

GRASSLAND ECOSYSTEMS

There are four grassland ecosystems on Vermejo with the shortgrass prairie being the most contiguous. Other grasslands include the grass components of the shrub steppe and the pinyon-juniper woodlands, and the montane grasslands including the savannas of the ponderosa pine forest and the large park grasslands.

Western Great Plains Shortgrass Prairie

Vermejo's shortgrass prairie lies below the edge of the bluffs and foothills of the southern Rocky Mountains. This high elevation shortgrass prairie is a dry grassland dependent on winter snows and summer monsoon rains with transpiration (water vapor released by plants) sometimes exceeding precipitation. The shortgrass system is warm season grass (C4) dominant but there are still cool season (C3) grasses present. The most dominant grass species is blue gramma, but other species are found across the prairie including bottlebrush squirrel tail, big bluestem, and western wheatgrass. Cacti and shrub scatter the landscape with different species of small cacti, yucca, prickly pear, and cholla. These species not only provide food for pollinators, but they also act as micro-habitats protecting more sought-after grasses from grazing, allowing the grasses to seed-out and provide a seed source. In wetter seasons, native sunflowers, curlycup gum weed, asters and coneflower blanket the prairie.

The shortgrass is the winter home for the Castle Rock bison herd and is habitat for pronghorn, elk, mule deer and black-tailed deer. The prairie is also important habitat for black-tailed prairie dogs, burrowing owls, scaled quail, roadrunners, mountain plovers, raptors, bull snakes, prairie rattlesnakes, and hopefully swift fox. The grasses are wind-pollinated, but forbs and cacti rely on insects and hummingbirds for pollination and reproduction.

Intermountain Basin Semi-Desert Shrub-Steppe

The Intermountain Basin Shrub-Steppe occurs along slopes and alluvial fans in drier locations in the mountain west. The shrub steppe is a grass dominant ecosystem with interspersed dwarf shrubs. On Vermejo's steppe, the most common grasses are blue gramma and wheatgrass with four-wing salt brush and rabbitbrush being the more prevalent shrubs. The largest and most contiguous shrub-steppe on the property occurs in surface coal mine reclamation areas that now are utilized by bison, elk, mule deer and black-tailed jackrabbits. Golden eagles use the steppe to hunt the hares while badgers, coyote, northern harriers, and prairie falcon hunt small mammals and reptiles. The shrub-steppe also provides habitat for grassland birds including the western meadowlark, horned lark, mountain bluebird and Vesper sparrow.

Grasses of the Pinon-Juniper Woodlands

Although the pinyon-juniper Woodlands of the southern Rocky Mountains are defined by their forest type, a large component of the ecosystem is grassland. In areas of mature and wider spaced trees, the grass dominates the understory and open areas. Blue grama, little bluestem, and western wheatgrass are the more common grasses of this ecosystem that bridges between prairie and the higher elevation montane grasslands. The lower extent of the pinyon-juniper woodlands typically are situated on drier foothills and slopes of the southern Rocky Mountains with a south to west aspect and a higher elevation boundary interspersing with ponderosa pine forest. Scientists expect the ecosystem to move higher in elevation with hotter and drier

climatic conditions, transitioning further into the lower limits of the ponderosa forest. The ecosystem is habitat for a mix of grassland and pinyon-juniper dependent species, including woodrats, chipmunks, jackrabbits, mountain cottontail, bears, wild turkey, mountain short-horned lizards, fence lizards, elk and mule deer. Fragile biological soils can be found interspersed between the grass understory of the woodlands. These 'living' soils that combine with lichen, algae, moss, or cyanobacteria can absorb and hold moisture in the drier environment.

Southern Rocky Mountain Montane-Subalpine Grassland

Grasses on Vermejo located in the ponderosa pine savannas, the large parks, and the patches interspersed amongst spruce-fir and aspen stands are considered part of the southern Rocky Mountain montane-subalpine grasslands. Ponderosa pine savanna are typified by large mature trees with broad understory of grasses that offer grazing areas for bison and elk and hunting areas for mountain lion, bears, great horned owls and bobcat. The Park Plateau is named for its large grassland parks including Castle Rock Park, Vermejo Park, Van Bremmer Park, Costilla Vega, and Devil's Park. These broad open grasslands are the spring through fall home for the Castle Rock bison herd and the Gunnison's prairie dogs. Long-tailed weasels and badgers hunt small rodents like pocket gophers, mice, and voles in the grasslands and adjacent forests. Now in some of the parks, populations of pronghorn antelope that moved up from the shortgrass prairie during sustained drought, have adapted to live in the montane grassland parks and surrounding forests. Higher in elevation, grassland patches offer grazing areas in open areas in spruce-fir and aspen forest stands.

Montane grasslands are usually a mix of warm (C4) and cool (C3) grasses varying by elevation with bunchgrasses being more dominant. Mountain muhly is more common as well as Arizona fescue, pine dropseed, and western wheatgrass, while blue gramma, sideoats gramma, little and big bluestem are still present in the lower ranges of the montane grasslands. Raptors and grassland birds are common in the Parks while wild turkey, Clark's nutcrackers, Stellar's jay, mountain chickadee, nuthatches and woodpeckers are more common along the edges of the forests.

Keeping Vermejo Grasslands Healthy

The Vermejo Natural Resources and Bison departments conduct annual fall range or grassland monitoring of twenty-seven transects across the different grassland ecosystems on the property. From the shortgrass prairie to the Costilla Vega, the transects are photographed and hoops clipped for production, continuing a monitoring system that was started in 2009. The data allows Vermejo staff to track trends in precipitation, plant species composition, vegetation litter coverage, and compare forage production to bison and wildlife populations and to develop science-based grazing management plans. Vermejo also works with Ranch Advisory Partners to track long term trends in plant biodiversity and soil health. (see Carrying Capacity and Range Monitoring abstracts).

Historic wildland fire suppression has caused forest encroachment into the montane-subalpine grassland systems. Vermejo's Forestry department works to simulate small stand replacement fires by creating a mosaic of open patches in the forest using a hydro-axe which mulches smaller trees in place.

Frequently Asked Questions:

1. What is the most common grass on Vermejo? It varies a lot by ecosystem and elevation but the most abundant overall is probably blue gramma grass.

2. When are the grasslands 'green'? Vermejo's high elevation climate determines the length of the 'growing season' or number of frost-free days. The average number of frost-free days in Vermejo Park (HQ) is 135 days, roughly from mid-May to the end of September. The shortgrass prairie will have a slightly longer season, and the higher montane grasslands will have a shorter growing season.