



Associate Professor Don Erman and graduate student Dennis Newbold take water samples from a mountain stream for a study to determine effects of logging practices.

Understanding our forest resources through research

Dennis E. Teeguarden

Forestry research was initiated on the Berkeley campus of the University of California in 1914, when a Division of Forestry was established in the College of Agriculture. At first, forest scientists set out to establish basic facts about the distribution, ecology, growth, yield, and quality of such important tree species as the redwood, ponderosa pine, and sugar pine. There was emphasis, too, on the design of efficient techniques and systems for the harvesting of large, old growth timber.

In those early days, the problems of private or industrial forestry engaged the attention of researchers because there was little timber harvesting or public use of national forests, which in California contain one-half of the commercial forest area. Later, in 1922, recognizing the importance of domestic livestock use of forest areas, the division initiated research on rangeland ecology and management.

Over the years, research has expanded in response to changes in the condition of forest resources, the development of new technology, and changing public demands for the several services obtained from forests. For example, in the 1940's white fir was regarded as a weed species and was often cut and left in the woods to rot. But when timber prices rose in the postwar building boom, scientists found white fir was a satisfactory substitute for Douglas-fir in residential construction. Today it is an important commercial species, and there is a need to establish basic biological and ecological knowledge on which long-term management of the species can be based.

Another major development was the acquisition of the automobile by a growing, affluent population. Thousands of pleasure-seekers began to travel to mountain forests. Conflicts between commercial timber production and recreational activities developed. With heavy recreation use, vegetation was destroyed and soils compacted. These events gave rise to seeking ways to improve the multiple use of forest resources and to manage forest recreation sites so that the very values people seek in forests are not destroyed.

In 1979, the Department's 33 faculty members are conducting 43 research projects. A range of scientific specialists are included: silviculturists, plant and animal ecologists, soil analysts, economists, a sociologist, biometricians, and so forth. The projects span such problems as finding better ways to inventory renewable forest resources with earth-circulating satellites, developing methods for determining the carrying capacity of wilderness areas for recreation use, and improving techniques for regenerating forest lands following timber harvesting. Though

highly diversified, the program generally focuses on 11 problem areas: resource inventory, soil and water, silviculture and timber management, wildland ecology, forest tree genetics, wildlife-fisheries management, range forage production, forest protection, wood products marketing, resource economics and policy, and multiple use of forest land.

The research and teaching activities of the faculty are inextricably interwoven. Each faculty member teaches courses in an area normally closely related to his research project, so new research findings quickly find their way into reading lists and lectures. Graduate students, preparing for careers in scientific research and teaching, work on faculty research projects, thus gaining experience and knowledge not wholly obtained from normal course work. As a result of this integration of functions, teaching and research activities are more productive than would be the case if they were conducted completely independently.

The articles that follow were selected to feature our progress in solving important resource management problems and to illustrate the scope and significance of forestry research activities. Some articles deal with technical or biological aspects of managing forest resources while others concern economic or social issues. In each case, the objective is to summarize recent progress in developing knowledge needed to manage better our valuable forest and wildland resources.

Dennis E. Teeguarden is Chairman, Department of Forestry and Resource Management, U.C., Berkeley.



Field courses for forestry students are held at the U.C. Forestry Camp at Mineral Valley near Quincy. The site is also used for ecological studies.