PLANTS OF THE BAJADA

Martin M. Karpiscak

INTRODUCTION

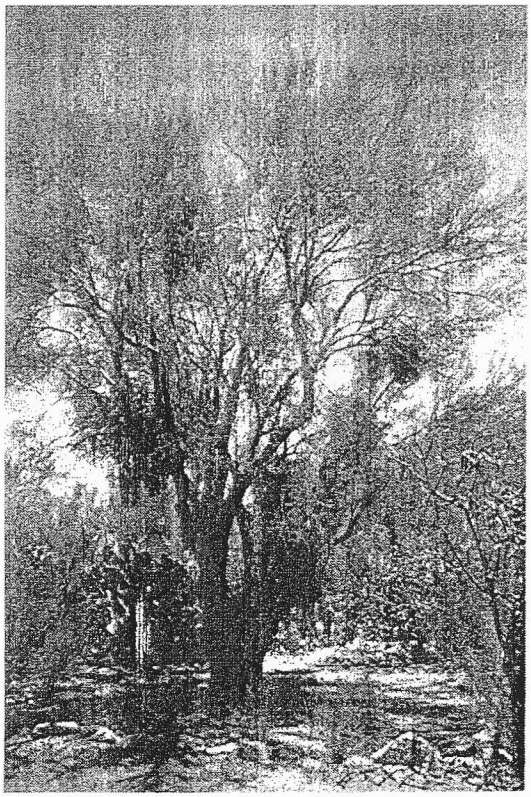
The Sonoran Desert spans the states of Arizona and Sonora in northern Mexico and can be described as the region that surrounds the northern part of the Gulf of California. The community of Catalina Foothills Estates Number 7 is located on a bajada or foothills of the Santa Catalina Mountains in the Arizona Uplands Subdivision of the Sonoran Desert. Rainfall in this area is bi- seasonal and about evenly divided between summer and winter rains. The 12 to 20 inches of annual rainfall contributes to the diversity of plants and thus the scenic beauty of the area. The two major plant assemblages of the Arizona Uplands are the creosote bush and the paloverde- saguaro-bursage communities.

Creosote Bush Community

This plant community is typically found covering the valley floors in the Arizona Desert. Little diversity in plant composition is seen in these areas and creosote bush may form almost monotypic stands that extend over great areas. Small portions of this plant community can be seen scattered around our subdivision, especially at the lower elevation.

Paloverde-Saguaro-Bursage Community

The diverse plant community of the paloverde-saguaro-bursage community is comprised of many shrubs that can form a multi-layered understory (Figure 1). These understory plants prove shade, accumulation of humus and protection to the young seedlings of the much larger paloverde and saguaro trees of the community. In turn, the longer-lived paloverde trees are well-known to act as nurse plants for the much slower growing saguaro cactus. If these small shrubs are lost, it will be very difficult for the paloverde and saguaro seedlings to germinate and survive the predation by animals and the intense solar radiation of the summer months during their critical first years.



The small perennials and semi-shrubs also provide shelter to their own seedlings as well as both winter and summer annuals. One of the key factors is that the shade of these shrubs provides longer periods of moisture availability as well as more overall moisture. These plants also catch the seeds that are spread by

wind and/or are blown across the soil surface. Without these plants, there is little to prevent the movement of seed or the loss of soil across the barren desert or to give cover to the small animals such as cottontail rabbits and Gambel's quail.

The paloverde-saguaro-bursage community consists mostly of small-leaved trees and shrubs as well as numerous species of cacti. Much of the Sonoran Desert is covered by plants that are less than 5 feet tall. In many parts of the desert, the plants cover only 30 percent of the soil surface. Greater density of plants is found in areas where small shrubs are the major species compared to areas where large shrubs or small trees are dominant. In many parts of the Sonoran Desert, only two or sometimes three species form the entire plant community. On many bajadas, the number of perennials species rarely exceeds 16. In the foothills of the Santa Catalinas, there are more than 30 plant species, some of which are presented in Table 1.

Table 1. Perennial Plants of Catalina Foothills Number 7.

Common Name	Botanical Name
Barrel cactus	*Ferocactus wislizenii*
Beavertail cactus	*Opuntia basilaris*
Blue paloverde	*Cercidium floridum*
Brittlebush	*Encelia farinosa*
Cane cholla	*Opuntia spinosior*
Canyon ragweed	*Ambrosia ambrosioides*
Christmas cactus	*Opuntia leptocaulis*
Condalia	*Condalia* sp.
Creosote bush	*Larrea tridentata*
Desert broom	*Baccharis sarothroides*
Desert hackberry	*Celtis pallida*
Desert willow	*Chilopsis linearis*
Fishhook cactus	*Mammillaria microcarpa*
Foothills paloverde	*Cercidium microphyllum*
Hedgehog cactus	*Echinocereus* sp.
Jojoba	*Simmondsia chinensis*
Jumping cholla	*Opuntia fulgida*
Limber bush	*Jatropha cardiophylla*

Common Name	Botanical Name
Mesquite	*Prosopis juliflora*
Mistletoe	*Phoradendron californicum*
Ocotillo	*Fouquieria splendens*
Prickly pear cactus	*Opuntia engelmannii*
Purple prickly pear	*Opuntia violacea*
Range ratany	*Krameria parvifolia*
Triangle-leaf bursage	*Ambrosia deltoidea*
White bursage	*Ambrosia dumosa*
Whitethorn acacia	*Acacia constricta*
Wolfberry	*Lycium* sp
Yellow paper flower	*Psilostrophe cooperi*
Zinnia	*Zinnia pumila*

The interplay between moisture, soil texture, depth and surface are vital to the establishment and survival of desert plants. Small washes provide somewhat greater moisture availability than the adjoining level areas and the broad sand-filled washes filled create ideal conditions for the rapid infiltration of moisture into the bed of the wash. These create improved conditions for the growth of many of the larger shrubs and trees found in the bajadas.

CHARACTERISTICS AND FEATURES OF SELECTED PLANTS

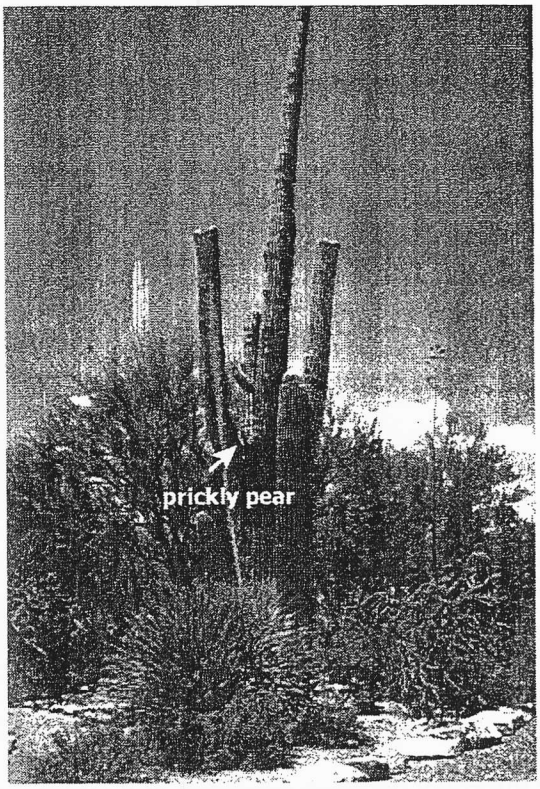
Whitethorn Acacia

This small leafed shrub is found growing throughout our area, especially in and near the washes. A key characteristic is the thin white thorns on some of the branches. It can reach up to 12 feet in height and can be recognized readily in late summer by the light brown pods that are between 2 and 4 inches in length. In the spring, this winter- deciduous plant can be covered with flowers that resemble small fluffy yellow balls. This plant also can be very barren of leaves during spring if there have not been significant winter rains.

Saguaro

The signature plant of the Sonoran Desert, this cactus can be classified as a tree. Individuals can live to be some 300 years of age and achieve a height of over 40 feet and weigh around 7 tons. These plants are commonly home to many birds and, in some unusual cases, they also can host other plants such as this prickly pear cactus found growing on the arm of a saguaro in Cat 7

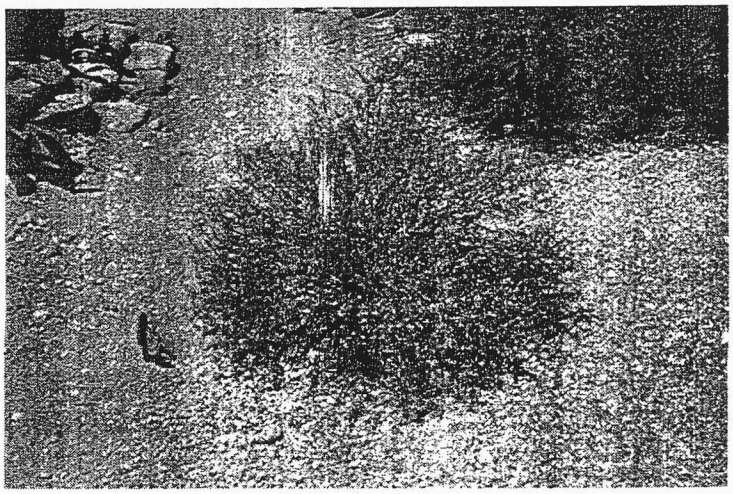
(Figure 2). The seedlings of this massive signature plant are very small, measuring only about an inch in height after 10 years. These young seedlings have a poorly developed root system that makes them very susceptible to being covered with flowing soil or being washed away with intense summer rains.



Mistletoe

This species is parasitic on leguminous trees and shrubs such as acacia, mesquite and paloverde. In Figure 1, we can see a major infestation of a paloverde. If these mistletoe plants are not removed from the branches of this plant, the paloverde likely will die. Mistletoe plants can be readily knocked off the paloverde; however, this will not remove the parts of the mistletoe that have penetrated into the paloverde. If there are only a few small plants on a tree or shrub, it is best to prune the infected branch carefully, but in the case of a plant such as that shown in Figure 1, it may be possible only to knock off the mistletoe plants. This removal would still assist the paloverde in its struggle with the mistletoe and could greatly extend its life.

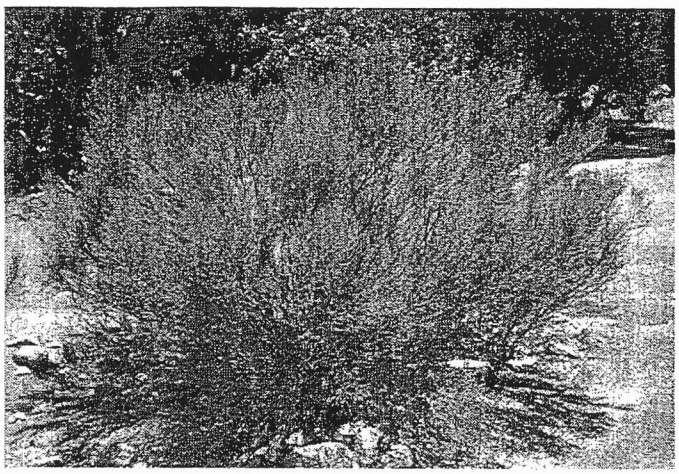
Triangle-leaf Bursage



This small perennial plant is the species that probably provides the greatest percent of the ground cover in our neighborhood. During most of its life, many of the brittle branches of this plant appear to be or are dead. This plant is usually less than two feet in height (Figure 3). Rains can rapidly stimulate the development of small triangle- shaped leaves that are about 1 inch in length. Individuals of this plant have been reported to live as long as 50 years. The fruits that are produced after both the summer and winter rainy seasons of the Arizona Uplands are round and very spiny and can often be found clinging to socks, pants or the hair of dogs.

Foothills Paloverde

This is the major tree of our area that seems to give the green appearance to the natural desert. In spring, yellow flowers cover the plants and create a very colorful yellowish-green display. During the dry summer, the plant can appear almost leafless. Blue paloverde looks very similar



to the foothills paloverde, but usually can be distinguished by its deeper blue-green coloration and larger leaves compared to the yellow-green color of the foothills paloverde. It has been estimated that individuals of this species can live for several hundred years and can reach a height of about 30 or more feet. It not unusual for this plant to lose small or even large branches during periods of severe drought.

Desert Broom

This native species grows preferentially scattered in washes or in disturbed areas such as along roadways or where other plants have been removed.. A short-lived plant, it grows very rapidly to a typical height of about 3 to 4 feet. When cut the yellowish-green stems resemble the straw used to make brooms, hence the common name desert broom. During the fall, these plants can produce large amounts of seeds that cover the upper parts of the stem, appearing to be almost as if cotton were attached. These seeds are readily dispersed by the wind and are a major weed problem in our area, especially in areas that are lacking an established plant cover.

REFERENCES USED AND SUGGESTED READINGS

Lehr, J.H., 1987 *Catalog of the Flora of Arizona.* Desert Botanical Gardens, Phoenix, AZ.

Lowe, C.H. 1964 *Arizona's Natural Environment,* University of Arizona Press. Tucson, AZ.

Kearney, T. H. and R. H. Peebles. 1969. *Arizona Flora.* University of California Press. Berkeley CA.

Phillips, S. J. and P. W. Comus (Eds.). 2000. *A Natural History of the Sonoran Desert.* Arizona-Sonora Desert Museum Press. Tucson AZ.

Robichaux, R. H. (Ed.). 1999. *Ecology of Sonoran Desert Plants and Plant Communities.* University of Arizona Press. Tucson AZ.

Press. Stanford CA Shreve, F. and I. L. Wiggins. 1964. *Vegetation and Flora of the Sonoran Desert. Volume 1.* Stanford University