

THE HALL RANCH

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The Hall Ranch is the range portion of the Union Station of the Eastern Oregon Agricultural Research Center. It was originally leased in 1936 as summer range for the station's sheep and cattle. In 1941, it was purchased from George F. Hall of Union, Oregon, and grazing was very heavy until 1956.

Initially this summer range was used only for livestock production. In the 1940s research centered on a nursery experiment that tested adaptability of some 54 potential forages. The range was in poor condition and an early survey showed the ranch was "largely covered with cheat." The surveyors also noted junegrass, bluegrass, sedges, and weeds as present. In 1956, Dr. James McArthur was appointed superintendent. In that same year he initiated a formal range survey by the Soil Conservation Service. This survey showed the range was in poor condition, particularly the meadows and open pine sites. In the mid 1970s the ranch was again surveyed by the Soil Conservation Service. Twenty years of modest grazing management had resulted in improvement of all range sites on the Hall Ranch. Most improved a full condition class.

From the middle 1950s through the 1960s, research on range management and forestry was conducted through cooperative programs of Drs. J. A. B. McArthur, Donald Hedrick (range management), and Robert Keniston (forestry). In 1960, a major research project was initiated to evaluate selective logging in the mixed coniferous forest. They removed much of the grand fir and left ponderosa pine and Douglas-fir seed trees. Grand fir reestablished in the site and a still useful body of information on understory/overstory competition and forest grazing was developed. Logging improved forage yield by 130% overall. Areas within sun spots produced six times as much forage as similar stands growing in the shade. They also initiated studies of plantation grazing in a mixed forest stand clearcut in 1963 and grazing studies in a stand clearcut in 1969. Studies of forage adaptability were carried on through the 1960s into the middle 1970s by Vance Pumphrey, now an agronomist at the Experiment Station in Pendleton.

In 1971, Drs. William Krueger (Rangeland Resources), Martin Vavra (Eastern Oregon Agricultural Research Center), and William Wheeler (Forestry) assumed management of the research program. They focused most of their early attention on grazing plantations and pastures within the mixed coniferous forest clearcuts and on grazing behavior and nutrition of cattle as well as interaction of cattle and big game. This research effort was interrupted by a decision of the Army Corps of Engineers to dam Catherine Creek and flood the Hall Ranch. In 1973, all research plans were revised to bring all projects to a close by 1977, and the Union Station was merged with the Squaw Butte Station to form the Eastern Oregon Agricultural Research Center. As it turned out, the decision to flood the ranch was changed and the research program continued.

In 1978, Krueger and Vavra initiated the riparian zone research program. In the early 1980s Dr. Richard F. Miller developed a series of ecophysiology studies to evaluate competition between conifer seedlings and forages. The plantation grazing projects also continued and have yielded much basic information utilized throughout the Northwest in developing grazing management programs for plantations. We are now at the stage of thinning the 1963 clearcut and will follow its development for the next several years. These early studies of transitory range showed that introduced forages are not more competitive to planted conifers than native forages when grazing is managed. Cattle can graze plantations heavily (1 acre/AUM) and tree growth is improved over not grazing by 10 to 20% for ponderosa pine and Douglas fir and even more for other species. Big game were also beneficial in controlling brush. With the planted forages and cattle grazing program, big game damage to trees was low, i.e. less than 20%. The riparian study indicated that full grazing did not have any substantial overall effect on wildlife species using the riparian zone. Plant succession changed markedly in about 30% of plant communities in the riparian zone, but wasn't affected very much on most of the area.

The management of cattle grazing has changed over the years as we have incorporated the results of the grazing research program. Until 1973, cattle were trucked to the ranch in early May (ranging from April 28, 1971, to May 28, 1957). Cattle were removed and returned to Union with the advent of deep winter snows in late November. Since 1973, cattle use has decreased and turnout is in mid-June with fall gathering in late October. The current cattle management program focuses on maintaining gains through manipulation of pasture use to utilize the forage when it is at its optimum quality. The grazing system is called prescription grazing and has resulted in improved weight gains of calves. The Hall Ranch is like most summer ranges with a complex of plant communities. Some begin to grow yearly and the north slopes start growth late. As long as time and intensity of grazing are controlled to prevent damage to the forage, it is possible to graze each pasture at the best time for meeting the nutritional needs of the cattle. The grazing prescription is used to slow the growth of the meadows early to improve their quality later and then to use each major community type when it is best suited for the cattle. Cattle graze the meadows for the last two weeks of June, then move to open ponderosa pine forests until late August. In September, the cattle graze the mixed coniferous forest and then graze meadows again in October. This practice maintains an optimum intake of green forage. Calves come off the Hall Ranch 20 pounds heavier with this system than with the more traditional deferred rotation that doesn't consider plant community differences.

Now the Hall Ranch is being used for a new and intensive research program evaluating grazing and forestry practices in the ponderosa pine and mixed coniferous forest. The study is designed to evaluate impacts of grazing intensity and timing on forest tree growth and impacts of systems of forest harvest on forage growth. It involves cooperation of Oregon State University's rangeland resources, watershed and forestry scientists from the Eastern Oregon Agricultural Research Center, and Departments of Rangeland Resources and Forest Science.

LIST OF THESES FROM HALL RANCH

Walton, Richard L. 1962. The seasonal yield and nutrient content of native forage species in relation to their synecology. M.S. thesis. Corvallis, Oregon State University.

Young, James A. 1965. Forage production and utilization in a mixed conifer forest in the Wallowa Mountain foothills. Ph.D. thesis. Corvallis, Oregon State University. 108 numb. leaves.

Pettit, Russell D. 1968. Effects of seeding and grazing on a clearcut burn in a mixed-coniferous forest stand of the Wallowa mountain foothills. Ph.D. thesis. Corvallis, Oregon State University. 133 numb. leaves.

Wood Benjamin W. 1971. Response of Canada milkvetch (Astragalus canadensis var. mortonii (Nutt.) Wats.) to range and forest improvement practices in northeastern Oregon. Ph.D. thesis. Corvallis, Oregon State University. 166 numb. leaves.

Erickson, Lloyd Ronald. 1974. Livestock utilization of a clearcut burn in northeastern Oregon. M.S. thesis. Corvallis, Oregon State University. 53 numb. leaves.

Miller, Richard Frank. 1974. Spring, summer, and fall use by cattle and big game on foothill rangelands. M.S. thesis. Corvallis, Oregon State University. 126 numb. leaves.

McInnis, Michael Lindsay. 1977. A comparison of four methods used in determining the diets of large herbivores. M.S. thesis. Corvallis, Oregon State University. 127 numb. leaves.

Kauffman, John Boone. 1982. Synecological effects of cattle grazing riparian ecosystems. M.S. thesis. Corvallis, Oregon State University. 283 numb. leaves.