

# Forage Composition and Yield

## studies of forage regrowth and grazing capacity on controlled burned areas in northern California

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**Forage production** studies following controlled burns on chaparral areas indicated that forage is usually most abundant in the first two years after burning.

The majority of the studies were conducted in Mendocino County to represent coastal conditions, and in Shasta County to typify the interior brush associations. The areas were not reseeded or otherwise improved after burning. The vegetation was permitted to invade unmolested—except for livestock grazing—as is still a common practice.

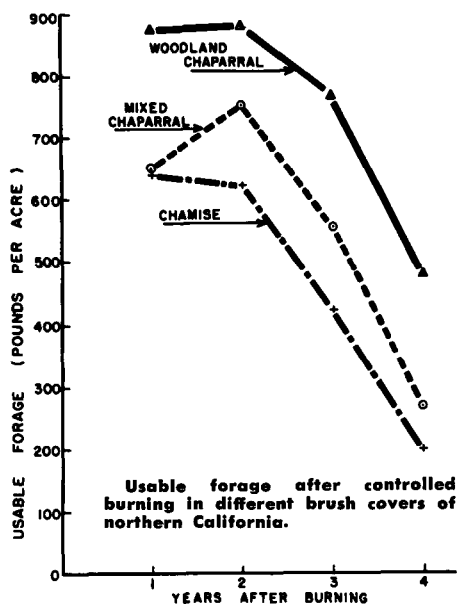
The studied areas included practically pure stands of chaparral; mixed chaparral, ceanothus, and both sprouting and nonsprouting manzanita; California scrub oak and interior live oak; patches of yerba santa, and a scattering of other shrubs. The topography varied from fairly steep to nearly level, and the soil from shallow and inferior—especially where chamise predominated—to fairly deep and productive on the scrub and live oak areas.

The first year after a burn, foxtail fescue, mouse barley, wild oat—offering fair-to-good forage or browse—and little quakinggrass, nitgrass, Pacific fescue, and red brome—poor forage—were the most abundant grasses.

There were many species of forbs—broad-leaved herbs—but common soapplant, fineleaf lotus, Spanish clover—fair-to-good as forage—and whispering bells, blue gilia, rattlesnake weed, longleaf filago, and Fremont death camas—poor forage—were especially common. The most abundant brush seedlings and sprouts that are fair-to-good as forage were California live oak, ceanothus, chamise, and dwarf interior live oak. Other species present were chaparral coffeeberry, greenleaf and some other manzanitas, and toyon.

Most of the grasses and forbs were present for three years after burning, though in different amounts from year to year. In all cases, forbs accounted for a much greater volume of growth than the grasses.

From the first year after burning and in subsequent seasons, great numbers of brush sprouts and seedlings occurred on the different burned sites, especially on areas of chamise, oaks, manzanitas, and yerba santa. Even so, much of the soil surface was exposed to the elements, and



active erosion occurred, notably on the steeper slopes.

Grazing capacity was relatively low on most areas, but sheep utilized the feed better than cattle. Although the average total growth per acre for all the sites studied—both herbaceous and woody growth—averaged 695 pounds the first year after burning and 5,214 pounds the fourth year thereafter, the amount of palatable forage was low. Sprouts accounted for a large part of the total growth and produced much greater volume in the second, third, and fourth years.

The greatest forage poundage was on

the woodland chaparral areas and the least was on the chamise lands. In the third year after burning, there was a consistent and rather sharp decline in forage yield on all the areas. Although the acreage requirement per month—acres per animal unit month—was high in all the brush types, it was much the highest on the chamise areas, which occupied the most inferior sites. Because of this, it is strongly indicated that most extensive chamise areas in northern California should be set aside for watershed protection and managed as breeding and hunting grounds for game—notably deer—for which they are eminently suited. These considerations particularly pertain to areas where the chamise occurs in primary ecological succession.

The combined usefulness of chamise lands for watershed protection and as game range appears to far exceed their value for grazing of domestic livestock. On the other hand, the mixed chaparral areas of the region studied showed a consistently higher grazing capacity than that of the chamise lands. Even so, only the better-quality sites—indicated by fairly deep soil and luxuriant, dense brush—justify the cost of controlled burning or of other means of opening up the brush. The more restricted woodland cover occupied the highest quality sites, and the grazing capacity was the best of the types studied. The forage yields and quality were the best and the least fluctuating during the four years of measurement.

The comparative grazing capacity for sheep and for cattle on the three most

Mixed chaparral area showing regrowth of brush sprouts and herbs two years after burning.



