

Descriptions of Biotic Communities on the Red Rock Ranger District

Intro - Biotic communities are a classification of vegetation types based on the dominant plants. There are various ways in which biotic communities have been delineated; some of which are very complex. In general terms, biotic communities in Arizona are defined by these broad vegetative categories: riparian, desertlands, grasslands, scrublands, woodlands, forests, and alpine tundra. Of these broad categories, all but alpine tundra occurs on the Red Rock Ranger district. The various biotic communities on this district support well over a thousand vegetative species, which in turn, support a diverse array of animals.

Riparian – Riparian areas are easily distinguished by the band of lush green vegetation that grows along wet drainages and around springs and seeps. This biotic community supports deciduous broad-leaf trees like cottonwood, willow, alder, ash, box elder, and sycamore. Riparian areas are associated with rivers and streams such as the Verde River, Oak Creek, Wet Beaver Creek, West Clear Creek, and Dry Beaver Creek.

Desert Scrub - While not a true desert due to more rainfall, this biotic community is the highest and northernmost portion of the Sonoran desert. Characteristic plants include catclaw, mesquite, crucifixion thorn, and creosotebush. Various rare plants occur within this biotic community, but only where limestone soils are prevalent.

Grasslands – The grasslands in the Verde Valley occur in areas where deep soils exist. Grasslands are defined by a low percentage of trees, but grasslands in the Verde Valley have been converted to woodlands through the encroachment of juniper, mesquite, catclaw, and acacia. These grasslands historically supported pronghorn antelope, but due to fragmentation from invading trees and shrubs, roads, and development, pronghorn now persist only 1/10th of their historic range in the Verde Valley.

Chaparral– Typically this scrubland type occurs where low-elevation desert landscapes transition into pinyon-juniper woodlands. Plant species include turbinella oak, mountain mahogany, manzanita, desert ceanothus, silktassles, Stansbury cliffrose, and sumacs. The vegetation can be so dense that it is impossible to walk through some stands of chaparral.

Pinyon-Juniper Woodland – This is the most expansive biotic community found on the district. Tree species that occur in this vegetation type includes pinyon pine and various species of juniper trees including Utah and red berry. At higher elevations, one may find alligator juniper. In the Sedona area, large stands of Arizona cypress may be present within this biotic community. Arizona cypress is a relic species from the Pleistocene and, as indicated by fossil records, occurred throughout most of the Sedona area. Warming and drying trends over geologic time have reduced the range of this species; they are now limited to cool air drainages in the red rock country. Another subset of pinyon juniper woodlands is the evergreen oak trees found in specific places like Oak Creek Canyon and Towel Creek. Evergreen oaks include Emory and Arizona white oak.

Ponderosa Pine– This forest type occurs at higher elevations on the district in areas like Apache Maid, Oak Creek Canyon, and canyons in the Red Rock-Secret Mountain Wilderness. The dominant tree species is ponderosa pine but other trees such as Gambel oak may be present. The Mogollon Rim in Arizona supports the largest contiguous stand of ponderosa pine in the world.

Mixed Conifer - This biotic community is very limited on the Red Rock Ranger District and occurs only in moist drainage and on north-facing aspects which are more shaded. Mixed conifer forests are characterized by the presence of multiple species of coniferous trees including, ponderosa pine, Douglas fir, and white fir. The deciduous big-tooth maple occurs in this biotic community.