



# Foothills

## Nature Notes

CITY OF PALO ALTO • COMMUNITY SERVICES DEPARTMENT • OPEN SPACE, PARKS AND GOLF DIVISION



### The Upper Sonoran Life Zone

The Palo Alto foothills are in the Upper Sonoran Life Zone, one of six major vegetation zones formulated by ecologist C. H. Merriam in 1898. In observing various altitudinal bands of flora in California, he realized the importance of climatic factors on the distribution of plants. Merriam's life zones in order of elevation are: Lower Sonoran, Upper Sonoran, Transition, Canadian, Hudsonian and the Arctic-Alpine (the last two usually combined into Boreal). While Merriam developed these zones to apply across the continent, they best describe western North America.

Each life zone is composed of certain plants and animals that are ecological indicators of climate, soil and other conditions characteristic of that life zone. For example, the presence of gray foxes, brush rabbits, or chamise (a chaparral plant) generally indicates the conditions of the Upper Sonoran Life Zone. Ranging in elevation from 500 to 2000 feet, this zone in the Palo Alto foothills can be divided into three plant communities: woodland, chaparral and grassland.

**Woodland Community:** The Oak Woodland in the foothills is characterized by stands of Coast Live Oak with intervening areas of grass and shrubs. While attracting wildlife from other communities, the woodland has its own characteristic residents. Dusky-footed woodrats and white-footed mice are common woodland mammals, even though they are not often seen. Other members of this community include the raccoon, the gray squirrel, the Oregon junco and the scrub jay.

**Chaparral Community:** Chaparral plants are generally found on well-drained south-facing slopes and ridges. Fires maintain pure stands of chaparral by destroying the seedlings of encroaching woodland trees, while leaving the root crowns of chaparral plants unharmed and ready to sprout with the first rains. The heat produced by fire also stimulates the germination of seeds from certain chaparral plants. Because of the hot, dry climate, chaparral plants possess various protective adaptations which reduce the amount of water lost through transpiration. Two common adaptations are small or vertically placed

leaves (manzanita, chamise, and ceanothus) and thick epidermal tissue (yerba santa). Although chamise is dominant, toyon, scrub oak and coyote brush occur in scattered clusters. Chaparral wildlife includes bobcats, coyotes, California quail and Bewick's wrens.

**Grassland Community:** The grassland community covers most of Pearson-Arastradero Preserve and the northeastern portion of Foothills Park. Grasslands generally follow successive stages of development in the following order: annual weed stage, short-lived grass stage, early perennial stage and the climax or mature grass stage. A series of dry years, a fire, excessive grazing or the disrupting action of humans could cause a setback in the development of any of the foregoing stages, often resulting in bare soil and erosion. Since the roots of many grasses penetrate as deep as six feet, the individual root systems combine to form a "soil net" which holds the soil in place and prevents erosion. Jack rabbits, mice and gophers are important consumers in this community. When humans excessively reduce the numbers of predators such as the coyote, gray fox and the red-tailed hawk, an overpopulation of rodents can cause severe damage not only to the grassland but also to surrounding communities.

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