

Welcome to the Centennial Nature Trail

This half mile trail runs from the hillside just south of the McPherson Chapel on the Fort Lewis College campus to the corner of East Tenth Street and Sixth Avenue. You may start at either end. The trail is a community service project of the Fort Lewis College Foundation and Faculty, the City of Durango, Durango Rotary Club, the San Juan/Four Corners Native Plant Society, and many individuals.

THE PLANT COMMUNITY

The Centennial Nature Trail passes through a transition zone between the Piñon-Juniper Forest and the Mountain Shrub Community and thus you will find a mixture of trees, shrubs, and non-woody (herbaceous) species. Along the Trail, the Piñon-Juniper Forest is best developed on drier, warmer south-facing slopes; the Mountain Shrub Community is best developed on cooler, moister north-facing slopes. Both communities stabilize the steep slopes and provide cover and food for many animals. The Mountain Shrub Community is especially important in providing nutritious browse for deer and elk. The plants of both communities grow very slowly and do not recover quickly from damage such as erosion or human trampling.

From the Centennial Nature Trail you also can see toward the semi-desert plant community to the south of Durango, the foothill and montane plant community that starts at Durango and continues west and north, and the alpine community at the top of the high peaks to the west. We hope you are able to visit and enjoy the plants of all these communities; they deserve our appreciation and protection.

PLEASE LEAVE THIS TRAIL GUIDE IN THE BROCHURE BOX AND PLEASE STAY ON THE TRAIL

Common names of plants vary widely; the names used in this Nature Trail brochure are those most commonly heard in southwest Colorado. Scientific names are in accord with the Floristic Synthesis of North America. Brochure revised 2013. Printing donated by Basin Printing. For further information and updates see www.durangogov.org

EXHIBIT A Russian Olive (*Eleagnus angustifolia*) Oleaster Family (Elaeagnaceae)

- Visible to the left of the evergreen Juniper. Invasive tree to 50 feet tall; alternate branching; spines on older branches
- Not related to true olives
- Flowers tiny, very sweet smelling, yellow, through June
- Fruits ~1/2", pale green, olive-shaped; feasted on by birds
- Leaves pale gray-green, long, and narrow. Bark red/brown, in vertical strips.

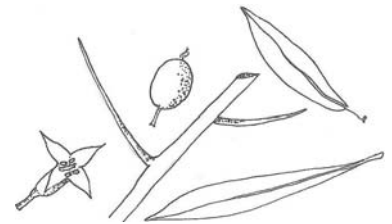
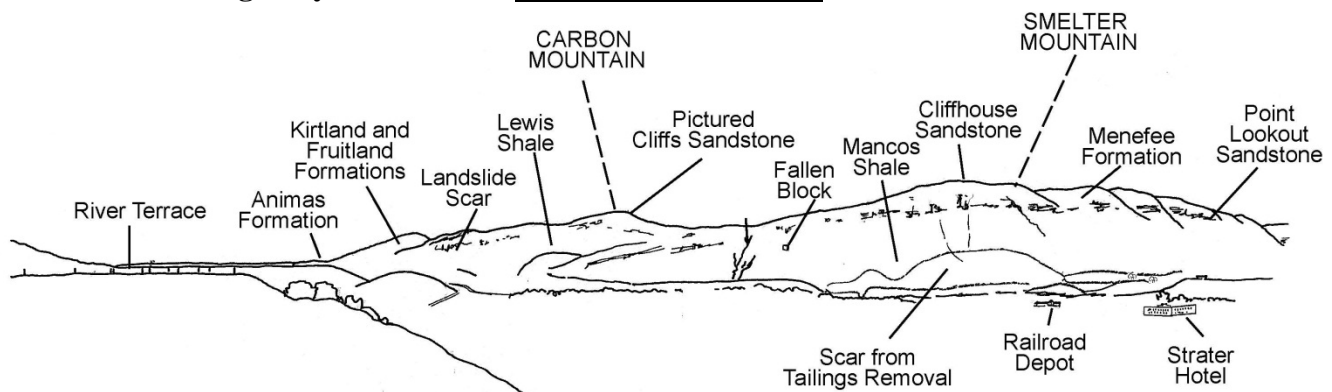


EXHIBIT B Durango Skyline

View to east and south

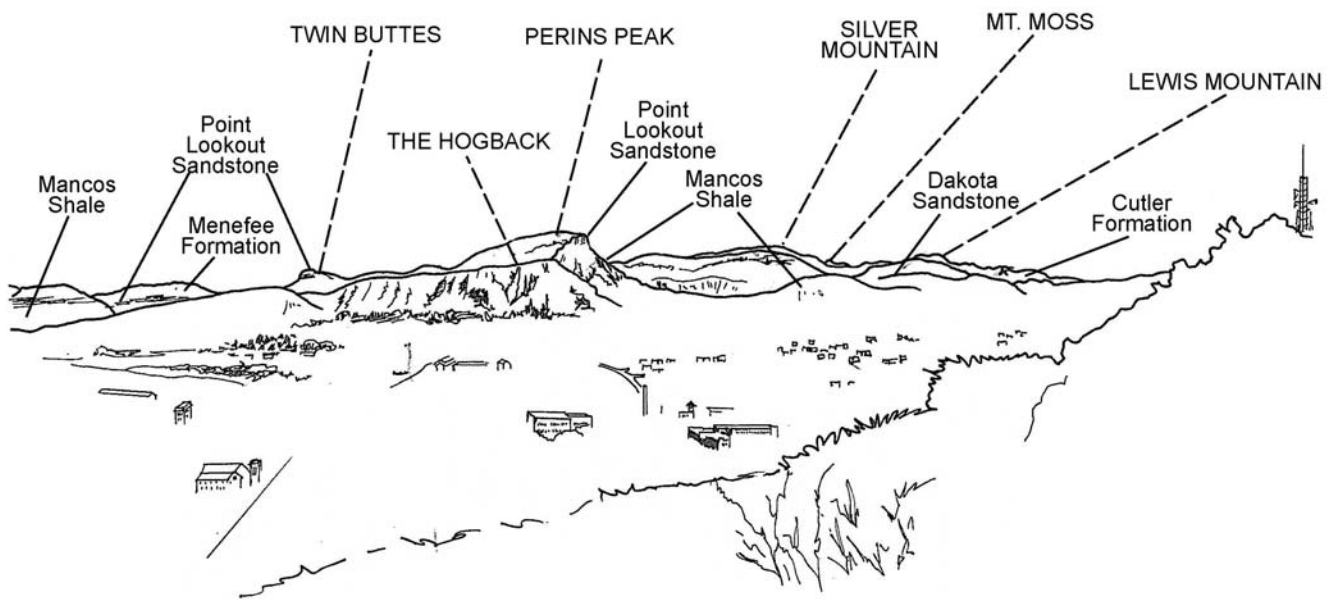


The elevated flat surface south and east of Durango is an extension of the surface upon which Fort Lewis College is built. This is an ancient river terrace, a remnant of the Animas Valley floor formed 300,000-500,000 years ago. The Animas River has since deepened its valley 300'. To the south are resistant sandstone layers inclined steeply to the south and eroded to form ridges or hogbacks, which are the northern edge of the San Juan Basin, extending over 180 miles to the south. The San Juan Basin is known for its abundance of natural gas. The landslide scar to the left of Carbon Mountain formed in December, 1932. The principal causes of the slide were very steep slopes saturated with snow melt, which weakened the soils and rock allowing gravity to pull the mass down (at a rate of 30'/day).

(EXHIBIT B is continued on the next page.)

EXHIBIT B Durango Skyline

View to west and north



Twin Buttes and Perins Peak are held up by buff-colored, cliff-forming Point Lookout Sandstone. The grey rock exposed on lower slopes is unstable Mancos Shale. Below Twin Buttes is a 60,000- to 80,000-year-old river terrace. This and some lower, more northerly terraces are composed of glacial outwash gravels from the last major glacial cycle, the Wisconsin glaciation (10,000 to 150,000 years ago). Glacial ice last filled the Animas Valley about 18,000 years ago. The glacier terminus at that time was located near present-day 32nd Street.

The La Plata Mountains (including Silver, Moss, and Lewis) are a mixture of igneous (diorite, monzonite, syenite), metamorphic (hornfels), and sedimentary rocks (sandstones and siltstones, most of the red Cutler Formation). The igneous rocks intruded the sedimentary rocks about 65 million years ago in the form of stocks, laccoliths, dikes, and sills. The intrusions that created the LaPlatas could also have been associated with volcanic eruptions. Fractures and faults associated with the intrusions were later invaded by mineralized fluids which deposited minerals rich in gold and silver. The La Plata Mountains are an eroded dome carved both by glacial ice and by running water.

EXHIBIT C Squaw Apple (*Peraphyllum ramosissimum*) Rose Family (Rosaceae)

- Densely branched deciduous shrub to 10 feet, alternate branching pattern, forms impenetrable thickets
- Flowers numerous, white with pink tinges, fragrant, early spring
- Fruits crabapple-like, small, round to pear-shaped, bitter, reddish-brown at maturity
- Leaves narrowly elliptic to oblong, bunched together at ends of twigs



EXHIBIT D Squaw Bush (*Rhus aromatica*) Sumac Family (Anacardiaceae)

- Look down on the right, just to the right of the piñon pine
- Upright, densely branching shrub 4-8' tall and wide, sprouts from rhizomes to produce dense thickets. Foliage and twigs strongly aromatic
- Flowers yellow to cream, tiny but numerous in dense clusters, appearing in early spring before foliage
- Fruits red, oval, hairy. Gives lemon flavoring when added to water bottle
- Leaves deciduous, alternate, 3-lobed, red in fall



EXHIBIT E Social Trails & Revegetation

- Look up the hill above the signpost and you will see two Colorado Blue Spruce (*Picea pungens*), the Colorado state tree
- Heavy foot and bicycle traffic on the slope downhill from you has removed all vegetation in some areas.
- To combat this problem, the following grasses were sown, but many have declined over the years:
 - Crested Wheatgrass (*Agropyron cristatum*) and Western Wheatgrass (*Pascopyrum smithii*) – cool season sod-formers
 - Indian Ricegrass (*Achnatherum hymenoides*) – a cool season bunch grass
 - Blue Grama (*Bouteloua gracilis*) – a warm season sod-former
 - Sand Dropseed (*Sporobolus cryptandrus*) – a cool season bunch grass

Initially two hundred trees and shrubs were also planted to stabilize the soil. Trees included Ponderosa Pine (*Pinus ponderosa*), Douglas Fir (*Pseudotsuga menziesii*), Piñon Pine (*Pinus edulis*), and Oneseed Juniper (*Juniperus monosperma*). Most of these have not survived.

Shrubs planted included Cliff Rose (*Purshia stansburiana*) and Squawapple (*Peraphyllum ramosissimum*).

EXHIBIT F Loess and Alluvium

- Look up toward the campus and you will see two sediment layers on the exposed hillside.
- The upper, reddish, fine-grained layer is “loess”, a wind-blown sediment mostly derived from the Colorado Plateau deserts to our southwest.
 - This 10 foot thick layer has accumulated for several hundred thousand years from spring dust storms.
 - Red dust settles from the air and weathers and reddens even more after deposition due to oxidized iron.
- The loess overlies a 100 foot thick gravel layer of alluvium made up of boulders, cobbles, and sand. The gravel layer at your feet and below you on the trail is river sediment from glacial meltwaters.
 - Glaciers from the San Juan Mountains moved southward down the old Animas Valley (300 feet higher than the existing Animas Valley) as far as the Hillcrest Golf Course.
 - As the end of the glacier melted, it released trapped sand and gravel in meltwater which then traveled southward, depositing its load along the ancient valley floor.

EXHIBIT G Fringed Sagewort (*Artemisia frigida*) Sunflower Family (Asteraceae)

- Look around the base of the sign
- Perennial, gray-green, mat-forming
- Flower clusters golden to pale yellow in elongated tufts; appear late summer to fall
- Leaves silvery green, small, highly dissected, in clusters along stem; aromatic

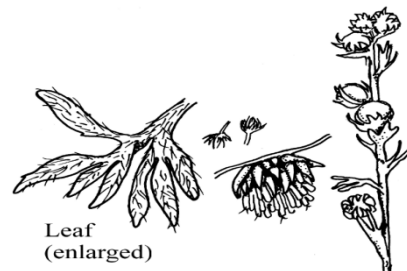


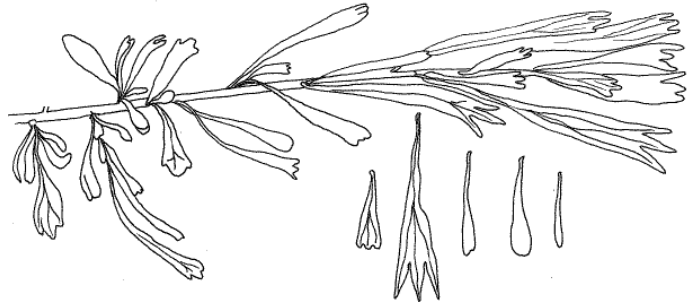
EXHIBIT H Hairy Golden Aster (*Heterotheca villosa*) Sunflower Family (Asteraceae)

- Turn around and look behind you
- Perennial to 20” tall; meadows, forests, disturbed sites
- Blooms from late spring to fall
- Flowerheads numerous, composed of disk flowers surrounded by yellow ray flowers
- Fruits in dandelion-like seed heads
- Leaves narrow, gray-green, covered with hairs, aromatic; stems hairy



EXHIBIT I Big Sagebrush (*Artemisia tridentata*) Sunflower Family (Asteraceae)

- Very common shrub to 8' tall
- Flowers tiny, yellow in elongated clusters at tips of branches; appear in late summer/fall
- Leaves most often with three teeth at apex but can be variously shaped; light, gray-green with distinct pungent sage aroma; usually evergreen



Whipple's Cholla (*Cylindropuntia whipplei*) Cactus Family (Cactaceae)

- Look about 12 yards up the trail, on the left, sprawling above the overhanging yellowish boulder
- 12-24" tall cactus forms thicket of armed, sausage-shaped joints
- Flowers in early summer, yellow-green or sometimes orange
- Fruits dry, yellow; persist on the plant for over a year
- Dislodged joints often take root to form new plants

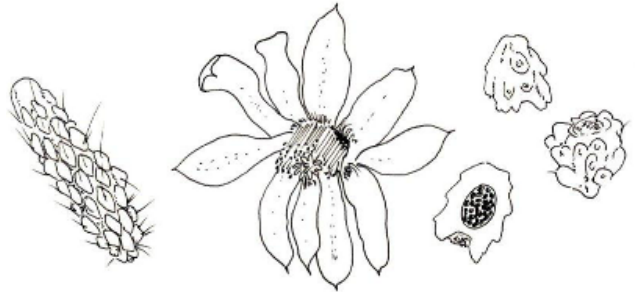


EXHIBIT J Utah Juniper (*Juniperus osteosperma*) Cypress Family (Cupressaceae)

- Look up the trail to the evergreen tree inside the switchback (the trail curve).
- Ubiquitous evergreen tree, about as wide as it is tall, shaggy bark; lives over 1000 years
- Blue cones (what appear to be berries) are dry, fleshy with seeds inside
- Leaves are overlapping, minute, rounded, scale-like
- Wood is highly aromatic (used for cedar chests) and rot resistant (used for fence posts)
- Commonly (and incorrectly) referred to as "Cedar tree"
- See the Rocky Mountain Juniper at Exhibit M.



Pinon Pine (*Pinus edulis*) Pine Family (Pinaceae)

- Look down the trail 30 feet
- Handsome, ubiquitous evergreen tree with thick, dark bark
- Seeds edible and prized by wildlife and humans; sold in grocery stores
- Needles in bundles of two, 1-2" long
- Highly aromatic firewood.
- Many *Pinus edulis* were killed by the Ips beetle in the early 2000s drought



EXHIBIT K Evening Primrose (*Oenothera caespitosa*) Evening Primrose Family (Onagraceae)

- Look to the left of the signpost, at the rather bare ground
- Herbaceous, prostrate perennial, often in extensive colonies, usually in open sites
- Flowers spring & summer; after blooming, plants inconspicuous
- Flowers to 3", conspicuous; emerge white in evening, fade to orange-pink the following morning; four-petaled with yellow stamens and four-parted stigma
- Fruit a small, dry capsule, up to 3/4 inch long
- Leaves highly variable in length & hairiness; margins smooth to deeply incised

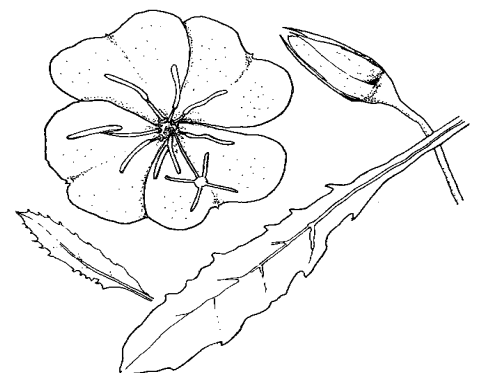


EXHIBIT L Indian Rice Grass (*Achnatherum hymenoides*) Grass Family (Poaceae)

- On slope in front of you
- Bunch grass with graceful flowering stems
- Flowers inconspicuous
- Fruits enclose dark seeds about 1 mm in diameter in early summer
- Leaves long, slender, grass-like, inrolled
- Seeds historically harvested by native people and ground into flour



Gabions

Gabions are large cages of wire filled with rocks. They are used to direct run-off water and to retain river banks and hillsides.

EXHIBIT M Rocky Mountain Juniper (*Juniperus scopulorum*) Cypress Family (Cupressaceae)

- Conical evergreen tree, usually found at slightly higher and more moist elevations than Utah Juniper (Exhibit J); lives over 1000 years
- Blue cones (what appear to be berries) are fleshy with one or more seeds
- Leaves overlapping, flattened, scale-like; completely cover the twigs
- Wood is rot resistant (used for fence posts) and highly aromatic (used for cedar chests)
- Commonly (and incorrectly) referred to as “Cedar tree”
- Notice the yellow Juniper Mistletoe (*Phoradendron juniperinum*) in the Juniper about 6’ above the sign
- See the Utah Mountain Juniper at Exhibit J.

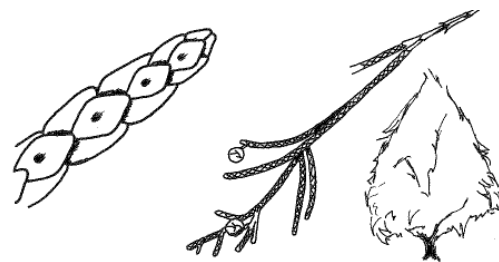


EXHIBIT N Black Locust (*Robinia pseudoacacia*) Pea Family (Fabaceae)

- Ornamental, deciduous, introduced tree to 75’ tall; native to eastern United States
- Flower clusters white, fragrant; yield nectar for excellent honey
- Twigs and branches are thorny with alternate branching
- Seed pods large, dark brown, flattened; in summer
- Leaves are pinnately compound (like a feather)
- Wood is good for fencing; birds and small mammals eat the seeds

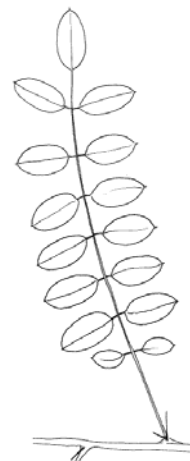


EXHIBIT O Cliff Fendler Bush (*Fendlera rupicola*) Hydrangea Family (Hydrangeaceae)

- Look above and to the right of the similar Squawapple
- Common shrub with opposite branching pattern; to 8’
- Flowers in May-early June; flowers large, numerous, white, mostly 4-petaled
- Fruits small, dry, 4-sided buff-colored seed capsules; persist on the plant
- Leaves narrow, opposite, tapering to a point



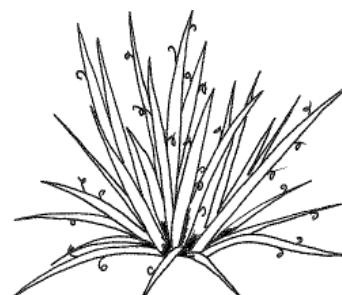
EXHIBIT P Rabbitbrush (*Ericameria nauseosa*) Sunflower Family (Asteraceae)

- Abundant shrub to 5' tall and wide; favors alkaline soils; gray-green hairy, aromatic stems; readily seeds itself
- Flowers golden; appear in dense clusters in late summer to fall
- Fruits dandelion-like (little air-borne parachutes), with a single seed per fruit
- Leaves slender, linear, gray green to light green
- Pollen causes allergic reaction in some humans



EXHIBIT Q Broadleaf Yucca (Banana Yucca or Datil) (*Yucca baccata*) Agave Family (Agavaceae)

- Leaves long, broad, stout; emerge from near soil line
- Flowers large, pendent, creamy white; in dense, elongated 1+' long clusters; flowers mostly within the leaves; May-June; flowers are night pollinated only by *Tegiticula yuccasella*, the Yucca Moth
- Fruits large, fleshy, often sweet; eaten by native peoples and wildlife
- Leaves stiff, sword-like, fleshy, to 3 feet long, blue-green, with curled fibers along the edges; leaf fibers used for sandals, mats, etc. Roots used for soap.



Narrow Leaf Yucca (*Yucca baileyi*) Agave Family (Agavaceae)

- Small plant with grass-like leaves; to right of Broadleaf Yucca
- Flowers large, pendent, creamy white in dense, elongated 2+' long clusters ; flowers mostly above leaves; June; pollinated by moth
- Fruit a dry capsule, splitting at maturity to reveal columns of shiny, black seeds
- Narrow leaves arise from the soil line, fibers along leaf edges
- Uses similar to those of Broadleaf Yucca; fruit dry and inedible

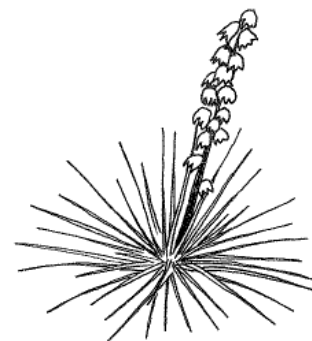


EXHIBIT R Prickly Pear Cactus (*Opuntia phaeacantha*) Cactus Family (Cactaceae)

- Look on the slope below the marker post. This is the most common of the six common species of cacti that grow in the Durango area.
- Low growing, spreading succulent plant with flattened, spiny pads (which are really stems). Pads shrivel in drought.
- Flowers large, yellow, appearing in early summer
- Fruit red to purple, fleshy and juicy, spineless but with glochids (tiny barbed bristles) that are very irritating to the skin
- Small, succulent green leaves are present early in the spring but soon dry and drop; pads are primary organ for photosynthesis
- Fruits are important to wildlife and edible for humans

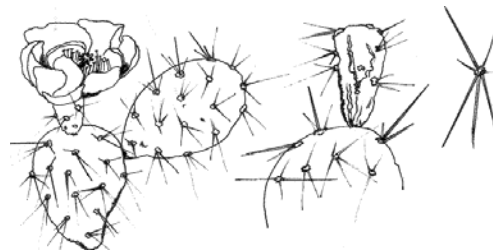


EXHIBIT S Gambel Oak (*Quercus gambelii*) Oak Family (Fagaceae)

- By far the most common oak in Colorado; deciduous; 10-30 feet tall
- Male flowers tiny but in conspicuous long chains (catkins); female flowers inconspicuous at twig tips, wind-pollinated; flowers appear in late spring to early summer
- Leaves deeply to shallowly lobed
- Fruit an edible acorn
- Many insects use twigs and foliage for food and for laying eggs (tree forms galls around these egg masses); wood burns long and hot
- Notice the lichen on the bark

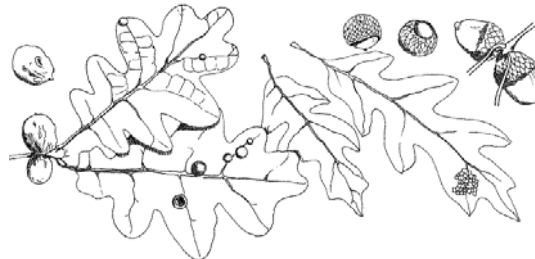


EXHIBIT T Mountain Mahogany (*Cercocarpus montanus*) Rose Family (Rosaceae)

- Look low and to the left of the sign
- Robust shrub 3-10' tall; many light gray stems arising from ground level; alternate branching
- Flowers numerous, small tubular, yellow-red, appearing in May-June
- Fruits dry, with a single seed which has a long, feathery, white appendage (the style) sensitive to humidity thus coiling and uncoiling as it absorbs and loses moisture, sometimes forcing the fruit into the ground
- Leaves serrate (saw-toothed), ovate, tapering to the base; deciduous



EXHIBIT U Oregon Grape (*Mahonia repens*) Barberry Family (Berberidaceae)

- Look for plants at ground level, almost always less than 1 foot high
- Perennial subshrub, often under oak and pine, with sprawling habit
- Flowers in tight clusters, bright yellow; spring to early summer
- Berries blue to purple, used in jam
- Leaflets holly-like, to 2" long, often turning red, rust, or yellow in fall, evergreen

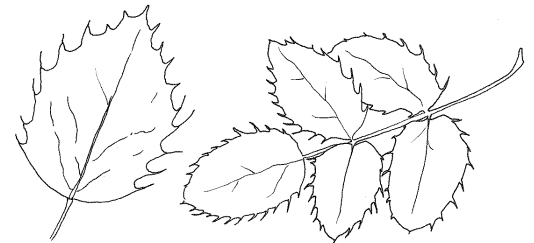


EXHIBIT V Fourwing Saltbush (*Atriplex canescens*) Goosefoot Family (Chenopodiaceae)

- Shrub 3-10'; prefers alkaline and saline soils and dry conditions
- Flowers tiny, greenish, inconspicuous, in large masses in late spring; separate male (pollen-forming) and female flowers (fruit-forming)
- Fruits with four paper-like wings, dry, with a single seed, very nutritious
- Leaves narrow to linear, covered with fine hairs that give them a silvery appearance, many will drop in the winter

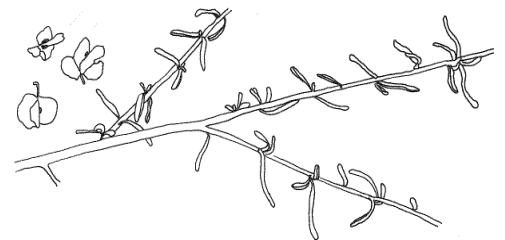


EXHIBIT W Lupine (*Lupinus prunophilus*) Pea Family (Fabaceae)

- Look about 12 yards down the trail, on the uphill side
- Lupines are perennials often forming hybrids
- Flowers appear late April into June
- Flowers in clusters, purple to blue; individual flowers with a top petal called the "banner", two side petals called "wings", and between these, two fused petals called the "keel"
- Fruit a hairy, silvery, pod
- Leaves palmately compound, with at least five leaflets; leaves with straight, projecting hairs (stems are similarly hairy)

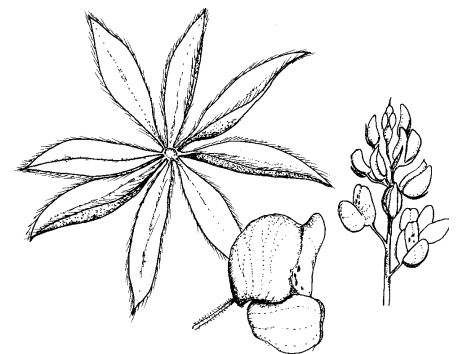


EXHIBIT X Buckbrush (Bitterbrush) (*Purshia tridentata*) Rose Family (Rosaceae)

- Deciduous, much-branched shrub 3-5' tall and spreading 4-7', alternate branching pattern
- Flowers numerous, very fragrant, five white to cream to yellow petals, blooming from April-July (depending on elevation)
- Fruit a dry, hairy, pointed, small seed capsule
- Leaves silvery underneath, dark green above, typically three-lobed at apex; bitter tasting

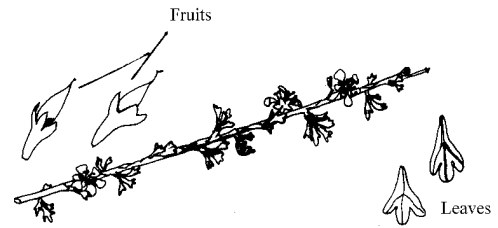
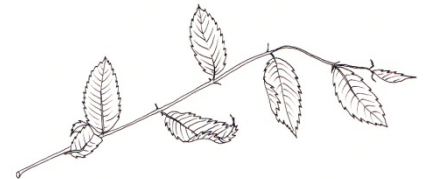


EXHIBIT Y Siberian Elm (*Ulmus pumila*) Elm Family (Ulmaceae)

- Very large, shady trees to 60' tall, four feet thick, 80 foot crown spread
- Flowers numerous, multi-colored, tiny in early spring before leaves
- Fruit flattened and winged, prolifically produced
- Leaves oval with serrated edges
- Introduced invasive species
- Most common tree in Durango and many Four Corners area towns



Chokecherry (*Prunus virginiana*), Rose Family (Rosaceae)

- Look directly over the signpost ten feet directly in front of sign
- Large shrub to small tree 8-20' tall, alternately branched; very common
- Bark is dark and smooth
- Flowers small, white, 5-petaled, in dense, cylindrical clusters; in late spring
- Fruit a juicy drupe (stone fruit), up to 1/3" across, dark purple to almost black at maturity, astringent to sweet; borne in clusters
- Leaves simple, oval, finely serrated (toothed)
- Humans make fine jelly and wine from the fruit

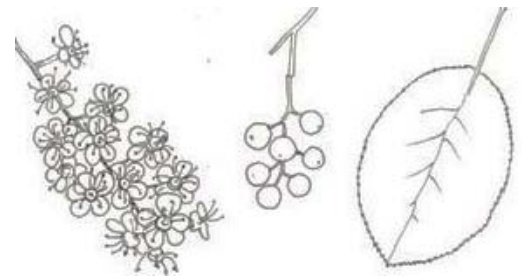
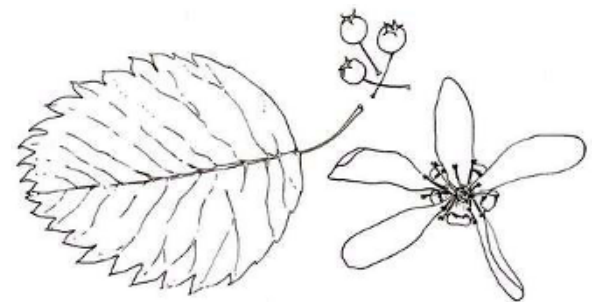


EXHIBIT Z Mancos Shale

- Along the uphill side of this part of the trail you will see Mancos Shale, a layered, dark-gray rock that easily crumbles when exposed to weathering; from the Cretaceous Period, deposited 105-85 million years ago
- Mostly clay and silt deposited in deep water in an inland sea that covered much of the North American continent
- Erodes more quickly than sandstone, so rarely found on mountain tops; it absorbs water and swells when wet, making it a hazard for buildings and roads constructed on it

SERVICEBERRY (*Amelanchier alnifolia*) Rose Family (Rosaceae)

- Look to the left of the Mancos Shale outcrop
- Deciduous shrub to 15', alternate branches, often light purple stems
- Flowers April-May, bright white, in loose clusters at ends of branches, with five widely spaced, narrow petals; fetid odor
- Fruit small, blue, fleshy, sweet but subject to a rust (as are the leaves)
- Leaves in early April, egg-shaped, toothed edges, prominent veins



We hope you enjoyed your walk on the Centennial Nature Trail.