

Watershed management increases rangeland productivity

A.H. Murphy

The need for water in all phases of California's economic development has put strong emphasis on research toward maximum use of this resource. Wildland watersheds supply approximately 95 percent of the state's water. Consequently, an understanding of watershed management is necessary to obtain the highest water yields.

Soon after the Hopland Field Station was established, two watershed areas were selected for intensive watershed-management studies. Hydrologists of the Water Science and Engineering Department initiated the studies with the cooperation of research disciplines in agricultural economics, agronomy, animal science, botany, forestry, and wildlife.

The studies have been concerned with the disposition of water from the time it falls on the area as rainfall until it leaves the area as runoff or evaporation. Included are the effects of vegetation on interception of rainfall, use of moisture, and ability to hold or retard erosion; the method by which moisture enters the soil profile for storage and later release; manipulation of vegetation to provide good feed for animals without making exorbitant demands on water supplies; animal utilization that is compatible with other users of a watershed; and the cost and return relationships for the many changes that go with development of watershed resources.

The two watershed sites selected were typical of many rangeland areas of northern California. They had a mixture of grasses, trees, and shrubs on relatively steep ground; had been used by livestock and wildlife for many years; and were in areas where many aspects of input and output could be accurately measured.

One of the advantages of removing woody vegetation and seeding hillsides to grasses and clovers is greatly increased livestock carrying capacity.

Basically, it was decided that the native vegetative cover would be replaced with a cover more economical on water use and more productive for livestock. Different processes were used to develop the two areas.

A. H. Murphy is Specialist and Superintendent, Hopland Field Station.

