowering stalk (spike) from the angle formed at the leaf and stem (axillary). Flowers can have both female and male reproductive organs (perfect) or only female organs (pistillate) or male organs (staminate). Individuals plants can have perfect flowers (triecious) or have a single sex (dioecious). Pistillate flowers lack true petals and sepals but instead are enclosed by 2 small leaves (bracteoles) that increase in size as they age (accrescent), are fully fused, are 7.5-14 mm long by 6-12 mm wide, are flat, and are tinged citrine, white, pink to red. Staminate flowers have 4-5 sepals that are lobed and 4-5 stamens.

Leaves: Are alternate, lance shaped, but slightly wider near the tip than at the base, are green with whitish tips, have tapered bases attached directly to the stem (sessile), and do not taste salty.

Stems: Develop spiny tips and new growth has grey, flaky scales.

Plants: Are 50-150 cm tall, often dioecious or triecious, and bloom April to June.

SITE AND HABITAT

Occurs sporadically across the INL Site in a range of soil textures.

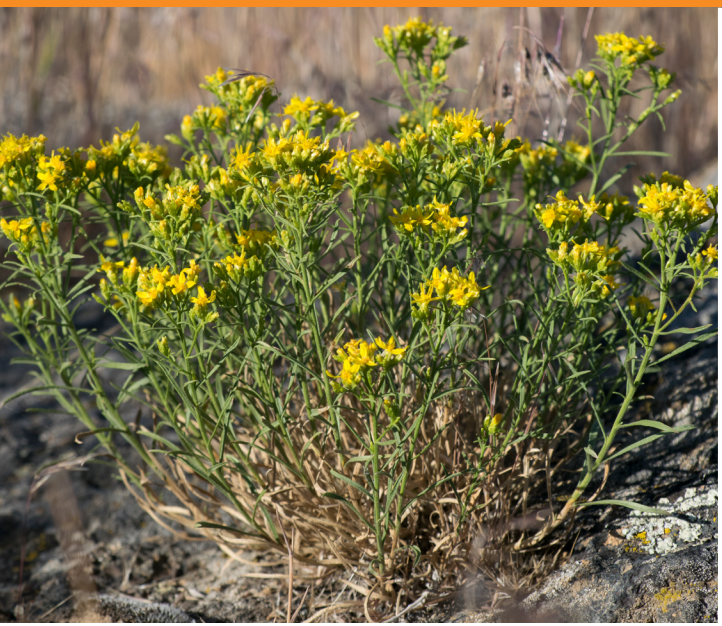
NOT TO BE MISTAKEN FOR

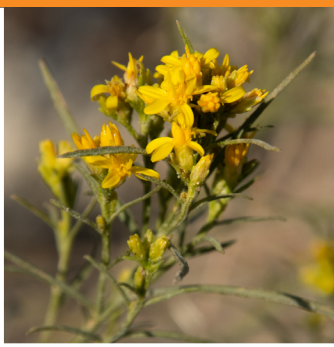
ATCO: Leaves are attached to distinct stalks (petioles) and are 15-50 cm tall.

AKA: *Atriplex spinosa*

Fun Facts: It is the only species in this genus (monotypic) and the namesake for this genus is the namesake for the renowned American botanist and Harvard professor, Asa Gray (1810-1888).

NATIVE





COMMON NAME
broom snakeweed

FAMILY
Sunflower (*Asteraceae*)

IDENTIFYING CHARACTERISTICS

Flowers: Are densely clustered in a flower head (capitulum). There are flowers with 5-lobed tubes (disc) encircled by flowers with a long tongue-like lobe (ray) in each capitulum (radiate). Capitula have 3-8 yellow disc flowers and 3-8 bright yellow ray flowers. Capitula grow on different points of the flower stalk and form loose clusters of terminal blossoms (corymb). The flowering stalks are much longer than stems and are retained over winter, giving plants an unkempt wiry appearance.

Leaves: Are alternately arranged along the stem, 2-4 cm long, linear; they are dotted with glands that give them a rough texture.

Stems: Have leaves and are irregularly branched from a decentralized base (deliquescent) that is woody.

Plants: Are 10-40 cm tall and bloom from July through October.

SITE AND HABITAT

Found throughout the INL Site on and near basalt outcroppings.

NOT TO BE MISTAKEN FOR

CHVI: Leaves are twisted. **ERNA:** Capitula only have disc flowers (discoid) and leaves have soft hairs. **ERNA2:** Stems densely spread from a centralized base (divaricate), leaves are 1-1.5 cm long, and plants have neat cushion-like shape.

AKA: None

Fun Facts: This is an important food source for some wildlife species like mule deer and it can comprise up to 28% of a pronghorn's diet.

NATIVE

KRLA (NP) *Krascheninnikovia lanata*

COMMON NAME
winterfat

FAMILY
Goosefoot (*Chenopodiaceae*)

IDENTIFYING CHARACTERISTICS

Flowers: Are tightly packed into bundles (glomerule) that attach directly to the flowering stalk (spike) from the angle formed at the leaf and stem (axillary). Female flowers (pistillate) and male flowers (staminate) are often on separate plants (dioecious). Pistillate flowers lack true petals and sepals but instead are enclosed by 2 small leaves (bracteoles) that increase in size as they age (accrescent), are densely covered in stiff, coarse hairs (hirsute), and are 4-7.5 mm long. Staminate flowers have 4 sepals that are lobed, 4 pink anther sacs, and fall shortly after flowering. All flowers are small and discreet.

Leaves: Have curled under edges (revolute) and are linear, entire, alternate, single to bundled (fascicles), and are covered in dense, short soft hairs (tomentose).

Stems: Are herbaceous, upright, tomentose, irregularly branched from a decentralized base (deliquescent) that is generally concealed by the leaves.

Plants: Are 15-50 cm, often dioecious, and bloom March through July.

SITE AND HABITAT

Scattered across the INL Site, occasionally dominate in fine-textured alkaline soils.

NOT TO BE MISTAKEN FOR

TECA: Leaves have flat edges and stems are woody. **ARTR, ARNO, ARAR, ARTP, ARTRT:** Leaves have 3 lobed teeth and plants are woody.

AKA: *Eurotia lanata, Ceratoides lanata*

Fun Facts: This species is a great forage resource for many wildlife species.

NATIVE

COMMON NAME
granite prickly phlox

FAMILY
Phlox (*Polemoniaceae*)

IDENTIFYING CHARACTERISTICS

Flowers: Have a tube of 5 fused, flared, and flattened petals (salverform) that are cream to pale salmon. Flowers are attached directly to the flowering stalk in a spike arrangement inside the angle formed by the leaf and stem (axillary) and are alternately arranged.

Leaves: Are alternate to almost opposite (subopposite) and attach directly to the stem (sessile). Leaves are deeply cleft into 3-9 spine tipped segments, making them appear as if they occur in clusters along the stem. Dead leaves often remain on the lower branches.

Stems: Are woody and irregularly branched from a decentralized base (deliquescent).

Plants: Are 10-40 cm tall and bloom May to July.

SITE AND HABITAT

Scattered across the INL Site on medium to coarse-textured, or occasionally rocky soils; often a component of the understory of sagebrush plant communities.

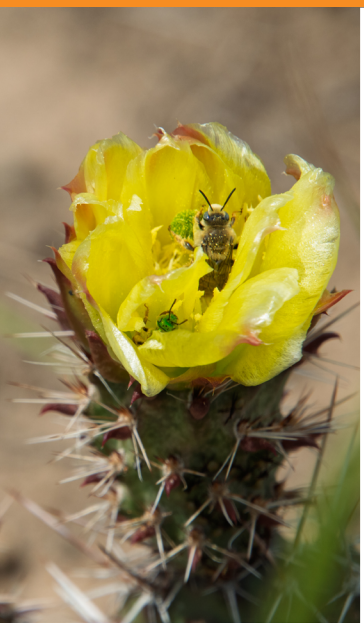
NOT TO BE MISTAKEN FOR

PHLO, PHHO, PHAC: Plants are forbs with entire, opposite leaves on herbaceous stems.
LIWA: Leaves are opposite, flowers have 6 petals, and this plant is rare.

AKA: *Leptodactylon pungens*

Fun Facts: Studies have indicated that this species is most often visited by butterfly species in the Pieridae and Lycaenidae families.

NATIVE



COMMON NAME
prickly pear

FAMILY
Cactus (*Cactaceae*)

IDENTIFYING CHARACTERISTICS

Flowers: Are attached directly to the stems (sessile); flowers appear to occur in clusters but are solitary individuals that are tightly compacted along the stem. Flowers have numerous showy petals that range from bright yellow to magenta and generally fade to a salmon-scarlet.

Leaves: Are barbed spines subtended by minuscule, rust-colored spines (areole).

Stems: Are pads that are flattened and succulent.

Plants: Are 5-20 cm tall and bloom from May to June.

SITE AND HABITAT

Found in a wide range of soil textures, especially sand. The yellow variety is common across the INL Site, while the magenta variant primarily occurs in the southern portion.

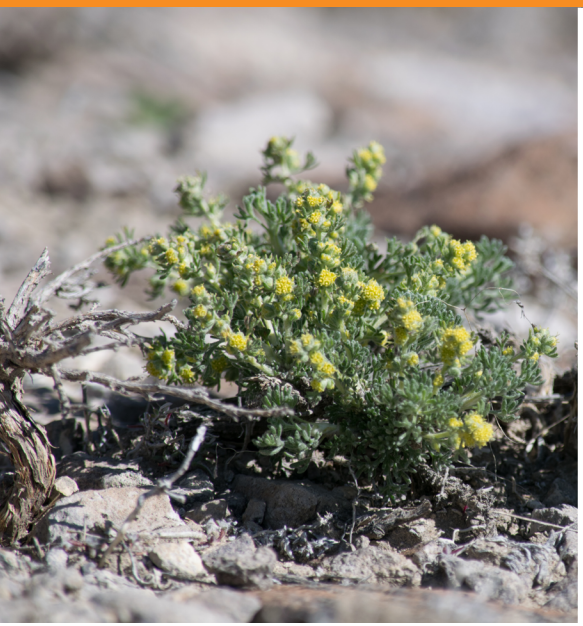
NOT TO BE MISTAKEN FOR

N/A

AKA: None

Fun Facts: The individual blooms are open for a 12 or 24 hour period. Plants can reproduce from seed, but favor vegetative clonal reproduction. Pads are edible, taste somewhat like cucumber, and are used to thicken soups. Spines are usually roasted off during preparation. Large spines can be removed from skin by hand, but smaller spines are more effectively removed by applying adhesive tape or thin layer of liquid glue that dries to the skin and to a gauze covering which is then pulled off.

NATIVE



COMMON NAME
bud sage

FAMILY
Sunflower (*Asteraceae*)

IDENTIFYING CHARACTERISTICS

Flowers: Are densely clustered in a flower head (capitulum). Only flowers with 5-lobed tubes (disc) occur in the capitula (discoid). Capitula are 2-3.5 mm tall and have 5-13 showy yellow disc flowers. Capitula are attached to stalks (pedicels) that are spike-like in their attachment to the flowering stalk (spiciform).

Leaves: Are bright green, are alternately arranged along the flowering stalks, and the upper surfaces are covered in long, soft shaggy hairs (villous). The leaf edge has two levels of 3-5 lobes clefted from a central point (bipalmatifid).

Stems: Are densely spreading from a centralized base (divaricate) and the old lateral stems can become thorny.

Plants: Are 5-30 cm tall, copiously villous, have a rounded crown, and bloom from April to June.

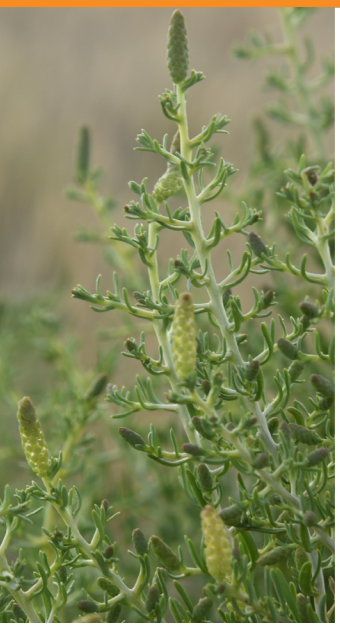
SITE AND HABITAT
Found scattered across the INL Site in a range of well-drained soils.

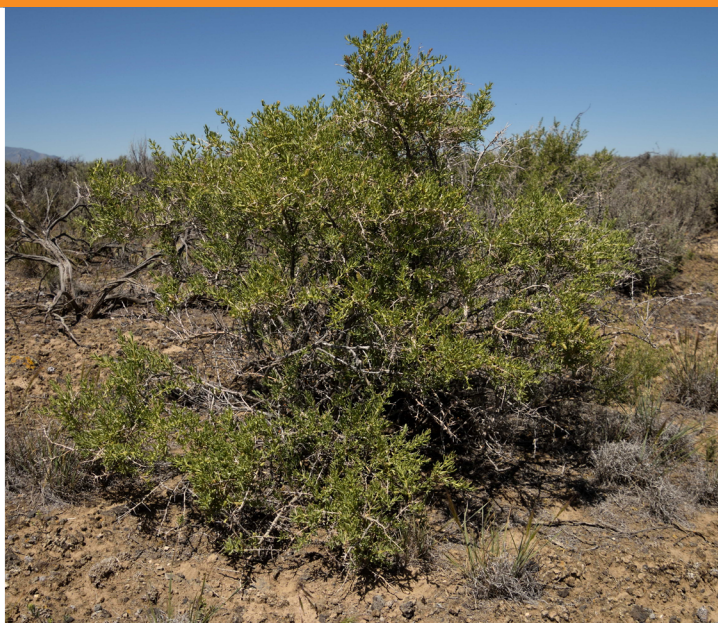
NOT TO BE MISTAKEN FOR
N/A

AKA: *Artemisia spinescens*

Fun Facts: This species was once included within the Artemisia genus complex but differeing views of generic circumscriptions have separated species with thorny stems and realatively large capitula. Interestingly, the phenology has been the distinguishing anotomical characteristic for P. desetorum.

NATIVE





COMMON NAME
greasewood

FAMILY
Goosefoot (*Chenopodiaceae*)

IDENTIFYING CHARACTERISTICS

Flowers: Are tightly packed into bundles (glomerule) that attach directly to the flowering stalk (spike) from the angle formed at the leaf and stem (axillary). Unisexual female flowers (pistillate) and male flowers (staminate) are often on the same plant (monoecious). Pistillate flowers lack true petals, but the fused sepal develops an orbital winged-disk resembling a tutu. Staminate flowers lack petals and instead have a tiny leaf (bract) that is shaped like a shield (peltate); bracts surround flowers in a pattern that resembles scaly cones.

Leaves: Are green, alternate, succulent, linear, and attach directly to the stem (sessile).

Stems: Are white and turn grey to brown as they age, have numerous spines, are irregularly branched from a decentralized base (deliquescent), and are highly forked.

Plants: Are 100-250 cm tall, often monoecious, and bloom from May through July; fruit continue to mature into October.

SITE AND HABITAT

Found scattered across the INL Site in fine to medium textured soils.

NOT TO BE MISTAKEN FOR

N/A

AKA: None

Fun Facts: While it has been included in the Chenopodiaceae, recent treatments have placed this genus it into its own family, Sarcobataceae.

NATIVE

COMMON NAME
spineless horsebrush

FAMILY
Sunflower (*Asteraceae*)

IDENTIFYING CHARACTERISTICS

Flowers: Are densely clustered in a flower head (capitulum). Only flowers with 5-lobed tubes (disc) occur in the capitula (discoid). Capitulum have 4-5 bright yellow disc flowers. The highly branched elongating flowering stalks grow new distal flower clusters (cyme).

Leaves: Are alternately arranged along the stem, have flat edges, are lance shaped, and are covered in dense, white, soft, matted hairs (tomentose).

Stems: Are woody, are covered in tomentose hairs, lack spines, are irregularly branched from a decentralized base (deliquescent), and are highly branched. The stems are retained over winter.

Plants: Are 40-100 cm tall and bloom May through July.

SITE AND HABITAT

Scattered across the INL Site on medium to coarse-textured soils and generally associated with sagebrush shrubland plant communities.

NOT TO BE MISTAKEN FOR

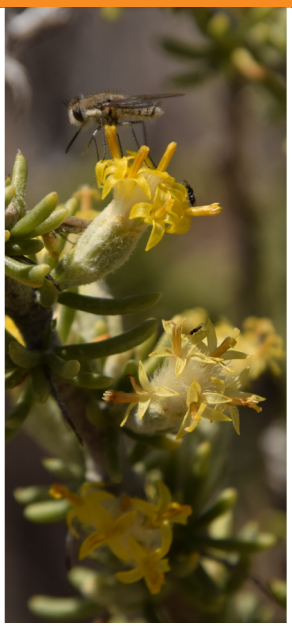
KRLA: Has herbaceous stems and leaf are roll under (involute). **ARTR, ARNO, ARAR, ARTP, ARTRT, ARLU:** Have leaves with 3 lobes.

AKA: None

Fun Facts: This species has many ethnobotanical uses that range from treating various ailments to making yellow dyes.

NATIVE

TESP (NP) *Tetradymia spinosa*


COMMON NAME
catclaw-horsebrush

FAMILY
Sunflower (*Asteraceae*)

IDENTIFYING CHARACTERISTICS

Flowers: Are densely clustered in a flower head (capitulum). Only flowers with 5-lobed tubes (disc) are found in the capitula (discoid). Capitula occur in pairs or singly (solitary), have 5-9 bright yellow disc flowers, and attach to stems from the angle formed at the leaf (axillary).

Leaves: Are alternately arranged along the stem, bright green, and linear.

Stems: Have numerous green downward-curved spines, are irregularly branched from a decentralized base (deliquescent), and immature stems are white because they are covered in dense, soft matted hairs (tomentose).

Plants: Are 40-100 cm tall and bloom April through June.

SITE AND HABITAT
Scattered in patches throughout the INL Site in a range of soil textures.

NOT TO BE MISTAKEN FOR
N/A

AKA: None

Fun Facts: It is now thought to be first collected by the Scottish fur trapper John McLeod in 1839 near Fort Boise of Idaho after he was befriended by William Fraser Tolmie (1812- 1886) during their involvement with the Hudson Bay Company.

NATIVE

Trees

Russian olive | *Elaeagnus angustifolia*

Great Horned Owl | *Bubo virginianus*

What is a Tree?

Trees are perennial plants that grow specialized woody trunk structures to support robust limbs and branches.

Areas where trees are abundant are very localized across the INL Site. Woodlands and patchy tree stands tend to occur in areas with increased water availability, such East and Middle Butte, the foothills at the base of the Little Lost and Lemhi Mountain ranges, and along the channel of the ephemeral Big Lost River. Occasionally, tree stands may also be found associated with crevices on basalt outcroppings.

Trees are often identified using crown shape; bark texture; and the shape and organization leaves, flowers, fruits, and cones. Two of the most common tree species on the INL Site include Utah juniper (*Juniperous osteosperma*) and narrowleaf cottonwood (*Populous angustifolia*). Utah juniper is an evergreen conifer with needle-like leaves and seed-bearing cones that forms sporadic stands in large basalt outcroppings and more extensive woodlands on slopes at higher elevations. Narrowleaf cottonwood is a deciduous broadleaf species that occurs as individuals or small, sparse stands along ephemeral river channels.

Field Notes

COMMON NAME
Utah juniper

FAMILY
Cypress (*Cupressaceae*)

IDENTIFYING CHARACTERISTICS

Cones: Have blue to black fleshy scales with a waxy (glaucous) coating and often bear 1 seed but occasionally have 2 seeds. The female cones are reddish brown after removing the glaucous coating.

Leaves: Are small, scale-like, occur in whorls of 3's, and leaf margins have teeth-like hairs under 20x magnification.

Plants: Are evergreen and reach 2–4 m tall with a rounded, spreading appearance. The trunk may be single-stemmed or composed of multiple stems.

SITE AND HABITAT

Form woodlands around the buttes and foothills; occur in scattered stands on and around basalt outcroppings.

NOT TO BE MISTAKEN FOR

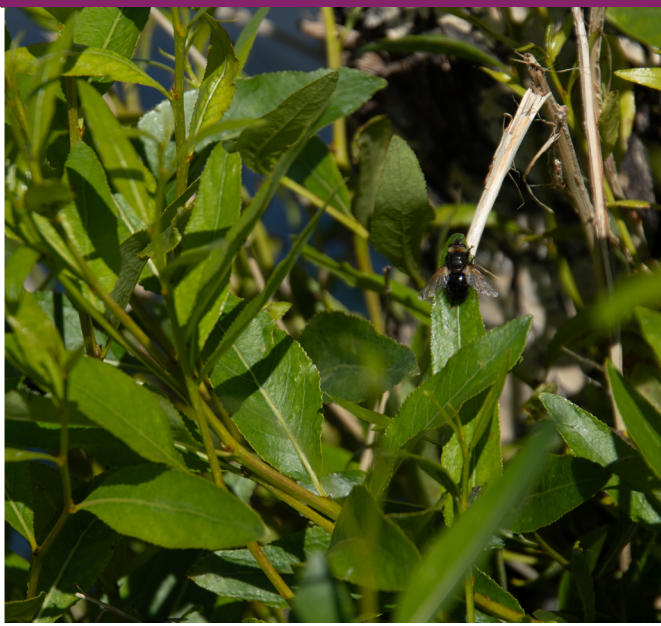
JUSC: Leaves are in opposite pairs, leaf margins are entire under 20x magnification, and plants have a conical or pyramidal appearance. **JUOC:** Female cones have dark bluish-brown fleshy scale, and plants are up to 20 m tall.

AKA: *Juniperus californica* ssp. *osteosperma*

Fun Facts: This species is remarkably long-lived, with one specimen documented to be 1,275 years old. Additionally, the cones are technically megastrobili and are the primary flavor in gin.

NATIVE

POAN (NP) *Populus angustifolia*



COMMON NAME
narrowleaf cottonwood

FAMILY
Willow (*Salicaceae*)

IDENTIFYING CHARACTERISTICS

Fruits: Are tightly compacted and dangle from stems (catkin). The edge of tiny leaves at the base of each catkin (bracts) are hairless.

Leaves: Are lance shaped, 4-8 cm long by 0.8-2.5 cm wide, hairless, and connected to the stem with round stalks (petiole) about 0.2-0.8 cm long. The upper side is often a deeper green than the underside.

Bark: Is light brown and forms shallow fissures.

Plants: Can grow up to 20 m tall and their trunks can reach 70 cm in diameter. Plants are deciduous and bloom from April to May to set cotton-like seeds from June through July.

SITE AND HABITAT

Scattered along ephemeral riverine channels.

NOT TO BE MISTAKEN FOR

POBA: Leaf petioles are 1-5 cm long and are round to oval in cross section; its leaves are wider at 2.5-6 cm. **ELAN:** Leaves are covered in thick white star shaped hairs (stellate), flowers are yellow, fruits are 10-15 mm in diameter, and round.

AKA: *Populus fortissima, P. balsamifera* var. *angustifolia, P. canadensis* var. *angustifolia*

Fun Facts: Narrowleaf cottonwood groves require spring flooding to trigger seedling germination. Altered stream flows and reduced summer water tables can adversely affect seedling establishment.

NATIVE