

Where Are the Range Graduates Going?

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Employment is vital to range science graduates. Moreover, it determines the success of universities in training these students and ultimately, the future of the Society for Range Management (SRM).

To learn the source of employment of our range graduates, the Employment Affairs Committee of SRM surveyed 32 universities that educate range scientists in the United States. The survey's database of 1,348 employed range graduates represented 69% of the graduating population from the 18 schools that responded. Employment records were requested for the past 10 years; our average was 7.2 years.

Current Employment

Results from the survey indicated that the majority of range graduates (33.1%) are finding employment with the federal government. Within the federal government, the Soil Conservation Service (SCS) hires 9.9% of all range graduates surveyed. The Bureau of Land Management (BLM) hires 8.6%, and the Forest Service (FS) hires 8.3% of the surveyed graduates. Just over 1% of these graduates entered the armed services, 1% find work with the Bureau of Indian Affairs (BIA), and 1% go to work for the USDA's Agricultural Research Service (ARS). The remaining 3.1% of graduates working in the federal government are with the Corps of Engineers, U.S. Fish and Wildlife

Service, Bureau of Reclamation, and other federal agencies.

After the federal government, higher education retains the next highest group of graduates, 26.3%. This number is slightly inflated due to the fact that it contains all graduate students, and there may be an overlap between schools over years. However, an important point to consider is that 14.2% of all surveyed range graduates pursue a higher degree. Five percent of all graduates surveyed remain at the university or college level as teachers. University research employs an additional 4.7% of the graduates. The Extension Service employs another 1.4% of the graduates, one-half as state extension specialists and the other one-half as county extension agents. One percent of the surveyed graduates teach at the primary/secondary school level.

Range Science is often viewed as an international discipline. Of the surveyed graduates, 9.5% were foreign students, most of whom return to their respective homelands. The foreign student percentage was third only to graduate school (14.2%) and the SCS (9.9%).

The survey indicated that as few as 4.6% of all range graduates return to the ranch or farm, or find employment as a ranch manager—a low number considering the main target of our profession. We need to ask ourselves why is this number so low, where are these people going? Of the surveyed range graduates, 5.7% are finding jobs in other natural resource occupations (private consulting 2.7%, peace corps 0.7%, nurseries 0.2%, other 2.1%).

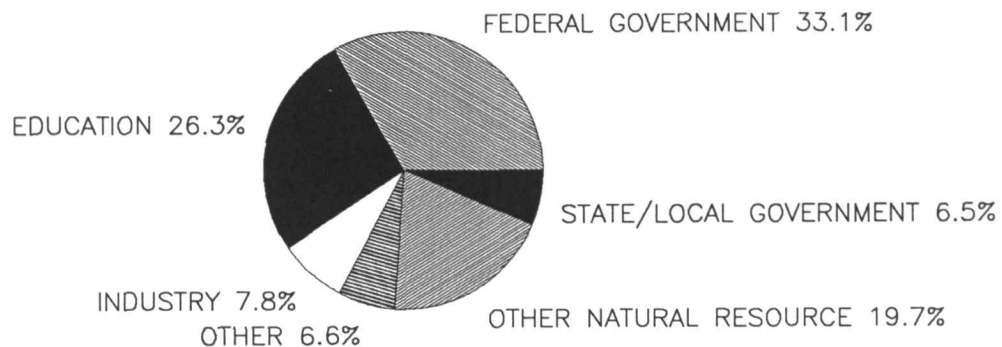
Private industry employs 7.8% of the range graduates. Reclamation accounted for the highest percentage employed in this category (2.4%), followed by consulting (1.7%), reclamation industry research (1.5%), and agricultural product sales (1.2%). The remaining 1.0% are em-

Authors are members of the Employment Affairs Committee SRM, 1989. Questions concerning the article should be directed to the Managing Editor, Society for Range Management.

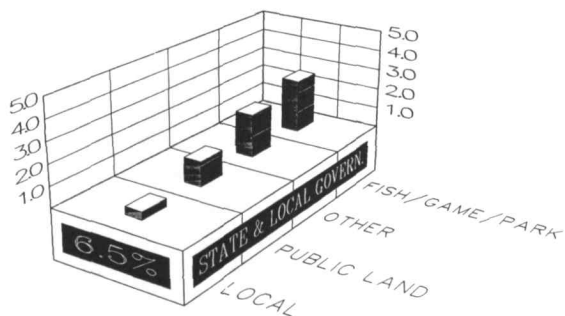
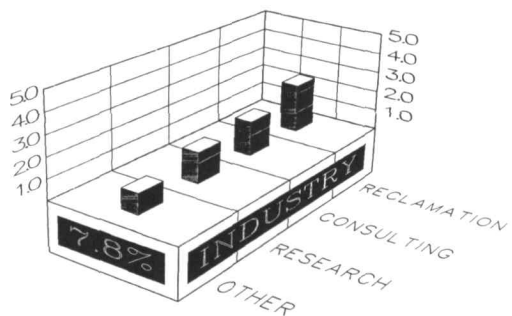
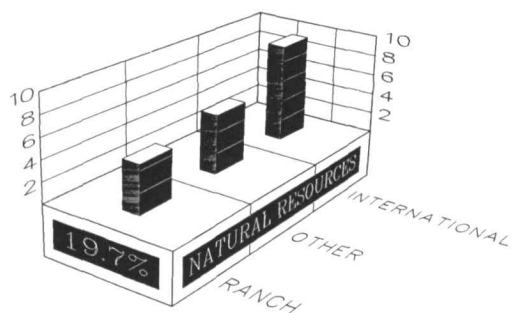
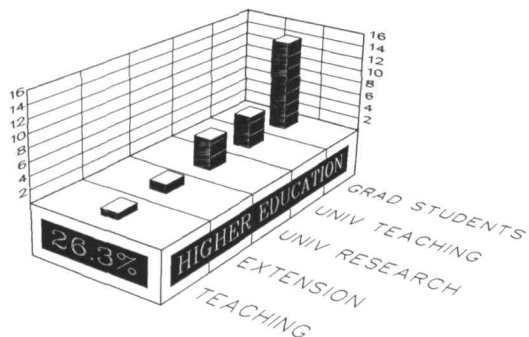
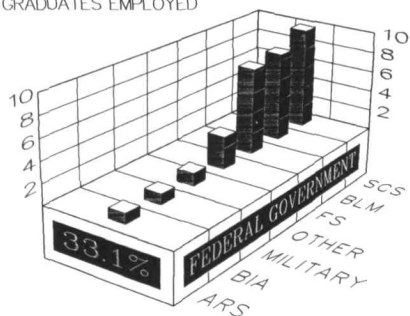
ACKNOWLEDGEMENT: This article was made possible by the combined efforts of all members, including the 1988 Committee, Chris Call, Chairman, and the 1989 Committee, Harold Wiedemann, Chairman.

SURVEY: An initial and follow-up mailing was sent to all 32 range science education schools in 1988. The SRM Board of Directors reviewed survey data at Billings, Montana. The survey does contain some overlap on individuals that were listed as graduate students at two or more universities as well as an employed graduate.

CURRENT EMPLOYMENT OF RANGE GRADUATES



PERCENTAGE OF TOTAL RANGE GRADUATES EMPLOYED



employed in banking, railroads, forestry companies, and environmental assessment.

A surprising 6.6% of the graduates found jobs that were not related to the natural resource fields (lawyers, painters, etc.). This number includes some graduates whose employment was listed as unknown. However, graduates with unknown employment status were typically not reported in the survey.

State and local governments employ 6.5% of our graduates: 2.6% find employment with state game and fish/parks departments and 1.2% with public land administration departments; the remaining 2.7% find their niche with various other state and local departments.

Future Prospects

To highlight future job opportunities in range management, the Employment Affairs Committee requested information from five agencies concerning their prospective retirements and projected new hires. Information was obtained from the USDA—Forest Service, USDI—Bureau of Land Management and USDA—National Park Service (NPS). The other two agencies were unable to provide information. There is concern among the agencies that a large number of federal employees in land management are nearing retirement, and there may not be sufficient qualified candidates to meet the future needs.

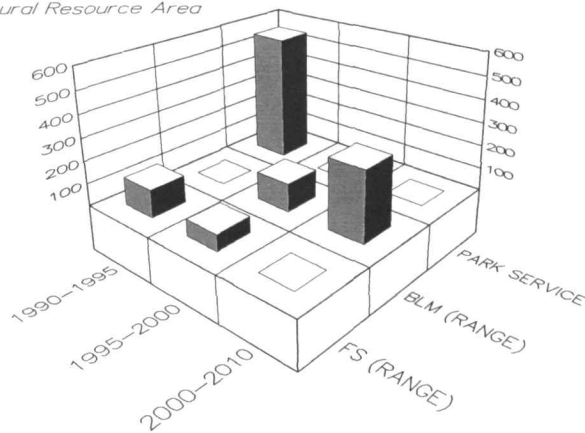
USDA—Forest Service

As of February 1989, the USDA Forest Service employed 429 Range Conservationist in permanent positions. Of these, 63 will be eligible for optional retirement by 1995 with an additional 29 leaving the Forest Service for reasons other than retirement. It is projected that by 1995, Range Conservationist positions will increase to 451. The Forest Service projects the hiring of 105-123 new Range Conservationists by 1995. This projection does not account for range positions being made available though placement of existing Range Conservationists into non-range positions, i.e. Administration. Between 1995 and 2000, an additional 67 Range Conservationists will reach retirement age.

USDI-Bureau of Land Management

About 8,856 Bureau of Land Management employees

PROJECTED FEDERAL JOBS
Natural Resource Area



will be eligible for retirement between the years of 1990 and 2000. Of these employees, 413 are in the Range Conservationist series. The BLM estimates that only 25-30% of these employees will actually retire when eligible. As with the Forest Service projections, these data do not include entry level Range Conservationist positions being made available through placement of range personnel into non-range positions. Because the total BLM employees increased from 5,000 to 10,000 employees between 1974 and 1980, the BLM anticipates many retirements between the years of 2005 and 2010.

USDI—National Park Service

As of February 1987, 28 Ecologists, 170 General Biologists, and 3,157 Park Rangers were employed by the National Park Service. The NPS projects to hire 18 General Biologists and 529 Park Rangers at the entry level within the next five years. These positions are available to range graduates as well as a host of other graduates from general biology to law enforcement. Calculations are based on the number of employees who are eligible to retire and the assumption these vacancies will be filled

internally, i.e., sequential advancement would result in six promotion opportunities if all selections are made from internal sources. The actual number of promotion opportunities, then, is overstated. However, attrition from factors other than retirement have not been factored in to help offset this overestimation.

These figures for the various federal agencies, although approximations, do alert the Society for Range Management and universities to future opportunity. Cooperation with these various agencies to provide well-qualified, natural-resource-management trained graduates is a must.

Conclusions

The Employment Affairs Committee is concerned about employment for our graduates. Where will the future jobs be? Will our graduates be trained with the necessary skills? What can the employer do? These are vital questions, and our committee hopes you will use these data to prepare for the future—the graduate's future, the universities' future, SRM's future.

Revegetation of Previously Irrigated Cropland: I. Development of a Research and Demonstration Program

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Colorado has five primary river drainage basins; the Platte, Colorado, Arkansas, Río Grande, and Yampa/Snake. The Arkansas River drainage basin has historically been one of Colorado's richest agricultural areas yielding a wealth of vegetables and grains for decades. The river basin originates at an elevation of 14,433 feet above sea level and consists primarily of the entire southeastern region of the state east of the continental divide (Fig. 1). The Arkansas River leaves the state at an elevation of about 3,400 feet, the lowest point in Colorado. The basin encompasses approximately 26,000 square miles and is characterized by three general geographic areas: the upper reach (Leadville to Canon City), foothills (Canon City to Pueblo), and the irrigated plains region east of Pueblo.

This diverse agricultural area is now undergoing a major change in land use that will alter the complexion and the way of life for generations to come. Irrigation water rights are presently being sold to Colorado's fast-growing cities. Irrigation water removal from tens of thousands of acres results in large areas of abandoned land.

Historical Perspective

Spanish expeditions first explored the Arkansas Valley between 1760 and 1780. Zebulon Pike, Fremont, and Gunnison explored the area in the 1800s. Farming and

ranching settlements were established after Colorado's gold rush of the 1850s. The first three crops grown were alfalfa, watermelon, and cantaloupe (Doll 1987). To support the production of irrigated crops, a network of canals was constructed. Water allocation guidelines had to be developed for orderly water use. The first water right in the Arkansas Valley was decreed in 1861; the last decreed in 1933 under the prior appropriation doctrine of water right allocation.

The development of the sugarbeet industry occurred during the early part of the twentieth century. At the height of the sugarbeet industry, as many as twenty-two sugarbeet processing facilities were operated in the lower Arkansas Valley. Beet production began to decline in the 1970's due to low prices and oversupply and subsequently disappeared with the closure of the last processing factory in 1979 (Markoff 1979).

The decline of the sugarbeet industry initiated a period of economic stress in the Valley's irrigated agriculture. Much of the original development, and the ultimate decline of irrigation, has been tied to the sugarbeet industry. Low commodity prices forced further declines in farm economics. Irrigated producers began to look to the sale of water rights as a means of monetary income.

Events and Factors Leading to Land Abandonment

The 1965 sale of Otero Canal Company water rights marked the first major sale of irrigation water in the Arkansas Valley. In the next two decades 58,000 acres out of a total of 304,000 irrigated acres in the Valley were

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