



University of Idaho

Idaho Forester



A Magazine of Natural Resources

1989

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Tame animals have no tenacity as links in the new food chain; they are maintained, artificially, by the labor of farmers, aided by tractors, and abetted by a new kind of animal: the Professor of Agriculture. Paul Bunyan's burling was self-taught; now we have a 'prof' standing on the bank giving free instruction.

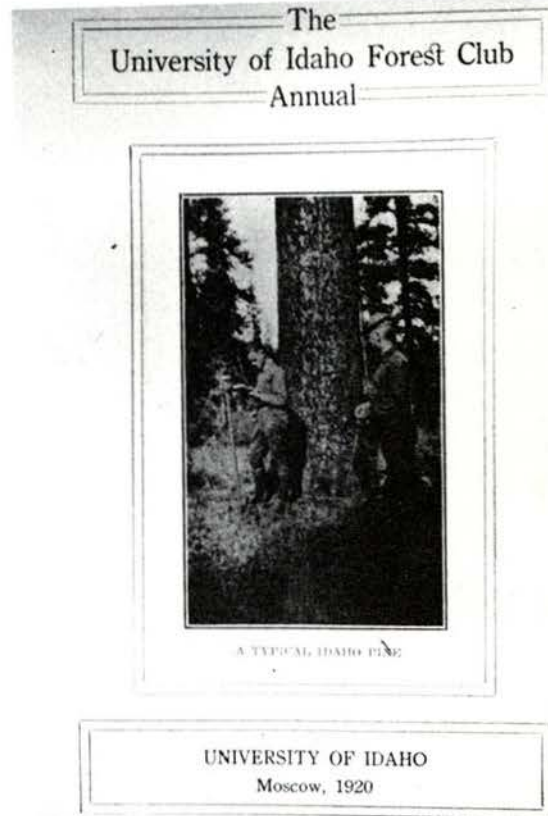
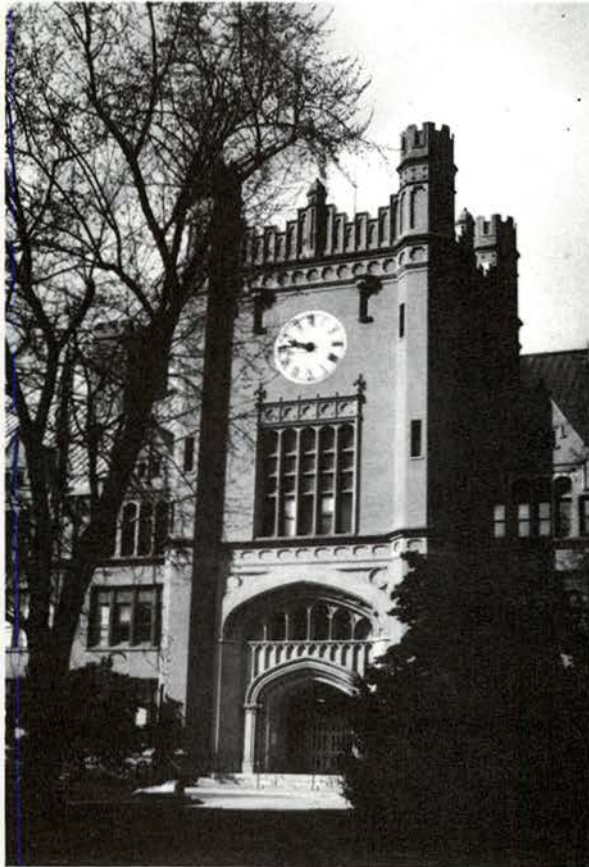
Aldo Leopold
A Sand County Almanac

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Dedication

This year's *Idaho Forester* dedication is from the oldest natural resource magazine in Idaho, to the oldest university in Idaho for its fine tradition of education in its first 100 years. For over seventy years the *Idaho Forester* has been a valuable part of this tradition, providing educational and recreational opportunities for all students. In the future the magazine will continue to work with the university to ensure the preservation of Idaho's natural resources for posterity.



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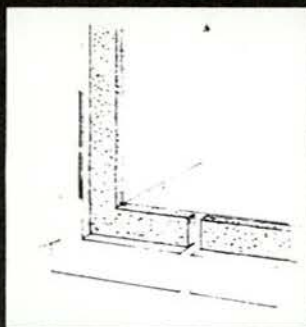
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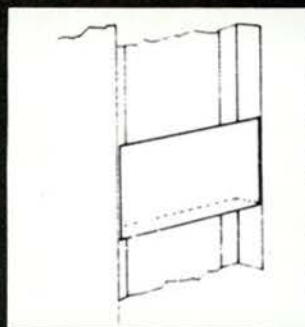
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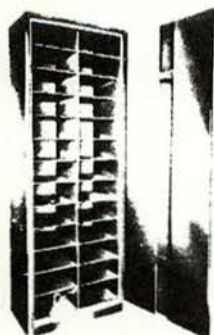
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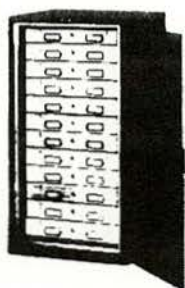
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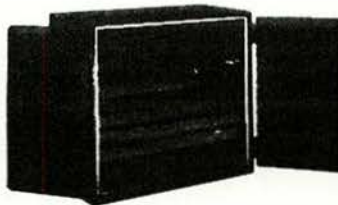
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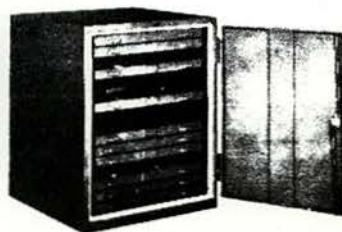
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Table of Contents

i.....	Dedication	36.....	S.A.F. Convention—1988 <i>Mark Mousseaux</i>
2.....	Editorial	37.....	A Day Of Wet Wonder <i>David Persell</i>
Feature Articles			
4.....	The Yellowstone Fires: An Opportunity To Learn <i>James M. Peek</i>	38.....	UI Celebrates Birthday With FWR Trees <i>Chris Maranto</i>
7.....	To Hells and Back: Trouble In Paradise <i>Stewart Allen</i>	40.....	Natural Resource Week And The Awards Banquet <i>Greg Wooten</i>
10.....	The Laughing Goose That Is Not Amused <i>Dave Budeau</i>	43.....	Outdoor Classroom Dedicated <i>Diane Noel</i>
12.....	The Tundra Swan: An Overlooked Waterfowl <i>Matthew J. Monda</i>	Student Activities	
14.....	Rangelands Can Be Forever <i>John W. Bohning</i>	46.....	Student Affairs Council <i>Paula Yochum</i>
16.....	LOST HORIZONS Vistas Vanish From Our National Parks <i>Mary Bean</i>	47.....	Student Management Unit (SMU) <i>Ken Nygren</i>
18.....	Situational Analysis For Environmental Education In Rural Honduran Elementary Schools <i>Stuart Markow</i>	49.....	Xi Sigma Pi <i>Ken Pratt</i>
20.....	A Survey Of Taxpayer Opinions Concerning Idaho's Nongame Wildlife And Endangered Species Program <i>Charles C. Harris, Kerry P. Reese, and Tracy A. Miller</i>	50.....	Society Of American Foresters <i>Mark Mousseaux</i>
22.....	Biotechnology Research Expands To Sagebrush, Bitterbrush And Elite Black Cherry <i>Carol M. Stiff, Yvonne Carree and Mark Mousseaux</i>	52.....	American Fisheries Society Palouse Unit <i>Bruce Rich</i>
23.....	Incorporating Economics Into Wildlife Management <i>Natalie Bolon and Charley McKetta</i>	53.....	Fish: A Poem By Cliff Hauptman
26.....	The Inside Passage: A World Experience By Water <i>Veronica Fortun</i>	54.....	The Wildlife Society <i>Greg Wooten</i>
College Focus			
28.....	A Succinct Selection Of FWR Facts <i>George Savage</i>	55.....	Range Club <i>Jay Pence</i>
31.....	Taylor Ranch Internship, 1988 <i>Stuart Markow</i>	56.....	Wildland Recreation
34.....	A Taste Of History	57.....	Forest Products Club <i>Patrick Farrell</i>
		60.....	The Snag <i>Paula Yochum</i>
		61.....	The Idaho Forester Staff
		63.....	Alumni News
		67.....	1988-89 Student Directory
		69.....	Index To Advertisers

Editorial

What is education? This is a question that comes to more than a few students minds. Many would have it that education is books and tests. If you want to be recognized in the learning hierarchy, you have to get straight "As."

I disagree with this perception. My higher education includes more than just grades. Do not get me wrong, it's not that I feel grades are unimportant, it's just that there are other facets of higher learning that are just as important.

Experience, application of new skills learned in the classroom, involvement in extra activities outside the normal curriculum, and meeting new people are all very important. Why are they important, you may ask. Well, employers look for these qualities. A person

with these skills is more accustomed to the everyday problems and commitments that are presented in a normal work day. These qualities also give a person more self-respect and personal satisfaction.

How do you get these qualities that are so desired? You surely cannot buy them in real life. The way to achieve these important characteristics is very simple. Joining one of the various clubs around the college will expose you to many, if not all of these qualities. It is not difficult and does not take a lot of time to be in one of these organizations. What little time that is involved is often well worth it when filling out job applications and references.

Volunteerism is another way to gain valuable skills. It usually does

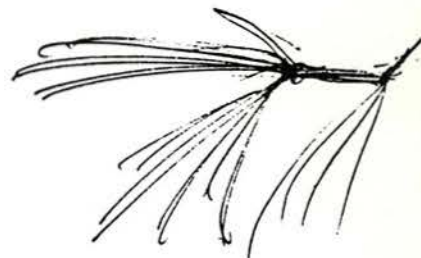
not pay in cash, but rather allows you to gain skills and have fun at the same time. Also, while participating, you are learning to master a skill that may help you get a higher paying job in the future.

I have noticed, while being involved in numerous organizations throughout the college, that it is a very small percentage of the students who are involved in these extra activities. Some of the many who are not may be hooked on the straight "A" concept. Others may just be lazy. I only wonder if there is a correlation between the small percentage that do the extra, well-rounding activities and the small percentage that are actually hired on for permanent jobs after completion of higher education.

David Persell



Feature Articles



The Yellowstone Fires: An Opportunity to Learn

by James M. Peek

Fire has been recognized as a useful tool in wildlife management since Herbert A. Stoddard began using it to manage for bobwhite quail in the south Georgia pinelands around 1910. It was recognized in the late 1930's that elk populations had increased in northern Idaho and western Montana on areas that had been extensively and severely burned in previous decades.

One of the justifications for re-establishing fire's natural role in certain national parks and wilderness areas was that the indigenous wildlife evolved with fire and would presumably be benefitted or at least not adversely affected. For instance, the original fire management plan for the Selway-Bitterroot Wilderness (D. Aldrich & R. Mutch, 1973. Fire management prescriptions: a model plan for wilderness ecosystems. Bitterroot National Forest, Hamilton, Montana) does not even mention wildlife, implying that no one involved was worried about the effects. Similar thinking is apparent in the original fire management plans for Yellowstone National Park, where the concept that allowing fire to play a more natural role would help ensure diversity of landscape units and of wildlife species, and would aid in maintaining those species that depend on fire.

It has been long recognized that the indirect effects of the fires on habitat are much more important than the direct mortality of wildlife attributable to the fires. The ability of fires to alter plant

succession and to affect the production and nutrient content of individual plants are reasons why wildlife species often respond favorably to habitats which have been burned. In the Yellowstone region, the most dramatic changes will likely come with the breeding bird complex. Work by D. L. Taylor (1973. Ecology 54:1394-1396) suggests that densities of breeding birds in lodgepole pine forests should change from less than 50 pairs per square mile in the old, unburned forest, to around 250 pairs per square mile in forests that are about 25 years old. His conclusion that lodgepole pine forests must be periodically burned to perpetuate natural plant and animal community cycles and promote greater biotic diversity is typical of many who have studied these types of forests elsewhere.

Big game populations and their forage species in the Yellowstone region evolved in the presence of fire. D. Houston (1982. The Northern Yellowstone Elk. MacMillan Publishers) reported that much of the vegetation change on elk ranges resulted from fire suppression. Increases in sagebrush, conifer invasion of grassland, and deterioration of aspen stands were among the results of fire suppression. Fires would normally burn across the northern winter ranges at 25-to-40-year intervals or more frequently, thereby rejuvenating the grasslands and aspen stands and eliminating the conifers. The fires of 1988 provide an opportunity to test the hypothesis that fire prevention is the main factor preventing aspen regeneration on the northern range, since many aspen stands



Yellowstone fire at night

National Park Service

were burned.

Major fires similar to those of 1988 have occurred in the past, most particularly around 1700, so we are not dealing with anything unique to this region in terms of evolutionary time. We should think of the wildlife and the plants in those terms. The Yellowstone game ranges are now a mosaic pattern of unburned, lightly burned, and more heavily burned habitats. Positive responses to burning of most important forage species that occur in the region in terms of increase in nutrient content and, subsequently, production are expected.

On burned sites, the ash deposit acts as a fertilizer which leaches into the soil over winter and is available for plants the following growing season. The plants then take up these nutrients and, in turn, exhibit higher levels of nutrients themselves when compared with the adjacent, unburned plants. Big game animals readily seek out the high-quality forage on the burned sites, and in September last year (1988), we observed elk grazing on the regrowth on areas burned the previous month in the park. Big game will have to forage on the unburned areas this winter, but current estimates are that 10 percent of the nonforested winter range inside the park was actually burned, and besides, elk began to move out of the park onto adjacent national forest winter range in November. Last winter, only a few moved beyond the park boundaries.

Responses of big game populations to the fires are less predictable than responses of their forage species. None of the big game species should be adversely affected except, possibly, during this initial winter. The question is whether they will be affected at all, and if so, how much. Much of what occurs the winter immediately following the fires will be related more to the drought than to the fires. We observed radio-



National Park Service

Yellowstone fire lattice work

marked elk living on both unburned and burned areas move onto lower elevation ranges 3-4 weeks earlier than in 1987, suggesting that drought may be influencing their distributions more than the burns. None of these movements are unique or unanticipated.

Following the initial winter, shifts in distribution onto burned areas as soon as spring green-up of forage species begins are anticipated. Changes in population attributes are not only going to be related to the forage conditions following the fire, but to the severity of the preceding winter, the effect of the drought of the previous summer, and prevailing weather conditions during the spring. Observations on bighorn sheep response to fires illustrate the wide range of responses. It is difficult to pinpoint causes of elk responses to fire management programs because of other interacting factors which include hunting regimes. Moose populations have been observed to disperse rapidly into a large burn in northeastern Minnesota (J. Peek, 1974. Initial response of moose to a forest fire in northeastern Minnesota. American

Midland Naturalist 37:223) and to essentially be unaffected by a large burn in central Alaska (W. Gasaway and S. DuBois, 1985. Initial response of Moose (*Alces alces*) to a wildfire in interior Alaska. Canadian Field-Naturalist 99:135). We have no significant information from moose range in the Yellowstone region on response to fire from which to make predictions, and results from elsewhere are conflicting.

The opportunity to observe responses of a large mammal complex in a large, post-fire environment which is now posed is unprecedented, and has profound implications for wildlife habitat management beyond the boundaries of the wilderness areas and the National Park. Much habitat management for big game consists of the use of prescribed fire to increase forage production, and yet we have difficulty illustrating that populations respond in ways other than by changing distribution patterns. While only about 10 percent of the northern Yellowstone winter ranges have been burned, this still constitutes a significant proportion of the winter habitat, and a much higher proportion of the entire big

game range in this region has been burned. An intensive monitoring program aimed at detecting population responses of each species which occupies burned areas, continued through time to account for delays and variations in other factors limiting populations, should be initiated to take advantage of this opportunity.

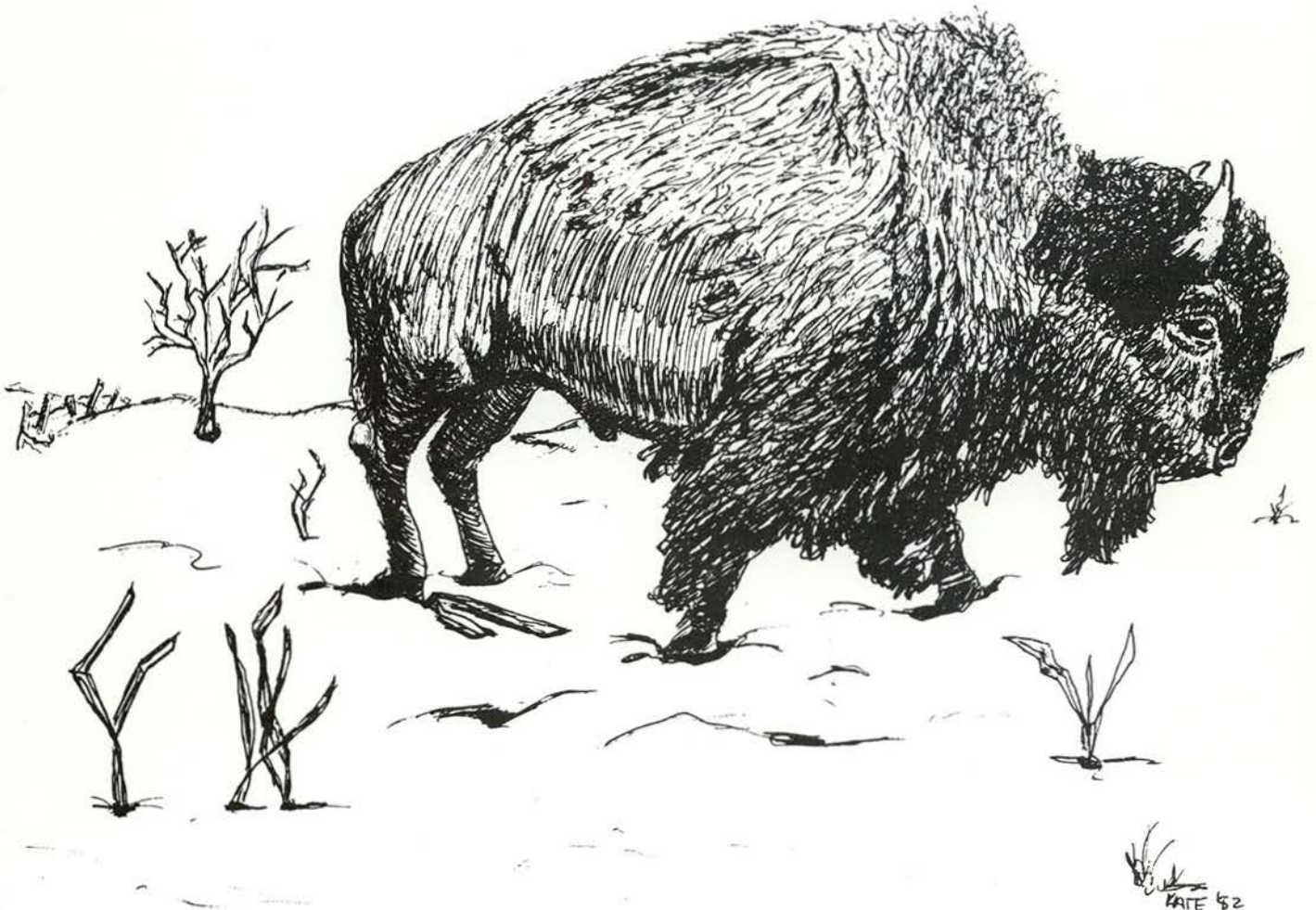
The process should be allowed to proceed without human intervention as much as possible. Time and time again, the Yellowstone elk populations have served as bellwethers for much management in the western states. They stand to provide us with another spurt in our knowledge because of the fires of 1988. 雜



National Park Service

James M. Peek is Professor of Wildlife Resources, College of Forestry, Wildlife and Range Sciences, University of Idaho.

New growth shortly after fire



To Hells And Back: Trouble In Paradise

by Stewart Allen

The River. According to the Chinese calendar, 1989 is the year of the snake. The same is true at the University of Idaho, where a unique research effort will contribute to a new management plan for the Snake River in Hells Canyon.

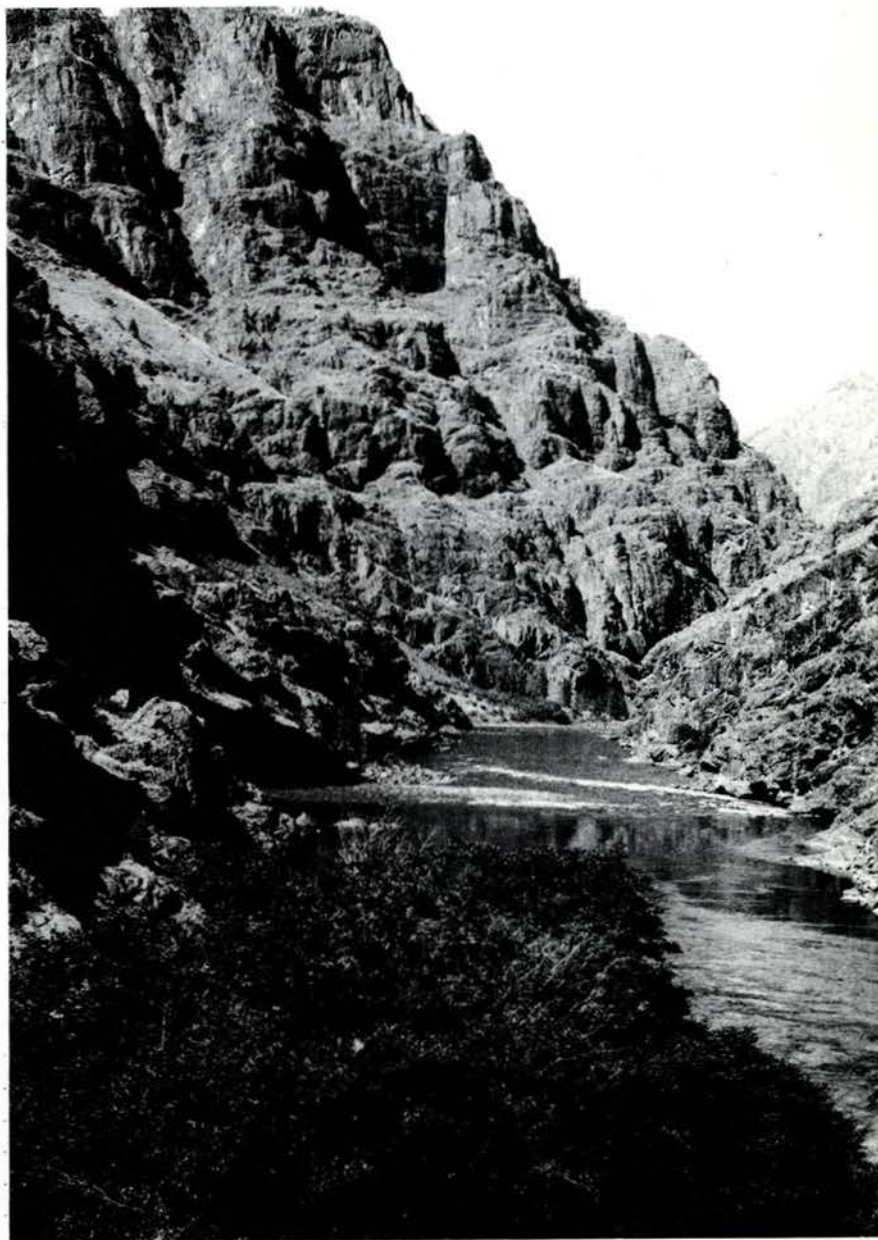
The Snake River in Hells Canyon has a lot going for it. With a maximum depth of 7,900 feet, Hells Canyon is called the deepest gorge in North America. Steelhead and chinook salmon spawn here on their long trip from the Pacific, and giant, prehistoric-looking sturgeon lurk in deep, clear pools. Rapids like Granite, Wild Sheep, Water Spout, and Rush Creek get the juices flowing for boaters at any water level.

Pictographs found throughout the canyon tell the history of the canyon and its former dwellers. The museum at Kirkwood Historic Ranch fills in the canyon's more recent past and has a shady, grassy lawn perfect for summer days when it's 110 and your boat feels like it's about to melt. Also the craggy walls of the remote canyon limit road access, so you don't have to share the experience with cars.

What's more, you can enjoy it throughout the year. Hells Canyon Dam provides the Snake with enough water for floating or powerboating year-round. The river's low elevation keeps winter temperatures moderate (at least to steelheaders, although that's probably an unrealistic standard).

Snake as a nationally significant resource in 1975, adding it to the National Wild and Scenic Rivers system and creating Hells Canyon National Recreation Area. Because of its wilderness character, the upper 30 miles between the dam

and Rush Creek were designated as a Wild River area. The lower 50 miles were designated Scenic because more shoreline development was evident. In 1981, the Forest Service adopted a management plan to protect the river's qualities



Ben Reingold

Congress recognized the

Snake River in Hell's Canyon from boat launch

while allowing for recreational use.

The Problems. So why a new management plan? Because the river is just a little too attractive, drawing over 100,000 visitors a year. The river shows signs of heavy use, and Forest Service maintenance of the river campgrounds and facilities has received criticism. The problems are more complex than they may at first appear. For example, boat ramps often can't handle existing use, but if more are added, then more people may be attracted to the river, compounding the crowding.

People boat the Snake in diverse crafts, including kayaks, rafts, dories, large and small powerboats, and jet skis. As you'd suspect, the inhabitants of these crafts have diverse—and sometimes conflicting—needs and expectations. Stories abound about conflicts among boaters, from radical environmental groups rafting the river and provoking motorized groups, to powerboaters pulling guns on rafters after being "mooned." However, there is no data on the type or extent of conflicts.

One point of agreement among all groups, including the Forest Service, is that the existing management plan is no longer adequate. Recreational use patterns are changing, paralleling a nationwide trend toward shorter vacations, hence more people take shorter trips on the river. The most popular float section is now the upper 30 miles from the dam to Pittsburg Landing, rather than the longer trip continuing down the Grande Ronde.

Another issue is fairness; many floaters question the equitability of a management plan that strictly limits floating during the high-use season (mid-May to mid-September) but does not limit powerboat access. The manage-

ment plan did have a provision to limit powerboat use on the upper river, but this section was scrapped by Assistant Secretary of Agriculture John Crowell in his 1984 decision on a series of appeals filed to the final plan.

A recent meeting of float and powerboat outfitters highlighted another concern. Many feel that planned improvements at Pittsburg Landing would make the river more crowded and difficult to manage. The scheduled improvements include upgrading the boat ramp area, adding a parking lot, a campground, interpretive displays, and improving the road over Pittsburg Saddle, a ride as thrilling as running the rapids. The Idaho Outfitters and Guides Association called for a halt to this development so it could be considered under the new management plan.

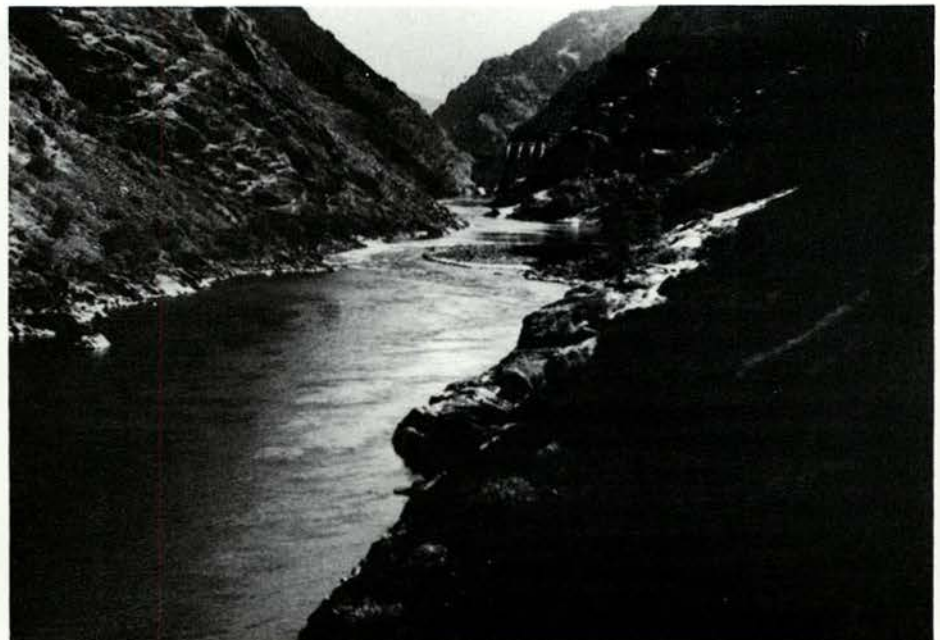
Clearly, the Snake has problems. Even the canyon's geologic pedigree is questioned. Is Hells Canyon really the deepest gorge on the continent, when it's seven miles between the canyon rims at its deepest point?

The Research. The Forest

Service hired the university to collect data on boating use and to help develop a new management plan for the river. Co-principal investigators Stewart Allen and Edwin Krumpke, Department of Wildland Recreation Management, are working under a cooperative agreement to conduct a survey of floaters and powerboaters that began in May 1988 and will be completed in May 1989.

Research Associate Bob Ratcliffe, a recent M.S. graduate in Wildland Recreation Management, has spent many hours reviewing films, sending out survey forms, and helping develop the study plan. His work paved the way for a new graduate student, Lynn McCoy, to continue the study. McCoy worked most recently with a team of Colorado State Parks employees developing a recreation plan for the Arkansas River in Colorado.

The sampling plan is complex. Undergraduates Scott Calhoun and Shane Ristau found out just how remote the canyon is in their quest to interview visitors. Even determining how many people boat Hells Canyon was difficult,



Hell's Canyon Dam from below

Ben Reingold

requiring discreetly placed cameras to count boats and air-plane overflights to verify other methods of counting visitors.

To date, over 1,500 floaters and powerboaters have been asked to complete a questionnaire about their experiences on the Snake, including what attracted them to the river, what added to or detracted from their trips, and whether they favored or opposed different management alternatives. Over 75 percents have responded, reflecting river users' high levels of interest. The data will be coded, entered onto the university computer, and analyzed by summer 1989.

Development of the new management plan will take

another two years, primarily because of the extensive public involvement effort. Allen and Krumpe will organize and lead a task force composed of representatives from river user groups, local, state, and federal agencies, landowners, outfitters, and others who have a stake in how the river is managed.

The task force will develop the new plan during its monthly meetings starting late summer 1989. Working with data collected from the survey, the team will identify the most important physical, biological and social characteristics of the river, then agree on management actions to keep the impacts of recreational use at acceptable levels.

The outcome will be a river management plan that considers the needs of a wide range of river users and proposes a workable, reasonable set of actions that is acceptable to them. And what better time to begin the planning effort than the year of the Snake? 雜

Stewart Allen, a nationally recognized consultant in river recreation, has worked for the University of Idaho for 3 years as a private consultant. He has a master's degree in Environmental Psychology and a doctorate in recreation management from the University of Montana.



The Laughing Goose That is Not Amused

by Dave Budeau

An Eskimo picks up a spent shotgun shell and holds the flame of a butane lighter to the side of the hull. The flame melts a 1/2-inch diameter hole into the red plastic. Upon seeing a flock of white-fronted geese beating their wings against the cool spring wind, he raises the shell to his lips. His hands cupped, he blows across the opening as if playing the flute. The resulting sound is manipulated to mimic the laughing "koooh-ah-luk" call of the geese. He hopes the geese will be lured across the Alaska tundra within the range of his weapon.

Five months later a hunter in the Klamath Basin of California finishes arranging the last of several dozen white-fronted geese decoys. He then moves to his blind. The California sun will soon rise and contrast his "spread" against the amber stubble of the field. A flock of whitefronts lift off the south sump of Tulelake. The black barring of their bellies is barely visible in the soft light. The hunter crouches in anticipation as the geese turn in his direction.

The same "laughing goose" or "speckle belly" tempted by the Eskimo's call in the spring may be lured by the California hunter's decoys in the fall. Crossing political and cultural boundaries, Pacific white-fronted geese spend September through April in California, then migrate virtually nonstop to the Yukon-Kuskokwim (Y-K) Delta of Alaska to breed.

Since the late 1960's, the population of Pacific Flyway geese nesting on the Y-K Delta have declined precipitously. White-

fronted geese numbered more than 400,000 birds in 1967, but dropped to about 85,000 birds in 1983. Three other goose species nesting on the Y-K Delta have experienced similarly dramatic declines.

Habitat loss may have contributed to the declines. Today, California has only 2 to 3 percent of its historical wetland area. Here, agriculture and urban development have eliminated much of the former habitat of the largest wintering concentration of Pacific Flyway waterfowl. In contrast, the Alaska breeding area has remained largely undisturbed, since most of it lies within the boundaries of the Yukon Delta National Wildlife Refuge; the nation's largest.

As the population continued to decline, more biologists were sent to the Delta to investigate reproductive success. Noting a high correlation between the increasing numbers of biologists and the declining goose populations, some Eskimos believed the biologists were responsible for the decline. Eskimos witnessed biologists handling the eggs, then returning them to the nest, an action Eskimo tradition did not allow. They believed that once the eggs were touched by human hands, the female goose would not return to incubate. Historically, when Eskimos removed eggs from nests for food, they left at least one egg untouched in the nest for the female to incubate.

Not all factors responsible for the decline are fully understood. However, it was generally agreed

that a major cause of the decline was overharvest. Simply stated, more geese were being shot than were being produced. This realization prompted many California hunters to point the finger of blame northward. They claimed that the "traditional" spring and summer subsistence harvest by the Eskimos is illegal under federal law. Furthermore, they argued that driving around on a snowmobile blasting geese with a shotgun is hardly "tradition." True, the Eskimos do have the tradition of the past and the technology of the present.

The taking of geese for sport or subsistence use between 10 March and 1 September of each year is specifically prohibited by the 1916 Migratory Bird Treaty with Canada and the Migratory Bird Treaty Act of 1918. These treaties binding the United States were negotiated more than 40 years before Alaska attained statehood. Until the increased concern over the declining goose populations, the subsistence harvest by the Eskimos was largely ignored.

For hundreds, even thousands of years, the arrival of geese on the Y-K Delta marked the beginning of spring for the Eskimos. After a winter staple of dried fish, the availability of fresh meat was a welcomed change. Despite this traditional need, the populations of geese were still declining and measures were needed to control the harvest.

Despite the protests of California sportsmen, biologists determined that overharvest was a

problem on both the breeding and wintering grounds. Restricting the harvest in California was a matter of reducing the bag limits and shortening the length of the hunting season. An attempt to reduce the harvest on the nesting grounds was considerably more complex.

The difficult task of controlling harvest in an area that did not have a previous history of regulating the take of game species began in 1983. After months of discussion between the Eskimos' Association of Village Council Presidents, the public agencies of U.S. Fish and Wildlife Service, Alaska Department of Fish and Game, California Fish and Game, and private organizations including the California Waterfowl Association and the Waterfowl Habitat Owner's Alliance, a resolution was agreed upon in 1984. The agreement would: 1) prohibit the taking of any eggs of geese for subsistence use; 2) prohibit the taking of cackling Canada geese at any time; 3) prohibit the taking of white-fronted geese, black brant, or emperor geese from the time the first egg is laid until the goslings are fledged. Dubbed the Hooper Bay Agreement, this action was associated with the implementation of an intensive information and education program aimed at getting voluntary compliance from the Delta's residents.

In 1985 the Hooper Bay Agreement was expanded and modified. The agreement was renamed the Yukon Delta Goose Management Plan. In the first two years under this agreement, the Eskimo harvest of geese and their eggs was noticeably reduced. The agreement recognized the long-standing tradition of the native harvest, but more important, this agreement was based on the realization that any reduction in the harvest could only be

effectively achieved in this remote region through voluntary compliance. The management plan also provided a foundation for future regulatory actions. If necessary, the harvest could be restricted even more. This was likely a very effective method, since it would provide the Eskimos with an opportunity to understand and grow accustomed to the regulatory process.

In 1986 the Yukon Delta Goose Management Plan was challenged in U.S. District Court by factions that wanted to see the subsistence harvest of geese completely halted. The court ruled that Alaskan natives could harvest geese for subsistence use under the Alaska Game Act of 1925, and the spring harvest of geese was allowed to continue. However, the ruling was overturned in January of 1988. The 9th U.S. Court of Appeals stated that subsistence harvest is not protected by the Alaska Game Act of 1925. In addition, they declared that the U.S. Fish and Wildlife Service cannot enter into any agreement that allows the spring harvest of waterfowl. The Yukon Delta Goose Management plan was nullified.

The plaintiffs in the suit were the Alaska Fish and Wildlife Federation, the Outdoor Council, Inc., and the Alaska Fish and Wildlife Conservation Fund. These "conservation organizations" touted the decision as clearly more concerned with protecting the wildlife resource instead of the sociological value of the resource itself. But is this viewpoint really valid?

Prohibiting harvest of geese during the spring and summer would certainly help the populations. But can such strict compliance be expected? History has shown us time and again that any law enacted that did not have the support of the people for

which it was intended to govern, has failed. The prohibition of alcohol in 1919 is but one example. The Yukon Delta is much more remote and isolated than the moonshine-running ridges of the Ozarks. How could stopping the subsistence take of geese be effectively enforced?

There is no doubt that careful regulation of the harvest on both the wintering and breeding grounds is necessary to ensure that white-fronted geese (as well as the other goose species on the Delta) continue to provide both traditional and recreational opportunities. Currently the agencies are left to enforce what is virtually an unenforceable ruling. Strict compliance by the Eskimos is not expected. In fact the opposite may occur as a method of protest.

Good wildlife management identifies a problem, proposes an action to correct the program, and determines a practical method to institute the action. An example of this is the drafting and implementation of the Yukon Delta Goose Management Plan. It was a monument to what a diverse number of constituents could achieve through cooperation in such a relatively short period of time, especially if timed by the clock of bureaucracy.

The court decision that invalidated the Yukon Delta Goose Management Plan is said to "protect Alaska waterfowl." On paper it may protect the geese, but in reality it may do more harm. Regardless of the status of their population, the call of the white-fronted geese will always resemble laughter. Don't be fooled. 犛

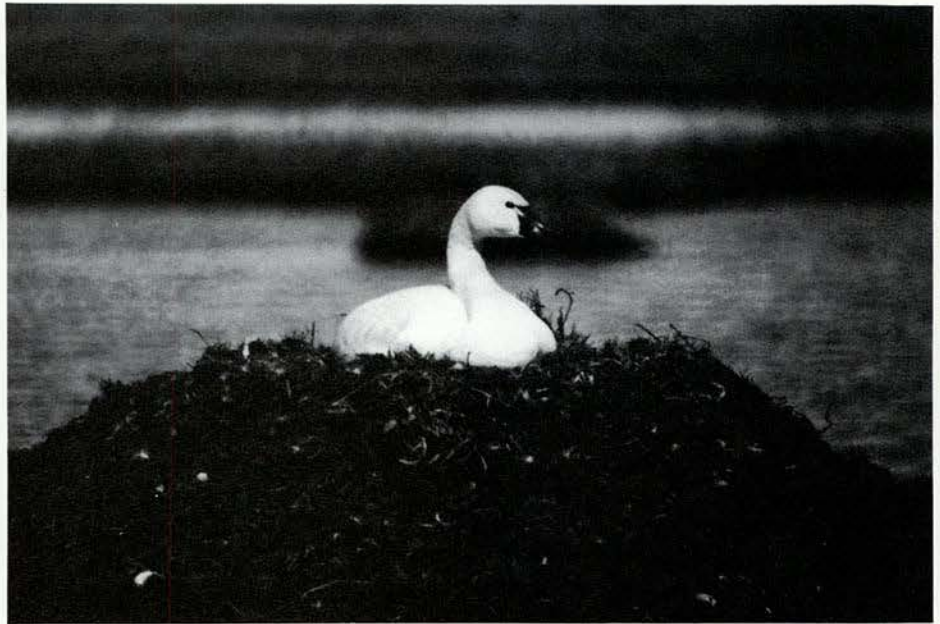
David Budeau tied for first place in the Excellence In Writing Contest this year.

THE TUNDRA SWAN: AN OVERLOOKED WATERFOWL

by Matthew J. Monda

Waterfowl are one of the most widely studied groups of wildlife in North America, and with good reason. Hunters harvest about 20 million ducks, geese, and swans annually. These birds are also main targets for bird watchers and photographers. This ardent attention has propagated many management concerns and generated much research. However, the research is not equally divided among the 50 or so waterfowl species found in North America. Mallards and Canada geese have rightfully taken the lion's share of research dollars. Their importance as game animals and public sentiment have put demands on researchers to create effective management strategies. Other less common or less hunted species have not received the same intense study. Our knowledge of one species in particular, the tundra swan (formerly called the whistling swan), is lacking. The reasons for so few studies are an interesting story.

In the early part of this century another North American swan species, the trumpeter swan, was on the brink of extinction. Heavy commercial harvest of swan skins precipitated a population decrease. Their soft down is superior insulation for garments, and was also used for lady's "powder puffs." Trumpeter populations declined to dangerous levels because they bred and wintered across temperate latitudes that were experiencing a great influx of humankind. Swans



John Ratti

Tundra swan on nest

were vulnerable to the gun year around. Possibly even more damaging were the habitat losses that occurred when marshes were drained to make room for farmland.

The trumpeter swan was nearly extirpated. Small remnant populations occurred in western Canada, south-central Alaska, and near the Idaho-Montana-Wyoming border. The decline in this magnificent bird sparked a public outcry that motivated federal protection and closure of all swan hunting.

On the other hand, the smaller tundra swan bred in the high arctic of Alaska and Canada away from the swelling American population. They were accessible to hunters only during winter after they had migrated to estuaries along the Pacific and Atlantic coasts. Because both swan species

look similar, all swans had to be protected in order to guard the low trumpeter populations. So, tundra swans, which were not near extinction, were protected along with their larger cousin. The draining of marshes for farmland contributed to the trumpeter's decline, but quite a different scenario developed between tundra swans and the farmer. Their breeding grounds up north were protected from habitat losses because of harsh weather and a short growing season. Wintering grounds for tundra swans were mainly in the central valleys of California and along the Chesapeake Bay. The fertile soils of these wintering areas supported productive agriculture. Fields of winter wheat, pasture, and corn were readily accepted as winter foods.

Their new winter foods, distant breeding grounds, and

federal protection allowed tundra swan populations to thrive. A population that is doing well rarely develops management concerns. The limited funding available to study wildlife is channeled into research projects that address our most urgent needs. These needs almost always deal with populations that are declining or experiencing habitat losses. So, the vitality of tundra swan populations have prevented us from understanding their basic natural history and requirements for survival.

It appears that the tundra swan may be one of the few species that has prospered in the 20th century, but this century is not over yet. One of the main reasons for the tundra swan's success has been the remoteness of their breeding grounds, but that remoteness is being threatened. As more easily accessible natural resources are depleted, our voracious society needs to go to more remote sources to satisfy resource demands.

One resource that the arctic has to offer is oil. Large petroleum reserves have been located and developed in northern Canada and the more familiar Prudhoe Bay in Alaska. Costs to extract these resources are high both economically and environmentally. The arctic ecosystem is extremely fragile, and even small disturbances can scar the land for hundreds of years. The same harsh weather and short growing season that protected the tundra swan's breeding grounds from agriculture, hinder vegetation from reclaiming disturbed sites.

I am pursuing a doctoral degree through the Department of Fish and Wildlife Resources at the University of Idaho. Dr. John Ratti and I are studying the reproductive ecology of tundra swans on the Arctic National Wildlife Refuge, in northeastern

Alaska. Chances are good that large oil reserves occur beneath important swan breeding areas on the refuge. These areas are critical to many other species as well as swans. The U. S. Fish and Wildlife Service is funding this research on tundra swans, as well as other research on caribou, grizzly bears, wolves, and musk oxen. Because there is so little known about tundra swans, especially on the breeding grounds, there are important questions that need to be answered. Two such questions are "Will disturbance caused by oil development impact the tundra swans?", and "If we need the oil, how can we get it and still maintain a good swan population?"

One curious aspect of wildlife management is the relative nature of good and bad, or high and low population levels. Annual surveys indicate a population growth for tundra swans since the 1940's. In contrast mallard populations are declining rapidly

and are at an all-time low. These low mallard populations are due to habitat losses and drought conditions on the breeding grounds. So, mallards are doing poorly and tundra swans are doing great. The problem is that during an average year there are about 8,500,000 mallards and only 150,000 tundra swans. Therefore, even though the swan populations are in "good" shape, they are not a naturally abundant bird. Anything that disrupts their critical activities on the breeding grounds could cause problems for future swan generations. The remote arctic is becoming somewhat less remote as time marches on, and finally it is essential to study this interesting bird. 糝

Matt Monda is a graduate student in the Department of Wildlife Resources.



Cindy Sills

The author recording data at a swan nest with John Ratti giving advice

Rangelands Can Be Forever

by John W. Bohning

"Rangelands can be forever." This is the title of a pamphlet prepared by the Society for Range Management. It describes the many-faceted values of rangeland and their meaning for all of us. By utilizing the wide variety of skills that are available in the numerous individuals and groups concerned about proper range management, the 47 percent of the earth's surface which is rangeland contributes immeasurably to meeting the needs of the world's population.

Man has been a herder or shepherd for centuries. Rangelands have been key to man's existence since the days of hunters and wild food gatherers. From this historical background, many branches of agricultural science have evolved such as animal husbandry, plant physiology, agronomy, soil science, wildlife biology, and hydrology. In both the Old and New World, a tremendous body of knowledge has been accumulated to meet the needs of mankind.

Rangelands present a complex of vegetation and climate. Because of their variability, the proper use of rangelands is a combination of both science and art. Range management in the United States evolved following the settlement of our country. In its early phase it was concerned primarily with livestock production, with little recognition of other values. As other demands for the land developed, interrelated aspects such as range-soil and range-water relationships emerged. The use and development of the western United States was strongly influenced by the philosophies and experiences of the East. Legislation for

homesteads was patterned for more humid areas, fostering poor management and heartbreak for the homesteader. As a result, there were decades of adjustment and learning by bitter experience that management of western rangelands was not the same as taming the prairies of Illinois and Iowa.

Range management, whether conducted on privately or publicly owned ranges, is a constantly evolving science. Rather than promoting a conspiracy to rape the land, the diverse interests—public and private—which are woven into the history of range management have grown more and more aware of the varied needs which are met by our range lands. The Society for Range Management, an independent professional organization with wide diversity among its members, has compiled and indexed all the information published in its scientific journal for the past 35 years. The authors come from every conceivable background concerned with range management. Their interest in proper range management is their single common denominator. Their collective expertise is nothing less than impressive.

With increasing awareness, there has been burgeoning interests in proper management. Several years ago, Alan Savory, a biologist from Rhodesia, began expounding on a grazing system which espoused intensive grazing utilization. More recently, this has been expanded under the title of Holistic Resource Management (HRM). A number of trials of HRM are underway. Concurrently, there

is widespread discussion on the many facets of proper management. In a recent panel discussion in Prescott, Steve Gallizioli, a representative of the Arizona Wildlife Federation and one-time opponent of livestock grazing, enthusiastically endorsed HRM.

Since the turn of the century, many people have turned their attention to the proper management of rangelands, both public and private. Watershed values, for example, were analyzed on alpine ranges in Utah decades ago by a pioneer ecologist, Lincoln Ellison. The earliest experimental range in the country, the Santa Rita Experimental Range south of Tucson, was established in 1902 by the Bureau of Plant Industry. Many benchmark principles were defined at Santa Rita, one being the role of fire in maintaining desert grassland free of scrubby plants, especially mesquite. It was at Santa Rita, too, that the degrading effects of long-time protection from grazing were demonstrated. Ungrazed grassy vegetation first increased, then failed under the impact of inevitable drought. Companion areas that were grazed moderately with periods of rest came through droughts without significant damage.

Current research is concerned with the interactions of the many uses of rangeland. Researchers are measuring the water yield, wildlife responses, impacts of recreation use, forage production for livestock and wildlife and vegetation changes as well as livestock response to various combinations of user impacts. Sophisticated mathematical models complement

time-consuming field trials to expedite solutions. Many of these studies apply particularly to public lands, as all the uses must be accommodated to some degree. At present, there is also spirited discussion on how to share the cost of managing public lands among the several interests. Historic patterns are being examined to ascertain a more realistic and equitable distribution of costs. Proponents of eliminating livestock grazing (or timber cutting or mining) are faced with the fact that the remaining uses would then have a heavier financial responsibility for land management costs.

As time goes on, the evolution of rangeland management will continue. Populations will continue to increase (with the Southwest being a notable example) and the demands on the land will con-

tinue to multiply, both in variety and volume. The demands on the manager, whether he or she be in the private or public sector, will continue to intensify. Livestock operators will need to broaden their skills and learn to better cope with other users' needs in order to survive. A rancher member of the Prescott panel discussing the future of ranching on public land stated succinctly that the livestock operators will need to cooperate with and accommodate to the needs, real or perceived, of the public as they claim a proprietary interest in public lands. He is optimistic that this will occur.

Having the knowledge and experience needed to adapt to change, the progressive range livestock operator will continue to operate on public land. Increasing

world populations will in the long run require more, rather than less, use of rangeland for the production of food and fiber. As an energy-efficient means of converting native forage into products needed by man, livestock grazing on public land will continue to be a desirable use of these lands; at the same time those lands fill ever-expanding needs of our growing population. This is the consensus of many ranchers, ecologists, wildlife biologists, range conservationists, administrators and other concerned interests today. 犇

John W. Bohning, a University of Idaho alumnus, has thirty four years of experience as a Range Conservationist with the Forest Service and served as president of the Society for Range Management in 1982.

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LOST HORIZONS

Vistas Vanish From Our National Parks

by Mary Bean

I was excited by the prospect of living next door to Indiana Dunes National Lakeshore when I moved to Michigan City in the summer of 1980. Even before unpacking my shipping crates, I donned my dune boots and joined the ranks of a local cub scout troop for a ranger-led tramp across the park.

Marching over hill and dune, I savored the diversity of plant life in the area where University of Chicago ecologist John Cowles first tested his theory of plant succession. It was a warm summer day, but the sun struggled to burn its way through an overcast sky. I sensed that something was amiss as I gazed at the towering smokestacks lining the park's west border.

Later that night, as I repeatedly blew black soot from my nose, the irony struck me. This place, which had been set aside to preserve its unique features, was slowly suffocating from air pollution generated by steel mills adjacent the park. The realization knocked the air out of my expectations of living next to a pristine natural area. In my naivete, I had no idea that pollution was slipping insidiously into airsheds of national parks across the country.

At Grand Canyon National Park in Arizona, visitors once were able to see as far as 100 miles. Currently, on the most polluted days, visitors can barely discern the rim of the other side, less than 25 miles away. At Shenandoah

National Park in Virginia, there are days when visibility is limited to less than five miles. When the park was created 50 years ago, a visitor gazing eastward could see the Washington Monument, 70 miles distant. In Glacier National Park, the visibility ranges from 243 miles down to 34 miles, depending on air quality.

National Park Service concern with air quality came to the fore in 1963 when the Four Corners Power Plant was constructed near Farmington, New Mexico. The plant spews plumes of smoke into the air that can be seen for miles, sullyng visibility in several southwestern parks. The issue heated up in the late 1960s when plans for a massive coal-fired power plant on Utah's Kaiparowits Plateau were stopped due in part to its potential threat to air quality at eight national parks, including Grand Canyon, Zion and Bryce Canyon. Meanwhile, smog began to settle over Yosemite Valley.

In the East, Acadia, Shenandoah and Great Smoky Mountains National Parks were struggling to keep their heads out of the clouds. Long-term studies of air quality showed that from the mid-1950s to the early 1970s visibility decreased 10 to 40 percent in rural areas of the Northeast.

As the views grew dimmer, the voices grew louder. Public concern over the loss of visual clarity in natural areas created political pressure for legislative action. It was not the first time

that governments recognized the need for air quality regulation; England's King Edward I banned the burning of coal in London more than 600 years ago.

In 1955, Congress passed the Clean Air Act. However, by the 1970s it was apparent that the existing act did not provide adequate protection for visual air quality in natural areas. In 1977, amendments added to the Clean Air Act specifically addressed "the prevention of any future, and the remedying of any existing impairment of visibility in mandatory Class I areas," which included national parks larger than 6,000 acres and national wilderness areas of 5,000 acres or more.

By the late 1970s, the park service had initiated air monitoring programs in 14 National Park Service (NPS) areas. In response to the 1977 amendments, it established a Visibility Monitoring Program and is currently collecting data in nearly all 48 park service Class I areas. Using programmed automatic cameras and sophisticated electronic equipment, these programs monitor visibility deterioration or improvement, measure the role of atmospheric conditions in visibility impairment and determine sensitivity of scenic vistas to varying concentrations of air pollution.

National Park Service researchers cite sulfates as the single most important contributor

to visibility impairment in NPS areas, except in the Northwest, where fine carbon particles from agriculture and forestry are the main culprits. Tiny sulfate particles suspended in air scatter visible light, decreasing visibility. In the East, sulfates are responsible for 40 to 60 percent of the loss in visibility, but at Shenandoah National Park, the estimates rise to 70 percent. Industry in the Ohio River Valley appears to be the source of sulfates affecting the park, 150 miles away.

In the West, sulfates are responsible for 30 to 40 percent of the loss of visibility, but the rate is even higher for parks such as Grand Canyon and Bryce Canyon. One-third of the sulfates in Grand Canyon National Park originate in urban southern California. Other major sources are copper smelters and power plants in Arizona, New Mexico, Nevada and northern Mexico.

The discouraging results of monitoring efforts prompted the National Park Service to take an aggressive stance in preventing further degradation. In a November 1985 letter to the Environmental Protection Agency, Susan Recce, acting Assistant Secretary of the Interior, wrote, "It is the position of the NPS that all NPS Class I areas in the lower 48 states are being affected by visibility-degrading uniform haze."

So why all the stink over the loss of scenery? There's more at stake here than just a pretty picture. A recent EPA report ranked exposure to air pollutants the number one environmental problem facing us today. The American Lung Association estimates that we spend \$16 billion a year on health-care costs associated with air pollution. An additional \$7 billion is spent attempting to restore historic buildings, statues, and irreplaceable monuments; the cost of rehabilitating the Statue of Liberty soared into the millions.

The effects on wildlife and plants are also becoming evident. When 750 trees in Acadia National Park were checked for pollutant-related damage, 58 per cent had yellow, dying leaves, indicative of exposure to the pollutant, ozone.

In 1874, John Muir wrote,

"I know that our bodies were made to thrive only in pure air, and the scenes in which clean air is found. If the death exhalations that brood in the broad towns in which we so fondly compact ourselves were made visible, we should flee as from a plague."

A television commercial once suggested that those suffering from respiratory distress should "pack up their sinuses and send them to Arizona." These days, your sinuses might fare better if they stayed home. The "death exhalations" Muir referred to have become visible, penetrating the very places where people escape in search of "pure air and the scenes in which clear air is found."

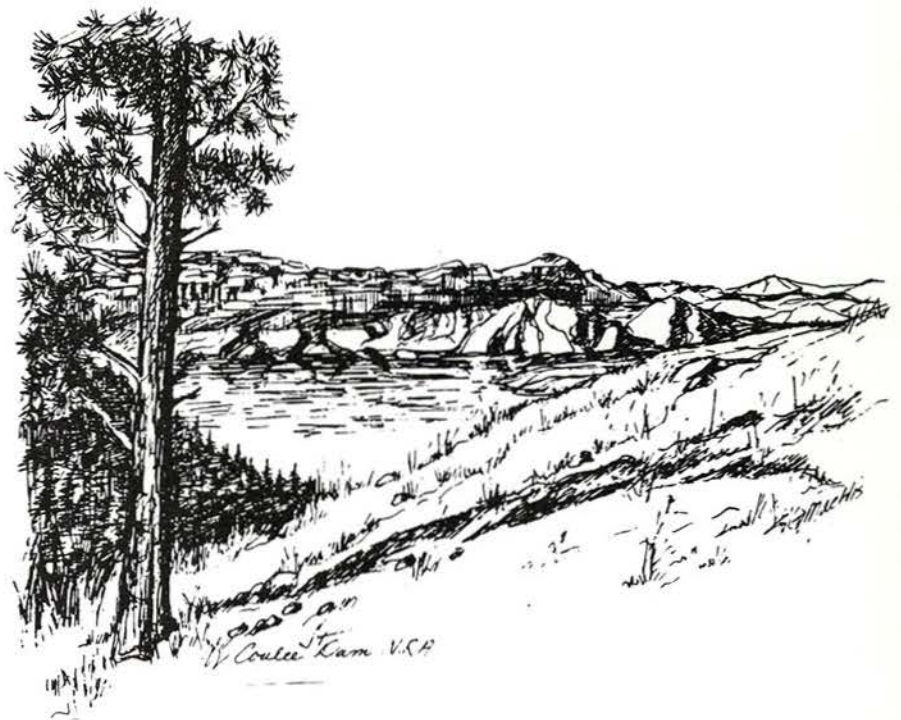
Will city dwellers be able to visit parks without breathing the

pollution they thought they had left behind? And will they even be able to see the mountains, canyons and horizons that drew them there?

According to the NPS Assistant Air Quality Chief, Molly Ross, the evidence linking visibility impairment to pollution sources is solid enough to support stringent controls. The missing ingredient, as expressed by Rep. Bruce Vento of Minnesota, is the "political will to develop a more aggressive posture on visibility." The EPA has yet to issue regulations addressing regional haze, and several Northeastern states and five environmental groups have decided to take it to the courts.

Public concern and activism turned the tide in previous battles over air degradation, but the process can be a slow one. The National Park Service and environmental advocates are creating a stir in an effort to clear the air. In the meantime, you'd better hold your breath. ■

Mary Bean tied for first place in the Excellence In Writing contest this year.



Situational Analysis For Environmental Education In Rural Honduran Elementary Schools

by Stuart Markow

Question: Which countries are in dire need of a well-planned program of environmental education (EE)?

The answer is, of course, all of them. Every country in the world must make its citizens acutely aware of and sensitive to issues of environmental quality and careful use of natural resources.

So far, no one has taken on the task of providing each of these countries with effective EE programs, but there are two people in FWR who have taken dramatic first-steps toward instigating such a program in a country which is especially in need of one. The team of Dr. Sam Ham (Wildland Recreation Management Dept.) and his graduate student Lizeth Castillo recently undertook a research project aimed at ultimately establishing EE in the primary schools of rural Honduras.

Currently, no system of EE exists in Honduran primary schools, not surprising considering that for most rural Hondurans, existence is hand-to-mouth. However, a rapidly growing population which places increasing demands on natural resources dictates that Hondurans become more knowledgeable about the environment and its relationship to the quality of life. Clearly, EE programs, along with teacher training, are urgently needed to ensure a more environmentally literate and

responsible citizenry in the next generation.

The project conducted by Dr. Ham and Miss Castillo consisted of a situational analysis of the current educational system in the Honduran schools and an examination of the potential for EE. A premise established at the outset was that development of an EE program would require knowledge of the schools, the teachers, and the educational infrastructure in Honduras so that materials and teacher-training programs could be developed specifically for the situation in which they would be implemented. Obtaining this information would comprise the first of a series of steps leading to the creation of an effective EE program.

Thus, in a nutshell, the purpose of the study was to develop a better understanding of the potential for and obstacles to EE in rural Honduras so that firm, feasible recommendations could be made toward the design and provision of both EE materials and teacher-training programs. Consequently, three objectives guided the research:

1. To determine what kinds of teaching materials would be practical in the schools.
2. To determine the kinds of teacher training needed to implement EE programs in the schools.

3. To determine whether separate strategies for easy-access and difficult-access schools will be needed in future EE development programs. (This concept of easy-access vs. difficult-access may be puzzling to some of us, but we must remember that in Honduras, conditions are somewhat different from what we're used to. In fact, some of the schools were so remote that they had to be excluded from the study.)

To accomplish these objectives, interviews were conducted with 49 elementary school teachers in the La Union region of rural Honduras over the summer of 1988. Why the emphasis on rural settings? Two reasons are cited: First of all, 60 percent of Honduras is rural. Therefore, EE in rural schools promises to reach a significant portion of the school-aged population. Second, many of Honduras' environmental problems (e.g., deforestation, soil erosion, poor water quality) are due to the rapidly growing rural population which generally inhabits natural resource lands. In fact, the study area was near the site of a major forestry development area.

In the interviews, the teachers were asked a multitude of questions regarding their individual characteristics, their educational background, the classes they teach, their favorite subjects, their experience and knowledge related to EE activities, their attitudes toward EE, their perception of the role of EE, and their knowledge of

the environment and environmental concerns.

This massive interrogation process naturally generated a mountain of useful information. Some of the more interesting facts to emerge from the study are:

1. Nearly half of the teachers had received less than nine years of formal schooling, but most were involved in additional educational pursuits. This demonstrates their motivation to learn and, presumably, to improve themselves.
2. When asked which subject areas they most enjoyed, nearly half of them specified natural sciences, although most have little natural science background.
3. Resources (i.e., teaching aids, books, teaching guides) were almost nonexistent by our standards, and lacking were such basic facilities as electricity and plumbing. (Think about that the next time you sit down with WordPerfect.)
4. Overall, the teachers seemed enthusiastic about instigating EE in the schools, and many even indicated prior experience with it. It appears that EE in schools would not be a radically new concept.

5. Most teachers demonstrated at least rudimentary understanding of what the environment is and why EE is important. This suggests that there is at least a foundation for future training to build on.

6. Almost all of the teachers indicated that they would implement EE if they received training in how to do so.

Clearly, the teachers are receptive to EE in their schools, and are willing (in many cases eager) to receive training but are hampered by the lack of available training and equipment. Additionally, the teachers feel that lack of parental support, limited available information/communication, other teachers' negative attitudes, and lack of time were also obstacles. Curiously, some teachers perceived no obstacles to acquiring EE in the schools.

Enlightened by this new information, Dr. Ham and Miss Castillo were able to generate specific recommendations to the powers-that-be in Honduras. Very briefly, these cover:

1. The need to explore possibilities for financing EE.
2. The development of

teaching/communication aids (compatible with Honduras' economic state).

3. The planning and implementation of teacher-training.
4. The role of parents in E.E.
5. Separate strategies (which, as it turned out, were not needed) for easy-access vs. difficult-access schools.

So there's Phase I of the development of EE in rural Honduras. It doesn't quite save the whole world, but great things must often be achieved in small steps. The fact that U.S. dollars were used to finance research by a U.S. scientist in a foreign country underscores the reality that the battle for improved environmental quality must be fought on a global scale. More such projects must be undertaken in countries which are themselves unable to undertake them. A better world is not such a bad ideal to strive for. 𠄎

Dr. Ham is an associate professor in the Department of Wildland Recreation Management. His assistance with this article is gratefully acknowledged.

Stuart Markow is a student in Wildland Recreation Management.



A typical class from El Portrero Elementary School in Yocon

Lizeth Castillo

A Survey Of Taxpayer Opinions Concerning Idaho's Nongame Wildlife And Endangered Species Program

by Charles C. Harris, Kerry P. Reese, and Tracy A. Miller

In 1981, the Idaho Department of Fish and Game established its Nongame Wildlife and Endangered Species Program to take the lead in managing the 90 percent of Idaho's animal species that are not hunted, fished, or trapped. As in many states, funds for this program are derived almost entirely from voluntary donations made through a "tax-checkoff" opportunity on the state's income tax form.

In 1987, six percent of Idaho's taxpayers used the income tax checkoff to donate \$70,000. Donations in Idaho and throughout the United States have been declining, however, raising concerns about the future of this fundraising method.

How aware of the program are Idaho taxpayers, and what are their opinions concerning the priorities and projects on which the program should focus? Who donates to the program using the income-tax checkoff, and why don't more people donate? Managers in the Idaho Department of Fish and Game wanted answers to these and other questions to help guide their future management of nongame animals and the nongame program.

Working at the department's request, we initiated a survey of Idaho taxpayers in 1987. Our objective was to determine if donors are different from nondonors in terms of their demographic charac-

teristics, their knowledge and opinions about the program, Band the Checkoff, the ways in which they learn about the program, and their support for the program's projects. We also wanted to learn what alternative sources of program funding would be acceptable to Idaho's taxpayers.

We mailed questionnaires to two randomly selected samples of Idaho taxpayers: one sample of 1,000 persons whom the Idaho Department of Revenue and Taxation identified as donors to the program and a second sample of 1,000 persons identified as nondonors. We used standard survey research methods, resulting in a return of 67 percent of the deliverable questionnaires. A bias check (a separate survey of those not responding) suggested that the answers we obtained from survey respondents were representative of those of all Idaho taxpayers.

We found that donors tended to be younger and more highly educated than nondonors, with higher incomes and homes in Idaho's larger cities and towns. Those least likely to donate were older than 65, from small towns, with at most a high school education and annual incomes less than \$20,000—most likely retirees on fixed incomes. At least a third of the donors fished and at least 22 percent of them hunted.

A major finding was that awareness of the program and of

the tax checkoff are primary influences on donation behavior; 83 percent of the donors had heard of the program, but only 54 percent of the nondonors had. Even fewer nondonors—47 percent—had heard of the tax checkoff. This difference suggests that nondonors are either not being exposed effectively to messages about donation opportunities or they are less receptive to them.

Another important influence on donation behavior is the way Idahoans prepare their taxes. Most donors (65.3 percent) prepared their own tax returns. In contrast, most nondonors (63 percent) used a professional. Of the donors who used a professional, 65 percent indicated that their preparer had informed them about the checkoff. On the other hand, only 31 percent of the nondonors had been informed of the checkoff by their tax preparer. Overall, about 44 percent of Idaho's taxpayers hired tax preparers who failed to inform them about the checkoff.

Significantly, 34 percent of nondonors cited being uninformed by their tax preparers as a reason for not donating. Other common reasons were not having enough information about how their contributions would be used (given by 32 percent), not being able to afford to contribute (given by 26 percent), and not receiving a tax refund (given by 16 percent).

What are taxpayers' opinions concerning the priorities and projects on which the program should focus? One survey question asked people to rate how strongly they support or oppose particular nongame projects. Reintroducing endangered species received the strongest backing, with 80 percent of all respondents indicating support. Wildlife interpretive centers had the least support, but was also the project about which respondents knew least. Other projects, including nongame wildlife research, the natural heritage program, raptor rehabilitation, information and education programs, and the building of bird feeders and nesting boxes, were supported by 60 to 75 percent of the respondents.

The survey also asked people to show how they would distribute nongame funds among several specified uses. Respondents allocated the most money to purchasing land (34 percent of the budget) and the least to building observation centers (12 percent of the budget). Caring for animals, educating the public, and conducting research received 21 percent, 17 percent, and 16 percent of the budget, respectively.

When asked to distribute nongame funds among animal groups, respondents allocated 43 percent of the budget to threatened and endangered species, 19 percent to birds, 17 percent to mammals, 13 percent to fish, and 9 percent to reptiles and amphibians.

Respondents' support for alternative funding sources ranged from a high of 77 percent support for using fishing and hunting license revenues to a low of 24 percent support for an increase in the sales tax. Of those who identified themselves as hunters, 63 percent favored use of license revenues. Seventy-two percent of anglers favored such use.

Based on our findings, what recommendations can we make for planning the future of Idaho's Nongame Wildlife and Endangered Species program? Our recommendations include:

- Increase Idahoans' awareness of the program and checkoff by publicizing them in those media we found to be most effective in reaching the public: newspapers, television, and *Idaho Wildlife* magazine.
- Stress popular animals groups and management projects in promotions and management, especially projects that aid animals, such as providing bird feeders, rehabilitating raptors, and reintroducing endangered species.
- To most efficiently promote the program and checkoff, target well-educated males whose household incomes exceed \$20,000 and who live in Idaho's larger cities.

- Target professional tax preparers in efforts to increase checkoff donations. Those efforts should stress that concerned people need to remind their accountants that they want to donate. At the same time, find out whether and how the department can enlist more help from tax preparers in informing their clients about the checkoff. **✶**

Charles C. Harris is assistant professor of wildland recreation management; Kerry P. Reese is assistant professor of wildlife resources, and Tracy A. Miller is a graduate student in the Department of Wildland Recreation Management. Funding for this research was provided by the Idaho Department of Fish and Game and the University of Idaho Research Office.



"According to the book, its song consists of a vigorous repetition of a single 'tweet.' It doesn't say anything about a guitar."

Biotechnology Research Expands To Sagebrush, Bitterbrush And Elite Black Cherry

by Carol M. Stiff, Yvonne Carree and Mark Mousseaux

Last year we reported the creation of a new laboratory in the Department of Forest Resources that was set up by Steve Brunsfeld and Carol Stiff to conduct research in plant tissue culture and molecular biology, e.g., "plant biotechnology."

We are happy to report that the research is progressing well, and, in addition to the previously reported micropropagation projects on western white pine, Idaho hybrid poplar, and western larch, we are also doing work with sagebrush and bitterbrush, and elite black cherry. The two new projects were initiated this year in collaboration with Min Hironaka, professor in the Department of Range Sciences, and Ron Mahoney, Extension Forester in Forest Resources. Both have a common goal: to mass propagate elite members of a genotype in which few individuals are available.

By using tissue culture techniques, we are able to mass propagate whole plants that are identical to the "parent" or have some desirable new characteristics. Greater numbers of plants can be mass produced from smaller, and fewer, cuttings in less time and space than by conventional means.

Sagebrush and Bitterbrush

Certain varieties of sagebrush (*Artemisia*) and bitterbrush (*Purshia*) have the potential to serve as rangeland food for live-

stock and wildlife. Others have the capability to resprout after wild-fires. Hironaka wants to breed plants that possess both of these characteristics, and is going to use tissue culture techniques to accomplish this. Hironaka, forest resources student Mark Mousseaux, and Carol Stiff, funded by the BLM, are developing techniques to micropropagate some of these individuals possessing one or more of the desired characteristics. The plantlets will then be acclimated under mist and further grown in the greenhouse where selected crosses will be made.

Black Cherry

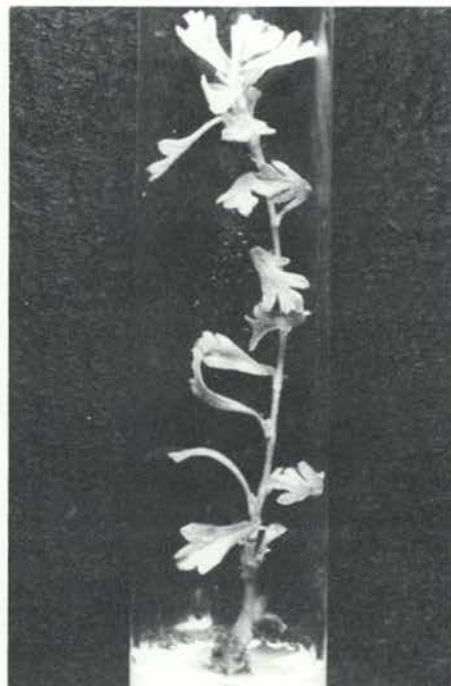
Black cherry (*Prunus serotina* Ehrh.) has the potential to be a lucrative cash crop in the state of Idaho, although it is rarely grown here. Its uses vary from cabinetry and furniture to fine musical instruments. Black cherry is suitable for farm processing, using portable mills, farm equipment, and vacant buildings; thus it could be used by farmers in rural Idaho searching for an alternative crop to supplement their declining incomes.

Superior stock from New York and Pennsylvania will be mass produced through tissue culture and plantlings will be field tested in Idaho. Mahoney, working with Carol Stiff and graduate student Yvonne Carree, must evaluate different lines of black cherry for their tolerance to frost and

drought, and determine if the growth rates are sufficient to make it an economical alternative crop.

The Biotechnology Lab is always interested in getting involved in new projects and is willing to discuss new ideas with those interested in using biotechnology in their research. Stop by, visit the lab, and see what new "creatures" are being developed here. 🌱

Carol M. Stiff is a plant tissue culture specialist and Ph.D. student in Forest Resources; Yvonne Carree, a graduate student, and Mark Mousseaux, an undergraduate student, are also in Forest Resources.



Bitterbrush

Carol Stiff

Incorporating Economics Into Wildlife Management

by Natalie Bolon and Charley McKetta

ECONOMICS AND WILDLIFE?

Economics is a social science that studies human behavior in the allocation of scarce resources between competing ends. Simply put, it is the study of choices. So in wildlife economics, any human choices which involve wildlife are fair game.

Such choices are regularly made in weighing wildlife against other uses of scarce land and capital. These "other uses," such as crops, cows, trees, minerals, roads and houses, have sometimes had an advantage in this contest because of their well-defined monetary values. One recent contribution of economic research has been techniques that can estimate the money or societal values of wildlife. When finite values can be attached, it is easier to objectively incorporate wildlife resources into planning decisions on public and private lands.

Valuation is just a first step. Further incorporation of the economic way of thinking would pay off to the wildlife resource and profession. So far, economic analysis common in other natural resources, even related ones such as fisheries, are not widely applied in wildlife management. The superstition that wildlife would always come out on the short end of an economic yardstick reveals fundamental misconceptions of the nature of economics.

Even where dollar profit is the only criterion, wildlife investments can be financially attractive. Some

private wetlands earn more in duck production than in crops (Hammack and Brown 1974). Where social values count as well, wildlife concerns are definitely competitive. Consider the trade-off between eagle habitat and timber in Alaska. Competing social values are the crux of this issue. The value of habitat foregone must be weighed objectively against all the costs and values of timber. Wolf and grizzly bear recovery plans might receive equal attention in trade-offs against subsidized timber sales, if these animals were studied as intensively economically as they are ecologically. Environmental interests have discovered this, and the Wilderness Society's new economics staff has already been effective. Rational arguments that support emotional issues aren't easily dismissed.

WHY STUDY WILDLIFE ECONOMICS?

Ciriacy-Wantrup (1963) found four reasons to study wildlife economics: (1) to explain the behavior of recreational users, (2) to predict it, (3) to mold the state of conservation over time, and (4) to design appropriate policies. Today these reasons seem even more pertinent as we realize what we lose by not considering them. The knowledge of biology and ecology in wildlife decisions is critical, but as resource management becomes increasingly people management, the role of the social sciences becomes essential.

Wildlife professionals excel at biology and ecology, but they

have been slow to incorporate the economic paradigm, and it shows. Their knowledge gap is of human consumers and producers of wildlife and the trade-offs humans face when they make real economic decisions about wildlife resources at all levels. Game management agencies, particularly in the West, employ policies of resource protection that are biologically oriented and hunter controls that are enforcement oriented, while the human behavioral aspects of resource use are only superficially acknowledged.

It seems inconceivable that wildlife can be managed for the well-being of human society or that law and policy can be formulated and enforced without a basic understanding of the human part of the equation. It is ironic that it was biologists, as early as 1903, who were first interested in the economic aspects of wildlife (Davis 1985). It is equally significant that biologists originally called for economic studies of wildlife production (Cringan 1971).

AN IDAHO CASE STUDY

Humans allocate hunting rights and make production choices between game and other crops. Most of Idaho's suitable private lands, at best, passively allow upland game survival. McKetta and Bolon (1988) found pheasants in Latah and Nez Perce Counties to be an excellent example. Pheasants are found on private lands where the farming on some of the best agricultural soils in Idaho is intensive.

Border-to-border cultivation leaves a minimum of quality habitat for game. More diverse and managed habitat would be capable of supporting much larger bird populations. Crop dominance is not caused by an inability to measure intangible values. Young et al. (1987) estimated that Idaho pheasant hunting generates values between \$52 and \$75 per wildlife user day. The problem is that farmers see none of this. The income from incidental upland game production to the farm is low to non-existent, compared to the net return of intensive farming practices.

The absence of a market for hunting rights creates a schism between pheasant hunters' participation values and the producer incentives necessary to set aside pheasant habitat and provide hunting opportunities. So farmers' logical production decisions generate no fence rows and little permanent cover. Fallow periods are kept at a minimum, and marginal land, ideal for habitat, is adjacent to high-quality ground, so it is relatively cheap to just "plow next door too while you're at it." Drainages and poor ground are often burned as pest and weed controls which reduces nesting and thermal cover in a region where wet cool springs threaten survival of the hatch. They don't necessarily fret if Dyston zaps the birds either. This single inability to extract a value that is known to exist leads to low game populations where their biological potential is high.

Even if a landowner wanted to provide huntable populations, there are institutional limits to benefiting from them. Hunters traditionally assume free access to unposted lands. The new Idaho cultivated lands trespass law is quite strict, but so far enforcement has been sporadic. Interaction with hunters can be expensive and time-consuming, so complete posting is a least-cost approach, espe-

cially near cities, and landowner liability for hunters' actions and accidents on his lands is a substantial disincentive.

Some factors which could change landowners' economic behavior in the production of upland game might be a reduction of the relative values of grain, increased set-aside and reserve acreages, enforcement of trespass laws and liability limits. Changes that allow farmers to protect, foster, and gain from habitat could change land-use patterns and make investments in habitat and habitat management attractive.

Markets could evolve for hunting and habitat access rights. A criticism is that hunting and fishing in America might become available to only the wealthy, as in Europe (Tober 1981). The fact that without market incentives, Idaho farmers have been choosing to exclude the public from wildlife habitat on the basis of a zero price makes this argument moot. Idaho pheasant hunters have already declined from 894 thousand in 1980 to 41.3 thousand in 1987 (Idaho Fish and Game 1988) in the absence of widespread fee or lease hunting.

Existing programs have economic flaws. The first law of demand suggests that increased upland game license fees should further reduce the number of hunters, even if the extra \$5.50 is dedicated to habitat. The theory of property rights tells us habitat improvement incentives that conditionally limit a farmer's control of his lands are also likely to fail.

There is confusion in consumable wildlife uses between what is the resource and what is the product. In addition, property rights to private land and public game are in conflict. The father of wildlife management, Aldo Leopold (1930), saw a solution: "Instead of trying to persuade the

farmer not to post, which is futile and negative, the public ought to urge him not to stop at posting, but also to practice management and sell the privileges of hunting the excess game crop." Wright (1985) found that East Texas landowners do respond to incentives, especially cash, to increase hunter access. Compensation to landowners has taken many forms elsewhere, including habitat programs, state payments for public access and direct transactions with hunters.

Many hunters are viewed by landowners as "free riders," imposing costs instead of returning benefits. It is an anomaly that individuals are willing to pay for nearly all other forms of recreation, such as bowling, movies, concerts, etc., but feel free to hunt and fish without paying. Sportsmen do provide the state with monies from license sales, tag sales, and taxes on sporting goods. They usually do not, however, pay landowners for their time and effort in providing opportunity and habitat or to repair damage caused by recreationists or the wildlife itself.

Landowners have little incentive to maintain good habitat through good conservation measures except from their own feelings of stewardship. Of course, Aldo Leopold (1930), as well as others, pointed this out long ago. "Fear of impending scarcity, coupled with a desire to study, admire, shoot, or eat game, are valuable incentives, but do not of themselves impel action over large enough areas. To induce widespread production of game on private lands, there must also be the incentive of profit to the landowner." What is clearly a positive social value to the Idaho hunting public is a cost to producers of hunting opportunities. This failure to generate tangible incentives for wildlife production minimizes private wildlife resource manage-

ment, especially when wildlife outputs compete against a financially marketable commodity such as wheat, for a share of the same land base.

A CALL FOR BIOECONOMIC COLLABORATION

There is a basic lack of information concerning economic trade-offs between wildlife production and agriculture in practical terms usable for landowner decisions. This makes feasibility evaluations for wildlife production on farms extremely chancy. Landowners need a conversion of population biology and agricultural trade-offs into estimates of game production and marketing feasibility. The economic supply of a primary Idaho recreational activity is unknown and merits exploration. On the demand side, the absence of a market or other informational network giving the location, quality, ownership and cost of hunting opportunity raises the hunters cost of participating and discourages hunter activity.

Studies of current activities and attitudes of hunters, landowners, and managers toward wildlife production, transaction of hunting rights and alternative management policies are a beginning, but an enormous amount of work is needed. Once the basic role of economic behavior is understood in the relatively simple case of consumptive use on private lands, extrapolations to more complicated economic wildlife issues could be made, including allocation of scarce and valuable populations such as the bighorn sheep; where consumptive values and intangible or nonconsumptive values conflict, in big game depredation, and in the allocation of public land habitat.

In wildlife decisions, biology is a necessary, but insufficient, determinant of hunting opportunity. Economic models do have the potential to explain many of the

enigmas of applied wildlife and outdoor recreation problems. There is a mutual advantage from incorporating both the biological and social sciences to explain human interaction with wildlife. Research such as the preceding case study, which demonstrated how economic factors might be controlling pheasant production, could help to stimulate new cooperative efforts in bioeconomics.

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The Inside Passage: A World Experience By Water

by Veronica Fortun

Welcome to Southeast Alaska! My name is Veronica Fortun and I'll be your Cruise Director/Naturalist. In the next few days we will be cruising through the waterways of Southeast Alaska. Together we will share the many wonders of this ice-locked world.

Fifteen hundred years ago, Tlingit Indians paddled their wooden canoes through ice-filled wilderness areas of Southeast Alaska. They fished for halibut and salmon and collected seaweed and berries along the shore. They used the cedar and spruce trees for shelter, tools, and totem poles. Each year 300,000 travellers visit the same waterways as the Tlingits. This historic waterway is known as Southeast Alaska's Inside Passage.

Modern marine vessels allow visitors to gain a hands-on experience of this glacier-carved world. Many opportunities are offered for observing wildlife: brown bear, black bear, bald eagles, puffins, humpback whales and otters. As you travel the waterways of Southeast Alaska, you can still witness the ongoing process of glaciers carving new valleys and fjords.

In 1879, naturalist John Muir canoed to Glacier Bay from Wrangell, Alaska. His description of the ice-locked wilderness area was so inspiring that steamship companies started offering tours. The first steamer, *Idaho*, included journalist Eliza Ruhamah Scidmore on the passenger list. Her descriptions of the Inside Passage were published in newspapers and magazines

around the world. As the tourism industry began, steamers would stop at mining towns and canneries to allow passengers to get a feel for the land.

Today many cruiseship companies, and the Alaska State Ferries, offer their passengers a unique experience on the waterways of Southeast Alaska. The abundance of wildlife, forest resources, ecology, geology, and natural and cultural history have become important factors to travellers as well as the tour operators.

Forest Service Interpreters can be found aboard the Alaska State Ferries; they provide programs and answer questions on forest practices as well as glaciers and wildlife. Cruise ships are now hiring naturalists to provide the same opportunities to their passengers. One passenger described an interpreter as someone who shares their knowledge on complicated things and makes them more understandable.

The Inside Passage offers naturalists a unique experience. Instead of giving nature hikes and campfire talks, naturalists are able to use the ship as a viewing platform for the many scenic wonders of the area. It provides the naturalist and passengers opportunities to observe wildlife and glaciers in a comfortable manner. The scenic view provides a memorable backdrop for sharing stories of the Tlingit Indians and the Goldminers, as well as exchanging Robert Service poems. What better way to visit and experience all that Southeast Alaska has to offer?

Just as the Tlingit Indians used the waterway for their livelihood, John Muir for its natural beauty, and today's traveller for the adventure of a lifetime, Southeast Alaska's Inside Passage is indeed a world experienced by water. ㊦

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College



Dru Daily

Focus

A Succinct Selection of FWR Facts

by George Savage

Anyone who's been around FWR for a while knows that the college was founded in 1909, that Charles Houston Shattuck was first dean of the college, and that But wait! The facts are that the college wasn't founded in 1909; a Department of Forestry was—in the College of Agriculture. And Shattuck was never dean, at least not of Forestry; he was department head. The first dean—when the department became a school in 1917—was, in fact, Dr. Francis Garner Miller. But hang on! That's not quite right either. Miller was first dean, but he was never "Dr."; Miller didn't have a Ph.D. (one of two UI Forestry deans that did not), a fact that will probably not hurt his standing at all with many of you readers.

The fact is: There are a good many facts about this venerable institution and those who have passed through it over the nearly 80 years of its existence. Some are important, and relatively well known; others relatively unimportant and in many cases forgotten except by those most intimately involved. By the way, do you know which Forestry dean coached the Vandal baseball team?

The following is an attempt to present some of those FWR facts (with no pretense at structure, theme, or literary value). If they interest you, you can find even more FWR facts in *The College of Forestry, Wildlife and Range Sciences, 1909-1984: An Album* (see George Savage in the Publications Office; he'll sell you one for \$9.95). Meanwhile, bring on the FWR facts.

All right.

For example, this magazine you're reading—the *Idaho Forester*. What about this award-winning, student-produced natural resources magazine published continuously since 1917? Well, first, it hasn't been published continuously. Only barely started, it disappeared from view in 1918 and 1919. The young men who staffed the fledgling magazine had been called away to World War I, and there were no young women to replace them. In fact, no woman would be associated with the *Forester* until 1964-65, when Leslie (Betts) Wemhoff served as "flunkie" (the *Forester's* term, not mine). In further fact, no woman would serve as *Forester* editor until Kate Sullivan manned (excuse me) the helm in 1976.

The *Forester* also failed to show in 1968. In those now long-ago days of confusion and tradition bashing, the staff couldn't decide what the magazine should be and fettered by indecision "lost the name of action," as Hamlet might say.

And what about "student-produced"? True, since its inception, students have written and photographed for the *Forester*, but mysteriously for three years running, 1931, '32, '33, the magazine was edited—edited, not advised—by A.M. (Art) Sowder, a faculty member.

Why? One more *Forester* fact. From 1922 to 1937, the *Forester* bore the same cover. Some of you may have seen it—a silhouetted ranger riding through a silhouetted

forest with a lake in the background. The 1938 editor Ken Hungerford (now wildlife professor emeritus), being young and iconoclastic, wanted a new cover. No deal, said Dean Jeffers, who'd have to finance the new cover plate. Well, confided Hungerford a few years ago, the old plate had a convenient hairline crack across the bottom that conveniently grew to a fracture after an unfortunate drop—or two. Hungerford got his new cover. And, to his credit, financed it with advertising sales. It lasted from 1939 to 1947, then was resurrected for another go-round from 1950-1956, when another young, iconoclastic editor decided to drop it for something more modern.

And speaking of UI deans, which one was simultaneously a dean and department head? That was Shattuck. In 1914, he was promoted to dean, not of Forestry, but of Letters and Sciences. Not wishing to relinquish the department he'd built, he took Forestry with him to L & S and retained his department head duties until 1917.

The longest-tenured dean was Dwight S. Jeffers. He served from 1935 to 1953. After he retired at 70, he went back to the woods as a consultant and back to teaching at the Pennsylvania State University and later at Oregon State. He retired again in 1963. He died at 96 years old in 1980. The shortest-tenured was Richard E. McArdle, described by students as "a rough, tough forester," who signed on in 1934 and liked it so much he left in 1935. But something of Idaho must have rubbed off on him,

even in that short time. He went on to serve as Chief of the Forest Service from 1952 to 1962.

McArdle was preceded by the much-respected F.G. Miller, the one with no Ph.D., who served from 1917-1934. Miller died suddenly in March 1934. And because McArdle hung around hardly long enough to change socks, the college had four deans in less than a year-and-a-half: Miller, McArdle, E.E. Hubert—a faculty member who assumed acting dean duties—and finally Jeffers—all from 1934—1935.

A fact about E.E. Hubert: He wrote a widely used textbook, *Forest Pathology*, and was not so widely known as the “father of fencing” at the University of Idaho. He coached fencing practice in the attic of Morrill Hall beginning in 1928.

Ernest W. Wohletz, dean from 1953-1971, was the other Ph.D.-less dean. He came up from Berkeley in 1937, primarily to help build a summer camp. He was the only UI Forestry dean to “rise through the ranks” and the only UI dean to coach the Idaho baseball Vandals (although not yet dean at the time). Seems Wohletz, known also as “Smoky Joe,” loved baseball, knew the game well, and in his youth played it very well indeed. During World War II, with the young men gone, he took over the UI baseball coaching duties and could hardly be drawn back to Forestry at war’s end.

And what about summer camp? Well, summer camp wasn’t always at McCall; there have even been a couple in fairly recent years in Moscow. But the first summer “camp” was in 1939, right here on campus, in the old Willis Sweet Hall. And it was controversial. The Class of ‘41, with the largest freshman class ever and the first class affected by the summer camp requirement, had, by the time of graduation, dwindled to

one of the smallest in recent years. These were the latter “Great Depression” years. Many students simply couldn’t afford to be out of work for ten weeks. They dropped out, changed majors, or went to school elsewhere.

Did you know that the first women didn’t attend summer camp until 1965? They were that ground-breaker Leslie (Betts) Wemhoff and Nancy (Nelson) Eller, both of whom attended camp in ‘65 and graduated in ‘68. But that wasn’t too bad. It had been only two years since the first woman graduated from the college, Barbara (Hatch) Rupers in 1963. Rupers wanted to go to summer camp in 1961, but university administrators, fearful of the inevitable, dreadful, and obvious consequences, shrank from the prospect. In short, they said “No.”

Who was the first woman to attend the School of Forestry? That was Vera Roberta (Bobbie) Montgomery way back in 1935. But, paradoxically, Bobbie never came to Moscow. Which leads to a related fact: Did you know the School of Forestry had a Southern Branch? It did, in Pocatello, and that’s where Bobbie went. She didn’t graduate; neither did the several other women who attended before Barbara Rupers came along.

Speaking of graduation, there were two years when no Idaho Foresters crossed the commencement stage. It’s a fact. War was the common denominator. In 1918, there were no, zero, graduates. There is no Forestry Class of ‘18. In 1944, the college had three graduates, but all three had graduated mid-term and by commencement time were in their respective armed services.

Here’s an anomaly. In almost every instance, undergraduate curricula precede graduate curricula; in almost every instance except

that of the college’s wildlife degrees. Here’s how it worked. In 1947, the Idaho Cooperative Wildlife Research Unit, headed by Dr. Paul Dalke, came to campus. With an obvious emphasis on “research,” the unit wanted grad students, and by the next year, the M.S. in Wildlife Management was noted in the UI *Bulletin*. The first wildlife M.S. was Allen Morton (1950). Not until 1952 did the B.S. curriculum appear in the *Bulletin*. The first wildlife B.S. was Ken Herman, that same year.

At about the same time, the college was distinguished by simultaneously having two extension foresters named Vern. Yes. In 1946 alumnus and extension forester (since 1942) Vern Ravenscroft welcomed new colleague, assistant extension forester and alumnus Vern Burlison. Vern R. went to private business in 1950, and Vern B. stepped up to assume a 27-year stint as extension forester. He retired in 1978; there has not been a Vern since.

Did you know that in 1953, Lee A. Sharp (now professor emeritus of range resources) won the school’s tobacco-spitting contest? The spit was a mere 20 feet, but the criterion was accuracy, not distance. Regrettably, Sharp was disqualified when someone revealed that he was a faculty member.

And did you know that a year later, the Forester’s Ball was interrupted when the student union manager feared that an enthusiastic ‘bunny hopping’ session would collapse the floor? It’s true. Structural engineers called in later “found no evidence of structural failure,” but advised prohibiting “boisterous, rhythmic jumping (such as the ‘Bunny Hop’ dance).”

You knew that most of the 7200 acres of the UI Experimental Forest were donated over the years by Potlatch Corporation. What you

may not know is that in the mid-30's confidence ran high that the college would soon have a 64,000-acre forest. Yes, a vast tract of land extending from due north of Moscow all the way to due north of Helmer. The idea was basically Dean Miller's, with support from U! President Neale. The land would be added to the National Forest System as a preliminary step toward state ownership. Idaho Congressman Compton White introduced the bill in the U.S. Congress; it was passed. Headlines hit the local papers: "Congress Grants Timberlands to the U. of I." Alas, though the enabling legislation passed, the funding necessary to purchase the private lands in the block never materialized.

Harold Osborne does not hold the mineral rights to the forest.

Obviously, these FWR facts are beginning to get a bit out of hand. Yet more facts remain, and one fears alienating people by failing to include certain "pet" facts. In an attempt to avoid that and exit from an article that is becoming interminably long, herewith is presented, in no particular order, a concluding potpourri of facts both piquant and pedantic.

In 1960, FWR alums held down the presidencies of both the SRM and the SAF: Ed Kennedy for the former; Charlie Connaughton for the latter.

The FWR Building was dedicated April 22, 1972. The negative pressure feature was installed soon thereafter.

FWR's Ph.D. programs were instituted in 1959. Ben Roche took the first, in range management, in 1965. He's now professor of forestry and range management at WSU. That will teach him.

The college's (more accurately, the department's) first graduate was Lloyd Fenn in 1911. Fenn

achieved a bit of distinction shortly thereafter when he took the Ranger examination. Question: "What to do in case of a crown fire?" Fenn's answer: "Run like hell and pray for rain." True.

That area of the arboretum across from the dome, where the barbecue is, was officially named Price Green in 1932. The Associated Foresters built the barbecue and, with the agreement of university officialdom, named it for Clement Price in honor of, at that time, his 22 years as nurseryman. Shattuck gave Price credit for the very existence of the arboretum.

The seedbeds for the early arboretum were irrigated with pipe scavenged by Shattuck, Price, and students from the wreckage of the original "Ad" Building destroyed by fire in 1906.

In 1953, Eugenio de la Cruz (Class of '26), of the Philippines, received a new diploma to replace the original burned by the Japanese during World War II.

Fourteen Idaho Foresters died in that war.

1970: One suggestion for filling in the space now occupied by the snag—a giant Paul Bunyan. And where is Paul Bunyan? In 1934, students and instructor Liter Spence (also an alum) created out

of beaverboard a 6 1/2-foot Paul Bunyan, complete with double-bit ax. Paul was used for a bulletin board and Forester's Ball mascot for over 30 years. And then disappeared.

In 1981, in an exercise of academic freedom, if not artistic sensibility, professors Penny Morgan and Jo Ellen Force performed with the singing, dancing "Profettes."

And finally, and quickly (pay attention): 1917—The Department of Forestry becomes the School of Forestry; 1953—The School of Forestry becomes the College of Forestry; 1963—The College of Forestry becomes the College of Forestry, Wildlife and Range Sciences.

Don't ask about this again.

Many, many more facts orbit around the birth and growth, the staff, faculty, and students of FWR. But the above ought to suffice for a few minutes' reading. For those not entirely surfeited, contact your friendly *Idaho Forester* staff. Their back files have over 70 years of facts—by students who lived them, wrote about them, and saved them for the rest of us to enjoy. 林

George Savage is Managing Editor of the College of Forestry, Wildlife and Range Science's Publications Office.



Taylor Ranch Internship, 1988

by Stuart Markow

"There won't be any bears up here this early in the year."

"These mules never kick."

"We're too high up to run into any rattlesnakes."

These were the kinds of reassuring statements that kept us going, and that turned out to be uncomfortably untrue. Such was life at Taylor Ranch.

Taylor Ranch, for those who don't know, is the University of Idaho's Wilderness Research Station. Not many such research stations exist nowadays. This facility, located in the Frank Church-River

of No Return Wilderness, is truly unique by virtue of the fact that wilderness research stations require wilderness, which, as we all know, is in increasingly short supply.

This station is the base of operations for research projects that require the unspoiled conditions found in wilderness. Numerous such projects have been conducted out of the ranch, the most notable being Maurice Hornocker's long-term study of mountain lions. Hornocker, operating out of what was then Jess Taylor's outfitting camp, was quick to real-

ize the value of such a place as a research facility, and in 1969 he managed to persuade Taylor to sell the ranch, and the university to buy it for that purpose.

In 1982, Jim and Holly Akenson were assigned as live-in managers of the ranch. One of their undertakings was to establish an internship program in which selected students of natural resources could participate in research projects in exchange for ~~slave labor~~ assisting with the formidable maintenance workload. The maintenance work is paid for; participation in research is not.



Stuart Markow

Modern methods of hay harvesting at Taylor Ranch

This was the program which we (myself, Tammi Lesh and Sarah Topp) found ourselves caught up in over the summer of 1988. Our responsibilities included 1) performing every maintenance task ever conceived by man, and 2) assisting the FWR faculty (and others) with their research projects in the area. These projects took the following forms.

1. We assisted Dr. Jim Peek with his wildlife range evaluation. Specific activities included 1) using Daubenmire plots to assess vegetation composition and forage biomass, 2) measuring twig lengths of selected forage species, 3) counting millions of stems, and measuring the area of selected forage shrubs, and 4) carefully recording the site locations for future evaluation. Subsequent readings at each site will enable Dr. Peek to assess forage production and utilization in the area.
2. Under the direction of professors Steve Bunting and Penny Morgan, we set up transects to study invasion of spotted knapweed. In doing so, we determined the frequency of knapweed occurrence along with occurrence of other species within designated plots. Other information that we recorded included percent vegetation cover, bare ground, vegetation litter, bare rock, and the life-history of M&M candies. This information, updated periodically, will help Dr. Bunting to determine how quickly knapweed propagates and how it affects other vegetation.
3. With Jim and/or Holly Akenson, we went to several different sites in an attempt to locate bighorn sheep with lambs. The information we were trying to obtain was 1) location of lambing sites and 2) ewe/lamb ratios. Assessed over years, this informa-

tion can be used to evaluate reproductive success within the sheep populations.

4. Dr. Oz Garton (acting-director of the Wilderness Research Center) had us set up a small-mammals survey area. We then live-trapped small mammals every day, marking each for identification, until approximately 75 percent of the trappings were recaptures. As the survey is repeated in subsequent years, data will show changes in small-mammal population size and distribution.
5. Holly Akenson performed some of the finest research ever undertaken in her attempt to discover the optimal recipe for wilderness-baked cherry pie. We were all obliged to assist in the evaluation process, and initial data suggest that over the years, these pies will become increasingly irresistible.

Additional non-research projects in which we participated included:

1. Preparation of avian study-skins, or "bird-stuffing" as it was affectionately referred to. For some

reason, there was considerable disparity in our abilities to handle this project. Everyone agreed, however, that our final products were all flawless specimens that appeared completely life-like.

2. Preparation of herbarium specimens from plants previously collected by Holly.
3. Writing of abstracts describing previous research undertaken at Taylor Ranch. These abstracts will be matched to pictures of the researchers and posted in the field-station lab.

Early July saw us drop everything and step back 100 years to harvest the hay crop using hand labor and mule team. The hay will be used over the winter to feed the horses and mules. Use of these machines-of-the-wilderness was a very important component of our training. We used these critters for any project that required generation of power far beyond human capability. Anyone who hasn't experienced it yet will note that working a mule team is the next best thing to driving a truck with a broken steering column.



Stuart Markow

L. to R.: Jim and Holly Akenson, Sarah Topp, and Tammi Lesh

Of course, life at Taylor Ranch wasn't all work and no play (not quite anyway). For those occasions when we had time off, the wilderness provided ample opportunities for such strenuous pursuits as hacky-sack and cribbage. For those seeking less demanding activities, excursions to the high peaks of the area offered outstanding vistas and unparalleled opportunities to exert oneself well beyond his or her capabilities. Other popular activities which never seemed to grow old were ~~watching television,~~ glassing the slopes for sheep and elk, fishing, barbecuing, and shoeing mules.

However, the one activity which took priority over all others was awaiting the weekly arrival of the mail plane. Each Wednesday, at the first drone of the small,

single-engine plane, people would congregate at the airstrip, and no amount of pleading, threatening or actual physical violence could persuade them to move until mail and groceries had been given appropriate attention.

After all was said and done (and believe me, a lot was said and done), we all emerged from the smoke and rubble feeling that no words could adequately express the quality of the experience. The hands-on participation in the research, the unique wilderness environment with its unusual opportunities, and the feeling that we were doing something really worthwhile all combined to produce a truly memorable summer. Even the heavy maintenance workload had redeeming educational value (this

is much easier to say now than it would have been back then). Up-keep of a facility such as Taylor Ranch requires considerable physical labor, and this can only really be understood and appreciated through full involvement.

Finally, there is no overstating the positive role of the managers, Jim and Holly Akenson. Ultimately, it was their energy, patience, generosity and commitment to the internship program which produced such a rewarding experience. Despite the bears, rattlesnakes and mules that "never kick," I feel extremely privileged to have participated in the Taylor Ranch internship under their direction. I strongly encourage others to do the same. 犇

Stuart Markow is a student in Wildland Recreation Management.



View of Taylor Ranch from above



#I-218-11, Historical Photograph Collection, University of Idaho Library, Moscow, Idaho

Forestry students ready for a field trip.



#I-218-3, Historical Photograph Collection. University of Idaho Library, Moscow, Idaho

Dendrology lab section, 1927.



#I-218-14, Historical Photograph Collection, University of Idaho Library, Moscow, Idaho

Pack string crossing river during forestry field trip.

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#I-218-18, Historical Photograph Collection, University of Idaho Library, Moscow, Idaho

Students at fire lookout.

S.A.F. Convention—1988

by Mark Mousseaux

In October of 1988, three students (Mark Mousseaux, Dan Johnson, and John Edson) attended the Society of American Foresters (S.A.F.) National convention in Rochester N.Y., representing the U. of I. student chapter of the S.A.F.

The experience was extremely beneficial to the students, not only in a forestry and science context but also in an interpersonal communication and social context.

The students were able to meet and talk with other students and professional foresters from all over the United States and Canada, and many insights were gained about forestry in other parts of the U.S. and the world. By sharing, communicating, and understanding different points of view on forest practices, problems and technology, the students will undoubtedly become better foresters in the future.

The social contacts made were also valuable, not only from a professional standpoint but from the standpoint of friendships established.

The convention, with the three days of general and technical sessions, was eye opening and very informative. The opening, keynote address and following general sessions dealt with topics such as the extent and consequences of global deforestation, the loss of species diversity, the health of the industrial and Third World nations' forests, acid rain, global warming, and the socioeconomic, physiological, psychological and cultural effects of forests on man. The general sessions also covered

topics such as man's effects on the forests, atmospheric pollution and climate changes, and forest land-use effects.

On the second day, the general session addressed challenges facing foresters to achieve healthy forests. Many differing views were heard on the challenges and solutions to the problems. Professional research, corporate, private, industrial and government views and perspectives were presented, and for the students, it was good to see such varied and opposing views on complex issues.

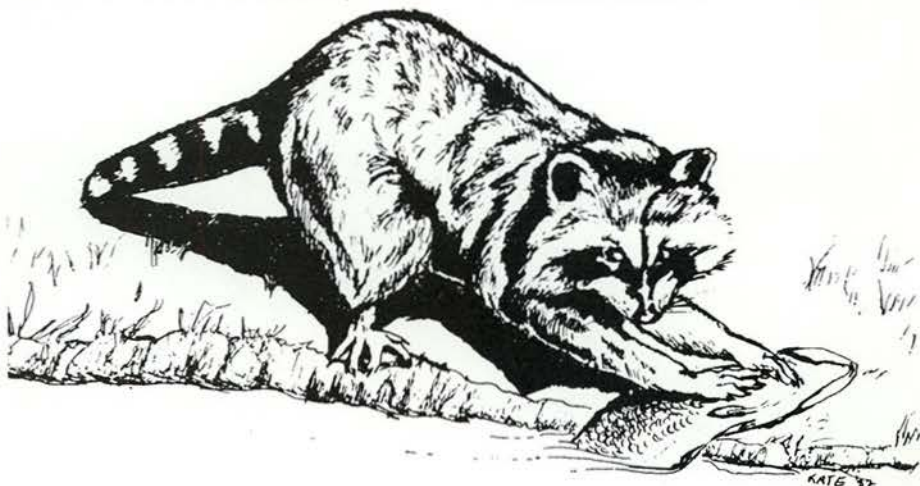
The afternoon of the second and third days were spent in small-group technical sessions that further addressed, in depth, many of the general topics. This was the "meat" of the convention. It was here that detailed presentations of data, problems, new technology and discoveries were given.

Even though the knowledge gained from the convention answered many questions and will help the students in their academic and professional futures, the

convention raised many more questions. The problems facing foresters and other natural resource managers are far from solved. Man is just beginning to understand the complexities and inter-relations of the world's ecosystems. It is important that everyone be informed and involved with the processes of solving these immense and even planet-threatening problems. We cannot be irresponsible.

One way to get involved is to attend the 1989 S.A.F. convention which will be held in Spokane, September 24-28. Planning has already begun and many of the same general topics will be addressed again. The students from the U. of I. (and W.S.U.) chapters of the Society of American Foresters will be hosts to the other students from all over the country. They are busy planning a student tour which will address grizzly bear habitat with an emphasis on silviculture, wildlife and recreation concerns. For more information, contact your student chapter of the Society of American Foresters.

Mark Mousseaux is a senior in Forest Resources.



A Day Of Wet Wonder

by David Persell

The trip started at Moscow under a bright early morning sun that seemed to promise a beautifully warm day ahead. As the crew bus rolled out of the parking lot across from the FWR building, it seemed that many of us were thinking the same thing, because many of us had dressed for a moderately warm day. Little did we know what was to come.

The trip was the FWR tour of the UI Experimental Forest on September 10, 1988. We had all met at the parking lot at 8:00 in the morning to travel around and see the wonders of the nearby school forest. In the end, it turned out to be a semi-successful trip.

As we passed through the spectacular scenery of the rolling, stubbled wheat fields near Moscow, a few of the group of tourists sang campsongs in the

back of the bus. If they had only taken time to look out the window, they would have seen the ominous clouds in the sky as we neared Viola.

Our first stop was at Pinestia, the Guernsey Outdoor Classroom and Demonstration Woodlot. Here we had our first taste of how the day would be. It was blowing and very cold. A few of us had now begun to wonder what we had gotten ourselves into.

From Guernsey woodlot we progressed to the main experimental forest. Here we were able to see the student logging crew in action. It was a very interesting demonstration. At this point, it was not only blowing, but it began to rain also.

After watching the different logging demonstrations in this weather, just about everyone was soaked. We then went to the student tool shed and listened to a few talks. At this point it was unanimously decided that we would call it quits without having seen half of the tour stops, because it was pouring down rain.

All and all, it was a very wet day, and few of us considered it the most fun we have ever had. I am one of the fortunate ones that was able to finish the tour at a later date, and I am glad I did. There are some very beautiful pieces of land in the school forest. The best part about the forest is that it is basically run by the students.

When asked what she thought, Kim Davie, a student in the College of FWR, says that the student forest is the ideal place to learn how to make decisions concerning both wildlife and forestry. Ed McCarty, another student, says, "The tour would have been much better with good weather." Bern Harrison says, "It inspired me to look into job possibilities on the student logging crew".

We did not finish the tour, but we did get a feel for the school forest and how it functions. I only hope that this year's weather will not put a damper on next year's tour. 糝

David Persell is a student in Wildlife Resources and Editor of the 1988 Idaho Forester.



Dave Persell

Joe Ulliman talking to tourists at a logging operation

UI Celebrates Birthday with FWR Trees

by Chris Maranto

Last spring two Forest Resources seniors, Dan Johnson and Chris Maranto, traveled throughout the state of Idaho planting groves of 5 seedlings in commemoration of the U of I Centennial. The two-year old seedlings were grown at the U of I Forest Research Nursery. Each of the forty-four counties received a grove, which were typically planted on courthouse lawns, parks, public school lawns, and even the state supreme court lawn. The species that were selected are considered special to the state and the university. They included: western white pine, the state tree, representing scenic beauty; Idaho hybrid poplar, representing high technology; Douglas-fir, representing strength and stability; western larch, representing rapid growth

and diversity; and the ponderosa pine, representing perseverance and longevity. A bronze centennial plaque was installed next to the western white pine.

Leon Neuenschwander, associate dean for research and international programs for the college, accompanied Chris and Dan for about one-third of the trek, primarily to work out the bugs, entertain the media, and fish.

One of the most interesting aspects mentioned by Chris and Dan of their travels was the overwhelming amount of enthusiasm encountered at each planting. From alumni and friends to mayors and city prosecutors, all showed up to help plant and

“mix-the-mud” for the plaque. According to then U of I Centennial Coordinator Roy Fluhrer, “No similar project has ever been undertaken by an American university.”

Besides meeting alumni and friends of the university, Chris and Dan got to traverse the entire state, from every corner through every scenic wonder that Idaho offers. At every stop they were told “stories” of past U of I happenings. One that stands out occurred during a forestry summer camp at McCall, Idaho, back in the early forties. Two, now prominent individuals, one being a well-known forester in the state and the other being a well-known international figure, were “bird-doggin” on a McCall Saturday night. Well, they just happened upon a burning liquor store, but instead of attempting to put the fire out as most foresters would have done, they proceeded to remove the intoxicating liquids from the shelves.

Another “story” relates to the Idaho-Washington State rivalry involving intercollegiate sports. Back in the “old days” the team and their fans’ mode of transportation between the campuses was via the railroad. Wazzu’s team took an earlier train to Moscow, while their fans were scheduled to take a later train. In between the two, a few Vandal fans decided to delay the second train. They applied a lubricant to the tracks where the train had the steepest grade to climb. The train, the Wazzu fans, and the U.S. Mail didn’t make it to Moscow. The first two were really no big deal, but the latter was a



Leon Neuenschwander

Dan and Chris pose for this shot on the Teton County Fairgrounds in Driggs. In the background is the Grand Teton, where the two embarked for a three-day weekend of R&R.

federal offense. Those few fans had to disappear (to Canada) until the heat dissipated.

During the summer, formal dedication ceremonies were held at each site, which brought together university dignitaries, headed by U of I President Gibb, alumni, local officials, and area citizens. 雜

Chris Maranto is an undergraduate in Forest Resources.



Dan Johnson

Students from the fourth grade class of the Basin 72 Elementary School in Idaho City prepare to plant the white pine.



Natural Resource Week and the Awards Banquet

by Greg Wooten

Each April the students and faculty at the College of Forestry, Wildlife and Range Sciences join in the celebration of Natural Resources Week. This is one of the busiest weeks of the year for everyone in the college. The celebration lasts seven days, with each day full of events involving athletics, seminars, short courses, film festivals, student forums, luncheons, meetings and banquets. This is an excellent learning opportunity for the students of FWR because they have a chance to meet professionals from all over the world that attend this celebration.

One of the guests of honor this year was Dr. Ian Player. Dr. Player is the founder of World Wilderness Congress and Vice Chairman of the Wilderness Leadership School. On Wednesday

there was a student forum to meet Dr. Player. During the forum he discussed his Wilderness Leadership School and presented some slides of the school. He is using wilderness experience to enhance human potential and understanding. On Thursday he presented the Centennial Distinguished Wilderness Resource Lecture.

On Friday there was a student forum to meet Mr. Max Peterson, Chief Emeritus of the U.S. Forest Service. At noon Robert Moseley from the Nature Conservancy presented a seminar on "Preserving Idaho's Natural Diversity in a System of Natural Areas." Later that evening the Natural Resources Week potluck and awards banquet was held at the Moscow Elk's Club.

The awards banquet started with a social hour and progressed through dinner until it was finally time for the awards. Each department at the college of FWR selects an outstanding senior to recognize an individual who has demonstrated excellence in all or a majority of the following criteria: 1) department, college or university activities; 2) grade point average; 3) demonstrated leadership qualities; and 4) other criteria that the selection committee feels important.

Forest Resources' Outstanding Senior Award went to Kevin L. Bott. Kevin distinguished himself with an outstanding academic record, completing his require-



Range Resources Outstanding Senior Phakiso Sefika receiving his award from Min Hironaka

ments with a 3.85 GPA and graduating *summa cum laude* (with highest distinction). He received a UI Alumni Association Award for Excellence and was active in clubs and organizations in the college of FWR. He previously graduated from the Forest Technician Program at Spokane Community College in June of 1982 with an AAS degree. He worked 6-7 months per year for the USFS in Pomeroy, Washington, and attended the U of I for one semester a year. Kevin continued part-time for the USFS and commuted from Pomeroy to the U of I, balancing work with school. Kevin is currently the acting Timber Sale Administrator on the Pomeroy Ranger District.

Range Resources' Outstanding Senior Award went to Phakiso Sefika. Phakiso is from Lesotho, a



Forest Resources Outstanding Senior Kevin Bott receiving his award from Chuck Hatch



Forest Products Outstanding Senior Jonathan Berreth receiving his award from Ali Moslemi

small country on the southeast coast of Africa surrounded by the nation of South Africa. Phakiso came to the college of FWR in 1985, after several years of study in Lesotho.

Forest Products' Outstanding Senior Award went to Jonathan Edward Berreth. Jonathan performed very well in his academic studies at the U of I. He has also been active in extracurricular activities. Jon's father owns a small logging operation and introduced Jon to the logging business. Jon intends to work in timber harvesting for a private firm or a public agency and eventually go into the logging business himself. Jon believes logging is an integral part of forest management and an important economic activity in the state of Idaho. Jon was a serious student, always working to get maximum understanding from any course he took.

Wildland Recreation Management's Outstanding Senior Award went to Edward Ohlweiler. Ed exhibits extreme potential to excel, and his personality naturally motivates others to do well. Ed graduated with an outstanding GPA. He was the president of the Wildland Recreation Club and also a faculty representative. Ed organized Earth Day two years running and single-handedly got a grant from the *Idahonian* to construct an educational environment for youngsters.

Ed always put 100 percent into anything that he was involved with.

Fish and Wildlife Resources' Outstanding Senior Award went to Jeff Day. Jeff graduated previously from the U of I with a BS in Business. He returned later in search of a degree in wildlife sciences, hoping to get a job with the Idaho Department of Fish and Game (IDFG). Jeff was the president of the Student Chapter of The Wildlife Society and was also very active in the college and its organization. He distinguished himself with an outstanding academic record and is now working for the IDFG as a conservation officer.

The Outstanding Senior Award for the College of Forestry, Wildlife and Range Sciences went to Jeanne Higgins. Jeanne has had a leadership role in just about every part of student life in the college. She was active in both the Associated Foresters and the Student Chapter of the Society of American Foresters. She was a member of the Student Affairs Council for



Wildland Recreation Outstanding Senior Ed Ohlweiler receiving his award from Bill McLaughlin



Jeff Day, Outstanding Senior for Fisheries and Wildlife

three years, serving as chairperson during one. She was a student member of the "Quest For Excellence" planning team in 1985 and a student member of the college's Executive Council. She has been an active member of Xi Sigma Pi, the forestry honor society, and Phi Sigma, a forestry and agriculture society. Jeanne was also a staff member of our award-winning yearbook, *Idaho Forester*, and co-editor of the college newsletter, *The Snag*. In 1987 she was honored as the co-winner of the Forest Resources' Outstanding Senior Award, the other recipient being her husband Bruce. She also served on the committee for the annual Excellence in Writing Contest. Wow, it's a wonder Jeanne had time to sleep; but wait, she also had two children while attending school at the U of I. Jeanne Higgins is truly a role model for anyone who wishes to be successful.

Edward O. ("OZ") Garton, a professor of wildlife resources, was named FWR's Outstanding Researcher for the year. Lewis Nelson, also a professor of wildlife



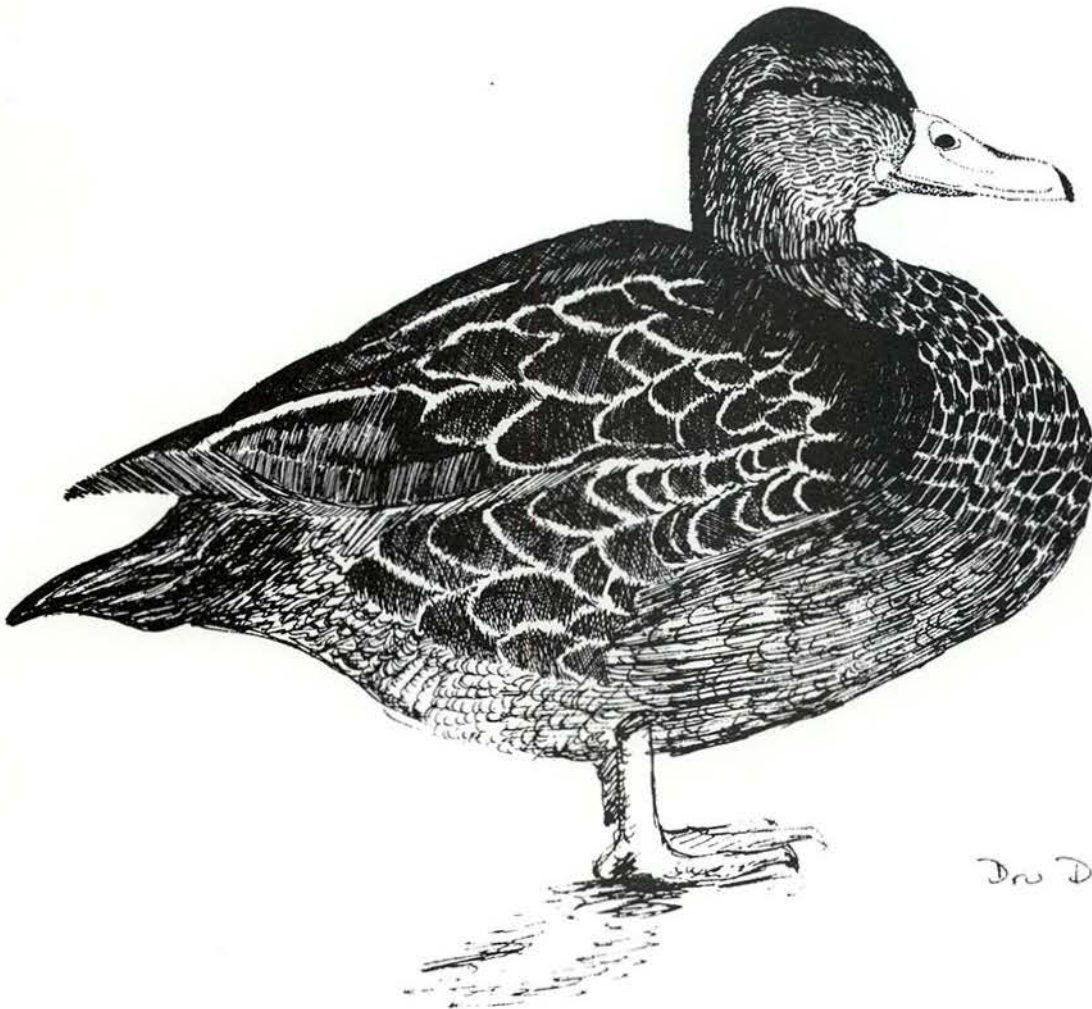
Associate Dean Jim Fazio joins in applause for FWR Outstanding Senior Jeanne Higgins.

resources, received the Outstanding Faculty in Continuing Education Award for the many wildlife and communications workshops he has developed and presented both to the public and to state and federal agencies. By a vote of FWR students, Gary E. Machlis, associate professor of forest resources, was named the year's Outstanding Teacher.

Max Peterson was the guest speaker at the banquet, presenting a speech on "Looking to the Future of the National Forests." Peterson is credited with leading the Forest Service through the time of putting in place the legis-

lation of the '70s, particularly in preparing the forest management plans; with strengthening the Forest Service's research abilities; with achieving closer cooperation with the states; and with developing international forestry agreements. In 1985, President Reagan conferred upon him the rank of Distinguished Executive in the Senior Executive Service.

On Saturday there were numerous council meetings, which finally brought Natural Resources Week to an end. Students and faculty could now take a short rest before starting dead week and finals week. 雜



Outdoor Classroom Dedicated

by Diane Noel

Eighty acres of forest, meadow, and shrub field near rural Robinson Lake Park east of Moscow have become the latest addition to the University of Idaho Experimental Forest. The tract was donated by Earle C. Blodgett and his wife Ena F. Blodgett (both UI Class of '29) currently of Prosser, Washington, and dedicated on May 6 as the Blodgett Outdoor Classroom.

Only nine miles from downtown Moscow—the closest to campus of any tract of the 7200-acre experimental forest—the area will be managed by FWR for education and research and eventually will generate revenue for student scholarships.

One of the conditions of the Blodgetts' gift is that the land never be clearcut. Therefore, said

Dean John Hendee, "Income from limited, selective timber harvests will be used to manage the land and to establish the Blodgett Scholarship endowment."

Harold Osborne, manager of the experimental forest, said the tract is valuable for research on restoring shrub fields to forest. Currently, much of the area is a dense shrub field—the aftermath of the 1931 Moscow Mountain Fire.

But the area's greatest value may be for teaching. Hendee said the site will be well used, particularly by forest ecology and silviculture classes. "It's also an excellent place for forest inventory classes to study soils and measure timber, forage production, water, and other resources," he added.

At the May 6 dedication, attended by UI officials and FWR administration, faculty, students, and 10 members of the Blodgett family, Dean Hendee thanked the Blodgetts for their generosity and concern for education. Earle Blodgett recalled purchasing the land in the late 1930s and the enjoyment it had brought him and his family over the years. He offered the land to the UI in memory of his parents, Charles E. Blodgett and Irene O. Blodgett and their descendants. Kenneth L. Pratt, a junior (now a senior) forest products major, accepted the land on behalf of FWR's students.

Following the dedication ceremonies, students, faculty, the Blodgett family and John and Fran Hendee went to work planting blister-rust-resistant western white pine, western larch, Idaho hybrid poplar, and ponderosa pine—85 seedlings in all, all raised at the UI Forest Research Nursery.



Some Blodgett Outdoor Classroom tree planters on a cold May day. From left: Dan Johnson, Associate Dean Leon Neuenschwander, Terry Shaw, Earle Blodgett, Earle's sister-in-law Corrine Blodgett, Earle's brother Rex Blodgett, Ken Pratt, Dean Hendee, Fran Hendee, Jeff Day, and Jan Pence

The Blodgett family connection to the University of Idaho is a solid one. Earle received a B.S. in agriculture in 1929 and an M.S. in plant pathology in 1930. He went on to earn a PhD from the University of Wisconsin in 1934, and joined the UI as a potato research scientist in Aberdeen in 1935, moving to Prosser, Washington, in 1946. Ena Blodgett graduated from the UI, also in 1929, with a B.S. in education. Their son, John, taught in the UI English Department during the 60s. Earle's brother, Rex, of Moscow, is also a UI graduate (BS—Agric., '41), and his nephew Ken Hall is the university's physical plant director.



From left: Harold Osborne, Earle Blodgett, Fran Hendee, and Dean John C. Hendee during dedication of the Blodgett Outdoor Classroom

With the donation of the Blodgett Outdoor Classroom, that connection will be strengthened, through the research and teaching conducted there, and, in time to come, through the students who will be aided in their educations through receipts from future selective harvests. ㊦

Diane Noel is assistant editor of Forestry Publications.



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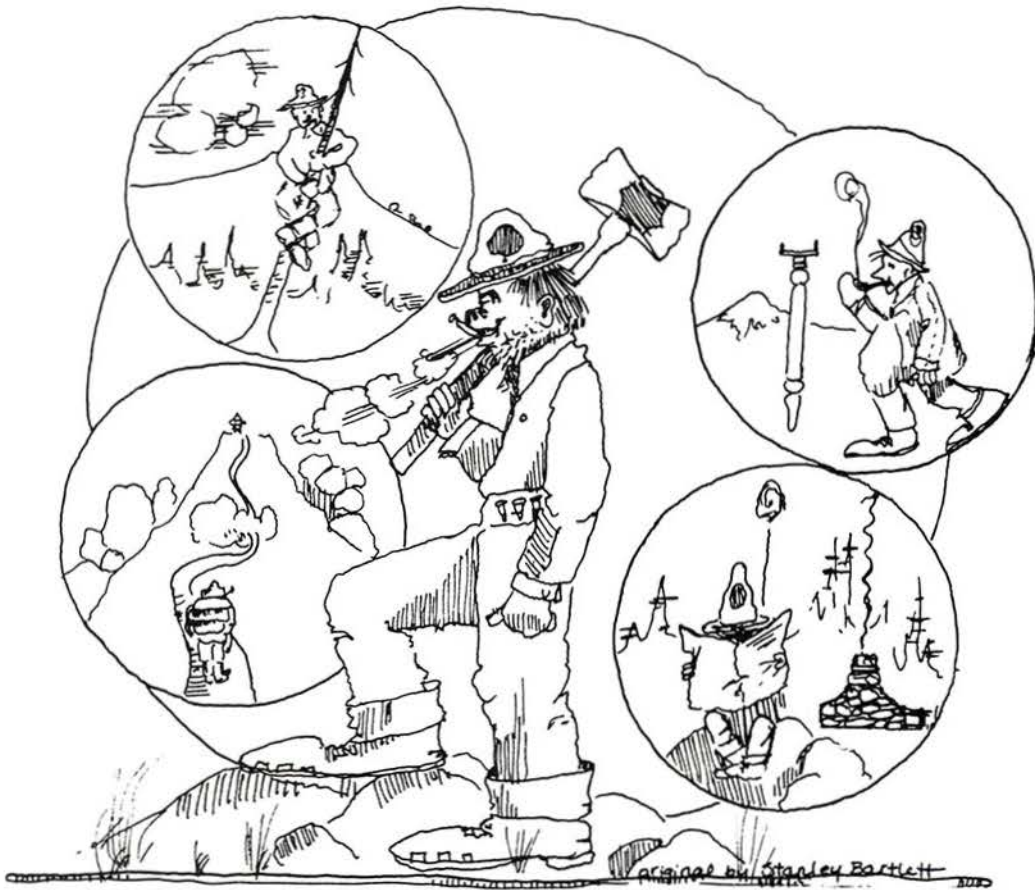
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Student

Activities



Student Affairs Council

by Paula Yochum

The Student Affairs Council (SAC) is comprised of students from every department in addition to representatives from each club in the College of Forestry, Wildlife, and Range Sciences. Its basic purpose is to serve as a link between the students and faculty of the college, as well as being a line of communication among the different clubs. SAC gives the students a chance to voice any concerns or

complaints about the college, or give any suggestions for actions of the faculty or staff.

The first thing on the agenda for SAC was the planning of the annual T-shirts and Hats sales. After that, a lot of basic "housekeeping" duties were looked after, such as the cleanup of the Saloon and the updating of the college's student organization pamphlet.

Once again, SAC is doing a major part of the planning for the Natural Resources Week in the spring. The agenda includes the traditional Pancake Breakfast, as well as the Activities Day, various lectures and films, and to top of the week, an Awards Banquet will be held. 🍳

Many thanks go to this year's chairman—Bart Smith.



Simon Welch, Kara Lagerquist, Alan Shepherd, Dave Persell, Karen Sheldon, Jay Pence, Carl Brenner, Dennis Scott, Joe Ulliman (advisor)

Student Management Unit (SMU)

by Ken Nygren

Following a year of inactivity, the Student Management Unit (SMU) exploded with projects and intense enthusiasm. A timely infusion of energetic and dedicated freshmen, sophomores and juniors provided the impetus to complete several projects and start new ones.

We started the year under my chairmanship with poor attendance and inability to be the organization we wanted. So, I spent the summer preparing to attract new members this fall semester. Little did I know how successful that campaign would be. By the end of the semester, 13 dedicated members, representing several college departments, formed the core of our dynamic organization. They came from the Wildlife, Forest Products, Wildland Recreation Management, and Forest Resources departments. Every one of them looking for the same thing—AN OPPORTUNITY TO PUT CLASSROOM SKILLS INTO ACTION.

We succeeded in meeting that goal. In order to get the group into the woods, we started the semester finishing a one-acre thinning/firewood sale project. We first marked the stand, then cut skidding corridors for bringing the trees up to a landing to sell. Next, the stand was cut. Most of the students who did the cutting had little or no previous experience using a chainsaw; now they have a skill they can keep for life.

Concurrent with the completion of the firewood/thinning, we began planning for the development of recreation on the school forest. At first we put blinders on and only looked at developing the existing recreation

facilities at Big Meadow Creek Recreation Area. As the group's understanding of recreational management grew, we realized that site was not meeting the recreational needs of the local population. So, our planning area grew to include the whole school forest and new ideas for recreation development arose. Currently, the planning continues at a rapid pace, with a possible ropes course and/or a "yurt" system for cross-country skiers on the drawing board.

Work for all the projects was done on weekends by student volunteers. We did our planning and organizing for the projects during the bi-monthly meetings held on weekdays. All the labor, planning and money for the projects resulted from student ef-

forts. This particular group of students involved in the SMU are outstanding and energetic. I enjoyed working (and playing) with them. In December, I turned over the chairmanship to two very capable people, Carl Brenner and Dave Persell. I wish them well and hope that they can gain as much as I did from their experiences.

Late in October, we finished our work on the firewood/thinning project. But, being the type of people we are, we did not want to stop working in the woods yet. So, we began to finish a thinning project nearly completed two years ago. We piled slash in that unit until the early snows fell.

Ken A. Nygren is a student in Forest Resources and was 1988 SMU Chairman.



Karen Sheldon, Dave Persell, Brenda Clair, Carl Brenner, Simon Welch, Len Young, Jeff Knudson, Charlie Maddox

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Xi Sigma Pi

by Ken Pratt

Xi Sigma Pi is a national forestry honorary that recognizes the accomplishments of students from all of the College of FWR disciplines. The Honorary was founded in 1908 at the University of Washington to promote fraternal spirit among those engaged in activities related to forest resources. The society works hard to improve the profession of forest resources by doing several community projects.

Each initiate class works on a project to promote the importance of natural resources. The fall initiate class of 1988 was involved in the McDonald School Project, which supplied information to the

school about management and conservation of natural resources. Initiation proceedings are a large focus of each semester, and 1988-89 was no exception.

Students are nominated for membership based on superior academic achievement and/or outstanding participation in college activities. All initiates construct a plaque of their own design from one board foot of western white pine and have faculty members sign it.

Along with our current activities, future plans of improvement within the college are planned. A tutoring schedule will be set up to help students in the

College of FWR, along with the development of a college slide show to aid in recruiting more high-quality people to the college. We also plan on going back to visit the McDonald School.

The Epsilon Chapter has seen some hard times over the past years and is climbing back to the top. We would like to give a special thanks to the people who made this happen; Amy Adams—Forester, Mark Mousseaux—Associated Forester, Mary Dresser—Ranger, Mark Ulliman—Treasurer, Marianne Emmendorfer—SAC Representative, and our advisor Dave Wenny. ㊦



Standing: Mary Dresser, Marianne Emmendorfer, Mark Ulliman, Adair Reynolds, Ken Pratt, Amy Adams, Tim McGarry, and Dan Kenney. Kneeling: Meg Kenny, Mark Mousseaux, Lynn Pence, and Ray Guse.

Society of American Foresters

The 1988-89 school year was a productive one for the Society of American Foresters Student Chapter. After a few years of minimal student involvement, the interests and activities have increased. Some of the major activities included the Inland Empire Section meeting and seminar on riparian management in Post Falls that students attended last spring, as well as being involved in the activities of last year's Natural Resources week. Society members were also participants in the Palouse S.A.F. Chapter meetings and in a joint meeting with the Snake River Chapter. In October, several students represented the student chapter at the National S.A.F.

Convention in Rochester, New York.

This winter the club took advantage of a heavy snowfall and took a ski trip to the Moscow Mountains. For Valentine's Day, the traditional carnation sale helped earn the club some funds. One of this year's "Prof n' Steins" was sponsored in part by the student chapter, and a number of students are currently involved in planning the 1989 S.A.F. National Convention. Some of the future activities that the club has planned are participation in the Logger Sports Conclave and Natural Resources Week, both being held at the University of Idaho this spring.

The society also hopes to cut some firewood this spring to be sold next fall, as well as doing some work on various slash abatement and site preparation projects on the school forest. The club will also send several members to the next Inland Empire section meeting in Post Falls, and the whole club hopes to participate in the National Convention next September.

The Society of American Foresters Student Chapter officers:

Mark Mousseaux — co-chairman
David Sparks — co-chairman
Carl Brenner — secretary
Dan Johnson — treasurer



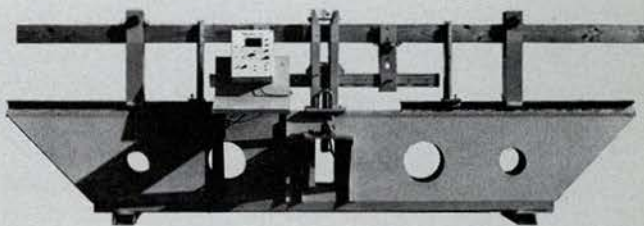
Standing: Jeff McCusker, unknown, Debra Wilkens, Carl Brenner, Doug Nelson, Steve Slachter, Chris Maranto. Sitting: Mark Sommer, Doug Nishek, Mark Mousseaux, Dave Sparks, Bern Harrison.

MACHINE STRESS RATING



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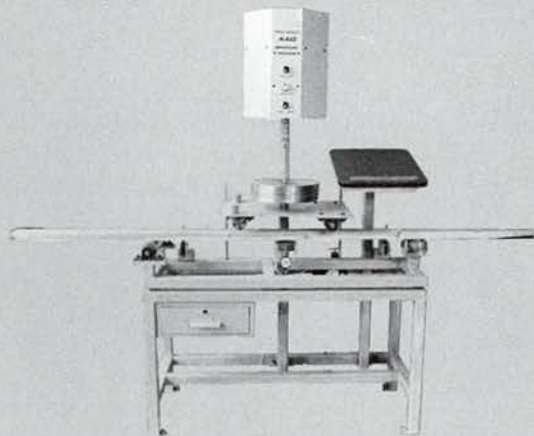
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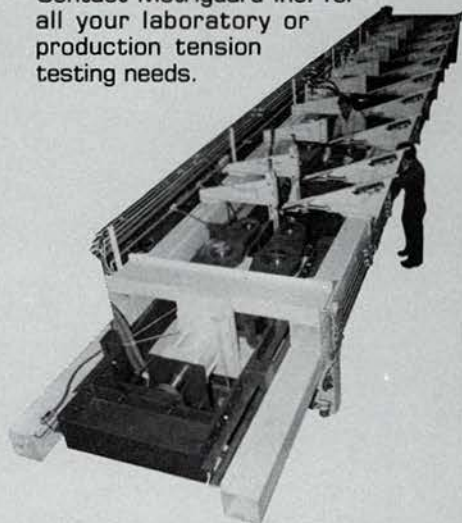
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American Fisheries Society Palouse Unit

by Bruce Rich

The Palouse Unit is a subdivision of the Idaho Chapter of the American Fisheries Society and is dedicated to the advancement of fisheries science and the conservation of aquatic resources. The unit's membership is comprised of students, faculty members, and resource professionals from both the University of Idaho and Washington State University.

Among the activities sponsored by the unit are monthly speakers on aquatic resource topics. Professionals from throughout the Northwest addressed the following topics this year: Columbia River treaty rights, the

future of aquaculture, fish genetics, integration of fisheries management and fish culture, fish culture in South Africa, and the current status of western salmonids. The unit also maintains an aquarium at the east end of the Forestry Building displaying some wild fish of the Inland Northwest.

Funds to finance the unit's activities (which are open to the public and are usually free) are raised by monthly soup feeds and an annual Wild Game Feed. The soup feeds are usually held during the lunch hour, one Friday of each month. Students and faculty who smell the simmering aroma of delicious homemade soups cannot

resist a sample, and it is a great change of pace for lunch. The Wild Game Feed, held during the late winter, allows participants to try many dishes ranging from domestic, to exotic, to plain wild!

A humorous slide show and raffle of many fine prizes add up to make a most enjoyable evening.

Finally, in the spirit of promoting professionalism in fisheries science, the Palouse Unit of American Fisheries Society administers the best paper awards at the annual Idaho Chapter meeting in Boise. ㊦



Bill Arnsburg, Russ Strach, Doug Hatch, Pam Portr, Mark Liter, and Bruce Riel

FISH

*A poem by Cliff Hauptman
(with apologies to Rudyard Kipling)*

If you can keep your lures when all about you
Are losing theirs and blaming it on you,
If you can catch bluegills and rainbow trout, too,
And still have flies left when the outing's through;
If you can keep your gear from causing mayhem,
Or keep your tangles down to eight or nine,
Or boat the fish that strike because you play them,
Not winch them in with over-heavy line;

If you can fish just for the joy of fishing;
If you have fun no matter how you do;
If you get skunked, yet don't resort to wishing
That plague befalls the guy who caught a few;
If you can watch a new world-record winner
Snap your line because the drag's too tight,
And keep from coming back right after dinner
With hand grenades, plastique and dynamite;

If you can watch the S.O.B. upriver
Catch good trout on corn and balls of cheese
And white bread dipped in aged chopped chicken liver,
While all your flies are shunned like some disease;
If you can stand to watch a hatch emerging
Just when your line's imprisoned in a tree,
And all your supplication, pleas and urging
Set your hat (but not your leader) free;

If you can step into your favorite trout brook,
And find no bottom where one once had been,
Yet manage to retain a pleasant outlook
While browns and brookies bump against your chin;
If you can keep your face straight while relating
Some lie about 'The One That Got Away,'
And be so artful at exaggerating
That even you believe the things you say;

If you are just an ordinary human;
If you break out in sweats when you see gills;
If thoughts of bass and trout are all-consumin';
If angling all day long would cure your ills;
If fishing lures to you are things of beauty,
And catalogs of gear are works of art;
If angling's not a pastime, but a duty;
If quicksand holds a soft spot in your heart;

If you have named your children Mepps or Heddon;
If you have Orvis tattooed on your thigh;
If you wore tails and waders to your weddin';
If smelling Woodsman's fly dope makes you high;
If thoughts of fishing fill your every minute;
If you take baths to hear the water run,
Yours is the stream and everything that's in it,
But make damn sure you've got a license, Son!

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The Wildlife Society

by Greg Wooten

The Student Chapter of The Wildlife Society (TWS) started off the year by constructing several types of bird houses and hanging them around campus. This is an annual project for TWS and along with hanging the new houses we also clean and check the old ones to try and determine what type of species occupied the cavity. So far every house we've hung has been utilized to include such species as the kestrel hawk, the flicker, and the sparrow. Last year we hung a large cavity in the arboretum trying to attract a barn owl, only to find it occupied by a family of fox squirrels. But what the heck, squirrels need homes, too.

The next outing we planned was an overnight trip to Craig Mountain to look at the effects of some controlled burns. Our departure date was on the same day as our annual chili cook-off during Natural Resources Week. Everyone was in a hurry to get things cleaned up so we could make the departure time, only to have it cancelled due to inclement weather. At least the chili cook-off went well.

The first week in April is always a fun week for TWS because several members have the opportunity to jet boat the Clearwater River with the Idaho Department of Fish and Game (IDF&G) and survey the goose nests on the waterfowl refuge. We search the island for nests and count the eggs. The IDF&G returns later in May to determine a hatch percentage. We also helped the IDF&G enhance their educational wildlife habitat area located in Lewiston.

At the end of each spring semester, TWS has its elections to install new officers. I was elected president, John Lamb was elected vice president, Cindi Sills was elected secretary, and Lori Hurd was elected treasurer.

In the fall we really had a good turn out for our first meeting. We started by going out to the school forest and taking up our old fencing habits. Each fall we take down old deer enclosures to enhance the habitat area. We will probably finish that project up next year.

We also look forward to the hunting season each year because TWS has an opportunity to assist

the IDF&G on big game check stations throughout the month of October and into November. Our local conservation officers, Clint Rand and Tanna Reagan, also give our members a chance to ride with them in the field.

TWS didn't have many fundraising activities throughout the year, so the bank account is getting low. At the end of the semester, the society agreed to sell T-shirts to fix our dwindling account. The T-shirts have a very good drawing of a cougar on the front, and they read "University of Idaho Wildlife Sciences." This ended the year, and we all agreed to come back after Christmas with a salesman's attitude.



From top: Jason Sandusky, Jeff Yeo (advisor), Paula Yochum, Brenda Clair, Matt Wallo, Carol Thompson, Christine Hunter, Dawn Zebley, Janelle Jeffers, Lori Hurd, Kim Melhoff, Dave Persell, Janet Seabolt, Jerry Deal, Greg Wooten, Mark Sands, John Lamb, David Silcock

Range Club

By Jay Pence

The University of Idaho Range Club started out small again this year. Several of our members did not return for the fall semester due to cooperative education obligations or the chance to make some extra cash from the extreme fire year.

The Range Club sent approximately 15 students to the International Society for Range Management (SRM) Annual meeting in Billings, Montana, February 19-23. Two of the students presented papers at the meeting. The rest represented the University of Idaho by competing

in the SRM Undergraduate Plant Identification Contest and the Undergraduate Range Management Exam (URME).

The Plant Identification competition tests the participants knowledge of two hundred important range plants across the United States. Their scientific names, with correct spelling, knowledge of families, and growth habits, must be known to get a good score. The URME tests the students' knowledge on all facets of range applications. This meeting provides a great opportunity for students to meet professionals in

their field and to attend presentations dealing with current practices, advancements, and issues in range management. Funds for the trip were received from the Dean's Office, from calendar sales, and from a very successful raffle.

We are expecting to have several more activities this spring. Our wayward students have returned from their fall activities and we have seen many new faces in our department. The club is once again becoming very busy and should continue to be active in the future. 犇



Back row: Alan Shepherd, Jay Pence, Brett Dumas. Middle row: Steve Bunting (advisor), Pat Ryan, K.C. Roscoe, Libby Miliron, Marlene Eno. Kneeling: Steve Jirik, Lynn Pence, Jim Kingery (advisor).

Wildland Recreation Management Association

by Marsha Moore

Last spring was a busy time for the Wildland Recreation Management Association (WRMA) due to Natural Resource Week, Earth Day, and the election of new officers. The club sponsored Earth Day 1988 by having a variety of people speak on natural resource issues throughout the day. A slide show and movies were presented that evening in the Forestry Building. A big hit was buttons depicting nature that were made by the third graders and sold to help fund club projects.

The election of club officers took place after spring break. The elected were:

Bart Smith — President
Marsha Moore — Vice-president
Amy Adams — Secretary
Jody Gants — Publicity
Wade Brown — Faculty rep.

Spring also marked the beginning of the summer job search. The job situation was great, and a number of students worked in the field of recreation. Some of the jobs included: wilderness ranger, tour guides, Forest Service interpreter, recreation technicians and river guides. This year's summer employment looks like it is going to be equal to last year's.

The beginning of the fall semester brought a number of new faces to the department. WRMA meetings packed a full house and the enthusiasm that was shown was great. The annual fall picnic was held at East City Park, where summer experience and the oncoming school year were the main topics.

In early October, several club members journeyed down to Sun Valley to help with the National

Recreation Area Symposium put on by the University of Idaho, the Forest Service, and the Park Service. The symposium lasted five days and provided many valuable learning experiences, professional contacts, and good times to all those that attended.

The club held potlucks throughout the semester in which professors and students relaxed and learned a bit about each other outside of the traditional teacher/student roles.

Finals, projects, and term papers came too fast and before we knew it, Christmas break had come once again. Moscow was dumped on during the break, and students arrived back to find

everything under three feet of snow. Excellent skiing was readily available around Moscow, and club members took advantage of it. Favorite ski haunts included Moscow Mountain, Elk River Falls, Paradise Ridge, and North-South Ski Bowl.

The Mardi Gras parade found a number of club members dressed up as "couch potatoes," and the judges must have been impressed—they were awarded the "least energetic" prize!

WRMA is now actively involved in planning for a Natural Resource Week and hoping for a large turnout. Elections of new officers will take place after spring break.



Bart Smith, Jeff Knudson, Amy Adams, Simon Welch, Greg Aurand

Forest Products Club

by Patrick Farrell

The Forest Products Club had a busy year which started in the spring of 1988. The activities included a tour of the Placement Center and the John Howe Pig Roast at Harry Lee's house. The officers for the Spring and Fall of 1988 were:

Patrick Farrell	President
Ken Pratt	Vice President
Mark Finn	Sec./Treas.

In the fall, the club took up

the fundraising project of producing cantilever bookshelves from scraps of ponderosa pine which were left over from sawmills. The project kept up with the value-added concept for wood products.

Also, club members helped out with the Dry-Kiln Workshop and the International Particleboard Conference. These conferences gave the students a chance to meet people in industry and make contact with possible employers.

The officers for Spring and Fall of 1989 are the following

Andy Peterson	President
Tony Brede	Vice President
Kim Pence	Sec./Treas.

The club has plans to make several field trips to conferences related to both harvesting and wood technology during the Spring of 1989. ㄗ



Standing: Andy Peterson, Pat Farrell, Darwin Baker, Richard Cleavenger, Dennis Scott, Mike Hughes, Richard Falk. Sitting: Tom Gorman, Tony Brede, Ken Pratt, Pierre Mangala, Rick Sherwood.



*"Is this all there is for lunch?"
John Edson doing tissue culture
research*



*"These bean plants will produce straight grained lumber
without any knots." Leon Neuenschwander and tree growers
at College Nursery*



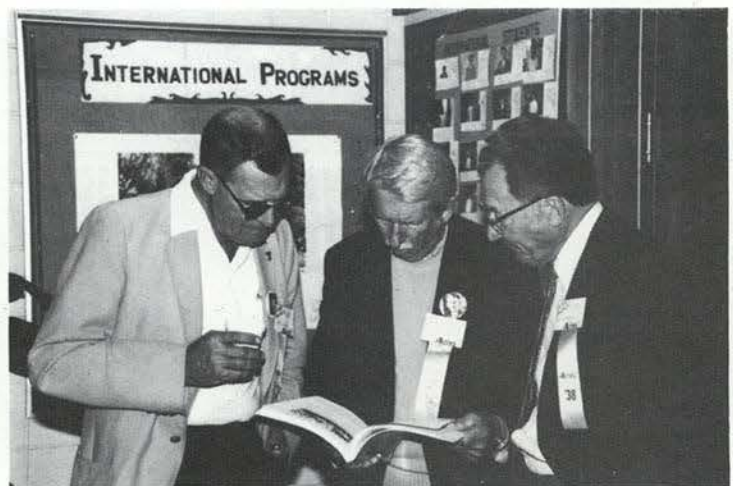
*"Who says antlers don't grow on trees?" Ray Guse, Bill Stutz, Mark
Ulliman, Tammi Lesh, and Kwae Ming Ling near Taylor Ranch*



*"Look, Harold, no more slash!"
David Persell, Karen Sheldon, Carl
Brenner, and Brenda Clair at the
Student Management Unit in the
School Forest*



*"This is my toy, and I don't want to share!"
Dean Hendee stands above Tom Peterson
and Bart Simpson (both of Caterpillar) and
Harold Osborne.*



*"Is this what they're teaching now?" Alumni Fred Clubb,
Art Nelson, and Ken Hungerford browsing through a
copy of FWR History*



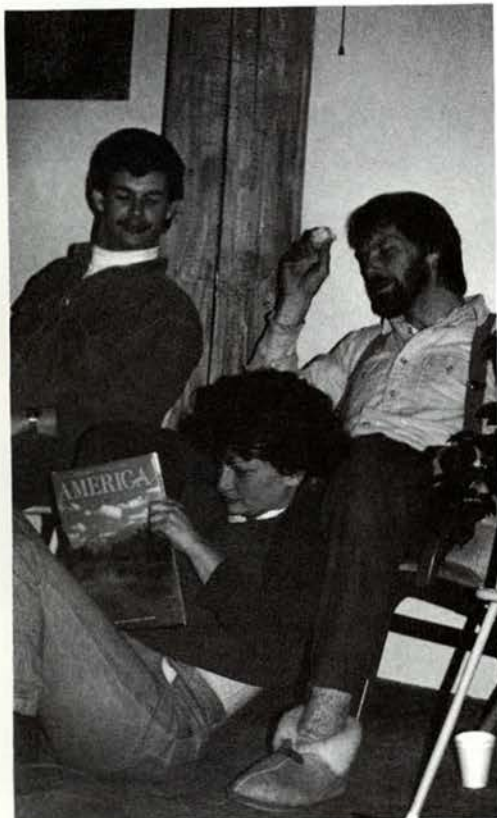
"Ain't there supposed to be roots down here?" David Wenny at College Nursery



"Is this the steep hill?" Snow revelers at Prof 'n' Stein hosted by Ron Mahoney



"These special children finally learned what a tree is." Mark Montville, Kas Dumroese, Leon Neuenschwander, Dan Johnson, Chris Maranto



"And then Snow White says to Grumpy . . ." Scott Wisely and Carl Dammann look over Irene Saphra's shoulder

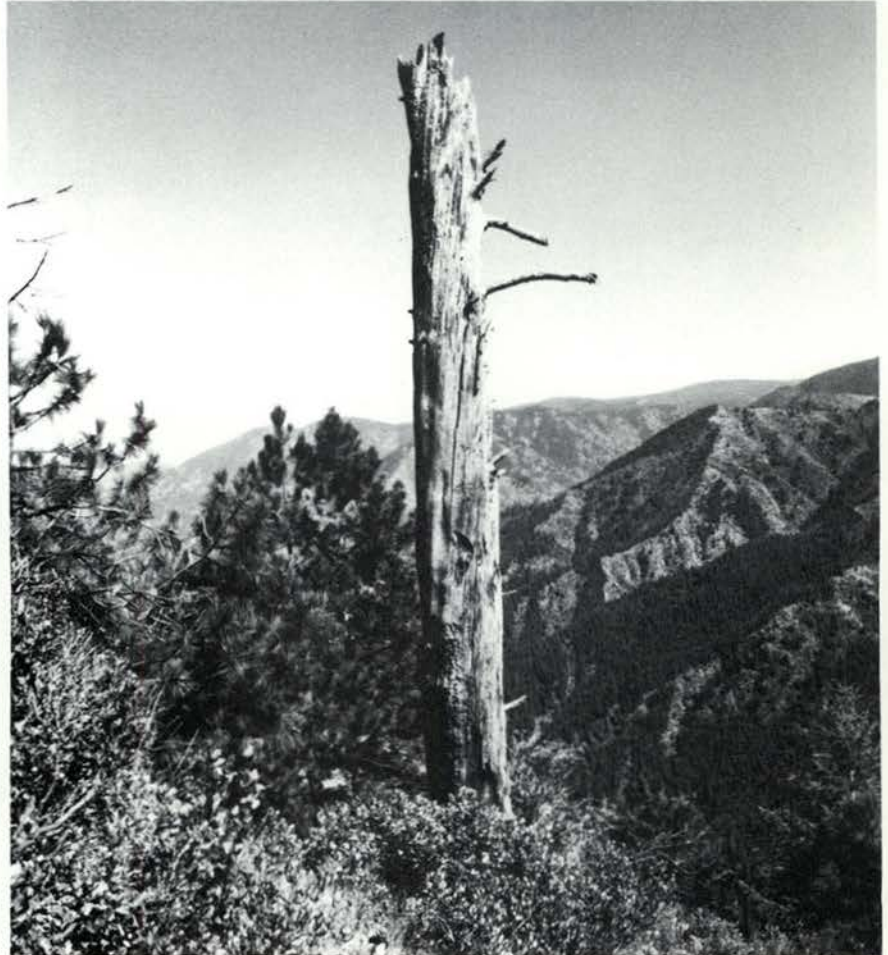


"Is it soup yet?" Dave Bennett checks steelhead tank in wet lab

The Snag

by Paula Yochum

The SNAG got off to a slow start this year with only a five-member staff which grew to six by the second semester. However, after overcoming the problem that arose from lack of experience on the staff, they were finally able to work together and get an issue out every other week. Working on the staff required a lot of discipline and time, but those on the staff would agree that it was worth it once they were able to see their materials in print. The staff tried a lot of new things this year, ranging from "Hot Rumors" to "Creative Corner" to a "Looking Ahead" section. They also tried including interviews with people within the College of Forestry, Wildlife, and Range Sciences, as well as revealing interesting tidbits about the college that are fun to know but one never thought to ask. The editors of the 1988-89 school year were Kara Lagerquist and Paula R. Yochum. Jonelle Jeffers was in charge of the artwork and headings, while the rest of the staff was comprised of Patrick Farrell, Mark Finn, and Sandy Pike. 林



Mark Ulliman



From left: Sandy Pike, Jonelle Jeffers, Paula Yochum, and Kara Lagerquist

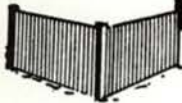


Joe Ulliman (advisor), Michelle Dahle, Kimberly Mehlhaff, Bern Harrison, Greg Wooten, Dave Persell. Behind the camera: Stuart Markow.

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Alumni News

Dale Kinnaman graduated from the College of FWR in 1939. Since then, he has worked for the Forest Service and BLM. He retired in 1970, bought a cattle ranch near Jerome, Idaho, and is now running cross-bred Charolais.

Carl Wilson retired from the Forest Service after 38 years of service. He is currently the president of Berkley Historical Society and writes a "50 Years Ago" column for the weekly newspaper. He is also active in USFS retirees affairs and was elected "Fellow" in the S.A.F.

W.P. Lehrer received a Ph.D. in 1951 and pursued an M.S. degree in animal science as a supplement to bolster his expertise as a college professor in the University of Idaho's College of Agriculture. It later proved to be helpful to him when he became Director of Nutrition and Research for Carnation Company, a worldwide operation with headquarters in Los Angeles. While visiting over 60 countries and 49 states, he assisted in increasing their agriculture production, improving their diets, and raising their standard of living. He is now retired.

Hank Kipp graduated from the College of FWR in 1960. He first worked a number of years as a state employee. He then worked for the BLM and BIA in three western states. In transferring to the Bureau of Indian Affairs Washington Office, his role dramatically changed to the field of integrated resource management planning and information systems. He enjoys the interdepartmental and intra-interior contacts in his work.

Hume Frayer is a FWR

graduate of the class of 1933. He retired from the Forest Service several years ago but is still active in local urban forestry. Recent

projects include developing a municipal street-tree plan and controlling (or attempting to control) local gypsy moth infestation. ❸



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*B.S. Forest Products;
Business Mgt.*



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B.S. Forest Products



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Eugenia Lizeth Castillo
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M.S. Forest Products



Mohamed Daa
M.S. Forest Resources



Robert I. Dice III
B.S. Wildlife Resources



John Edson
M.S. Forest Resources



Lazare Etiegni
Ph.D. Forest Products



Patrick J. Farrell
B.S. Forest Products



Mark E. Finn
B.S. Forest Products



Timothy R. Fisher
M.S. Fisheries Resources



Veronica A. Fortun
B.S. Wildland Recreation



Said Hajib
M.S. Wildland Recreation



Abdelaziz Hammoudi
M.S. Forest Resources



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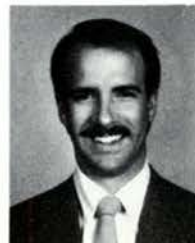
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B.S. Range Resources



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M.S. Forest Products



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M.S. Range Resources



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B.S. Forest Resources



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B.S. Range Resources;
Wildlife Resources



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Carol M. Stiff
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James Tangen-Foster
Ph.D. Forest Resources



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M.S. Wildland Recreation



Mark J. Ulliman
B.S. Wildlife Resources

Congratulations!



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David R. Whitmer
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Graduates Not Pictured

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Sean Batten
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Catherine Bertagnole
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Kent Bourbon
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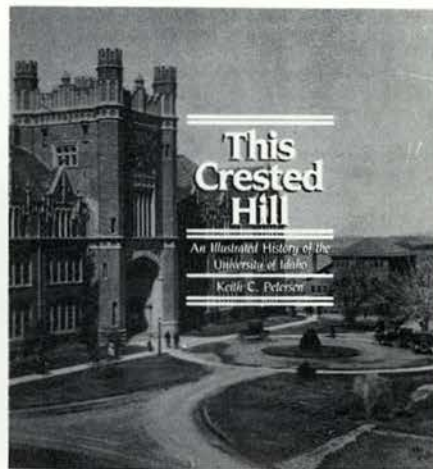
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IDAHO



THIS CRESTED HILL — text by *Keith Peterson*. This book is an illustrated history of the University of Idaho's transformation from a fledgling school located in a tiny, rustic town, into one of the West's outstanding institutions of higher education. Keith Peterson writes a lively tale of students, teachers, and administrators; of boosters and politicians; of scientists, athletes and soldiers; of minorities, international students, and women — all actors in the dramatic process that created this transformation. Stories about Ted Kara, perhaps the finest collegiate boxer of all time; novelist Carol Ryrie Brink; Jennie Hughes, the school's first black graduate; the tragic Gault Hall fire of the 1950's; and many more. Over 300 historical photographs guide you through the decades. *This Crested Hill* was published to commemorate the university's centennial. It is presented in the hope that all who turn its pages will come to appreciate some of the University of Idaho's thousands of "delightful and ennobling" memories.

IDAHO — *Photography by John Marshall, text by Cort Conley*. Comprehensive in scope, this book portrays the state from the forest and lakes of the Panhandle and the central wilderness to the sea of sagebrush plains and canyons along the southern border. In addition to the scenic grandeur of the the state, there are images of Idaho's mining towns, farm lands and cities, as well as the people of this great state.

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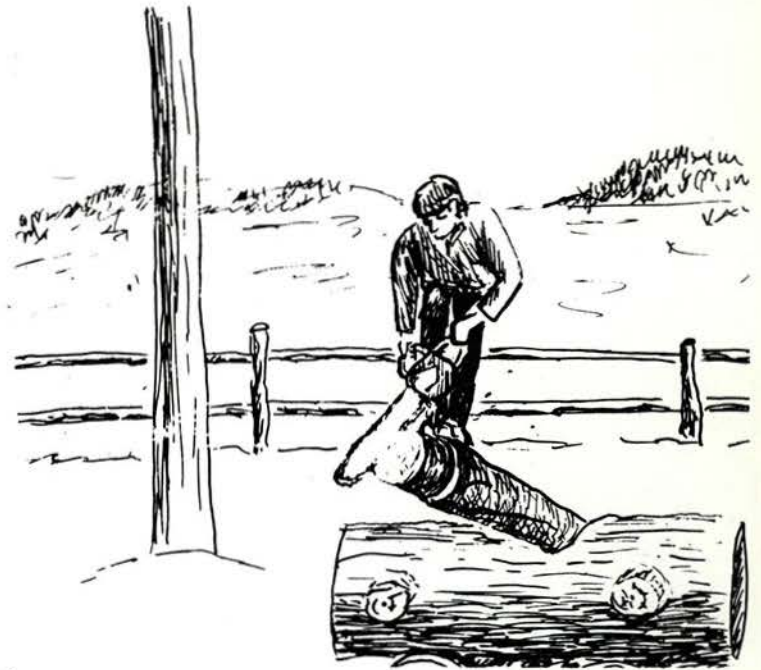
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Index to Advertisers

American Coding and Marking Ink Co.....	62
Bennett Lumber Products, Inc.....	48
Champion International Corporation.....	63
College of Forestry, Wildlife and Range Sciences.....	70
Cruise-Master Prisms, Inc.....	68
Forestry Supplies, Inc.....	44
Lane Science Equipment Corp.....	ii
Metriguard, Inc.....	51
Moscow Building Supplies.....	61
Nelson Paint Company.....	69
Northwest Associates.....	62
Spokane Machinery Co.....	61
University of Idaho Alumni.....	63
University of Idaho Bookstore.....	66

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