Community Nature Center

PLANT GUIDE

WOODLAND

PRESCOTT PUBLIC SCHOOLS
PRESCOTT, ARIZONA

The Community Nature Center was developed with a grant from ESEA Title III and is maintained by the Prescott Public Schools with the cooperation of the City of Prescott. Its purpose is to facilitate study of and foster appreciation for the Upper Sonoran life zone. On this 20-acre site are found chaparral, grassland and pinyon-juniper communities, a pond habitat, guided nature trails and wheelchair paths. Facilitators are available for group nature walks and an amphitheater provides the setting for group programs. A solar-heated greenhouse and an environmental living area will also be developed to help reemphasize our organic roots to the natural environment.

The land itself has been free from grazing for almost forty years, enabling over 200 plant species to flourish. The presence of wildlife is being encouraged through scattered brush shelters, occasional feeding, and the pond.

The Community Nature Center facilitates environmental learning and serves as a sanctuary for many life forms, including man. PLEASE: take only photographs, leave only footprints.

Community Nature Center
Prescott Public Schools

RESOURCE, CONSERVATION AND DEVELOPMENT

Official Arizona Bicentennial Commemorative Activity

COMMUNITY NATURE CENTER

June 1977

By Carl S. Tomoff, *Ph.D.*
Prescott Center College

Illustrated by Margaret Kurzius

PLANT WALK GUIDE

TO THE

WOODLAND

TRAIL

ACKNOWLEDGEMENTS

Research for this guide was initiated by Joanne Bedient, Brad Dubbs, and Nina Feltman Brew: Julie Arnet and Debbie Dukes compiled additional information on 41 plants selected by Les Albee. Renee Kylar and Bob Moore reviewed the final draft; Joan Tomoff helped edit throughout the writing process.

NOTE:
THIS GUIDE HAS BEEN PREPARED TO HELP ACQUAINT YOU WITH SOME OF THE PAST AND PRESENT USES OF PLANTS FOUND HERE AT THE COMMUNITY NATURE CENTER. WHILE WE BELIEVE IT IS INTERESTING TO LEARN OF MEDICINAL, DIETARY, AND OTHER USES, WE DO NOT ENCOURAGE A LAY PERSON TO SAMPLE THE PLANTS FOUND HERE OR ELSEWHERE. IT SHOULD ALSO BE NOTED THAT WHILE A PLANT MAY BE IDENTIFIED AS EDIBLE IT IS NOT NECESSARILY PALATABLE. THOSE INTERESTED IN LEARNING MORE ABOUT ETHNOBOTANY SHOULD CONSULT THE BIBLIOGRAPHY FOUND AT THE END OF THIS GUIDE.

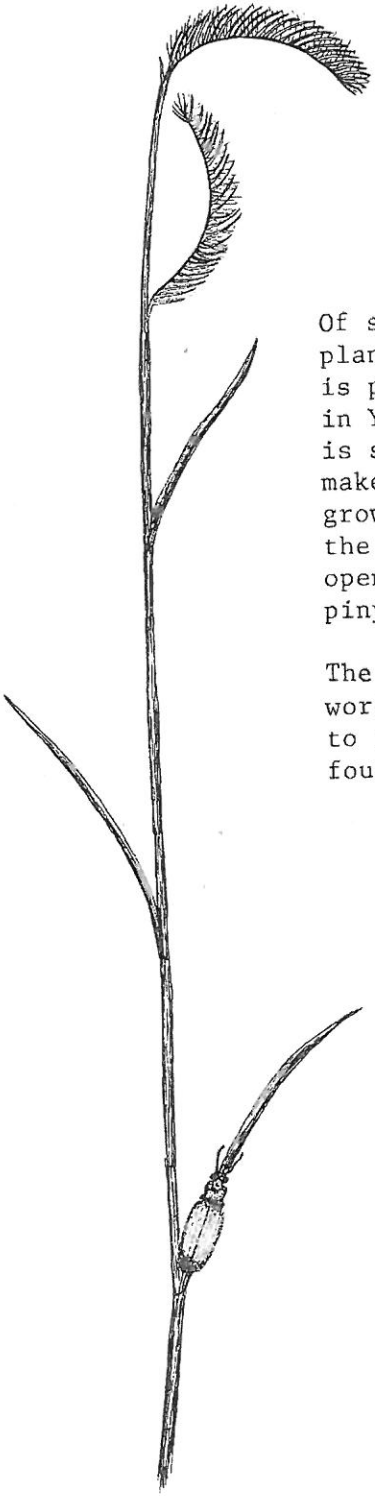
Community Nature Center
Dr. Henry Dahlberg, Director
Prescott Unified School District #1

The publication of this guide was made possible by a grant from the Elementary and Secondary Education Act, Title III-IV.

1. (*Green*)
POINTLEAF MANZANITA (*Arctostaphylos pungens*)
EVERGREEN SHRUB

Manzanita is typical of chaparral and pinyon-juniper woodlands. It is characterized by crooked branches, reddish-purple bark, and leathery green leaves. Birds, bears, and other animals eat the fruits, and goats and a few other animals sometimes eat the foliage.

Manzanita, meaning "little apple" in Spanish, has a berry-like fruit, consisting of soft pulp which surrounds several nutlets. The pioneers seldom ate the "little apples", but the Indians of California esteemed them next to acorns and pinyons among vegetable staples. A lotion made from the berries was used to ease the irritation of poison oak. A concoction of fruit and leaves was used for bronchitis and dropsy; a tea from the leaves was taken to relieve stomach trouble and was also used as a bath for rheumatism. A remedy made from the leaves of this species is sometimes used today by Arizona old-timers to treat urinary disorders. Astringents today are commercially extracted from the leaves, and in Russia the leaves of other species are used to produce tannin. Because manzanita wood is very hard, Indians used it for spoons and tobacco pipes; when Mission Dolores was built, wooden pegs of manzanita pinned the joints of the structure together.



2. (*Green*)
BLUE GRAMA (*Bouteloua gracilis*)
PERENNIAL GRASS

Of significant value as a grazing plant and soil binder, blue grama is probably the top forage producer in Yavapai County. No other grass is so palatable, so widespread, or makes so dense a ground cover. It grows largely at mid-elevations in the County, most importantly in open grassland, chaparral, and pinyon-juniper woodlands.

The word "chino" is the Spanish word for curly, and refers to the curly blue grama grass found in Chino Valley.

3. (*Green*)
TARRAGON (*Artemisia pacifica*)
HERBACEOUS PERENNIAL

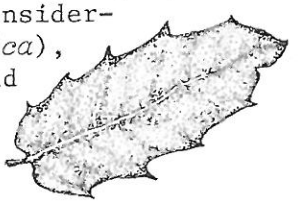
This relative of sagebrush in the Composite family is usually found in open pine forests and evergreen woodlands. It reaches a height of 12" to 36" and each summer it bears small greenish-white flowers.

4. (*Green*)
WRIGHT SILKTASSEL
(*Garrya wrightii*)
EVERGREEN SHRUB

Silktassel is often associated with manzanita, mountain mahogany, and buckthorns in chaparral and pinyon-juniper woodlands. Its leaves look similar to manzanita's but they are paired rather than single or alternate along the stems. Each plant bears either female or male flowers, with fruit developing only on female shrubs. Pollen from nearby male plants is dispersed by the wind. Berry-like fruits are eaten by birds and mammals. The fruits yield bluish dyes which become greenish when treated with ammonia.

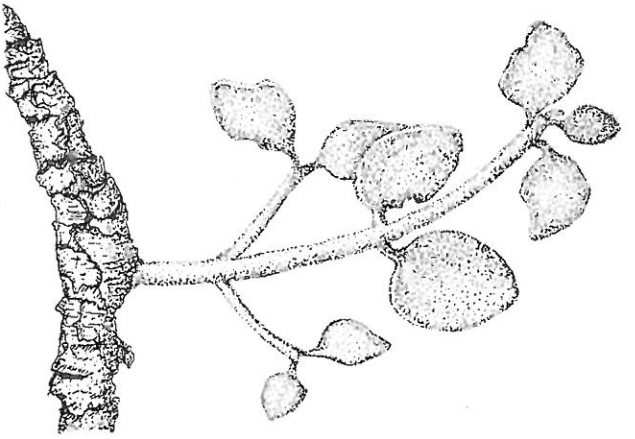
5. (*Green*)
EMORY x SHRUB LIVE OAK: a hybrid
(*Quercus emoryi x Q. turbinella*)
EVERGREEN SHRUB

Oaks are often difficult to identify because they hybridize so freely. Characteristics such as leaf size, shape, and margin can vary remarkably between one oak and another, and even between leaves on the same branch. For example, this particular plant has been considered an Arizona oak (*Q. arizonica*), a shrub live oak, and a hybrid between Emory and shrub live oaks by three different botanists of the area. For comparison, a tall Emory oak is growing among the lower rocks behind this shrub. Since shrub live oak (#40) and Emory oak (#24) are discussed later, the following comments refer to Arizona oak.



The Arizona oak shares with the Emory oak the live oak zone of southeastern Arizona and northwestern Mexico, reaching its northern limits in northwestern

Arizona. It extends into the ponderosa pine forest, often mingling with the deciduous Gambel's oak (*Quercus gambelii*). This is Arizona's largest oak, reaching 60 feet in moist, well-shaded canyons. The leaves fall in spring as the new leaves appear. The acorns are bitter, and it is thought that few animals eat them except a rare bird of northwestern Mexico, the thick-billed parrot. The gnarled blackish stem galls produce tan dyes.

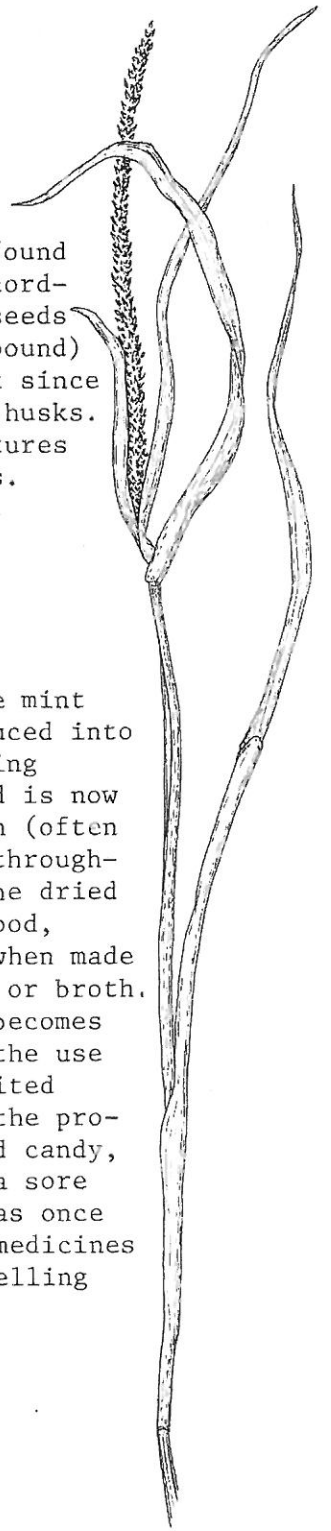


6. (*Green*)
OAK MISTLETOE (*Phoradendron coryae*)
PARASITIC EPIPHYTE

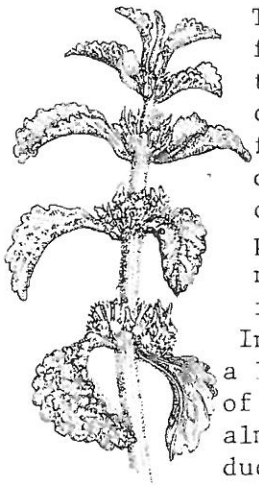
Because it forms conspicuous, dense masses in trees, mistletoe attracts the attention of persons unfamiliar with the chaparral and desert regions. This parasitic plant draws nutrients from the host tree, and where abundant, may cause considerable damage, killing branches and sometimes the entire tree. Papago Indians dry the berries in the sun and store them for winter food, though they are poisonous when fresh. The clumps are important to birds, particularly the phainopepla, for which they provide a significant food for adults and young; many species hide their nests in clumps of mistletoe.

7. (*Green*)
SPIKE DROPSEED
(*Sporobolus contractus*)
PERENNIAL GRASS

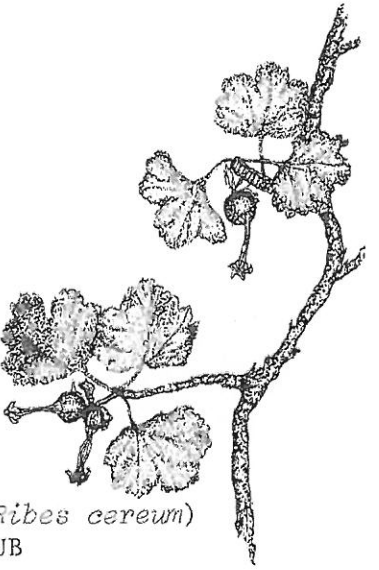
Many species of dropseed are found in a variety of habitats. According to Kirk (1970), the tiny seeds (about two million weigh one pound) are relatively easy to harvest since they are fairly free of their husks. Dropseed is often used in mixtures of seeds in reseeding programs.



8. (*Green*)
HOREHOUND (*Marrubium vulgare*)
HERBACEOUS PERENNIAL



This member of the mint family was introduced into the New World during colonial times and is now found in dry, open (often disturbed) areas throughout the West. "The dried plant becomes a good, nutritious tonic when made into a bitter tea or broth. In large doses it becomes a laxative. Today the use of horehound is limited almost entirely to the production of horehound candy, often used to ease a sore throat or cough. Horehound was once used extensively in domestic medicines for colds, dyspepsia, and expelling worms." (Kirk, 1970).



9. (*Green*)
WAX CURRANT (*Ribes cereum*)
DECIDUOUS SHRUB

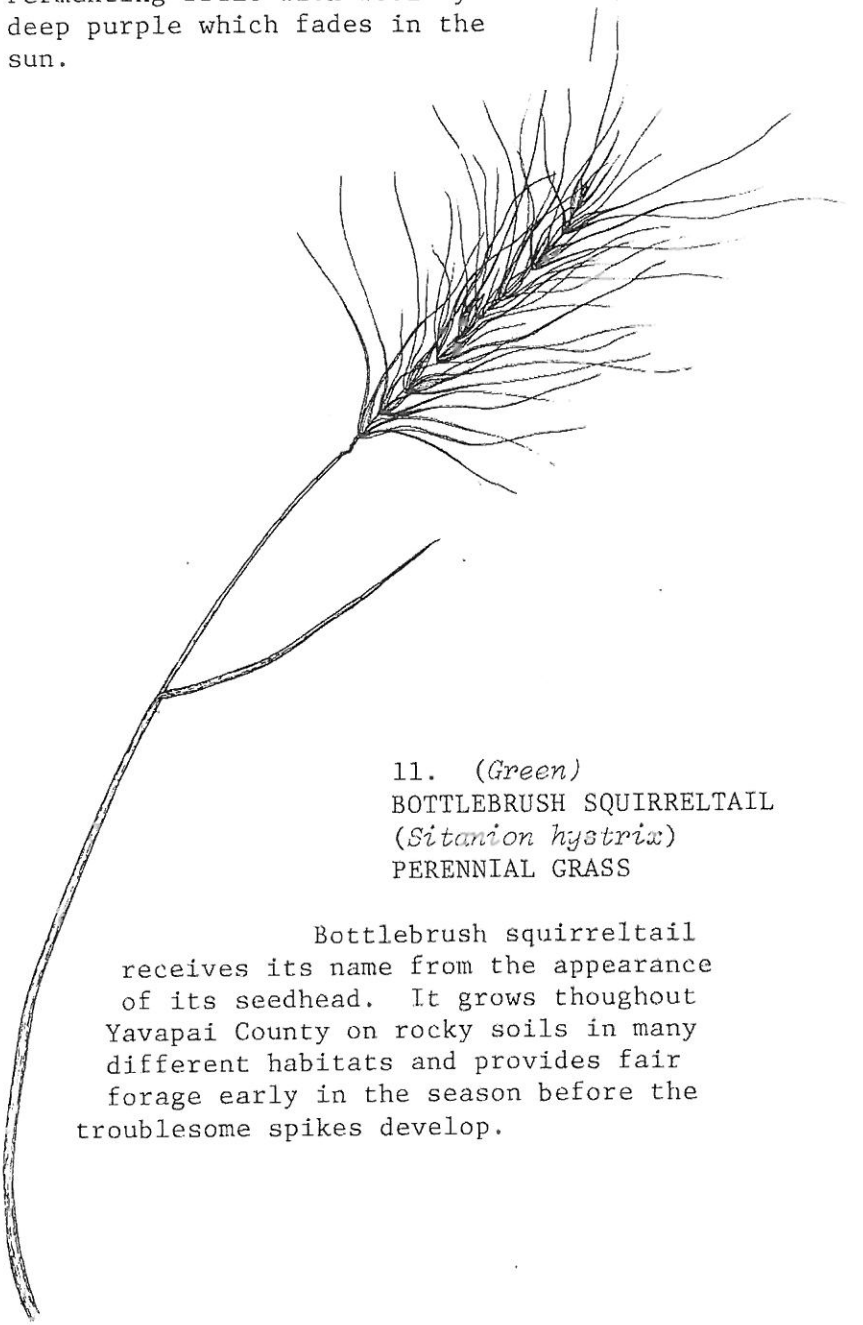
This chaparral plant leafs in early spring and flowers in spring and early summer. Zunis ate the fresh leaves with uncooked mutton or deer fat. Berries of all currants may be eaten, although some species are better tasting than others. Wax currant berries resemble our commercial dried currants, although there is a noticeable seed. Indians used the berries in making pemmican (a dried meat and vegetable dish pounded fine and mixed with melted fat). The berries were used by the Hopis to relieve stomach-ache. The wood was used to make arrows.

10. (*Green*)
PURPLE-FRUITED PRICKLYPEAR
(*Opuntia phaeacantha*)
STEM SUCCULENT

After being brushed with grass to remove spines, pricklypear fruits can be eaten dried, raw, jellied, or fermented. Seeds can be dried and stored or mashed into gruel.

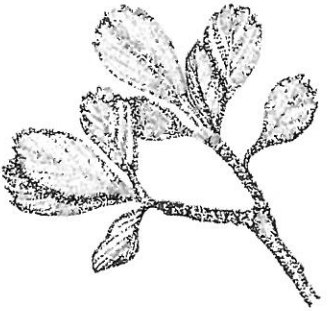
A Navajo legend says that when prickly pears are being gathered, a hair must be plucked from the gatherer's head so that the plant will yield fruit without twisting the heart

of the gatherer. Pimas, Yumans, and Apaches were among the tribes believing that eating too many prickly pears leads to illness. Fermenting fruit with wool dyes the fiber deep purple which fades in the sun.



11. *(Green)*
BOTTLEBRUSH SQUIRRELTAIL
(Sitanion hystrix)
PERENNIAL GRASS

Bottlebrush squirreltail receives its name from the appearance of its seedhead. It grows thoughout Yavapai County on rocky soils in many different habitats and provides fair forage early in the season before the troublesome spikes develop.



12. (*Green*)
MOUNTAIN MAHOGANY (*Cercocarpus montanus*)
EVERGREEN SHRUB

Mountain mahogany grows with cliffrose and shrub live oak in chaparral, as well as in canyons and on hills in sagebrush, pinyon and ponderosa pine communities. A widely-branching shrub or small tree with stout limbs, it is helpful in preventing erosion and is a valuable browse plant for deer, antelope, and cattle. The flowers are small, but they produce conspicuous seeds with 2" to 4" feathery plumes. The scraped bark makes a flavorful additive to a brew of Mormon tea (*Ephedra sp.*). Red-brown and tan dyes may be obtained from the bark and roots.

13. (*Green*)
SOUTHWESTERN CHOKECHERRY
(*Prunus virens = P. serotina*)
DECIDUOUS SHRUB OR TREE

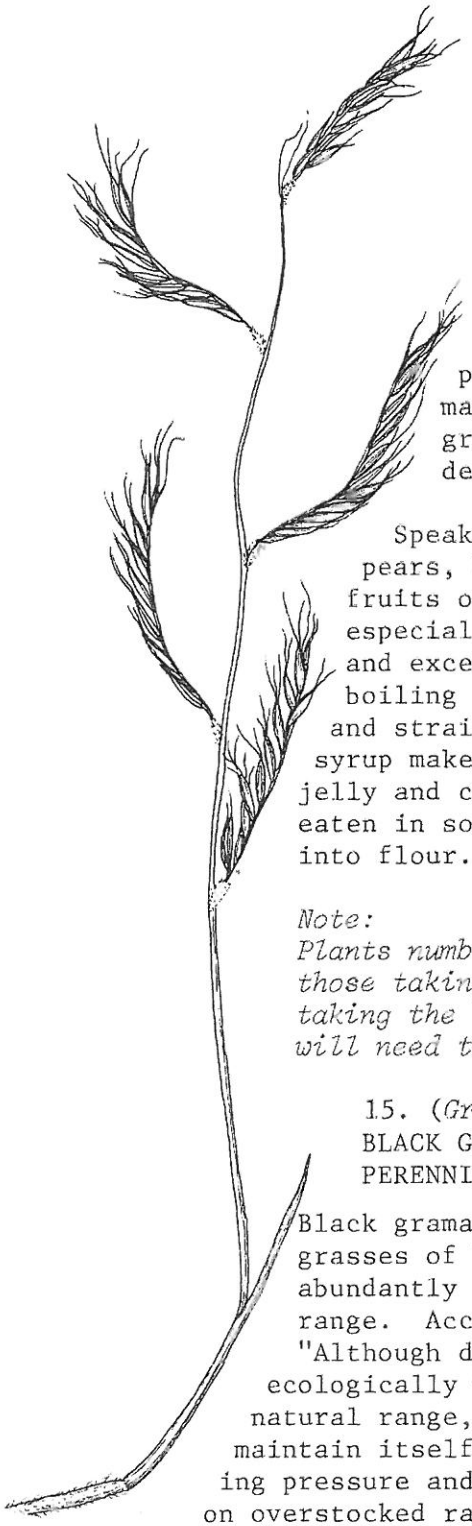
Chokecherries are frequently associated with California buckthorn (#30), canyon grape, and Arizona rose in riparian pine-oak woodlands, but they extend into pine and fir forests along canyons and moist drainages on slopes, where they may grow to tree size.

Cherries ripen in July and August and although edible are quite sour when raw. Many species of this genus are known to contain toxic amounts of cyanide. A number of human deaths, mostly children, have resulted from eating cherries without extracting the pits. Cyanide is volatile, so cooking will free the pits of the poison.

Although we now have many ways of storing foods for use out of season, the Indians usually had to rely on drying. The Jicarilla Apaches ground the cherries and made the meal into round cakes. These hard, blackish patties could be stored and reconstituted with water when needed.

A tea made from the inner bark was used as a remedy for diarrhea and for rheumatism.

A purplish-red dye can be extracted from the fruit, and in spring the inner layer of bark yields a green dye. The chokecherry is a sacred plant to the Navajo, often mentioned in songs. Some dance implements and prayer sticks of the North are made from cherry wood, the latter because the fruit ripens black, the tribe's color for North.



14. (*Green*)
PANCAKE PRICKLYPEAR
(*Opuntia chlorotica*)
STEM SUCCULENT

Pancake pricklypear prefers rocky slopes in chaparral and pinyon woodlands, though it may be found on slopes in desert grasslands and flatlands in desert scrub.

Speaking generally of prickly pears, Kirk (1970) writes: "The fruits of the larger species are especially sweet and flavorful and excellent syrup can be made by boiling down the peeled fruits and straining out the seeds. The syrup makes an excellent base for jelly and candy. The seeds may be eaten in soups or dried and ground into flour."

Note:
Plants numbered consecutively for those taking the short trail. Those taking the longer Woodland Trail will need to turn to plant #29.

15. (*Green*)
BLACK GRAMA (*Bouteloua eriopoda*)
PERENNIAL GRASS

Black grama is one of the best forage grasses of Yavapai County and occurs abundantly over a wide elevational range. According to Gould (1951), "Although drought-resistant and ecologically well adapted in its natural range, black grama does not maintain itself well under heavy grazing pressure and tends to be eliminated on overstocked ranges."

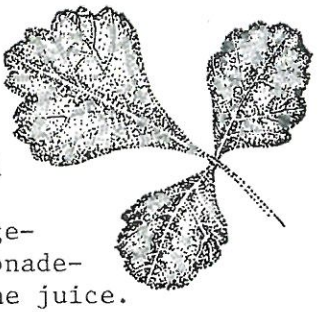
16. (*Green*)
BEARGRASS (*Nolina microcarpa*)
LEAF SUCCULENT

Beargrass grows in desert grasslands, in exposed sites on shrubby mountain slopes, and in plains grasslands. It frequently occurs with banana yucca (#27), and prickly pears.

It is related to banana yucca, but has longer and more flexible leaves, smaller flowers and fruits, and a taller flower stalk. The leaves were used in weaving nets and baskets and for hut thatching. The woody base and emerging flower stalk were used as food; seeds were roasted, ground, and made into meal.

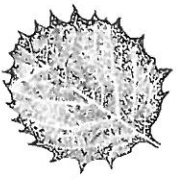
All *Nolina* species, at least when approaching maturity, are poisonous to livestock, causing severe liver and kidney damage. Poisoning seems to be associated with the flowers which are readily eaten by sheep and cattle.

17. (*Green*)
SQUAWBUSH OR SKUNKBUSH
(*Rhus trilobata*)
DECIDUOUS SHRUB



Squawbush is one of the most common shrubs of the chaparral and pinyon-juniper woodland. Since the sticky, bright orange-red berries taste acid, a lemonade-like drink may be made from the juice. Birds and mammals also eat the berries. The leaves, which are browsed by a few animals, turn red in the fall. If the leaves or buds are crushed, they produce a pungent odor--thus the name skunkbush. The velvety, smooth leaves of this close

relative of poison ivy can cause serious skin problems to susceptible people. The Kayenta Navajo made a lotion of squawbush to treat poison ivy and dermatitis. The Hopis used squawbush to treat tuberculosis; they also used the flower buds for deodorant and perfume, the berries for a mordant and, combined with other plants, a body paint. Mexicans and Indians use the twigs in basketry.

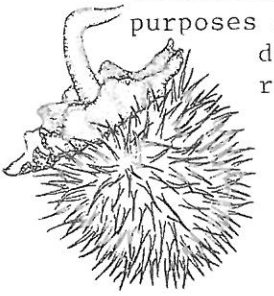


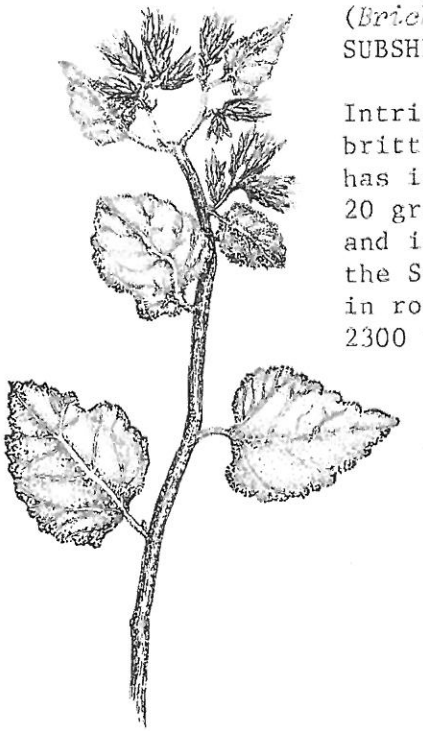
18. (*Green*)
HOLLYLEAF BUCKTHORN
(*Rhamnus crocea*)
EVERGREEN SHRUB

In late summer and autumn the bitter red berries of this chaparral shrub may be eaten raw or cooked. However, it is reported that they will temporarily turn the skin red if eaten in quantity.

19. (*Green*)
SACRED DATURA (*Datura metaloides*)
HERBACEOUS PERENNIAL

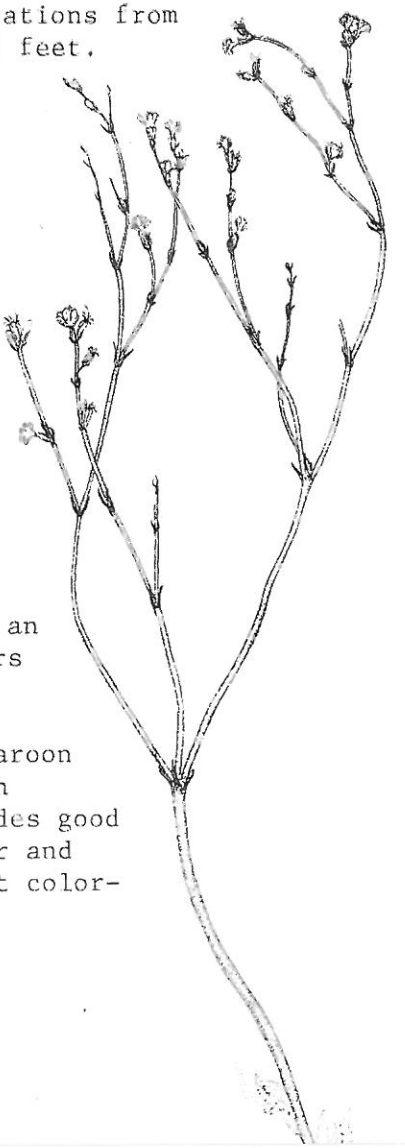
All portions of this plant are poisonous. The fragrant, five-parted tubular flowers open in the early evening and close late the following morning. It is sometimes called moon lily, although it is related to potatoes and tobacco. Datura contains the drug atropine. California Indians sometimes used it for medicinal purposes and as a narcotic to induce dreams and visions in religious ceremonies. The seeds were sometimes administered to prevent miscarriages. Rubbing leaves on ant bites temporarily relieves the pain.





20. (*Green*)
CALIFORNIA BRICKELLIA
(*Brickellia californica*)
SUBSHRUB

Intricately branched and brittle-stemmed, this subshrub has inflorescences with 6 to 20 greenish-white flowers and is common throughout the Southwest. It grows in rocky locations from 2300 to 7000 feet.



21. (*Green*)
WRIGHT BUCKWHEAT
(*Eriogonum wrightii*)
SUBSHRUB

Wright buckwheat produces an abundance of pearly flowers the size of rice kernels throughout the summer; in winter the stems turn a maroon color. Generally found in disturbed areas, it provides good browse for cattle and deer and also yields a fine, almost colorless honey.

22. (*Green*)
PINYON
(*Pinus edulis*)
EVERGREEN TREE

The state tree of New Mexico is an important component of the evergreen woodlands below ponderosa pine forests and is often associated with junipers.

The seeds, "pinyon nuts", are a favorite food of wood rats, other rodents, and pinyon and scrub jays. They were once an important food for many peoples; their harvest is a significant economic enterprise today for many Indians. Indians shelled the "nuts" with metates and manos, then ground them to a flour for bread, tortillas, mush, and soup. The harvest is irregular, as the trees require a certain amount of spring rain for flowering; cones take 2-3 years to mature. Indian tradition says that every 7th year is a "pinyon year" and is followed by an epidemic of smallpox.

Pinyon wood is used for firewood, fenceposts, loompoles, construction of hogans, and ceremonial articles. The gummy sap is used by the Hopi in waterproofing baskets, repairing pottery, preparing dyes, as a glue in turquoise mosaics, as a dressing to exclude air from cuts and sores, and in ceremonies. A pleasant smelling incense is made by mixing sap and sawdust. Pinyon is a source of homesites and nesting material for many animals. Porcupines eat the inner bark, which may also be eaten in an emergency by people.

22. (*Green*)
PINYON
(*Pinus edulis*)
EVERGREEN TREE

The state tree of New Mexico is an important component of the evergreen woodlands below ponderosa pine forests and is often associated with junipers.

The seeds, "pinyon nuts", are a favorite food of wood rats, other rodents, and pinyon and scrub jays. They were once an important food for many peoples; their harvest is a significant economic enterprise today for many Indians. Indians shelled the "nuts" with metates and manos, then ground them to a flour for bread, tortillas, mush, and soup. The harvest is irregular, as the trees require a certain amount of spring rain for flowering; cones take 2-3 years to mature. Indian tradition says that every 7th year is a "pinyon year" and is followed by an epidemic of smallpox.

Pinyon wood is used for firewood, fenceposts, loompoles, construction of hogans, and ceremonial articles. The gummy sap is used by the Hopi in waterproofing baskets, repairing pottery, preparing dyes, as a glue in turquoise mosaics, as a dressing to exclude air from cuts and sores, and in ceremonies. A pleasant smelling incense is made by mixing sap and sawdust. Pinyon is a source of homesites and nesting material for many animals. Porcupines eat the inner bark, which may also be eaten in an emergency by people.

23. (*Green*)
MUTTONGRASS (*Poa fendleriana*)
PERENNIAL GRASS

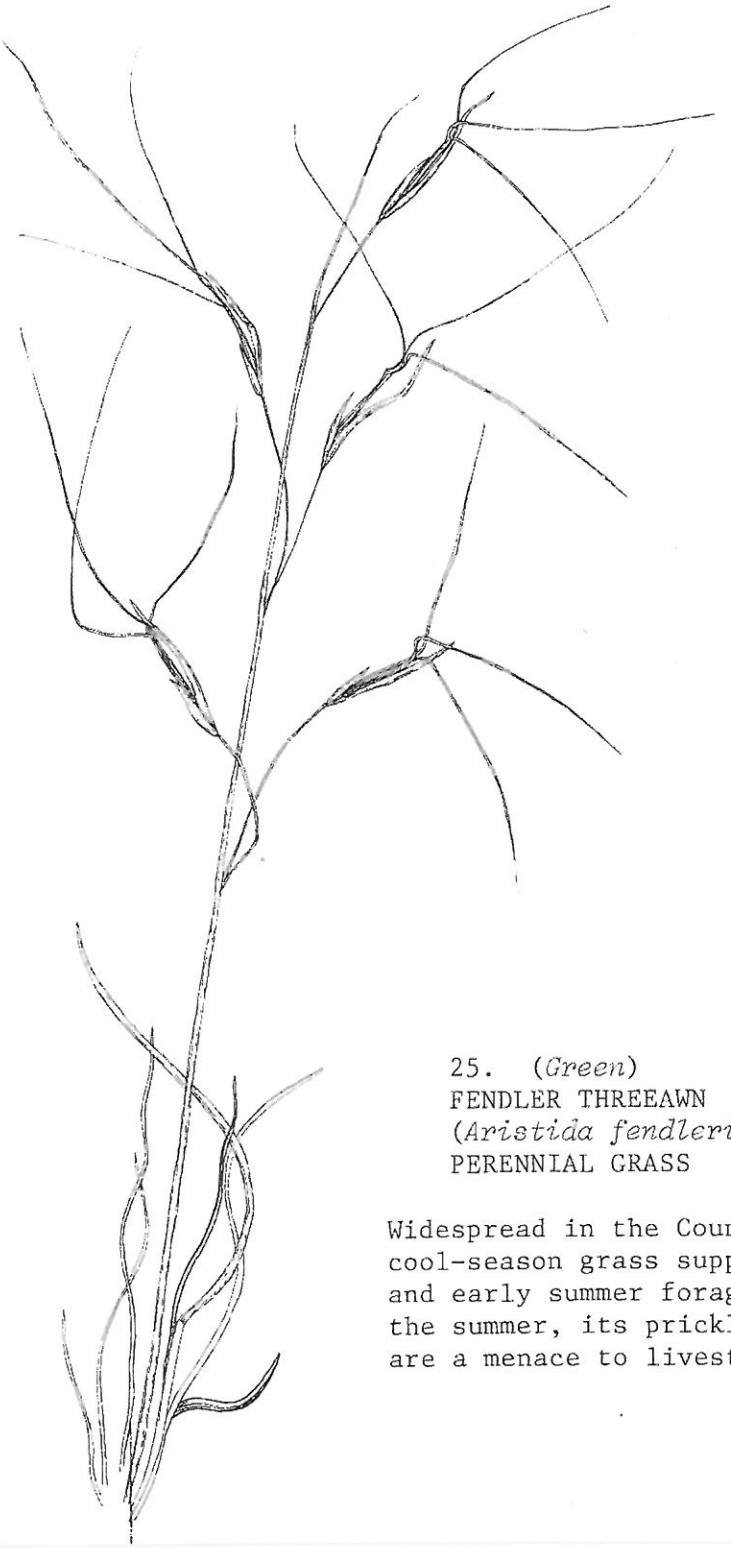
Muttongrass is the most abundant cool-season bunchgrass at the Center and in the County. It is an excellent forage grass because it furnishes green grazing from early spring through the summer and cures well for fall grazing. Since it produces relatively few viable seeds, it is not often used in the artificial reseeding of rangelands.

24. (*Green*)
EMORY OAK (*Quercus emoryi*)
EVERGREEN TREE

Emory oak frequently grows with Arizona oak in ponderosa pine forests and with pinyons and alligator junipers in evergreen woodlands.

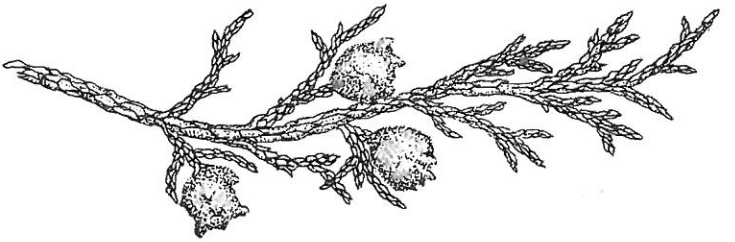
Indians ground acorns for meal. The nuts are eaten by Gambel's quail (and in southern Arizona by harlequin and scaled quail), scrub jays, rock squirrels and chipmunks. The foliage furnishes browse for deer, cattle, and horses, as well as food and hiding places for insects. Acorns contain a large amount of tannic acid, making them bitter and slightly poisonous unless properly leached.

The wood was used for weapon making, handles and other utensils; the bark is a principal source of tanning material.



25. (*Green*)
FENDLER THREEAWN
(*Aristida fendleriana*)
PERENNIAL GRASS

Widespread in the County, this cool-season grass supplies spring and early summer forage; later in the summer, its prickly seed heads are a menace to livestock.



26. (*Green*)
ALLIGATOR JUNIPER (*Juniperus deppeana*)
EVERGREEN TREE

This Mexican tree is often associated with pinyon pine and evergreen oaks and reaches its northern limits in northcentral Arizona. It produces edible (though not tasty) berry-like cones, eaten by birds and mammals. These "berries" can be dried and ground for flour, mush, and cakes. Yavapai Indians drank a juice made by soaking the fruits in water. Commercially, the fruits are used to flavor gin and in oil of juniper, for patent medicines. A concoction of the leaves is used as a laxative. The Hopi Indians use juniper charcoal with chewed melon seeds and water to make body paint. Heated twigs were bound over bruises or sprains to reduce swelling. The wood makes aromatic firewood and is widely used for fenceposts because it resists rot.

27. (*Green*)
BANANA YUCCA (*Yucca baccata*)
LEAF SUCCULENT

Banana yucca is found in many habitats, ranging from desert grasslands upward through chaparral into evergreen woodlands. It is pollinated only by the yucca-moth. The female moth lays eggs in the flower. Moth larvae eat some seeds but leave enough for reseeding. (See Woodland Trail Guide.)

Often called the Spanish dagger, this plant produces large, pulpy, edible flowers and fruits. According to Kirk (1970) the flowers of most species are best eaten when full grown but just before the buds expand. The fruit's rough rind is easily removed after cooking. The sliced pulp makes a good substitute for apple in pies and can be boiled down to a paste, rolled out in sheets and dried. This can be eaten as is or dissolved in water for a refreshing beverage. A sufficient quantity dissolved in water makes an excellent syrup. When cut into convenient lengths, mashed, and rubbed vigorously in water, the roots produce lather which gives a sheen to hair and was used by Navajos to wash handspun yarn. The roots may also be used as a laxative. The leaves may be split to make fibers for baskets, ropes, and sandals.

28. (*Green*)
PLAINS PRICKLYPEAR (*Opuntia macrorhiza*)
STEM SUCCULENT

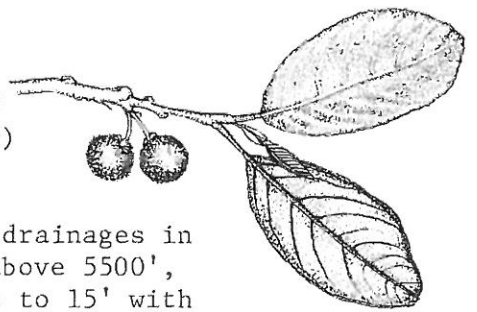
This pricklypear is a creeping plant with a thickened tuberous root. The flowers are large, with their many waxy petals yellow, orange, or reddish towards the base. The flower cups are filled with many golden stamens that curl toward a bee when it alights on the flower, dusting it with pollen. The cylindrical, greenish-yellow or reddish fruit is fleshy and without long spines.

The pulp of the fruits and new joints may be eaten raw, fried, or stewed. A bitter juice may be crushed from the fleshy pads to assuage one's thirst if water is not available. They are occasionally used as livestock forage, but the spines must be burned off. Indians and early pioneers of the Southwest used the split, fleshy pads, after soaking in water, for binding wounds and bruises. In Mexico the pads are boiled and crushed, the sticky juice being added to white wash or mortar to make it stick more securely.

29. (*Green*)
DESERT OLIVE (*Forestiera neomexicana*)
DECIDUOUS SHRUB (not illustrated)

This chaparral plant, which may reach 12' in height, is related to the ashes. Its bark is mostly gray, often tinged with orange. Older twigs are flexible with opposite, entire, or finely-toothed leaves.

Flowers are clusters of yellow stamens or pistils which bloom between March and April before the leaves appear. Since they produce inedible dark blue olive-like fruits, and because blue is the tribe's color for South, Navajos made prayer sticks of the South from this shrub. The Hopis used the hard wood for digging sticks.



30. (*Green*)
CALIFORNIA BUCKTHORN
(*Rhamnus californica*)
EVERGREEN SHRUB

Fairly common along drainages in pine-oak woodlands above 5500', this buckthorn grows to 15' with several to many gray-barked stems. The flowers are inconspicuous. The leaves, which are alternate, elliptic, and edged with fine teeth, may be confused with those of chokecherry, but they are distinctly lighter below, prominently veined and somewhat hairy.

The edible cherry-like fruits are eaten by birds and chipmunks. "The bark provides one of the most gentle and best known laxatives. It should be collected in the fall or spring and dried for a year or more. For a laxative, hot water is poured on powdered bark and drunk when cool. Fresh bark will work well when boiled for several hours. For a tonic and to improve the appetite, some old-timers recommend soaking some of the dried bark overnight in a glass of water and then drinking the water on rising." (Kirk, 1970)

31. (*Green*)
BIGLEAF BRICKELLIA (*Brickellia floribunda*)
SUBSHRUB

This brickellia grows in rich soil often in canyons and by streams. It is similar to California brickellia (#20).

32. (*Green*)
CLIFFROSE
(*Cowania mexicana*)

Locally common in open chaparral and evergreen woodlands, cliffrose has creamy flowers resembling small wild roses. The plumed seeds resemble those of its relative, mountain mahogany (#12). Although bitter, cliffrose is an important browse plant for cattle, sheep and deer.

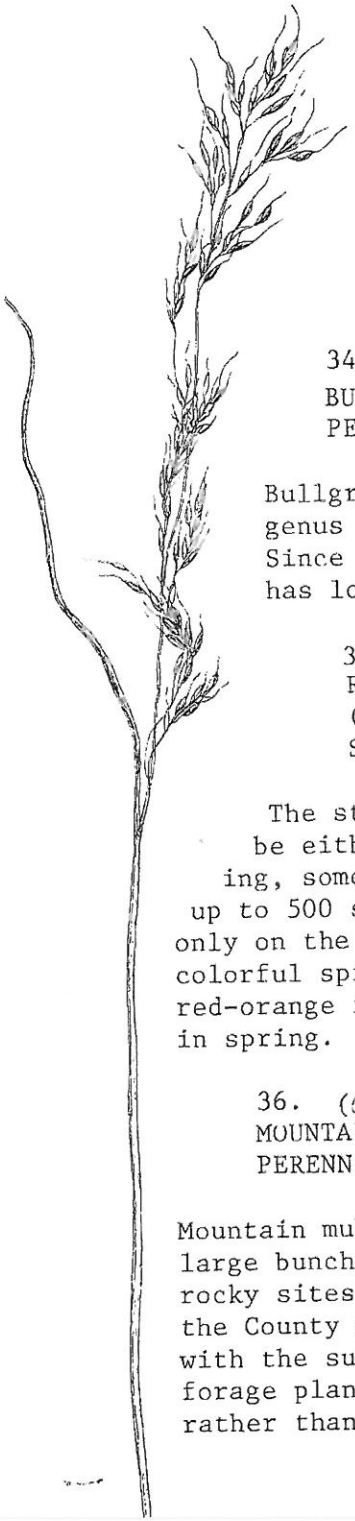
A refreshing tea may be made by steeping leaves in hot water for a few minutes. A strong tea can be used as an emetic and for washing wounds. The leaves, twigs, and flowers can be boiled to produce bright yellow-gold dyes. The light gray sheddy bark was used by early Indians to make clothing, sandals, rope, and mats. The wood was used for arrows and cradleboards.

33. (*Green*)
PONDEROSA PINE (*Pinus ponderosa*)
EVERGREEN TREE

Ponderosa pines are found throughout Western North America and in parts of Canada and Mexico; they often form extensive forests above 6000'. They grow as tall as 150 feet. Their scaly bark is cinnamon-brown or orange-yellow and smells like vanilla or sometimes pineapple. The younger twigs release a spicy orange-peel scent when crushed. Since trees less than 80 to 100 years old have bark that is dark brown or nearly black, they are often called blackjack pines.

Dense stands of seedlings may be seen for the first 10-15 years, but they thin out rapidly due to increased need for sunlight. In Arizona, and to a lesser extent in New Mexico, the lumber industry depends almost entirely upon the ponderosa pine for wood used in construction, interior finish, crating, and boxing.

Hopi Indians used the wood for ladders and cradleboards. They attached pine needles to prayer sticks to bring the cold. The seeds are important in the diets of squirrels, chipmunks, and birds. Natural cavities formed in rotting limbs and trunks provide critical nest sites for cavity-nesting birds like flammulated owls, violet-green swallows, and western bluebirds, which are unable to excavate holes. Acorn woodpeckers frequently use dead trunks of these pines to store the acorns harvested in early autumn and used in winter.



34. (*Green*)
BULLGRASS (*Muhlenbergia emersleyii*)
PERENNIAL GRASS (not illustrated)

Bullgrass is a member of the largest genus of grasses found in Arizona. Since it is coarse and fibrous, it has low forage value.

35. (*Green*)
RED-FLOWERED HEDGEHOG CACTUS
(*Echinocereus triglochidiatus*)
STEM SUCCULENT

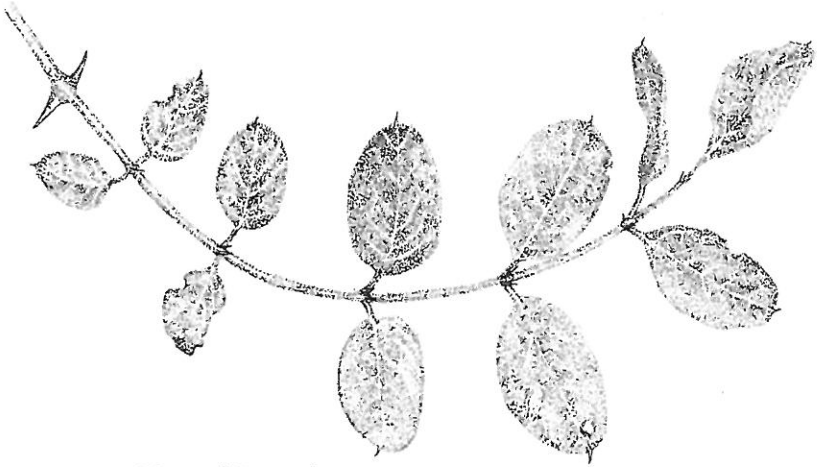
The stems of the hedgehog cactus may be either solitary or profusely branching, sometimes forming dense clumps with up to 500 stems. The leaves are noticeable only on the mature plant; the smooth and colorful spines are 1/2" to 4" long. The red-orange flowers, 3/4" to 5" wide, appear in spring.

36. (*Green*)
MOUNTAIN MUHLY (*Muhlenbergia montana*)
PERENNIAL GRASS

Mountain muhly is a dense-growing, moderately large bunchgrass 1' to 2' tall, common on rocky sites at the Center and throughout the County above 5,000 feet. It flowers with the summer rains and is a valuable forage plant because of its abundance, rather than its palatability.

37. (*Green*)
BISCUIT CACTUS (*Coryphantha vivipara*)
STEM SUCCULENT

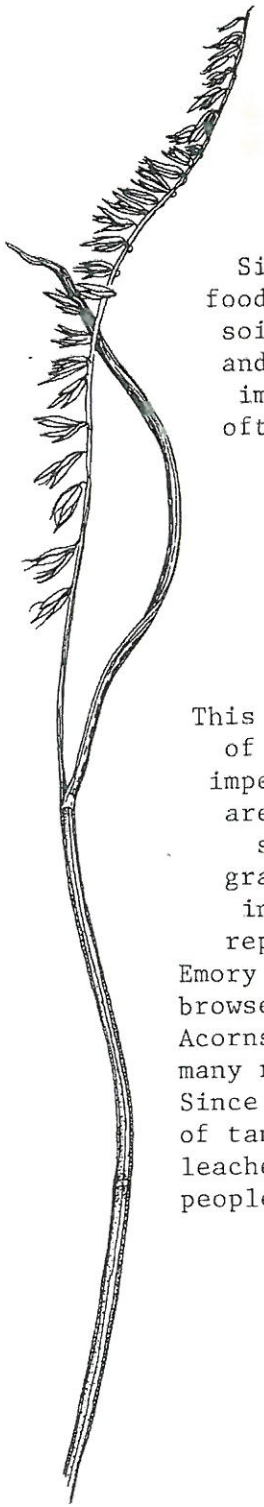
Flowers in some varieties of this species appear only once, remaining open for only an hour or two. Color of petals can be pink, red, or yellow-green.



38. (*Green*)
NEW MEXICAN LOCUST (*Robinia neomexicana*)
DECIDUOUS SHRUB OR TREE

This locust is common throughout the forested southwestern mountains. Some individuals may be 25 feet tall, although most are large shrubs. Because of its habit of sprouting from roots or stumps and forming thickets, it is valuable in controlling erosion. It often appears in clearings in coniferous forests after burns or logging, frequently in association with Gambel's oak.

New Mexican Locust is used by the Hopi as an emetic and for treating rheumatism. Large, showy flowers grow in clusters at the ends of slender branches. Some New Mexican Indians ate the flowers and cattle relish them. Both livestock and deer find the foliage palatable. However, the bark, roots, and seeds are said to be poisonous. Durable fence posts may be made from the trunks.



39. (*Green*)
SIDEOATS GRAMA
(*Bouteloua curtipendula*)
PERENNIAL GRASS

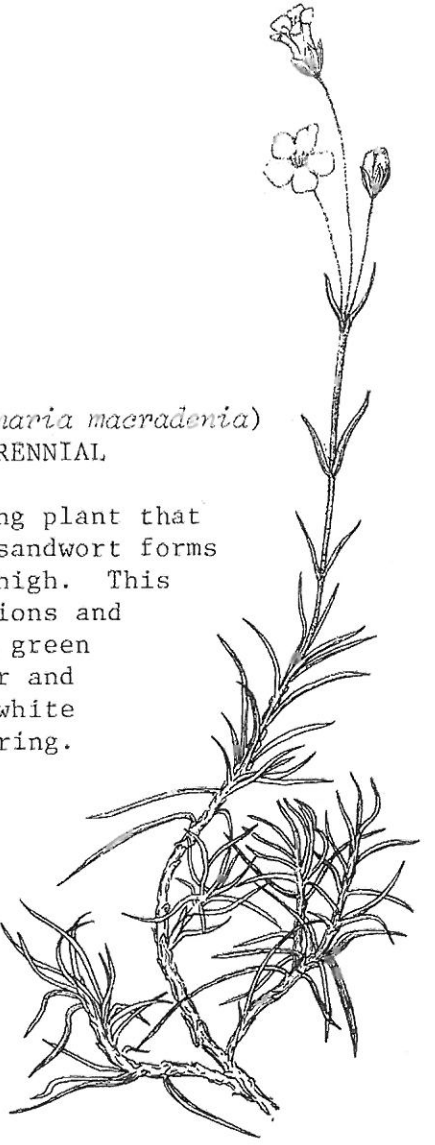
Sideoats is a widespread, important food for grazing animals and a useful soil binder, generally encouraged and often intentionally seeded to improve rangeland. Its growth is often spectacular after summer rains.

40. (*Green*)
SHRUB LIVE OAK
(*Quercus turbinella*)
EVERGREEN SHRUB

This oak is the most common shrub of the chaparral, often forming impenetrable thickets over large areas. It is found on tops and sides of hills, invading once grassy valleys. It also grows in evergreen woodlands, but is replaced at higher elevations by Emory and Arizona oaks. Leaves are browsed by horses, cattle, and deer. Acorns are an important food for many rodents, rabbits, and birds. Since acorns contain a large amount of tannic acid, they should be leached before they are eaten by people.

41. (*Green*)
SANDWORT (*Arenaria macradenia*)
HERBACEOUS PERENNIAL

A dense, low-growing plant that looks like grass, sandwort forms mats a few inches high. This relative of carnations and pinks remains dark green throughout the year and sends up delicate white flowers in late spring.



Bibliography

Arnberger, Leslie P. & Janis, Jeanne, 1969.
Flowers of the Southwest Mountains.
SW Parks & Monuments Assoc. (Globe), 112Pp.

Baker, Herbert G. 1965.
Plants and Civilization.
Wadsworth Publishing Co. (Belemont, CA), 183Pp.

Benson, Lyman. 1969.
Cacti of Arizona.
The U of Arizona Press (Tucson), 207Pp.

Dodge, Natt N. & Janish, Jeanne. 1974.
Flowers of the Southwest Deserts.
SW Parks & Monuments Assoc. (Globe), 107Pp.

Elmore, Francis H. & Janish, Jeanne. 1976.
Shrubs and Trees of the Southwest Uplands.
SW Parks & Monuments Assoc. (Globe), 204Pp.

Gould, Frank W. 1951.
Grasses of Southwestern United States.
U of Arizona Press (Tucson), 352Pp.

Harrington, H. D. & Durrell, L. W. 1972
Western Edible Wild Plants.
J. N. M. Press

Kearny, Thomas H. & Peebles, Robert H. 1951.
Arizona Flora.
U of California Press (Berkeley, CA) 1085Pp.

Kirk, Donald R. 1970.
Wild Edible Plants of the Western United States.
Naturegraph Publishers, Inc. 370Pp.

Niethammer, Carolyn. 1974.
American Indian Food and Lore.
Collier Books (New York), 191Pp.

Patraw, Pauline & Janish, Jeanne. 1970.
Flowers of the Southwest Mesas.
SW Parks & Monuments Assoc. (Globe) 112Pp.

Peattie, Donald. 1965.
Natural History of the Western Trees.
Crown Publishers, 751Pp.

Society for Range Management. 1975.
Some Common Plants of the Community Nature Center.
Community Nature Center, 11Pp.

The song of the waters is audible to every ear, but there is other music in these hills, by no means audible to all . . . . sit quietly and listen . . . . and think hard of everything you have seen and tried to understand. Then you may hear it - a vast pulsing harmony - its score inscribed on a thousand hills, its notes the lives and deaths of plants and animals, its rhythms spanning the seconds and the centuries.

Aldo Leopold

Nature is simply something indispensable, like air and light and water, that we accept as necessary to living, and the nearer we get to it the happier we are.

Louise Dickenson Rich

Community Nature Center
Prescott Public Schools
P.O. Box 1231
Prescott, Arizona 86301
(602) 445-5400, ext. 12

ARIZONA ENVIRONMENTAL EDUCATION