

# Flora of Anaho Island National Wildlife Refuge

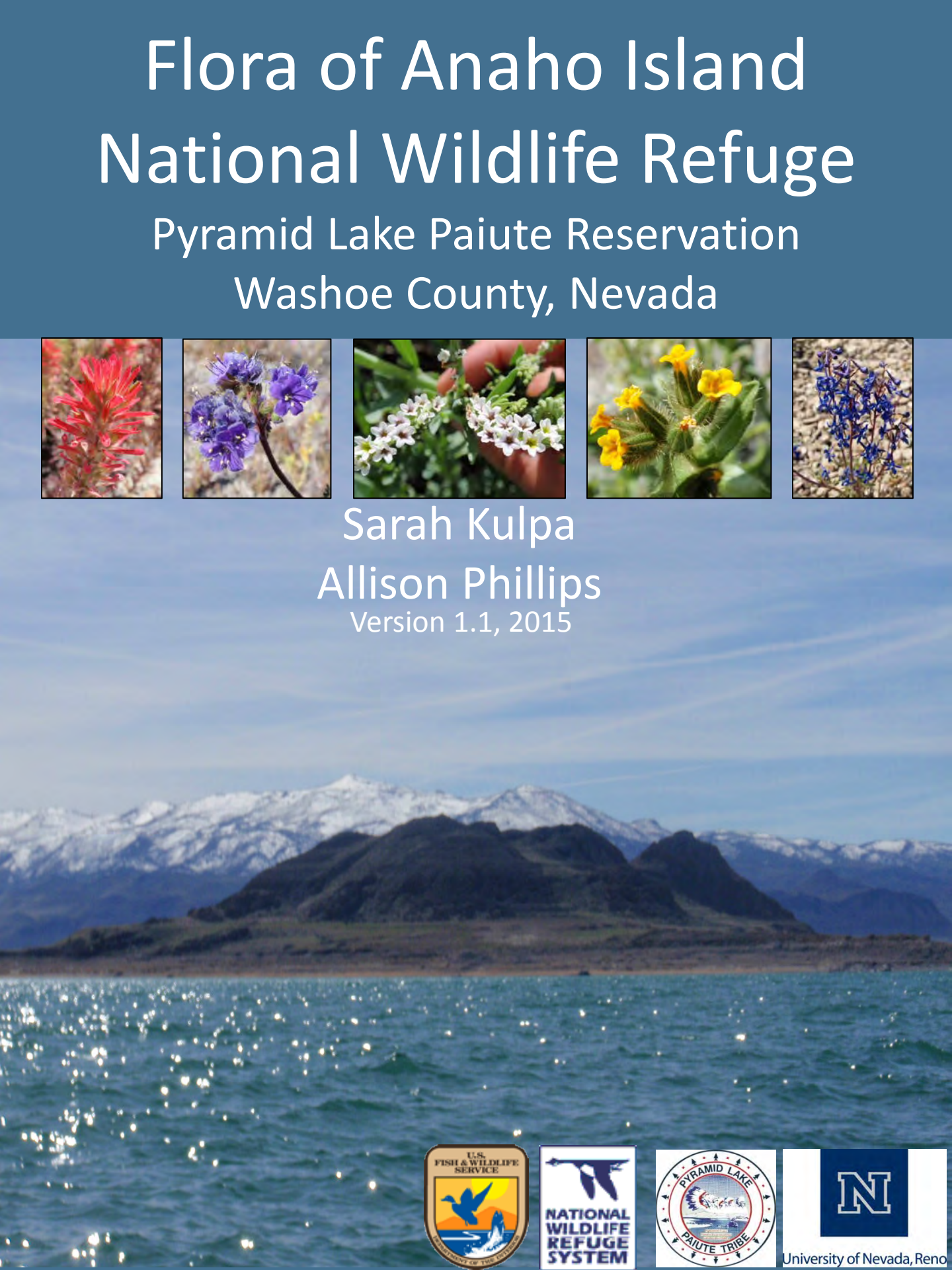
Pyramid Lake Paiute Reservation  
Washoe County, Nevada



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Version 1.1, 2015



# About the Authors

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Sarah and Allison collecting vegetation data on Anaho Island, NV.

# Acknowledgements

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This booklet was developed based on data and herbarium specimens collected by the authors during 2009-2011 (Kulpa and Leger 2013; Phillips 2011), as well as data and herbarium specimens collected in 1964 by W. Verne Woodbury (Woodbury 1966). All herbarium specimens are housed at the University of Nevada, Reno herbarium. Photographs used throughout the booklet were taken by Owen Baughman, Brian Kulpa, Sarah Kulpa, Elizabeth Leger, Allison Phillips, and Donna Withers. Plant common and scientific names, distinguishing characteristics, and terminology are as found in the USDA NRCS Plants database (<http://plants.usda.gov>), Jepson Flora Project (eds.) 2013. Jepson eFlora, (<http://ucjeps.berkeley.edu>), Harris and Harris (2009), or as provided by the authors.

Version 1.1 contains updates performed by EA Leger, including reformatted pictures and the addition of new species.



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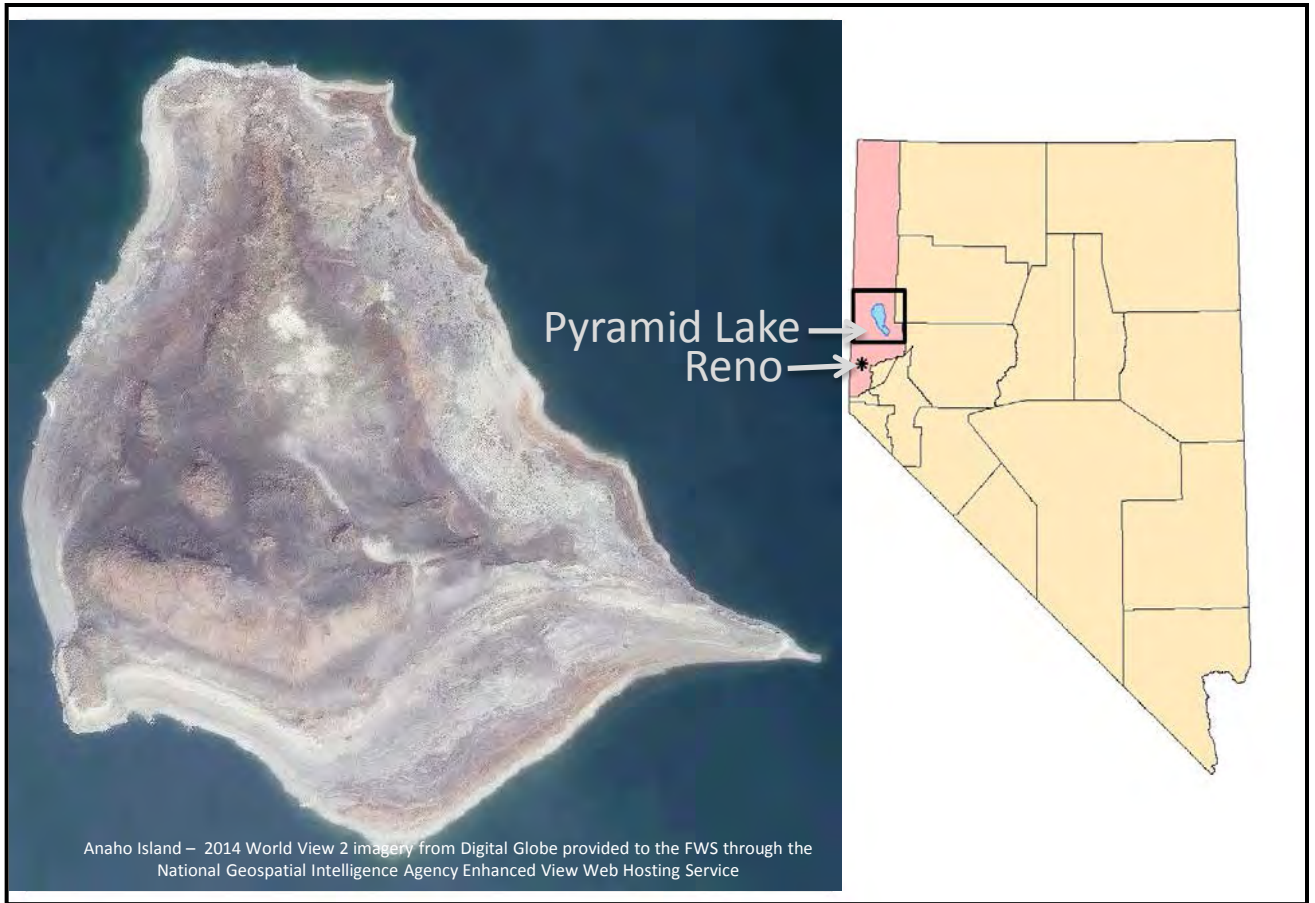
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# I. Map of Anaho Island



Anaho Island National Wildlife Refuge (NWR) is located near the eastern shore of Pyramid Lake, Washoe County, Nevada and is part of the Pyramid Lake Paiute Reservation. Pyramid Lake is approximately 35 miles northwest of Reno, Nevada. Anaho Island NWR was established in 1913 to provide secure nesting habitat for migratory birds, especially colonial nesting birds such as American white pelicans (*Pelecanus erythrorhynchos*), double-crested cormorants (*Phalacrocorax auritus*), and California gulls (*Larus californicus*). This island ecosystem supports a unique variety of birds, plants, reptiles, and small mammals. Anaho Island NWR is closed to the public.

## II. Commonly Used Terms

A complete glossary of terms can be found in Section IX.

### **Types of plants found on Anaho Island** (definitions from Webster's New College Dictionary 2009)

**Grass:** A herbaceous plant with narrow leaves; hollow, jointed stems; and spikes or clusters of membranous flowers borne on smaller spikelets. Grasses may be annual or perennial.

**Forb:** A herbaceous, non-woody plant other than a grass. Forbs may be annual, biennial or perennial.

**Shrub:** A low, woody plant with one to several stems; usually shorter than a tree. Shrubs are perennial.

**Tree:** A tall, woody plant with a single trunk; usually taller than a shrub. Trees are perennial.

### **How plants grow** (definitions from Harris and Harris 2009)

**Annual:** A plant which germinates from seed, grows flowers, sets seed, and dies in the same year.

**Biennial:** A plant which lives two years, usually forming a basal rosette of leaves the first year, then flowers and fruits the second year.

**Perennial:** A plant that lives three or more years once established.

**Native Plant:** With respect to a particular ecosystem, a species that, other than as a result of an introduction, historically occurred or currently occurs in that ecosystem. (definition from the U.S. Fish and Wildlife Service's National Wildlife Refuge System Biological Integrity, Diversity, and Environmental Health Policy 601FW3).

**Non-Native Plant:** With respect to a particular ecosystem, any species, including its seeds, eggs, spores, or other biological material capable of propagating that species, that is not native to that ecosystem (definition from the U.S. Fish and Wildlife Service's Wilderness Stewardship Policy 610FW1). A non-native plant did not historically occur in a particular ecosystem, but has become established there as a result of human related changes to the landscape. Non-native plants can reduce biodiversity by displacing native and rare plant species. They can also alter ecosystem functions and characteristics, such as wildfire intensity and frequency, or soil and hydrologic characteristics, that indirectly impact native species.

**Historic Condition:** The composition, structure, and functioning of ecosystems resulting from natural processes that we believe, based on sound professional judgment, were present prior to substantial human related changes to the landscape (definition from the U.S. Fish and Wildlife Service's National Wildlife Refuge System Biological Integrity, Diversity, and Environmental Health Policy 601FW3).



### III. Grasses

#### Scientific Name

*Achnatherum speciosum*  
*Bromus berterioanus*  
*Bromus diandrus ssp. rigidus*  
*Bromus rubens*  
*Bromus tectorum*  
*Distichlis spicata*  
*Elymus elymoides ssp. elymoides*  
*Hordeum jubatum*  
*Hordeum murinum*  
*Poa secunda*

#### Common Name

desert needlegrass  
Chilean chess  
ripgut brome  
red brome  
cheatgrass  
saltgrass  
squirreltail  
foxtail barley  
mouse barley  
Sandberg bluegrass



*Achnatherum speciosum*  
desert needlegrass

ACSP12  
POACEAE

A bunching, perennial grass



- 12-24 inches tall
- Spikelets appear feathery due to hairy awns
- Awns are sharply bent
- Callus is well developed and sharp



**Habitat on Anaho Island:** Common, especially on southern and western areas. Occurs in large patches at lower elevations, and becomes more sporadic as elevation increases. Large patches of this grass without their inflorescence resemble hedge-hogs scattered across the landscape.



*Bromus berterioanus*  
Chilean chess

BRBE6  
Poaceae

A **non-native**, annual grass

- 12-24 inches tall
- Solitary spikelets
- Leaf blades are sparsely to densely covered with hair
- Awn is bent and twisted below the middle



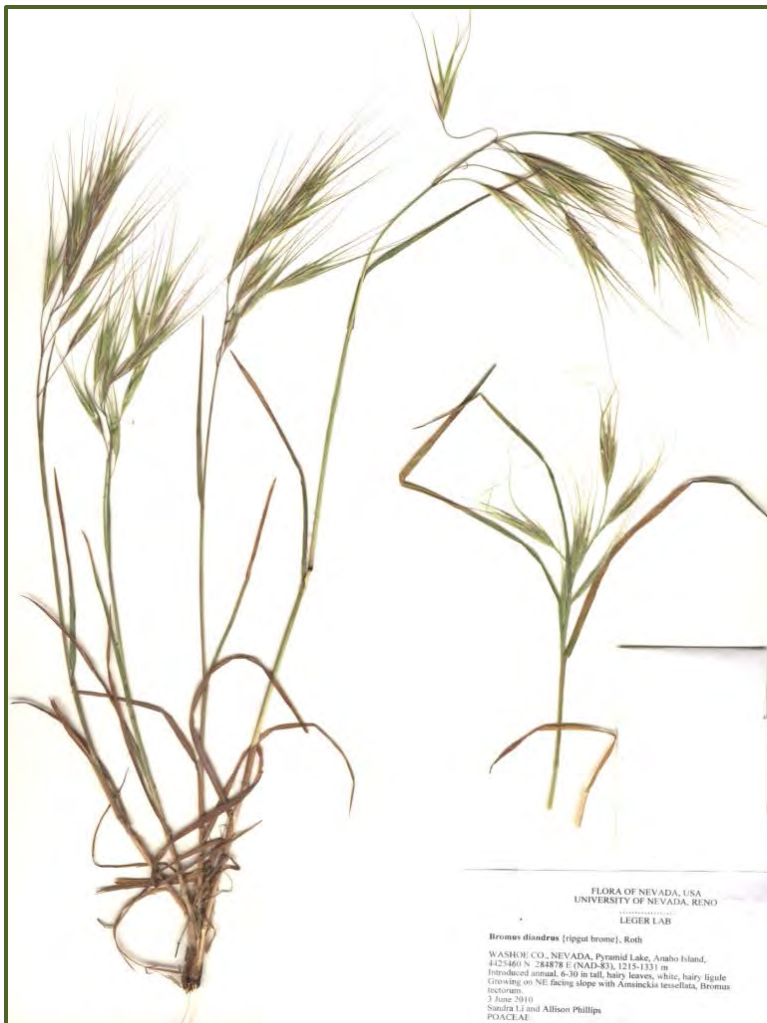
**Habitat on Anaho Island:** Found at mid-elevations in rocky areas. Uncommon.

*Bromus diandrus* ssp. *rigidus*  
ripgut brome

BRDIR  
Poaceae

A **non-native**, annual grass

- 12-36 inches tall
- Leaf blades are flat and hairy
- Florets have very long awns



**Habitat on Anaho Island:** Found in patches along western slope and high elevations.

*Bromus rubens*  
red brome

BRRU2  
Poaceae

A **non-native**, annual grass

- 4-16 inches tall
- Erect inflorescence
- Leaf blade covered in small, soft hairs
- Brush-like inflorescence that becomes reddish-purple at maturity



**Habitat on Anaho Island:** Found all over the island; its presence increases as elevation increases.



*Bromus tectorum*  
cheatgrass

BRTE  
Poaceae

A **non-native**, annual grass

- 2-35 inches tall
- Drooping inflorescence when mature
- Leaf blade covered in soft hairs
- Spikelets are nodding towards one-side and spikes turn purple with maturity



**Habitat on Anaho Island:** Common throughout the island especially along lower elevation beach areas.

*Distichlis spicata*  
saltgrass

DISP  
Poaceae

A rhizomatous, perennial grass

- 4-20 inches tall
- Salt excreted through glands (and present on leaves)
- 2-ranked leaves (opposite sides of axis)
- Inflorescence of multiple spikelets



**Habitat on Anaho Island:** Common, restricted to lower elevation shorelines. Dense colonies of very green, relatively large plants on northeastern (pelican) shore of the island.

*Elymus elymoides* ssp. *elymoides*  
squirreltail

ELELE  
Poaceae

A perennial bunchgrass

- 4-20 inches tall
- Spiked inflorescence
- Mature seeds appear twisted with awns looking like a squirrel's tail



**Habitat on Anaho Island:** Common on northwestern and southern portions of the island that were exposed after 1911; more sparsely distributed as elevation increases.



*Hordeum jubatum*  
foxtail barley

HOJU  
Poaceae

A native, tufted, perennial grass

- 12-36 inches tall
- Inflorescence a terminal spike
- No auricles at the base of leaf blades
- When in flower, nodding clusters are pale green



**Habitat on Anaho Island:** Not seen during 2009-2010 surveys; however, recorded by Woodbury in 1964.

*Hordeum murinum*  
mouse barley

HOMU  
Poaceae

A **non-native**, annual grass

- Up to 10 inches tall
- Inflorescence a spike
- Well-developed auricles at the base of leaf blade



**Habitat on Anaho Island:** Sparse on the island and is found at low elevations.

*Poa secunda*  
Sandberg bluegrass

POSE  
Poaceae

A small-clumping, perennial grass

- Up to 12 inches tall
- Leaves with prow-shaped tip
- Numerous, small basal leaves
- Begins growth in early spring



**Habitat on Anaho Island:** Common at lower elevations and becomes more sporadic as elevation increases.



## IV. Annual Forbs

### Scientific Name

*Amaranthus albus*  
*Amsinckia tessellata*  
*Atriplex micrantha\**  
*Atriplex rosea\**  
*Bassia hyssopifolia*  
*Camissonia boothii ssp. boothii*  
*Camissonia claviformis ssp. cruciformis*  
*Caulanthus lasiophyllus*  
*Chaenactis stevioides*  
*Chamaesyce serpyllifolia ssp. serpyllifolia\**  
*Cryptantha pterocarya*  
*Descurainia pinnata*  
*Eriogonum deflexum*  
*Eriogonum nidularium*  
*Eriogonum pusillum*  
*Erodium cicutarium*  
*Galium aparine*  
*Gilia inconspicua*  
*Halogeton glomeratus\**  
*Lactuca serriola*  
*Malacothrix glabrata*  
*Mentzelia albicaulis*  
*Mentzelia veatchiana*  
*Phacelia crenulata*  
*Psathyrotes annua*  
*Rafinesquia neomexicana*  
*Salsola tragus*  
*Sisymbrium altissimum*  
*Verbascum thapsus\**

### Common Name

prostrate pigweed  
bristly fiddleneck  
twoscale saltbush  
tumbling saltweed  
fivehorn smotherweed  
Booth's suncup  
browneyes  
California mustard  
fleshcolor pincushion  
thymeleaf sandmat  
wingnut cryptantha  
western tansymustard  
flatcrown buckwheat  
birdnest buckwheat  
yellowturbans  
redstem stork's bill  
stickywilly  
shy gilia  
saltlover  
prickly lettuce  
smooth desertdandelion  
whitestem blazingstar  
Veatch's blazingstar  
cleftleaf wildheliotrope  
annual psathyrotes  
desert chicory  
prickly Russian thistle  
tall tumbledustard  
common mullein

\* species which have been observed on Anaho Island, but for which neither herbarium mounts nor photographs were available, so information is not provided in this edition

*Amaranthus albus*  
prostrate pigweed

AMAL  
Amaranthaceae

A **non-native**, annual forb

- 6-36 inches tall and basally branched
- Stems are light green
- Alternate leaves
- Flowers are in small, axillary clusters and have only sepals



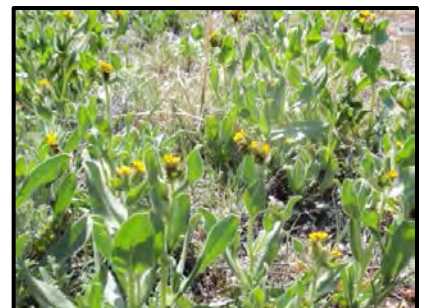
**Habitat on Anaho Island:** Not seen during 2009-2010 surveys; however, recorded by Woodbury in 1964.

*Amsinckia tessellata*  
bristly fiddleneck

AMTE3  
Boraginaceae

A bristly, sticky-haired, annual forb

- Up to 24 inches tall
- Stiff, bristly hairs cover the entire plant
- Scorpioid, coiled inflorescence
- Yellow trumpet-shaped 5-petaled flowers with orange markings in the throat



**Habitat on Anaho Island:** Common on western and southern sides of the island. Very common during 2010 (a wet year).



*Bassia hyssopifolia*  
fivehorn smotherweed

BAHY  
Chenopodiaceae

A **non-native**, annual forb

- Up to 36 inches tall
- Younger stems are covered with long, soft hairs
- Flowers are in a spike and are only made up of sepals
- Sepals have five distinctive hook structures which surround each seed



**Habitat on Anaho Island:** Found at low elevations along the northeast and south beaches.

*Camissonia boothii* ssp. *boothii*  
Booth's suncup

CABOB  
Onagraceae

A glandular, hairy, annual forb

- 5-15 inches tall
- 4-petaled flowers that are pink or white
- Head-like stigma



**Habitat on Anaho Island:** Only found on sandy/gravelly shoreline habitat on the northwest, west and south portions of the island. This species can flower as early as April and as late as October.

*Camissonia claviformis* ssp. *cruciformis*  
browneyes

CALC  
Onagraceae

A glandular, hairy, annual forb

- 4-24 inch tall flower stalks
- 4 petal flowers that are white or yellow with a dark spot near the inner base



**Habitat on Anaho Island:** Only found on sandy/gravelly shoreline habitat of southwest beach.



*Caulanthus lasiophyllus*  
California mustard

CALA35  
Brassicaceae

A stiff-hairy, annual forb

- 8-40 inches tall
- Stems are erect and often unbranched
- Basal leaves wither quickly
- 4-petaled white flowers with variable size



**Habitat on Anaho Island:** Uncommon; found in one location on the northwestern side of the island.

*Chaenactis stevioides*  
desert pincushion

CHST  
Asteraceae

A branching, rayless, annual forb

- 2-18 inches tall
- Stems are hairy with cobwebby fibers that thin with age
- No ray flowers - yellow bumps in the center of the flower are tightly closed disk flowers that will open white. Fully open disk flowers are very narrow, white tubes that resemble ray flowers.



**Habitat on Anaho Island:** Common on sandy/rocky soils at lower elevations of the island.

*Cryptantha pterocarya*  
wingnut cryptantha

CRPT  
Boraginaceae

A bristly, annual forb

- 4-16 inches tall
- Stems with short, stiff hairs; leaves with bristly hairs
- Tiny, white, 5 petaled flowers that often occur in a coiled, spike-like cluster



**Habitat on Anaho Island:** Common on sandy/rocky soils at lower elevations of the island.



*Descurainia pinnata*  
western tansymustard

DEPI  
Brassicaceae

A hairy, multi-branched, annual forb

- Up to 28 inches tall
- Pinnately lobed leaves
- Tiny, yellow, four petaled flowers in a terminal raceme



**Habitat on Anaho Island:** Common at south and west beach areas and at lower elevations.

*Eriogonum deflexum*  
flatcrown buckwheat

ERDE6  
Polygonaceae

A small, branching, annual forb

- Up to 30 inches tall (typically shorter)
- Woolly, kidney-shaped basal leaves
- Flowers small (1-3 mm) with 6 tepals that are white to pink



**Habitat on Anaho Island:** Seen only on the south beach, during the spring of 2010 ( a wet year).

*Eriogonum nidularium*  
birdnest buckwheat

ERNI4  
Polygonaceae

A small, annual forb

- 2-12 inches tall
- Small, round basal leaves
- Rounded form with tangled branches
- Small (2-3 mm) fan shaped tepals, yellow-red



**Habitat on Anaho Island:** Common in sandy, gravelly, and rocky areas of the island, particularly on the western and southern sides. Seen at all elevations, in sand and gravel at low southern elevations, and in rocky outcrops at higher elevations.



*Eriogonum pusillum*  
yellowturbans

ERPU6  
Polygonaceae

An annual forb

- 5-30 cm tall
- Small, round basal leaves that are very white & woolly below
- Spindly, naked branches
- Small (1-2.5 mm) tepals, yellow becoming reddish



**Habitat on Anaho Island:** Only seen on the southern beach, during the spring of 2010 (a wet year).

*Erodium cicutarium*  
redstem stork's bill

ERC16  
Geraniaceae

A **non-native**, annual forb

- 1-24 inch hairy stems and spreads from a rosette along the ground
- Hairy leaves divided into narrow, fern-like lobed segments
- 5-petaled pink to purple flowers with a long, beaked fruit



**Habitat on Anaho Island:** Dense populations found on northeast side of island near nesting birds and along the south and northwest beaches.

A sticky, annual forb

- 2-12 inches tall
- Small flowers with 4, white petals
- Leaves borne in whorls of 6–8
- Leaves and stems have fine hairs that stick to clothes and fur



**Habitat on Anaho Island:** Found in shadier places in between rock crevices. Seen between rocks at the high elevation pelican viewing platform and the southwest beach area.



*Gilia inconspicua*  
shy gilia

GIIN2  
Polemoniaceae

A small, annual forb

- 2-12 inches tall
- Mostly basal, cobwebby leaves
- Small (2-3 mm) flowers with lavender lobes that have a purple spot at the base



**Habitat on Anaho Island:** Seen only during the wet year of 2010 growing at the base of the western slope of the island. Very hard to spot especially when growing with patches of *Erodium cicutarium*.

*Lactuca serriola*  
prickly lettuce

LASE  
Asteraceae

A **non-native**, annual forb

- 1-5 feet tall with milky sap
- Leaves (with a sharp spine on the back side of the midrib) grow along a spiny stem, getting smaller as they get closer to the top of the plant
- Branches only in the flowering portion of the plant
- Flower heads are yellow and composed of only ray flowers



**Habitat on Anaho Island:** Found mainly on northeast and southern beaches of the island.

*Malacothrix glabrata*  
smooth desertdandelion

MAGL3  
Asteraceae

A hairless, annual forb

- 2-16 inches tall
- Mostly basal leaves that wither by the time the flower opens
- Stalked, yellow, strap-like flowers that sometimes have an orange-tinged spot near the center of the cluster



**Habitat on Anaho Island:** Not seen during 2009-2010 surveys; however, recorded by Woodbury in 1964.



*Mentzelia albicaulis*  
whitestem blazingstar

MEAL6  
Loasaceae

A white-stemmed, annual forb

- 2-16 inches tall
- Basal rosette of leaves with narrow, pinnate pointed lobes
- Bright yellow flowers with 5 petals



**Habitat on Anaho Island:** Only seen during the wet year of 2010. Growing on west facing & south facing slopes on the southwestern side of the island. Seen growing with *Amsinckia tessellata* and *Mentzelia veatchiana*.

*Mentzelia veatchiana*  
Veatch's blazingstar

MEVE5  
Loasaceae

A hairy, annual forb

- 1-18 inches tall
- Deeply lobed basal leaves
- Yellow-orange flowers with five petals; petal bases are generally red-orange



**Habitat on Anaho Island:** Only seen during the wet year of 2010. Growing on west facing & south facing slopes on the southwest side of the island. Seen growing with *Mentzelia albicaulis* & *Amsinckia tessellata*.

*Phacelia crenulata*  
cleftleaf wildheliotrope

PHCR  
Hydrophyllaceae

A glandular, stiff-haired, annual forb

- 4-24 inches tall
- Dark green, pinnately divided leaves with scalloped margins
- Purple-blue bell shaped flower with 5 petals in a cyme that is curled at the tip like a scorpion's tail



**Habitat on Anaho Island:** Sparse on the island. Found in rocky patches along the western slope and randomly scattered rocky patches on the island, with just a few plants in each location. DO NOT TOUCH, the hairs on this plant can produce a rash similar to poison ivy.



*Psathyrotes annua*  
annual psathyrotes

PSAN  
Asteraceae

A grayish-green, annual forb

- 1-6 inches tall and forms a low, spreading mound
- Alternate, rounded leaves with teeth toward the tip
- Stems are purplish
- ¼ inch yellow, flower heads on short stalks in leaf axils



**Habitat on Anaho Island:** Grows in sandy, lower elevation southwest beach areas on the island. Larger population observed in 2010 (the wet year).

*Rafinesquia neomexicana*  
desert chicory

RANE  
Asteraceae

A hairless, milky-sapped, annual forb

- 6-24 inches tall with weak, zigzagging stems
- Small, toothed, and alternate stem leaves
- Large, white flower heads that occur singly at the end of branches



**Habitat on Anaho Island:** Seen at lower elevations on the island.

*Salsola tragus*  
prickly Russian thistle

SATR12  
Chenopodiaceae

A **non-native**, annual forb

- Round, multi-branched annual up to 36 inches tall
- Stems are red or purple striped
- Leaves are alternate
- Inconspicuous green flowers borne in the axils of upper leaves, accompanied by spiny bracts



**Habitat on Anaho Island:** Common throughout the island, mostly at lower elevations and along the south, northwest and northeast beaches.



*Sisymbrium altissimum*  
tall tumbled mustard

SIAL2  
Brassicaceae

A **non-native**, annual forb

- 24 to 48 inches tall
- Multi-branched with a bushy appearance
- Divided lower leaves
- Small, 4 petaled, pale yellow flowers



**Habitat on Anaho Island:** Common at low elevations on south, northeast, northwest and west beaches.

## V. Perennial Forbs

### Scientific Name

*Arabis holboellii*

*Arabis pulchra*

*Astragalus lentiginosus* var. *kennedyi*

*Astragalus purshii* var. *tinctus*

*Castilleja chromosa*

*Cressa truxillensis*

*Delphinium andersonii*

*Erigeron aphanactis*

*Heliotropium curassavicum*

*Lepidium latifolium*

*Mentzelia laevicaulis*

*Mirabilis laevis* var. *retrorsa*

*Oenothera caespitosa*

*Rumex crispus*

*Sesuvium verrucosum*

*Stephanomeria pauciflora*

### Common Name

Holboell's rockcress

beautiful rockcress

Kennedy's milkvetch

woollypod milkvetch

desert paintbrush

spreading alkaliweed

Anderson's larkspur

rayless shaggy fleabane

salt heliotrope

perennial pepperweed

smoothstem blazingstar

wishbone bush

tufted evening primrose

curly dock

western seapurslane

brownplume wirelettuce

Native, perennial forb *Astragalus lentiginosus* var. *kennedyi*



*Arabis holboellii*  
Holboell's rockcress

ARHO2  
Brassicaceae

A slender, dainty, perennial forb

- Up to 28 inches tall with one to several erect stems
- Pubescent leaves
- 4 purpleish pink to white petals that point downward
- As they mature, siliques (fruit) dangle downwards from the stem



**Habitat on Anaho Island:** Only seen flowering during the wet year of 2010. Growing on a southwest rocky beach.



*Arabis pulchra*  
beautiful rockcress

ARPU2  
Brassicaceae

A slender, dainty, perennial forb

- 8-24 inches tall and branching from a woody base
- Pubescent leaves
- 4 spoon-shaped purple petals
- Siliques (fruit) become pendent as they elongate



**Habitat on Anaho Island:** Only seen flowering during the wet year of 2010. Growing on a southwest rocky beach.

*Astragalus lentiginosus* var. *kennedyi*

Kennedy's milkvetch

ASLEK

Fabaceae

A Nevada endemic, perennial forb

- Soft, shaggy, hairs on leaves
- Purple pea-like flowers
- Pods are glabrous, papery-membranous, and not mottled



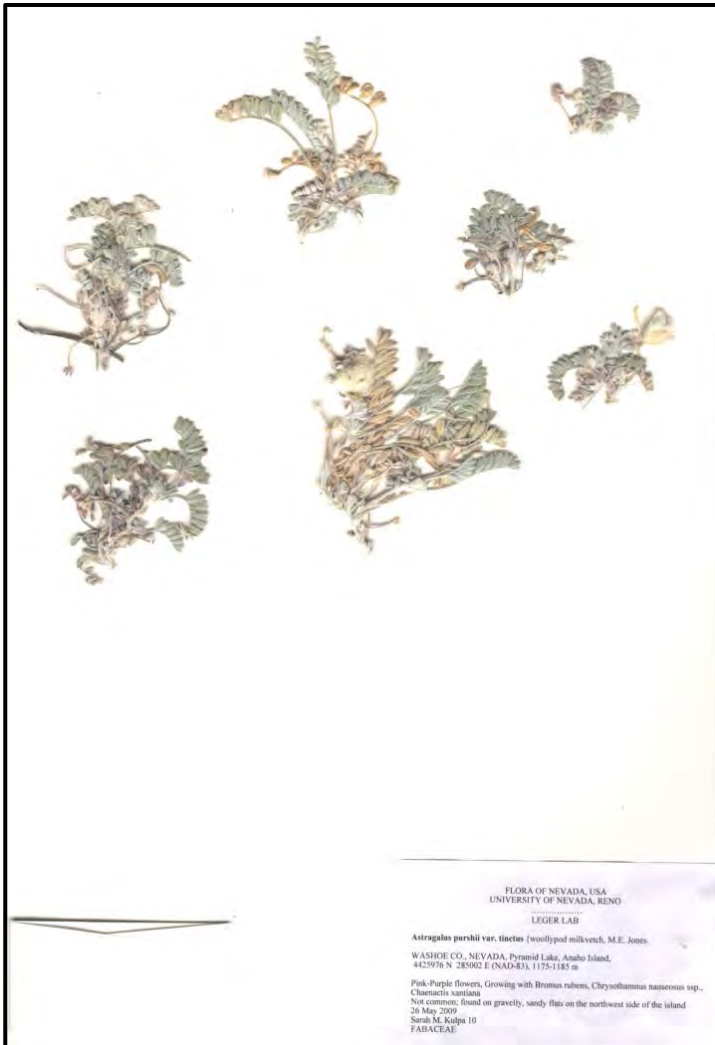
**Habitat on Anaho Island:** Grows in rocky, sandy lower elevations of the island. Two locations are known on the island.

*Astragalus purshii* var. *tinctus*  
woollypod milkvetch

ASPUT  
Fabaceae

A silver-gray, woolly, perennial forb

- Up to 5 inches tall forming low mats along the ground
- Pink-purple pea-like flowers
- Pods are densely hairy and white, resembling little cotton balls



**Habitat on Anaho Island:** Grows in rocky, sandy soil at lower elevations on the island.



*Castilleja chromosa*  
desert paintbrush

CACH7  
Orobanchaceae

A semi-parasitic, perennial forb

- 6-18 inches tall
- Lower leaves are long and undivided; upper leaves are divided into 3-5 segments
- Flowers are small and inconspicuous; colored “flower-like” parts are bracts that range from orange to red



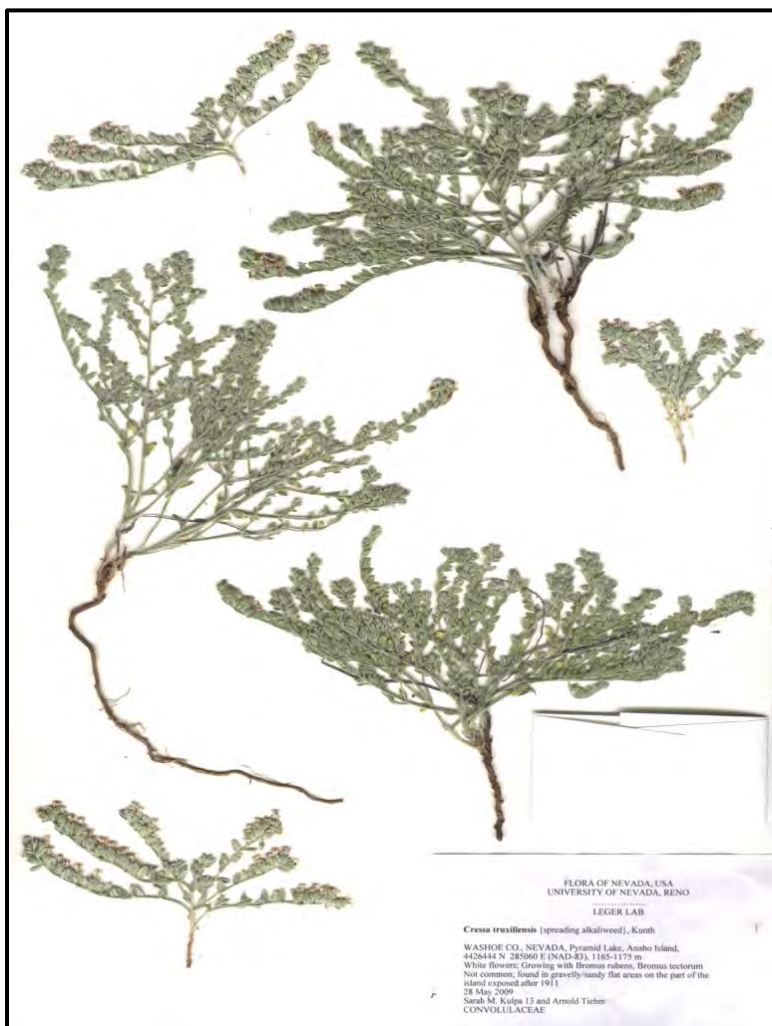
**Habitat on Anaho Island:** Sparse on the island; found growing in a rocky area above beaches.

*Cressa truxillensis*  
spreading alkaliweed

CRTR5  
Convolvulaceae

A multi-branched, perennial forb

- Up to 10 inches tall, low and spreading along the ground
- Gray-green in color due to silky hairs on the plant
- Small, hairy, oval leaves
- Flowers white with 5 petals, surrounded by hairy, green sepals



**Habitat on Anaho Island:** Commonly found on the south beach of the island.

*Delphinium andersonii*  
Anderson's larkspur

DEAN  
Ranunculaceae

A red and glabrous stemmed, perennial forb

- Up to 20 inches tall
- Mostly basal leaves that are palmately divided
- 4 purple-blue petals, 5 purple-blue sepals with the upper sepals extending into a spur



**Habitat on Anaho Island:** Rare on the island. Two locations are known in a rocky patch near the western slope of the island.



*Erigeron aphanactis*  
rayless shaggy fleabane

ERAP  
Asteraceae

A short, clumping, perennial forb

- 3-10 inches tall
- Mostly basal, linear leaves
- Leaves and stems covered in stiff, spreading hairs
- Inflorescences are a head of yellow, disk flowers



**Habitat on Anaho Island:** Found along rocky shoreline of south beach area.

*Heliotropium curassavicum*  
salt heliotrope

HECU3  
Boraginaceae

A fleshy, smooth, perennial forb

- 4-24 inches tall
- Spread from underground roots to form mat-like clumps
- Many, tiny, white-purple, sessile flowers are produced in 2-4 coiled cymes at the ends of branches



**Habitat on Anaho Island:** Found on low elevation beach areas throughout the island.

*Lepidium latifolium*  
perennial pepperweed

LELA2  
Brassicaceae

A **non-native**, perennial forb

- 1-3 feet tall
- Comprised of numerous woody stems
- Laceolate, bright green to gray leaves; basal leaves larger than upper leaves
- White flowers in dense clusters at branch ends



**Habitat on Anaho Island:** Only known to occur on south beach. Management actions taken to eradicate. Continued monitoring needed to detect regrowth.



*Mentzelia laevicaulis*  
smoothstem blazingstar

MELA2  
Loasaceae

A white-stemmed, biennial forb

- Up to 3 feet tall
- Weedy-looking, whitish, branching stem with saw-toothed leaves
- 5 petals, bright yellow flowers that contain many stamens



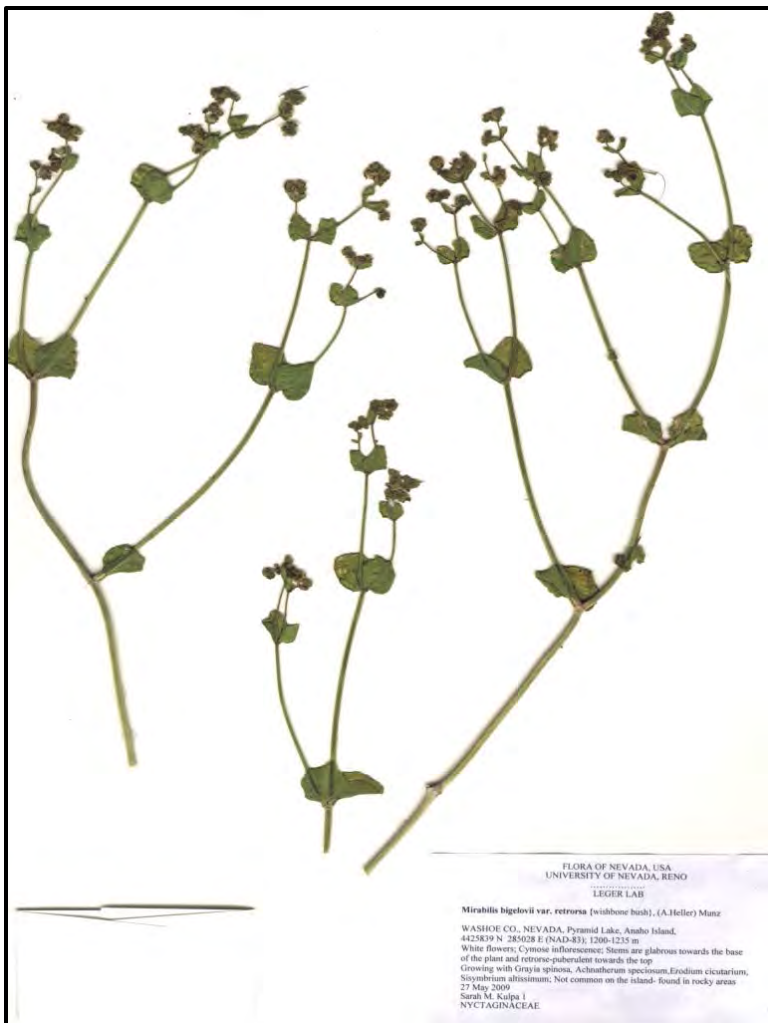
**Habitat on Anaho Island:** Found in low elevation beach areas throughout the island.

*Mirabilis laevis* var. *retrorsa*  
wishbone-bush

MIBIR  
Nyctaginaceae

A multi-branched, perennial forb

- Up to 30 inches tall
- Smooth stems
- Ovate to kidney shaped opposite leaves
- Flower made up of five white to light pink petal-like sepals that are bell-funnel shaped



**Habitat on Anaho Island:** Found along the shoreline throughout the island.



*Oenothera caespitosa*  
tufted evening primrose

OECA10  
Onagraceae

A stemless, fragrant, perennial forb

- Up to 24 inches tall, spreading to 24 inches wide
- Leaves and flowers borne on root crown
- Night-blooming, large white to pink flowers with 4 petals
- Flower petals have a notched-tip making them heart shaped



**Habitat on Anaho Island:** Found only on western slope at mid-elevation of the island.



*Rumex crispus*  
curly dock

RUCR  
Polygonaceae

A **non-native**, perennial forb

- Up to 5 feet tall
- Mostly basal leaves with curly margins
- Stems are erect and reddish
- Small flowers in dense, green, spike-like clusters
- Entire plant turns red at maturity



**Habitat on Anaho Island:** Sparse on the island and is found at low elevations.

*Sesuvium verrucosum*  
western seapurslane

SEVE2  
Aizoaceae

A succulent, perennial forb

- Spoon-shaped leaves with a base that clasps the stem
- Leaves covered in small, wart-like bumps
- Star-like, bright pink flowers composed of only sepals borne in the leaf axils



**Habitat on Anaho Island:** Common on the south and north beaches.

*Stephanomeria pauciflora*  
brownplume wirelettuce

STPA4  
Asteraceae

A branching, pale-stemmed, perennial forb

- 12-24 inches tall
- Stems are smooth, slender, and wiry forming a short, branching plant
- Flower heads made up of pinkish straplike rays



**Habitat on Anaho Island:** Common on the south, west and north beaches near shoreline.



## VI. Shrubs

### Scientific Name

*Artemisia tridentata* var. *wyomingensis*

*Atriplex canescens*

*Atriplex confertifolia*

*Brickellia microphylla*

*Ericameria nauseosa* ssp. *nauseosa* var. *speciosa*

*Grayia spinosa*

*Krascheninnikovia lanata*

*Lepidium fremontii*

*Picrothamnus desertorum*

*Sarcobatus vermiculatus*

*Tetradymia glabrata*

### Common Name

Wyoming big sagebrush

fourwing saltbush

shadscale saltbush

littleleaf brickellbush

rubber rabbitbrush

spiny hopsage

winterfat

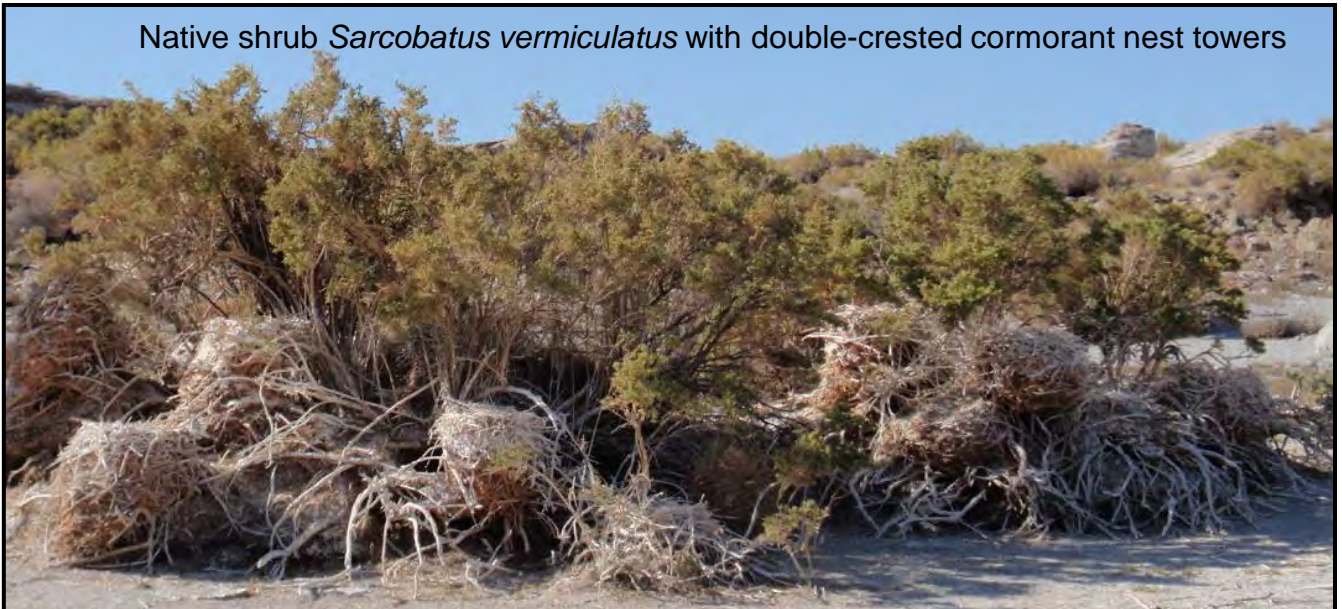
desert pepperweed

bud sagebrush

greasewood

littleleaf horsebrush

Native shrub *Sarcobatus vermiculatus* with double-crested cormorant nest towers



*Artemisia tridentata* var. *wyomingensis*

Wyoming big sagebrush

ARTRW8

Asteraceae

An evergreen, strongly aromatic shrub

- 3-9 feet tall with a rounded, uneven crown
- Wedge-shaped leaves with 3 lobes at the tip
- Inflorescence is an open, many flowered spike



**Habitat on Anaho Island:** Not common on island. Found only on western slope at mid-elevation.



*Atriplex canescens*  
fourwing saltbush

ATCA2  
Chenopodiaceae

A densely branched, gray-green shrub

- 3-5 feet tall
- Sessile, linear leaves with a scaly texture
- Male and female flowers are produced on separate plants
- Two flat, ½ inch long bracts enclose the female flowers, wings emerge from each bract, giving the fruit “four” wings



**Habitat on Anaho Island:** Found at mid-elevation areas on the island.



*Atriplex confertifolia*  
shadscale saltbush

ATCO  
Chenopodiaceae

A shrub with stiff, spine-like branches

- 1-3 feet tall
- Long, rounded leaves with entire margins and a grayish, scaly appearance
- Male and female flowers are on separate plants



**Habitat on Anaho Island:** Found at mid-elevations on the island.

*Brickellia microphylla*  
littleleaf brickellbush

BRMI  
Asteraceae

A multi-branched, pubescent shrub

- 1-2 feet tall
- Pubescent, gland-dotted stems branching from the base
- Round, green, glandular leaves
- Petals are pale yellow and often purple-tinged



**Habitat on Anaho Island:** Not found during 2009 or 2010. Location of specimen collected by W. Verne Woodbury in 1964 is unknown.

*Ericameria nauseosa* ssp. *nauseosa*

var. *speciosa*

rubber rabbitbrush

ERNAS2

Asteraceae

A yellow flowered shrub

- 1-8 feet tall
- White-gray woolly hairs cover the stem and leaves
- Leaves are narrow and linear



**Habitat on Anaho Island:** Common throughout the island, mostly at lower elevations and along the southern, northwest and northeast beaches.

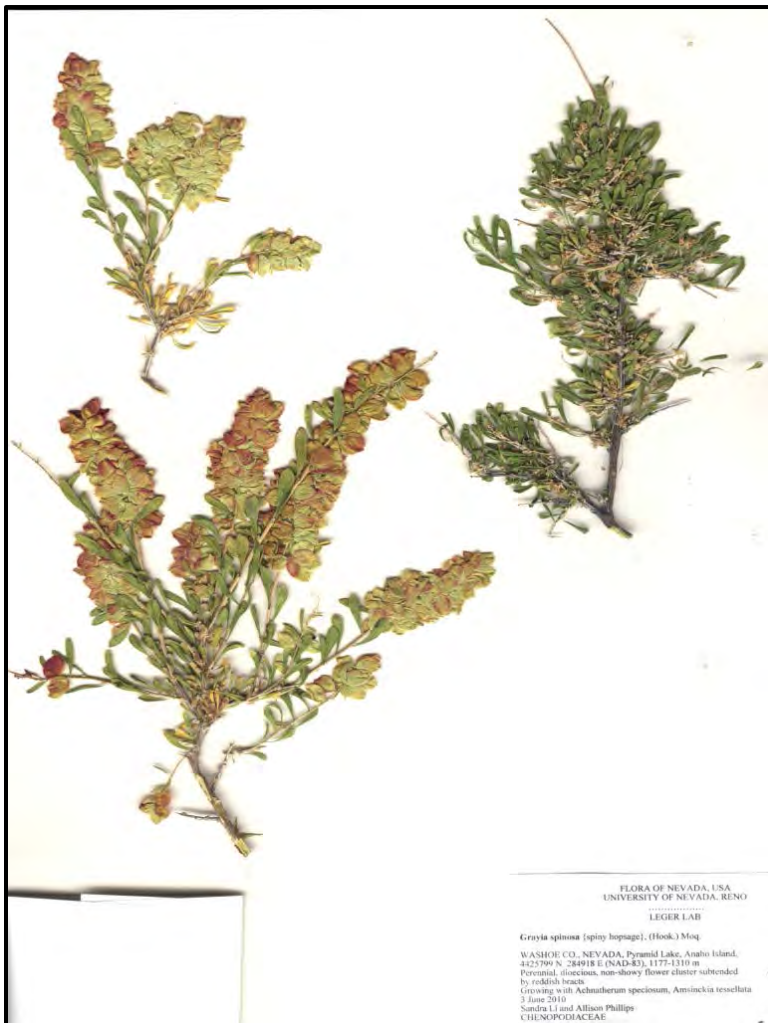


*Grayia spinosa*  
spiny hopsage

GRSP  
Chenopodiaceae

A shrub with gray-striped bark

- 1-3 feet tall with twigs that harden into spines
- Alternate, oblong leaves sometimes gray at the tip
- Male and female flowers are on separate plants and are produced in dense clusters
- 2 round, green bracts surround female flowers and turn red with age



**Habitat on Anaho Island:** Uncommon at mid-elevations on the island.

*Krascheninnikovia lanata*  
winterfat

KRLA2  
Chenopodiaceae

A shrub covered in white, woolly hairs

- 1-2 ft tall with slender leaves that alternate along the stem
- Male flowers have protruding stamens and are clustered at the tops of stems
- Female flowers are in clusters in leaf axils below
- Bracts under male and female flowers have tufts of hair, giving the flowers a cotton ball appearance



**Habitat on Anaho Island:** Found at mid and high elevations on the island.

*Lepidium fremontii*  
desert pepperweed

LEFR2  
Brassicaceae

A many branched, smooth, gray-stemmed shrub

- 1-4 feet tall
- Leaves are long and narrow
- Clusters of small, white flowers with 4 petals make the plant appear entirely white when in flower



**Habitat on Anaho Island:** Common on south beach at low and mid-elevations.



*Picrothamnus desertorum*  
bud sagebrush

PIDE4  
Asteraceae

A spiny, hairy, round shrub

- 12-20 inches tall
- Tangled branches are woolly when new and thorny and rough when aged
- Palmately divided, small, hairy leaves
- Small, tightly packed, yellow, hairy disk flowers



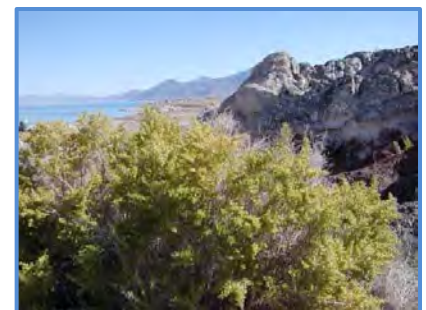
**Habitat on Anaho Island:** Only a few plants found on the western slope.

*Sarcobatus vermiculatus*  
greasewood

SAVE4  
Chenopodiaceae

A rounded, spiny shrub

- 3-6 feet tall
- Linear, fleshy leaves on yellowish-gray stems
- Male flowers form small cone-shaped structures at the ends of branches
- Female flowers develop where the leaves meet the stem below the cone



**Habitat on Anaho Island:** Common on north side of the island near nesting birds.

*Tetradymia glabrata*  
littleleaf horsebrush

TEGL  
Asteraceae

A densely branched shrub

- 1-4 feet tall
- Narrow, pointed leaves that are clustered around branches
- Stems appear white striped due to white woolly fibers
- Inflorescence bears up to seven flower heads which contain yellow flowers



**Habitat on Anaho Island:** Found at low elevations throughout the island.



## VII. Trees

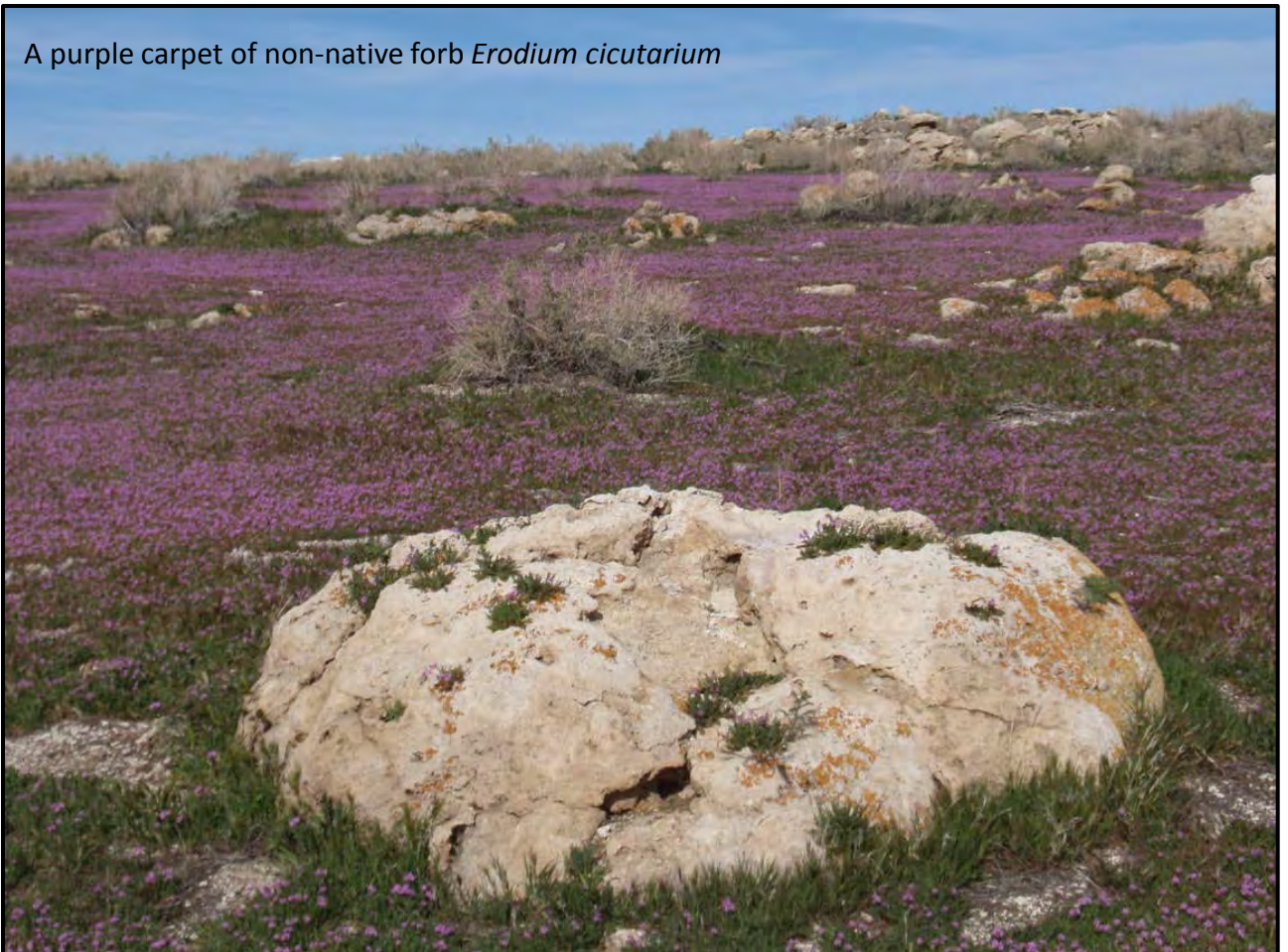
**Scientific Name**

*Tamarix ramosissima*

**Common Name**

saltcedar

A purple carpet of non-native forb *Erodium cicutarium*



*Tamarix ramosissima*  
saltcedar

TARA  
Tamaricaceae

A **non-native** small tree

- 3-60 feet tall
- Forms dense thickets
- Reddish, slender branches and grey to green feathery leaves
- Showy plumes of pink to white flowers with 5 petals
- Fruits are dry capsules that split open when ripe and release many seeds



**Habitat on Anaho Island:** Eradicated from south beach with possible regrowth from stumps. Continue monitoring.



## VIII. Plant Check List

### Plant Check List for Anaho Island National Wildlife Refuge, Pyramid Lake, Nevada

This is a list assembled from collections, herbarium vouchers, and field surveys. All vouchers are stored at the University of Nevada, Reno herbarium.

#### Aizoaceae

[ ] *Sesuvium verrucosum* Raf. western seapurslane, native

#### Amaranthaceae

[ ] *Amaranthus albus* L. prostrate pigweed, non-native

#### Asteraceae

[ ] *Artemisia tridentata* Nutt. ssp. *wyomingensis* Beetle & Young Wyoming big sagebrush, native

[ ] *Brickellia microphylla* (Nutt.) A. Gray littleleaf brickellbush, native

[ ] *Chaenactis stevioides* Hook. & Arn. desert pincushion, native

[ ] *Ericameria nauseosa* (Pall. ex Pursh) G.L. Nesom & Baird ssp. *nauseosa* var. *hololeuca* (A. Gray) G.L. Nesom & Baird (Syn: *Chrysothamnus nauseosus* (Pall. ex Pursh) Britton ssp. *hololeucus* (A. Gray) H.M. Hall & Clem.) rubber rabbitbrush, native

[ ] *Erigeron aphanactis* (A. Gray) Greene rayless shaggy fleabane, native

[ ] *Lactuca serriola* L. prickly lettuce, non-native

[ ] *Malacothrix glabrata* (A. Gray ex D.C. Eaton) A. Gray smooth desert dandelion, native

[ ] *Picrothamnus desertorum* Nutt (Syn: *Artemisia spinescens* D.C. Eaton) bud sagebrush, native

[ ] *Psathyrotes annua* (Nutt.) A. Gray annual psathyrotes, native

[ ] *Rafinesquia neomexicana* A. Gray desert chicory (Syn: New Mexico plumeseed), native

[ ] *Stephanomeria pauciflora* (Torr.) A. Nelson (Syn: *Lygodesmia pauciflora* (Torr.) Shinnery) brownplume wirelettuce, native

[ ] *Tetradymia glabrata* Torr. & A. Gray littleleaf horsebrush, native

#### Boraginaceae

[ ] *Amsinckia tessellata* A. Gray bristly fiddleneck, native

[ ] *Cryptantha pterocarya* (Torr.) Greene wingnut cryptantha, native

[ ] *Heliotropium curassavicum* L. salt heliotrope, native

#### Brassicaceae

[ ] *Arabis holboellii* Hornem. Holboell's rockcress, native

[ ] *Arabis pulchra* M.E. Jones ex S. Watson beautiful rockcress, native

[ ] *Caulanthus lasiophyllus* (Hook. & Arn.) Payson (Syn: *Guillenia lasiophylla* (Hook. & Arn.) Greene) California Mustard, non-native



## VIII. Plant Check List (Cont.)

[ ] *Descurainia pinnata* (Walter) Britton  
western tansymustard, native

[ ] *Lepidium fremontii* S. Watson desert  
pepperweed, native

[ ] *Lepidium latifolium* L. perennial  
pepperweed, non-native

[ ] *Sisymbrium altissimum* L. tall  
tumblemustard, non-native

### Chenopodiaceae

[ ] *Atriplex canescens* (Pursh) Nutt.  
fourwing saltbush, native

[ ] *Atriplex confertifolia* (Torr. & Frém.)  
S. Watson shadscale saltbush, native

[ ] *Atriplex rosea* L. tumbling saltweed,  
non-native

[ ] *Bassia hyssopifolia* (Pall.) Kuntz  
fivehorn smotherweed, non-native

[ ] *Grayia spinosa* (Hook.) Moq. spiny  
hopsage, native

[ ] *Halogeton glomeratus* (M. Bieb.) C.A.  
Mey. saltlover, non-native

[ ] *Krascheninnikovia lanata* (Pursh) A.  
Meuse & Smit winterfat, native

[ ] *Salsola tragus* L. prickly Russian thistle,  
non-native

[ ] *Sarcobatus vermiculatus* (Hook.) Torr.  
greasewood, native

### Convolvulaceae

[ ] *Cressa truxillensis* Kunth spreading  
alkaliweed, native

### Euphorbiaceae

[ ] *Chamaesyce serpyllifolia* (Pers.) Small  
ssp. *serpyllifolia* thymeleaf sandmat, native

### Fabaceae

[ ] *Astragalus lentiginosus* Douglas ex  
Hook. var. *kennedyi* (Rydb.) Barneby  
Kennedy's milkvetch, native

[ ] *Astragalus purshii* Douglas ex Hook.  
var. *tinctus* M.E. Jones woollypod  
milkvetch, native

### Geraniaceae

[ ] *Erodium cicutarium* (L.) L'Hér. ex  
Aiton redstem stork's bill, non-native

### Hydrophyllaceae

[ ] *Phacelia crenulata* Torr. ex S. Watson  
clefleaf wildheliotrope, native

### Loasaceae

[ ] *Mentzelia albicaulis* (Hook.) Torr. &  
A. Gray whitestem blazingstar, native

[ ] *Mentzelia laevicaulis* (Hook.) Torr. &  
A. Gray smoothstem blazingstar, native

[ ] *Mentzelia veatchiana* Kellogg Veatch's  
blazingstar, native

### Nyctaginaceae

[ ] *Mirabilis laevis* (Benth.) Curran var.  
*retrorsa* (A. Heller) Jeps. wishbone bush,  
native

## VIII. Plant Check List (Cont.)

### Onagraceae

[ ] *Camissonia boothii* (Douglas ex Lehm.)

**P.H. Raven** ssp. *boothii* Booth's suncup, native

[ ] *Camissonia claviformis* (Torr. & Frém.) **P.H. Raven** ssp. *cruciformis* (Kellogg) **P.H. Raven** browneyes, native

[ ] *Oenothera caespitosa* Nutt. tufted evening primrose, native

### Orobanchaceae

[ ] *Castilleja chromosa* A. Nelson desert paintbrush, native

### Poaceae

[ ] *Achnatherum speciosum* (Trin. & Rupr.) **Barkworth** desert needlegrass, native

[ ] *Bromus berterioanus* Colla Chilean chess, non-native

[ ] *Bromus diandrus* Roth ssp. *rigidus* (Roth) **Lainz** ripgut brome, non-native

[ ] *Bromus rubens* L. red brome, non-native

[ ] *Bromus tectorum* L. cheatgrass, non-native

[ ] *Distichlis spicata* (L.) **Greene** saltgrass, native

[ ] *Elymus elymoides* (Raf.) **Swezey** ssp. *elymoides* squirreltail, native

[ ] *Hordeum jubatum* L. foxtail barley, native

[ ] *Hordeum murinum* L. mouse barley, non-native

[ ] *Poa secunda* J. Presl Sandberg bluegrass, native

### Polemoniaceae

[ ] *Gilia inconspicua* (Sm.) Sweet shy gilia, native

### Polygonaceae

[ ] *Eriogonum deflexum* Torr. flatcrown buckwheat, native

[ ] *Eriogonum nidularium* Coville birdnest buckwheat, native

[ ] *Eriogonum pusillum* Torr. & A. Gray yellowturbans, native

[ ] *Rumex crispus* L. curly dock, non-native

### Ranunculaceae

[ ] *Delphinium andersonii* A. Gray Anderson's larkspur, native

### Rubiaceae

[ ] *Galium aparine* L. stickywilly, native

### Scrophulariaceae

[ ] *Verbascum thapsus* L. common mullein, non-native

### Tamaricaceae

[ ] *Tamarix ramosissima* **Le deb** saltcedar, non-native

## IX. Glossary

- auricle** – a small, ear-shaped appendage located between the leaf blade or the sheath in some grasses.
- awn** – a narrow, bristle-like appendage, usually at the tip or dorsal surface; usually a characteristic of grass seed heads.
- axil** – the point of the upper angle formed between the axis of a stem and any part (usually a leaf) arising from it
- axillary** – positioned in or arising in an axil; a structure arising from an axil.
- axis** – the longitudinal, central supporting structure around which various organs are borne, such as a stem bearing leaves.
- basal** – positioned at or arising from the base; leaves that originate from the base of the plant and not from the stem.
- beak** – a narrow or prolonged tip, such at the end of some fruits and seeds
- bract** – a reduced leaf or leaf-like structure at the base of a flower or inflorescence.
- callus** – a hard thickening or protuberance; the thickened basal extension of the lemma in many grasses.
- capitulum** – a small flower head; a small and dense cluster of flowers.
- convex** – rounded and curved outward on the surface.
- crown** – the persistent base of a herbaceous perennial.
- cyme** – a flat-topped or round-topped determinate inflorescence, in which the terminal flower blooms first.
- determinant** – an inflorescence in which the terminal flower blooms first, halting further elongation of the main axis.
- disk flower** – small and numerous flowers in the central portion of the composite flower head of the sunflower family (Asteraceae).
- divided** – cut or lobed to the base or to the midrib.
- floret** – a small flower; an individual flower within a dense cluster of flowers, such as a grass flower in a spikelet.
- flower head** – a dense cluster of flowers occurring together on a common stalk.
- glabrous** – smooth; hairless.
- gland** – an appendage, protuberance, or other structure which secretes a sticky or oily substances.
- inflorescence** – the flowering part of a plant; a flower cluster; the arrangement of the flowers on the flowering axis.
- keel** – a prominent longitudinal ridge, like the keel of a boat; the two lower united petals of a pea flower.



## IX. Glossary (continued)

**linear** – resembling a line; long and narrow with more or less parallel sides.

**lobe** – a rounded division or segment of an organ; a leaf or flower in which the outer edges are rounded into segments.

**margin** – the edge, as in the edge of a leaf blade.

**oblong** – two to four times longer than broad with nearly parallel sides; a leaf that is longer than it is wide with parallel sides.

**opposite** – across from one another at the same node, as in a stem with two leaves per node.

**palmate** – lobed, veined, or divided from a common point, like the fingers of a hand.

**pendent or pendulous** – hanging or drooping downward.

**pinnate** – resembling a feather; a compound leaf with leaflets arranged on opposite sides of an elongated axis.

**pistil** – the female reproductive organ of a flower, typically consists of a stigma, style, and ovary.

**pubescent** – covered with short, soft hairs.

**raceme** – an unbranched, elongated inflorescence with pedicellate flowers maturing from the bottom upward.

**ranked** – leaves arranged in vertical rows on opposite sides of the stem.

**ray flower** – tongue-shaped flower that usually occur on the outer portion of the composite flower head of the sunflower family (Asteraceae).

**rosette** – a dense, radiating cluster of leaves (or other organs), usually at or near ground level.

**scalloped** – Leaves that contain a series of curves at the leaf margin.

**scorpioid** – shaped like a scorpion's tail, as in some coiled cymes.

**sepal** – the outermost or lowermost whorl of flower parts, generally green and enclosing the remainder of the flower in bud form; collectively form the calyx.

**sessile** – attached directly, without a supporting stalk.

**siliqua** – A dry fruit of the Brassicaceae (mustard family), typically more than twice as long as wide, with two valves separating from persistent placentae and septum.

## IX. Glossary (continued)

**spike** – an unbranched, elongated inflorescence with sessile flowers or spikelets maturing from the bottom upwards.

**spikelet** – a small spike or secondary spike; the ultimate flower cluster of grasses consisting of one to many flowers subtended by two bracts (glumes).

**spine** – a stiff, slender, sharp-pointed structure arising from below the epidermis, representing a modified leaf or stipule; any structure with the appearance of a true spine.

**spur** – a hollow, slender, sac-like appendage of a petal or sepal, or the calyx or corolla; extends outwards from the flower.

**stalk** – the supporting structure of an organ, usually narrower in diameter than the organ, such as a flower stalk.

**stamen** – the male reproductive organ of the flower, consisting of an anther and filament.

**stigma** – the portion of the pistil which is receptive to pollen.

**tepal** – a segment of the collective calyx and corolla (perianth) which is not differentiated into calyx and corolla.

**terminal** – at the tip, apex or end.

**throat** – In flowers, the throat is located in between the tube (the base of the flower) and limb (the end of the flower); whereas in grasses, the throat is located at the upper portion of the sheath (a leaf that encloses the stem) at the point where the sheath begins to protrude away from the stem.

**tooth** – small, pointed projection, such as along the margin of a leaf, sepal or petal; smaller than a lobe.

**wing** – A thin, flat margin bordering or extending from a structure

**woolly** – with long, soft, entangled hairs.

## X. References

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