Focusing Undergraduate Coursework on Agricultural Land, Rangeland and Forest Lands

As the trend of reconfiguring traditional "commodity linked" departments appears to be in progress, these authors suggest that undergraduate coursework be reorganized with basic land management types as the focal points.

By E. William Anderson, John C. Buckhouse, Michael M. Borman, and Elizabeth Anderson Vandehey

Historically, academic training in Rangeland Management began as a subsidiary of other academic resource-oriented curricula. Over time, Rangeland Management has evolved into a distinct and important curriculum at western universities. This trend in academic training probably was in response to advances made in the art of managing rangelands and the ever-increasing opportunities to do so on the land.

A case in point, at Oregon State University (OSU), the first range-related course offering was "Range and Pasture Botany" offered in the Botany Department in 1917. "Range Improvement and Management" was offered in 1934 in the Department of Farm Crops. In 1935, two additional courses on management of livestock on range were offered in the Department of Animal Husbandry. By 1940 the first two OSU, Range Management Master of Science degrees had been awarded to G. John Chohlis and E. William Anderson.

In 1949 a four-year range curriculum was developed and offered through the Departments of Animal Husbandry and Farm Crops. In 1971, all Range faculty were consolidated into the Animal Science Department. In 1981, the range program was converted into an independent academic unit, the Department of Rangeland Resources.

At the federal level, the discipline of range management developed initially in the United States Department of Agriculture, Forest Service (USDA, FS) at USDA's inception in 1905. In the 1930's and 1940's, the US Forest Service, was strongly involved and deeply concerned with the management of rangelands. They therefore provided leadership and research in rangeland management relevant to national forests of the West.

The Grazing Service, US Department of Interior was established in 1934 and administered huge areas of western rangelands considered to be "public domain" subject to disposal. Management consisted primarily of issuing permits. Initially grazing permits usually lacked detailed specifics in range management. The Grazing Service was merged with the General Land Office in 1946 to become the Bureau of Land Management (BLM). Initially grazing management was in sharpest focus in the BLM's allotment management plans. Wildlife, fisheries, archeological, botanical, recreational and other resource focuses have become *increasingly* important in recent years.

In 1936, after the USDA Soil Conservation Service (S.C.S.) was established, its program involved working with ranchers on the conservation, use, and management of private crop, range and pasture lands, including utilization of farm-crop aftermath. This was especially the situation in the irrigated areas across the West where hay land, pasture and farm crops supplement rangeland and grazed forests to provide livestock feed and forage yearlong.

Rangeland Planning in Oregon: An Example of Management by Land-Type

In Oregon, working out a practical livestock grazing system on a ranch-by-ranch basis became the focus of initial SCS conservation planning with ranchers. These plans involved various seasonally available crop forages and aftermath on agricultural lands in conjunction with such practices as rotated-deferred grazing and safe degree of utilization of native rangeland forage. On ranches where tracts of BLM and other public lands were fenced in with private lands, the appropriate agency representative either participated in the planning process or merely approved the proposed management program.

In 1949, coordinated resource management planning (CRMP) developed based on a broader scale need for coordination of planning in a rangeland setting. In this initial circumstance, five neighboring ranchers were involved. Each had a grazing permit on the same BLM grazing allotment. Each rancher also had developed a conservation plan for his ranch in conjunction with the local conservation district. The problem was that the five BLM grazing permits did not coincide; some had earlier turnout dates than did others. The five ranchers, together with a representative from BLM, SCS and the conservation district, worked out the solution to this issue and simultaneously resolved several other rangeland resource-related issues.

As CRMP expanded within Oregon, the kinds and complexity of situations dealt with increased greatly (Anderson 1999). The CRMP evolved to include an array of resource considerations within land types, i.e. range, forestry, agriculture. Soils, water, fish, wildlife and other resources were considered within each land type. Ranches, various agencies, and within reason, other interested parties worked together to develop coordinated plans that addressed all relevant issues across ownership boundaries.

Consequently, during E.W. Anderson's tenure with SCS in Oregon, planning-team membership changed from plan to plan according to the situation. Team members represented relevant disciplines, agencies and organizations such as agronomy, wildlife, soils, and forestry, as appropriate. As coordinated plans developed for special situations, such as management a sub-watershed, membership would include representatives of appropriate State organizations involved in such programs and water-user organizations.

Current Management Needs

At the field level, throughout the West, there is a great need and urgency to facilitate and enhance the quality of interagency and interdisciplinary coordination and collaboration in planning the use and management of our renewable natural resources. A major step toward achieving this would be taken if basic undergraduate education at the University level was oriented to the kinds of land that are most generally dealt with out in the field. These kinds of land logically occur in three categories: Agricultural Land, Rangeland, and Forest Land.

Each of these kinds of land differs significantly from one geographical area to another but, within each geographical location, they have a relatively distinct pattern of similarity. These large subdivisions of a region, have been called ecological provinces (Anderson, et al 1998).

An Ecological Province is a subdivision of a region having a distinctive combination of geological features and ecological sites.

An ecological site is an area of land having a distinctive combination of soil, topographic, and natural biotic (chiefly vegetation) factors; the effect combination of which have management implications (Anderson, et al 1998). A parallel concept is that of capability classes which are used by Natural Resources Conservation Service (NRCS — formerly SCS) to classify agricultural lands. Ecological sites succinctly classify rangelands and forest lands.

These concepts are generally accepted and taught as part of rangeland classification coursework at universities offering rangeland curricula. However, they logically ought to be taught, at the undergraduate level to all students involved in forestry, agriculture and natural resources.

University Preparation of Land Managers

In recent years, a national trend has developed to merge programs and departments into larger administrative units. Since a trend reconfiguring traditional "commodity linked" departments appears to be in progress, we offer the suggestion that undergraduate coursework be reorganized with basic land management types as the focal points; i.e. agricultural lands, forest lands, and rangelands.

Undergraduate academic courses that are tailored to convey this concept of ecological province and ecological site to students would greatly facilitate their effectiveness as professionals when they graduate and enter their professional field of work. The contribution of universities to resource conservation management of our renewable resources, be it forest land, cropland or rangeland, would be enhanced.

Under this scenario at our universities, the natural resources curricula would be land-based i.e. Rangeland, Forest land, or Cropland. Coursework germane to specific discipline areas (e.g. soils, fisheries and wildlife, animal sciences, etc.) could then focus on application within each of the land-bases.

Reorganizing the focus of curricula within disciplines would be a rational educational approach that should overcome a general perception that forestry = lumber, range = grazing, and crops = farming. Each is much, much more than that! Logically, therefore the curricula should be organized accordingly. Under such a hierarchy, students interested in a land management career would receive a much more relevant education—one that would prepare them to be more effective as managers.

The establishment of schools/colleges of Agricultural Land, Rangelands, and Forest lands as a means of enhancing the modernization and effectiveness of undergraduate coursework at the University level should be scrutinized carefully.

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