


Selected Plants of Navajo Rangelands

with Navajo names

Diné bikéyah Chi'l nooséłígíí Bąąhą́ąnosin l Take care of our Navajo Rangelands

Developed by Navajo Tri-State Federally-Recognized Tribes Extension
Program in collaboration with New Mexico State University

Cover image:

Top (left to right): Indian ricegrass (Amy Smith Muise), cliffrose (Gerald Moore), black grama (Patrick Alexander), western wheatgrass (Patrick Alexander)

Bottom: Navajo Nation flag

You can help document Navajo rangelands for future generations. Send photos of rangeland sites to: Gerald Moore (germoore@nmsu.edu), Navajo Tri-State Federally-Recognized Tribes Extension Program (FRTEP), Grey Farrell (gfarrell@cals.arizona.edu), University of Arizona Extension, Tuba City, AZ, or Treva Henio (tjhenio@gmail.com), BIA-Natural Resources, Crownpoint, NM, labeled with date, location, and your comments.

This book can help agricultural professionals, ranchers, and others on the Navajo Nation to identify typical range plants and maximize productivity and sustainability of rangeland ecology. Once downloaded to a device, it can be used even in areas without mobile or Wi-Fi coverage. Plants are arranged by plant type. Use the index to find plants sorted by common name, scientific name, habitat, growing season, flower color, or livestock special considerations. Plant scientific names were drawn primarily from the USDA PLANTS database.

Produced by the Department of Innovative Media Research and Extension, New Mexico State University. Send comments or corrections to mmedia@nmsu.edu. This material is based upon work that is supported by the National Institute of Food and Agriculture, U.S. Department of Agriculture, through the Western Sustainable Agriculture Research and Education program Professional Development Grant Program under project number EW15-023. USDA is an equal opportunity employer and service provider. NMSU is an equal opportunity employer and educator.

For additional plants and content, see NavajoRange.nmsu.edu

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Does the Range Concern You?

Yes, each one of us has a real interest in our rangeland. It is the main source of our meat supply. It is important in the production of wool and leather products. It is a valuable source of water, clean air, and wildlife. It offers many types of recreation. It is just as important for the non-user of rangeland to promote its conservation and protection for the future as it is for the person raising livestock and living on the range.

Know Your Range!

You can keep the range healthy and productive by knowing the plants and animals that live there and how to manage them properly. Plants and animals live together as a *community*. When livestock or game animals graze an area, changes take place in the plant community. To be a good range manager, you must recognize the changes that result from grazing. You must be able to tell why the changes took place and whether the changes are good or bad. To know about the rangelands and how to manage and care for them, you must have some knowledge of soils, water, climate, and plants.

Plants will tell you what kind of range you have and how good a manager you are. Each plant will tell you a story of what is happening. The presence or absence of certain plants tells the condition of the range, how the range is being used, and what needs to be done to improve and protect the range. This plant indentification tool provides a selection of the most common of hundreds of range plants that grow on the Navajo Reservation.

This tool is intended to be of assistance to Navajos in knowing both Navajo and English names for the plants they encounter and also as an aid to those working with Navajos. In discussing range or livestock, it is often necessary to refer to a specific plant by name. This tool should provide a means of knowing some of these names in Navajo so the Navajos involved will know exactly which plant is being referred to. This is strictly a preliminary list. Many of the plants will be known by other names, either Navajo or English, in other areas.

For More Information

Information in this handbook is based on the Selected Plants of Navajo Rangelands database: navajorange.nmsu.edu. This version is intended as a downloadable version of the database for offline use. Please visit the site for more information.

"Does the Range Concern You?" was adapted with permission from the 1981 *Navajo Nation range management handbook*, by Frank Parrill, then Range Conservationist, Navajo Tribe, Window Rock, AZ, and Allan Blacksheep, Jr., then Agricultural Extension Agent, University of Arizona, Ft. Defiance, AZ. Their handbook also formed the basis of the plant list on which this tool is based. Without their original work, our task would have been much more difficult.

Rangeland Management Tips

from range professionals in the region

Gerald Moore

Navajo Tri-State Federally-Recognized Tribes Extension
Coordinating Extension Agent

1. A rancher's knowledge of livestock is incomplete without a knowledge of the types of range plants they graze.
2. Remember how important the range is to livestock. Don't concentrate on livestock first; concentrate on the land first.
3. The land is your bank. If you contribute to it, it will provide for you in the future and provide a future for the next generations.
4. In times when there's less grass, it's important to control where your herd goes. Reduction is always a management option.
5. The success and productivity of a livestock operation depends largely on the productivity and management of your natural resources.

Renee Benally

Western Navajo Agency, Bureau of Indian Affairs (BIA)
Natural Resource Specialist

Animals (Nal golshi), plants (Ch'il), and soil (Łeezh) all play a part in rangeland grazing. To achieve ecological and economic objectives, ranchers and land managers must first understand how plants grow and reproduce, and then how grazing animals affect plants through defoliation, hoof action, and other factors.

Also important are grazing animals' specific behaviors and nutritional needs at critical points of the production cycle.

With this understanding in hand, ranch and land managers can consider:

1. Timing (When should grazing occur?)
2. Frequency (How often should defoliation occur?)
3. Intensity (How much forage should be removed, or how much residual plant material should remain after grazing?)
4. Stocking rate and type (How many and what type of livestock should be grazed?)

Plants respond differently to grazing depending on its timing, intensity, and frequency as well as the physiological and morphological characteristics of the plants and how these affect plant growth before and after grazing events.

Nick Ashcroft

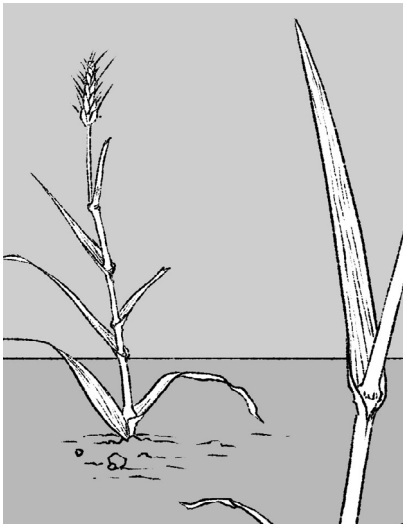
New Mexico State University
Extension Range Specialist

1. Watch the plants and not the animals. You're not ranchers first, you're grass farmers first.
2. Range management means allowing the plants some rest, not over utilizing.
3. When identifying plants, the first question is:
   - What is it?
   - Is it poisonous to my animals?
   - Is it noxious/invasive?

   To prevent noxious/invasive plants from taking over, take care of perennial plants by not over utilizing them.
4. Grass plants need to replace 30% of their roots every year. If you have a drought year, or if you over utilize, that root system isn't replaced, and it can't continue.
5. Remember the basics of what a plant needs: sunlight, air, soil/nutrients, water. If you take off too much leaf area by grazing, the plant quits photosynthesizing and quits growing. It's also important to leave enough plant there to put the water into the soil instead of letting it run off.
6. Every site is different, with different precipitation and different challenges. On the Navajo Nation one unique challenge is that there are no fences. That means animals are moving where the feed is, and you have to keep an even closer eye on the plants to see what is happening to them.

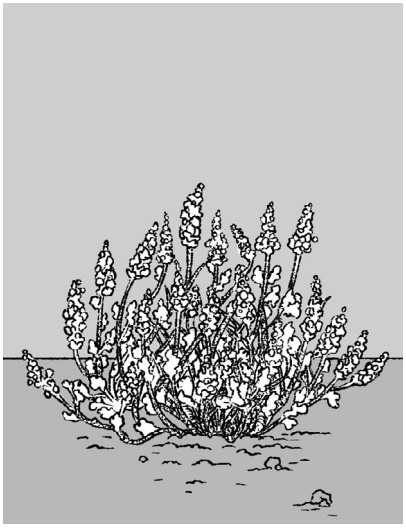
Plant Types

Grasses



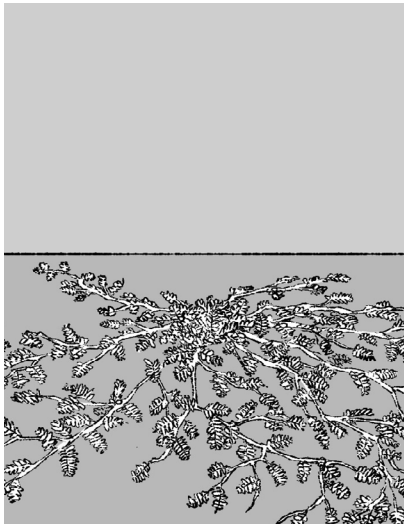
Grasses have a main stem with a sheath and leaves wrapping around the stem below. Their leaves have parallel veins. Growth pattern is alternate (leaves staggered on the stem) or basal.

Brush



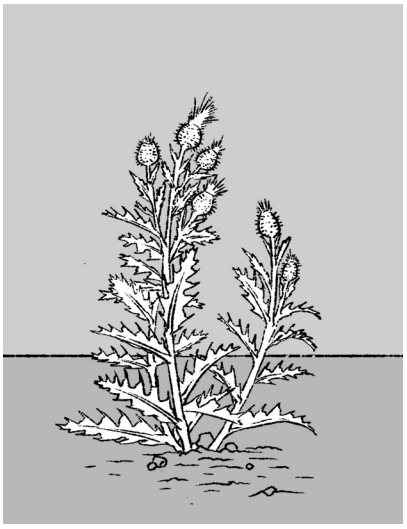
Also called shrubs, plants in this category are woody and are usually multi stemmed and less than 16 feet tall (with some exceptions). They have shallower roots than trees.

Vines



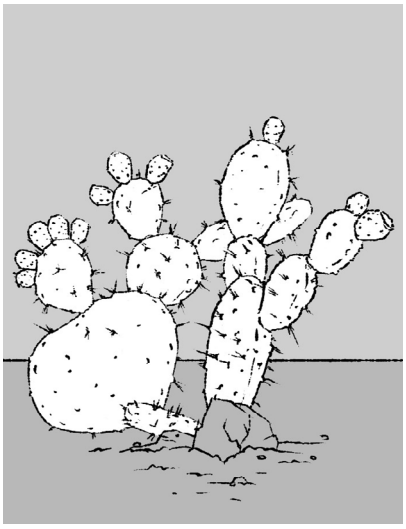
Twining or climbing plants with relatively long stems, vines grow on something, attached with tendrils. They may have prominent flowers and can be woody or herbaceous.

Forbs



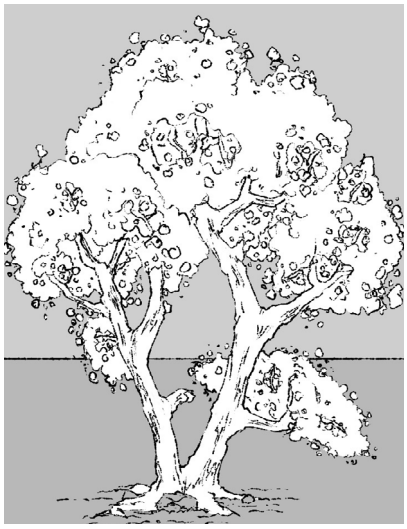
Often called “weeds,” forbs usually have non woody stems (easily bent) and prominent flowers. They may be annual, biennial, or perennial. They can have single or multiple stems or grow in a basal pattern, meaning all growth comes from the base.

Cacti



Stems of cacti are thick and succulent, sometimes forming pads. Leaves are reduced to spines and barbs, grouped in clusters on the stem. Different species have many differently colored flowers.

Trees



Trees are woody and have bark. They usually have a single trunk (with some exceptions) and taproots. Different species have different shapes and kinds of leaves, such as needles, evergreen leaves, or deciduous leaves.

Patrick Alexander

Bluegrass, Kentucky

Poa pratensis

Tsétahtł'oh

Alternative Names:
None

Plant Type:
Grass

Habitat:
Grasslands

Growing Season:
Cool season

Special Considerations:
✔ Good livestock forage

❗ Potentially invasive

Kentucky bluegrass is a perennial, sod-forming grass native to Europe. The species is highly palatable to horses, cattle, and sheep. The plant becomes dormant during the heat of summer but regains or maintains its green color in fall.

This plant may become weedy or invasive in some regions or habitats and may displace desirable vegetation if not properly managed.

Bluegrass, Kentucky

Poa pratensis

Tsétahtł’oh

Patrick Alexander

Patrick Alexander

Patrick Alexander

Patrick Alexander

Patrick Alexander

Patrick Alexander

Bluestem, Little False

Schizachyrium scoparium var. scoparium

Tł’ohdeiłichi’í

Alternative Names:
Beard grass

Plant Type:
Grass

Habitat:
Grasslands

Ponderosa pine/mixed conifer

Growing Season:
Warm season

Special Considerations:
None

Little bluestem is a medium height grass with coarse stems and basal leaves. Plants are green, but often purplish at base of stem. The entire plant has a reddish cast after frost.

Little bluestem can be a dominant understory species in open-canopy pine stands. Seed is generally wind-dispersed only short distances from the parent plant.

Patrick Alexander

Patrick Alexander

Max Licher

Bottlebrush Squirreltail

Elymus elymoides

Azéé’iilwo’iindtsaaí

Alternative Names:
None

Plant Type:
Grass

Habitat:
Brushlands

Grasslands

Wastelands

Growing Season:
Cool season

Special Considerations:
✔ Provides good forage

Bottlebrush squirreltail is a, native perennial bunchgrass. The plant grows 8 to 25 inches tall, and occurs primarily on dry, gravelly, or saline soils. It is common on hillsides and alkaline flats.

Considered good forage before seed development and after seed shatter, it receives its name because the seedhead resembles a bottlebrush.

Patrick Alexander

Bildoj [CC BY-SA 3.0], from Wikimedia Commons

Brome, Field

Bromus arvensis

Alternative Names:
Cenchrus incertus

Plant Type:
Grass

Habitat:
Brushlands

Grasslands

River valleys

Growing Season:
Cool season

Special Considerations:
! Noxious

Field brome is a winter annual that produces dense, low, leafy growth in the fall and starts growing early in the spring. It does not have creeping stolons or rhizomes, but tillers profusely. It produces seedheads in late spring or early summer. Seed stalks are 2 to 3 feet tall. It has an extensive fibrous root system and relatively short top growth.

It grows vigorously under high fertility conditions and often smothers other grasses or weeds. It is an excellent seed producer and can maintain itself as a reseeding annual.

Brome, Field

Bromus arvensis

Robert H. Mohlenbrock, Courtesy of USDA NRCS Wetland Science Institute, from Wikimedia Commons

Seedheads

Bildoj [GFDL or CC BY-SA 3.0], from Wikimedia Commons

Seeds

Daderot [CC0 or CC0], from Wikimedia Commons

Early growth habit

Russ Kleinman, Bill Norris, & Richard Felger

Brome, Japanese

Bromus japonicus

Alternative Names:
None

Plant Type:
Grass

Habitat:
Grasslands

Wastelands

Growing Season:
Cool season

Special Considerations:
! Noxious

Japanese brome is an introduced, annual grass from 8 to 48 inches tall. Its sheaths are hairy; the blades are glabrous to hairy. The inflorescence is an open panicle bearing 6 to 13 caryopses. Roots may be shallow, or surprisingly deep for an annual. Japanese brome has florets with somewhat flattened lemmas with awns mostly ¼ to ⅓ inch long. It is found in sandy areas with abundant moisture. The stems and leaves are covered in dense, white pubescence.

Brome, Japanese

Bromus japonicus

Russ Kleinman, Bill Norris, & Richard Felger

Patrick Alexander

Russ Kleinman, Bill Norris, & Richard Felger

Patrick Alexander

Patrick Alexander

Patrick Alexander

Russ Kleinman & Karen Blisard

Brome, Mountain

Bromus carinatus

Tł’ohtsohndtł’zí

Alternative Names:
California brome

Plant Type:
Grass

Habitat:
Grasslands

Growing Season:
Cool season

Special Considerations:
✔ Good spring forage

Mountain brome is a native, annual or perennial bunchgrass that lives three to five years and grows to be two to four feet tall. The roots of mountain brome are fibrous, grow very quickly, and become deep and widespread. Young plants are erect, but older stems are decumbent: they grow along the ground with only the apical tips remaining erect.. Stems are robust with hairy sheaths. Leaf blades are 1/16 to ½ inch wide and 6 to 12 inches long. They can be pubescent or glabrous. The inflorescence is a stiff, open panicle, 4 to 8 inches long, and it droops at maturity. The spikelets are flattened, measuring ¾ to 1½ inches long and 1/5 to ¼ inch wide. They have five to seven flowers. Lemmas are over ⅜ inch long, flattened, keeled and usually pubescent. The awns are 2/16 to 5/16 inches long. Seeds mature in May and June at low elevations and by late August at high elevations.

Mountain brome is common in the mountains and foothills of the Intermountain West. It is often found in relatively moist habitats in mountain big sagebrush, mountain shrub, aspen, and spruce–fir communities and up to sub alpine mountain meadows. It can be found at elevations ranging from 5,000 to 10,500 feet.

Mountain brome is an excellent plant for the revegetation of livestock and big game ranges in foothill and mountain locations. It is highly palatable in the spring, providing good forage for wildlife and livestock. The leaves provide excellent grazing for elk, cattle, and horses and are also eaten by sheep and deer. The seeds are readily eaten by small mammals and birds.

Brome, Mountain

Bromus carinatus

Tł’ohtsohndtł’zí

Russ Kleinman

Russ Kleinman & Karen Blisard

Russ Kleinman

Russ Kleinman

Ken Gishi

Brome, Red

Bromus rubens

Bi’zé yilwo’ lichi’í

Alternative Names:
None

Plant Type:
Grass

Habitat:
Brushlands

Grasslands

Growing Season:
Warm season

Special Considerations:
- ! Noxious
- ! Can be harmful to livestock

Red brome is native to southern Europe and is an invasive weed in desert shrub and annual grassland communities. It commonly occurs in small patches on shallow soils, growing best where there is little competition from other annuals.

A tufted, annual bunchgrass, it grows from 8 to 20 inches tall.

Often found in areas with relatively high levels of sulfur dioxide pollution, it is of little value to livestock and big game. The long awns of red brome are harmful to livestock when seeds are ripe. Under some circumstances, red brome may provide a source of forage.

Brome, Red

Bromus rubens

Bi’zé yilwo’ lichi’í

Patrick Alexander

Patrick Alexander

Ken Gishi

Russ Kleinman

Brome, Ripgut

Bromus diandrus

Tł’oh da a ghí

Alternative Names:
None

Plant Type:
Grass

Habitat:
Grasslands

Wastelands

Growing Season:
Warm season

Special Considerations:
! Can injure livestock and pets

Ripgut brome is easily recognized by its stiff awns measuring 1¼ to 2⅜ inches, carried in an open and drooping panicle. It grows around buildings and in other disturbed areas. It burns easily when dry. When flowering, its seedheads have tiny, rough teeth that can injure livestock.

**Description courtesy of* Western New Mexico University’s Vascular Plants of the Gila Wilderness.

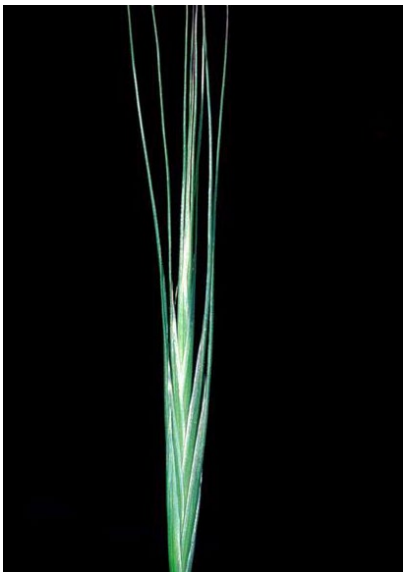
Brome, Ripgut

Bromus diandrus

Tł’oh da a ghí

Russ Kleinman

Joseph M. DiTomaso, University of California - Davis



Barry Rice, sarracenia.com, Bugwood.org

Prominent awns

Joseph M. DiTomaso, University of California - Davis

Panicle

Patrick Alexander

Brome, Smooth

Bromus inermis

bįįh tł'óh

Alternative Names:
None

Plant Type:
Grass

Habitat:
Grasslands

Growing Season:
Cool season

Special Considerations:
✔ Invasive

❗ Provides good forage

Smooth brome is a leafy, sod-forming, perennial grass that spreads by rhizomes. It is native in some areas of the United States, and provides good erosion control in areas that receive over 20 inches of rain per year.

The grass is highly palatable, is high in protein content, and relatively low in crude fiber content, making it a good forage species for livestock. The stems vary in height from 2 to 4 feet. The plant produces numerous basal and stem leaves that vary in length from 4 to 10 inches. Frequently the leaves are marked by a transverse wrinkle resembling a "W" a short distance below the tip. The flowerhead develops a characteristic rich purplish-brown color when mature. The seed is produced in semi-compact 5-inch-long panicles with ascending branches. The flat, compressed seed is usually awnless, about ⅓ inch long, and smooth.

Brome, smooth

Bromus inermis

bįįh tł’óh

Patrick Alexander

Patrick Alexander

Patrick Alexander

Patrick Alexander

Patrick Alexander

Steve Perkins

Cheatgrass

Bromus tectorum

Shíyináldzidí

Alternative Names:
None

Plant Type:
Grass

Habitat:
Grasslands

Growing Season:
Cool season

Special Considerations:
! Invasive

Cheatgrass is an invasive cool-season annual grass from the Mediterranean. It has solitary stems 4 to 24 inches tall, with soft drooping seedheads. Cheatgrass can provide good forage for a short time, but matures quickly and becomes unpalatable. At maturity, the plant turns reddish and cures to a light tan. After curing, late spring cheatgrass becomes highly flammable and has changed the fire frequency of western rangelands.

In Europe, cheatgrass historically grew in the decaying straw of thatched roofs. "Tectum" is Latin for roof, hence the name *Bromus tectorum*, "brome of the roofs." Cheatgrass has developed into a severe weed in several agricultural systems throughout North America, particularly western pastureland, rangeland, and winter wheat fields. It is now estimated to infest more than 101 million acres in western states.

Cheatgrass

Bromus tectorum

Shíyináldzidí

Patrick Alexander

Patrick Alexander

Drooping seedhead of mature cheatgrass, showing sharp-tipped seeds and barbed awns

Matt Lavin

Cordgrass, Alkali

Spartina gracilis

Tł’ohdá’ákáłiitsoh

Alternative Names:
None

Plant Type:
Grass

Habitat:
Grasslands

Growing Season:
Warm season

Special Considerations:
✔ Good for erosion control

Alkali cordgrass is a robust grass with erect stems ½ to 3 feet tall. Reproduction is by seed and by rhizomes. It starts growth in late spring and begins flowering in July. Seedheads are clusters about 2 to 10 inches long. Leaf blades are less than ¼ inch wide and less than or up to 12 inches long, flat or with edges rolled upward and in on drying, and gradually tapered to more or less finely pointed tips. Alkali cordgrass is found at elevations from 4,000 to 6,500 feet where annual precipitation is from 12 to 30 inches, but it is not particularly sensitive to precipitation zones since it grows along watercourses, in wetlands, or in wet meadows. Alkali cordgrass is an excellent grass for erosion control along rivers and streams. Its foliage is coarse but readily grazed by cattle and horses. Historically, alkali cordgrass was a major constituent of native meadow hay but does not withstand close harvest and has been replaced with tall wheatgrass in many meadow areas. It regrows slowly, but is fire tolerant.

**Description based on Utah State University’s* Range Plants of Utah *description.*

Cordgrass, Alkali

Spartina gracilis

Tł'ohdá'ákáłiitsoh

Robert H. Mohlenbrock, hosted by the USDA-NRCS, Western wetland flora: Field office guide to plant species *(1992), West Region, Sacramento*

Matt Lavin

Matt Lavin

Matt Lavin

Patrick Alexander

Dropseed, Giant

Sporobolus giganteus

Tł’ohyilzólítsoh

Alternative Names:
Giant sacaton

Plant Type:
Grass

Habitat:
Brushlands

Grasslands

Piñon-juniper woodland

River valleys

Growing Season:
Warm season

Special Considerations:
None

Giant dropseed is a perennial with a hairy ligule. It grows as high as 6 ½ feet tall and can easily be taller than the botanist observing it. The panicles are closed and dense.

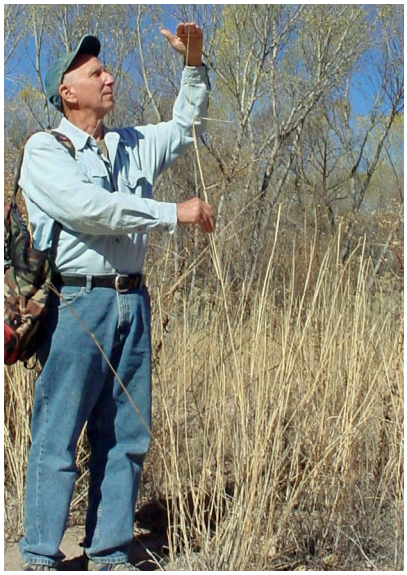
**Description courtesy of Western New Mexico University’s* Vascular Plants of the Gila Wilderness.

Dropseed, Giant

Sporobolus giganteus

Tł'ohyilzólítsoh

Patrick Alexander



Russ Kleinman & Richard Felger

Max Licher

Dropseed, Pine

Blepharoneuron tricholepis

Tł'ohyilzólí

Alternative Names:
Hairy dropseed

Plant Type:
Grass

Habitat:
Grasslands

Piñon-juniper woodland

Ponderosa pine/mixed conifer

Growing Season:
Warm season

Special Considerations:
- ✔ Provides livestock forage
- ✔ Indicator of healthy rangeland

Pine dropseed is a slender, erect, densely tufted bunchgrass growing 10 to 13 inches tall, with basal leaves and fibrous roots. It reproduces from seeds and tillers. It starts growth in late June or early July, completes growth in September, and generally comprises only a small portion of the vegetation.

The panicle-type inflorescence is 2 to 9 inches long, and can be open or contracted. Spikelets are small, containing one floret with a distinctive greenish-gray color, and with silky hairs.

Pine dropseed is usually found in open parks and meadows in the subalpine zone and in the open timber of the ponderosa pine and piñon-juniper types.

The palatability and quality of young pine dropseed plants is very good for all classes of livestock. The quality rapidly declines with maturity. The stems are neglected or only slightly grazed after maturing. It is generally one of the highest quality grasses in timbered areas.

A healthy pine dropseed community in areas where it is native is an indicator of rangeland in good condition.

**Description courtesy of Utah State University's* Range Plants of Utah.

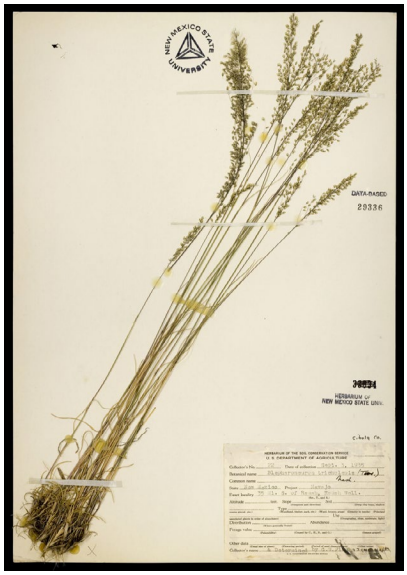
Dropseed, Pine

Blepharoneuron tricholepis

Tł'ohyilzólí

Patrick Alexander

Patrick Alexander



Patrick Alexander

Max Licher

Dropseed, Sand

Sporobolus cryptandrus

Tł'ohtsohzhóó'

Alternative Names:
None

Plant Type:
Grass

Habitat:
Grasslands

Growing Season:
Warm season

Special Considerations:
None

Sand dropseed is a perennial bunchgrass growing from 2 to 3 feet high. Sand dropseed is extremely drought tolerant and is adapted to sites receiving 7 to 16 inches of annual precipitation. Its fine root system allows sand dropseed to extract water from depths of up to 12 inches. During periods of summer drought, sand dropseed leaves roll up to reduce surface area and evapotranspiration.

This species spreads naturally from seed once established and increases on depleted rangelands and wastelands. Sand dropseed plants are able to withstand heavy use due to their protected root crown and late maturity and because they are less preferred than other species. Plants can be killed by overgrazing as a result of continued close cropping; however, when grazed properly, sand dropseed increases on sites with poor conditions.

Dropseed, Sand

Sporobolus cryptandrus

Tł'ohtsohzhóó'

Matt Lavin

Patrick Alexander

Patrick Alexander

Patrick Alexander

Patrick Alexander

Dropseed, Spike

Sporobolus contractus

Tł'ohyilzólídeeníní

Alternative Names:
None

Plant Type:
Grass

Habitat:
Grasslands

Wastelands

Growing Season:
Warm season

Special Considerations:
✔ Provides wildlife and livestock forage

Spike dropseed is a native, perennial bunchgrass with erect stems that grow three feet tall. Spike dropseed begins growing in the spring when moisture levels increase, and it and matures to produce seed in October. It can reseed itself following overgrazing or drought; however, proper management is required to ensure the plant is not overgrazed or over utilized by livestock or wildlife.

Spike dropseed has fair nutritional value, and many species of livestock will graze it. Various wildlife species, particularly upland birds, also feed on it, and it provides good cover for birds and small mammals.

Dropseed, Spike

Sporobolus contractus

Tł'ohyilzólídeeníní

Patrick Alexander

Sheaths of *Sporobolus contractus* leaves are hairy around the margins

Patrick Alexander

Patrick Alexander

Patrick Alexander

Patrick Alexander

Sacaton, Alkali

Sporobolus airoides

Tłohdá'ákáłiitsoh

Alternative Names:
Salt grass

Plant Type:
Grass

Habitat:
Grasslands

Growing Season:
Warm season

Special Considerations:
✔ Good forage
✔ Stabilizes soil

Alkali sacaton is a perennial bunchgrass. It ranges in height from 20 to 60 inches, with flat leaves 1/16 to ¼ inches wide that taper from the base of the leaf. The inflorescence is an open panicle 8 to 20 inches long with a pyramidal shape. The small seeds rest singly on branches in the loose, open seedhead.

Alkali sacaton blooms from April to May in the Southwest. It grows in both saline and nonsaline coarse, medium, and fine textured soils. This grass is tolerant of salinity and a broad range in pH.

It is good forage for horses and cattle as well as deer, small mammals (it is relished by jackrabbits), and birds. It is frequently utilized for seeding and stabilizing disturbed areas. Due to its salt tolerance, it is recommended for seeding sites such as oil well pits and saline waste from power plants.

After establishment, alkali sacaton is tolerant of drought and water inundation. However, it is intolerant of shade and is usually found growing in open areas.

Sacaton, Alkali

Sporobolus airoides

Tłohdá'ákáłiitsoh

Patrick Alexander

Patrick Alexander

Patrick Alexander

Patrick Alexander

Patrick Alexander

Fescue, Arizona

Festuca arizonica

Tsinyaatł'ohyilzólí

Alternative Names:
None

Plant Type:
Grass

Habitat:
Grasslands

Growing Season:
Cool season

Special Considerations:
None

Arizona fescue is a native, long-lived perennial bunchgrass. The plant has no rhizomes. Culms (stems) are 1 to 3 feet tall. They are clustered, pale blue-green, and rough to the touch. Leaf blades are mostly basal, pale blue-green, 6 to 10 inches long, shaped like a string, and rough to the touch. The inflorescence is a panicle about 3 to 8 inches long. It has a deep, dense fibrous root system.

Fescue, Arizona

Festuca arizonica

Tsinyaatł'ohyilzólí

Patrick Alexander

Patrick Alexander

Patrick Alexander

Russ Kleinman

Fescue, Six Weeks

Vulpia octoflora

Tł’ohyilzólídijoolí

Alternative Names:
Sixweeks fescue

Plant Type:
Grass

Habitat:
Grasslands

Piñon-juniper woodland

Ponderosa pine/mixed conifer

Growing Season:
Cool Season

Special Considerations:
None

Six weeks fescue has solitary stems or stems in small tufts generally 3 to 12 inches tall. Under unusually wet conditions it may grow to 24 inches tall. It is erect or occasionally bent upward at the lower nodes. It is shallow rooted and easily pulled from the soil. Its seedhead is a panicle 1 to 4 inches long with short branches compressed against the rachis (stem). Spikelets contain 5 to 15 florets. Glumes are unequal with the first being awl-shaped, sharp, and ¼ inch long. The second glume is narrow, ⅛ to ¼ inch long, and sharp or with an awn tip.

Leaf blades are narrow and boat-shaped. Sheaths are smooth or with backward hairs.

It is adapted to a wide range of soils and soil textures but is most common on sterile, rocky ground and disturbed areas.

Associated species include cheatgrass, red brome, creosotebush, bursage, big sagebrush, and storksbill.

Six weeks fescue is generally so small that it provides little forage for large animals. It may be used by desert tortoises and small desert animals since it is common in their habitats. It provides little erosion control.

**Description courtesy of Utah State University’s* Range Plants of Utah.

Fescue, Six Weeks

Vulpoa octoflora

Tł'ohyilzólídijoolí

Russ Kleinman, Richard Felger, Kevin Keith, & Sarah Johnson

Russ Kleinman, Richard Felger, Kevin Keith, & Sarah Johnson

Russ Kleinman, Richard Felger, Kevin Keith, & Sarah Johnson

Russ Kleinman, Bill Norris, & Denise Friedrick

Foxtail Barley

Hordeum jubatum

Azéé'iilwo'iitsoh

Alternative Names:

Bobtail barley

Squirreltail barley

Plant Type:

Grass

Habitat:

Grasslands

Piñon-juniper woodland

Ponderosa pine/mixed conifer

River valleys

Wastelands

Growing Season:

Cool season

Special Considerations:

! May injure grazing animals

Foxtail barley is a native grass that looks quite a bit like longleaf squirreltail. In foxtail barley, however, spikelets are borne in sets of three. The middle one is sessile, and the two outer spikelets are on pedicels. Foxtail barley propagates by seed and is extremely tolerant of saline soils. It inhabits both dry and wet areas and can be drought tolerant.

Foxtail Barley

Hordeum jubatum

Azéé'iilwo'iitsoh

Russ Kleinman

Russ Kleinman

Russ Kleinman, Bill Norris, & Denise Friedrick

Russ Kleinman

Patrick Alexander

Galleta, James'

Hilaria jamesii

Tł'ohdich'ízhí

Alternative Names:
Galleta

Formerly *Pleuraphis jamesii*

Plant Type:
Grass

Habitat:
Grasslands

Piñon-juniper woodland

Ponderosa pine/mixed conifer

Wastelands

Growing Season:
Warm season

Special Considerations:
None

Galleta is a perennial grass with strong rhizomes, but commonly is found growing in bunches. Stems are erect, 11 to 19 inches tall. It is a desirable forage plant for cattle, horses, and sheep during active plant growth in late spring and early summer. Palatability is moderate during active growth. Galleta is relatively unpalatable during dormant periods. Galleta greens up in early summer if rains are adequate. Growth is dependent on precipitation and is tolerant of close grazing and trampling.

Sheep typically feed upon central portions of galleta tufts, leaving the coarser growth around the outer edges. It is used to some extent by deer and antelope. Galleta is commonly found between 3,500 and 7,500 feet elevation in zones of 5 to 16 inches of annual precipitation.

Galleta has been used for basketry, coiled trays, and as floor and hair brushes. It has also been used as a dietary/pediatric aid to encourage babies' appetites. It is also used by horses, deer, and antelope because it withstands trampling and close grazing.

Galleta, James'

Hilaria jamesii

Tł'ohdich'ízhí

Matt Lavin

Matt Lavin

Matt Lavin

Patrick Alexander

Patrick Alexander

Goatgrass, Jointed

Aegilops cylindrica

Cl’oh ałhe ni’lí

Alternative Names:
None

Plant Type:
Grass

Habitat:
Grasslands

Piñon-juniper woodland

Growing Season:
Cool season

Special Considerations:
! Noxious

Jointed goatgrass is an introduced, annual grass that has spread into wildlands from winter wheat croplands. It is listed as a noxious weed in Arizona and New Mexico. Plants resemble winter wheat, but seedlings have fine hairs along leaf margins, sheaths, and auricles. The first leaf to emerge on seedling jointed goatgrass is reddish to brownish-green, whereas wheat tends to emerge as a whitish-green leaf.

Stems are hollow and may be upright, slightly lying down, or abruptly bent near the base. Stems branch at the base; the stems that branch off the main stem are called tillers. Jointed goatgrass is a primary concern within or near winter wheat fallow production areas where the species can contribute to reduced yield, loss of profitability, and degraded land values. Preventing the introduction of jointed goatgrass should be the key objective when managing this weedy species. The best way to prevent introduction is to always use certified weed-free seed from a reliable seed source when planting winter wheat in any wildland situations. Once jointed goatgrass is established, it spreads solely via seed. Control strategies should focus on removing seed production and reducing the opportunity for germination of seed already present in the soil. In most cases, several years of treatment are necessary to control jointed goatgrass.

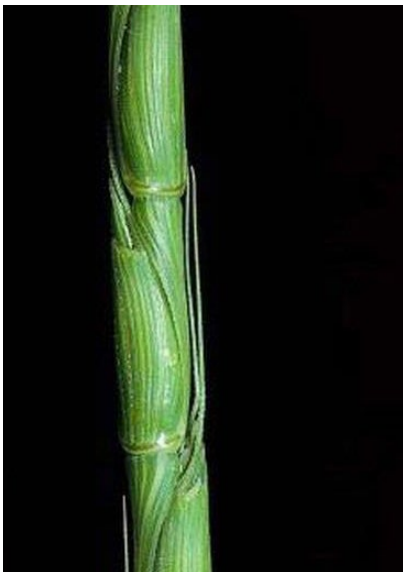
Goatgrass, Jointed

Aegilops cylindrica

Cl’oh ałhe ni’lí

USDA APHIS PPQ - Oxford, North Carolina, USDA APH

Matt Lavin



Joseph M. DiTomaso, UC Davis

Joseph M. DiTomaso, UC Davis

Patrick Alexander

Matt Lavin

Grama, Black

Bouteloua eriopoda

Tł’ohnást’ąsłizhiní

Alternative Names:
None

Plant Type:
Grass

Habitat:
Wastelands

Grasslands

Growing Season:
Warm season

Special Considerations:
✔ Good livestock forage

⚑ Easily killed by overgrazing

Black grama is a native, perennial grass 10 to 20 inches tall. It has crooked, woolly stems with narrow leaves, less than ⅛ inch wide, inrolled and wavy. Seedheads are similar to blue grama, except narrower. It is one of the region’s most valuable and nutritious grasses.

It grows mostly on gravelly or sandy soils that are dry and seldom grows on clay loams or adobe (clay) flats. Black grama is characteristically a lower altitude grass (3,500 to 5,500 feet elevation), but occasionally grows at elevations of 7,000 feet.

Overgrazing easily kills this grass. To improve black grama ranges, defer grazing two successive years during the growing season, and do not graze more than 50% of current growth by weight during dormancy. Once the improvement is achieved, *maintain* ranges by deferring grazing for one growing season every third year.

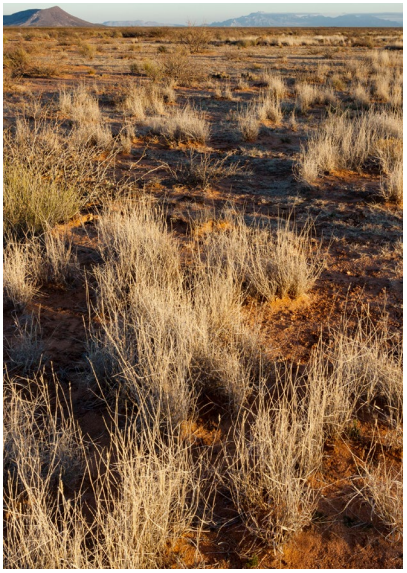
Grama, Black

Bouteloua eriopoda

Tł'ohnást'ąsłizhiní

Patrick Alexander

Patrick Alexander



Patrick Alexander

Black grama range in winter

Patrick Alexander

Black grama range in summer

Patrick Alexander

Grama, Blue

Bouteloua gracilis

Tł’ohnást’ąsi

Alternative Names:
None

Plant Type:
Grass

Habitat:
Grasslands

Growing Season:
Warm season

Special Considerations:
✔ Good livestock forage

✔ Cures well on stem

Blue grama is a major warm-season grass, 10 to 20 inches tall with narrow basal leaves of 3 to 6 inches. Blue grama grows in definite bunches and reproduces by tillering and by seed. Mature seedheads are curved, resembling a human eyebrow.

Once the grass is established, it is very palatable to livestock all year long. Since growing points are at or near the ground, the grass withstands fairly close grazing. Blue grama cures well on stem, making it a good grass for grazing during the dormant season.

For best yields, defer grazing during the growing season every two to three years.

Grama, Blue

Bouteloua gracilis

Tł'ohnást'ąsi

Patrick Alexander

Blue grama rangeland in the dry season

Renee Benally

Amy Smith Muise

Renee Benally

Patrick Alexander

Grama, Sideoats

Bouteloua curtipendula

Tł'ohłichi'í

Alternative Names:
None

Plant Type:
Grass

Habitat:
Grasslands

Growing Season:
Warm season

Special Considerations:
✔ Good livestock forage

Sideoats grama is a medium-size perennial bunchgrass, 15 to 30 inches tall or occasionally taller. This is the largest and most coarse of the grama grasses. It has a blue-green color, sometimes with a purplish cast (especially in the spring), and cures to a reddish-brown or straw color. Leaves are coarser than other species of gramas, straight, comparatively stiff, and mostly basal. Ten to thirty small, non-comb-like spikes are borne mostly along one side of each central seed stalk. These spikes drop when mature, leaving a long zigzag stalk. It produces high quality, nutritious forage that is relished by all classes of livestock throughout the summer and fall, and it remains moderately palatable into winter. This makes it one of the most important range grass species.

Sideoats is moderately drought tolerant, but less so than blue grama. It is moderately tolerant of semi-shaded conditions and can be found in open woodlands. It is fairly tolerant of fire (when in a dormant state) and of spring flooding. It probably has the widest range of adaptation of any of the warm-season perennial grasses.

Grama, Sideoats

Bouteloua curtipendula

Tł'ohłichi'í

Patrick Alexander

Patrick Alexander

Patrick Alexander

Patrick Alexander

University of Wisconsin-Madison, Wisconsin State Herbarium

Johnsongrass

Sorghum x almum

Akál

Alternative Names:
None

Plant Type:
Grass

Habitat:
Grasslands

Growing Season:
Warm season

Special Considerations:

- ! Noxious
- ! May suppress other plants
- ! Sometimes toxic to livestock, especially cattle

Johnsongrass is a tall perennial with long rhizomes. It grows in moist places and can form large colonies. The flowering segments are called rames. In the rames, a pedicelled spikelet can give rise to more pedicelled spikelets.

Johnsongrass was introduced to the United States as a forage crop, and generally provides good feed. At certain stages of development, however, it can be toxic to livestock. Toxins may also be present when the grass grows in adverse conditions such as drought, frost, or extreme heat. Toxins may also be present when the grass is wet. Toxins tend to affect cattle more than horses. Stalks grow to a height of eight feet. The leaves have a distinctive white midrib. The flowers occur in a purplish cluster. The plants spread through rhizomes and contain allelopathic chemicals, toxins that may affect the health and growth of other plants.

Johnsongrass

Sorghum x almum

Akál

Russ Kleinman

Sorghum halapense

Russ Kleinman

Sorghum halapense, detail of rame

D. Walters and C. Southwick, Table Grape Weed Disseminule ID, USDA APHIS PPQ, Bugwood.org

Bruce Ackley, The Ohio State University, Bugwood.org

Sorghum halapense, strongly rhizomatous

Patrick Alexander

Junegrass, Prairie

Koeleria macrantha

Tł’ooléts’ózí

Alternative Names:
Junegrass

Plant Type:
Grass

Habitat:
Grasslands

Growing Season:
Cool season

Special Considerations:
✔ Good wildlife and livestock forage

Prairie junegrass is a highly variable, moderately long-lived, perennial bunchgrass that grows ½ to 2 feet tall. Its clusters of narrow, markedly veined, light green to bluish-green leaves grow to about seven inches tall.

Active growth begins early in spring, providing good forage for livestock, deer, antelope, and elk. Declining palatability during seed formation rebounds in late summer when there is adequate moisture.

Junegrass, Prairie

Koeleria macrantha

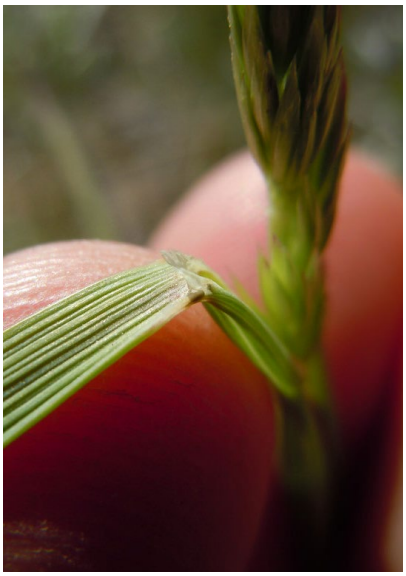
Tł'ooléts'ózí

Matt Lavin

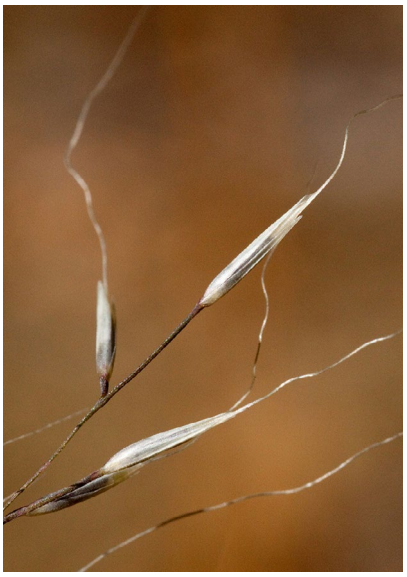
Matt Lavin

Patrick Alexander

Patrick Alexander



Matt Lavin



Patrick Alexander

Muhly, Mountain

Muhlenbergia montana

Bé’ézhóó’

Alternative Names:
None

Plant Type:
Grass

Habitat:
Grasslands

Ponderosa pine/mixed conifer

Growing Season:
Warm season

Special Considerations:
✔ Good livestock forage

Mountain muhly is a perennial bunchgrass with high forage value for cattle. It is a valuable forage plant because of its abundance, though it does not have high palatability. It is grazed most readily when the plants are actively growing. Mountain muhly decreases in response to trampling and heavy grazing.

It is found in grassy parklands, on slopes and foothills, on rocky, dry hillsides, in canyons, and on mesas. Mountain muhly grows during the spring and summer months and becomes semi dormant if there is midsummer drought.

Muhly, Mountain

Muhlenbergia montana

Bé’ézhóó’

Patrick Alexander

Patrick Alexander

Patrick Alexander

Frankie Coburn

Muhly, Ring

Muhlenbergia torreyi

Bé’ézhóó’łichii’í

Alternative Names:
None

Plant Type:
Grass

Habitat:
Brushlands

Grasslands

Growing Season:
Warm season

Special Considerations:
⚑ Needs rest in the rainy season

Ring muhly is a low-growing, fine-leaved, fine-stemmed sodgrass. It tends to grow in rings, which are caused by the center dying out as the plant enlarges. The rings may range in size from several inches to a few feet across.

It appears green to bluish-green, reddish, or purplish. It flowers from July to September on dry ridges, sandy plateaus, and rocky slopes between 4,000 and 7,000 feet. Even when ring muhly is young and growing rapidly, its palatability is low. As the plants mature, palatability drops almost to zero.

Ranges with ring muhly should be managed with other grasses as key species. Continued attempts to obtain even a moderate amount of grazing from the grass will in time drive out all of the desirable forage species and result in consistent weight losses in the animals being grazed. Ranges with an abundance of this grass should be rested during the summer rainy season.

Muhly, Ring

Muhlenbergia torreyi

Bé’ézhóó’łichii’í

Patrick Alexander

Patrick Alexander

Patrick Alexander

Matt Lavin

Muhly, Sandhill

Muhlenbergia pungens

Béé’ézhóó’

Alternative Names:
None

Plant Type:
Grass

Habitat:
Grasslands

Growing Season:
Warm season

Special Considerations:
✔ Controls wind erosion on sand

Sandhill muhly, often found in or near blowout or dune areas on sandy sites, is a perennial bunchgrass 4 to 24 inches tall. It often forms large, rounded clumps or rings, dying out in the center. It reproduces by rhizomes and seed. Sandhill muhly has little value as forage for livestock or wild grazers. It is effective in controlling wind erosion in very sandy areas.

Muhly, Sandhill

Muhlenbergia pungens

Béé'ézhóó'

Matt Lavin

Arizona State University Herbarium

Max Licher

Muhly, Spike

Muhlenbergia wrightii

Bé’ézhóó’tsahí

Alternative Names:
None

Plant Type:
Grass

Habitat:
Grasslands

Piñon-juniper woodland

Growing Season:
Warm season

Special Considerations:
✔ Good for livestock

Spike muhly is a perennial bunchgrass reaches heights of 8 to 24 inches. Clumps are generally 1 to 2 feet wide. The grass has a very narrow seedhead that has a distinctive feature: the seeds do not occur continuously, but are sometimes interrupted by bare areas. There is one floret per spikelet.

Spike muhly rates high in palatability for all livestock. It is most abundant on rocky soils and in mountain meadows at elevations from 3,800 to 9,000 feet. Abundant spike muhly on rangeland in good condition needs only moderate grazing for maintenance. Depleted ranges may need summer deferment.

Muhly, Spike

Muhlenbergia wrightii

Bé’ézhóó’tsahí

Russ Kleinman

Russ Kleinman

Russ Kleinman, Bill Norris, Karen Blisard, & Denise Friedrick

Russ Kleinman, Bill Norris, Karen Blisard, & Denise Friedrick

Patrick Alexander

Mutton Grass

Poa fendleriana

Tł’ohnikání

Alternative Names:
None

Plant Type:
Grass

Habitat:
Grasslands

Growing Season:
Cool season

Special Considerations:
✔ Good livestock and wildlife forage

Mutton grass is a perennial bunchgrass that is rated as excellent forage for cattle and horses. It is also good forage for sheep, elk, and deer. During the winter, seedheads are eaten by pronghorn antelope. Seeds and leaves are also utilized by birds.

The fibrous root system of this species reaches a depth of approximately 10 inches, providing good surface erosion control in arid sites.

It can be used to restore areas where juniper encroachment has depleted the herbaceous understory following juniper removal. The species is drought tolerant and has potential for use in restoration and native plant diversification projects.

Patrick Alexander

Patrick Alexander

Patrick Alexander

Needle-and-Threadgrass

Hesperostipa comata subsp. comata

Ch'il Bilata dee'ni'ni'

Alternative Names:

Stipa cometa

Stipa comata

Hesperostipa comata

Spear-grass

Plant Type:

Grass

Habitat:

Grasslands

Growing Season:

Cool season

Special Considerations:

✔ Cures well on the stalk

! Sharp awn may injure livestock

Needle-and-threadgrass is a native perennial bunch grass. It ranges in height from 1 to 4 feet. It has narrow basal leaves 3 to 12 inches long with the blade usually rolled inward.

The mature spikelet has a long, hairy, spiraling awn.

Needle-and-threadgrass appears in many habitat types, including forest, grassland, and shrub-steppe communities. It reproduces by seed and tillers. Because of a long awn needle-and-thread grass seeds can embed themselves in the soil by a twisting action of the awn in response to daily humidity changes. This sharp awn may injure grazing animals, especially domestic sheep.

Needle-and-threadgrass is grazed by all livestock, particularly in the spring and fall when green, but it also cures well to provide dormant season grazing.

Description is partially drawn from the USDA USFS Fire Effects Information System.

Needle-and-Threadgrass

Hesperostipa comata subsp. comata

Ch’il Bilata dee’ni’ni’

Patrick Alexander

Patrick Alexander

Patrick Alexander

Patrick Alexander

Matt Lavin

Needlegrass, Desert

Pappostipa speciosa

Tł’ohtsahí

Alternative Names:
Formerly *Stipa speciosa*

Achnatherum speciosa

Plant Type:
Grass

Habitat:
Brushlands

Grasslands

Wastelands

Growing Season:
Cool season

Special Considerations:
! May injure livestock

Desert needlegrass is a native, perennial bunchgrass that grows from 1 to 2 feet tall, typically on coarse soils, including alluvial fans, dry, rocky hills, talus slopes, and in canyons. It can tolerate low precipitation and usually occurs in areas that receive 6 to 20 inches annually. The long awns of desert needlegrass seed enable self-planting. Cycles of wetting and drying cause the awn to twist and untwist, which drives the seed into the ground.

Desert needlegrass tolerates light grazing. It is best to graze desert needlegrass before seed develops because the seed has a prominent, sharp callus that can injure the eyes and mouths of grazing animals.

Needlegrass, desert

Pappostipa speciosa

Tł’ohtsahí

Matt Lavin

Matt Lavin

Matt Lavin

Matt Lavin

C.D. Schelz

Needlegrass, Scribner

Achnatherum scribneri

Tł’ohtsahí

Alternative Names:
None

Plant Type:
Grass

Habitat:
Piñon-juniper woodland

Ponderosa pine/mixed conifer

Growing Season:
None

Special Considerations:
None

Scribner needlegrass grows in dense mats or tufts, often on rocky slopes among conifers. The stalks can grow to three feet tall. It gets its name from the needle-like awns that protrude from its seeds. These awns can be ½ to 1 inch long and are slightly fuzzy.

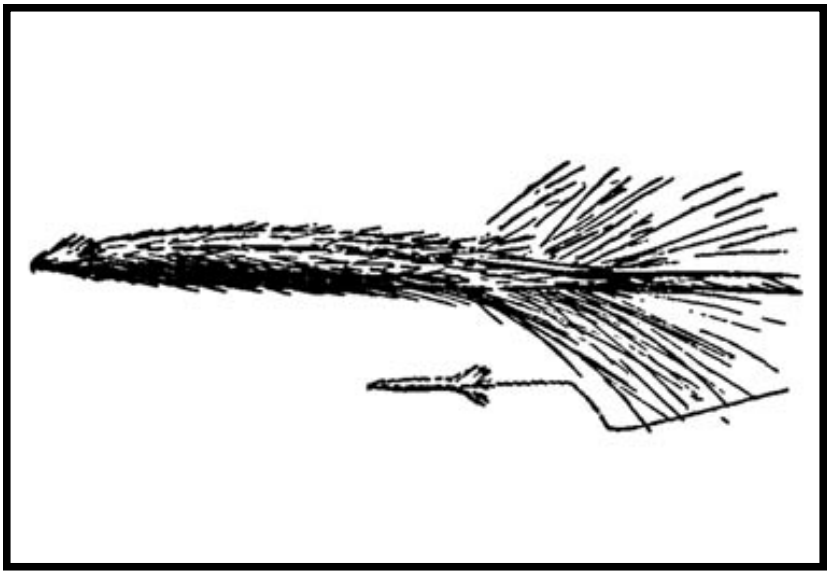
Scribner needlegrass occurs on parts of the Navajo Nation but is not widespread.

Needlegrass, Scribner

Achnatherum scribneri

Tł'ohtsahí

G. J. Goodman



USDA-NRCS PLANTS Database / Hitchcock, A.S. (rev. A. Chase), Manual of the grasses of the United States *(1950), USDA Miscellaneous Publication No. 200, Washington, DC*

Tracey Slotta, hosted by the USDA-NRCS PLANTS Database

Max Licher

New Mexico Feathergrass

Hesperostipa neomexicana

Tł’ohdit’ódítsoh

Alternative Names:
Formerly *Stipa neomexicana*

Plant Type:
Grass

Habitat:
Brushlands

Grasslands

Growing Season:
Cool season

Special Considerations:

! Seeds may injure livestock

✔ Withstands heavy use in spring and fall

New Mexico feathergrass is a perennial bunchgrass. This tufted grass has a long, feathery awn on the seed, which distinguishes it from needle-and-threadgrass. Most common on sandy, gravelly, and rocky sites, it occurs at elevations from 3,100 to 7,200 feet.

New Mexico feathergrass provides moderate to good forage for all livestock. The sharp-pointed seeds, like needle-and-threadgrass seeds, may injure the mouths of animals. The grass tends to decrease under grazing, especially on drier ranges. This grass withstands heavy use in the spring and fall and usually reproduces well if the plants are allowed to mature seed during summer.

New Mexico Feathergrass

Hesperostipa neomexicana

Tł’ohdit’ódítsoh

Amy Smith Muise

Russ Kleinman & Bill Norris

Amy Smith Muise

Russ Kleinman & Bill Norris

Russ Kleinman & Scott Zager

Redtop

Agrostis gigantea

Tł’ohlátahyíchii’í

Alternative Names:
Blackbent

Plant Type:
Grass

Habitat:
Grasslands

Growing Season:
Cool season

Special Considerations:
! Introduced

✔ Palatable to cattle and horses

Redtop is a rhizomatous perennial grass that makes a coarse but fairly dense turf. Leaves are narrow and sharp and about ⅜ inch wide. The stems are slender, growing to 30 or 40 inches tall. The inflorescence is pyramidal and reddish in color—hence the name.

The leaf is harsh to the touch with a prominent ligule. The seedhead is a purplish-red, loose panicle, pyramid-shaped, 4 to 12 inches long. It occurs mostly in mountain meadows and subalpine grasslands where openings in the tree canopy occur, as well as in wet meadows in the western plateau and central plains. Redtop grows at elevations of 5,000 to 10,000 feet, but is most common at 7,500 feet.

Redtop was introduced from Europe as a cultivated species. It is palatable to cattle and horses, and sheep will graze it if necessary. When moisture is adequate, the plants remain green all summer and can be grazed throughout the season. Redtop grows vigorously and forms good sod. Because of this, on its preferred sites, the plant withstands heavy use and serves well as a soil binder for reclaiming gullies and holding slopes and banks. It is well adapted to wet, acid soils.

Redtop

Agrostis gigantea

Tł’ohlátahyíchii’í

Russ Kleinman

Russ Kleinman

Russ Kleinman

Debra Moses

Ricegrass, Indian

Achnatherum hymenoides

Ndídlídii

Alternative Names:
Stipa hymenoides

Formerly *Oryzopsis hymenoides*

Plant Type:
Grass

Habitat:
Grasslands

Growing Season:
Cool season

Special Considerations:
- ✔ Good livestock and wildlife forage
- ✔ Edible grain

Indian ricegrass is a cool season, native bunchgrass with many tightly rolled, slender leaves growing from the base of the bunch. The nutritious seeds of Indian ricegrass have a long history as a staple food.

Indian ricegrass is highly palatable to livestock and wildlife. It is a preferred feed for cattle, horses, and elk in all seasons. It is considered a preferred feed for sheep, deer, and antelope in spring, and a desirable feed for sheep, deer, and antelope in late fall and winter. It reaches its peak production from mid-June through mid-July. It holds its nutrient value well at maturity.

Indian ricegrass is very winter hardy and has a broad climatic adaptation. It can be found at elevations from 2,000 to 10,000 feet. It grows best in areas with average annual precipitation of 8 inches to 14 inches.

Ricegrass, Indian

Achnatherum hymenoides

Ndídlídii

Amy Smith Muise

Amy Smith Muise

Patrick Alexander

Saltgrass

Distichlis spicata

Tł’ohdík’ózhíǫtł’oolédich’ízhí

Alternative Names:
None

Plant Type:
Grass

Habitat:
Brushlands

Grasslands

Piñon-juniper woodland

River valleys

Growing Season:
Warm season

Special Considerations:
✔ Drought tolerant

! Can become invasive

Saltgrass is a native perennial from 15 to 35 inches in height. It forms dense mats with rhizomes and sometimes stolons. It is a dioecious species with male and female reproductive parts on separate plants. It is one of the most drought-tolerant species in the dry West.

Blades are firm, the edges often flat at the base and folded or rolled inward meeting in the middle, therefore, appearing attenuate. Blades are generally less than four inches long. Salt crystals may be found on the leaves and stems. The ligules are stiff with a fringe of hair at the tips.

Saltgrass is grazed by both cattle and horses, and it has a forage value of fair to good because it remains green when most other grasses are dry during the drought period. It is resistant to grazing and trampling.

It has been used as a salty seasoning.

Saltgrass

Distichlis spicata

Tł’ohdík’ózhíǫtł’oolédich’ízhí

Patrick Alexander

Patrick Alexander

Patrick Alexander

Patrick Alexander

Macleay Grass Man

Sandbur, Field

Cenchrus spinifex

Dííłiihí

Alternative Names:

Schrader's brome

Formerly *Cenchrus incertus*

Plant Type:

Grass

Habitat:

Brushlands

Grasslands

Growing Season:

Warm season

Special Considerations:

- ! Noxious
- ! May cause injury

Sandbur is an annual grass with a spreading rather than upright growth habit. It often grows in areas that are seasonally flooded. The barbed spines on the burs can inflict a painful wound and are easily picked up and transported by clothing, hair, animal fur, and tires. The spikelets are hidden within the armed burs.

**Description courtesy of Western New Mexico University's* Vascular Plants of the Gila Wilderness.

Sandbur, Field

Cenchrus spinifex

Díłłiihí

D. Walters and C. Southwick

Robert Vidéki, Doronicum Kft., Bugwood.org

Joseph M. DiTomaso, University of California - Davis

Joseph M. DiTomaso, University of California - Davis

Patrick Alexander

Three-Awns (Annual)

Aristida spp.

Azéé'iilwo'iiyázhí

Alternative Names:
None

Plant Type:
Grass

Habitat:
Grasslands

Growing Season:
Warm season

Special Considerations:
- ! Fleece damage to sheep
- ! Irritates livestock skin, eyes, nostrils

Three-awns are grasses that occur in both annual and perennial forms. On Navajo rangelands, the annual three-awn species are six weeks three-awn (*Aristida adscensionis*) and oldfield three-awn (*Aristida oligantha*). Three-awns are native to North America. They are not considered a valuable forage species, though they do provide some habitat for birds and other small animals. The awns can tend to catch in the wool or irritate the skin of livestock. These bunchgrasses are many-branched toward the base of the clump, and they grow to a height of about three feet. The leaves roll inward. The florets and awns of the inflorescences spread outward, creating a brushy appearance. There are three awns on each floret.

Three-Awns (Annual)

Aristida spp.

Azéé’iilwo’iiyázhí

Patrick Alexander

Aristida adscensionis

Patrick Alexander

Aristida oligantha

Patrick Alexander

Aristida oligantha

Amy Smith Muise

Three-Awns (Perennial)

Aristida spp.

Azéé’iilwo’iiyázhí

Alternative Names:
None

Plant Type:
Grass

Habitat:
Grasslands

Brushlands

Growing Season:
Warm season

Special Considerations:
! Fleece damage to sheep

Three-awns are bunchgrasses that occur in both annual and perennial forms and have three awns on each floret. On Navajo rangelands, the most common perennial three-awn is purple three-awn (*Aristida purpurea*). Three-awns grow in wastelands and brushlands and are not considered valuable forage species, though they do provide some habitat for birds and other small animals. The awns can tend to catch in the wool or irritate the skin, mouths, or nostrils of livestock.

Many-branched toward the base of the clump, purple three-awn grows to a height of 8 to 16 inches. The leaves are narrow and roll inward. The florets and awns of the inflorescences spread outward, creating a brushy appearance. The florets turn purplish-red.

Three-awn does well on rocky or sandy soils. Presence of the grass may indicate an overgrazed range, but it may also indicate a dry, well-drained soil. It is often found with sagebrush, cheatgrass, needle-and-threadgrass, western wheatgrass, and blue grama. Purple three-awn increases under heavy grazing because it is less palatable than associated grasses. It has excellent drought resistance.

The palatability of this species when green is low to moderate for all livestock. The grass has little value when dry. Although growth begins in the late spring, little forage is produced until the summer rains.

Areas of deep soil supporting extensive stands of red three-awn can be improved through light, winter, or deferred grazing.

Three-Awns (Perennial)

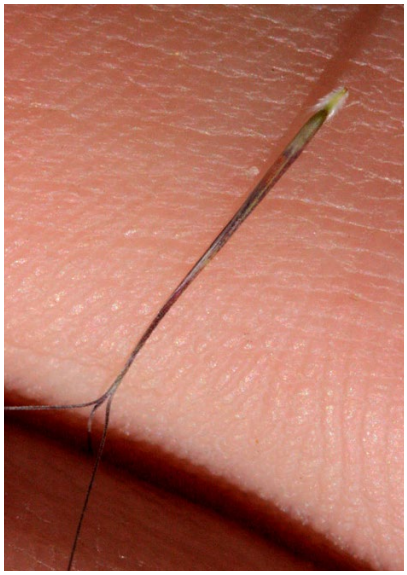
Aristida spp.

Azéé'iilwo'iiyázhí

Patrick Alexander

Aristida divaricata, poverty three-awn

Patrick Alexander



Patrick Alexander

Aristida divaricata, poverty three-awn

Amy Smith Muise

Aristida purpurea

Patrick Alexander

Aristida pansa

Patrick Alexander

Tufted Horse Grass

Deschampsia cespitosa

Tł’oh Deits’óózí

Alternative Names:
Tufted hairgrass

Plant Type:
Grass

Habitat:
Grasslands

River valleys

Growing Season:
Warm season

Special Considerations:
None

Tufted horse grass, often called tufted hairgrass, is native to much of the United States. It is an important livestock forage species, sometimes used for hay. It grows in a wide variety of habitats and elevations. Stalks may grow from 2 to 6 feet in height, forming a feathery seedhead. Basal leaves grow in a dense tuft.

Tufted Horse Grass

Deschampsia cespitosa

Tł’oh Deits’óózí

Patrick Alexander

Patrick Alexander

Patrick Alexander

Franz Xaver [CC BY-SA 3.0 or GFDL], from Wikimedia Commons

Wheatgrass, Crested

Agropyron cristatum

Tł'ohdeindtł'izí

Alternative Names:
None

Plant Type:
Grass

Habitat:
Brushlands

Grasslands

Wastelands

Growing Season:
Cool season

Special Considerations:
! Introduced

✔ Wildlife and livestock forage

Crested wheatgrass is an introduced, long-lived, drought tolerant, and winter hardy grass with an extensive root system.

It produces leaves in the spring about 10 days after bluegrass species and about two weeks earlier than native wheatgrasses. It makes good spring growth, little summer growth, and good fall growth if moisture is available. Livestock and wildlife will graze crested wheatgrass throughout the spring growing season until it becomes too coarse, and again in fall if regrowth occurs. Established stands can withstand very heavy grazing.

In spring, the protein levels can be as high as 18% and decrease to about 4% as the grass matures. Digestible carbohydrates remain high throughout the active growth period. It is commonly utilized for winter forage by cattle and horses, but protein supplements are required to ensure good animal health.

It is not considered a desirable feed for cattle, sheep, horses, deer, antelope, or elk in the summer.

This species was introduced from Asia.

Wheatgrass, Crested

Agropyron cristatum

Tł’ohdeindtł’izí

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Russ Kleinman

Wheatgrass, Slender

Elymus trachycaulus

Tł'ooléyilts'oozí

Alternative Names:
None

Plant Type:
Grass

Habitat:
River valleys

Growing Season:
Cool season

Special Considerations:
- ✔ Wildlife and livestock forage
- ✔ Erosion control

Slender wheatgrass is a bunchgrass growing to a height of 1 to 2 ½ feet, usually without rhizomes, but tillering freely. It starts growth in mid spring, and seeds mature by August to September. It is native to much of the West, rarely abundant, but common in a number of plant communities. It is found at elevations from 6,000 to 13,500 feet on gentle to steep mountain slopes, valley bottoms, and rolling hills. It occurs on practically all of the mountain and high mountain sites, but only on a few of the upland sites. Under good management, it is moderately drought resistant as well as resistant to long wet periods. It prefers deep, well-drained, medium- to fine-textured soils that are well developed. It is not considered tolerant of salt. Associated species include mountain brome, yarrow, Junegrass, aspen, cottonwood, and big sagebrush.

Its forage value is good, diminishing in palatability in the latter part of the growing season. In general, an excellent forage grass for cattle, horses, sheep, elk, and deer and, valuable as cover and feed for many forms of small mammals and upland game birds as well as songbirds. Later in the growing season, it becomes slightly coarse and stemmy. Grazing management should take into account the fact that it is sensitive to grazing, especially by cattle. Serves as an indicator of trend in associated valuable species, since it withstands moderate grazing well but will decrease under heavy grazing. Erosion control values are excellent, because it will quickly establish from seed.

**Description courtesy of Utah State University's* Range Plants of Utah.

Wheatgrass, Slender

Elymus trachycaulus

Tł'ooléyilts'oozí

Russ Kleinman & Bill Norris

Russ Kleinman & Kelly Kindscher

Patrick Alexander

Wheatgrass, Western

Pascopyrum smithii

Tł’oolé

Alternative Names:
Formerly *Agropyron smithii*

Plant Type:
Grass

Habitat:
Grasslands

Growing Season:
Warm season

Special Considerations:
✔ Early spring forage is palatable to all livestock

Western wheatgrass is a long-lived species that has coarse blue-green leaves with prominent veins. It is a sod former with very strong, spreading rhizomes. Stems arise singly or in clusters of a few, and reach heights of 1 to 3 feet. Western wheatgrass provides early spring forage and is palatable to all livestock

Wheatgrass, Western

Pascopyrum smithii

Tł’oolé

Patrick Alexander

Russ Kleinman, Bill Norris, Leith Young, & Richard Felger

Russ Kleinman, Bill Norris, Leith Young, & Richard Felger

Patrick Alexander

Russ Kleinman & Bill Norris

Wildrye, Canadian

Elymus canadensis

Tł'ohndtł'izítsoh

Alternative Names:
Nodding wild rye

Plant Type:
Grass

Habitat:
Grasslands

Ponderosa pine/mixed conifer

Growing Season:
Cool season

Special Considerations:
None

Canadian wildrye is a tall perennial grass with a drooping inflorescence. It grows in moist forested areas. Glumes are well-developed and the lemmas have awns. The rachis does not break apart when mature.

**Description courtesy of Western New Mexico University's* Vascular Plants of the Gila Wilderness.

Wildrye, Canadian

Elymus canadensis

Tł'ohndtł'izítsoh

Russ Kleinman & Bill Norris

Russ Kleinman

Patrick Alexander

Wildrye, Russian

Psathyrostachys juncea

Tł'oolétsohndtł'izí

Alternative Names:
None

Plant Type:
Grass

Habitat:
Brushlands

Piñon-juniper woodland

Growing Season:
Cool season

Special Considerations:
None

Russian wildrye is an introduced, long-lived, perennial bunchgrass. It has an abundance of long, dense, basal leaves that are from 6 to 18 inches long and up to 1¼ inch in width. Plants vary from light to dark green, with many shades of blue-green. The erect, leafless reproductive stems are about 30 to 40 inches tall. The seedhead is a short, dense, erect spike with two or more short-awned spikelets clustered at axis joints. The seed shatters readily at maturity. The seed is about the same size as crested wheatgrass seed. The roots are fibrous and may establish to a depth of 6 to 8 feet. However, about 75% of the roots are in the surface 6 to 24 inches. Russian wildrye roots have an extended horizontal spread and may draw heavily on soil moisture for a distance of up to 4 or 5 feet. Its long season of growth and its vigorous soil-feeding habit make this species an excellent competitor with weeds once the grass is well established.

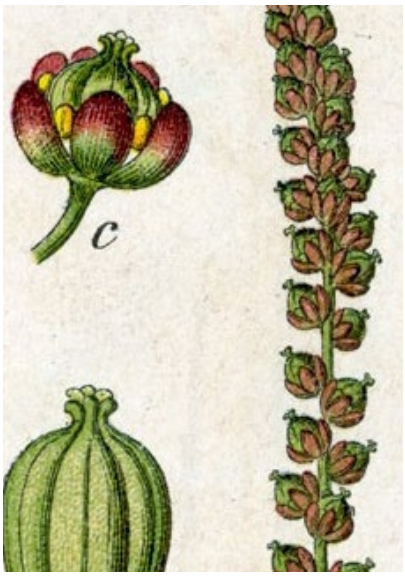
Wildrye, Russian

Psathyrostachys juncea

Tł'oolétsohndtł'izí

Patrick Alexander

Patrick Alexander



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Arrowgrass

Triglochin maritima

Tł’ohk’aa’í

Alternative Names:
Seaside arrowgrass

Plant Type:
Grasslike

Habitat:
Grasslands

Growing Season:
Warm season

Special Considerations:
! Toxic to livestock

Arrowgrass is a wandlike, herbaceous wetland plant 12 to 40 inches tall with rhizomes. It is a grasslike plant in the Juncaginaceae family. Reproduction is from rhizomes and seed. Growth starts in early spring, and flowering occurs June through August. Flowers are green and spaced along a spikelike raceme. Fruits are almost cylindrical, up to ¼ inch long and fall from the plant at maturity. Leaves are linear, 3 to 8 inches long, narrow, and flattened or channeled. Arrowgrass can be found in wet alkaline lowlands, and in meadows and swamps at elevations from 4,200 to 8,800 feet. It is occasionally confused with rushes because it occurs in habitats often dominated by them. It contains hydrocyanic acid, especially when drought- or frost-stressed, which makes it highly toxic to livestock, even in amounts less than ¼ pound. It is a common component of wet meadows that are cut for hay. Arrowgrass in cured hay has been reported to cause poisoning in young animals.

**Description based on Utah State University* Range Plants of Utah.

Patrick Alexander

Habitat

Patrick Alexander

Bulrush

Schoenoplectus acutus

Lók'aatł'ohtsoh

Alternative Names:

Tule

Common tule

Hardstem tule

Tule rush

Hardstem bulrush

Viscid bulrush

Plant Type:

Grasslike

Habitat:

Grasslands

River valleys

Growing Season:

Warm season

Special Considerations:

✔ Provides wildlife habitat and forage

❗ Potentially invasive

Bulrush is a grasslike species in the Cyperaceae (sedge) family. Bulrush is a wetland plant which forms dense colonies. It reproduces by seed, dispersed by wind and water. Bulrush seed establishes and germinates best on moist, bare soil. Hardstem bulrush also reproduces vegetatively from rhizomes. The flowering parts are compact and umbellate with a greenish bract extended. It often forms monocultures in marshes throughout its range. It grows best on sites with saturated soil or standing water for most of the year, such as marshes, swamps, seeps, washes, floodplains, lake and stream margins, and wet meadows. Hardstem bulrush can grow in fresh or brackish water where the water table is up to 5 feet above or ⅓ feet below the soil surface. It is fairly drought tolerant; it can persist through several years of dry conditions.

Hardstem bulrush is an important aquatic or semiaquatic species. It provides cover for numerous birds and mammals. It is a staple food for muskrat and other small mammals. It provides valuable food and nesting for a variety of birds.

It regrows well after removal and is tolerant of fire. It is considered a problem species in some circles because it can be an aggressively invasive plant that closes in bare shorelines and open water in marshes, impeding waterfowl and shorebirds. It is seldom grazed by livestock if other forage is available. If upland forage becomes limited and soil conditions dry, livestock and big game animals may utilize hardstem bulrush.

**Based on Utah State University* Range Plants of Utah *description.*

Bulrush

Schoenoplectus acutus

Lók’aatł’ohtsoh

Patrick Alexander

Patrick Alexander

Matt Lavin

Rushes

Juncus spp.

Lok'aá bit'zooz

Alternative Names:
None

Plant Type:
Grasslike

Habitat:
Grasslands

River valleys

Growing Season:
Cool season

Special Considerations:
✔ Wildlife habitat and forage

Wire rushes are the primary rush species in Navajo rangelands. They are native to most of North America, and they will grow in wetlands as well as in seasonal wetlands, standing water, and moist grasslands. While not a primary livestock food source, rushes provide food and habitat for many types of wildlife. They also have cultural use as a basket-weaving material and occasional food. They are an important erosion control species due to their dense root systems.

Rushes are not a true grass, but grow in a grasslike form and can be identified by their round leaf cross sections. The wire rush grows in tufts to a height of three feet. The inflorescence may be up to 2⅜ inches long and contain 10 to 50 flowers. Seeds are brownish red and the size of grains of sand.

Some people use this simple mnemonic to help distinguish rushes, sedges, and grasses: "Sedges have edges, rushes are round, grasses have knees that bend to the ground."

An alternate version goes, "Sedges have edges, rushes are round, grasses are hollow right up from the ground."

Rushes found in the Four Corners region include:

Juncus arcticus
Juncus bufonius
Juncus ensifolius
Juncus interior
Juncus longistylis
Juncus torreyi

Rushes

Juncus spp.

Lok’aá bit’zooz

Matt Lavin

Matt Lavin

Matt Lavin

Matt Lavin

Howard F. Schwartz, Colorado State University, Bugwood.org

Nutsedge, Yellow

Cyperus esculentus

Tłohi'gaí

Alternative Names:
Chufa

Plant Type:
Grasslike

Habitat:
River valleys

Growing Season:
Warm season

Special Considerations:
! Invasive

Yellow nutsedge is a native plant found across most of North America. Stems are triangular, growing to two feet in height. Leaves are grasslike and glossy. Yellow-brown flowers occur in a terminal cluster. The tubers (nuts) that give the nutsedge its name can remain in the soil even when the plants are pulled up or eaten by livestock. It can grow thickly, particularly in disturbed wetland areas, and is considered invasive.

Nutsedge is not a true grass, but grows in a grasslike form.

Nutsedge, Yellow

Cyperus esculentus

Tłohi'gaí

Patrick Alexander

Patrick Alexander

Howard F. Schwartz, Colorado State University, Bugwood.org

Howard F. Schwartz, Colorado State University, Bugwood.org

Matt Lavin

Sedges

Carex spp.

Téétł'oh

Alternative Names:
None

Plant Type:
Grasslike

Habitat:
Grasslands

Ponderosa pine/mixed conifer

River valleys

Growing Season:
Year-round

Special Considerations:
None

Sedges are similar to grasses and rushes, but can be distinguished from either of these by their (usually) triangular cross section. One way to remember this is with the saying, "Sedges have edges, rushes are round, grasses have knees that bend to the ground" or "Sedges have edges, rushes are round, grasses are hollow right up from the ground."

Not true grasses, sedges grow in a grasslike form. For more detail about one sedge species, see Yellow Nutsedge.

Species of sedge on the Navajo Endangered Species List: *Carex specuicola*, Navajo sedge (Group 3 Navajo Endangered Species List)

Sedges

Carex spp.

Tééhtł’oh

Patrick Alexander

Carex geophila

Patrick Alexander

Carex geophila

Amy Smith Muise

Algerita

Berberis trifoliolata

Tsinłitsoi

Alternative Names:

Agarita

Agrito

Currant-of-Texas

Wild currant

Plant Type:

Brush

Flower Color:

Yellow

Habitat:

Brushlands

Growing Season:

Cool season

Special Considerations:

✔ Edible berries

✔ Good for wildlife

❗ Mechanical injury

Algerita, a member of the barberry family, has spiny bluish or gray-green holly-like foliage with masses of fragrant yellow flowers in early spring, followed by attractive juicy red berries. Protected by sharp, spine-tipped leaves, its edible fruit is savored by wildlife and humans. Other similar Southwest native barberries include the larger *B. haematocarpa* and the smaller *B. swaseyi*.

Algerita

Berberis trifoliolata

Tsinłitsoi

Amy Smith Muise

Amy Smith Muise

Amy Smith Muise

Amy Smith Muise

Patrick Alexander

Antelope Bitterbrush

Purshia tridentata

Tsék'ina'ałch'ízhii

Alternative Names:

Buckbrush

Bitterbrush

Plant Type:

Brush

Flower Color:

White

Yellow

Habitat:

Brushlands

Grasslands

Growing Season:

Warm season

Special Considerations:

✔ Good livestock forage

Antelope bitterbrush is an important native browse shrub for big game and livestock. It also provides shelter for small animals and birds. It is adapted to a wide range of soils with 8 to 34 inches of annual precipitation and occurs at elevations of 4,000 to 8,500 feet. It is normally 2 to 6 feet in height and up to 8 feet in width with wedge shaped, three-lobed leaves (some are persistent in winter). Branches near the soil may layer (develop roots where they touch the soil) providing additional rooting for the plant. Flowering occurs in late spring to early summer with yellow to white blossoms.

Antelope Bitterbrush

Purshia tridentata

Tsék'ina'ałch'ízhii

Patrick Alexander

Patrick Alexander

The yellow flowers of Antelope bitterbrush growing among other plants.

Patrick Alexander

Patrick Alexander

Patrick Alexander

Biscuitroot

Lomatium spp.

Nímasiichilí

Alternative Names:

Foothill biscuit root

Giant biscuit root

Gray's biscuit root

Plant Type:

Brush

Flower Color:

Yellow

Habitat:

Brushlands

Growing Season:

Warm season

Special Considerations:

✔ Provides wildlife forage and habitat

Biscuitroot is a perennial that grows up to three feet high and two feet wide. It has a strong, parsley-like odor. Growth begins very early in the spring, and it is an important forage plant for livestock, antelope, deer, and insects early in the season. It is also an important species in sage grouse habitat. The yellow flowers are found in umbels (umbrella-shaped clusters). The seeds are very similar to those of dill, and have papery wings, which are thin and membranous. Leaves of foothill biscuitroot are subdivided into numerous, fine segments, giving the plant a fern-like appearance. Leaves are bright green. Biscuitroots have no real stem. Instead, the leaves and flower stalks arise directly from the crown of an exceptionally thick taproot. Biscuitroots are often found in dry, open, rocky areas and are associated with poison hemlock, cow parsnip, piñon pine, snowberry, big sagebrush, black sagebrush, and Utah juniper. The root can be cooked, dried, and ground into a powder, which can then be mixed with cereal flours or added to soups, etc. Traditionally, it was often eaten in the winter when there was little other food available. The tender young stems can be eaten raw. Biscuitroot may also have been used as an aromatic flavoring in cooked foods.

**Based on Utah State University* Range Plants of Utah *description.*

Biscuitroot

Lomatium spp.

Nímasiichilí

Patrick Alexander

Patrick Alexander

Patrick Alexander

Joshua Tree National Park

Blackbrush

Coleogyne ramosissima

Ch'ilłizhiní

Alternative Names:
None

Plant Type:
Brush

Flower Color:
Yellow

Habitat:
Piñon-juniper woodland

Brushlands

Growing Season:
Warm season

Special Considerations:
None

Blackbrush, an aromatic shrub growing from 1 to 6 feet tall, forms nearly pure stands on large areas. Blackbrush occurs primarily in the transition zone between the Mojave and Great Basin deserts and on the western border of the Sonoran Desert. It occurs along the Colorado and San Juan river drainages in southeastern Utah and in adjacent drainages in the Mojave and Great Basin transition.

The plants are densely branched and spiny, but are browsed by goats and sheep. Its branches are opposite, short and rigid, becoming spiny with age. It flowers March to May and reproduces from seeds. The flowers are bell-shaped and generally yellow with bits of reddish-brown. The fruits contain only one seed, which has a feathery tuft. Fruit and seed formation occur only in years of good to abundant precipitation. Blackbrush can grow in very shallow soils, and it therefore has a shallow root system. One of its dispersal mechanisms is rodents. It is common to find burrows near these plants.

**Description based on Utah State University* Range Plants of Utah *description.*

Blackbrush

Coleogyne ramosissima

Ch’ilłizhiní

Andrey Zharkikh

Andrey Zharkikh

Stan Shebs [GFDL, CC BY-SA 3.0 or CC BY-SA 2.5], from Wikimedia Commons

Buckwheat

Eriogonum spp.

Bisnideeshchii’

Alternative Names:

Sand buckwheat

Slender buckwheat

Plant Type:

Brush

Flower Color:

White

Yellow

Pink

Habitat:

Brushlands

Growing Season:

Cool season

Special Considerations:

None

Buckwheat is represented on the Navajo Nation by 28 different species. Most have taproots and one main stem (simple or branched and with or without leaves). Most species have their leaves near the base of the plant, but send a flowering stem up higher. Although, as forage, buckwheats are inferior, livestock and wildlife will graze upon the flowers. They seldom form patches or become dominant vegetation.

Buckwheat has been used medicinally to treat a variety of conditions and as a tea.

Buckwheat

Eriogonum spp.

Bisnideeshchii'

Below are the scientific and common names of buckwheats found on the Navajo Nation:

Eriogonum alatum, winged buckwheat
Eriogonum cernuum, nodding buckwheat
Eriogonum clavellatum, Comb Wash buckwheat
Eriogonum corymbosum, crispleaf buckwheat
Eriogonum deflexum, flatcrown buckwheat
Eriogonum divaricatum, divergent buckwheat
Eriogonum effusum, spreading buckwheat
Eriogonum gordonii, Gordon's buckwheat
Eriogonum hieraciifolium, hawkweed buckwheat
Eriogonum hookeri, Hooker's buckwheat
Eriogonum inflatum, desert trumpet
Eriogonum jamesii, James' buckwheat
Eriogonum lachnogynum, woollycup buckwheat
Eriogonum lachnogynum var. sarahiae, Sarah's buckwheat (Group 4 Navajo Endangered Species List)
Eriogonum leptocladon, sand buckwheat
Eriogonum leptophyllum, slenderleaf buckwheat
Eriogonum lonchophyllum, spearleaf buckwheat
Eriogonum microthecum, slender buckwheat
Eriogonum ovalifolium, cushion buckwheat
Eriogonum pharnaceoides, wirestem buckwheat
Eriogonum racemosum, redroot buckwheat
Eriogonum scabrellum, Westwater buckwheat
Eriogonum shockleyi, Shockley's buckwheat
Eriogonum subreniforme, kidneyshape buckwheat
Eriogonum umbellatum, sulphur-flower buckwheat
Eriogonum viridulum, clay hill buckwheat
Eriogonum wetherillii, Wetherill's buckwheat
Eriogonum wrightii, bastardsage

Buckwheat

Eriogonum spp.

Bisnideeshchii’

Patrick Alexander

Matt Lavin

Eriogonum microthecum, slender buckwheat

Patrick Alexander

Patrick Alexander

By Eitan F. [CC BY-SA 3.0 or GFDL], from Wikimedia Commons

Camelthorn

Alhagi camelorum

Ch'ilhoshí

Alternative Names:
Alhagi maurorum

Plant Type:
Brush

Flower Color:
Red

Pink

Brown

Habitat:
Brushlands

Growing Season:
Cool season

Special Considerations:
Noxious

Camelthorn is a dangerous noxious weed and one of the most difficult to eradicate. Livestock browse on camelthorn and may contribute to its spread.

Pulling or chopping is not an effective method of control, as this can encourage clonal reproduction by fragmenting underground rhizomes.

Its deep and extensive root system allows it to tap into a water table up to 50 feet below the surface. This allows camelthorn to thrive in areas of little rainfall and to out-compete native plants for necessary moisture and nutrients. Preventive measures include promoting the use of certified weed-free hay, not allowing livestock to eat and thus disperse the seeds, and not using heavy equipment in seed-infested areas.

In June and July, camelthorn produces short-stalked flowers, pink to magenta in color. During July and August, seedpods appear on the plant.

Camelthorn is a Middle East native eaten by camels in its native range. The sap contains mannitol and may be used as a laxative.

Camelthorn

Alhagi camelorum

Ch’ilhoshí

Eitan F. [CC BY-SA 3.0 or GFDL], from Wikimedia Commons

Paul Hermann Wilhelm Taubert (1862-1897) [Public domain], via Wikimedia Commons

Lawrence Yazzie

Horse eating camelthorn along a road near Coalmine Canyon, AZ.

Russ Kleinman & Richard Felger

Chokecherry

Prunus virginiana

Didzédik'ǫ́zhí

Alternative Names:
None

Plant Type:
Brush

Flower Color:
White

Habitat:
Brushlands

Growing Season:
Warm season

Special Considerations:
! Poisonous to livestock

Chokecherry is a native, deciduous, thicket-forming erect shrub or small tree. It rarely reaches a height of over 30 feet. The crown is irregular and from 10 to 20 feet wide when mature. The stems are numerous and slender. Reproduction can either be by seed or root rhizomes. Leaves are dark green and glossy above, and paler beneath, measuring 1 to 4 inches long and ¾ to 2 inches wide. They are alternate, simple, glabrous, and oval to broadly elliptic in shape. The margins are toothed with closely-spaced, sharp teeth pointing outward, forming a serrated edge. They turn yellow in autumn.

Chokecherry foliage can be poisonous to grazing livestock. Hydrogen cyanide present in the leaves is converted to the toxic substance prunasin, either as a result of frost damage or as a result of livestock digestive processes. Results of a study indicated that prunasin concentrations are highest (5%) in the new stems and newly initiated leaves of chokecherry. Elevated levels are maintained in the leaves throughout the summer, but prunasin content of new twigs gradually diminishes over the season. The previous season's growth is generally not as toxic.

Chokecherry

Prunus virginiana

Didzédik'ǫ́zhí

Russ Kleinman

Russ Kleinman Bill Norris, Richard Felger, & Leith Young

Russ Kleinman

Russ Kleinman & Richard Felger

Patrick Alexander

Cliff Fendlerbush

Fendlera rupicola

K’iishzhiní

Alternative Names:
None

Plant Type:
Brush

Flower Color:
White

Habitat:
Brushlands

Piñon-juniper woodland

Wastelands

Growing Season:
Warm season

Special Considerations:
None

Cliff fendlerbush is an upright, open, vase-shaped shrub with showy masses of fragrant flowers in spring. Flowers are white, cross-shaped, and conspicuous. Fendlerbush needs well-drained and rocky soils. It may become somewhat rangey without selective pruning. Its small, paired leaves are sparsely scattered on intricate branches. These plants are long-lived with a strong tap root.

Cliff Fendlerbush

Fendlera rupicola

K’iishzhiní

Renee Benally

Renee Benally

Renee Benally

Gerald Moore

Cliffrose

Purshia mexicana

Awéétsʼáál

Alternative Names:
Formerly *Cowania neomexicana*

Plant Type:
Brush

Flower Color:
White

Yellow

Habitat:
Brushlands

Piñon-juniper woodland

Wastelands

Growing Season:
Warm season

Special Considerations:
✔ Provides wildlife forage

Cliffrose is found on cliffs, hillsides, mesas, and in washes, usually on the hot and dry south and west aspects, at elevations from 2,500 to 8,500 feet. This shrub or small tree is drought resistant, and mature plants are fairly shade tolerant.

Livestock may use it only lightly in spring and summer if deciduous browse species are available. It is an important browse species for mule deer, elk, pronghorn, desert bighorn sheep, livestock, and game birds. It also provides habitat for songbirds. It flowers April to June, and fruits mature September to October. It reproduces from seed, and rarely from sprouting. The flowers are cream to yellow in color.

Renee Benally

Patrick Alexander

Four-Winged Saltbush

Atriplex canescens

Díwózhiiłbéíí

Alternative Names:

Chamiza

Fourwing saltbush

Fourwinged saltbrush

Plant Type:

Brush

Flower Color:

Red

Yellow

Habitat:

Brushlands

Growing Season:

Warm season

Special Considerations:

✔ Good livestock forage

Four-winged saltbush loses its leaves in drought. It has grayish-white to pale green leaves. Mature plants range from 1 to 8 feet in height, depending on ecotype, soil, and climate, but it is most common on bottomland sites. Its root system can reach depths of up to 20 feet when soil type allows.

Among the most preferred shrubs of the Southwest, its leaves, stems, flowers, and seeds are used by all livestock except horses. This is a nutritious plant. It has a good rating for sheep and goats; fair for cattle.

Fourwing saltbush often has male and female flowers on separate plants. Male flowers are red to yellow and form dense spikes at the ends of the branches. The female flowers are axillary and nondescript. The seed is contained in a winged sac that turns a dull yellow when ripe and may remain attached to the plant throughout winter.

Species of saltbush on the Navajo Endangered Species List: *Atriplex garrettii var. navajoensis*, Navajo Saltbush (Group 4 Navajo Endangered Species List)

Four-Winged Saltbush

Atriplex canescens

Díwózhiiłbéíí

Amy Smith Muise

Seed in winged sac.

Amy Smith Muise

Amy Smith Muise

Four-winged saltbush in winter.

Amy Smith Muise

Four-winged saltbush in summer.

Matt Lavin

Greasewood

Sarcobatus vermiculatus

Díwózhiishjiin

Alternative Names:
None

Plant Type:
Brush

Flower Color:
Green

Habitat:
Brushlands

Grasslands

Growing Season:
Warm season

Special Considerations:
! Potentially toxic to livestock

Greasewood grows 3 to 10 feet tall. It is an important winter browse plant for domestic sheep, cattle, and big game animals. It also gets some use during spring and summer months.

Flowers are green. Fruit are green while growing, turning reddish nearing the end of development, and tan when fully mature.

Greasewood

Sarcobatus vermiculatus

Díwózhiishjiin

Matt Lavin

Gerald Moore

Matt Lavin

Matt Lavin

Elizabeth Sohn

Mormon Tea

Ephedra spp.

Tł’ohozihii

Alternative Names:

Tall Mormon tea

Longleaf ephedra

Joint Fir

Green ephedra

Plant Type:

Brush

Flower Color:

Purple

Green

White

Habitat:

Brushlands

Wastelands

Growing Season:

Cool season

Special Considerations:

! Potentially toxic to sheep and cows

Mormon tea is found on dry, rocky, open sites in valleys and washes, and on slopes, alluvial fans, mesas, and foothills. It is typically found at elevations ranging from 3,000 to 7,500 feet. Sites supporting Mormon tea receive average precipitation of 6 to 15 inches. Mormon tea is drought resistant and winter hardy. It grows primarily on sandy, gravelly, or rocky, well-drained, undeveloped soils.

It has numerous parallel stems that point upward resembling a broom, with branchlets clustered around nodes.

It has low forage value, but is frequently browsed by domestic livestock. It is an important browse species for big game, especially on winter range, since green ephedra stems and twigs extend above the snow.

Ephedra can be toxic to both domestic sheep and cows during gestation, even at low doses. It causes ruminal impaction, diarrhea, and in some cases death.

The stems of ephedra were traditionally brewed to make a nonmedicinal beverage as well as a medicinal tea considered to be a remedy for a backache. People have also made flour and a coffee-like beverage from the seeds.

Mormon Tea

Ephedra spp.

Tł’ohozihii

Patrick Alexander

Amy Smith Muise

Amy Smith Muise

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Oregon Grape

Berberis aquifolium

Tséch'ilndtł'izíyilt 'ąą 'í

Alternative Names:

Oregon grape holly

Mahonia

Formerly *Mahonia aquifolium*

Plant Type:

Brush

Flower Color:

Yellow

Habitat:

Brushlands

Growing Season:

Warm season

Special Considerations:

None

Oregon grape is native to parts of the western United States. It is not a grape or a holly, but rather a type of barberry. It grows to a height of 3 to 6 feet and has dark, glossy leaves with spines along the leaf margins. It produces purple berries, which are a source of food for wildlife. The berries were traditionally used for food and dye.

Oregon Grape

Berberis aquifolium

Tséch’ilndtł’izíyilt ’ąą ’í

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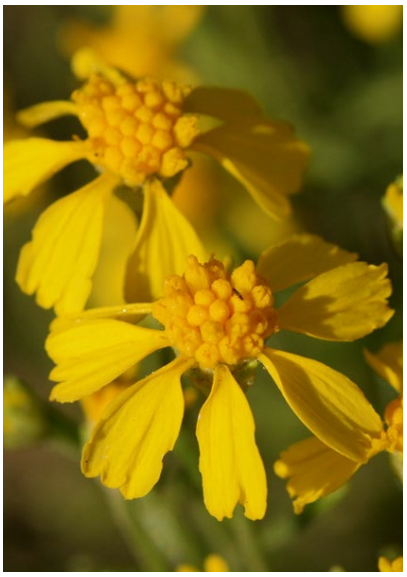


Patrick Alexander

Pingue

Hymenoxys richardsonii

Ch'ilłibáhilátahtsoi

Alternative Names:
None

Plant Type:
Brush

Flower Color:
Yellow

Habitat:
Brushlands

Growing Season:
Warm season

Special Considerations:

- ! Very toxic to sheep
- ! Toxic to cattle

Pingue is common lower elevation perennial sub-shrub or herb native to much of the west. Pingue is similar to rubberweed in appearance. It grows to a height of just under two feet, with thick, woody stalks. The leaves are mostly basal and are highly dissected. The flowerheads are raised above the leaves on long stems. The inflorescence has yellow rays and a yellow disc, much like sunflowers, to which pingue is related. It flowers June to September. Pingue has bits of wooly growth both at stem bases and near the crown of the plants. It likes rocky hillside habitats at middle elevations.

Pingue is not palatable to livestock, but under forage shortage may be readily eaten by sheep and goats. It is toxic to livestock, particularly sheep, though cattle also can be affected. It is especially toxic to sheep. The best control is good grazing management.

Its stems and leaves have been used as a tea. Its roots have a milky sap that contains latex, and has been used as chewing gum. The stems and leaves have also been used as a poultice for wounds.

Pingue

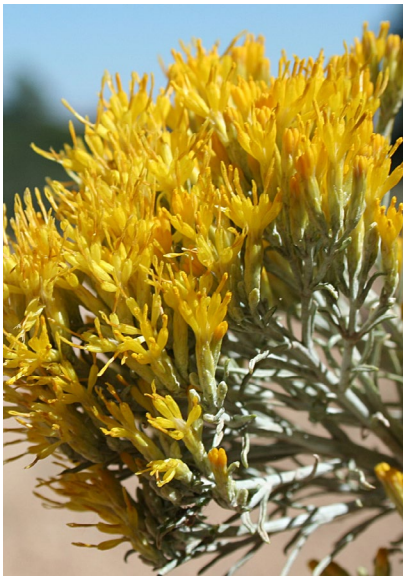
Hymenoxys richardsonii

Ch’ilɬibáhilátahtsoi

Patrick Alexander

Patrick Alexander

Pingue is the small green plant with yellow flowers on the bare ground in the foreground of this picture.



Patrick Alexander

Rabbitbrush

Ericameria nauseosa

Ch’ildiilyésiits’óóz

Alternative Names:
Rubber rabbitbrush

Plant Type:
Brush

Flower Color:
Yellow

Habitat:
Brushlands

Growing Season:
Cool season

Special Considerations:
✔ Useful for soil stabilization and restoration

Rabbitbrush is a rounded shrub generally 2 to 5 feet tall. It is often found growing along roadsides.

Livestock generally forage only lightly on this species, and it is considered to be of little value to all classes of livestock. It can be an important browse species for mule deer, pronghorn, and jackrabbits during fall and winter. It also provides cover for mammals and small nesting birds.

Rabbitbrush thrives in poor conditions and can tolerate coarse, alkaline soils. The species is useful in soil stabilization and restoration of disturbed sites. The deep root system establishes quickly, and plants produce large quantities of leaf litter, helping to bring nutrients to the soil surface from the deeper rooting profile. Its yellow flowers bloom from August to October.

It has been used as a yellow dye, to make a medicinal tea, and for chewing gum.

Species of *Ericameria* on the Navajo Endangered Species List: *Ericameria arizonica*, Rydberg's thistle (Group 4 Navajo Endangered Species List)

Rabbitbrush

Ericameria nauseosa

Ch’ildiilyésiits’óóz

Russ Kleinman

Russ Kleinman

Patrick Alexander

Patrick Alexander

Rabbitbrush, Green

Chrysothamnus viscidiflorus

Ch'ildiilyésiits'óóz

Alternative Names:

Yellow rabbitbrush

Douglas rabbitbrush

Plant Type:

Brush

Flower Color:

Green

Yellow

Habitat:

Brushlands

Growing Season:

Warm season

Special Considerations:

! Potentially invasive

Green rabbitbrush has little value as a forage species. An erect shrub, branching from near the base, with a rounded crown, 1 to 3½ feet tall, it flowers July to September and reproduces from seed, and vegetatively by vigorous sprouting.

Sheep and cattle occasionally use it for browse when other feed is not available. Deer browse lightly on it in the summer and winter. Elk utilize it in the winter. It can be a somewhat weedy plant, increasing where there has been serious damage to the more desirable forage.

It quickly and aggressively invades disturbed, open sites including burns and overgrazed rangelands.

People sometimes chew the roots of rabbitbrush as gum. It contains rubber, especially when growing in alkali soils.

Rabbitbrush, Green

Chrysothamnus viscidiflorus

Patrick Alexander

Patrick Alexander

Patrick Alexander

Matt Lavin

Roundleaf Buffaloberry

Shepherdia rotundifolia

Dibédą́ą́’

Alternative Names:
Silverleaf

Plant Type:
Brush

Flower Color:
Yellow

Habitat:
Piñon-juniper woodland

Ponderosa pine/mixed conifer

Growing Season:
Year-round

Special Considerations:
✔ Wildlife forage and habitat

Roundleaf buffaloberry is found only in southern Utah and northern Arizona. As its name indicates, the foliage is silvery green, and the leaves remain on the small shrub year-round. It provides habitat and fodder for quails and other small animals. The plants are drought tolerant, and can often be found growing on rocky slopes or outcrops.

Roundleaf Buffaloberry

Shepherdia rotundifolia

Dibédą́ą́’

Matt Lavin

Matt Lavin

Matt Lavin

J.S. Peterson, hosted by the USDA-NRCS PLANTS Database

Sagebrush, Big

Artemisia tridentata

Ts'ahtsoh

Alternative Names:
None

Plant Type:
Brush

Flower Color:
White

Yellow

Habitat:
Brushlands

Growing Season:
Warm season

Special Considerations:
✔ Excellent wildlife forage

Big sagebrush and its subspecies are tall, rounded, native shrubs with short, branched, woody trunks. They are normally about four feet high, but vary from two feet in arid conditions to as high as 15 feet on favorable sites. Big sagebrush is perhaps the most important shrub on western rangelands. Evergreen leaves and abundant seed production provide an excellent winter food source to numerous species of large mammals including mule deer, black-tailed deer, white-tailed deer, elk, pronghorn antelope, bighorn sheep and jackrabbits.

Big sagebrush can be distinguished by its aromatic leaves and stems. The scientific name, *Artemisia tridentata,* provides another useful clue: the three-toothed leaf tips. The leaves are grayish and slightly hairy or fuzzy. The trunks may form interesting and twisty shapes.

Sagebrush prefers dry soils, and will not grow at stream edges. It is used for tea, rope, medicine, and fuel.

Sagebrush, Big

Artemisia tridentata

Ts’ahtsoh

Patrick Alexander

Morris Southward, PhD

Patrick Alexander

Patrick Alexander

George Miller

Sagebrush, Bigelow

Artemisia bigelovii

Ts’ahłibáhí

Alternative Names:
Flat sagebrush

Plant Type:
Brush

Flower Color:
Green

Habitat:
Brushlands

Grasslands

Growing Season:
Warm season

Special Considerations:
✔ Wildlife and livestock forage

Bigelow sagebrush is adapted to xeric sites and is one of the most drought-tolerant sagebrushes in North America. Bigelow is relatively small compared to other sagebrushes. It grows in canyons, draws, and on washes, plains, hills, and rimrock on well-drained soils (usually sandy or gravelly); it is common on limestone soils. Its overall elevational range is 3,000 to 8,000 feet. Bigelow sagebrush provides valuable winter and spring forage for wildlife and livestock and is an important item in the fall diet of pronghorn in northern Arizona. Palatability and nutritional value are high relative to other sagebrush species, because its twigs are less woody, and its leaves less bitter, with a milder odor, than associated sagebrush taxa. Bigelow sagebrush begins new growth in April. Flowerbuds appear in August, and flowering occurs from August to October. The leaves abscise in winter.

Sagebrush, Bigelow

Artemisia bigelovii

Ts'ahłibáhí

George Miller

George Miller

Ken Gishi

Nick Ashcroft

Sagebrush, Black

Artemisia nova

Tsétah Ts'ah

Alternative Names:
None

Plant Type:
Brush

Flower Color:
Yellow

Green

Habitat:
Brushlands

River valleys

Wastelands

Growing Season:
Warm season

Special Considerations:
None

Black sagebrush is a low growing evergreen shrub with a flat-topped crown. Mature plants range from 4 to 12 inches tall. The leaves are dark green, sometimes grayish, and triangular in outline with three rounded lobes. The leaf surface is often covered with hair, which distinguishes this species from big sagebrush (*A. tridentata*). These hairs give the leaves a darker appearance.

Sagebrush, Black

Artemisia nova

Tsétah Ts’ah

Matt Lavin

Matt Lavin

Matt Lavin

Nick Ashcroft

Matt Lavin

Sagebrush, Fringed

Artemisia frigida

Tóyikáál

Alternative Names:
Prairie sagewort

Plant Type:
Brush

Flower Color:
Green

Habitat:
Grasslands

Growing Season:
Warm season

Special Considerations:
None

Fringed sagebrush is a spreading shrublet ranging from approximately 4 to 16 inches in height. It is pleasantly fragrant, whitish or grayish tomentose, and arising from a tough, woody crown. Tomentose means having dense, velvety, fuzzy hairs. The leaves are also tomentose and abundant, clustered toward the base of the plant and scattered along the stem. The lower leaves are petiolate, about ½ inch long, with the upper leaves becoming sessile. The inflorescence is a panicle with small, greenish flower heads. Fringed sagebrush flowers from July to August. The fruits are dry, smooth, broadly cylindrical achenes.

Sagebrush, Fringed

Artemisia frigida

Tóyikáál

Matt Lavin

Matt Lavin

Matt Lavin

Matt Lavin

Patrick Alexander

Sagebrush, Sand

Artemisia filifolia

Ch'ilzhóó'

Alternative Names:
None

Plant Type:
Brush

Flower Color:
Brown

Yellow

Habitat:
Brushlands

Growing Season:
Warm season

Special Considerations:
! Potentially toxic to horses

✔ Provides erosion control

Sand sagebrush is a freely branching, rounded crown, aromatic shrub growing up to four feet tall. It flowers August to September, and reproduces from seeds. Flowers are numerous and small. The hairy, bluish-green leaves are alternate and found in bundles. The bark eventually exfoliates in thin shreds. Sand sagebrush is found on dunes, sand hills, and deep sands. It is generally considered an indicator of sandy soil and is usually abundant in those areas, at elevations between 3,000 and 5,000 feet.

It is rarely used by livestock and wildlife in grasslands, where more preferred forage species are available, but may be used heavily in arid desert regions. It may cause sage sickness in horses (a temporary, intoxicated state, with loss of coordination).

Sand sagebrush provides hiding or thermal cover for numerous smaller birds and mammals and is extremely effective in preventing wind erosion on light, sandy soils. A canopy of sand sagebrush can afford some protection to grasses such as needle-and-threadgrass on heavily grazed sites.

Traditional uses include preparing a decoction of its leaves to treat intestinal worms and other stomach problems.

Sagebrush, Sand

Artemisia filifolia

Ch'ilzhóó'

Patrick Alexander

Patrick Alexander

Amy Smith Muise

Patrick Alexander

George Miller

Shadscale

Atriplex confertifolia

Dá’ák’ǫǫ́zhdijoolí

Alternative Names:
None

Plant Type:
Brush

Flower Color:
Yellow

Habitat:
Brushlands

Grasslands

Growing Season:
Warm season

Special Considerations:
✔ Livestock and wildlife forage

Shadscale is a low-growing shrub (1 to 3 feet) with spine tipped branches. It occurs in arid climates at elevations from 4,000 to 7,000 feet. It grows on dry slopes, flat areas, ridges, and valley bottoms.

Shadscale can form almost pure stands in some locations. It is resistant to overgrazing and is drought tolerant. Tolerance to drought is achieved through partial shedding of leaves; this reduces water loss during severe moisture stress.

Shadscale is used by all classes of livestock, as well as by mule deer, for forage. It is used mostly during winter and spring for browse. Late spring or summer grazing, especially if intensive, is injurious. The fruits provide food for game birds and songbirds, and the seeds of shadscale remain on the plant throughout the winter, enhancing its nutritional value.

Traditional uses include grinding the fruits of shadscale into flour.

Shadscale

Atriplex confertifolia

Dá’ák’ǫǫ́zhdijoolí

George Miller

Nick Ashcroft

Nick Ashcroft

Patrick Alexander

Skunkbush

Rhus trilobata

Ch’ilłichiin

Alternative Names:
Skunkbrush

Plant Type:
Brush

Flower Color:
White

Yellow

Habitat:
Brushlands

Growing Season:
Warm season

Special Considerations:
None

Skunkbush occurs in a variety of habitats at elevations of 4,500 to 8,000 feet, including dry, rocky slopes, along streams and canyon bottoms, waste places, pastures, roadsides, and on sand dunes. It is drought resistant, shade tolerant, and intolerant of flooding. It typically grows where maximum annual precipitation ranges from 10 to 20 inches.

It has spreading woody rhizomes, and it sprouts readily from both the root and crown after disturbance.

Skunkbush’s forage value is poor for all classes of livestock. Skunkbush provides some browse for deer, elk, and pronghorn when other more preferred forage is unavailable. In most locations, big game use tends to be heaviest during the winter when food supplies are most limited.

Because the fruit of skunkbush persists through the fall and winter, this species can provide a ready food source for birds and small mammals when other foods are scarce or unavailable.

Traditionally, the fruits were used in food and medicines, and in the preparation of lemonade-like beverages. Pliable young stems were woven into durable baskets. Skunkbush can also be used in making dyes for clothing.

**Description adapted from Utah State University’s* Range Plants of Utah.

Skunkbush

Rhus trilobata

Ch’ilłichiin

Patrick Alexander

Patrick Alexander

Patrick Alexander

Patrick Alexander

Patrick Alexander

Snakeweed

Gutierrezia sarothrae

Ch’il Diilyésii dzaa

Alternative Names:
Broom snakeweed

Plant Type:
Brush

Flower Color:
Green

Yellow

Habitat:
Brushlands

Growing Season:
Year-round

Special Considerations:
! Potentially toxic to livestock

Snakeweed is a woody subshrub with numerous erect ascending branches. It has small, evergreen, linear leaves and tufts of tiny yellow flowers in fall. Though snakeweed was once considered a weed of overgrazed rangelands, some research suggests that its population cycles over time are more related to precipitation patterns than to overgrazing.

Broom snakeweed provides little value to livestock and can be toxic, causing illness, death, or abortion in sheep, goats, and cattle during winter and early spring when it is the only thing green and may be consumed in large quantities.

Snakeweed

Gutierrezia sarothrae

Ch’il Diilyésii dzaa

Patrick Alexander

Patrick Alexander

Patrick Alexander

Patrick Alexander

Rob Routledge, Sault College, Bugwood.org

Snowberry

Symphoricarpos albus

Didzé

Alternative Names:

Mountain snowberry

Utah snowberry

Waxberry

Ghostberry

Formerly *Symphoricarpos spp.*

Plant Type:

Brush

Flower Color:

White

Pink

Habitat:

Ponderosa pine/mixed conifer

Brushlands

River valleys

Growing Season:

Cool Season

Special Considerations:

✔ Early spring forage

Snowberry is a low-growing shrub whose habit can be either erect or trailing. Its branches are spreading or arching. It averages 2 to 4 feet in height, but plants on good sites can grow up to five feet. Reproduction is by seed and sometimes by layering. Fruits are small, light green to white berries, up to ½ inch long. Older twigs have reddish-brown, shreddy bark. Buds are light brown.

Snowberry occurs at elevations of 4,800 to 10,500 feet, at the edges of riparian zones, in woodlands, and in moist areas of mountain brush zones. It occurs in sandy loam to clay loam soils and does not tolerate much alkalinity or salinity. Associated species include Ponderosa pine, Douglas fir, aspen, and chokecherry. Because of its abundance and wide distribution, snowberry is an important source of forage on many mountain ranges. Although not highly nutritious or palatable, mountain snowberry is frequently one of the first species to leaf out, making it a highly sought after food in the early spring. Use by livestock and big game is moderate throughout the summer, but declines in fall. Small mammals and birds utilize the fruits. Snowberry's low growth form makes its foliage easily available. Plants withstand browsing well and produce numerous basal sprouts following browsing.

Due to its rhizomatous nature, snowberry is useful for revegetation of disturbed sites such as road cuts. It is also an excellent species for wildlife habitat improvement and landscape or recreational plantings. Its fruits have been used as an emetic and laxative. Roots are steeped to treat colds and stomachaches.

**Description courtesy of Utah State University's Range Plants of Utah.*

Snowberry

Symphoricarpos albus

Didzé

Rob Routledge, Sault College, Bugwood.org

Rob Routledge, Sault College, Bugwood.org

Patrick Alexander

Wax Currant

Ribes cereum

K’ínijiłahí

Alternative Names:
None

Plant Type:
Brush

Flower Color:
Red

Habitat:
Brushlands

Ponderosa pine/mixed conifer

Growing Season:
Warm season

Special Considerations:
✔ Forage and habitat for small wildlife

Wax currant occurs on dry, open slopes, ridges, rock outcrops, and mountain shrub communities, as well as at forest edges or in coniferous forests with light canopy cover. In addition, it occurs in the Bebb willow (*Salix bebbiana*) community type in the northwestern third of New Mexico. It is found at elevations of 4,950 to 13,200 feet.

Wax currant provides food and cover for wildlife. It is only fair to poor browse for deer, but it is important on ranges where little else is available.

Chickadees and other birds consume the fruit of wax currant. The fruit of wax currant is used for making jam, jelly, or pie. It has also been used for making pemmican. Wax currant is cultivated as an ornamental. It grows from 1½ to 5 feet tall. Wax currant reproduces mainly by seed.

Wax Currant

Ribes cereum

K’ínijiłahí

Russ Kleinman

Russ Kleinman

Russ Kleinman

Patrick Alexander

Russ Kleinman & Karen Blisard

Wild Rose

Rosa woodsii

Chǫǫh

Alternative Names:
None

Plant Type:
Brush

Flower Color:
Red

Pink

White

Habitat:
Brushlands

Grasslands

Piñon-juniper woodland

Ponderosa pine/mixed conifer

River valleys

Growing Season:
Cool season

Special Considerations:
✔ Erosion control

Wild rose is a shrub that grows 2 to 5 feet tall, usually forming thickets. It reproduces from seed, rhizomes, sprouting, and layering. Flowers are found in clusters, with five petals, five sepals, and many stamens. Seeds are contained within an orange-red, round hip, which generally stays on the bush throughout the winter.

Wild rose occurs on prairies, plateaus, dry slopes, and in open woods, ravines, and thickets, growing at elevations from 3,500 to 7,500 feet. It is a common riparian species. It is fairly tolerant of browsing. It can thrive in moderate shade to full sunlight.

Wild rose is adapted to a wide range of soil types and textures. Growth is generally best on moderately fertile, well-drained clay loam, sandy loam, or sandy soils. It is also adapted to a broad range of moisture conditions but tends to favor moist, well-drained soils that are present in riparian ecosystems.

Wild rose is browsed by livestock and big game from spring through fall. They prefer this shrub in the spring when the leaves appear. Porcupines and beavers also browse the leaves. Wild rose hips persist on the plant through much of the winter. Many birds and mammals are sustained by these dry fruits when the ground is covered with snow.

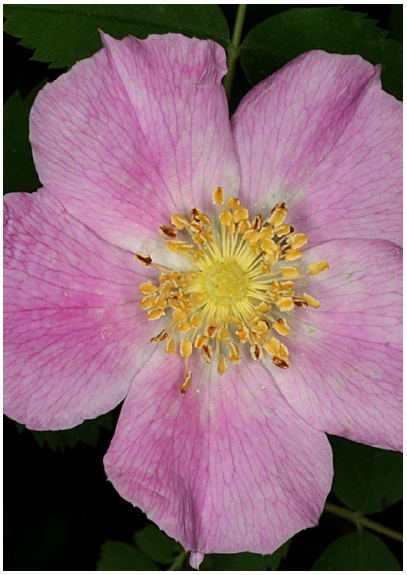
The young shoots have been used as a potherb and the leaves steeped for tea, petals eaten raw, in salads, candied, or made into syrup. The inner bark was smoked like tobacco, and dried petals stored for perfume. Rosehips are a source of vitamin C.

**Description courtesy of Utah State University's* Range Plants of Utah.

Wild Rose

Rosa woodsii

Chǫǫh



Russ Kleinman & Bill Norris

Russ Kleinman & the Thursday hiking group

Russ Kleinman & Bill Norris

Russ Kleinman

Patrick Alexander

Winterfat

Kraschenninikovia lanata

Gahtsohdą́ą́’

Alternative Names:

White sage

Ceratoides lanata

Eurotia lanata

Formerly *Eurotia ceratoides*

Plant Type:

Brush

Flower Color:

White

Habitat:

Brushlands

Wastelands

Growing Season:

Warm season

Special Considerations:

✔ Forage for sheep and wildlife

Winterfat is a low-growing, long-lived (up to 130 years) subshrub with a woody base and numerous annual branchlets, growing 1 to 3 feet tall. It has a hairy, silvery-white appearance. Winterfat occurs in dry valley bottoms, on flat mesas, and on hillsides, at elevations between 2,400 and 9,300 feet. It is drought resistant and intolerant of flooding, excess water, or acidic soils.

Winterfat is good forage for sheep, pronghorn, elk, mule deer, and many small mammals and birds. It is fair forage for cattle. It is most valued as winter forage. It will decrease under heavy, continuous grazing.

Grazing season can have more influence on winterfat than grazing intensity. Late winter or early spring grazing is most detrimental. Winterfat can tolerate winter use of 50% if it is rested occasionally. Spring and summer use should not exceed 35%. Early winter grazing may actually be beneficial.

It flowers April to September and reproduces from seed and sprouting. Sprouting of the buds near the plant base occurs when the plant is browsed or damaged.

Winterfat has been used as a hair wash, and a decoction from the leaves has been used to treat fevers.

**Description courtesy of Utah State University’s* Range Plants of Utah.

Winterfat

Krascheninnikovia lanata

Gahtsohdą́ą́’

Amy Smith Muise

Patrick Alexander

Patrick Alexander

Patrick Alexander

Winterfat flowers are white but occasionally have a red or green tint.

Patrick Alexander

Wolfberry

Lycium spp.

Haasch’ééhdą́ą́’

Alternative Names:
Water jacket

Pale wolfberry (one species)

Anderson wolfberry (another species)

Plant Type:
Brush

Flower Color:
Purple

Habitat:
Brushlands

Wastelands

Growing Season:
Warm season

Special Considerations:
None

Wolfberry is a spiny, rounded, branched shrub, 1 to 9 feet tall, with numerous slender spines and flattened, thick, fleshy leaves. It may be drought deciduous, meaning it loses foliage in response to low moisture availability. Its fleshy red berries contain many seeds.

Wolfberry frequently provides a source of berries and browse in areas of degraded habitat. The berries also are eaten by humans, who have also used other parts of the plant as medicine and in ceremonials.

In times of famine, the Native Americans of northern Arizona ate the dried berries mixed with saline clay. In this form they were called “food clay” by the Navajo or “potato clay” by the Hopi. As well as being an extender, the clay may have been used to reduce bitterness. With the recent interest in using native plants, more palatable recipes for sauces and jams using pale wolfberry berries are available. Medicinal uses include applying the soaked leaves to cuts and using the ground-up roots for toothaches. These hardy shrubs have also been used as ornamentals.

Stands of pale wolfberry are frequently associated with ancient Anasazi ruins in the Four Corners area. Some stands have been speculated to be deliberate plantings and others the result of inadvertent seed dispersal. After a pueblo is abandoned, moisture tends to collect over decomposing subsurface floors and plazas, and these conditions may make suitable habitat for seeds that were unintentionally dropped by former inhabitants.

Wolfberry

Lycium spp.

Haasch’ééhdą́ą́’

Patrick Alexander

Patrick Alexander

Andrey Zharkikh

Field Bindweed

Convolvulus arvensis

Ch’il natł’oi łigaí

Alternative Names:
None

Plant Type:
Vine

Flower Color:
Red

Pink

White

Habitat:
Brushlands

Growing Season:
Warm season

Special Considerations:
None

Field Bindweed is native to Europe and Asia.It is common in cultivated fields and gardens, along railroads and roadsides, and in disturbed sites and waste places. Outside of agricultural fields, it is most often found in moist locations on tracts once used for agriculture. The competitive ability of field bindweed is due largely to its extensive root system. One plant is able to reduce the available soil moisture in the top 24 inches of soil to below the wilting point. Field bindweed has deep roots that store carbohydrates and proteins. They help field bindweed spread vegetatively and allow it to resprout repeatedly following removal of above-ground growth.

Andrey Zharkikh

Amy Smith Muise

Patrick Alexander

Puncturevine

Tribulus terrestris

Ch'ilhoshíǫ Naakaibihosh

Alternative Names:
Goathead

Plant Type:
Vine

Flower Color:
Yellow

Habitat:
Brushlands

Growing Season:
Warm season

Special Considerations:
- ! Toxic to sheep
- ! Invasive

Puncturevine (also called goathead), an introduced, invasive plant, is sensitive to competition and will be outcompeted by native species except on repeatedly disturbed areas.

The foliage of this plant is toxic, and grazing animals may eat burs, which cause injuries to the mouth, stomach, and intestines. Ants seem to congregate under the plants, particularly near stem emergence.

The burs are painful to hands or feet of humans and can penetrate shoes or bicycle tires. Clear clothing, shoes, and tires of burs to avoid spreading the plant to new locations.

Stems form a dense mat with small yellow flowers on short stalks. Puncturevine reproduces by seed, so controlling plants prior to seeding is important.

Puncturevine

Tribulus terrestris

Ch’ilhoshíǫ Naakaibihosh

Patrick Alexander

Amy Smith Muise

Patrick Alexander

Kathryn-Mae Eiland

Russ Kleinman

Antelopehorn

Asclepias asperula

Azee’ła’dilt’éhé

Alternative Names:
Green-flowered milkweed

Spider antelope horns

Plant Type:
Forb

Flower Color:
White

Green

Habitat:
Grasslands

Growing Season:
Warm season

Special Considerations:
! Poisonous to livestock

Antelopehorn is a very common roadside milkweed. The leaves are lanceolate and up to six inches long. The corolla lobes are greenish white and the hoods are purple.

For further description of milkweeds in general, see the milkweed entry.

**Description courtesy of Western New Mexico University’s* Vascular Plants of the Gila Wilderness.

Antelopehorn

Asclepias asperula

Azee'ła'dilt'éhé

Patrick Alexander

Russ Kleinman

Russ Kleinman

Patrick Alexander

Beeplant, Rocky Mountain

Cleome serrulata

Waa’

Alternative Names:
Navajo spinach

Plant Type:
Forb

Flower Color:
Pink

Purple

Habitat:
Brushlands

Wastelands

Growing Season:
Warm season

Special Considerations:
None

Beeplant is an erect, branched annual that grows to about three feet. tall. It is in flower from July to August, and reproduces from seed. Dozens of bright, pink to purplish flowers are crowded into rounded or rather elongate spikes. Fruit is a narrow capsule up to two inches long that bears several to many dark, ovoid seeds. Leaves are in groups of three on long petioles. Rocky Mountain beeplant is often found in wastelands, and in lower mountains. It is frost tender. It can grow in semi-shade or no shade and is often found on sandy soil. It has little to no value as forage for livestock. However, its nectar-filled blossoms nourish pollinators, including bees, butterflies, wasps, and hummingbirds.

Rocky Mountain beeplant has been used traditionally as food and medicine. Seeds can be harvested and eaten raw or cooked, dried and ground into a meal, then used as a mush or mixed with flour to make bread. The plant can be used to treat fevers and stomach disorders. A poultice made from the pounded, soaked leaves has been applied to sore eyes. A decoction of the leaves has been used as a body and shoe deodorant.

A black dye is obtained by boiling down the whole plant. It is used as paint for decorating pottery.

**Description based on Utah State University* Range Plants of Utah *description.*

Beeplant, Rocky Mountain

Cleome serrulata

Waa’

Patrick Alexander

Patrick Alexander

Russ Kleinman & Karen Blisard

Birdbeak

Cordylanthus wrightii

Tsésnádáá'

Alternative Names:
None

Plant Type:
Forb

Flower Color:
Yellow

Red

Pink

Habitat:
Brushlands

Grasslands

Piñon-juniper woodland

Growing Season:
Warm season

Special Considerations:
✔ Provides insect forage

Birdbeak is native to Texas, Colorado, Arizona, New Mexico, and Utah, and can be found associated with piñon pine. It is an annual with divided leaves and yellow flowers. (Flowers may also be pink.) It provides forage for bees, butterflies, moths, and flies. The leaves and flowers are covered in fine hairs and never fully open. It is found on dry hillsides at middle elevation. It normally grows from 10 to 30 inches tall. In the Four Corners area, birdbeak blooms in August, September, and October.

Birdbeak

Cordylanthus wrightii

Tsésnádáá'

Russ Kleinman & Karen Blisard

Russ Kleinman & Karen Blisard

Russ Kleinman & Karen Blisard

Patrick Alexander

Bitterweed

Hymenoxys spp.

Ch’ilbílátahłitsxoidíchi’i’í

Alternative Names:
None

Plant Type:
Forb

Flower Color:
Yellow

Habitat:
Grasslands

Piñon-juniper woodland

Ponderosa pine/mixed conifer

River valleys

Growing Season:
None

Special Considerations:

! Toxic to livestock, especially sheep

Bitterweeds are members of the aster family that grow up to five feet tall. There are several species of bitterweed on Navajo rangelands. Like other asters, the flowers have ray flowers (what look like outer petals) and disk flowers (tiny flowers in the dense center of the flower). Both ray flowers and disk flowers are in the yellow to orange spectrum. Bitterweed is toxic to livestock, but affects sheep more than other animals. Due to the bitter taste of the plant, animals generally do not eat it when there are other plants to eat.

For descriptions of specific species, consult the entries on pingue and rubberweed.

Bitterweed

Hymenoxys spp.

Ch’ilbílátahłitsxoidíchi’i’í

Patrick Alexander

Hymenoxys vaseyi

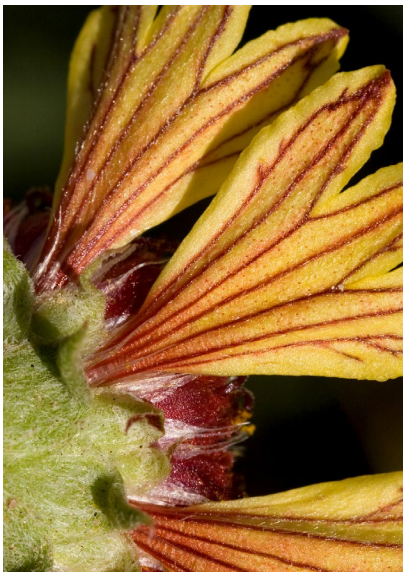
Patrick Alexander

Hymenoxys odorata

Patrick Alexander

Hymenoxys richardsonii

Brian Muise



Patrick Alexander

Blanket Flower

Gaillardia spp.

Ch'ilbílátahózhóón

Alternative Names:
Blanketflower

Plant Type:
Forb

Flower Color:
Red

Pink

Yellow

Habitat:
Grasslands

Growing Season:
Warm season

Special Considerations:
None

Blanket flower is named for its resemblance to a brightly patterned blanket. It grows 1 to 3 feet tall, and will often grow in mounds 8 to 18 inches high. It has wiry, branched stems, mostly without leaves. It flowers June through October with bright, daisy-like, single color and bi-color blooms in shades from buff to red to brown. Flowers of certain species can be four inches wide. The ray petals have serrated tips that are usually three-toothed. Some varieties have a fringed look. The base of the flower (pappus) consists of several scales with awns.

The seeds are similar to sunflower seed, but smaller and at least partly covered with long hairs. The leaves are basal and are lance- to linear-shaped. They have a hairy texture, and can have margins which are smooth, toothed, or lobed.

Found on the dry slopes and meadows of uplands and mountains, blanket flower is drought tolerant and capable of growing under very harsh conditions. It prefers full sun.

Not a highly grazed species, when grazed it is most often grazed during the early part of the season.

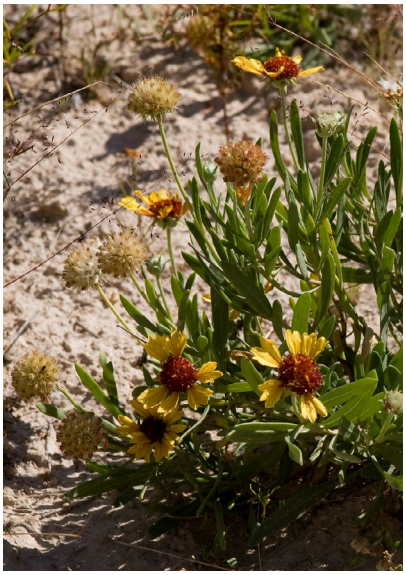
It is often cultivated and grown in flower beds.

**Description based on Utah State University* Range Plants of Utah.

Blanket Flower

Gaillardia spp.

Ch’ilbílátahózhóón



Patrick Alexander

Patrick Alexander

Patrick Alexander

Russ Kleinman, Bill Norris, Kelly Kindscher, and Danielle Walkup

Blue-Eyed Grass

Sisyrinchium spp.

Azeetł'ohí

Alternative Names:
Arizona blue-eyed grass

Plant Type:
Forb

Flower Color:
Purple

Yellow

Habitat:
Grasslands

Growing Season:
Warm season

Special Considerations:
None

Blue-eyed grass, despite its name, is not always blue. The name refers to a number of plants in the iris family, some of which are yellow. Blue-eyed grass has typical iris leaves, which are folded toward the base. The flower is large, with petals over ⅝ inch long. This plant lives on rocky slopes at upper elevations.

Species found in the Four Corners region include *Sisyrinchium demissum* (stiff blue-eyed grass), which is blue, and *Sisyrinchium arizonicum* (Arizona blue-eyed grass), which is yellow.

Blue-Eyed Grass

Sisyrinchium spp.

Azeetł'ohí

Russ Kleinman & Richard Felger

Sisyrinchium demissum

Russ Kleinman, Bill Norris, Kelly Kindscher, and Danielle Walkup

Sisyrinchium arizonicum growth habit

Russ Kleinman, Bill Norris, Kelly Kindscher, and Danielle Walkup

Sisyrinchium arizonicum with flower and capsules

Russ Kleinman, Bill Norris, Kelly Kindscher, and Danielle Walkup

Sisyrinchium arizonicum

Patrick Alexander

Bluebells

Campanula rotundifolia

Dahiitiíhídą́ą́’dootł’izhí

Alternative Names:
American bellflower

Bluebell bellflower

Harebell

Plant Type:
Forb

Flower Color:
Purple

Habitat:
Grasslands

Growing Season:
Warm season

Special Considerations:
None

Bluebells are herbaceous perennials, growing up to 18 inches tall. There are one to several very slender stems, hairless to slightly hairy, and containing a milky sap. The basal stems are creeping. They reproduce by seed and by the spreading of rhizomes, often forming colonies. They flower from May to August. The bell-shaped blue flowers measure ½ to 1 inch and are slightly nodding, with short lobes. The flower stalk arises six inches above dark green foliage. The flowers may be solitary, but up to 15 flowers may be attached up the stem. Seeds are small, with three capsules. There are two different types of leaves present. Basal leaves are round, forming a rosette. They have a distinct leaf stalk (petiole), are broad, and decrease late in the season. The leaves on the erect part of the stem are long and narrow with alternate attachment. There are 10 to 22 leaves, ⅜ to 3 inches long and $\frac{1}{32}$ to ⅝ inch wide; leaf bases and petioles are hairless. All leaves are dark green.

The plant is found from low meadows to subalpine regions ranging from 5,000 to 12,000 feet in elevation. It is adapted to full or partial sunlight and tolerates drought. It grows best in rich, well-drained, moist soil. It can tolerate a range of soil pH, and can thrive in acid and calcareous areas. Bluebells are often used as a plant in fl7ower gardens. This plant does reseed itself quite vigorously, and can become aggressive and weedy.

**Description based on Utah State University's* Range Plants of Utah *description.*

Bluebells

Campanula rotundifolia

Dahiitiíhídą́ą́’doołł’izhí

Patrick Alexander

Patrick Alexander

Russ Kleinman

Bundle Flower

Desmanthus cooleyi

K’ei’chilí

Alternative Names:
None

Plant Type:
Forb

Flower Color:
Yellow

Pink

White

Habitat:
Grasslands

Growing Season:
Warm season

Special Considerations:
None

Bundle flower is a prostrate or weakly ascending herb with spherical white flowerheads. The leaves are bipinnately divided, and the stems are unarmed. *Desmanthus cooleyi* is found in dry areas in canyons and mesas. It can be difficult to differentiate *Desmanthus cooleyi* from *Calliandra humilis* (the dwarf stick pea), especially since *Desmanthus cooleyi* dries to a pink purple color similar to *Calliandra*. The fruits are the key—they are much thinner in *Desmanthus*.

**Description courtesy of Western New Mexico University’s* Vascular Plants of the Gila Wilderness.

Bundle Flower

Desmanthus cooleyi

K’ei’chilí

Russ Kleinman

Russ Kleinman

Russ Kleinman

Ixitixel (eigene Arbeit, selbst fotografiert) [GFDL or CC-BY-SA-3.0], via Wikimedia Commons

California Burclover

Medicago polymorpha

Tł’oh azee

Alternative Names:
None

Plant Type:
Forb

Flower Color:
Yellow

Habitat:
Brushlands

Grasslands

Growing Season:
Warm season

Special Considerations:
! Noxious

Burclover is a shallow-rooted annual legume that generally has numerous prostrate stems branching from the crown and spreading outward 6 to 30 inches. Where thick stands develop, however, stems may become erect, obtaining heights of 18 to 24 inches in favorable years. The leaves are subglabrous and clover-like in appearance, with leaflets normally wedge-shaped and toothed toward the top. The inflorescence is usually quite limited, presenting only a few small, yellow, pea-like flowers. The several-seeded fruit is a flattened, coiled pod, commonly up to ¼ inch in width and fringed with a double row of conspicuous, hooked spines. Well developed plants may produce more than 1,000 pods. The seed is rather large for a legume of this type, usually developing to over $^{3}/_{32}$ inch in length.

California Burclover

Medicago polymorpha

Tł’oh azee

Forest & Kim Starr [CC BY 3.0], via Wikimedia Commons

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Forest & Kim Starr [CC BY 3.0], via Wikimedia Commons

Nick Ashcroft

Cocklebur

Xanthium saccharatum

Tá'niits'éhii

Alternative Names:
None

Plant Type:
Forb

Flower Color:
Green

Habitat:
Brushlands

Growing Season:
Warm season

Special Considerations:
- ! Causes injury
- ! Potentially invasive

Cocklebur is an annual plant that infests disturbed areas such as roadsides, ditches, fields, pastures, orchards, riparian areas, and waste areas. Stems grow up to three feet tall. They are tough, with three-branched, yellowish spines measuring ½ to 1 inch long along the leaf axils. The leaves are lanceolate, the underside densely covered with white, wooly hairs. The leaf margins may be entire, toothed, or lobed (with lobes 1 to 4 inches long) with one main vein from the base. Male and female flowers develop in separate heads on the leaf axils of the same plant: Male flower heads, are small and green, and develop in clusters. Female flower heads develop on the leaf axils below the male flower heads singly or in small clusters; spiny female flower heads consist of two flowers that lack corollas and become hardened prickly burs that enclose two seeds at maturity. Manual removal is effective, especially before burs develop.

DO NOT cut and leave the plants with immature burs on the site because they can still develop viable seed. Some herbicides are effective.

Cocklebur

Xanthium saccharatum

Tá’niits’éhii

Nick Ashcroft

Nick Ashcroft

Forest and Kim Starr

Common Purslane

Portulaca oleracea

Tsiighájiłchíí

Alternative Names:

Little hogweed

Red root

Pursley

Plant Type:

Forb

Flower Color:

Yellow

Habitat:

None

Growing Season:

Warm season

Special Considerations:

✔ Edible leaves

❗ Weedy

Purslane is a common weedy herb frequently found in gardens and on sidewalks. It grows in a spreading, prostrate fashion and has small yellow flowers. The leaves are oval and succulent, on orange to red stems. The flowers are small and yellow. The entire plant is edible and has been used in cuisine around the worlds. Common purslane can be eaten as a leaf vegetable and can be consumed either raw or cooked.

Common Purslane

Portulaca oleracea

Tsiighájiłchíí

Russ Kleinman

Mourad Louadfel, Bugwood.org

Mourad Louadfel, Bugwood.org

Phil Westra

Max Licher, SEINet - Arizona Chapter

Copperweed

Oxytenia acerosa

K’iiłtsoinitł’izí

Alternative Names:
None

Plant Type:
Forb

Flower Color:
Yellow

Habitat:
River valleys

Wastelands

Growing Season:
Warm season

Special Considerations:
- ! Poisonous to livestock
- ! Potential skin irritant

Copperweed is a woody-based forb, growing 3 to 5 feet tall, with many slender gray stems. The plant turns and stays copper colored through summer. It grows in semidesert climate in summer precipitation areas. It is most likely to be found along streambeds and gullies with extra moisture. It is usually on soils high in salt. Cattle, sheep, and elk may eat copperweed when other feed is scarce. Cattle are more likely to eat this plant in the fall when they are being trailed. Copperweed may cause poisoning in livestock. Symptoms of poisoning include dullness, weakness, and coma followed by death without a struggle. In humans, copperweed may cause skin irritation.

**Description courtesy of Utah State University’s* Range Plants of Utah.

SEINet - Arizona Chapter, 2018, http//:swbiodiversity.org/seinet/index.php

Patrick Alexander

Cow Parsnip

Heracleum maximum

Azee'haagai

Alternative Names:

Indian celery

Indian rhubarb

Pushki

Plant Type:

Forb

Flower Color:

White

Habitat:

Brushlands

Grasslands

Growing Season:

Warm season

Special Considerations:

✔ Provides wildlife and livestock forage

! Potential skin irritant

Cow parsnip is a native, perennial forb that grows from 3 to 10 feet tall and has broad, flat-topped umbels.

Cow parsnip grows throughout the United States and Canada. It occurs in a wide variety of forested habitat types, as well as grassland, shrubland, meadow, alpine, and riparian zones. In the Intermountain West, it is a common understory species in subalpine fir and Engelmann spruce habitat types, as well as in quaking aspen communities. It is commonly found growing in snow-maintained disclimaxes such as avalanche chutes. Cow parsnip is a facultative wetland species; it grows best in moist, shaded areas but can also be found in open woodlands and clearings.

Cow parsnip is a valuable forage species for livestock, deer, elk, moose, and bear. It is rated moderately good for erosion control, short-term revegetation potential, and long-term revegetation potential. It has fair soil stabilization value.

Cow parsnip has traditional medicinal and culinary uses. Some cultures ate the inside of stems raw, and boiled the roots to extract sugar. Others ate the young leaves and stems, and used the roots to treat epilepsy.

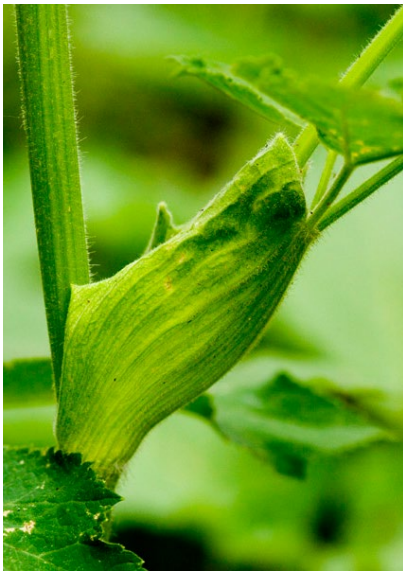
Some with sensitive skin develop rashes when contact with cow parsnip is followed by exposure to sunlight.

**Description courtesy of Utah State University's* Range Plants of Utah.

Cow Parsnip

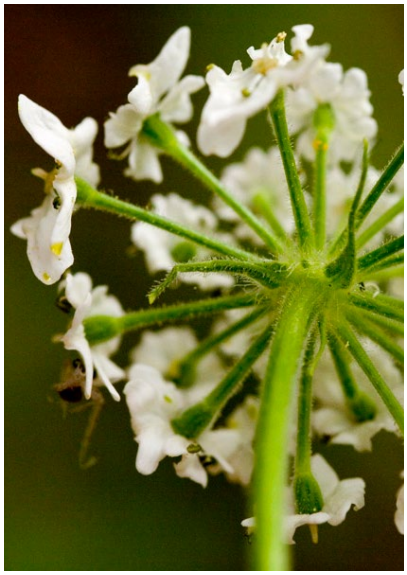
Heracleum maximum

Azee'haagai



Patrick Alexander

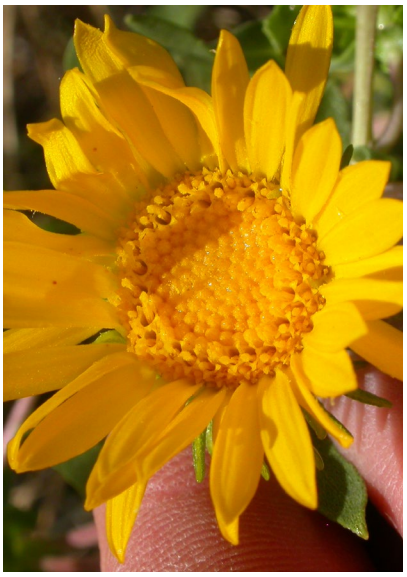
Patrick Alexander



Patrick Alexander

Patrick Alexander

Patrick Alexander



Matt Lavin

Curlycup Gumweed

Grindelia squarrosa

Ch'ilbílátahaltsóíí

Alternative Names:
None

Plant Type:
Forb

Flower Color:
Yellow

Habitat:
Brushlands

Grasslands

Growing Season:
Warm season

Special Considerations:
None

Curlycup gumweed is a short-lived perennial or biennial forb averaging 1 to 3 feet high. Numerous branching stems bear alternately arranged leaves, typically 1 to 4 inches long with entire to serrate—or even somewhat lobed—margins. The flower heads are radiate with 25 to 40 yellow rays and a yellow center. The involucral bracts are strongly rolled back, and highly resinous. The fruit is an achene about ⅛ inch long bearing 2 to 3 awns. Flowering occurs in mid- to late-summer, typically beginning in July and continuing through August and into September. Occasional plants will be seen with flowers persisting into November.

Curlycup Gumweed

Grindelia squarrosa

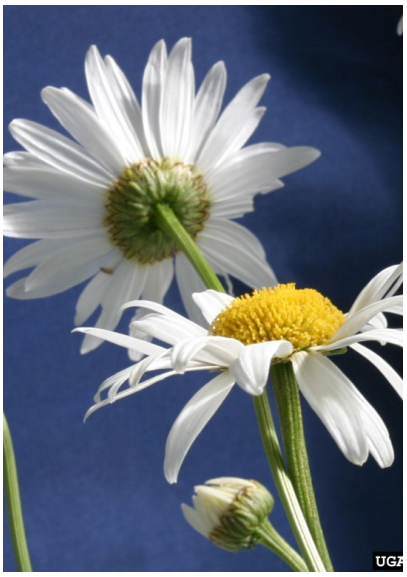
Ch’ilbílátahaltsóíí

Matt Lavin

Matt Lavin

Matt Lavin

Matt Lavin



Montana Statewide Noxious Weed Awareness

Daisy, Rock

Perityle emoryi

Nidíyíliiłigaii

Alternative Names:
Emory's rock daisy

Plant Type:
Forb

Flower Color:
Yellow

White

Habitat:
Brushlands

Grasslands

Piñon-juniper woodland

Ponderosa pine/mixed conifer

Growing Season:
Warm season

Special Considerations:
None

The rock daisy is native, herbaceous annual that may grow in clumps to a height of two feet. The leaves are spade shaped with toothed margins. The flowers are white with yellow centers.

Daisy

Perityle emoryi

Nidíyíliiłigaii

Chris Evans, University of Illinois, Bugwood.org

David Stephens, Bugwood.org

Becca MacDonald, Sault College, Bugwood.org

John Ruter, University of Georgia, Bugwood.org

Russ Kleinman

Dandelion

Taraxacum officinale

Bééshyilt'ą́ą'í

Alternative Names:
None

Plant Type:
Forb

Flower Color:
Yellow

Habitat:
Brushlands

Grasslands

River valleys

Growing Season:
Cool season

Special Considerations:
✔ Provides wildlife and livestock forage

Dandelion is a forb 3 to 12 inches tall, with erect stems that contain a bitter, milky-white juice. It has a fleshy, deep taproot. Flowers are yellow, located on the tip of the leafless stem. It becomes a ball of white, silky bristles at maturity. Seeds of dandelion are topped by a parachute of bristles that aid in dispersal. Basal, deeply lobed leaves are 2 to 16 inches long, and form a rosette. Surfaces of leaves can be lightly pubescent.

Dandelion is widespread throughout North America. It most commonly occurs in disturbed areas such as cut-over or burned forests, avalanche areas, overgrazed ranges, and marshy floodplains, but it may also occur on well-managed ranges. It also occurs on highway and railroad rights-of-way, waste places, old fields, pastures, and lawns. It grows at elevations between 500 and 11,000 feet. Dandelion can reproduce vegetatively by sprouting from the caudex after disturbance. It is found on a variety of soils, but is most common in heavy loams and sandy loams.

Dandelions provide fair to good forage for livestock and wildlife, and are readily eaten because they are relatively succulent. Antelope, as well as sage and forest grouse, use it heavily.

Young leaves can be eaten as spring greens. Roots can be ground and used as a coffee substitute, mild laxative, or to treat heartburn. Tea and wine can be made from the flowers. Flowers can be fried in batter and eaten.

**Description courtesy of Utah State University's* Range Plants of Utah.

Dandelion

Taraxacum officinale

Bééshyilt'áą'í

Russ Kleinman

Russ Kleinman

Russ Kleinman

Matt Lavin

Death Camas

Zigadenus paniculatus

Yííłtsíniitsoh

Alternative Names:
Foothill deathcamas

Plant Type:
Forb

Flower Color:
White

Yellow

Habitat:
Brushlands

Wastelands

Growing Season:
Cool season

Special Considerations:
! Poisonous to livestock

Death camus is a forb growing 1 to 2 feet tall, with an underground scaly bulb. Growth begins very early in the spring, before most other plants. Death camas is most abundant in foothill areas. Reproduction is by seed.

Flowers are white white to yellowish, with orange stamens that give them a soft, lacy quality. They appear in early summer. Rough brown seeds are formed in a three-celled capsule, which is especially poisonous. Plants have five or six basal, thickened, V-creased leaves with a grasslike appearance.

Death camas is found from the semidesert to mountain climatic zones in a wide range of soils. All parts of this plant contain a poisonous alkaloid at all growth stages. Sheep and cattle often eat death camas in early spring before other plants start producing forage. Sheep are the most commonly poisoned, but cattle deaths have also been reported. Respiratory problems occur in sheep after eating ½ to 2 pounds of death camas. Signs of poisoning include salivation, nausea and vomiting, weakness, coma, and death within a few hours to two days. Pastures containing death camas should not be grazed until late spring when other forage is available. The bulbs, which can be mistaken for onions or sego lily, can cause severe illness in humans.

**Courtesy of Utah State University* Range Plants of Utah.

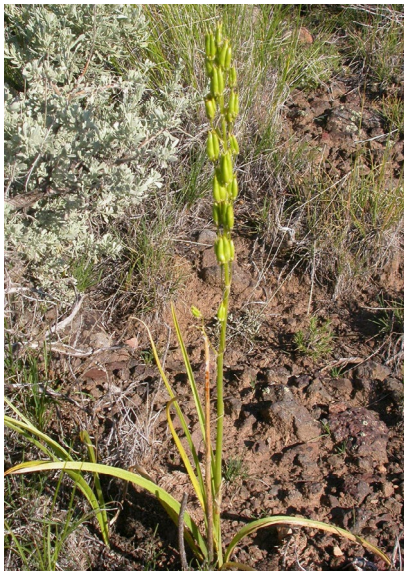
Species of death camas on the Navajo Endangered Species List: *Zigadenus vaginatus,* alcove death camas (Group 3, Navajo Endangered Species List)

Death Camas

Zigadenus paniculatus

Yííłtsíniitsoh

Matt Lavin



Matt Lavin

Matt Lavin

Matt Lavin

Patrick Alexander

Desert Sand Verbena

Abronia spp.

K’íneeshdlíshiidąą’

Alternative Names:
None

Plant Type:
Forb

Flower Color:
Blue

Purple

Red

Pink

Habitat:
Grasslands

Wastelands

Growing Season:
Warm Season

Special Considerations:
None

Sand verbena is native to the western United States. There are a number of species classified as sand verbena, and they have a range of bloom colors and are generally fragrant. Flowers occur clustered in an umbel. Leaves are slightly fleshy and round rather than elongated.

Desert sand verbena grows on sandy flats, dunes, and roadsides.

Patrick Alexander

Abronia elliptica

Patrick Alexander

Devilweed

Chloracantha spinosa

Ni’ iɬ tɬ’ hii

Alternative Names:

Aster

Aster spinosus

Spiny chloracantha

Buena mujer

Plant Type:

Forb

Flower Color:

White

Habitat:

Grasslands

Ponderosa pine/mixed conifer

Growing Season:

Warm season

Special Considerations:

None

Devilweed is a member of the aster family, native to the southwestern United States. Like a number of other asters, it has many-branched stems and flowers that actually comprise ray flowers (what look like standard petals) and disk flowers (tiny flowers in the center of the inflorescence). Devilweed has white ray flowers and yellow disk flowers. It can grow to be several (4 to 5, or even 6) feet tall. It grows on a variety of sites from wet areas to semi-arid soils.

Devilweed

Chloracantha spinosa

Ni’ ił tł’ hii

Patrick Alexander

Patrick Alexander

Patrick Alexander

Joy Viola, Northeastern University, Bugwood.org

Evening Primrose

Oenthera spp.

Tł'é'yiigáhii

Alternative Names:

Tufted evening primrose

Stemless primrose

Fragrant evening primrose

White stemless evening primrose

Gumbo lily

Plant Type:

Forb

Flower Color:

White

Yellow

Habitat:

Piñon-juniper woodland

Growing Season:

Warm season

Special Considerations:

None

Evening primrose's flowers open late in the day, then turn pink and wilt the following morning. It can grow up to one foot tall, is nearly stemless, and grows from a thick taproot. It blooms April to September.

The flowers are white or yellow with four heart-shaped petals and eight yellow stamens. Flowers can measure up to three inches across and have a wonderful fragrance.

Rough seedpods, about one inch long, form soon after flowering.

Leaves grow in a basal rosette. They are lance-shaped and toothed, growing up to 12 inches in length. The leaves are crinkly, gray-green, and fuzzy.

Evening primrose is found in piñon-juniper woodlands and shadscale scrub communities. It is common on roadsides, and is often abundant on steep, dry slopes. It occurs at elevations of 2,980 to 9,500 feet. It likes well-drained, rocky, sandy soils.

Cattle seem to avoid evening primrose. Young shoots and roots of some evening primroses are eaten by humans.

**Description courtesy of Utah State University's* Range Plants of Utah.

Evening Primrose

Oenthera spp.

Tł'é'yiigáhii

Joseph M. DiTomaso, University of California - Davis

Karan A. Rawlins, University of Georgia, Bugwood.org

Becca MacDonald, Sault College, Bugwood.org

Robert Vidéki, Doronicum Kft., Bugwood.org

Patrick Alexander

Filaree

Erodium cicutarium

Dahjįtiíhídą́ą́'łikaní

Alternative Names:

Storksbill

Redstem filaree

Alfilaria

Redstem stork's bill

Plant Type:

Forb

Flower Color:

Blue

Purple

Red

Pink

Habitat:

Brushlands

Grasslands

Wastelands

Growing Season:

Cool season

Special Considerations:

✔ Provides wildlife and livestock forage

❗ Invasive

❗ Noxious

Filaree is a low and spreading plant, 2 to 5 inches tall, growing from a central taproot. The stems are leafy and hairy. Filaree flowers February to May, and plants usually dry up and disappear quickly after maturity. It is one of the first plants to germinate in late fall or spring. It reproduces from seeds. Borne on hairy stalks in umbrella-shaped clusters, flowers vary in color from pink to purple. Each seed is tipped with an elongated tail, which coils spirally at maturity, assisting the pointed seed in penetrating the soil. In early growth stages, the leaves form only a basal rosette, but later appear on the stems.

Filaree is found in oak woodlands, semidesert grassland, and desert shrublands. It is often found in fields, lawns, and wasteplaces. It is adapted to a broad range of soil types. It grows in well-drained, clayey, loamy, or sandy soil, and is tolerant of moderately acidic to moderately alkaline soils. It furnishes excellent to good spring forage for cattle, sheep, desert tortoise, and other wildlife. It can also provide winter forage if the seeds germinate following fall rains. It has, however, been reported to cause bloating in livestock.

Young leaves can be eaten raw or cooked. Filaree is reputed to contain an antidote for strychnine. The presence or absence of filaree pollen in fossil records, sediment lakebeds, and artifacts has been used as a dating technique in paleobotany and archeology. Filaree was one of the first exotics to invade North America. It is an aggressive invader of desert ranges under heavy grazing.

**Description courtesy of Utah State University* Range Plants of Utah.

Filaree

Erodium cicutarium

Dahjįtiíhídą́ą́'łikaní

Patrick Alexander

Patrick Alexander

Patrick Alexander

Patrick Alexander

Patrick Alexander

Four O'Clock

Allionia incarnata

K'íńeeshdlíshiidą́ą́'łigai

Alternative Names:
Trailing windmills

Guapile

Plant Type:
Forb

Flower Color:
Red

Pink

White

Yellow

Habitat:
None

Growing Season:
Warm season

Special Considerations:
None

Four o'clock is a prostrate perennial herb which is glandularly pubescent. The flowers are pink and notched. The leaves are wedge shaped. The three flowers of four o'clock in each whorl all flower at the same time and are very close together, giving the illusion of one large completely symmetrical flower. Actually, the three flowers are each individually bilaterally symmetrical. The complicated fruit of four o'clock has two incurved wings that are frequently triangularly toothed, and it has two rows of glands on its surface. Four o'clock is found in low, dry, rocky areas.

**Description courtesy of Western New Mexico University's* Vascular Plants of the Gila Wilderness.

Four O'Clock

Allionia incarnata

K'ińeeshdlíshiidą́ą'łigai

Patrick Alexander

Allionia incarnata var. villosa

Patrick Alexander

Allionia incarnata var. incarnata

Patrick Alexander

Allionia incarnata var. villosa

Patrick Alexander

Allionia incarnata var. incarnata

Patrick Alexander

Allionia incarnata var. incarnata

Patrick Alexander

Geranium

Geranium spp.

Dahjįtíihídáą́’tsó

Alternative Names:
None

Plant Type:
Forb

Flower Color:
Purple

Red

Habitat:
Grasslands

Piñon-juniper woodland

Ponderosa pine/mixed conifer

River valleys

Growing Season:
Cool season

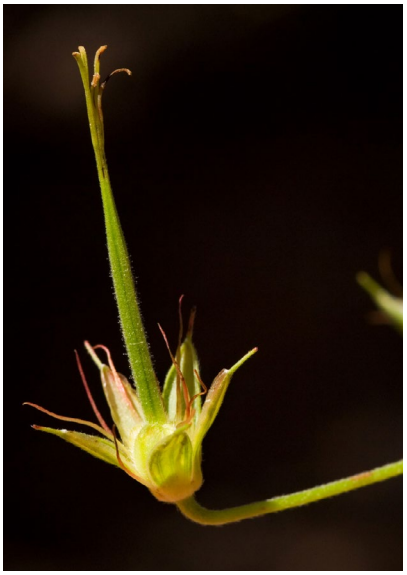
Special Considerations:
None

Geranium may be found in grasslands and in wooded areas, growing to a height of four feet. While some geranium species are introduced, there are many natives as well. Species found in Utah and New Mexico include Fremont geranium (*Geranium caespitosum*), sticky geranium (*Geranium viscosissimum*), Richardson’s geranium (*Geranium richardsonii*), and sticky purple geranium (*Geranium viscosissimum*). Geraniums provide good livestock forage, particularly for sheep. Deer also graze the plants. Flowers have five parts (petals, stamens) and display a range of colors in the lavender-pink spectrum. The leaves are palmately lobed and hairy. Stems are also hairy. The sticky geranium has edible flowers and leaves. The Cheyenne used the leaves of Richardson’s geranium medicinally and made a tea out of the roots.

Geranium

Geranium spp.

Dahjįtíihídąą’tsó

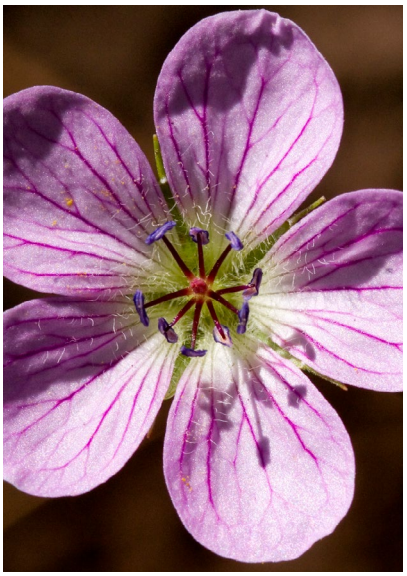


Patrick Alexander

Geranium caespitosum

Patrick Alexander

Geranium caespitosum



Patrick Alexander

Patrick Alexander

Geranium caespitosum

Patrick Alexander

Gilia

Gilia spp.

Azéédhaaleeh

Alternative Names:
None

Plant Type:
Forb

Flower Color:
Red

Pink

Habitat:
Brushlands

Grasslands

Piñon-juniper woodland

River valleys

Growing Season:
Warm season

Special Considerations:
✔ Provides hummingbird forage

Gilia is an herbaceous annual that can grow to heights of five feet, though the plants more commonly grow to about three feet. The plants provide food for hummingbirds and hawkmoths. The tubular flowers vary in color, but shy gilia (*Gilia inconspicua*) has pink blooms, and scarlet gilia (*Ipomopsis aggregata*/*Gilia aggregata*) has flowers in deep shades of salmon and red. The stems are hairy (and sometimes sticky), as are the pinnate leaves. The scarlet gilia has many traditional medicinal uses, including treatment of colds, rheumatism, and skin irritation.

Gilia is a member of the phlox family, and gilia species are native to most of the western United States and a few pockets in the east.

Species of saltbush on the Navajo Endangered Species List: *Aliciella formosa*, Aztec gilia (Group 4 Navajo Endangered Species List)

Gilia

Gilia spp.

Azéédhaaleeh

Patrick Alexander

Ipomopsis aggregata

Patrick Alexander

Ipomopsis aggregata

Matt Lavin

Gilia inconspicua

Matt Lavin

Gilia inconspicua

Patrick Alexander

Globemallow

Sphaeralcea spp.

Azeenitł'inii

Alternative Names:
Scarlet Globemallow

Sphaeralcea coccinea

Plant Type:
Forb

Flower Color:
Red

Habitat:
Grasslands

Growing Season:
Cool season

Special Considerations:
✔ Wildlife and livestock forage

Globemallow, a perennial, native forb that grows up to 2½ feet tall. It is commonly eaten by almost all species of herbivores and is an important part of the diets of small mammals, pronghorn, sheep, and cattle.

Scarlet globemallow grows mainly in dry grassland prairies at elevations of 3,500 to 9,000 feet. It is considerably drought resistant and establishes well on disturbed sites. It loses its leaves during times of drought and may actually increase in size in times of drought and overgrazing. Traditional uses include applying the paste to burns, scalds, and external sores as a cooling agent.

It flowers April to August, and reproduces from seeds. Petals are deep orange or brick red to pinkish.

**Description courtesy of Utah State University's* Range Plants of Utah.

Globemallow

Sphaeralcea spp.

Azeenitł’inii

Patrick Alexander

Gerald Moore

Nick Ashcroft

Sphaeralcea coccinea

Nick Ashcroft

Sphaeralcea coccinea

Patrick Alexander

Renee Benally

Russ Kleinman

Groundsel, Threadleaf

Senecio flaccidus var. flaccidus

Azeehááldzidí

Alternative Names:

Wooly Groundsel

Formerly *Senecio longilobus*

Plant Type:

Forb

Flower Color:

Yellow

Habitat:

Brushlands

Grasslands

Wastelands

Growing Season:

Warm season

Special Considerations:

Toxic to livestock

Threadleaf groundsel typically grows in dry, gravelly, or hardpan soils, and may be found on plains and foothill areas. It flowers in the late summer.

Often called woolly groundsel, it contains pyrrolizidine alkaloids that may poison cattle, horses, and sheep. All parts of these plants are poisonous to all classes of livestock, but younger plants tend to be more palatable to livestock. Young animals are more susceptible.

If liver damage occurs, animals may survive for six months or longer after they have ingested a lethal amount of the plant, and may show no outward symptoms during this period. Often in response to some stressful situation, such as pregnancy or lactation, they may develop liver failure. The best preventive is avoidance of the plant.

Groundsel, Threadleaf

Senecio flaccidus var. flaccidus

Azeehááldzidí

Russ Kleinman

Morris Southward, PhD

Matt Lavin

Halogeton

Halogeton glomeratus

Chil’bit’ą́ą́h t’ó

Alternative Names:
None

Plant Type:
Forb

Flower Color:
Green

Red

White

Habitat:
Brushlands

Growing Season:
Cool season

Special Considerations:

- ! Noxious
- ! Invasive
- ! Poisonous, especially to sheep

Halogeton is an undesireable weed on rangeland. It was introduced into North America in about 1930 and has rapidly spread.

In larger quantities, it is poisonous, and sheep are the most susceptible. It contains toxic amounts of sodium, potassium, and calcium oxalates. Signs of poisoning include: depression, weakness, reluctance to move, drooling, coma, and death. The first signs of poisoning occur 2 to 6 hours after an animal ingests a fatal amount, and death occurs in 9 to 11 hours.

Halogeton cannot compete with healthy range plants. Therefore, control involves keeping a healthy cover of desirable forage plants.

Halogeton

Halogeton glomeratus

Chil’bit’ą́ąh t’ó

Matt Lavin

Matt Lavin

Halogeton flowers

Patrick Alexander

Horsemint

Monarda spp.

Kétłoh

Alternative Names:

Bee balm

Mountain mint

Oregano de la Sierra

Plant Type:

Forb

Flower Color:

Blue

Purple

Habitat:

River valleys

Growing Season:

Warm season

Special Considerations:

✔ Provides good insect forage

✔ Hummingbirds like it

Horsemint, in the mint family, has square stems and attractive flowers. Several species in the *Monarda* genus can be found regionally.

Monarda punctata has been used as part of a mixture to treat colds, ground into a powder and snuffed up the nostrils to relieve a headache, or as an infusion to treat fevers. It may be hung up in dwellings for its pleasing odor. Birds, including hummingbirds, are attracted to the nectar.

Horsemint

Monarda spp.

Kétłoh

Clarence A. Rechenthin @ USDA-NRCS PLANTS Database, Courtesy of USDA NRCS Texas State Office

Patrick Alexander

Patrick Alexander

Indian Paintbrush

Castilleja spp.

Dahiitįįhídą́ą́’tsoh

Alternative Names:
None

Plant Type:
Forb

Flower Color:
Green

Yellow

Habitat:
Wastelands

Brushlands

Grasslands

Growing Season:
Warm season

Special Considerations:
None

Indian paintbrush, is admired for its aesthetic value, due to its showy bracts. It grows 9 to 18 inches tall.

Palatability of Indian paintbrush has been rated as fair to good for sheep, poor to fair for cattle, and poor for horses.

Indian paintbrush is widespread, occurring from the desert floors to the subalpine meadows. Some species are known to be partial root parasites, especially with sagebrush. It reproduces by seed and tillering.

Indian Paintbrush

Castilleja spp.

Dahiitįįhídą́ą́’tsoh

Nick Ashcroft

Castilleja linarifolia

Patrick Alexander

Castilleja integra

Nick Ashcroft

Castilleja integra

Nick Ashcroft

Castilleja linarifolia

Russ Kleinman

Iris

Iris missouriensis

Bílátahyígaii

Alternative Names:
Blue flag

Flag lily

Liver lily

Plant Type:
Forb

Flower Color:
Purple

White

Yellow

Habitat:
River valleys

Growing Season:
Warm season

Special Considerations:
None

Western blue flag, the iris species found in Navajo rangelands, is a perennial herb, usually evergreen and growing from a creeping, tuberous rhizome. Rhizomes on blue flag are between 1 to 1½ inches in diameter, quite large for a native iris. The leaves are ⅛ to ⅜ inch wide, long and linear with parallel venation. They are sometimes purplish. Stems are 8 to 20 inches tall and sometimes branched. Blossoms of this iris species are pale lilac to whitish with lilac-purple veins.

The roots have been used to treat toothaches and to make a green dye.

Iris

Iris missouriensis

Bílátahyígaii

Russ Kleinman

Russ Kleinman & Bill Norris

Russ Kleinman & Bill Norris

Russ Kleinman & Bill Norris

Russ Kleinman & Bill Norris

Russ Kleinman, Richard Felger & Kelly Kindscher

Jacob's Ladder

Polemonium foliosissimum

Azee'naachii'

Alternative Names:
Jacobs ladder

Plant Type:
Forb

Flower Color:
Purple

Yellow

Habitat:
Grasslands

Ponderosa pine/mixed conifer

Growing Season:
Warm season

Special Considerations:
None

Jacob's ladder is an upper elevation herb similar except for flower color to *Polemonium flavum*, yellow Jacob's ladder, which is found in upper elevation mixed conifer forests. It is upright and has a compound leaf, the lanceolate leaflets. The flowers are lavender.

Jacob's Ladder

Polemonium foliosissimum

Azee'naachii'

Russ Kleinman, Richard Felger, & Kelly Kindscher

Russ Kleinman, Richard Felger, & Kelly Kindscher

Russ Kleinman, Richard Felger, & Kelly Kindscher

Russ Kleinman, Richard Felger, & Kelly Kindscher

Patrick Alexander

Jimmyweed

Isocoma pluriflora

K’iiłtsoiłizhiní

Alternative Names:

Goldenweed

Rayless goldenrod

Southern jimmyweed

Southern goldenbush

Haplopappus heterophyllus

Haplopappus pluriflorus

Isocoma wrightii

Plant Type:

Forb

Flower Color:

Yellow

Habitat:

Brushlands

Growing Season:

Warm season

Special Considerations:

- ! Poisonous to livestock
- ! May cause illness in humans from meat or milk

Jimmyweed is native to Colorado, Arizona, New Mexico, and Texas. It is poisonous to livestock, and it may also cause illness in humans who drink milk or eat meat from poisoned animals. Jimmyweed is common on roadsides, disturbed areas, and pastures. The plant is a member of the aster family. It grows from 1 to 2½ feet in height, with about the same width. The multiple stems and flowers on each plant give it a shrubby appearance. Flowers appear in summer.

Jimmyweed

Isocoma pluriflora

K’iiłtsoiłizhiní

Patrick Alexander

Patrick Alexander

Patrick Alexander

Patrick Alexander

Russ Kleinman

Jimsonweed

Datura spp.

Ch'óhojiléél

Alternative Names:
Sacred thorn-apple

Plant Type:
Forb

Flower Color:
Blue

Purple

White

Habitat:
Grasslands

Wastelands

Growing Season:
Warm season

Special Considerations:

- ! Poisonous to humans and livestock
- ! Potential skin irritant

Jimsonweed is a large forb, 1¾ to 4 feet tall, often with a similar spread. It often falls over from its own weight. It germinates readily and self sows under most conditions. Flowers are showy white to purple trumpets 2 to 4 inches long. Flowers open for only one evening, but new ones continue to open throughout the summer and autumn.

Mature leaves are elliptical to egg-shaped, uneven at the margins. They are 3 to 8 inches long, six inches wide, on long, stout petioles. Margins of leaves have a few large triangular teeth. Jimsonweed prefers warm areas. It competes aggressively for water and grows rapidly. It is a common weed in pastures, barnyards, roadsides, and waste places.

Jimsonweed and its derivatives have several medicinal uses. At low doses, it is used to treat asthma, muscle spasms, and symptoms of Parkinson's disease. At higher doses it causes hallucinations. It is occasionally grown as an ornamental, and attracts bees, butterflies, and moths.

All parts of jimsonweed are very poisonous. Cattle and sheep have died from eating it. Symptoms include dilated pupils, thirst, fever, loss of coordination, confusion, rapid pulse, labored respiration, hallucinations, convulsions, and eventual coma. Even inhaling the sweet fragrance of the flowers can cause headaches and dizziness. The sap can cause a skin rash. Species of *Datura* on the Navajo Nation include *D. wrightii* and *D. stramonium.*

Jimsonweed

Datura stramonium

Ch’óhojiléél

Russ Kleinman

Patrick Alexander

Russ Kleinman & Richard Felger

Russ Kleinman

Jeanne Gleason

Gerald Moore

Knapweed

Centaurea spp.

Ch'it Bilat'a dootłizhigí

Alternative Names:

Spotted knapweed

Yellow starthistle

Plant Type:

Forb

Flower Color:

Red

Pink

Yellow

Habitat:

Brushlands

Growing Season:

Warm season

Special Considerations:

- ! Invasive
- ! Noxious
- ! Spiny

Knapweed is represented on Navajo rangelands by several species, including Russian knapweed, diffuse knapweed, and squarrose knapweed, which are described in their own entries.

Other species of *Centaurea* include yellow starthistle (*Centaurea solstitialis*) and spotted knapweed (*Centaurea biebersteinii*). All knapweeds are introduced species in the Four Corners region, and they are often invasive or noxious.

Spotted knapweed is a multi-stemmed, herbaceous perennial that can grow from 1 to 3 feet in height. It produces bright pink blooms in the summer. Two things make it a particularly invasive plant: it produces many seeds whose viability can last for years, and it also grows very thickly, crowding out other species. It also has a degree of fire resistance due to its taproot and hardy seeds. It does, however, provide forage for domestic and wild animals.

Yellow starthistle is likewise a problematic species. The rosette of yellow starthistle lies close to the ground and produces 6 to 28 deeply lobed leaves that range from 1 to 8 inches long and are generally less than two inches wide. The rigidly branched, winged flowering stems average about two feet tall, but range from four inches to five feet, depending on environmental conditions. Flower heads are solitary on the ends of short stems and have many bright yellow flowers. The bracts of the flower heads are armed with stout, straw-colored spines 1 to 2 inches long that radiate from the flowerhead in a star shape.

Knapweed

Centaurea spp.

Ch’it Bilat’a dootłizhigí

Gerald Moore

Matt Lavin

Matt Lavin

Patrick Alexander

Centaurea solstitialis

Patrick Alexander

Centaurea solstitialis

Matt Lavin

Knapweed, Diffuse

Centaurea diffusa

Ch'il lat'á dei nínigí

Alternative Names:
White knapweed
Spreading knapweed
Tumble knapweed

Plant Type:
Forb

Flower Color:
White

Habitat:
Brushlands
Grasslands
Piñon-juniper woodland
Ponderosa pine/mixed conifer

Growing Season:
Warm season

Special Considerations:
- ! May injure livestock
- ! May decrease range value
- ! Introduced
- ! Noxious

Diffuse knapweed is a nonnative, annual, biennial, or short-lived perennial forb. During the juvenile stage, diffuse knapweed is a rosette with deeply divided basal leaves borne on short stalks on a central crown with a taproot. At maturity, diffuse knapweed produces one upright stem, rarely two. Stems are 1 to 3 feet tall, with numerous, spreading branches that give the plant a ball-shaped appearance and tumbleweed mobility when broken off. Flowerheads are solitary or borne in clusters of two or three at the ends of branches. Diffuse knapweed flowerheads are ⅛ to ⅜ inch (3 to 6 mm) in diameter and 5⁄16 to 7⁄16 inch long, excluding spines and flowers. Bracts are edged with a fringe of spines, with a longer (1⁄16 to 3⁄16 inch), erect spine at the tip.

Diffuse knapweed replaces traditional wildlife and livestock forage on rangelands and pasturelands. While it is not poisonous, the presence of diffuse knapweed in hay or on rangeland can decrease feeding value to livestock and wildlife species. In situations of overgrazing or drought, when fewer forage species are available, the flower shoots are sometimes grazed while immature rosettes are not. Although rosettes of the first year's growth are nutritious and edible, they are difficult for cattle to eat because they are so close to the ground. Mature knapweed plants are coarse and fibrous, and the spines on the bracts can be very irritating or may even cause injury to the mouths and digestive tracts of grazing animals. Diffuse knapweed is grazed by deer and domestic sheep, and by elk and cattle, at least through the bolting stage.

Knapweed, Diffuse

Centaurea diffusa

Ch’il lat’á dei nínigí

Matt Lavin

Matt Lavin

Matt Lavin

Patrick Alexander

Knapweed, Russian

Acroptilon repens

Ch'ildích'l'iłibáhí

Alternative Names:

Turkestan thistle

Creeping knapweed

Mountain bluet

Russian cornflower

Hardheads

Formerly *Centaurea picris*

Formerly *Rhaponticum repens*

Plant Type:

Forb

Flower Color:

Green, pink, and purple

Habitat:

Brushlands

Grasslands

Growing Season:

Warm season

Special Considerations:

- ! Toxic (horses); potentially toxic to other livestock
- ! Introduced
- ! Noxious

Russian knapweed is an introduced, long-lived, creeping perennial. This invasive weed is the most widely distributed of the various knapweed species. It is widespread in northern states, including Colorado, Montana, and Wyoming, and is currently becoming more common in New Mexico and Arizona. Russian knapweed can be distinguished from other knapweeds by its scaly, brown to black, spreading rhizomes and by its unique flowering bract features.

Livestock (including cattle, sheep, and goats) normally will not graze Russian knapweed due to its bitter flavor; however, animals may graze the weed lightly during early growth. The weed is especially toxic to horses and should not be grazed by them. The time of grazing preferred for pastures infested with Russian knapweed is late summer, early fall, or winter. Use grazing to encourage perennial grass growth and competition against Russian knapweed. Reduce grazing pressure in early spring when grasses are first starting to grow, and allow grasses to tiller and produce seed. Utilization of knapweed by livestock should be carefully monitored, and heavy grazing should be avoided.

Knapweed, Russian

Acroptilon repens

Ch'ildích'l'iłibáhí

Patrick Alexander

Patrick Alexander

Patrick Alexander

Matt Lavin

Kochia

Bassia scoparia

Ch’il nilt’ǫlí

Alternative Names:
Kochia scoparia

Plant Type:
Forb

Flower Color:
Green

Habitat:
Grasslands

River valleys

Wastelands

Growing Season:
Warm season

Special Considerations:
- ! Potentially toxic to livestock
- ! Introduced
- ! Noxious

Kochia, native to southern and eastern Russia, was introduced to North America from Europe. Plants growing on dry or infertile sites typically average two feet tall. The leaves are generally green but change to yellow, red, and brown as the plant ages and dies. Dead plants break off at the base and are blown by the wind as tumbleweeds that scatter seeds.

Kochia and common ragweed look very similar from a distance, and the two sometimes occur together. Because kochia is extremely efficient at using water, it can thrive in warm, low rainfall environments. The plants have a wide tolerance of soil types and are often found on saline/alkaline soils. Plants grow on grasslands, pastures, prairies, roadsides, ditch banks, wastelands, floodplains, riparian habitats, and cultivated fields.

Kochia is readily grazed by livestock, but sometimes contains high nitrate levels and can be toxic.

Kochia

Bassia scoparia

Ch’il nilt’ǫlí

Patrick Alexander

Matt Lavin

Matt Lavin

Russ Kleinman, Bill Norris and the Range Vegetation class of autumn 2009 at WNMU

Lambsquarters

Chenopodium album var. missouriense

Tł'oh dei hałgaí

Alternative Names:

Chenopodium missouriense

Aellen

Lamb's quarters

Plant Type:

Forb

Flower Color:

Blue

Purple

Habitat:

Wastelands

Growing Season:

Cool season

Special Considerations:

None

Lambsquarters are an erect herb with dentate leaves. The glomerules are densely packed and 2/16 to 4/16 inch in diameter. There are five sepals which are farinose (dusty in appearance), keeled, and enclose the seed. The pericarp (seed covering) is densely adherent such that the seed tears before the pericarp will separate. This variety of *Chenopodium album* is native to North America and is distinguished by stiff panicles, dense glomerules without interrupted areas, and purplish nodes. *Chenopodium album var. missouriense* is found at roadsides.

**Description based on description from Western New Mexico University's* Vascular Plants of the Gila Wilderness.

Lambsquarters

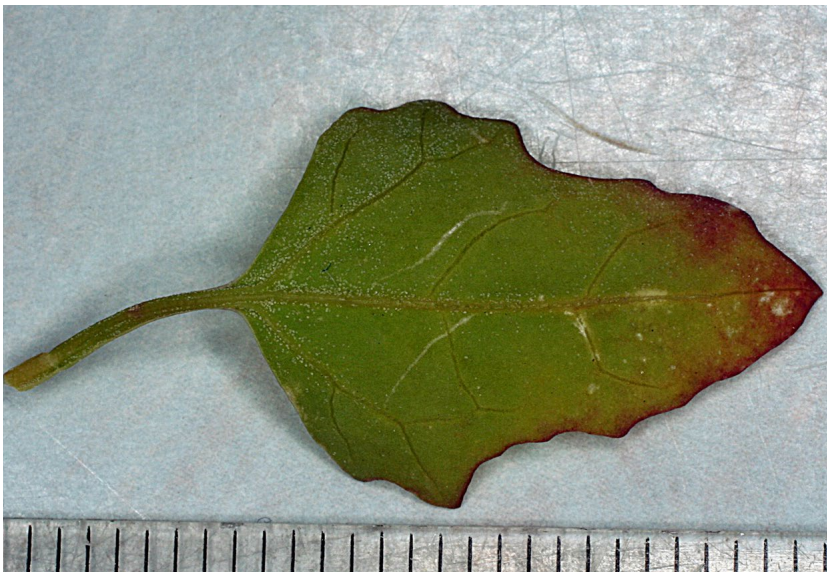
Chenopodium album var. missouriense

Tł'oh dei hałgaí

Russ Kleinman, Bill Norris, and the Range Vegetation class of autumn 2009 at WNMU

Russ Kleinman, Bill Norris, and the Range Vegetation class of autumn 2009 at WNMU

Russ Kleinman, Bill Norris, and the Range Vegetation class of autumn 2009 at WNMU



Russ Kleinman, Bill Norris, and the Range Vegetation class of autumn 2009 at WNMU

Patrick Alexander

Larkspur

Delphinium spp.

Tádídiińdootł'izh

Alternative Names:
None

Plant Type:
Forb

Flower Color:
Blue

Purple

Habitat:
Grasslands

River valleys

Growing Season:
Warm season

Special Considerations:
! Potentially toxic to livestock

Larkspur grows 3 to 8 feet tall, with stems that are somewhat straw-colored and hollow at the base, but a darker bluish color above. It grows from a deep, vertical, woody taproot, beginning growth in late spring, flowering July to August, with seeds maturing from August to September.

Flowers are bluish-purple in color with a spur-like projection, which looks like a duncecap, on the calyx, hence its name. Flowers grow in dense clusters at the top of the stem. The leaves are hairy and divided into sharp, pointed segments (palmately lobed) that resemble geranium leaves in pre bloom stage. The fruits/seeds are highly poisonous.

Tall larkspur occurs in meadows, thickets, stream banks, around springs, and in moist meadows and open woods. It is most abundant where the snow pack persists. It is usually associated with aspen and spruce groves.

Larkspur provides fair to good forage for sheep and some wildlife. It is palatable to cattle even when other plants are available. Horses seldom eat it. Larkspur is poisonous to cattle until after blossoming. It contains alkaloids, which act on the nervous system. Death may result following paralysis of breathing; bloat is common.

Traditional uses of larkspur included crushing the plants and applying them to hair to control lice and other insects.

**Description courtesy of Utah State University's* Range Plants of Utah.

Larkspur

Delphinium spp.

Tádídiińdootł’izh

Patrick Alexander

Delphinium hansenii

Patrick Alexander

Delphinium scopulorum

Patrick Alexander

Delphinium geraniifolium

Patrick Alexander

Delphinium scopulorum

William M. Ciesla, Forest Health Management Intern

Leafy Spurge

Euphorbia esula

Ch'il abcí tsoh

Spurge is an herbaceous perennial that is adapted to many soil types and habitats. It typically invades disturbed and undisturbed areas such as pastures, rangelands, abandoned croplands, roadsides, wetlands, woodlands, floodplains, riparian areas, mountain ridges, and prairies. Its milky sap may cause skin and eye irritation in humans and be toxic to cattle if ingested in large quantities.

Alternative Names:

Faitours-grass

Wolf's milk

Plant Type:

Forb

Flower Color:

Green

Yellow

Habitat:

Brushlands

Grasslands

River valleys

Wastelands

Growing Season:

Warm season

Special Considerations:

- ! Noxious
- ! Poisonous
- ! Introduced
- ! Toxic to cattle
- ! Skin and eye irritation in humans

Leafy Spurge

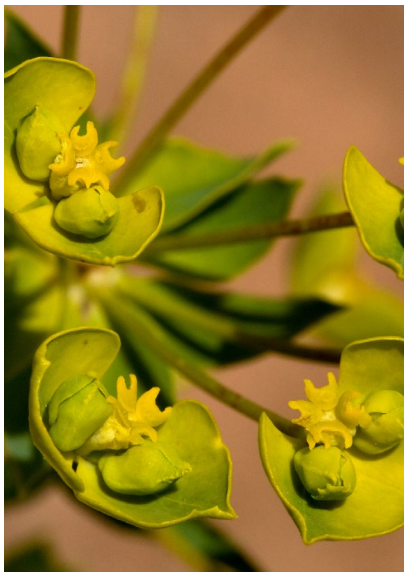
Euphorbia esula

Ch’il abcí tsoh

Patrick Alexander

Norman E. Rees, USDA Agricultural Research Service

Patrick Alexander



Patrick Alexander

Patrick Alexander

Loco, Ellis

Astragalus praelongus var. ellisiae

Ch'ilaghání'dool ghasí

Alternative Names:
None

Plant Type:
Forb

Flower Color:
Green

Yellow

Habitat:
Brushlands

Piñon-juniper woodland

Ponderosa pine/mixed conifer

Growing Season:
Warm Season

Special Considerations:
! Poisonous

Ellis loco has narrowly egg- or football-shaped pods, ¾ to 1½ inches long, and ¼ to ⅜ inch in diameter.

It grows on bluffs, clay knolls, plains, bottomlands, and some forest and woodland areas. Ellis loco can be found on selenium-rich soils and alkaline soils of shale or volcanic parent material at 2,750 to 7,100 feet.

Like some locoweeds, Ellis loco is poisonous/toxic to livestock. Not all locoweeds are poisonous or toxic.

Locoweed species on the Navajo Nation may include:

- *Astragalus amphioxys*
- *Astragalus beathii* (Group 4 Navajo Endangered Species List)
- *Astragalus ceramicus E. Sheldon var ceramicus*
- *Astragalus cronquistii* (Group 3 Navajo Endangered Species List)
  Astragalus cutleri (Group 2 Navajo Endangered Species List)
- *Astragalus heilii* (Group 4 Navajo Endangered Species List)
- *Astragalus humillimus* (Group 2 Navajo Endangered Species List)
- *Astragalus humistratus*
- *Astragalus lonchocarpus*
- *Astragalus lentiginosus Douglas* ex *Hooker var australis Barnely*
- *Astragalus missouriensis*
- *Astragalus mollisium*
  Astragalus naturitensis (Group 3 Navajo Endangered Species List)
- *Astragalus nuttallianus*
- *Astragalus praelongus Sheldon var ellisiae*
- *Oxytropis lambertii*

Loco, Ellis

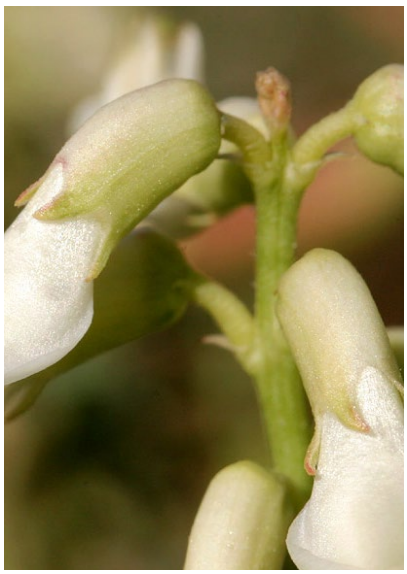
Astragalus praelongus var. ellisiae

Ch'ilaghání'dool ghasí

Patrick Alexander

Patrick Alexander

Patrick Alexander



Patrick Alexander

Amy Smith Muise

Loco, Rattleweed

Astragalus allochrous

Dá’ághálii

Alternative Names:

Rattleweed

Half-moon milkvetch

Plant Type:

Forb

Flower Color:

Red

Pink

Habitat:

Brushlands

Grasslands

Piñon-juniper woodland

Wastelands

Growing Season:

Warm season

Special Considerations:

! Toxic to livestock

Rattleweed loco is native to Texas, New Mexico, and Arizona. This plant contains swainsonine, which is toxic to livestock.

To recognize it in the field, look for green leaves; small, bluish or purplish flowers; pods that are inflated and bladderlike; and sparse hairs near the base of the plant.

The plants are usually annual, sometimes persisting into a second season, with several stems 4 to 20 inches tall.

Locoweed species on the Navajo Nation may include:

- *Astragalus amphioxys*
- *Astragalus beathii* (Group 4 Navajo Endangered Species List)
- *Astragalus ceramicus E. Sheldon var ceramicus*
- *Astragalus cronquistii* (Group 3 Navajo Endangered Species List)
  Astragalus cutleri (Group 2 Navajo Endangered Species List)
- *Astragalus heilii* (Group 4 Navajo Endangered Species List)
- *Astragalus humillimus* (Group 2 Navajo Endangered Species List)
- *Astragalus humistratus*
- *Astragalus lonchocarpus*
- *Astragalus lentiginosus Douglas* ex *Hooker var australis Barnely*
- *Astragalus missouriensis*
- *Astragalus mollisium*
  Astragalus naturitensis (Group 3 Navajo Endangered Species List)
- *Astragalus nuttallianus*
- *Astragalus praelongus Sheldon var ellisiae*
- *Oxytropis lambertii*

Loco, Rattleweed

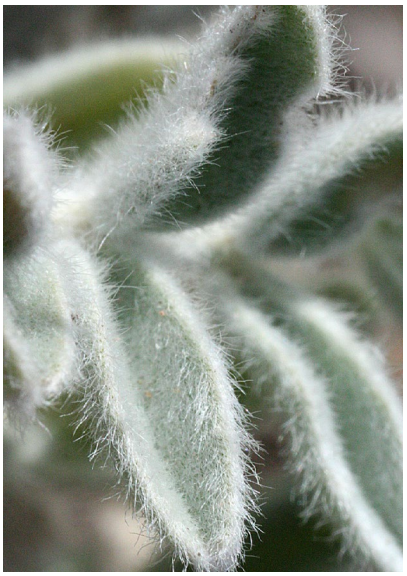
Astragalus allochrous

Dá’ágháliı

Amy Smith Muise

Amy Smith Muise

Amy Smith Muise



Russ Kleinman

Loco, Wooly

Astragalus mollissimus

Ch'ilaghání

Alternative Names:
Patterson loco

Plant Type:
Forb

Flower Color:
Purple

Red

Habitat:
Grasslands

Brushlands

Growing Season:
Warm season

Special Considerations:
! Poisonous

Wooly loco is very silvery in appearance and has relatively large clusters of purple flowers. It is found at lower to middle elevations in fields and dry areas in canyons. It flowers early in the spring and can be found mixed in with ashen milkvetch (*Astragalus tephrodeand)* and rattleweed loco (*Astragalus allochrous*) in disturbed areas.

**Description courtesy of Western New Mexico University's* Vascular Plants of the Gila Wilderness.

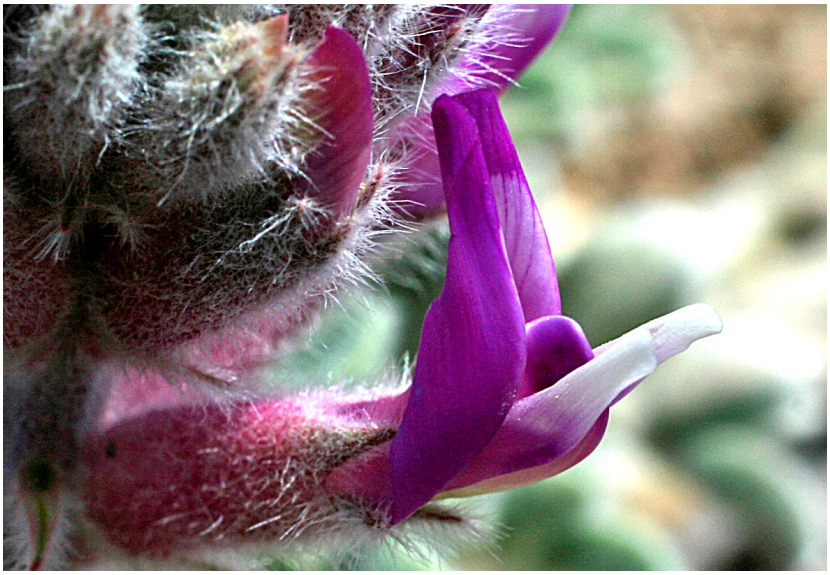
Locoweed species on the Navajo Nation may include:

- *Astragalus amphioxys*
- *Astragalus beathii* (Group 4 Navajo Endangered Species List)
- *Astragalus ceramicus E. Sheldon var ceramicus*
- *Astragalus cronquistii* (Group 3 Navajo Endangered Species List)
  Astragalus cutleri (Group 2 Navajo Endangered Species List)
- *Astragalus heilii* (Group 4 Navajo Endangered Species List)
- *Astragalus humillimus* (Group 2 Navajo Endangered Species List)
- *Astragalus humistratus*
- *Astragalus lonchocarpus*
- *Astragalus lentiginosus Douglas* ex *Hooker var australis Barnely*
- *Astragalus missouriensis*
- *Astragalus mollisium*
  Astragalus naturitensis (Group 3 Navajo Endangered Species List)
- *Astragalus nuttallianus*
- *Astragalus praelongus Sheldon var ellisiae*
- *Oxytropis lambertii*

Loco, Wooly

Astragalus mollissimus

Ch'ilaghání



Russ Kleinman

Russ Kleinman

Kelly Allred

Red Stem Peavine

Astragalus emoryanus

Ch'ilna'át'ó'í

Alternative Names:
Locoweed

Emory's milkvetch

Plant Type:
Forb

Flower Color:
Purple

Habitat:
Brushlands

Grasslands

Piñon-juniper woodland

Growing Season:
Warm season

Special Considerations:
! Toxic to livestock

Red stem peavine has stems in loose mats, leaflets less than ½ inch long, and pods that are straw-colored and falling from the stem, splitting open while on the ground.

The plants are annual or winter-annual, seldom persisting into a second year. The stems spread, forming tangled mats, and flower clusters are spreading or drooping. Stems have 1 to 12 flowers with pink-purple petals. Pods are spreading to drooping, narrow, often curved in a half-moon shape, falling from the stem and splitting open from both ends while on the ground. Pods are ½ to 1 inch long and $\frac{3}{16}$ to $\frac{5}{16}$ inch wide. Flowering March to June, red stem peavine grows in desert grassland, desert scrub, and juniper forest on gravel to clay-loam soils at an elevation of 2,000 to 7,000 feet.

This toxic species is very similar to *Astragalus nuttallianus*, which apparently is not toxic and may provide valuable forage. Not all locoweeds are poisonous or toxic. The main difference between the two is that the pods of *A. nuttallianus* persist on the stem and split open from only the tip while on the stem, whereas the pods of *A. emoryanus* readily fall from the stem and split open from both ends while on the ground. Its principal toxins are nitro-compounds and swainsonine.

Red Stem Peavine

Astragalus emoryanus

Ch'ilna'át'ó'í

Kelly Allred

Kelly Allred

Patrick Alexander

Lupine

Lupinus spp.

Łįįdą́ą́

Alternative Names:
None

Plant Type:
Forb

Flower Color:
Blue

Purple

White

Habitat:
Brushlands

River valleys

Growing Season:
Cool season

Special Considerations:
! Poisonous (sheep and horses)

Lupine is a complex group of erect to ascending forbs, 10 to 24 inches tall, with one to several stems growing from a branching taproot. Flowers are small and spurred at the base.

Lupine is widespread from valley bottoms to high mountain areas. Because this plant is a legume, nodules on its roots form a symbiotic relationship with bacteria that fix nitrogen. It thus aids in building soil fertility.

Lupine is poor forage for cattle and fair for sheep before the legume fruit develops. It provides fair to good forage for elk and deer. Cattle may be attracted to the legumes and graze them selectively. Lupine is poisonous, especially to sheep and horses. Alkaloids are concentrated in the seeds and occasionally in the young plants. Plants are poisonous either green or dry, but poisoning seldom occurs when other forage is adequate. Poisoning can cause blindness within 10 minutes. The most characteristic symptoms of lupine poisoning are: 1) excitement, leading to running about and butting into other objects; 2) convulsions, with accompanying attacks of dyspnea; and 3) heavy and labored breathing. In sheep, symptoms may not appear for 1 to 24 hours after eating the plant. Poisoning can also cause fetus deformities in pregnant animals. Some lupines can cause crooked calf disease if consumed between the 40th and 70th day of gestation.

A drug has been extracted from lupine for management of cardiac arrhythmias.

**Description courtesy of Utah State University's* Range Plants of Utah.

Lupine

Lupinus spp.

Łįįdąą́

Patrick Alexander

Patrick Alexander

Patrick Alexander

Patrick Alexander

Patrick Alexander

Patrick Alexander

Milkweed

Asclepias spp.

Ch'ilabe'é

Alternative Names:
None

Plant Type:
Forb

Flower Color:
Blue

Purple

Green

White

Habitat:
Grasslands

Wastelands

Growing Season:
Warm season

Special Considerations:
❗ Poisonous to livestock

✔ Good insect forage

Milkweed is an important forage plant for monarch butterflies and bees. Numerous milkweeds grow in the southwest United States. Some are native, and others are introduced. The stems and leaves produce a milky sap when broken. The plants grow to heights of about 1 to 3 feet. Their most distinctive feature is the form of the flowers, which are almost orchidlike. After flowering, the plants form a pod filled with white fibers and brown seeds.

Species found in Navajo rangelands include antelopehorn (*Asclepias asperula*) and broadleaf milkweed (*Asclepias latifolia*).

Milkweed

Asclepias spp.

Ch’ilabe’é

Russ Kleinman

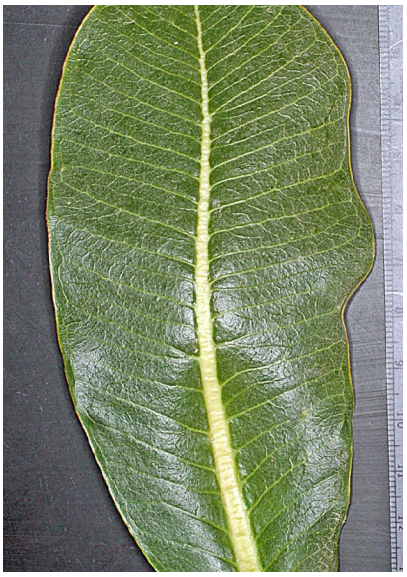
Asclepias latifolia

Russ Kleinman

Asclepias latifolia

Russ Kleinman

Asclepias latifolia



Russ Kleinman

Asclepias latifolia

Russ Kleinman

Asclepias latifolia

Russ Kleinman

Asclepias latifolia

Russ Kleinman

Mullein

Verbascum thapsus

Bįįhyiljáa'í

Alternative Names:
None

Plant Type:
Forb

Flower Color:
Yellow

Habitat:
Wastelands

Growing Season:
Warm season

Special Considerations:
None

Mullein is a tall, unmistakeable plant. The leaves are mostly basal, and can reach very large size. They are woolly. The inflorescence is a long crowded spike of yellow flowers. The stamen filaments are very hairy, and the top of the style is flattened. Mullein grows at lower to middle elevations on dry soil and on roadsides. The branching of the multicellular leaf cilia is quite interesting. The flowers mature into two-chambered, stellate-pubescent capsules partially enclosed by leafy bracts. The capsules initially are green, and then turn brown. After the capsules turn brown, they split open from the pointed apex toward the base revealing hundreds of minute, rugose brown seeds.

**Based on description at Western New Mexico University's* Vascular Plants of the Gila Wilderness.

Mullein

Verbascum thapsus

Bįįhyiljáa'í

Russ Kleinman

Amy Smith Muise

Russ Kleinman

Russ Kleinman

Patrick Alexander

Mustard

Brassica spp.

Oostse’

Alternative Names:
None

Plant Type:
Forb

Flower Color:
Purple

White

Yellow

Habitat:
Grasslands

Ponderosa pine/mixed conifer

Growing Season:
Cool season

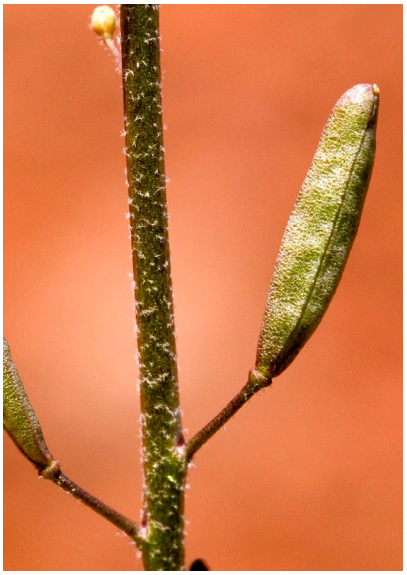
Special Considerations:
! Potentially toxic to livestock

Mustard plants can grow to about three feet in height. Various species from the mustard family can be found in the Navajo Nation. The most common are tansy mustard (*Descurainia pinnata*), which is native to North America, and London rocket (*Sisymbrium irio*), which is introduced. While many members of this family are edible, some, such as tansy mustard, are poisonous to livestock. Most members of the mustard family have yellow or white flowers with four floral parts (petals, stamens, etc.). Many, many species of mustard exist on the Navajo Nation.

Mustard

Brassica spp.

Oostse’



Patrick Alexander

Descurainia pinnata

Patrick Alexander

Descurainia pinnata

Patrick Alexander

Descurainia pinnata

Patrick Alexander

Sisymbrium irio

Patrick Alexander

Sisymbrium irio

Patrick Alexander

Sisymbrium irio

Patrick Alexander

Navajo Tea

Thelesperma megapotamicum

Ch'ilgohwéhí'deí

Alternative Names:
Rayless greenthread

Plant Type:
Forb

Flower Color:
Yellow

Habitat:
Brushlands

Pinon-juniper woodlands

Growing Season:
Warm season

Special Considerations:
⚑ Useful to humans

Navajo tea is native to Arizona, New Mexico, Utah, Colorado, and Nevada up through Idaho. It is a member of the aster family. The plants grow to a height of about one foot. The leaves are primarily basal, thin and long, growing in a tuft. Leaves are smooth in texture. Like other asters, the flowers have outer florets (called ray flowers) and a central disk with tiny flowers (called disk flowers).

Thelesperma subnudum, a close relative of Thelesperma megapotamicum, is also known as Navajo tea.

This plant was traditionally used to make tea and dye. Navajo tea flowers May to September and makes fruit July to September.

Navajo Tea

Thelesperma megapotamicum

Ch’ilgohwéhí’deí

Patrick Alexander

Patrick Alexander

Nick Ashcroft

Thelesperma megapotamicum

Nick Ashcroft

Thelesperma megapotamicum

Patrick Alexander

Patrick Alexander

Navajo Tobacco

Rumex crispus

Dziłnát'oh

Alternative Names:
Curly dock

Plant Type:
Forb

Flower Color:
Green

Yellow

Red

Pink

Brown

Habitat:
Grasslands

Wastelands

Growing Season:
Warm season

Special Considerations:
! Introduced

! Toxic to poultry

Navajo tobacco, is a perennial plant that grows 1½ to 4 feet high, and reproduces by seed. It generally flowers from June to October.

Young seedlings vary in color from entirely green to red tinged in cooler months. Small flowers occur on the upper portion of the stem, and are yellowish-green at first, but become rosy. then reddish-brown. Flowering is delayed by shoot removal.

Seeds are borne in a large, loose, branching cluster, 1½ to 2 feet long at the top of the stems. Leaves are 3 to 12 inches long (or more including the stalk), with noticeably wavy or curly edges. Smooth, fleshy stems die back each fall, and new ones arise each spring. Stems have swollen nodes and are often reddish in color. The plant has a large, deep taproot, yellowish-orange in color.

Common along roadsides and waste places, it is an aggressive weed in permanent pastures, irrigation ditches, and cultivated fields, especially in association with standing water. Seedlings have a low competitive ability and find it difficult to become established in closed vegetation.

Navajo tobacco prefers deep, moist soil. Seeds and vegetation are toxic to poultry and can cause problems for cattle, sheep and horses. It is an alternate host to many crop diseases.

People have used the plant to treat chronic skin complaints such as psoriasis. It can be useful for constipation. It promotes the flow of bile and has been used to treat jaundice.

**Description courtesy of Utah State University's* Range Plants of Utah.

Navajo tobacco

Rumex crispus

Dziłnát'oh

Patrick Alexander

Patrick Alexander

Patrick Alexander

Patrick Alexander

Navajo Wild Carrot

Rumex hymenosepalus

Chaasht'ezhiitsoh

Alternative Names:

Sand dock

Dock root

Canyaigre

Wild rhubarb

Plant Type:

Forb

Flower Color:

Green

Red

Pink

Habitat:

Brushlands

Grasslands

River valleys

Growing Season:

Warm season

Special Considerations:

⚑ Useful to humans

Navajo wild carrot is not a carrot but rather a member of the buckwheat family. It is native to the southwest United States. It is known colloquially as a carrot, perhaps because the root can be used to make a burnt orange dye. Wild carrot has also been used medicinally. The plants grow to a height of three feet and have tall, reddish stems. The leaves are basal, elliptic in shape, and sometimes wavy at the margin. Seeds are reddish-brown. Plants are found on sandy roadsides and fields at lower to middle elevations. The stems are reddish with an interior that is somewhat spongy with airspaces.

Navajo Wild Carrot

Rumex hymenosepalus

Chaasht'ezhiitsoh

Patrick Alexander

Patrick Alexander

Patrick Alexander

Nightshade

Solanum spp.

Ma’iidą́ą́’

Alternative Names:

Silverleaf nightshade

Western horsenettle

Plant Type:

Forb

Flower Color:

Purple

White

Habitat:

Brushlands

Grasslands

Wastelands

Growing Season:

Warm season

Special Considerations:

- ! Toxic to livestock
- ! May cause injury

Nightshades found on the Navajo rangelands include horsenettle and silverleaf nightshade. Both are native species, but are toxic to livestock as well as to humans despite being related to tomatoes, potatoes, and eggplants. The plants rarely grow to a height of more than three feet. The horsenettle has small thorns, which may cause mechanical injury. Flowers have five petals and are shaped like stars. The petals lie relatively flat, allowing the five yellow stamens to stand out.

Nightshade

Solanum spp.

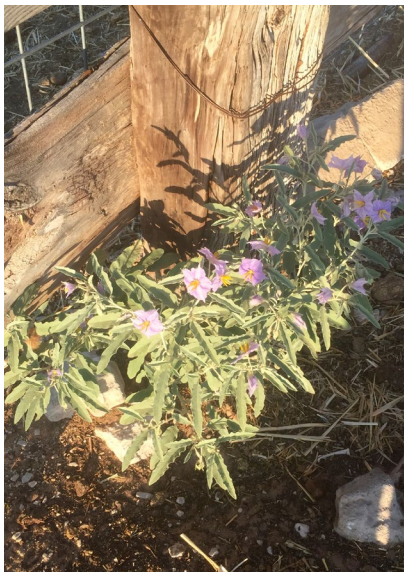
Ma'iidą́ą́'

Patrick Alexander

Patrick Alexander

Solanum elaeagnifolium, silverleaf nightshade

Patrick Alexander



Amy Smith Muise

Solanum elaeagnifolium, silverleaf nightshade

Patrick Alexander

Penstemon

Penstemon spp.

Tsédídéédh

Alternative Names:

Rocky Mountain penstemon

Beardtongue

Formerly *Penstemon strictus*

Plant Type:

Forb

Flower Color:

White

Red

Pink

Purple

Habitat:

Brushlands

Grasslands

Growing Season:

None

Special Considerations:

✔ Good for wildlife

Penstemon species are native to the United States, with different species occupying different geographical areas. The plants are common in the West, where they provide forage for wildlife, particularly deer, antelope, and birds. They are considered of minimal grazing value for livestock, but they provide erosion control and diversity in grass and range ecosystems. Penstemons display a variety of colors, but red, purple, and pink are the most common in the Navajo rangelands. The flowers can be distinguished by their consistent shape, which is tubular with a two-lobed upper lip and a three-lobed lower lip. The flowers have five stamens, four of which are fertile (pollen-bearing). The common name "beardtongue" derives from the fuzz or hair often found on the sterile stamen, though not all species of pentstemon display this trait.

Species of penstemon on the Navajo Endangered Species List: *Penstemon navajoa*, Navajo penstemon (Group 3, Navajo Endangered Species List)

Penstemon

Penstemon spp.

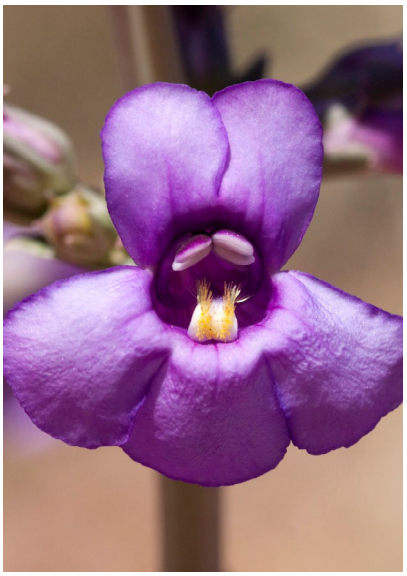
Tsédídéèh

Patrick Alexander

Penstemon thurberi

Patrick Alexander

Hummingbird drinking nectar from *Penstemon barbatus*



Patrick Alexander

Penstemon fendleri

Patrick Alexander

Penstemon fendleri

Max Licher

Pepperweed

Lepidium alyssoides

Os si tsóh

Alternative Names:

Tall whitetop

Giant whiteweed

Perennial pepperweed

Broadleaved pepperweed

Clasping pepperweed

Formerly *Lepidum virginicum*

Plant Type:

Forb

Flower Color:

White

Habitat:

Grasslands

River valleys

Growing Season:

Warm season

Special Considerations:

! Invasive

Pepperweed is a highly invasive non-native herbaceous perennial. It can invade a wide range of habitats including riparian areas, wetlands, marshes, and floodplains. It adapts readily to natural and disturbed wetlands. As it establishes and expands, the plants create large stands that displace native plants and animals.

In addition to impacting alfalfa and pasture production, it has been reported to adversely affect food quality and nesting habitat for native birds.

Pepperweed

Lepidium alyssoides

Os si tsóh

Max Licher

Amy Smith Muise

Jeff Brasher

Amy Smith Muise

Russ Kleinman, Andy Anderson, & Richard Felger

Poison Ivy

Toxicodendron rydbergii

K'ishishjiin

Alternative Names:
None

Plant Type:
Forb

Flower Color:
White

Green

Habitat:
Grasslands

River valleys

Growing Season:
Warm season

Special Considerations:
! Causes rashes

Poison ivy can assume different morphologies depending on its location. The viney growth pattern occurs as it grows over rocks. More commonly, it is erect and few-branched up to a few feet tall with trifoliate, shiny, dentate leaves. Large stands with this morphology occur along creeks and rivers in the area. The flowers are inconspicuous and are in small, axillary clusters. The fruit is a yellow drupe.

Most people have an allergic reaction to poison ivy, becoming sensitized by repeated exposure. The reaction is a contact dermatitis, with a severe form consisting of weeping, open blisters. The more severe reactions require treatment by a physician, while milder ones can be treated with over-the-counter medications. The offending agent in the plant is the chemical urushiol. The appearance of the rash may be delayed by a few days after exposure in some people so that it may be difficult to figure out the cause of the reaction.

**Description courtesy of Western New Mexico University's* Vascular Plants of the Gila Wilderness.

Poison Ivy

Toxicodendron rydbergii

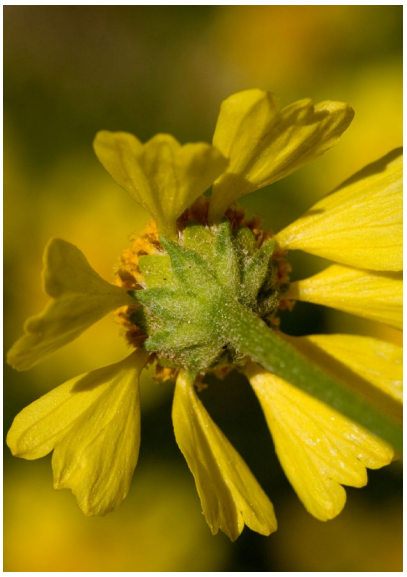
K’ishishjiin

Russ Kleinman

Russ Kleinman

Russ Kleinman

Russ Kleinman



Patrick Alexander

Rubberweed, Bitter

Hymenoxys odorata

Né'éshjaa'yilkee'é

Alternative Names:
None

Plant Type:
Forb

Flower Color:
Yellow

Habitat:
Brushlands

Grasslands

River valleys

Growing Season:
None

Special Considerations:
! Toxic to livestock, particularly sheep

Rubberweed is native to the southwest United States. It grows in a variety of habitats, including rangelands and riverine areas. It is toxic to livestock, particularly sheep. Cattle will eat it when other green feed is not available. Toxicity increases with maturity of the plant. The plants grow to a height of two feet in a moundlike form. Flowers have a diameter of ⅜ to ½ inch. Pingue is similar to rubberweed.

**Description courtesy of Western New Mexico University's* Vascular Plants of the Gila Wilderness.

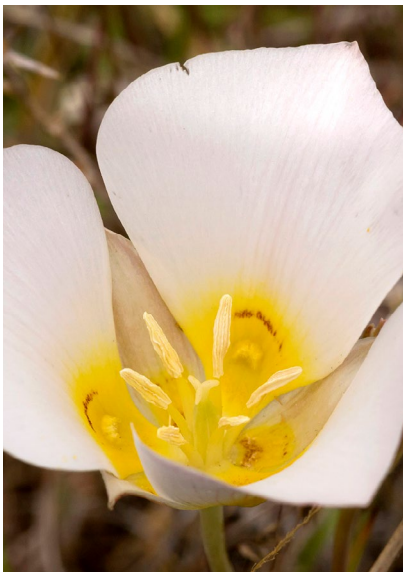
Rubberweed, Bitter

Hymenoxys odorata

Né’éshjaa’yilkee’é

Patrick Alexander

Patrick Alexander



Patrick Alexander

Sego Lily

Calochortus nuttallii

Gáagiibitł'ohchin

Alternative Names:
None

Plant Type:
Forb

Flower Color:
White

Yellow

Habitat:
Ponderosa pine/mixed conifer

Brushlands

Growing Season:
Cool season

Special Considerations:
None

Sego lily is a perennial, native monocot with a single stem and a single, large, terminal flower. This plant is one of the most conspicuous and beautiful early-blooming flowers of the semidesert. They dry up shortly after blossoming. The flower is white with cherry red and yellow markings at the base. Goblet shaped, satiny flowers can be up to three inches across. Fruit is a capsule, which splits open along partitions, with numerous flattened seeds inside. Sego lilies have a few basal, grasslike leaves, and leafy stems. It can be distinguished from death camas (prior to flowering) by the rounded, trough-like cross section of their U-shaped leaves, as opposed to the sharply V-shaped leaves of death camas.

Sego lily occurs on open sagebrush foothills and in valleys, as well as in open ponderosa pine stands at moderate elevations. It thrives on rather dry, sandy soils. The forage value of sego lily is limited, chiefly due to the small amount of herbage and the sparseness of the stands. When eaten, the palatability of the herbage is good for sheep and fair for cattle. Horses do not graze it. The bulbs are eaten, and also gathered and stored by pocket gophers and other rodents.

Edible to humans, the bulb-like roots of sego lily are considered a great delicacy.

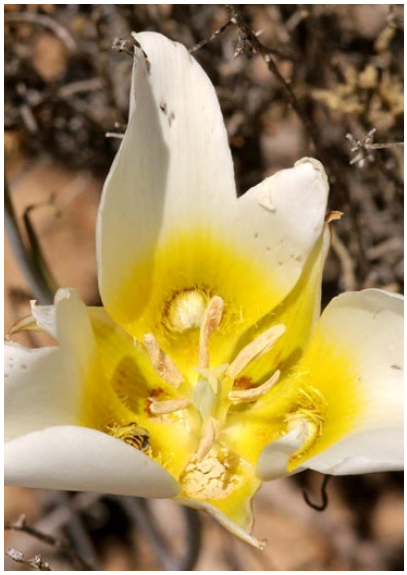
**Description courtesy of Utah State University's* Range Plants of Utah.

Sego Lily

Calochortus nuttallii

Gáagiibitł'ohchin

Patrick Alexander



Patrick Alexander

Patrick Alexander

Patrick Alexander

Senecio

Senecio spp.

Ch'ilbílátahalsoi

Alternative Names:
Ragwort

Groundsel

Plant Type:
Forb

Flower Color:
Yellow

Habitat:
Brushlands

Grasslands

Growing Season:
Warm season

Special Considerations:
! Toxic to humans and livestock

Senecio plants have simple or branched upright growth with leaves alternate on the stem. Flowers are yellow and appear from April to October.

Plants in the genus *Senecio* produce pyrrolizidine alkaloids, which cause liver damage in livestock and humans when these compounds are ingested. Senecio is poisonous to cattle and horses and toxic to humans, such as when plant parts are harvested, either intentionally or unintentionally, for use in herbal teas.

Some *Senecio* species (e.g., *S. vulgaris*) reduce crop yield. Others affect pasture productivity, are poisonous to livestock, or affect native plant communities.

Senecio

Senecio Spp.

Ch’ilbílátahalsoi

Patrick Alexander

Senecio warnockii

Patrick Alexander

Senecio warnockii

Patrick Alexander

Senecio wootonii

Patrick Alexander

Senecio warnockii

Rob Routledge, Sault College, Bugwood.org

Sneezeweed

Helenium autumnale

Nií’ii’nił

Alternative Names:
None

Plant Type:
Forb

Flower Color:
Yellow

Habitat:
Wastelands

Grasslands

Growing Season:
Warm season

Special Considerations:
- ! Potentially toxic to livestock and humans
- ✔ Butterfly forage

Sneezeweed is native to the United States. It is not a significant food source for livestock or large animals, but it does attract butterflies. It can be toxic to livestock (particularly sheep) and humans if consumed in quantity. The plants grow to a height of 4 to 5 feet. Stems are winged. Leaves are hairy. The flower’s center is globular and protruding from the petals or ray flowers. Flower diameter is about two inches, and each of the petals have three lobes. Leaves are lance shaped and about six inches long. The plants grow on roadsides and show a preference for moist soils.

Sneezeweed

Helenium autumnale

Nií'ii'nił

Beverly Turner, Jackson Minnesota, Bugwood.org

Rob Routledge, Sault College, Bugwood.org

Rob Routledge, Sault College, Bugwood.org

Patrick Alexander

Spreading Wallflower

Erysimum repandum

Bist'á azéé tsoh

Alternative Names:
None

Plant Type:
Forb

Flower Color:
Yellow

Habitat:
Grasslands

Growing Season:
Warm season

Special Considerations:
! Noxious

Spreading wallflower was introduced to North America from Europe and has become naturalized. It is a member of the mustard family. It grows in disturbed areas and fields. Flowers of this plant are small and yellow with four petals. Multiple flowers grow on each stem in a terminal cluster. The plant later forms pods 1¼ to 3¼ inch long with seeds.

Spreading Wallflower

Erysimum repandum

Bist'á azéé tsoh

Patrick Alexander

Patrick Alexander

Steve Dewey, Utah State University, Bugwood.org

St. Johnswort

Hypericum perforatum

Biłhaazhch'ih

Alternative Names:
None

Plant Type:
Forb

Flower Color:
Yellow

Habitat:
Grasslands

Growing Season:
Warm season

Special Considerations:

! Toxic to livestock

✔ Pollen source for bees and wasps

Common St. Johnswort is an introduced species that can quickly crowd out other plants in disturbed areas, but does not readily colonize undisturbed areas. It is poisonous to livestock, but it provides a pollen source for wasps and bees. St. Johnswort grows in a variety of dry, sunny habitats, particularly grasslands, rangelands, or areas disturbed by fire. Plants grow to a height of three feet with many flowers on each plant. Flowers are yellow, with five petals, and a diameter of ¾ to 1 inch. Leaves are narrow and oblong.

St. Johnswort

Hypericum perforatum

Biłhaazhch'ih

Norman E. Rees,
USDA Agricultural Research Service

William M. Ciesla,
Forest Health Management Intern

William M. Ciesla,
Forest Health Management Intern

Eric Coombs, Oregon Department of Agriculture, Bugwood.org

Steve Dewey, Utah State University, Bugwood.org

Sulphur Cinquefoil

Potentilla recta

Azee tsoxíí, Chil di tsoxíí

Alternative Names:
Rough-fruited cinquefoil

Plant Type:
Forb

Flower Color:
Yellow

Habitat:
None

Growing Season:
Warm season

Special Considerations:
! Noxious

Sulphur cinquefoil was introduced to North America from Europe. It is considered invasive, and it readily takes to disturbed areas and roadsides. It is similar in appearance to other cinquefoils, growing to about two feet in height. The flowers are approximately ½ to ¾ inch in diameter with five petals. The leaves are palmate, with five to seven elongated leaflets meeting at a central point. Leaf edges are toothed. The plant grows at elevations of up to 5,000 feet.

Sulphur Cinquefoil

Potentilla recta

Azee tsoxíí, Chil di tsoxíí

Montana Statewide Noxious Weed Awareness

Ohio State Weed Lab , The Ohio State University, Bugwood.org

Ohio State Weed Lab, The Ohio State University, Bugwood.org

Steve Dewey, Utah State University, Bugwood.org

Lesley Ingram, Bugwood.org

Sunflower

Helianthus annuus

Nidíyílii

Alternative Names:
None

Plant Type:
Forb

Flower Color:
Yellow

Habitat:
Grasslands

River valleys

Growing Season:
Warm season

Special Considerations:
✔ Food for wildlife and humans

The common sunflower is native to North America, but it has the potential to behave like an invasive, occasionally growing in dense stands. It is grown as a food crop for humans, birds, and other wildlife. It can grow in a range of conditions from roadsides to fields. It grows quite tall, to heights of 3 to 10 feet. The flowerheads are usually 3 to 6 inches in diameter. Leaves are rough in texture with toothed edges. Compared to the giant sunflower, *Helianthus giganteus*, the leaves of this sunflower are more oval shaped.

Other species of sunflower found on the Navajo Nation may include:

Helianthus anomalus

Helianthus maximiliani

Helianthus nuttalii

Helianthus petiolaris

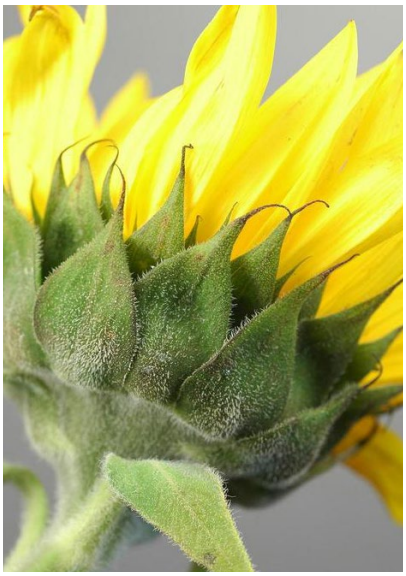
Sunflower

Helianthus annuus

Nidíyílii

Richard Floyd, Creative Ideas LLC, Bugwood.org

William M. Ciesla, Forest Health Management Intern



Julia Scher, Cut Flower Exports of Africa, USDA

Amy Smith Muise

Thistle, Musk

Carduus nutans

Azee'okani'whooshí, Azee'okani'deniní

Alternative Names:
Nodding plumeless thistle

Plant Type:
Forb

Flower Color:
Blue

Purple

Green

Habitat:
Brushlands

Growing Season:
Warm season

Special Considerations:
- ! Invasive
- ! May cause injury
- ! Noxious

Musk thistle is a colony-forming weed, growing up to six feet tall, with a spiny stem and long, fleshy taproot. Musk thistle reproduces solely by seed. Musk thistle invades pasture, range, and forestlands. It is often found on roadsides, waste areas, ditch banks, stream banks and in grain fields. It spreads rapidly, forming extremely dense stands that crowd out desirable forage. Musk thistle is shade intolerant. It is adapted to a broad range of soils, but establishment is best on bare soil. Musk thistle is tolerant of saline and acidic soils and can be a noxious weed. Chemical control is effective. An introduced biological control agent, the musk thistle weevil, feeds on the seeds and can limit the spread of this plant, but will not eliminate it. Musk thistle is not palatable to livestock because of its long sharp spines. Musk thistle does provide a source of nectar for high quality honey.

**Description based on description at Utah State University's* Range Plants of Utah.

Thistle, Musk

Carduus nutans

Azee'okani'whooshí, Azee'okani'deniní

Amy Smith Muise

Amy Smith Muise

Patrick Alexander

Patrick Alexander

Patrick Alexander

Patrick Alexander

Thistle, Canada

Cirsium arvense

Azéé hakaní yázhí

Alternative Names:
None

Plant Type:
Forb

Flower Color:
Blue

Purple

Habitat:
Brushlands

Grasslands

Piñon-juniper woodland

Ponderosa pine/mixed conifer

Growing Season:
Warm season

Special Considerations:
! Noxious

! Invasive

Canada thistle is a non-native, invasive, perennial plant that can be very difficult to kill. Its roots spread aggressively and form dense colonies on roadsides, crop fields, pastures, and rangelands, generally on disturbed ground. It emerges from its root system (or from seed) in the spring and forms rosettes. Flowers occur in groups of one to five, varying in color from white to purple. Individual flowers are about half an inch in diameter. Leaves are bright green and shiny with a hairy undersurface. Canada thistle prefers moist soil but can be found in a variety of soil types, at elevations up to 12,000 feet. Seeds survive in the soil up to 20 years, so it is wise to treat new infestations (with grazing, mowing and/or chemical control) before plants set seed. Pulling up or tilling Canada thistle spreads root fragments that can form new plants. Prevention, by maintaining healthy pastures, riparian areas, and rangelands, is the best control.

Cattle, goats, and sheep will graze on Canada thistle when plants are young.

Species of thistle on the Navajo Endangered Species List: *Cirsium rydbergii*, Rydberg's thistle (Group 4 Navajo Endangered Species List)

Thistle, Canada

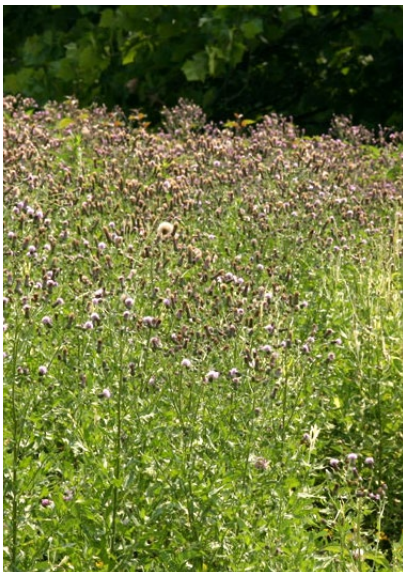
Cirsium arvense

Azéé hakaní yázhí

Udo Schmidt

Patrick Alexander

Patrick Alexander



Patrick Alexander

Superior National Forest

Amy Smith Muise

Thistle, Scotch

Onopordum acanthium

Zéé hókaníił béí, Whosh Waa’

Alternative Names:
Scotch cottonthistle

Plant Type:
Forb

Flower Color:
Purple

Habitat:
Piñon-juniper woodland

Growing Season:
Warm season

Special Considerations:
! Noxious

Scotch thistle is a noxious, biennial weed that grows up to 12 feet tall. It has spiny wings along the stem. The leaves have a grayish appearance due to dense hairs on the surface. Flowers are reddish to violet. Scotch thistle is often associated with waste places and roadways, as well as rivers, streams, canals, or other waterways,

It can also be abundant in dry pastures, fields, and rangeland, and thrives in light, well-drained, and sandy or stony soils.

Thistle, Scotch

Onopordum acanthium

Zéé hókaníił béí, Whosh Waa’

Amy Smith Muise

Leslie J. Mehrhoff, University of Connecticut, Bugwood.org

Lesley Ingram, Bugwood.org

Leslie J. Mehrhoff, University of Connecticut, Bugwood.org

Leslie J. Mehrhoff, University of Connecticut, Bugwood.org

Leslie J. Mehrhoff, University of Connecticut, Bugwood.org

Nick Ashcroft

Tumbleweed

Salsola tragus

Ch'ildeeníní

Alternative Names:

Russian thistle

Prickly Russian thistle

Slender thistle

Formerly *Salsola kali*

Plant Type:

Forb

Flower Color:

Blue

Purple

White

Habitat:

Brushlands

Grasslands

Wastelands

Growing Season:

Warm season

Special Considerations:

- ! Sign of unhealthy rangeland
- ! May cause injury

Russian thistle (*Salsola tragus*), barbwire Russian thistle (*Salsola paulsenii*), and spineless Russian thistle (*Salsola collinea*) are common annual weeds found in the southwestern United States. These plants are problematic in a wide range of areas, including agricultural, roadside, pasture, urban, and residential areas. They increase fire hazard and thrive in areas of high disturbance. Prevention or reduction of disturbance is critical in preventing establishment of these weeds!

Russian thistle grows from 1 to 3 feet tall. Its branched and rounded shape means it can be up to five feet wide. Found on nearly all soil types, it is salt resistant and grows on alkali soils. Russian thistle provides fair forage for cattle and sheep in the early spring, when leaves are soft and succulent, becoming worthless with maturity because of the sharp-pointed leaves. If it turns black at maturity and is softened by moisture it is good winter feed. Livestock can suffer injury from the leaves, which may accumulate nitrates, and may contain oxalates. It is an indicator of overused and unhealthy rangeland. It does not compete well with other plant species. When the plant is mature, it breaks off at the base and blows away, hence the name "tumbleweed." This is how the seed is spread.

Young shoots of Russian thistle can be used as a potherb and seeds can be ground into meal. Russian thistle is sometimes harvested for hay and silage.

Tumbleweed

Salsola tragus

Ch'ildeeníní

Patrick Alexander

Nick Ashcroft

Salsola nigra

Patrick Alexander

Patrick Alexander

Mary Ellen (Mel) Harte, Bugwood.org

Water Hemlock

Cicuta douglasii

Shashdáá’

Alternative Names:
None

Plant Type:
Forb

Flower Color:
White

Habitat:
River valleys

Growing Season:
Cool season

Special Considerations:
! Poisonous, especially its roots

Water hemlock is an erect forb, growing 3 to 7 feet tall, usually swollen at the base. The stem has cross partitions at the base. Roots also have partitions inside, and a musky odor. It begins growth in the spring, and flowers in late spring and early summer. Reproduction is by seed and tuber branching. Flowers are small, white, and grouped in umbrella-shaped clusters.

The fruit is kidney-shaped, tea-colored, with corky ridges. Leaves are alternate, narrow to broadly lance-shaped, with toothed margins. A distinguishing characteristic is that the veins in the leaf run to the notches between the teeth.

Water hemlock is a wetland plant and is especially common in pastures or untilled areas. It is found along mountain streams and valley ditch banks.

It occurs on wet, fertile soils at the water’s edge. It is most common in deep loams, clay loams, or clays. Associated species include Nebraska sedge, redtop, bulrush, and timothy.

Water hemlock contains highly poisonous alkaloids. The roots are the most toxic part of the plant. When roots become exposed and are eaten by livestock, death occurs in 1 to 12 hours. The leaves and stems lose most of their toxicity as they mature. Sheep do not seem to be as affected as cattle. Symptoms of poisoning include muscle twitch, rapid pulse, rapid breathing, tremors, convulsions, excessive salivation or frothing at the mouth, and dilation of the pupils.

**Description courtesy of Utah State University’s* Range Plants of Utah.

Water Hemlock

Cicuta douglasii

Shashdáá'

Mary Ellen (Mel) Harte, Bugwood.org

Mary Ellen (Mel) Harte, Bugwood.org

Mary Ellen (Mel) Harte, Bugwood.org

Mary Ellen (Mel) Harte, Bugwood.org

Patrick Alexander

Western Yarrow

Achillea lanulosa

Tééhch'íhóózhood

Alternative Names:
Wooly yarrow

Plant Type:
Forb

Flower Color:
White

Habitat:
Brushlands

Growing Season:
Warm season

Special Considerations:
✔ Wildlife and livestock forage

Western yarrow is a native, herbaceous perennial in the aster family. It is a very common wildflower that grows erect from creeping rootstocks, to a height of 10 to 36 inches.

Western yarrow is a food source for bighorn sheep, pronghorn antelope, and deer. Sage grouse (especially chicks) and other upland birds rely heavily on the foliage of western yarrow as a food source. Domestic sheep and goats derive a fair amount of forage value from western yarrow, while cattle and horses mostly graze the flowerhead. The volatile oils, alkaloids, and glycosides are considered toxic, but the plant is seldom overgrazed by foraging animals. Western yarrow has been used as a tea to cure stomach ailments, a poultice on infected wounds, and as a mosquito repellent.

Patrick Alexander

Patrick Alexander

Whitetop

Lepidium draba

Chil bi la t'ahłigaí

Alternative Names:
Hoary cress

Formerly *Cardaria draba*

Plant Type:
Forb

Flower Color:
White

Habitat:
Grasslands

River valleys

Growing Season:
Warm season

Special Considerations:
! Invasive

Whitetop was introduced to North America from Europe and Asia, and is now a widespread invasive. It grows in a wide variety of habitats and can infiltrate grazing lands. It can grow to be two feet tall and has grayish-green leaves and clustered white flowers with four petals.

Whitetop

Lepidium draba

Chil bi la t'ahłigaí

Patrick Alexander

Patrick Alexander

Russ Kleinman

Russ Kleinman

Patrick Alexander

Wooly Indian Wheat

Plantago patagonica

Azee'haatł'inii

Alternative Names:
None

Plant Type:
Forb

Habitat:
Brushlands

Grasslands

Growing Season:
Warm season

Special Considerations:
None

Wooly Indian wheat is the only member of this family which is found away from disturbed areas and in the wilderness. It is fuzzy and gray in appearance, as opposed to the bright green appearance of *Plantago major* and *Plantago lanceolata*, both of which require considerably more water to survive. *Plantago patagonica* can achieve the same size as the other two species, but more commonly it is quite a bit smaller.

**Description courtesy of Western New Mexico University's* Vascular Plants of the Gila Wilderness.

Wooly Indian Wheat

Plantago patagonica

Azee’haatł’inii

Patrick Alexander

Patrick Alexander

Patrick Alexander

Patrick Alexander

H. Zell [GFDL or CC BY-SA 3.0], from Wikimedia Commons

Wormsweed

Dysphania ambrosioides

Tsé’ázhiih

Alternative Names:
Epazote

Plant Type:
Forb

Flower Color:
Green

Habitat:
Wastelands

Growing Season:
Warm season

Special Considerations:
✔ Edible

Wormsweed is not native, but has become naturalized. It is commonly known as epazote, and it is used in Mexican, Central American, and South American cuisine. It grows in disturbed areas. The plant can grow to be four feet tall. The leaves vary in shape, from ovate to lancelike, and can have small to deep serrations on the leaf edges. The small green flowers occur in clusters, and later form red-brown seeds.

Forest & Kim Starr [CC BY 3.0], via Wikimedia Commons

Forest & Kim Starr [CC BY 3.0], via Wikimedia Commons

Matt Lavin

Cholla

Cylindropuntia spp.

Hoshdítsáhii

Alternative Names:
Walking stick cholla

Cane cholla

Plant Type:
Cactus

Flower Color:
Purple

Habitat:
Grasslands

Wastelands

Growing Season:
Warm season

Special Considerations:
! Causes injury

Cholla is a tree-like plant growing to eight feet tall with cylindrical joints and branching stems with numerous one-inch spines. Flowers mature into yellow fruit which drops to the ground when ripe, producing new plants. Cholla also can reproduce from terminal joints that fall to the ground and root when moisture is available.

Cholla often becomes a problem on rangeland when the grass cover is depleted by drought and over utilization. After establishment, the cactus encroaches upon valuable range until dense thickets develop. These thickets hinder livestock operations and compete with needed forage for moisture and nutrients. Cows may develop a cholla-eating habit, especially when pastured among thick stands.

Cholla species found on the Navajo Nation may include:

Cylindropuntia versicolor

Cylindropuntia imbricata

Cylindropuntia whipplei

Cholla

Cholla spp.

Hoshdítsáhii

Amy Smith Muise

Matt Lavin

Cholla browsed by cattle.

Ken Gishi

Amy Smith Muise

Patrick Alexander

Prickly Pear

Opuntia spp.

Hoshniteelí

Alternative Names:
Plains prickly pear

Opuntia phaeacantha

Plant Type:
Cactus

Flower Color:
Purple

Pink

Yellow

Habitat:
Brushlands

Grasslands

Piñon-juniper woodland

Ponderosa pine/mixed conifer

Wastelands

Growing Season:
Cool season

Special Considerations:
! Potentially invasive

✔ Forage for wildlife

Prickly pears produce familiar pink-red fruits and pads, both very thorny. These plants provide shelter for wildlife, but may become invasive on rangelands because livestock do not find them highly palatable.

The plants are mainly 1 to 2 feet tall and can spread into wide colonies by layering and sprouting from fallen segments. The flowers are large, with numerous yellow, and sometimes pink or violet petals. Prickly pear may displace desirable vegetation if not properly managed. It is often a problem on overgrazed rangeland. The spines of prickly pear make it and other desirable vegetation growing underneath unavailable to livestock. However, it is palatable to livestock once the spines are removed.

Species that grow in or near Navajo rangelands include:

Opuntia polyacantha, the plains prickly pear, which provides protection and cover for small wildlife.

Opuntia chlorotica, pancake prickly pear or clockface prickly pear, which has a trunk like a tree.

Opuntia engelmannii, Engelmann prickly pear, which has larger paddles than other species.

Opuntia macrocentra, purple prickly pear.

Opuntia phaeacantha, brown-spined prickly pear, which grows in a sprawling formation along the ground.

Opuntia pottsii, Pott's prickly pear, whose fruits appear elongated compared to other species.

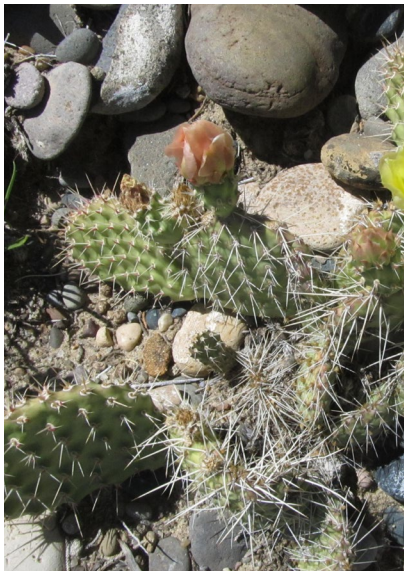
Prickly Pear

Opuntia spp.

Hoshniteelí

Patrick Alexander

O. phaecantha and *O. polyacantha* are very common on the Nation



Nick Ashcroft

Opuntia macrorhiza

Patrick Alexander

Nick Ashcroft

Opuntia macrorhiza

Nick Ashcroft

Yucca

Yucca spp.

Tsá'ászeh

Alternative Names:

Banana yucca (one species)

Narrowleaf yucca (another species)

Yucca angustissima

Yucca baccata

Plant Type:

Cactus

Flower Color:

White

Yellow

Habitat:

Brushlands

Wastelands

Growing Season:

Cool season

Special Considerations:

✔ Edible stalks, buds, flowers

✔ Edible fruit (some species)

Yuccas are deep rooted and long lived, with individual plants living hundreds of years. Leaves stand out protectively and are armed with sharp points. Most have loose, thread-like fibers that curl from their edges.

Flowers produced in May and June are highly palatable and used by livestock and wildlife.

Yucca has diverse uses. Stalks, buds, flowers, and some fruits have served as food. Roots can be used for soap and as a laxative, and leaf fibers can be used as cordage, weaving material, and to make sandals.

The fruits of banana yucca are fleshy and succulent, roughly like short, fat, green bananas. (Most other yuccas have dry, hard fruits.) Banana yucca fruits are traditional foods. They are prepared by roasting or baking, stripping out the seeds, pounding the remaining flesh into a pulp, forming the pulp into flat cakes, and sun-drying for later use. The resulting product is nutritious, sweet, and delicious. The fruits are often picked before maturity and ripened off the plant to keep wildlife from eating them.

Yucca

Yucca spp.

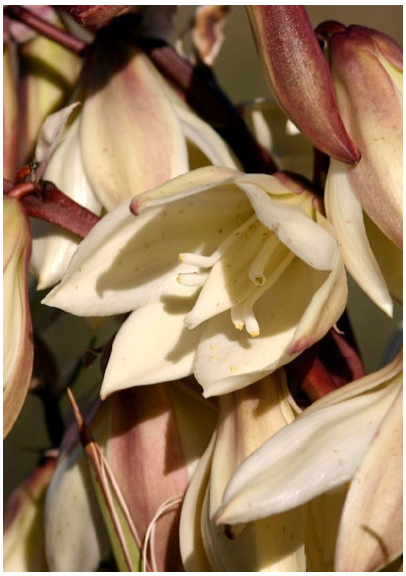
Tsá'ászeh

Patrick Alexander

Patrick Alexander

Yucca baccata

Patrick Alexander



Patrick Alexander

Nick Ashcroft

Yucca baileyi

Yucca baileyi

Russ Kleinman, Bill Norris & Mark Donnell

Alder

Alnus spp.

K'ish

Alternative Names:
Arizona alder

Plant Type:
Tree

Flower Color:
Green

Red

Pink

Habitat:
River valleys

Growing Season:
Warm season

Special Considerations:
None

Alder is usually a streambank tree, although it can also grow as a large shrub. The leaves are simple, doubly serrate, and heavy-veined. The male flowers are structured in catkins and the female flowers are surrounded by bracts which harden into a woody remnant (called by some an ament, and by others a strobilus) which resembles a small cone. The young branches can be longitudinally ridged.

**Description courtesy of Western New Mexico University's* Vascular Plants of the Gila Wilderness.

Alder

Alnus spp.

K’ish

Russ Kleinman

Russ Kleinman

Russ Kleinman

Russ Kleinman, Bill Norris, Scott Zager, Maggie Knox, Leith Young, & Bonnie Arfsten

Amy Smith Muise

Colorado Piñon

Pinus edulis

Chá'oł

Alternative Names:
Piñon pine

Common pinyon

Twoneedle pinyon

Colorado pinyon

Plant Type:
Tree

Flower Color:
Green

Habitat:
Piñon-juniper woodland

Growing Season:
None

Special Considerations:
✔ Provides wildlife forage

Colorado piñon often grows as a low, bushy tree with an irregularly rounded, spreading crown. The trunk is generally short and crooked, with several large, crooked branches. It may grow to 40 inches in diameter. Height is typically 26 to 56 feet. It is a slow-growing, long-lived tree. It can survive more than 500 years and may reach 800 to 1,000 years of age.

Piñon nuts are a preferred food for turkeys, piñon jays, woodrats, bears, and other wildlife, and they are a common food for deer, particularly during harsh winters with deep snows. Piñon ranks first among the native nut trees that are not also cultivated. The nuts are commonly sold and eaten after roasting in the shell, but small quantities are sold raw. They were once a staple food.

Colorado Piñon

Pinus edulis

Chá'oł

Patrick Alexander

Patrick Alexander

Amy Smith Muise

Patrick Alexander

Patrick Alexander

Coyote Willow

Salix exigua

K’ei’łibáhí

Alternative Names:

Sandbar willow

Narrowleaf willow

Plant Type:

Tree

Flower Color:

Yellow

White

Habitat:

River valleys

Growing Season:

Cool season

Special Considerations:

- ✔ Provides wildlife and livestock forage and habitat
- ✔ Provides erosion control

Coyote willow usually forms a thicket with its long, slender stems. It seldom exceeds 15 feet in height, but has been known to reach heights of 26 feet. It reproduces by seed and rhizomes (forming clones). Regeneration may also occur through broken pieces of stems and roots that sprout after being transported and deposited by floodwaters.

It has caterpillar-like catkins, which are long spikes containing many small flowers. The wood is light, soft, and weak, susceptible to decay. Coyote willow occupies banks of major rivers and smaller streams, lakes and ponds, marshy areas, alluvial terraces, and ditches, at elevations from 2,700 to 8,500 feet. It characteristically forms zones immediately adjacent to the water’s edge. Coyote willow may also occur on moist, well-drained benches and bottomlands. It is a pioneer species, one of the first to colonize gravelly and sandy flood deposits. It is also well adapted to continued survival on sites that are regularly flooded. It is an important food source for many wildlife species.

Stands of coyote willow should be maintained because they help stabilize streambanks and protect them from erosion. Once degradation occurs, streambanks may erode rapidly. All willows produce salicin, which chemically is closely related to acetylsalicylic acid, commonly known as aspirin. Various preparations from willows have been used to treat toothache, stomachache, diarrhea, dysentery, and dandruff. Stems have been made into baskets and bows, and the bark into fabric.

**Description courtesy of Utah State University’s* Range Plants of Utah.

Coyote Willow

Salix exigua

K’ei’łibáhí

Patrick Alexander

Patrick Alexander

Brian Muise

Fremont Cottonwood

Populus fremontii

T'iis

Alternative Names:
Rio Grande cottonwood

Valley cottonwood

Plant Type:
Tree

Flower Color:
Green

Yellow

Habitat:
River valleys

Growing Season:
Warm season

Special Considerations:
None

Fremont cottonwood is a native tree growing in riparian areas near streams, rivers, and wetlands. Its height ranges from 40 to 115 feet, and trunk diameter ranges from 1 to 4 feet. The bark is smooth in younger trees, becoming deeply furrowed with whitish, cracked bark with age. The trees bloom from March to April. The wind-dispersed fruit is attached to silky hairs, which gives the appearance of patches of cotton hanging from the limbs, thus the name "cottonwood."

Cottonwood leaves have been used for soothing poultices. Its inner bark provides a source of Vitamin C. Cottonwood often grow from multiple large, spreading trunks.

Fremont Cottonwood

Populus fremontii

T’iis

Amy Smith Muise

Patrick Alexander

Patrick Alexander

Amy Smith Muise

Patrick Alexander

Gambel Oak

Quercus gambelii

Che ch'il

Alternative Names:
None

Plant Type:
Tree

Flower Color:
Green

Yellow

Brown

Habitat:
Ponderosa pine/mixed conifer

Growing Season:
Warm season

Special Considerations:
✔ Acorns are edible

❗ Poisonous to cattle at high dosages

Gambel oak is ecologically important, providing food and shelter for many wildlife species. It occurs as clones of shrubs in dense patches 3 to 20 feet tall, often with a central thicket rising above the others. Widely spaced trees grow up to 75.5 feet tall. Bark of gambel oak is rough and furrowed.

Gambel oak may contribute up to 50% of cattle diet without cattle showing any ill effects, with poisoning occurring at higher percentages, and death often resulting when more than 75% of the diet is gambel oak. Freezing enhances toxic properties of gambel oak browse; young foliage turned black by freezing is extremely toxic.

Patrick Alexander

Patrick Alexander

Juniper

Juniperus spp.

Gad

Alternative Names:
None

Plant Type:
Tree

Flower Color:
Green

Habitat:
Piñon-juniper woodland

Growing Season:
Warm season

Special Considerations:
None

Juniper of several species grow on the Navajo Nation. They are small, native, evergreen trees growing up to 40 feet, often with an irregular crown. The occur in mixed or pure stands of open scrub woodland at elevations of 5,000 to 7,500 feet, often on dry, rocky ridges but also in canyons or on middle-elevation foothills.

Juniper does well in cultivation, is adapted to a wide range of soils and moisture conditions, and is winter hardy, slow growing, and very long lived.

Piñon-juniper woodlands provide good habitat for mule deer, bighorn sheep, bison, wild horses, pronghorns, coyotes, bobcats, badgers, porcupines, rabbits, mice, voles, woodrats, squirrels, and numerous birds. Juniper foliage and berries provide food for many species of birds and mammals, including humans.

Across the West, junipers have expanded their historical range, especially into sagebrush-grass communities below areas of traditional piñon-juniper. Overgrazing, fire suppression, and climatic change have been identified as potential causes of juniper invasion. In the absence of fire or other disturbances, trees eventually dominate a site and crowd out herbaceous and shrub species.

Species found on the Navajo Nation include:

- *Juniperus scopularum* (Rocky Mountain juniper)
- *Juniperus monosperma* (one-seed juniper)
- *Juniperus osterosperma* (Utah juniper).

Juniper

Juniperus spp.

Gad

Patrick Alexander

Patrick Alexander

Patrick Alexander

Patrick Alexander

Mountain Mahogany

Cercocarpus montanus

Tsé'ásdaazii

Alternative Names:
Birchleaf mountain mahogany

Plant Type:
Tree

Flower Color:
White

Yellow

Habitat:
Piñon-juniper woodland

Growing Season:
Warm season

Special Considerations:
- ✔ Provides forage for wildlife and livestock
- ✔ Provides wildlife habitat

Mountain mahogany is a shrub or small tree that grows from 2 to 20 feet tall, with upright or spreading branches. It flowers from May to June, and its fruits mature from July to September. It reproduces from seed and by root sprouts. Seed production is sporadic—the plants go as long as 10 years with no seed production. Mountain mahogany occurs on rocky bluffs, mountainsides, rimrock, breaks, and in canyons and open woodlands. It is common in swales where snow persists during the winter. It grows at elevations between 5,000 and 7,000 feet. It is heat and drought tolerant. It is also somewhat shade tolerant, but grows better without a forest canopy.

It is good to excellent forage for cattle, sheep, and goats. It is a good source of cover for livestock, big game, and many small mammals and birds. It is extremely valuable as winter browse for deer and bighorn sheep.

The twigs are palatable all year long, and are grazed heavily. However, the leaves may contain cyanogenic glycoside, which may cause hydrocyanic poisoning.

Wood from mountain mahogany has been used to make tools and war clubs, and its bark to make a reddish-brown dye for leather.

Mountain Mahogany

Cercocarpus montanus

Tsé’ásdaazii

Patrick Alexander

Patrick Alexander

Patrick Alexander

Ponderosa Pine

Pinus ponderosa

Ńdíshchíí’

Alternative Names:

Big heavy

Black jack

Bull pine

Ponderosa white

Plant Type:

Tree

Flower Color:

Pink

Yellow

Habitat:

Ponderosa pine/mixed conifer

Growing Season:

Warm season

Special Considerations:

✔ Good wildlife forage

❗ Potential danger to cattle

Ponderosa pine is a large, long-lived, native forest tree common throughout the western United States. The height of mature trees ranges from 55 to 90 feet. Ponderosa pine seeds are consumed by a great many birds and small mammals such as mice, chipmunks, and tree squirrels. Snags in the mature pine forest provide a large number of species with nesting and roosting sites. Big game, such as deer and elk, also use the pine forests for food and shelter. Ponderosa pines are fire-adapted and may grow in an open, park-like structure.

When the needles are eaten during gestation, they can cause abortion in cattle.

Ponderosa Pine

Pinus ponderosa

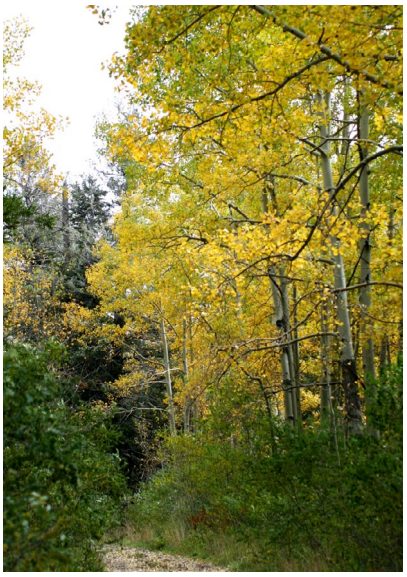
Ńdíshchíí’

Patrick Alexander

Patrick Alexander

Patrick Alexander

Patrick Alexander



Russ Kleinman, Richard Felger, & Carey Anne Laffert

Quaking Aspen

Populus tremuloides

Ts'iisbéii

Alternative Names:
None

Plant Type:
Tree

Flower Color:
Red

Pink

White

Habitat:
Ponderosa pine/mixed conifer

River valleys

Growing Season:
Cool season

Special Considerations:
- ✔ Good forage for sheep
- ✔ Provides watershed protection

Quaking aspen is an attractive deciduous tree, growing up to 40 feet tall. The trunk is generally long and slender, but can be up to nearly three feet in diameter. The leaves change from green to bright yellow or yellowish-orange in the fall. Quaking aspen grows on moist uplands, dry mountainsides, high plateaus, mesas, avalanche chutes, talus, parklands, gentle slopes near valley bottoms, alluvial terraces, and along watercourses. It is most common at elevations between 6,000 and 10,000 feet. Aspens seldom reproduce from seed. Most reproduction of aspen is by basal sprouting or root sprouting, many trees in a grove being connected together by a common root system in what are referred to as "clones." Quaking aspen grows on a range of soils: shallow, rocky soil; deep, loamy sands; and heavy clays. Aspen is good to excellent forage for sheep, and fair for cattle. The twigs, bark, and buds are browsed by wildlife, and birds eat the seeds. Grazing sprouts, especially by cattle and elk, is a growing concern in the maintenance of aspen stands.

Wild and domestic ungulates use quaking aspen for summer shade. Seral quaking aspen communities provide excellent hiding cover for moose, elk, and deer. Deer use quaking aspen stands for fawning grounds. Well-stocked quaking aspen stands provide excellent watershed protection. Aspen bark contains salicin (similar to the active ingredient in aspirin) and traditionally was used internally as an expectorant and externally as a counterirritant.

**Description courtesy of Utah State University's* Range Plants of Utah.

Quaking Aspen

Populus tremuloides

Ts’iisbéií

Russ Kleinman, Bill Norris, & Mark Donnell

Patrick Alexander

Patrick Alexander

Russ Kleinman

Russ Kleinman

Paul Wray, Iowa State University, Bugwood.org

Red Plum

Prunus americana

Didzétsoh dík'ǫ́zhígíí

Alternative Names:
American plum

Plant Type:
Tree

Flower Color:
White

Habitat:
River valleys

Growing Season:
Warm season

Special Considerations:
✔ Edible fruit

Red plum is a shrub or small tree that can form small groves in moist middle elevation creekbeds and riparian areas. The small umbels of flowers bloom in the spring before the plant leafs out. The bark is gray and obviously peeling away on larger trunks. The trunks can be up to 8¼ inches in diameter. The flowers are white, and the petals are about ½ inch long. The leaves are serrate and mostly glabrous.

**Description courtesy of Western New Mexico University's* Vascular Plants of the Gila Wilderness.

Red Plum

Prunus americana

Didzétsoh dík'ǫ́zhígíí

David Stephens, Bugwood.org

T. Davis Sydnor, The Ohio State University, Bugwood.org

T. Davis Sydnor, The Ohio State University, Bugwood.org

William M. Ciesla, Forest Health Management Intern

Nick Ashcroft

Russian Olive

Elaeagnus angustifolia

Tsin łibáhá

Alternative Names:
Silverberry
Oleaster
Wild olive
Persian olive

Plant Type:
Tree

Flower Color:
Yellow

Habitat:
River valleys

Growing Season:
Warm season

Special Considerations:
! Noxious

Russian olive is a shrub or small tree, usually 12 to 45 feet tall. It can grow up to six feet per year. It forms a dense, rounded crown. Near the ground, its branches spread from 10 to 20 feet. Unpruned trees have five or six main stems starting near the ground. The twigs are flexible, coated with a gray, scaly pubescence, and have a thorn at the end. Bark is reddish-brown and thin, with shallow fissures. It exfoliates into long strips.

Russian olive is commonly found growing along floodplains, riverbanks, stream courses, marshes, and irrigation ditches at elevations from 4,500 to 6,000 feet. It is tolerant of considerable amounts of salinity or alkalinity, and can survive considerable droughts. In addition to reproducing from seed, it sprouts from the root crown and sends up suckers. It thrives under a wide range of soil textures, from sand to heavy clay, and withstands flooding and silting. It grows best in deep sandy or loamy soils with only slight salt and alkali content.

Russian olive has no forage value for livestock or big game, although both browse the foliage at times. In general, Russian olive-dominated communities provide inferior wildlife habitat to that of native riparian vegetation. Russian olive rapidly colonizes lowland fields, often chokes irrigation ditches, and damages tires and equipment. Once established, Russian olive is difficult to control and nearly impossible to eradicate. The most effective combination of control efforts is cutting trees, followed by either spraying or burning the stumps.

Russian Olive

Elaeagnus angustifolia

Tsin łibáhá

Amy Smith Muise

Amy Smith Muise

Z. Rauch

Saltcedar

Tamarix spp.

K’eiłichii’its’óóz

Alternative Names:
None

Plant Type:
Tree

Flower Color:
Red

White

Habitat:
River valleys

Growing Season:
Warm season

Special Considerations:
✔ Forage for bees

❗ Invasive

Saltcedar is a perennial, introduced, deciduous tree. It lives 50 to 100 years, and grows 6 to 26 feet tall. Saltcedar has a deep taproot and extensive laterals. It reproduces from seeds, as well as root sprouts. The flowers are white to pink, each 1/16-inch long. They grow in narrow dropping clusters 1 to 2 inches long.

Saltcedar commonly occurs along floodplains, riverbanks, stream courses, salt flats, marshes, and irrigation ditches. It often forms pure thickets that extend for miles. Once established, saltcedar can tolerate both drought and flooding. By shedding its leaves and halting growth, it can withstand lengthy drought periods. It can also survive inundation by water. Saltcedar has a deep taproot that can penetrate the soil to depths of 30 feet or more. It also has extensive laterals. Its dense roots and rhizomes spread out and slow river flow, which increases deposition, and can cause rechanneling of streams and rivers. Leaf drop increases the salinity of the surface soil, causing a white color, thus the name saltcedar.

Saltcedar provides nesting for birds, and is an important pollen source for honeybees. It is also used by blacktailed jackrabbits as a major food source. It is relatively unpalatable to most classes of livestock and wildlife.

Medicinally, saltcedar species have been used to treat stomach troubles, diarrhea, rheumatism, rickets, and as an astringent and antiseptic.

There are two species of saltcedar in the region: *Tamarix ramosissim*a and *Tamarix parviflora*, extremely similar in appearance, and both noxious.

Saltcedar

Tamarix spp.

K’eiłichii’its’óóz

Russ Kleinman & Richard Felger

Tamarix ramosissima

Gerald Moore

Amy Smith Muise

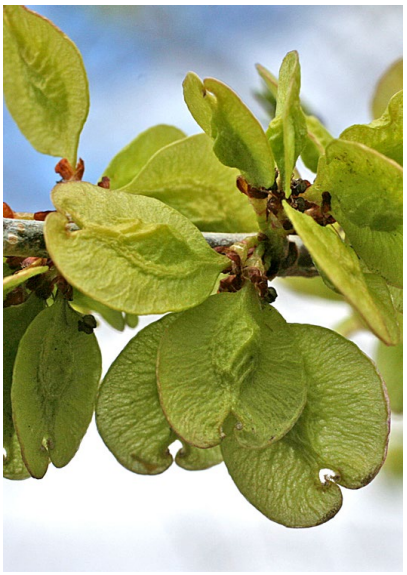
Tamarix ramosissima

Renee Benally

Tamarix ramosissima

Z. Rauch

Tamarix ramosissima



Russ Kleinman

Siberian Elm

Ulmus pumila

Naasts’ósí bit’iis

Alternative Names:
None

Plant Type:
Tree

Flower Color:
Green

Habitat:
River valleys

Growing Season:
Warm season

Special Considerations:
! Noxious

Siberian elm is an introduced, fast-growing tree, from 50 to 70 feet in height. Its leaves are alternate, oblong in shape, 1 to 3 inches long, and usually have serrate (saw-toothed) margins. The flowers are greenish and clustered, with short pedicels. They appear with or before the leaves, from March through April. The bark is a light gray-brown with irregular furrows and is often streaked with stains caused by bacterial wetwood. The fruit, a samara, ripens from April to May, and consists of a dry, compressed nutlet surrounded by a thin, membranous wing.

Siberian Elm

Ulmus pumila

Naasts’ósí bit’iis

Russ Kleinman

Russ Kleinman

Russ Kleinman

Russ Kleinman

Russ Kleinman

Matt Lavin

Subalpine Fir

Abies lasiocarpa subsp. Arizonica

Ch'oh deeníní

Alternative Names:
None

Plant Type:
Tree

Flower Color:
None

Habitat:
Ponderosa pine/mixed conifer

Growing Season:
Year-round

Special Considerations:
None

Subalpine fir is a native, evergreen growing to 65 feet tall. It has a sharp, spire-like crown, the upper several feet of which are often less than 1 foot in diameter. The plants often are reduced to a prostrate shrub on exposed sites near the timberline.

There are several subspecies of subalpine fir, but the one most likely to be seen on the Navajo Nation is *Abies lasiocarpa subsp. Arizonica*. General characteristics of the species are smooth, grayish-white bark with resin blisters. In subspecies Arizonica, the trunk is more likely to have softer, corky bark. The bark becomes furrowed as the tree reaches one foot in diameter. Bark on the branches splits to reveal a reddish-brown layer. The needles are 11/16 to 1 3/16 inches long, flattened, grooved, and a waxy, bluish-green on the upper surface. Needles tend to turn upward so that the foliage of a particular branch appears flattened and as though no leaves were attached to the lower sides of the twigs. The seed cones are 2 3/8 to 4 3/4 inches long and 3/4 to 1 1/2 inches wide. Cones are dark purple, erect, and only on the uppermost branches. The common name refers to the distribution of the species in the subalpine zone.

Subalpine Fir

Abies lasiocarpa subsp, arizonica

Ch’oh deeníní

Bryan Ungard from Santa Fe, New Mexico, USA (DSC_1324) [CC BY-SA 2.0], via Wikimedia Commons

quinn.anya on Flickr (Flickr) [CC BY-SA 2.0], via Wikimedia Commons

Cones of *Abies lasiocarpa* of a different subspecies. Cones of subspecies *arizonica* are similar in appearance.

Russ Kleinman

Tree of Heaven

Ailanthus altissima

T'iis Nattói

Alternative Names:
None

Plant Type:
Tree

Flower Color:
White

Yellow

Habitat:
None

Growing Season:
Warm season

Special Considerations:
! Noxious

Tree of heaven is found in middle elevations growing at the roadside and in nearby swales. It is generally an unwanted interloper. It has pinnately compound leaves which are coarsely dentate. Portions of the tree take on a reddish hue by mid-summer because the samaras become partially red in color. The winter twigs are very thick and light brown, with a light brown pith. There are around 8 or 9 bundle scars in the leaf scars. The buds are hemispheric.

**Description courtesy of Western New Mexico University's* Vascular Plants of the Gila Wilderness.

Tree of Heaven

Ailanthus altissima

T’iis Nattói

Russ Kleinman

Russ Kleinman

Russ Kleinman

Russ Kleinman

Patrick Alexander

Utah Serviceberry

Amelanchier utahensis

Dídzéi dit'odi

Alternative Names:
Shadbush

Sarvis

Juneberry

Plant Type:
Tree

Flower Color:
White

Habitat:
River valleys

Growing Season:
Warm season

Special Considerations:
✔ Edible berries

Utah serviceberry grows as a shrub or small tree, generally 6 to 13 feet tall, with white flowers in spring. Fruits are small, brown or black, apple-like, and edible to humans and animals. Serviceberry provides both forage and fruit for wildlife.

Utah Serviceberry

Amelanchier utahensis

Dídzéi dit'odi

Russ Kleinman

Patrick Alexander

Patrick Alexander

Russ Kleinman

Stan Shebs [GFDL, CC BY-SA 3.0 or CC BY-SA 2.5], from Wikimedia Commons

Water Birch

Betula occidentalis

K’ishchíí

Alternative Names:
Rocky Mountain birch

Plant Type:
Tree

Flower Color:
Green

Yellow

Habitat:
River valleys

Growing Season:
Warm season

Special Considerations:
✔ Stabilizes streambanks

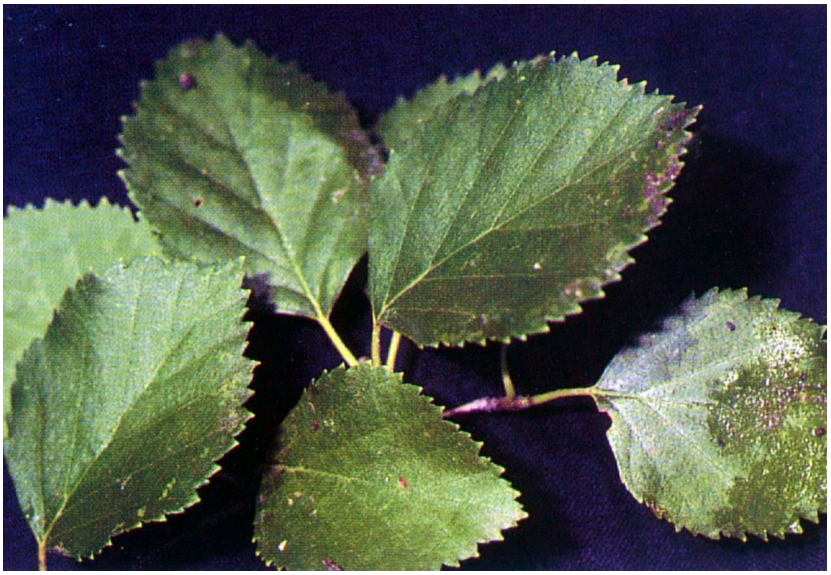
✔ Provides wildlife habitat

Water birch is native to western North America. It is an important species for streambank stabilization and wildlife habitat. It grows along streams and in wet canyon bottoms, where it is frequently found with cottonwoods, alders, willows, and other water-loving plants. This is a small tree distinguished by catkins hanging from its twigs in the spring and by its rough, reddish-brown bark patterned with small lines called lenticels. The leaves are dark green and glossy through the growing season. The leaves are ovate with dentate edges.

Water Birch

Betula occidentalis

K’ishchíí



Robert H. Mohlenbrock (USDA NRCS Plants Profile: Betula occidentalis) [Public domain], via Wikimedia Commons

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Patrick Alexander

Horsetail

Equisetum arvense

Ch’ilabe’éts’óóz

Alternative Names:
None

Plant Type:
Other

Flower Color:
None

Habitat:
Grasslands

River valleys

Growing Season:
Cool season

Special Considerations:
! Can poison horses in hay

Horsetail has aerial, jointed stems, which occur in two different forms: A single, simple, cone-bearing stem grows in early spring, and a vegetative, non fertile stem grows after the first. This second stem has many whorls of slender, green-jointed branches. Roots are tuber-bearing and rhizomatous.Horsetail lacks flowers, but has a single cone, ¾ to 1½ inches long. It reproduces by spores, which look like a light yellow powder. Leaves are small and scale-like, often not green, whorled, and united at the base to form a sheath around the stem.

Horsetail occurs in woods, fields, meadows and swamps, and moist soils alongside streams, rivers, and lakes, and in disturbed areas. It usually occurs on moist sites but can also be found on dry and barren sites such as roadsides, borrow pits, and railway embankments. Horsetail is sensitive to moisture stress; drought conditions result in a reduction in the production of new shoots. Associated species include rushes and sedges.

Horsetail is not an important range forage for livestock, and excessive amounts (more than 20%) in hay can cause scours, paralysis, and death in horses. Usually animals avoid the plant.

Horsetail has been used as a cough medicine for horses and as a diuretic tea. It has been made into dyes for clothing. The stems of the plant can be used for scouring and polishing. The young shoots can be eaten either cooked or raw.

Horsetail

Equisetum arvense

Ch’ilabe’éts’óóz

Mary Ellen (Mel) Harte, Bugwood.org

Mary Ellen (Mel) Harte, Bugwood.org

Patrick Alexander

Mary Ellen (Mel) Harte, Bugwood.org

Patrick Alexander

Matt Lavin

Horsetail, Smooth

Equisetum laevigatum

Ch’ilabe’éts’óóz

Alternative Names:
None

Plant Type:
Other

Flower Color:
None

Habitat:
River valleys

Growing Season:
Year-round

Special Considerations:
None

Smooth horsetail is a native cryptogam, a plant that reproduces without flowers or seeds. Horsetail prefers moist and sandy soil. The stems reach heights from 1 to 6 feet and have one dark band near the tip. The round-tipped cone at the top of the stem is yellow with varying amounts of black.

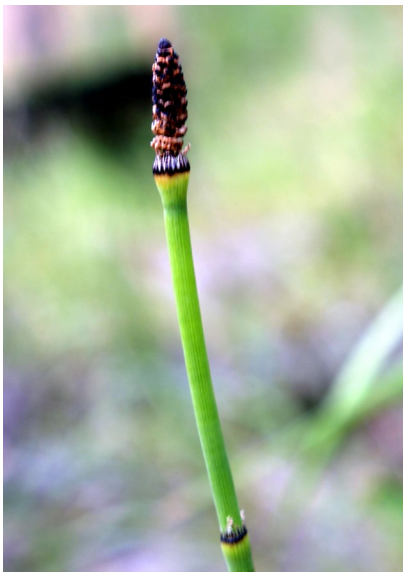
Horsetail, Smooth

Equisetum laevigatum

Ch'ilabe'éts'óóz

Matt Lavin

Matt Lavin



Jim Pisarowicz - http://www.nps.gov/wica/photos

Amy Smith Muise

Lichen

Lichen

Ni’hadlǿǿd

Alternative Names:
None

Plant Type:
None

These aren’t actually plants!

Flower Color:
Green

Red

Pink

White

Habitat:
None

Growing Season:
Year-round

Special Considerations:
✔ Good for wildlife

Lichens are not a single organism but rather a symbiotic organism composed of fungi and algae. Lichens grow in a wide variety of habitats including on trees, on rocks, and in the soil. They have the ability to absorb a great deal of moisture. They fulfill a vital ecosystem function because they have the ability to gather atmospheric nitrogen and convert it into a form that plants can use. This is particularly important in the desert where there is very little nitrogen available to plants. Lichens also slowly break down rocks to create soil. Lastly, lichens do not thrive in situations with environmental pollution, and they are therefore an indicator of pollution levels. Both wildlife and humans use lichens. Deer browse on lichens, and birds use lichens as nesting material. Humans eat some lichens and also use them for dye. Lichens display diverse colors and morphology, filling the spectrum from black to red to white. Lichens can be flat or crusty or scaly. Some even grow in the form of tiny shrubs.

Lichen

Lichen

Ni’hadláád

Amy Smith Muise

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Amy Smith Muise

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Glossary

Navajo Nation/Diné Bikéyah

Covers 27,425 square miles in northeastern Arizona, southeastern Utah, and northwestern New Mexico.

Navajo people have strong family bonds and enjoy a rich cultural, spiritual, and daily life, often based on small-scale farming and ranching. These human strengths, traditional lifestyles, knowledge, values, and resources are the foundation of the Navajo people (Diné).

Rangeland

Open country or woodland used for grazing animals.

Official definition from USDA APHIS

Any plant or plant product that can directly or indirectly injure or cause damage to crops, livestock, poultry or other interests of agriculture, irrigation, navigation, the natural resources of the United States, the public health, or the environment.

For more information about introduced, invasive, and noxious plants of the U.S.:

Https://plants.usda.gov/java/noxiousDriver#invasive

Toxic/Poisonous

When eaten or touched, may cause harm or death.

A poisonous or toxic plant may be harmful or fatal to some animals and not to others, or it may be harmful only at certain quantities or when eaten in combination with certain other plants. Some are only toxic at certain times of the year or at a certain growing stage of the plant. Stress from drought, freezing, or physical damage can also sometimes cause certain plants to be poisonous.

Introduced

A plant growing outside its historical range.

Invasive

A plant that tends to spread beyond its historical range, often in response to disturbance.

Noxious

A plant that is particularly troublesome.

Annual plants

A plant that lives for one year, during which it completes its life cycle.

Biennial plants

A plant that grows for two years, producing its fruit and seed in the second year.

Perennial plants

A plant that lives for three years or more. This includes plants that live just a few years and those that live many, many years.

Habitat Types

Brushlands

Dominated by shrubs and bushes, such as sagebrush, four-winged saltbush, blackbrush, greasewood, etc.

Grasslands

Mainly grassy; may include occasional shrubs, bushes, trees, or cacti.

Piñon-Juniper Woodland

Patchy forested area of mainly shorter trees. May also include shrubs and grasses.

Ponderosa Pine / Mixed Conifer

Fully developed forest dominated by tall trees. May also include shrubs and grasses.

Habitat Types: *(continued)*

River Valley

Area around a watercourse, which may include sections dominated by grasses, trees, shrubs, or wetland plants.

Wastelands

Barren or disturbed areas of sparse or weedy vegetation; may include previously cultivated land.

Cool Season Plants

Plants which begin growth early in the spring and make most of their growth during the cool weather of spring and early fall. Examples are western wheatgrass and Indian ricegrass.

Warm Season Plants

Plants which begin growth and make most of their growth during the hot summer months. Examples are blue grama and sand dropseed.

Plant Terms

Stem

Supports a plant above ground and connects roots to leaves.

Node

Growth point along a plant's stem, often where a leaf stalk connects.

Prostrate

A plant whose branches lie directly on the ground or just above it.

Upright

A plant that grows more or less vertically.

Rhizomes

Underground stems that put out shoots and roots.

Stolons

Creeping stems that can root into the ground.

Navajo Endangered Species List Definitions

From the Navajo Nation Division of Natural Resources Department of Fish and Wildlife

Group 1:

Those species or subspecies that no longer occur on the Navajo Nation.

GROUP 2 (G2) & GROUP 3 (G3):

"Endangered" - Any species or subspecies whose prospects of survival or recruitment within the Navajo Nation are in jeopardy or are likely within the foreseeable future to become so.

G2: A species or subspecies whose prospects of survival or recruitment are in jeopardy.

G3: A species or subspecies whose prospects of survival or recruitment are likely to be in jeopardy in the foreseeable future.

Group 4:

Any species or subspecies for which the Navajo Nation Department of Fish and Wildlife (NNDFW) does not currently have sufficient information to support their being listed in G2 or G3 but has reason to consider them. The NNDFWL will actively seek information on these species to determine if they warrant inclusion in a different group or removal from the list.

Related to stems:

Alternate: Arrangement of leaves on stems where one leaf or stem forms at one node and the next from another node on the other side of the stem.

Basal: Growth emerges from the base of the plant.

Opposite: Arrangements where two plant stems or leaves form at the same node on opposite sides of the stem.

Related to stems: *(continued)*

Whorled: Arrangement where three or more stems or leaves are clustered around the same node.

Related to leaves:

Compound: a leaf that is actually made up of leaflets joined together.

Dentate: toothed.

Leaflet: a small leaflike structure that is actually part of a larger unit called a compound leaf.

Lobed: (of a leaf) having rounded sections.

Lanceolate: (of a leaf's shape) long and narrow, but wider in the middle.

Linear: long and very narrow.

Margin: the outer edge of a leaf.

Palmate: palm shaped with lobes or leaflets radiating from a central point.

Palmately compound: a leaf composed of leaflets that radiate from a central point.

Palmately lobed: having rounded sections that radiate from a central point at the base of the leaf.

Pinnately lobed: having rounded sections that are arranged along the central axis of the leaf.

Serrate: much like being toothed except that the teeth all face in a particular direction.

Simple: describes a leaf that is not divided into leaflets. What most people think of as a leaf is a simple leaf.

Oblong: almost like a rectangle but with rounded edges.

Ovate: egg-shaped with the wider part of the leaf near where it joins the stem.

Tomentose: having dense, velvety, fuzzy hairs

Related to grasses:

Bunchgrass: grass with a compact (clumping), rather than spreading, growth habit.

Culms: stems or stalks of grasses and sedges, usually hollow and jointed.

Floret: just like other plants, grasses have flowers called florets, which are very small and inconspicuous. They later turn into individual seeds.

Glabrous: having a smooth surface

Glumes: bracts (see definition for bracts under flower) around the spikelet.

Inflorescence: refers to the entire portion of the grass that bears flowers or seeds. In some cases, the inflorescence is small. In other cases, quite large. For a good example of the latter, see the entry on Uruguayan pampas grass.

Panicle: a grass seedhead that has a very branched structure: a main stem with branches that in turn have smaller stalks (spikelets) with seeds on each stalk.

Pubescent: covered with fine hairs

Raceme: a central stalk with small branches with spikelets attached to them.

Rachis: shaft or stem.

Spike: a grass seedhead where the spikelets are directly attached to the main stem.

Spikelet: grass flowers and seeds are arranged along stems ranging in size and location in the plant's overall structure. A spikelet is something like a twig in relation to a tree. It is a very small "stem" that provides an axis along which flowers grow.

Tillers: new shoots that spring up off of stolons.

Related to flowers:

Anther: the part of the stamen that contains the pollen; it usually has the appearance of an oval, yellow sac or ball.

Bract: a leaflike structure at the base of a flower. Bracts differ from sepals because they are attached directly to the stem, and they are separate from the flower or inflorescence.

involucre: a whorl of bracts at the base of a flower; involucres are quite noticeable in sunflowers and other members of the aster family.

Pistil: female part of a flower that receives pollen.

Sepal: sepals can often be confused with bracts because they also can be leaflike, and they enclose the petals of a flower. Sepals are particularly noticeable on roses because they come up to cup the flower.

Stamen: male part of the flower comprising a filament (like a little stem) with a large amount of pollen at the end of it.

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Special Considerations