University of Idaho

Idaho Forester

A Magazine of Natural Resources

1990

The morning glory which blooms
for an hour,
differs not at heart from a giant pine
that lives for a thousand years.

Zen poem

NO CIRCULATE SEE
[illegible] THIS FLOOR

Dedication

At one of the first staff meetings of the year, it was suggested that we dedicate this issue of the *Idaho Forester* to the secretaries of FWR. This suggestion met with unanimous approval, a highly unusual event in a group that generally fights tooth- and-nail over . . . everything.

In a rare outbreak of consensus, we all agreed that there is no overstating the importance of these ladies in the functioning of the college. The many services they provide include unlimited typing, posting countless notices, answering endless questions, directing us to proper channels and sources of information, processing our registration materials, and on and on and on.

Clearly, they are richly deserving of our attention and appreciation. Thus, it is only fitting that we dedicate to them the 1990 issue of the *Idaho Forester.*

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Our Graduates Are Highly Trained in Renewable Natural Resources

Fishery Resources

The fisheries biologist is knowledgeable about aquatic environments and aquatic organisms and can apply this knowlege to managing ponds, lakes, reservoirs and streams. Areas of expertise include aquatic pollution, fisheries management, population dynamics, limnology, and the behavior, culture, diseases, ecology and physiology of fish.

Forest Products

The forest products graduate is well grounded in all phases of forest business operations, including timber harvesting, logging-engineering, transport of goods to market, processing, computerized sawmill operations, wood construction and design, manufacturing, marketing, and research and development for a variety of forest-related industries.

Forest Resources

The modern forester is well versed in economic theory, skilled in computer technology and proficient in public communication, besides being knowledgeable in forest biology, natural history, forest protection (entomology, pathology, fire), reforestation, forest ecology and silviculture.

Range Resources

The range conservation graduate has a strong base in ecology and can assess land capabilities, develop land-use plans, rehabilitate mine spoils, perform soil surveys, administer grazing leases, appraise land values, study nutritive requirements of animals and participate in research on use of natural resources.

Wildland Recreation Management

The wildland recreation graduate is skilled in parks and recreation resources management, natural sciences, geography, land economics, conservation of natural resources, human behavior, public administration, communication and tourism. Specialization is available in: resource communication, outdoor leadership, resource-based tourism and wilderness management.

Wildlife Resources

The modern wildlife graduate is interested in all species of wild animals and their roles as components of natural systems and can gather data, conduct censuses, assess productivity, protect and improve habitat, study food habits, establish limits and seasons, control animal damage, protect endangered species and enforce laws.

If you know of job openings, or plan to hire someone in these fields, please contact Carol Spain, College Placement Office, College of Forestry, Wildlife and Range Sciences, University of Idaho, Moscow, Idaho 83843, phone (208)885-6441.

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SOCIETY OF AMERICAN FORESTERS 1900

WANTED:

Individuals interested in being a member of an exciting organization.

OPPORTUNITIES:

Student member - Society of American Foresters.

- **attend SAF meetings at college, local, and national levels.**
- **gain work and academic experience on the Experimental Forest.**
- **participate in "fun" activities such as Prof-n-Stein, pizza feeds and ski trips.**
- **express your views on natural resource related issues.**

QUALIFICATIONS NEEDED:

Enthusiasm and desire to become involved.

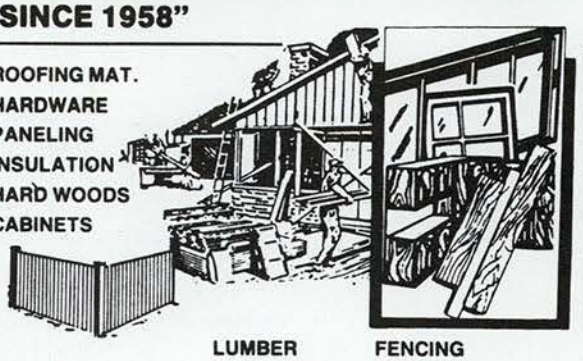
If interested please attend the next SAF Student Chapter meeting.

SEE YOU THERE!

MOSCOW

BUILDING SUPPLIES

"SINCE 1958"



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Editorial

by Greg Wooten

I've been trying to decide what to write in this editorial now for about three weeks, and now that I have chosen my topic, you, as a reader, may be tempted to turn the page and skip the rest of this article, thinking you've heard all you want to about this subject. Don't do it just yet. Bear with me for a few more paragraphs, and then you can do as you please.

I'm about to make a statement that every student in this college is tired of hearing. That statement, if you haven't already guessed it, is "Get Involved." I know, you're probably saying: "What can this guy possibly say that I haven't already heard?" The truth is, I probably can't say anything that you haven't already heard, but I'd like to tell you a little bit about what I've learned while getting involved in the three years I've been in this college.

When I first got here, I didn't know very many people, but everyone I talked to would say "join the wildlife society (TWS), or work on the *Idaho Forester,* or be a student affairs council (SAC) representative." Well, that's just what I did. I joined TWS, worked on the *Idaho Forester* staff, and became a freshman SAC representative. As I talked to people in these organizations, I quickly learned to hate the good old saying of "it looks good on a resume."

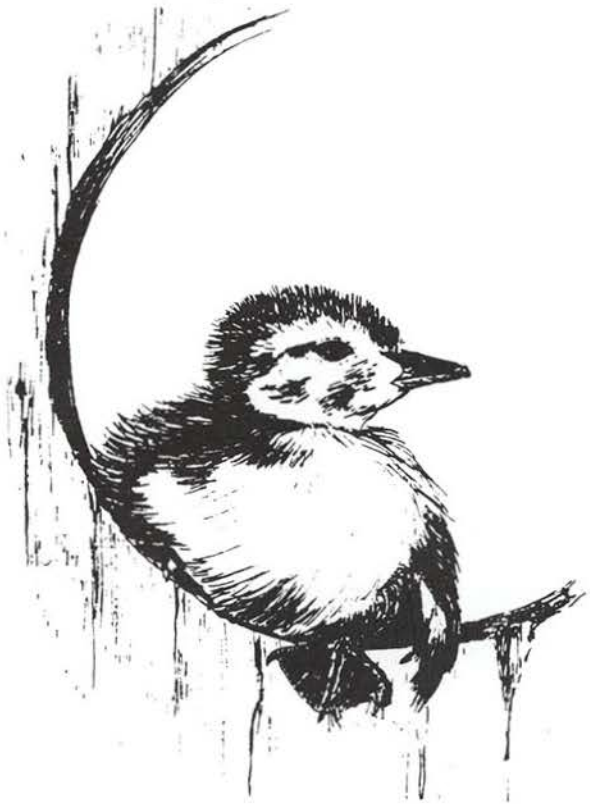
I don't want to be stereotypic because some of these people had very good intentions, and, granted, we as students are trying to generate some type of resume while attending school, but I can't help but feel sorry for those people who are only looking for the easiest way to get something on their resume. Those people are only cheating themselves.

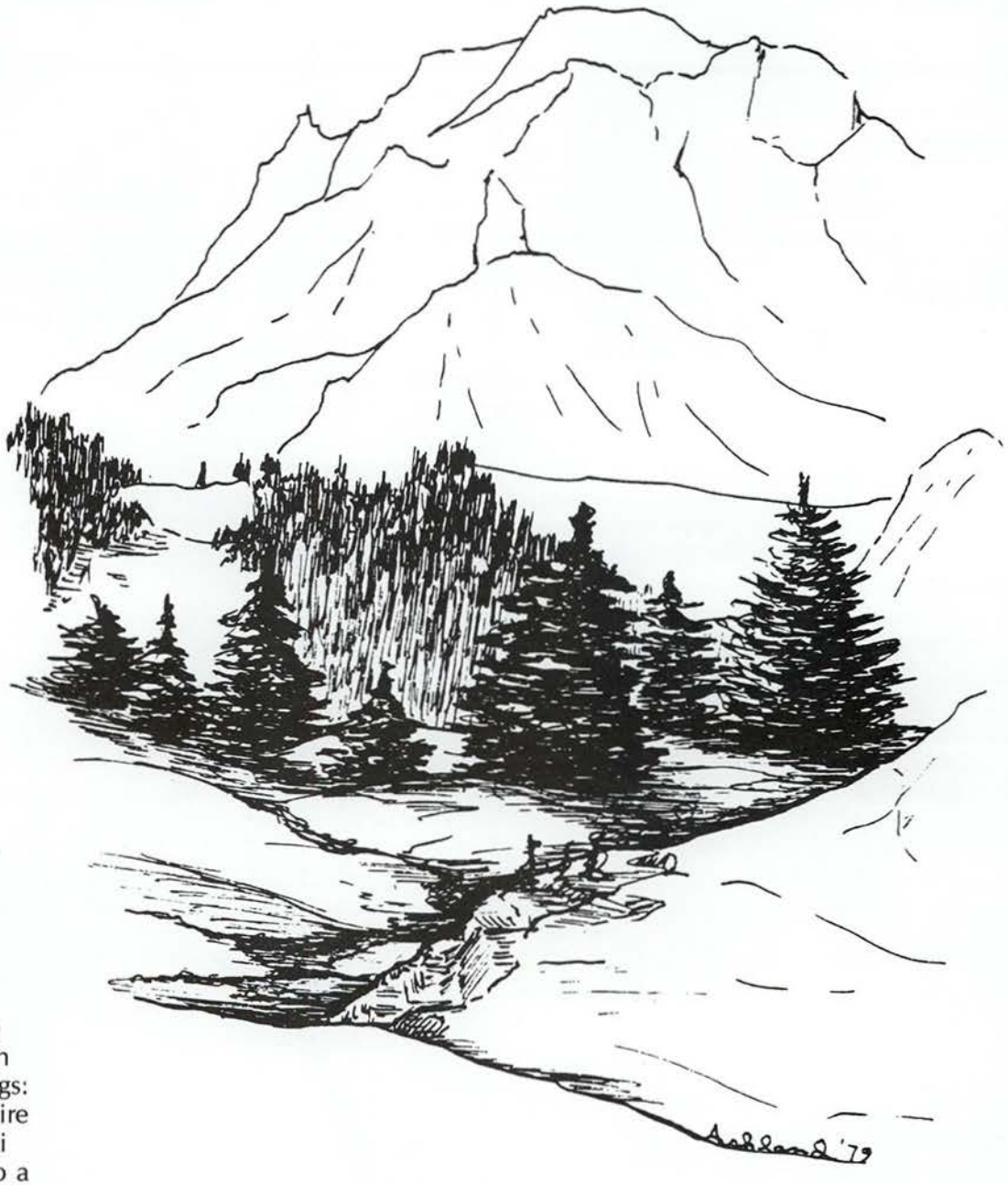
It's amazing how many skills I have acquired just by becoming active in student organizations. These skills include responsibility, organization, management of both time and people, public speaking, and publications, just to name a few. I could go on and on about what they've done for me, but this doesn't happen by simply paying your dues. There's a difference between owning a horse and knowing how to ride. Don't get me wrong now. I've owned a horse and I know how to ride, but that doesn't mean I don't get bucked off every now and again. The important thing is that I keep trying, no matter how hard it gets.

I'm definitely not exceptional at anything I'm doing here in FWR. I know for a fact that there is someone out there watching what I'm doing and postulating ways it could be done better, and I'm sure that there are. This is where I challenge those people to step forward and take a risk. I can only hope that they will learn as much as I did in the process.

I guess the message I'm trying to extend to the students of FWR is that joining a club is only the first step. Becoming active is the way you really reap the benefits of your membership. Active or not, it all reads the same on a resume. It all depends on what you want out of it. I'm going to milk it for all it's worth. I hope you'll do the same.

Greg Wooten is a junior in wildlife resources.



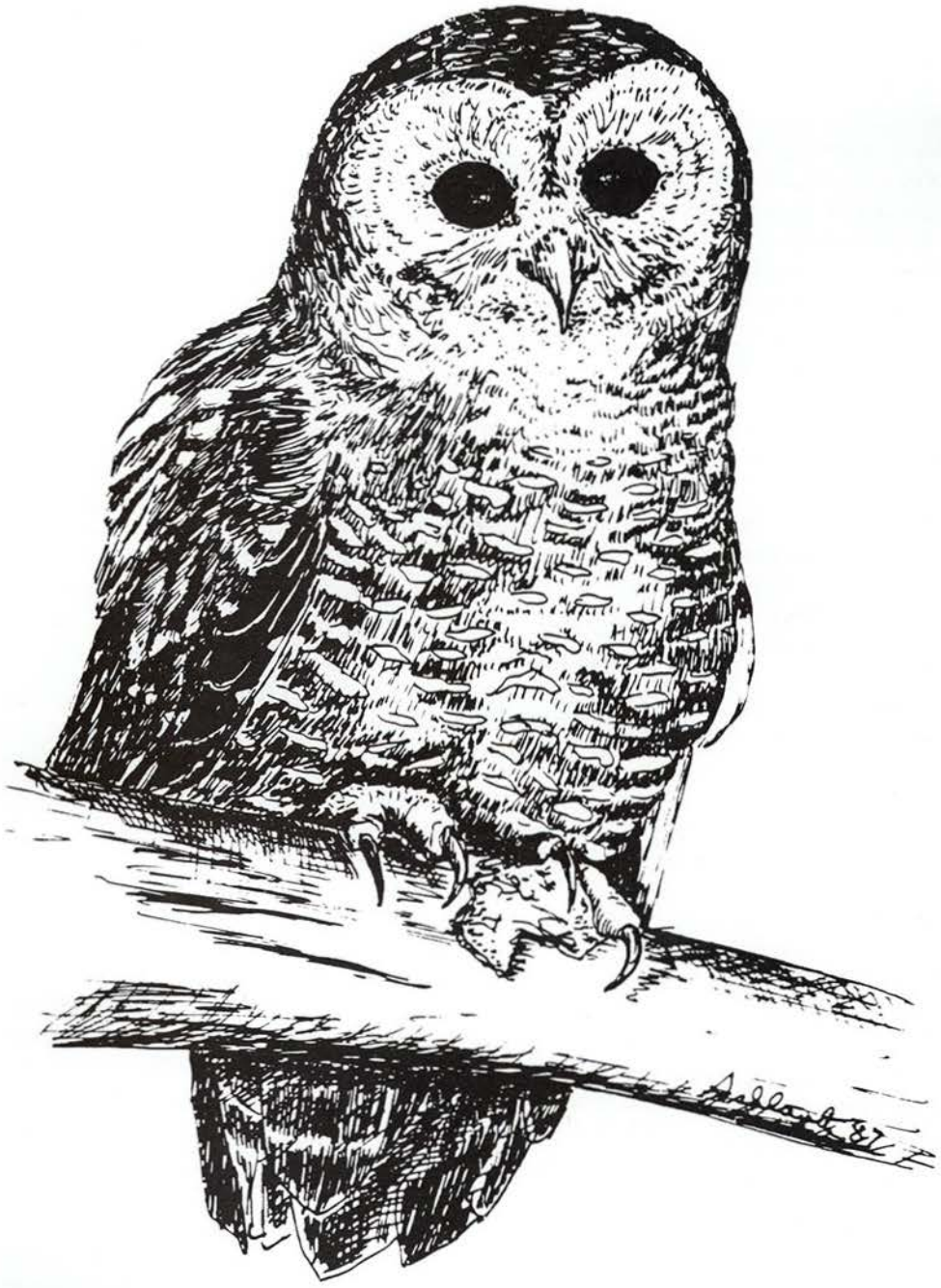


IDAHO

It's Great
to plant
trees in
Idaho, when
snow melt roars
in the Clearwater,
& when frost crisps
the brushfields red
in the Bitterroots.
Steep ridges of shrub
and rock, young larch
and fir, bleached snags:
remember the great fire
of 1910, when Pulaski
forced his men into a
mineshaft, to survive;
when the train got away
from Wallace on flaming tracks.
Luck still touches some of us: Remember
the crummy, upside-down in a pond (the con-
sequences of driving to camp without headlights
after the bar closed in Elk City). Good money
and good times on a Kelly Creek clearcut, in a
Pierce tavern, in the Grangeville Hotel. Remember
swimming holes on the Salmon, hot springs baths,
the log truck driver dancing with his daughter,
a bear with rose hip scat, a meteor shower in
Orion, the woman that night in Orofino. Remember
Idaho is too Great to pass nonstop on the freeway.

by Howard Horowitz

Feature Articles



What Price America? Reflections on Economics and Ethics In Land Management

First-Place Award, 1989 FWR Excellence in Writing Contest

Mary E. Bean

My fondest memories of childhood are of precious moments spent with friends rambling around a soggy field on the edge of my hometown.

When the school bell announced the end of another day, my friends and I raced home to trade our dresses in for dungarees. Then we'd make a beeline for "Little Lake," a small patch of wetland still outside the grasp of rapidly expanding suburbia. We were pioneers, explorers, adventurers—running wild and leaving our cares to drift on the afternoon breeze.

The town was young then, and growing fast, just as we were. New homes and roads sprouted faster than buds on a tree in spring. Old farmlands turned to shopping malls; the first McDonald's went up just six blocks away. It was exciting. It was progress, and we were part of it. After spending hours pursuing frogs and crawdads, we'd dig deep into our pockets, searching among small stones and other treasure, until we came up with what was left of our weekly allowances. If we could each pull together 15 cents, we'd head staight for McDonald's. In those days 15 cents bought you a burger, and it was worth every penny.

Afternoons and summers turned to years, and my friends and I found ourselves racing toward different goals. Some went to college, others to marriages and jobs. The world still looked big and exciting, but now adventure consisted of fast cars, promotions and pay raises.

I didn't know then that those things would leave me hungry. When I realized that I still needed to feel earth under my feet, "Little Lake" had been drained and subdivided into multi-thousand dollar condominium lots. I reflected on the words of a fellow midwesterner, Aldo Leopold: "Like the winds and sunsets, wild things were taken for granted until progress began to do away with them." I missed that "Little Lake," and I would have traded all the Quarter-Pounders in the world to have it back.

I began to follow a path punctuated by leaps away from urban living: from coasts to forests, from islands to mountains. Those were the places I felt at home, the places where I found peace, joy, and a sense of miracles.

As a student in natural resouce management, I looked for ways to show others the value of these places. One day I stumbled upon a different method for evaluating natural resources. The method, called contingent valuation, consisted of applying dollar values to things I'd always considered priceless. Things like rivers, wildlife and clean air.

The idea of using monetary values as a basis for resource management decisions began in 1936 when the Flood Control Act declared that the Army Corps of Engineers water resource development projects were to be considered economically feasible only if their estimated benefits exceeded their costs. Today, benefit-cost analysis must be performed whenever an agency such as the Bureau of Reclamation develops a proposal for a water project. Procedures for such analyses are outlined in a document developed in 1983 by the U.S. Water Resources Council. All federal water resource agencies, including the Corps of Engineers, the Tennessee Valley Authority and the Soil Conservation Service use the *Economic and Environmental Principles and Guidelines for Water and Related Land Resources Implementation Studies* to determine the costs and benefits for proposed projects.

The concepts presented in the *Principles and Guidelines* are also being applied to recreation resources. Resource management options are evaluated in terms of economic measures in an effort to improve resource managers' understanding of public preferences regarding management alternatives. Dollar values are used to assess public desires, preferences and priorities in a systematic, defensible way. Results of research employing contingent valuation techniques are used as means for quantitative comparison between qualitatively different resource uses. For example, an increase or decrease in river flow levels due to hydropower development can be easily translated into financial

benefits. By applying dollar values to recreational activities such as fishing and white water boating, the costs and benefits of these use options can be compared and mangement decisions justified. Those who employ these methods contend that they provide more in-depth evaluations than traditional public participation techniques because money is an easily understandable and commonly used standard for measuring values in our society.

Contingent valuation has been used to evaluate the importance of a variety of uses of natural resources. According to the *Principles and Guidelines,* "Benefits arising from recreation opportunities created by a project are measured in terms of willingness to pay." Willingness to pay is defined as the maximum amount a consumer would be willing to pay for some experience. Visitors surveyed at Grand Canyon National Park were asked how much they would be willing to pay for varying degrees of air quality and the corresponding quality of scenic vistas. Deer hunters surveyed at the Sandhill Wildlife Demonstration Area in Wood County, Wisconsin, have been asked to put a dollar value on trophy buck hunting permits. Waterfowl hunters surveyed at the Horizon Zone, a 24,600-acre area in east-central Wisconsin, were asked how much money they would be willing to accept in lieu of their hunting permits. Anglers and white water boaters on the Colorado River have evaluated their recreation opportunities in terms of dollars and cents.

Although I understand the usefulness of using dollar values to estimate the relative importance of resource-related experiences, I can't bring myself to apply the concept to my own life. How do I put a price tag on that day at "Little Lake," when I carefully grasped a garter snake behind the head, only to have it wrap itself up the length of my arm and send me screaming all the way home? Or the thrill of catching my very first steelhead after three days of shivering and staring at the Little Salmon River from sun-up to sundown?

In some ways, defining the value of natural resources in terms of money seems typically American. We take great pride in our economic prowess and power in the world. But I wonder what such practices say about us as a society. I also wonder what Aldo Leopold would have thought of it. Over 40 years ago, he wrote: "There is yet no ethic dealing with man's relation to land and to the animals and plants which grow upon it. The land-relation is still strictly economic, entailing privileges but not obligations . . . . It is inconceivable to me that an ethical relation to land can exist without love, respect, and admiration for land, and a high regard for its value. By value, I of course mean something far broader than mere economic value; I mean value in the philosophical sense."

Defining resource management alternatives in terms of economics is an innovative effort to provide bargaining power for those who support various use options. Logically, it makes sense. But philosophically, I wonder if, on a much deeper and profound level, we aren't actually devaluing them in the process. By putting dollar signs on rivers and mountains, what kind of values are we teaching our children? What kind of community grows from a philosophy that says, "Everything has its price"? Can a culture grounded in economic self-interest truly nurture its citizens? If the highest power in our universe is the Almighty Dollar, are we not risking raising generations of well-fed Americans who will ultimately wither from a starvation of soul and spirit?

I also find it impossible to evaluate things we have yet to fully understand. Another dam or mine today may mean immediate financial security for many, but can we foresee a time when the transactions are compounded, and no amount of money can replace the loss of genetic diversity or the ability of earth's atmosphere to cleanse and regenerate itself?

Through the years, I have evaluated and reformed my ideals continuously. The tunnel vision of a preservation purist has given way to visions of multiple use and sustainable development. I have come to know myself as the advocate and the enemy. I've also watched the golden places of my childhood turn to asphalt. Asking me how much I'd pay to have them back would be like asking a priest how much he'd pay to see God. No price is enough, because, to me, they're not of the same world. There is no sense in trying to establish a measure of equivalence.

In *A Sand County Almanac,* Leopold reflected on economics and the land ethic: "We of the industrial age boast of our control over nature . . . . There is no force in earth or sky which we will not shortly harness to build 'the good life' for ourselves. But what is the good life? We stand guard over works of art, but species representing the work of eons are stolen from under our noses . . . . What are they going to do with these things if there be no more deer in the hills, and no more quail in the coverts? And when the dawn-wind stirs through the ancient cottonwoods, and the gray light steals down from the hills over the old river softly past its wide brown sandbars—what if there be no more goose music?"

Mary Bean graduated last spring with an M.S. in wildland recreation management.

Seeing Through The Smoke: Some Thoughts on Public Understanding of the Yellowstone Fires

by Robert D. Barbee

It will soon be two years since the beginning of the famous 1988 Yellowstone fire season. In that two years, many scientists have been hard at work analyzing the fires and their effects on the ecology of the greater Yellowstone area. It is risky to summarize the work of so many people, but it is probably safe to say that the general result of their work is a conviction that the fires, for all their economic and social disruptions in the region, did no significant harm to the natural systems. Indeed, within Yellowstone National Park, the fires are not viewed as either harmful or helpful, but as part of the processes by which the park's wild systems have been created and have perpetuated themselves for thousands of years.

But in other arenas—political, social, cultural—the effects of the fires are not so simply stated. It is now clear that the Yellowstone fires of 1988 will have permanent effects on the future of wildland management in this country. It is not so clear what those effects will be, and it is likely to be a long time before all the effects are known.

In the meantime, there are already some lessons to be learned, lessons of special interest to those of us in park and forest management. Perhaps the most important of those lessons involves public perceptions of the fires and how those perceptions were created. Dr. Conrad Smith of the Ohio State School of Journalism has embarked on a major research project to quantitatively and qualitatively analyze the media coverage of the fires. Since the fall of 1988, he has produced a series of papers on this subject that penetrate to the heart of a critically important problem for professional land managers. He has determined what many of us already suspected, the average reporter, no matter how smart or well educated, no matter how important his or her employer, is generally unprepared to deal with complex environmental issues.

Based on his exhaustive analysis of accuracy and emphasis in Yellowstone fire media coverage, Dr. Smith has shown that this problem is much worse than mere incorrect reporting of "facts." There is a more fundamental problem: facts, even real ones, are reported out of context or with no context at all. As Dr. Smith concluded, "This kind of selective reporting undermined more than a decade of scientific research on wildfire management and misled the nation about the effects of the 1988 fires."

Here in Yellowstone, we agree with Dr. Smith's assessment. The public was not well served by the press. There was some outstanding reporting, but it was the exception. We are also quick to point out that we contributed to the problem. The National Park Service and its sister agencies were unprepared for such an enormous media onslaught, and we were often unable to keep all the hundreds of journalists informed, partly because we were busy trying to keep up with the events spread over several million acres of wilderness.

The lesson here is clear: land managers have a responsibility to communicate to the public. In order to do so, we must first communicate to the communicators. With the help of people like Dr. Smith, perhaps both the media and the managers will be better at that process.

Chris Maranto

The public is exposed to many viewpoints and is constantly barraged with information. As I have said elsewhere, the fires of 1988 offered something for everyone.

They seem to have proved to every public land advocacy and special interest group that their personal vision is the true one. Depending upon your viewpoint before the fires, they proved that the national parks are perfectly managed; that the public domain should be enlarged or totally privatized; that fire is satanically evil or a powerful force for good.

As naturalist and historian Paul Schullery has pointed out, the very variety of these viewpoints, and their competition for the ear of the public, is probably the best guarantee that no one viewpoint will prevail.

We will continue to be consensus-directed land managers. But that does not mean that we must be entirely at the mercy of the tides of opinion. Just as we must learn to communicate better with the media, we must find ways to communicate with these special interest groups. A few of them unquestionably don't want to be confused by the facts. But others—most, I believe—are genuinely concerned and interested. Since the 1890's, when the Boone & Crockett Club took a special interest in the welfare of Yellowstone, the park has enjoyed productive relationships with many independent groups and has often relied heavily on their assistance. The fires taught us once again how important those relationships can be. The lesson here for land managers is that we are never alone unless we let ourselves be. Special interest groups are one of our foremost opportunities to communicate effectively with the public.

The very best way to communicate with the public, of course, is not through the media or through organizations but directly—one on one. That is what we try to do in our many nature walks and campfire programs, as well as in numerous publications. Since the fires were burning, as we have dealt with the media and the organizations, we have also taken every opportunity to encourage individuals to contact us directly. Americans showed an enormous interest in the fires, the result of their passion for news and enormous affection for Yellowstone Park. They heard all manner of things, some completely inaccurate, about the park. We told them, every chance we got, that all they had to do was ask.

The lesson here, of course, is that land managers must be open and must encourage such interchange. The vast majority of the public has no idea that land managers are responsible for all kinds of research and monitoring; that there is a huge fund of information just waiting to be used. In recent years in Yellowstone we've placed more and more emphasis on alerting the public to the existence of such information and on translating scientifically technical material into more easily digestible form. Just administering good research and filing the final reports in the park library is not enough; we have to let people know what we have learned.

The environmental movement and a few specific events like the Yellowstone fires have made nature into a newsworthy subject. The media didn't care about grizzly bears or snail darters 20 years ago, and it's now difficult to separate cause and effect, to know if the public didn't care because the media didn't tell them to, or if the media didn't care because the public wasn't interested.

In any case, that's all changed now. The public is tuned in as never before on the uses of public land. The information they have, however, has passed through several "filters": the public affairs office of land management agencies, the editorial offices of dozens of special interest publications, the typewriters and cameras of reporters of every persuasion, and others. It isn't easy to know what's really going on, and most people don't have a lot of spare time to find out. The most successful land managers of the future may well be those who are the most effective in explaining their work to the public.

Robert D. Barbee has been Superintendent of Yellowstone National Park since 1983. In November of 1989, he was presented with the prestigious Stephen Tyng Mather Award by the National Parks and Conservation Association for his work in furthering the cause of national parks.

NATIONAL AFFAIRS

Fighting for Yellowstone

As thousands struggle to save a natic critics attack the Park Service for i' policy—and for waiting so long tc

Eighty-five years old and built largely of wood, the historic Old Faithfu Inn faced the advancing fire like a doll house sitting in a burning field of wheat. As the 200-foot-high wall of flame approached, firefighters soaked

spread over acres—d land pe six fir tana. 388 fire threatens t

...re.

Yellowstone: Up in Smoke

The worst fires in centuries ravage the West

For a moment it looked like the 80 firefighters at Yellowstone National Park had the situation under control.

checked, polluting the park's normally crystalline air. Officials do not expect the fires to die down any time soon. "There's

BIG BEAR RANCH: Our Own Forestry and Conservation Project

by John and Fran Hendee

We have always loved farms. Fran grew up on a farm in North Carolina. John used to visit both his grandparents' farms in Michigan. We lived six years on a farm in North Carolina before coming to Idaho five years ago. We love to drive through the country side looking at farms, farmhouses, barns—especially where farmland and forest land are mixed, and we know the chance to see wildlife is enhanced by the habitat diversity.

We settled in town when we moved to Moscow because the four of our children still living at home had tired of farm chores—feeding cattle every day, mending fences and so forth. They wanted to live in town so they could get home-delivered pizza and be close to friends and school activities. But John and Fran were looking for a place to make into a tree farm, a weekend getaway where we could bring balance to our lives from the hectic pace.

When we first saw Big Bear Ranch it was love at first sight, but larger than we dreamed of owning. There were 560 rolling acres, including about 300 acres in wheat and hay that up until 70 years ago had been forest, 130 acres of timber and 130 acres of streamside meadow heavily pastured by cattle and horses. How could we possibly afford it? There was a clause in the existing mortgage that prevented timber harvests, which we thought might be a source of income to swing the deal. The wheat and hay land did qualify for the new conservation reserve program, which provides financial incentives for putting to rest marginal, erosion-prone farmland. We had to try! Our hope would be an offer based on a plan to rejuvenate the land and forest with a conservation reserve and forest management plan.

The person holding the first mortgage had grown up on the farm in the early 1900's. We walked every inch of the property with him. We made our pitch that good forest management included timber harvest and would be good for the forest. We explained how the new Conservation Reserve Program could help restore the erosive wheat land and provide payments to help us buy the farm. He was interested and wanted to hear more! Our discussions lasted several months. When the deal was closed in August 1987, we were delighted. But then our work began in earnest.

Putting the Plan to Work:

With so much to do we had to prioritize. The first priority, Fran said, was deciding that we would never sell, that this was to be a long-range plan. But obtaining money to pay a steep second mortgage was also a high priority. We had to get moving on the forest management and harvest plan.

The forest of pine, fir and larch was overmature, and there were some patches of dense lodgepole pine. The land had originally belonged to the timber companies that helped settle north Idaho. The original property deed

John Hendee

Plumbing arrives at the Hendee cabin on Big Bear Ranch.

was signed by "Agent for George Weyerhauser." Large stumps remained from the white pine harvests that took place near the turn of the century and in the 1950's.

We planned a selective timber harvest to provide income for the second mortgage, and to enhance the forest ecosystem—the kind of "natural form" silviculture espoused by FWR professors Stoszek, Adams and Osborne. Applying those concepts required an excellent logging job, and this was assured by contracting with Zimmerman Logging Company of Troy, whose forester, Cliff Todd, a UI graduate, had worked on the student logging crew. Three separate timber sales yielded 700,000 board feet of timber and, just as important, redistributed forest growth to crop trees that will help make the last mortgage payment in the year 2000. The harvests also stimulated natural regeneration to be harvested in 50-60 years. The harvest plan worked! We're happy, the mortgage holder is happy, and we think the forest is now healthier and more productive.

The Conservation Reserve Program requires that land be retired from crop rotation for ten years and be planted to permanent grass cover or trees, with costs shared by the federal government. Enhancing wildlife habitat was a major goal of our plan for the conservation reserve land. With advice from local farm program agents and several faculty experts, we planted a mixture of clovers and orchard grass to restore nitrogen to the soil and provide forage for deer and elk. Mixed ponderosa and white pine, larch and Douglas-fir were planted to fill in the open spaces and provide landscape diversity and cover for wildlife. Four rows of trees are being planted around the property boundary to provide a wildlife travel corridor and buffer from activity on adjacent lands.

John Hendee

Some of the Hendees on the deck of their cabin at Big Bear Ranch.

Our family has learned a lot during the past two years about planting trees. It's not as easy for the seedlings as we thought, fighting the grass competition, rodents and the August sun and drought. We experimented with combinations of site preparation, including tilling, spraying and machine versus hand planting. Now, 25,000 seedlings later, we hope to see some of the plantations begin to show above the grass this summer and plan to plant another 7,000 trees this spring.

This year wildlife habitat improvement is our priority. Besides conifers, we're planting species to enhance wildlife forage and cover, with help from the Idaho Fish and Game Department's new Habitat Improvement Program and advice from FWR wildlife professor Kerry Reese. We hope the willow, aspen, chokecherry, Russian olive and other wildlife food and cover species will soon host-abundant wildlife for our viewing pleasure. This spring we plan streamside recovery plantings on 6,000 feet of Big Bear Creek and the blasting of some wetland potholes for waterfowl nesting sites.

With advice from FWR fishery resource professor Bill Klontz, Kamloops rainbow trout were stocked in one of the three existing ponds and in a larger pond that was developed behind an earthen dam. The pond filled with water run-off from the heavy snows of 1988-1989. When 13 swans rested there a few days on their migration north, we had a name for it—Swan Lake. Vegetation is still scarce around Swan Lake, but we put out two goose nesting boxes, and, when 45 migrating Canada geese stopped for a few days and investigated them, our hopes soared, even when they moved on. Professor John Ratti, FWR's own "Father Goose," is advising us, and we dream of our own flock someday like he has on his pond at his home on Moscow Mountain.

Sharing the Dream:

We've shared our conservation dream with our six children, three grandchildren, and with Cub Scouts and Boy Scouts on several outings. We're proud that one scout completed his Eagle Scout project at the ranch and two others are planning projects for this summer. A growing number of field trips are finding their way to the ranch to see what we're doing. We hope that in some way all these people will have a better

awareness of conservation because of their experiences at Big Bear Ranch. That's part of the Hendee family dream, too.

Enjoying Our Getaway

So far it all sounds like work! Right? Well, not if you have forestry and conservation in your blood. But we did need to create a way to spend more time out there. The farmhouse was out. We needed someone to live at the ranch and made arrangements with tenants to restore the century-old farm house in lieu of rent. But there was a solid old grain shed, and we had it towed to the woods as a head start on a cabin. What more could a forester's family want? We painted it green—just like our own ranger station. A solar panel provides electricity for lights; the wood stove makes it cozy in winter; and the propane cook stove is more than adequate. Once such luxuries were installed, the squirrel who was contesting our occupancy moved out, although he regularly returns to debate our presence.

We love Big Bear Ranch, even though it does seem to take our spare time and money. But fond memories are accumulating—watching a herd of elk with their playful calves while we planted trees in the spring; the swans and geese on the lake; peaceful evenings listening to the night sounds; and scores of family outings for work and play together. But best of all, a sense of satisfaction and accomplishment from our own "hands-on" forestry and conservation project.

John Hendee is dean of the College of Forestry, Wildlife and Range Sciences; Fran Hendee is Social Services director for Latah County.

John Hendee

Swan Lake and Golden pond on Big Bear Ranch with Potato Hill in the distance.

Idaho Native Plant Society

by Mary Grunewald McGown

The growing conditions have been optimal for the Idaho Native Plant Society, which this year sprouted three new chapters, and nearly doubled its membership. Not all the growth can be attributed to favorable environmental factors. A number of UI alumni, students and faculty have played key roles in forming the statewide organization and working to build its diverse membership.

The first group of native plant enthusiasts formed in 1977 in southwestern Idaho. Known as the Pahove (a Native American word for sagebrush) Chapter, it still is the largest chapter, with members primarily from the Boise-Caldwell area. While the Pahove Chapter held regular summer field trips, educational programs and herbarium days at the College of Idaho in the winter, other chapters were not active until 1989. In the meantime, members from throughout Idaho and other parts of the nation kept in touch through *Sage Notes*, a newsletter of the Society edited and published by Pahove members.

The membership of the Society is diverse. There are a number of professional botanists, foresters, and university faculty, but most members are lay people who have an interest in native flora for its beauty, adaptive features and potential uses. Conservation of the native flora is a goal of the INPS, along with education of the public about the value of native flora. The first fundraising project for the Society

was sale of T-shirts with line drawing of McFarlane's four-o'clock, *Mirabilis macfarlanei*. The shirts have been very popular and are now in the fourth edition. The drawing was done by Pahove Chapter member Agnes Miller. The deep-throated magenta flower was Idaho's first rare plant designated under the Federal Endangered Species Act.

A variety of activities are offered by the INPS and the chapters in Boise, Moscow, Pocatello and Ketchum-Sun Valley. For the sixth time, the INPS in 1990 sponsored the annual Idaho Rare Plant conference. The conference is a forum for discussing and updating the conservation status of the rarest members of Idaho's flora. In 1989 the conference was attended by about 50 persons, including federal and state agency personnel, academic botanists, conservationists, gardeners, consultants, developers and lay people.

All chapters sponsor field trips that are open to the public. The first statewide field trip in June 1989 was at the Aquarius proposed Research Natural Area (RNA) along the North Fork of the Clearwater River. It was hosted by the White Pine (Moscow) Chapter. The proposed RNA is a unique site featuring disjunct populations of Pacific coastal flora and a number of endemic taxa. It is the site of one of the few known populations of the bank monkey flower, *Mimulus clivicola*, whose presence temporarily has suspended construction of a road which would provide access to Dworshak Reservoir for log dumping and easier access to timber up the drainage.

The bimonthly newsletter, *Sage Notes*, is a main feature of the INPS, tying together members from the far reaches of Idaho, and informing them about society and chapter activities, conferences, new books or publications and features that cover a broad range of topics. A two-part feature in 1988 described the history of botanical collecting in southern Idaho before 1850. Dr. Pat Packard, an INPS founder and retired College of Idaho faculty member, has regularly contributed a "Scrounger's Notebook" column giving historical and potential uses of native plants.

A number of members are interested in water conserving landscapes, and a recent article by landscape architect Mary McGown discussed the principles of xeriscaping. The Idaho Big Trees program, directed by UI faculty member Fred Johnson has been highlighted in *Sage Notes*. Each edition brings coverage of members and their activities related to native flora, as well as news of other native plant societies, the federal land management agencies, weed species and other issues.

With formal organization of the statewide group in 1989, Susan Bernatas, a UI alumna with a M.S. in forest resources, was elected its first president. Kathy Geier-Hayes, the first INPS treasurer, also has an M.S. in forestry from the UI. A number of UI faculty and students have been active in forming the White Pine Chapter in Moscow, the second largest chapter in the state.

For information about joining INPS, write to P.O. Box 9451, Boise, ID 83707.

While the diversity of the membership is one of the organization's strengths, it is the commitment of technically trained members, such as UI alumni, students and faculty, who give the INPS credibility in certain scientific and policy circles. Those members who combine technical training with love and concern for native flora, help make the INPS an important voice for education and conservation of Idaho's native flora.

Mary G. McGown, a long-time member of the Pahove Chapter, is completing a Ph.D. in forestry, wildlife and range sciences.

Loring M. Jones

A lunch break during a field trip to the proposed Aquarius Research Natural Area.

Forest Management for the 1990's . . . and Beyond

by Anna E. Hammet and Susan Jeheber-Matthews

Current forest management issues are driven by a rising concern for the long-term effects of clearcutting and other management practices, not only on individual stands of timber but on entire ecosystems. As we enter the 1990's and look ahead to the next century, a growing global environment awareness has broadened the implications of local land management issues.

Today, forest users want timber outputs produced in greater harmony with the conservation of water quality, wildlife habitat, scenic beauty, and biological diversity. The Idaho Panhandle National Forests (IPNF) have responded to this desire by taking a fresh look at the basis for our land management decisions.

Bill Morden, forest supervisor of the IPNF, has declared: "The time is ripe to embrace an ecologically based philosophy that treats the forest landscape with a lighter hand and in its entirety, rather than as individual stands. It is apparent to me that the lighter we treat the land, the more options we leave for the future."

A look to the Past

Since the late 19th Century, north Idaho's forests have experienced devastating fires, white pine blister rust infestations, root disease epidemics, and bark beetle attacks. Wide-scale salvage and selective cutting of dying and damaged timber further affected the forest landscape. By the mid-1950's much of north Idaho's forest lands had been significantly impacted.

Nationally, many Forest Service land managers adopted clearcutting as the most efficient way to renew forests degraded by decades of poor harvesting practices and damage from insects and disease. Many of these clearcut units were as large as 200 acres and generated much controversy in the 1960's and 1970's. As a result of ensuing federal environmental legislation, clearcutting was often avoided in favor of other even-age management techniques that left a visible overstory. However, the negative effects of partial cutting under certain stand conditions became apparent; by the 1980's forest managers had returned to frequent reliance on clearcutting to achieve stand management objectives.

New Perspectives

Forest scientists and managers recognize the need for a fresh approach to forest management. This new perspective has arisen from a greater understanding of forest ecosystems, and from increased public demand for the conservation of aesthetic values and biological diversity in our forests.

A departure from emphasis on treating individual stands in favor of managing whole ecosystems is at the heart of a philosophy which embodies both traditional silvicultural techniques and innovative ideas.

A major focus of silvicultural prescriptions will be the desired future condition of an ecosystem. This ecosystem may be comprised, for example, of a major drainage and the associations of plant and animal life that inhabit its forested slopes. From this desired ecosystem condition, and based on the relative importance of all resource values identified for the area, actual treatments will be designed via individual stand prescriptions.

A Look to the Future

Forest users will see an increased use of even-age and uneven-age management techniques that leave a functional overstory. Clearcutting will be used under those conditions in which partial cutting would only aggravate poor forest health, or where openings in the forest canopy are desired for production of big game forage.

Development of low-impact logging systems is needed to protect residual overstory trees from damage, to reduce the number of access roads, and to provide more opportunity for partial cutting on steep ground. Management of logging debris must be approached on an ecosystem basis as well, rather than acre-by-acre.

The shift in emphasis toward more aesthetically-pleasing harvest methods is not without trade-offs. Harvest methods other than clearcutting may reduce the visual impacts of our activities and benefit certain wildlife species that require forest cover for all their habitat needs. However, other species depend on the abundant forage produced after clearcutting, and their numbers may decline with the creation of fewer openings in the forest canopy.

Timber yields may decrease, potentially impacting local economies. If harvest levels are to remain constant, larger areas must be treated, resulting in construction of more roads and possible related impacts on watershed quality and wildlife security.

Under certain stand conditions, the incidence of insect and disease mortality may increase, posing challenges to reforestation efforts and increasing fire hazard due to heavy fuel accumulations.

Finally, we must accept that implementation of a balanced mix of silvicultural systems may not prove 100 percent successful on every acre. Eventual success in meeting land management objectives depends upon the cooperation of forest scientists and managers, private industry, and concerned citizens.

As stewards of the National Forest lands of North Idaho, the IPNF recognizes a responsibility both to the resources we manage and to the public which we serve. Our vision of future sound resource management must incorporate evolving social needs as well as ecological considerations. By integrating rather than isolating our resource values and uses, and by shifting our focus from what we remove from our forests to what we leave behind, we pass on to future generations a legacy of expanded options and a continued commitment to sound resource management.

Anna E. (Betsy) Hammet is a forestry technician on the Sandpoint Ranger District, Idaho Panhandle National Forests. Susan Jeheber-Matthews is a forest silviculturist on the Idaho Panhandle National Forests.

A Little Article About Big Trees

by Fred Johnson

Well, I don't know why people are attracted to extremes, but they are. Highest dam, largest winning streak, biggest trout, best grade, whatever. Trees are no exception: biggest tree in the world—giant-sequoia; oldest tree in the world—bristlecone pine; tallest in the world—redwood.

In 1965, the Department of Forestry issued the first list of Idaho big trees—10 in all, and two (as it turned out) weren't even in Idaho! Shortly after, IDF asked me to take over the program and the 8-species list.

Back to 1940—that was the year the American Forestry Association published the first national list of record trees in the magazine *American Forests*. The list of "American Big Trees" brought 77 species of record-size trees to public attention. The majority were from the eastern United States; yet Idaho did have 4 records, all submitted by Ellers Koch, a Forest Service officer from Missoula. The index system of determining biggness by points had not yet been put into effect, thus direct comparisons with today's record trees is not possible. Note that not one of these four Idaho species is now a national champion.

NATIONAL 1940 RECORD	(DBH-INCHES)	IDAHO 1990 RECORD
64.4	Western Hemlock	57.9
65.5	Grand Fir	54.7
93.9	Western White Pine	81.8
17.8	Pacific Yew	38.8

So just as we'd expect, today's trees aren't quite what they used to be, but at least today we have a larger yew than we did in 1940.

By 1965, a well-established national program was in place, as were a number of other criteria which established a minimum size and a point system. Trees have to be at least 3 inches dbh and 13 feet tall. Points are determined by this formula: circumference (inches) + height (feet) + ¼ average crown spread (feet) = points.

In 1966, Idaho joined A.F.A.'s effort and established the Idaho Big Tree Program using the A.F.A. criteria.

But enough of history—on to today's big trees. Let's start with the obvious, "What's the biggest tree in Idaho?" A few years ago, while we were doing research on western redcedar groves, a Forest Service engineer (it's true!) called our attention to a good grove with a monster cedar, just north of Elk River. It took four people to measure this giant. How big? It's a tad

over 18 feet diameter, 177 feet tall, total points = 867. We claim it's the largest tree east of the Cascade/Sierra Nevada. Want to see it? Contact the Palouse Ranger District office on North Main in Moscow. They have a brochure and a map to hand out.

Do we have any United States record trees in Idaho? You bet! At present count, 18 Idaho trees are the largest known of their kind.

There are records of trees I never thought got so big. Consider the Idaho record Pacific yew. It's 38.9" dbh x 44'—imagine that! What about a serviceberry that's 9.6" x 32'? Or a black hawthorn 20.5" x 21'—a former national record.

Remember the big white pine north of Moscow on White Pine Drive? That's right! It's the largest known in Idaho at 81.8" dbh and 214' tall, total 481 points. But, where is the largest of Idaho's State Tree? You will hate this—it's in California—585 points!

Let's wind up with the smallest big tree on the Idaho list; it's a Columbia hawthorn near Lapwai, just 7.3" dbh and 14' tall—a mere 26 points.

So, the program has grown considerably since 1965. There are now records for 71 trees. We have a record for all native Idaho trees except a couple of hybrids and we still lack any record for big sagebrush. As soon as we have one at least 3" x 13' we're going to change the name to big sagetree.

Want a current list of Idaho record trees? Send a large stamped, self-addressed envelope to: Idaho Big Tree Program, College of Forestry, University of Idaho, Moscow, ID 83843.

Fred Johnson is a professor of forest ecology and director of the Idaho Big Tree Program.

	dbh"	ht.'	Points
Engelmann spruce—near McCall	92.4	179	480
whitebark pine—Sawtooth N.R.A.	105.4	69	412
golden willow—near Wallace	68.0	58	290
Rocky Mt. lodgepole—near McCall	43.6	135	282
Pacific willow—UI campus	58.3	75	280
white alder—Hells canyon	41.4	70	212

Chuck Wellner and state record* Pinus monticola *on White Pine Drive, north of Potlatch.

Crystal Blue Deception

by Linda Lilly

Next time you're in the northeastern U.S., hike or drive to a mountain lake—a lake near town or one in a remote wilderness area will do. You'll see a beautiful, clear body of water—light blue and transparent all the way through its depths. You will see leaves and twigs that have blown into the lake from the surrounding forest, forming a mat of organic matter over the lake bottom. The leaves and such are still perfectly formed, as if they had just fallen in minutes before—no frayed edges—no slimy surfaces.

"How lovely," you may think; but an eerie feeling will descend—a twilight zone sense of "something queer is going on here; something is wrong—missing." That something is life. There is no life in the lake. The water is a crystal, clear blue because there is nothing in it—no plants, no bugs, no fish. The reason the debris is still intact is because there is no bacteria to break it down, and since the organic matter cannot decompose, there are no nutrients being released into the water. The lake is barren.

Sixty years ago the lake was full of life. The water was tinged with brown and green; large trout fed on the millions of zooplankton that slowly propelled their way about; and bacteria flourished in the lake soil, chewing up organic matter and releasing phosphorous for the algae to bloom. What happened?

Acid rain is what happened. It is drenching our country, and the waters in vulnerable areas are approaching the acidity of lemon juice. As the pH starts to decrease from a continual spray of acid rain, the whole life cycle breaks down—calcium is leached out, and toxic metals are released from the soil. The higher aquatic organisms, the fish, are the first to show its effects.

In the 1930's, the average pH of the lakes in Pennsylvania and surrounding areas was 6.5, and they were full of energy and production. When the pH falls below 6.0, the carbon dioxide increases; and most fish eggs die, bacteria numbers decrease, and algae predominates the biota. Below pH 4.5 there is no fish reproduction; stoneflies and mayflies disappear because there is not enough calcium to build an exoskeleton. By the time the pH reaches 4.0, the existing fish have either died from lack of food, metal poisoning, or suffocation (their gills degenerate).

These dead creatures are toxic to other predators and scavengers, such as eagles and osprey, because their tissues are saturated with concentrated levels of mercury, cadmium, and lead.

Frogs and salamanders, important links in the food chain, can't reproduce in the acidic waters, or even in intermittent seeps and ponds that develop during spring melt. Scientists have measured meltwater to be 100 times more acidic than normal because of stored acids in the snowpack. As of 1984, the persistent barrage of acid fallout has plummeted the average pH of the lakes in Pennsylvania and surrounding states (particularly to the northeast) to less than 4.2. And this is just the effect on waters. The herbs, shrubs, trees and soil are suffering also. Acid rain is damaging the whole forest ecosystem.

Clean rain has a pH of 5.6. Each point drop below this increases the acidity by a factor of ten. Disturbingly, one and a quarter million square miles of North America, mostly in the Northeast, are dampened by acid rain with a pH of 4.6 or lower. This is ten times more acidic than normal rain. Part of this area includes Canada, which contributes 6.5 million tons of acid pollutant per year, but receives 50 percent of their acid rain from the U.S. In contrast, the U.S. contributes 44.1 million tons per year, and receives 10 percent of acid rain from Canada. This problem is not unique to northeastern America; lakes in California and Colorado are also showing the beginnings of the life-cycle breakdown. Ironically, the problem is not one of life-cycles, but more correctly, one of life-style.

The culprits in this destruction are smelters and power plants that burn coal and oil, releasing sulphur dioxide, the big villain, which turns into sulfuric acid in our atmosphere. Most of the sulphur dioxide emissions are from electrical utilities, and two thirds of these belching facilities are in eastern North America. The other contributor is the human population in general, producing clouds of nitrogen oxide from car exhausts, which mixes with water in the air and turns into nitric acid. Most of the nitric oxides from transportation exhausts are concentrated in urban and industrialized areas everywhere.

The answers seem obvious, but it comes down to a question

of economics. We know there are ways to curb the foul emissions from power plants; and environmental perseverance can force fossil fuel burning plants to implement better clean-air practices—at a cost of higher electrical bills of course. But can we accept slow-moving solar cars and airplanes to solve our problem of transportation exhausts? We do have the technology, but there is no market for it. Our fast-paced lifestyle has no room for deceleration. How much do we want to sacrifice for a healthy earth? When the destruction of forest life-cycles elevates to a destruction of human life-cycles, then, you bet, we'll sacrifice a bunch. But how pleasant will that life be, with nothing but yellow trees and lifeless blue lakes?

Linda Lilly is a senior in forest resource management.

Helping Wildlife is Helping People

by John Lamb

Many believe that work done to benefit wildlife, whether it be building birdhouses or establishing reserves, only helps wildlife, hunters or bird watchers. Some even think that such work inhibits the "progress" of mankind and is a waste of time and money. We clearly see this view concerning the spotted owl/old-growth forest controversy and in the pressure to open the Arctic National Wildlife Refuge to oil exploration and development. The over-used, short-sighted cry that these lands are "locked up" is often heard.

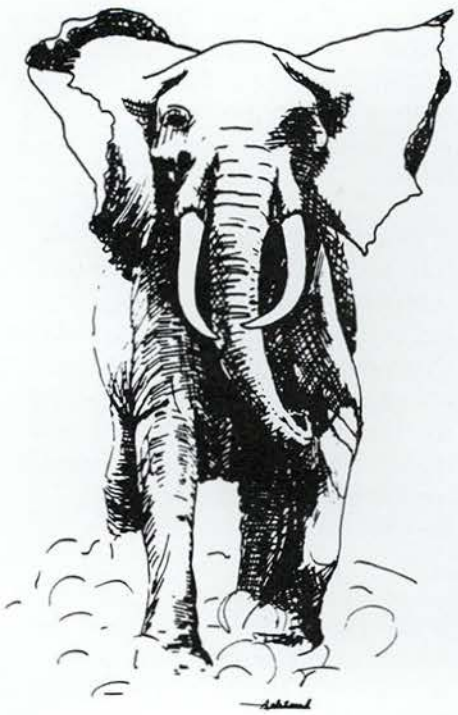
No land is really "locked up"; park or preserve status can be removed just as easily as it was given, and if there happened to be enough pressure to do this in the future, then at least the resource(s) wanted will be there and would not have been gobbled up. I hope it never comes to this; I trust there would be some alternative to opening protected lands or, if they are opened, that it be done responsibly.

India's Gir Forest Sanctuary, last home of the Asiatic lion, is an example of an area that was opened to a use not previously allowed. The region was hit hard by drought, and the land surrounding the forest was severely over grazed. The government permitted livestock grazing on a temporary basis to help local herders; this also relieved pressure on lands around the reserve. So the Gir Forest Sanctuary, established for wildlife, proved quite valuable to people in a time of need. An exciting instance occurred in Oregon when a rancher wanted to create some wetlands on his land just because he enjoyed watching the birds. He discovered his beef production increased around the wetlands and the moderated climate caused by the water body. Another example includes income into local economies from hunters and fishermen.

Wise wildlife and habitat protection ensures a constant input of money into the U.S. economy. In 1980, a total of $40 billion was spent by consumptive and nonconsumptive wildlife users. The founding of a reserve in Mexico to protect a monarch butterfly winter range has created jobs and a new influx of income into the area's ailing agricultural base.

The list goes on and on all over the world. Protecting habitat for wildlife, rehabilitating habitat, and keeping stable populations all benefit people in one way or another. The returns may not be as direct or visible as those from a factory, timber harvest, mine, etc., but they are real and they are definitely long term, which a lot of industries cannot say.

John Lamb is a junior in wildlife resources.



Preservation Of Balance Is Possible; Remember The Magic

by Maria Holmes

Oh goodness, it was cold . . . to the point of numbed fingers and instinctive shaking of every muscle in the body. It was wet from the dewdrops on every little leaf to the quagmire created by the very beginnings of a small creek which I happened to be kneeling in. Of all the places to pick a spot to set up for an ambush . . . total misery and at the same time, total magic.

Behind me, my husband was running sideways, and back and forth, stopping every so often to let loose with his rendition of a bull elk's bugle. Ahead and just out of sight, the real thing, raking his massive antlers and teasing us with answering grunts as he had been doing for over three hours. Across from my position, on a well-beaten trail, was evidence of a past attack on a large cedar tree, its bark shredded to pieces and hanging like the moss located higher up.

For those not initiated into the sport of bowhunting, this definitely does not sound like fun, but it is just such an opportunity which will indelibly remain in the imagination of one's mind forever.

Four hours later, the king of the forests outsmarted us for the final standoff as he screamed twice, reminding us more of a cougar than a bull elk. By then the late afternoon sun had warmed up all the hillside except for the thickest cedar groves where the high canopy would not permit the rays to enter.

Just out of bow range, the massive, seven-by-seven, diesel truck-sized bull showed off his superiority of nature's instincts; laying the rack back along the full length of his back and sides, he gave one last, long, heart-stopping bugle, then whirled and in a instant was gone from our sight.

It was another two hours back to camp, and in the gathering twilight, the forests took on a more subdued tone of magic, gathering us in, making a place quiet for our minds to wander; a time of peace, and at one with all the natural resources Idaho's forests bestows on an individual.

We are bowhunters. We are animal lovers. The two are not incompatible, as a lot of folks think. In the challenge and the excitement of pitting ourselves against a big game animal on his home terrain, we become a part of a larger whole. Every excursion brings an increasing awareness of the constantly evolving and interrelated aspects between man and nature. Increasingly, we become aware of the multitude of roles man and wildlife assume and how all the many components which comprise our natural systems must be preserved and protected.

Above all we have determined that which is most rare becomes the most wanted and the most treasured.

All of the varied needs and uses must somehow be accommodated, each to a degree not necessitated nor demanded by special interest groups or the radicals on both ends of the scale, but by the need to maintain the crucial balance of nature so that all of Idaho's renewable resources can be preserved in harmony.

In this day of high technology and minutely specialized sciences, we do literally arrive individually, whereby we cannot see the forest for the trees. Computer technology and advanced terminologies can be used as tools to help us see the whole picture, but I foresee a future which will best be determined not by economics or field studies, but by the intangible feeling and expectations of the silent majority.

There will come a time where in the hidden hearts of every individual there will be a recognition of the uniqueness of the natural resources of which Idaho has such an abundance. There are those who as students at the University of Idaho will dedicate their life studies to the farseeing dream of resource preservation. There are others like myself who, having experienced the actual magic, will constantly urge the silent majority to take part in doing their share.

I hope that in the not-too-distant future, the silent majority will speak out and drown out the voices of those who see only the trees. As each day goes by there will be an increasing need for every person to realize that all the parts constitute the whole.

Management is a key word and a key tool. Before it can be put into action though we must remember . . . forever . . . the magic.

I have often said I wish I could take every individual, just

once, with me on a bowhunting trip. A kill is not a necessary conclusion, but experiencing the interaction of nature is. This is accomplished best when one must rely on the senses of feel, smell, touch, hearing, and seeing. Use all your senses on something small: a miniature shaggy mane mushroom as it pokes its head through layers of dirt and rock. Use all your senses on something big: an unparalleled vista of the vastness of Idaho's forests as seen from a high mountain peak.

"Experience the magic," I would tell my visitors, knowing as they did the road to preserving the balance of man, land, fisheries, timber, range, recreation, and wildlife just might be less bumpy as we travel upward and onward.

Idaho can show the rest of the world how to do it if we work together, and if we remember the magic . . . and keep it forever fresh in our hearts and in our minds.

Maria Holmes is a bowhunter & outdoor enthusiast living in Lewiston, Idaho.

Dave Silcock

Aquarius Proposed Research Natural Area

by Christine Lorain

"The MOST UNIQUE area in the northern Rocky Mountains . . . there's nothing like it anywhere." This opinion has been expressed by many botanists and ecologists about the Aquarius proposed Research Natural Area (pRNA) in Northern Idaho.

Located along the lovely North Fork of the Clearwater River some 50 miles northeast of Orofino, this 3600-acre parcel of land was first recognized nearly 20 years ago by Fred Johnson, Professor of Forest Ecology at the University of Idaho. In 1970, the area was recommended as a potential RNA to Chuck Wellner, a long-standing leader in Research Natural Area work throughout Idaho.

My first encounter with this fascinating place was in 1984. I had just come from western Oregon to attend the University of Idaho, and was informed that this area was a nice place to camp, so off I went. Once there, it was like I'd gone BACK to the Oregon coast, not INTO the Northern Rocky Mountains! Enormous western redcedars, large stands of red alder, and ferns everywhere! So this was why so many botanists and ecologists extolled its glory. Within these low-elevation, warm canyons, small, isolated populations of disjunct plants and animals with Pacific coastal affinities occur. Strong prevailing westerly winds off the ocean

penetrate inland, and promote an interior expression of a Pacific maritime climate, consisting of mild winters and high annual precipitation.

To fully appreciate this area and its vegetation, we need to go far back in history—25 million years ago to be exact! At this time the Cascade Mountains were nonexistent. The coastline was much farther inland, and the broad low plains west of the Rocky Mountains supported a rich, moist forest, similar to that of the southeastern United States today. The climate was mild with short winters and long, humid summers. By the end of the Miocene (12-25 MYA), climates and vegetation had changed due to the formation of the Cascade Mountains and the out-flowing of the Columbia River Basalts. A rain-shadow developed in the region east of the Cascades, altering the climate and eliminating much of the flora.

Changes continued into the Pliocene, when a drying period occurred, followed by an eventual cooling trend that led to the Continental Glaciation of the Pleistocene. At least 4, and possibly as many as 18 glacial advances occurred during the Pleistocene, resulting in rapid climatic oscillations. The remarkable thing is that during this entire time of constant and considerable change, the climate within these low-elevation canyons of the Clearwater River drainage remained relatively mild. These were the first canyons south of the glacial border; and strong westerly winds off the Pacific Ocean continued to moderate the climate within these canyon refugia. In turn, this allowed some of the hardier members of the old Miocene forest to persist as isolated, relic populations. Today these canyons harbor some very old western redcedar climax forests and numerous relic, disjunct populations of the Pacific coastal flora.

The only areas east of the Cascade Mountains where Pacific dogwood (*Cornus nuttallii*), western starflower (*Trientalis latifolia*), licorice fern (*Polypodium glycyrrhiza*), Sierra wood-fern (*Thelypteris nevadensis*), and Henderson's sedge (*Carex hendersonii*) occur is in the Clearwater River drainage of northern Idaho. Some of the best populations of other coastal disjuncts, such as red alder (*alnus rubra*) and redwood violet (*Viola sempervirens*), are also found in these canyons. A number of endemic taxa occur in these regions as well, such as Constance's bittercress (*Cardamine constancei*), Daubenmire's dasynotus (*Dasynotus daubenmirei*), bank monkeyflower (*Mimulus clivivola*), and Idaho phlox (*Phlox idahonis*).

The flora of the area is also VERY rich in ferns—eleven different species occur on a single river bench within the pRNA. We have now located disjunct and endemic species of moss, lichen, moss beetles, salamanders and even earthworms! Moreover, recent evidence indicates that these isolated populations have undergone genotypic differentiation, which provides some unique future genetic opportunities.

For those of you who haven't experienced this lovely little piece of Idaho, it is well worth a trip. The ecosystems within these canyons represent relics of our ancient Idaho past, when the Northern Rocky Mountains were the "coast range." Although the Pacific Ocean now lies 300 miles to the west, we have an opportunity to enjoy and visit the vegetation of the Pacific coast in our own backyard. All we're lacking is the ocean itself!

Christine Lorain graduated from FWR with a master's degree in forest ecology.

Fred Johnson

Rex Crawford and Fred Johnson at the North Fork Clearwater, in proposed Aquarius Natural Area.

Central America: The Rest of the Story

by Lewis Nelson Jr. and Wilma Baker Nelson

Ask people about their impressions of Central America and chances are you'll receive a fairly uniform response. It's a land of dictators and wars and people shouldn't go there because it's dangerous. It's also a poor place, and to make things worse, they're cutting down their rain forests and destroying the rest of their natural resources. Not many positive things are happening. Yes, there definitely isn't much hope for Central America.

Lewis Nelson

Costa Rican children simulate deer while learning what is needed for the animals survival.

Impressions like these can usually be traced back to the few sources of information that we have in the United States—newspapers, television, and magazines. Those sources usually concentrate only on stories having widespread interest—the invasion of Panama and ousting of General Noriega, the long war in El Salvador, the destruction of the rain forests, military regimes in several countries, the anti-American sentiment in Honduras, and other stories. But, beyond all of this sensationalism, there is another story.

By visiting Central America and talking with the people, you can discover another story of efforts to save the environment, stories that would not merit space in newspapers, on television, or in magazines.

Panama has documented, quite well, that animals and their habitats, in this case the green iguana, can be managed successfully while using a harvestable surplus to provide income for local communities. Costa Rica is famous for its national park system. El Salvador, even in the midst of a decade-long war, is making progress with establishment of an environmental education program for school teachers and natural resources professionals. Guatemala, living among both a democracy and strong military control, recently passed a strong, national environmental law that has many environmentalists excited. Several countries are encouraging their people to obtain advanced degrees in wildlife management so that their wildlife populations can be better managed.

There are other examples for every country. It is safe to say that Central America has a basic core of well-educated and dedicated people interested in working in environmental education. They are well aware of the destruction that is taking place and would like to be able to do something to curb the trend. They would be willing to become more involved at all levels of participation, from volunteer to professional, if the proper direction and materials were made available. They are willing to do the job, regardless of the adversity of the conditions.

There is no lack of environmental problems in Central America and lots needs to be done. You can find all of the problems if you look hard enough—conversion of forest lands (including rain forests) to agricultural and grazing lands, overgrazing by cattle, erosion, sedimentation, unregulated hunting and trapping, air pollution, water pollution, and others.

Laws are not enough to eliminate these environmental problems. It's more complex than that. It's a cultural problem as well. For example, in most countries there is a severe water pollution problem. People have been dumping their human wastes and trash, including commercial waste products, into streams and rivers for their entire lives, and their parents did the same thing before them. Passing a law will not change their behavior, because they will not understand nor support it. Changes in behavior can only come through education. Thus, environmental educators must attack problems at the grassroots levels, working with local community leaders, school teachers and children. It's a long process, but there are no quick-fix solutions.

We were lucky to be able to spend a year working at the National University of Costa Rica as visiting professors. Besides teaching two classes on environmental education and communications, we were also able to present eight environmental education workshops in four different countries. This opportunity to visit other countries and talk with students, professors, natural resources professionals, community leaders, children, and many of the different types of campesinos (farmers) provided a wonderful insight into the environmental problems that exist, attitudes toward the environment, possible solutions, and a better understanding of the culture. It also provided a sound footing for additional work in Latin America in the future.

For those of you with an orientation toward international work, we encourage you to seek out more information about Latin America. You won't get rich, but, then again, you'll have job satisfaction unequaled by anyone else. The challenges are great, and you will be welcomed with open arms by a wonderful group of people who need help in saving their environment for future generations. The Peace Corps said it best—"the toughest job you'll ever love."

Lewis Nelson

Children love to learn and play. Combining the two leads to greater retention of knowledge.

We also hope you are able to look behind the headlines when hearing about Latin America. Sure there are problems, and they won't be all solved within your lifetime. But, on the other hand, there are great people working as hard as anyone else and trying to preserve a little bit of nature. That is the real story. Also, try not to generalize about Latin Americans from what you read and hear; it's often not accurate to stereotype people. And, you know, that sort of thing can run two ways. In fact the Latins sometimes stereotype those of us in the United States based on what they see on television and read in the newspapers. It's an interesting stereotype—but that's another story.

Lewis Nelson, Jr., is an extension professor of wildlife resources in the Department of Fish and Wildlife Resources. Wilma Baker-Nelson is a life sciences teacher for the Moscow School District.

"Observe always that everything results of change, and get used to thinking that there is nothing Nature loves so well as to change existing forms and to make new ones like them."

—Mareus Aurelius

The Wilderness Resource: A Special Situation

by Scott Phillips

Wilderness is not "business as usual!" It is different and unique, and sometimes poses challenging contradictions. Wilderness managers are faced with a dilemma: how to perpetuate natural conditions and processes while providing recreational visitors with a solitary and primitive wilderness experience. There are now 90 million acres in the National Wilderness Preservation System. One acre out of six of National Forest System lands is now in wilderness!

When Congress established the National Wilderness Preservation System 25 years ago, the intention was to secure the benefits of an enduring resource of wilderness for present and future generations. The legislation was to assure that an increasing population, accompanied by expanding settlement and growing mechanization, did not occupy and modify all areas within the United States. Wilderness areas are to be managed to protect natural conditions and features of ecological, geological, scientific, educational, scenic and historical value. Beyond that, wildernesses are to provide opportunities for visitors to experience solitude, self-reliance, and a primitive, unconfined, non-motorized type of recreation. In other words, recreation is allowed in wilderness, but is certainly not the principal reason for setting aside wilderness.

The building block of sound management is protecting the long-term health of the wilderness itself. Maintaining quality water, air, soil, wildlife, and visitor solitude is paramount. The air above the wilderness is as important as the resources on the ground. Air Quality Related Values (AQRV's) are those features or properties of a wilderness that make the area worthy of designation, and that would be, or could be, adversely affected by air pollution. Examples are lakes, streams, vegetation, and wildlife. Air quality can be monitored by measuring the baseline condition of sensitive plants (use of lichens is a good example) and lakes.

Once we are assured that the resource is protected, we can turn our intentions to wilderness benefits for humans. Probably the most important benefit is the chance for solitude. A management goal is to encourage visitors to enjoy a primitive and unconfined recreation experience with emphases on solitude and self-reliance. Wilderness can be a retreat for those seeking therapeutic values. Free from the distractions of civilization, people learn to rely on others and, more importantly, themselves.

Wilderness can provide a link with historic and cultural roots. A wilderness provides an opportunity to use traditional means of travel, perfect horse packing skills, or revive the art of crosscut saw use.

Assessment of scientific value of wilderness is still in its infancy. Large undisturbed areas serve as ecological benchmarks providing information on natural ecosystems which can be a basis for comparison when managing more developed areas. Even today, the study of native plant communities provides information for developing new medicines.

What about the future of wilderness? At the recent Wilderness Conference in Minneapolis celebrating a quarter-century of the Wilderness Act and the Wilderness Idea, several speakers looked to the future. Author and lecturer Michael Frome spoke of the need for bigger and better ideas— "bigger and better than dollars can buy!" Land managers need compassion, understanding, reverence for the land, and ethical practices besides technical training.

Dr. John Hunt from the University of Massachusetts (and incidentally an alumnus of the College of Forestry, Wildlife and Range Sciences) had some futuristic thoughts related to tourism and wilderness. Does tourism need wilderness or vice-versa? If some human use of wilderness is allowed, then you have tourism by definition. Like it or not, global communication, air travel, outdoor gear, film and camera companies, restaurants, hotels and motels, and the wilderness areas themselves are all linked. Americans are taking shorter vacations. In fact, 75 percent of American vacations are now three days or less. The three-day weekend is adequate for many wilderness visitors. Recent visitor data from the Sawtooth National Recreation Area (SNRA), which includes the Sawtooth Wilderness, show that more people are visiting backcountry areas, but they are day-hikers and persons or groups camping only one or two nights.

Other speakers in Minneapolis brought out external threats to the wilderness resource which need to be faced in the next decade. These include:

- Inadequate knowledge for managing natural diversity,
- Conflicts among public purposes of wilderness,
- Effects of wilderness on economic stability and growth,
- Size and components of the National Wilderness Preservation System.

A broader view in the future is likely to include caves, oceans, islands, natural freshwater lakes, glaciers, etc.

Congressman Bruce Vento challenged conferees and federal agencies to a new "Wilderness Revolution" in the next 25 years. Dr. Robert Lucas from National Forest Research stressed these important points:

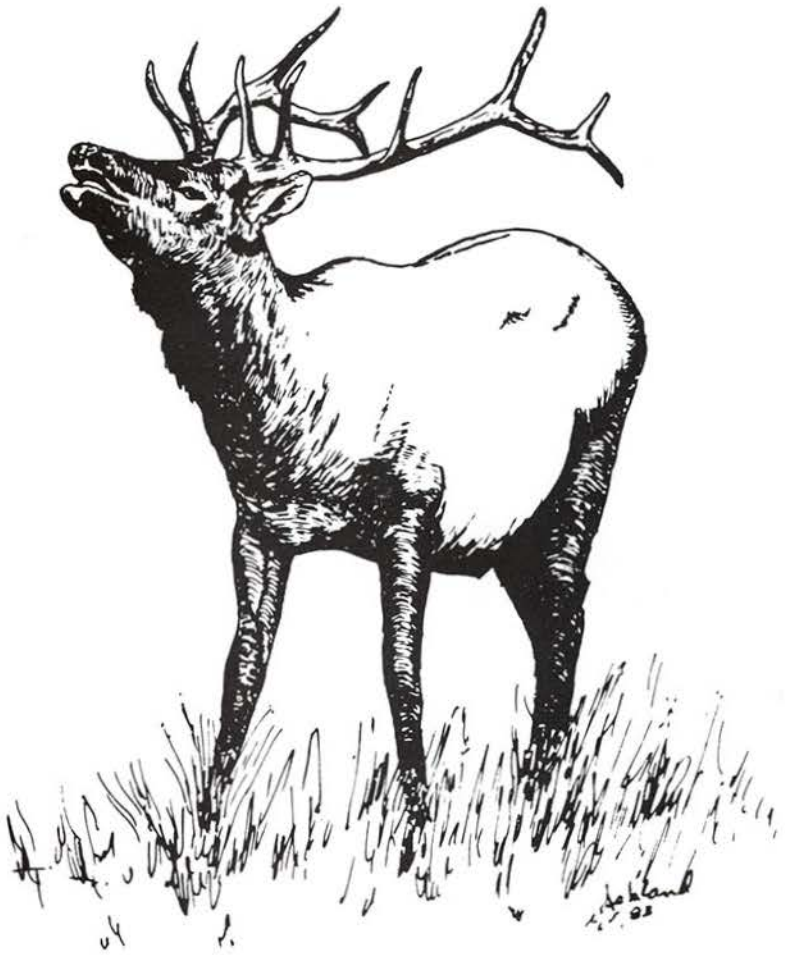
- Wilderness education, which emerged as a major theme of the conference.
- Designated wilderness is special and cannot be managed with benign neglect. The future of wilderness requires assertive management.
- Monitoring is absolutely essential. We cannot know the condition and relative health of the resource components of wilderness without it.
- Getting the public involved early in management policy. Build a constituency that feels ownership in the management plan.

Other speakers stressed themes that will improve management of wilderness both now and in the future:

- Legitimacy. The special values of wilderness must be understood and appreciated by all levels of management.
- Commitment. The national treasure of land in the "wilderness trust" demands funding, personnel, and training.
- Professionalism. We must have trained and experienced people.
- Research Support. We need to expand the research effort and maintain close cooperative ties with the universities.
- Improved Education. We must reach the wilderness public with greatly improved education methods and techniques.
- Management Systems. We need better "frameworks" and stronger support for limits of acceptable change.
- Technology Transfer. Continuing efforts are needed.

It is a challenging and stimulating time to be involved in wilderness management!

Scott Phillips is wilderness manager on the Sawtooth National Recreation Area.



A Landowner For Wildlife

by Rod Nichols

"I always had a keen interest in wildlife. I used to hunt a lot, but I never got involved before."

That is how Ina Lee Severson described herself in looking back on her decision four years ago to manage her land near Troy for wildlife.

In 1986, Severson contracted 194 acres under the Federal Conservation Reserve Program, a land set-aside program aimed at putting erodible croplands into permanent cover. That move prompted a contract from Idaho Fish and Game to offer technical assistance in selecting plant stock that would produce good cover for wildlife.

By the time she was finished, Severson had planted grasses and legumes over most of the acreage to attract upland birds, as well as trees and shrubs for additional winter cover. Though the benefits lie a few years in the future when the vegetation matures, she sees the project as an important first step.

"I want to improve things for wildlife," she said. "One of my main goals has been to provide more habitat for gamebirds."

While creating habitat for wildlife can be rewarding, it is no easy task, as Severson soon found out.

"The drought and weed problems kept me busy . . . . It was a little more work than I expected because of these things," she said.

Using funds generated by the sale of the Idaho Upland Game

John Lamb

Permit, Fish and Game's Habitat Improvement Program helped with the project by providing stock. But on another phase of Severson's development plan, she assumed the entire cost alone.

Two years ago, she dug a two-acre pond on her place, complete with an island. On this project the results were quick in coming: ducks, geese, tundra swans, and other wetland species congregated at the new impoundment.

"I get to see a lot of things I never expected, like a belted kingfisher. There's just about every species of duck. I have sandpipers, yellowlegs . . . my pond has attracted a tremendous number of waterfowl," she said.

Wildlife under the water has thrived well. An experimental stocking of kamloops rainbow trout last April has produced a growth rate of nearly two inches a month.

For several pairs of mallards, it was a case of love at first sight. All told, last spring they produced 28 ducklings on the pond. And goose nest boxes she erected near the water resulted in a brood of three goslings.

Wood ducks have been seen in the area, a good enough reason for her to put up several wood duck boxes.

Not content just to sit back and enjoy the fruits of her labor, Severson has several plans for future developement of the area.

"A blind on the pond is a project to be done," she said. "It'll be just for observing wildlife." She intends to build another pond as well, this one in a timbered area of her property that is short on surface water. Additional plantings to increase upland bird habitat also figure in her plans.

Although Severson hunted for many years and has no objection to those who do, the chief motivation for developing her land has been merely to observe.

"I've always enjoyed any type of wildlife," she said, "and I get great enjoyment out of watching them."

Rod Nichols is the information and education specialist for the Idaho Department of Fish and Game in Region II.

The 90's: What Will They Bring?

by Butch Harper

We have just moved out of a decade that saw unprecedented changes in the world—a world, that, in many cases, had not anticipated such rapid and dramatic developments and, therefore, was not able to deal with them in a positive, pro-active manner. Changes also occurred within the Forest Service that had not been anticipated and are being struggled with today in order to develop a course of action that will satisfy the large and diverse group of National Forest users.

National Forest land managers of the 90's will face a tremendous challenge dealing with the increasing demands by a growing population for use of a fixed land base.

There are several instances in the last decade that should serve as good examples of what we can expect in the future. One of the most significant is the question of timber harvest of old growth forests in the Pacific Northwest.

This issue on its own may very well change the entire timber harvesting method of the Forest Service. It is the classic confrontation of the environmentalist and the commodity user both trying to use the land in a manner in which they feel is right. Land managers will find themselves in the middle of these emotional, political battles trying to make a decision that suits all parties. This is not an easy task.

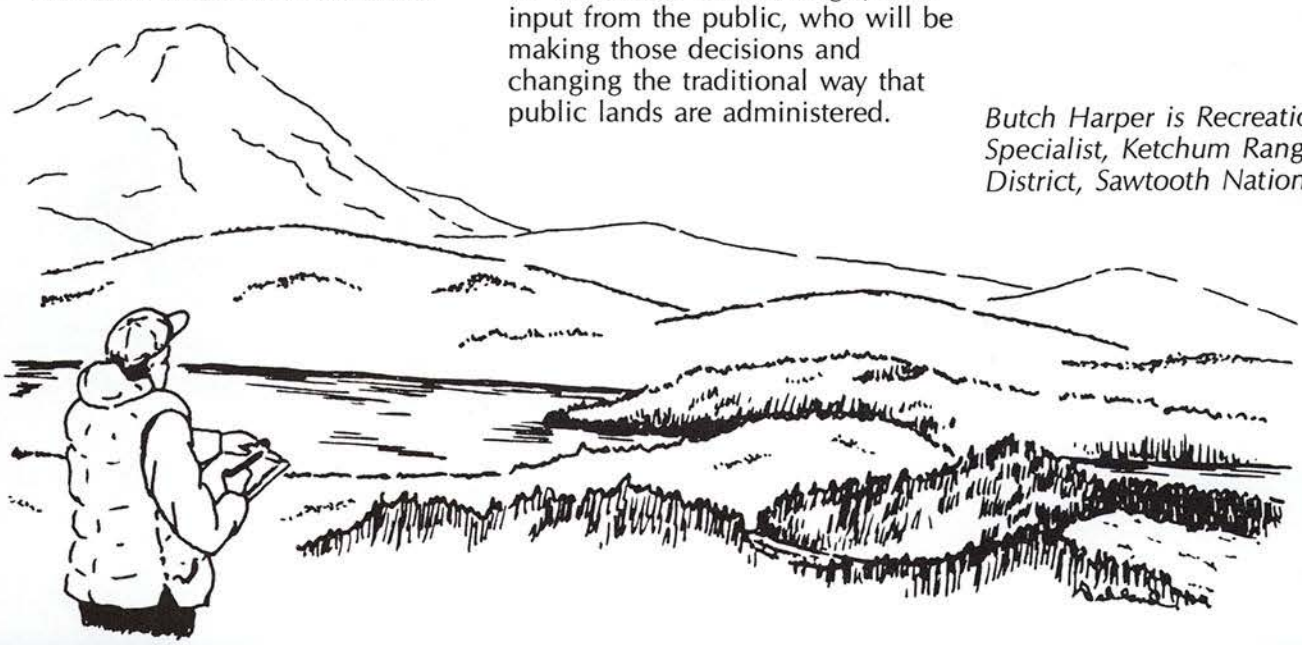
Another example is the growing anti-grazing movement that began to develop in the mid 80's and will no doubt continue to grow and become a major issue in the 90's. Americans are putting much more emphasis on quality management and protection of riparian areas, and the wildlife that uses them.

This is in direct conflict with most grazing practices in the West and will no doubt force a much-needed change in the way those lands are managed. Again, it will be the federal land manager, with input from the public, who will be making those decisions and changing the traditional way that public lands are administered.

Recreation demands in the 90's will present challenges that will tax both the land's ability to accommodate them and the recreation manager's desire to provide them. At the start of the 80's we were surprised when we saw a mountain bike or ATV on a trail. Today, they present one of the fastest-growing conflicts. It takes imagination and skill to keep trails open to all users and still maintain a quality experience.

With a fixed land base and an increasing population, demands on the recreation manager of the 90's will continue to grow. Their ability to anticipate new trends, enlist new partners, develop innovative ideas, and provide the public with a resource management program that reflects a genuine concern for the environment and the needs of the country, will be the measure of the land manager of the 90's. If you are up to it, welcome aboard. It is going to be fun.

Butch Harper is Recreation Specialist, Ketchum Ranger District, Sawtooth National Forest.



LITTLE BEAR

Little bear in the wood,
Little one, never understood . . .
What if you can't?
What if you could?
Never say you will,
Never say you would.

Didn't you hear your Mama bear call?
Here come the men, here they come all.
They cross the river all standing tall,
Luring you away, as if to play ball.

Off you go against her will
Following them, traipsing up the hill.
They've got her now, IN FOR THE KILL!
Your mom you've lost . . ., but you can see her still.

You scream and fight to get away,
You shouldn't have gone despite the sway.
They've got you now, while your Mom still lay,
She's out of sight on the DARK MORN OF MAY!

You whine and you cry as you try to break free.
You ask yourself, Why just me?
Why am I tied by a creature like he?
What could they want with a little bear like me?

You're lying in a sack, hopeless and alone
But soon there are others who let out a groan.
Their Moms too, were lost when they set out to roam.
They'll never, ever, never, find their way back home.

Now the creatures are ready to load you in their trucks.
You're prodded and you're pushed like some lame, lonely ducks.
A small catch today. They say, "This sucks!" . . . .
The plan's to sell you each, for a mere fifty bucks.

Upon a long journey, then to the mill
They've got you now, IN FOR THE KILL!
It's your claws that they want as you lie still.
Your gallbladder too is thrown in the till.

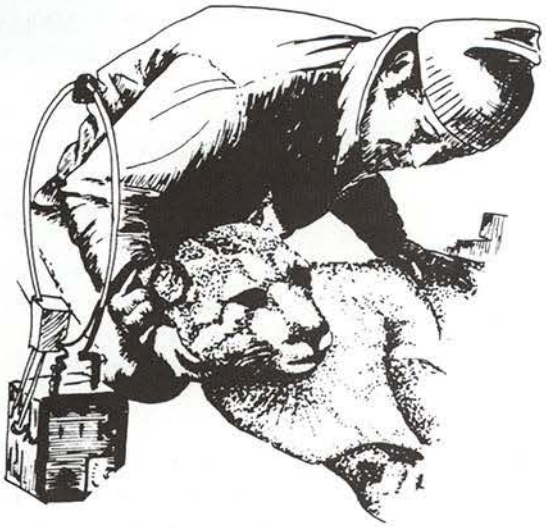
For these two parts, your short life was taken.
A man's thirsty greed, always to slacken.
The earth, sky, and sun, all life forsaken.
Led like pigs to the slaughter, never be mistaken.

Beautiful lives taken away.
Shifted in the wind like loose stalks of hay.
Never more, to see the new dawn of day,
Poached again, it's the man's way.

Little bears in the woods,
little ones never understood.
What if you can't?
What if you could?
You'll never live your lives
like little ones should.

by Sonya Ebright

Research



A Trip Through Hells

by Lynn McCoy

For 20 million years a flow of water has cut through layers of lava and granite helping to carve out North America's deepest gorge—Hells Canyon. The gorge averages 10 miles from rim to rim and, in places, is between 5,000 and 6,000 feet deep. For the past 8,000 years people have been drawn to the area, not because of its awesome terrain but rather in spite of it. The people came because of the river.

The river carved out rock walls and overhangs which were used as shelters by prehistoric hunters and gatherers. These aboriginal people left behind pictographs throughout the canyon. The Nez Perce Indians lived near the canyon and often hunted there, as an abundance of fish and game thrived along the water way. The first white settlers were miners, and many made a living from copper, hard rock, and gold mining. Others pursued a life beside the river by ranching and farming.

Today, the area is known as Hells Canyon National Recreation Area (NRA), and includes approximately 652,488 acres of land in Idaho and Oregon, primarily operated by the U.S. Forest Service. The waterway, which historically has brought so many people to the canyon, continues to do so, as some of the largest whitewater rapids in North America are located on this 67.5-mile stretch of the Snake River.

River recreation is now the dominant use of this portion of the Snake. National attention has been drawn to the area because of its status as a NRA and as a result of portions of the river receiving federal designation under the Wild and Scenic Rivers Act (31.5 miles of the river are designated as "Wild" and 36 miles are designated "Scenic"). This has prompted a continual stream of people, coming to float and power-boat the river.

During a four-month period in 1988, over 22,000 people floated or boated the river, an increase of five percent from 1987 and more than a 45-percent increase from 1979. The dramatic growth in recreation was one of many factors prompting the U.S. Forest Service to evaluate its current management direction. As a result, the U.S. Forest Service contracted with the Department of Wildland Recreation Management to conduct a visitor recreation use study.

The purposes of the visitor study were: to collect data that described how people use the area, to identify their perceptions of the river experience, and to define their management preferences for the river resource. A mail questionaire was designed to develop profiles of the visitors who were predominantly classified into four categories: private floaters, commercial float passengers, private power boaters and commercial power boat passengers. The study was ideal for student involvement, and several undergraduate and graduate students had the opportunity to participate throughout the design, data collection, and data analysis process.

Data collection took place from April of 1988 through April of 1989. Almost 2,000 river users were initially contacted. A high response rate (77%) to a detailed ten-page mail questionnaire, from individuals living in 43 different states and over 500 cities, indicates the amount of public interest in the resource.

Results of the study show that the four different groups of river users often thought to be dramatically opposed in their views do not vastly differ in their perceptions toward the river. All four groups highly value the scenery, the excitement, the beauty, the historic and cultural attractions, and the escape from their daily routine that a river trip in Hells Canyon offers. Generally, the river corridor is not perceived as being over-crowded, but there is some concern with litter, fluctuating water levels, and the level of noise. The respondents support a variety of guidelines for managing the river, to alleviate problems which may occur as a result of increased demand for river trips. Management policies perceived to protect the existing river experience are highly favored, and there is strong support for policies to increase boaters' awareness of river etiquette and understanding of management practices.

Although a high quality of recreation experience is currently being provided in Hells Canyon, the study reveals that the public is concerned about a variety of issues, and may be expected to support management practices designed to perpetuate and enhance the river recreation experience.

The Department of Wildland Recreation Management is currently facilitating a twenty-two member public task force. This task force provides individuals interested in the management of recrea-

tion resource opportunities to 1) shape the outcome of the management of recreation resources, and 2) to shape the outcome of the management planning process. These individuals are volunteering their efforts to update and revise the Recreation Management Plan for the river corridor. Members represent a spectrum of interests that include the four boating groups, as well as conservation, angling, aircraft, archaeology, community/economic, agency and landowner interests. Task force members are using the results of the visitor study to assist in decision making. Although a few rapids may lay ahead, the task force members have a shared goal—to provide for the successful long-term management of the beautiful, exciting, and historic Snake River through Hells Canyon.

Lynn McCoy is a graduate student in wildland recreation management.

Said Hajib

The Snake River in Hell's Canyon.

Role of Protected Areas for Environmental Education in Central America

by Sam Ham, Dave Sutherland and James Barborak

The region comprising Central America (i.e. Costa Rica, Nicaragua, Panama, El Salvador, Honduras, Guatamala, and Belize) supports some of the greatest biological diversity on earth. Tucked away in steaming jungles, dry tropical forests, cloud forests, and scorched central plains are some of the world's greatest concentrations of plants and animals. Their value as economic, medicinal, social, and genetic resources is enormous and at this time, largely unexplored and untapped. Undoubtedly, the potential value far exceeds the current usage.

Unfortunately, the region also holds the dubious distinction of featuring an unsurpassed deforestation rate. Already nearly seventy percent of Central America's forests have been destroyed, habitat has been removed, poisoned, and in some cases, rendered essentially useless for either man or beast. In the face of unrelenting pressures, uncounted species of plants and animals have become extinct, and countless more are on the brink of doing so.

The good news is that attempts are being made in every Central American country to create protected-area systems. However, of the four-hundred-plus protected areas in Central America, few are anything more than unmanaged or undermanaged "paper parks." Degradation of ecological values continues in many of the areas despite their "protected" status on paper.

This problem of environmental degradation of Central America's wildlands is due to, or aggravated by, a critical lack of awareness at all levels of society. Outside of a small, educated minority, few

Central Americans appreciate their dependence on the region's wild resources or recognize the relationship between a healthy environment and the quality of life. Few schools offer any kind of environmental education and, outside of Costa Rica, almost no interpretive programs have been developed for Central American parks and protected areas.

In a nutshell, there is little communication with citizens concerning their natural environment, and too little drive to stimulate national pride in their natural heritage or increase understanding regarding the importance of protected areas. The result is that Central Americans have little incentive to conserve any of their natural resources.

Summary: It is the authors' position that neither protected areas nor the media used to communicate about them (and other natural resource issues) are being used to anywhere near full advantage.

Before attempting to establish a role for these protected areas, some realities concerning the situation in Central America must be recognized. First of all, although these countries are predominantly rural, they are heavily populated. Exploitation of protected areas is perpetuated not only by commercial operations, but also to a great extent by local people who inhabit lands adjacent to, or even within, protected area boundaries. Traditionally, these people have eked a meager living out of the land, and they have no alternative to their present lifestyle. To expect them to discontinue their exploitive practices is unrealistic.

Thus, the concept of "protected areas" takes on a different meaning than that which we envision in this country. With few exceptions, vast areas of uninhabited land simply do not exist in Central America. For natural resource managers familiar with our wilderness areas, national parks, wildlife sanctuaries and the like, this calls for some serious rethinking on the role of protected areas. In Central American countries, human inhabitation within or adjacent to protected areas must constitute part of what is being preserved, but it must be managed in such a way that the land can support human existence indefinitely.

The result of this kind of management is what international conservationists call "sustainable development"—that is, an ideal based on the premise of perpetual availability of natural resources made feasible by rational growth and development. The authors propose that this concept set the direction for management of protected areas, and form the core of environmental education and interpretive programs. These educational and interpretive programs associated with protected areas are especially important in fulfilling the following roles:

1. Encouraging Central Americans living at subsistence levels to explore and adopt more sustainable land-use practices.

Changing lifestyles, a declining base of arable land, and growing populations are making traditional land-use practices impossible to maintain. The peasant farmers depend heavily on wildlands for firewood, game, and as a source of new farm land. Consequently, protected areas are disappearing at an alarming rate. Environmental education may be the last hope for showing these people how to adapt to their rapidly changing world while protecting both the biological systems and human dignity.

This idea, however, must be approached cautiously. These people struggle in poverty as their ancestors have for centuries, and they are often not receptive to outsiders' ideas that will restrict their activity and threaten their livelihood. Their low standard of living discourages them from taking risks such as trying new farming techniques or departing from traditional practices such as slash-and-burn agriculture. To be effective, environmental education must be coupled with observable, concrete improvements in their lives.

2. Stimulating environmental awareness among Central

Fred Johnson

Pristine rain forest, Costa Rica, Pacific coast near Panama.

America's affluent classes.

These people have both the leisure time and discretionary income to visit protected areas and get involved in environmental concerns. They also have the social status and political leverage to lobby for environmental reforms. On-site interpretive programs and awareness campaigns have the potential to influence these citizens and create a greater sense of urgency concerning protected areas than currently exists. Again, the message must stress the realistic concept of sustainable development. The preservationist philosophy as promoted in the U. S. is inappropriate and probably impossible to work from in most Central America protected areas.

3. Stimulating environmental awareness among foreign tourists.

As affluent tourists from industrialized nations arrive to experience the region's spectacular environments, foreign visitation of protected areas can be expected to increase. Many of these visitors will be shocked to see farming, fuel-wood collecting, tree cutting, and other activities associated with sustainable development occurring around and within protected area boundaries. Carefully thought-out use of interpretive devices could help diffuse the surprise or even outrage that some foreign tourists may feel. With raised conciousness and solid information, some of these people will return home better equipped to deal with conservation problems both at home and on an international level.

4. Demonstrating the practicality of sustainable development to a world audience.

As new programs are instigated in Central America, their success or failure will be of great interest to the rest of the world. Worldwide publicity has the potential for stimulating discussion and information exchange. This, in turn, can lead to the initiating of research projects and exposing of workable development models. Finally, such publicity would encourage greater visitation to and understanding of protected areas.

The biodiversity within Central American countries is unique, but the problems of overexploitation facing them are not. Virtually every country in the world will eventually be forced to take (or has already been forced to take) a hard look at its demands on natural resources. In Central America, the urgency generated by the skyrocketing loss of biodiversity and natural resources demands that a workable and essentially permanent solution be formulated and implemented in the very near future.

Properly used, protected areas, along with effective education and interpretation, can go a long way towards providing such a solution. Variations on this theme are applicable worldwide (perhaps even in this country). Establishing these protected areas and education programs will be a formidable task indeed, demanding massive sums of money, strong sense of commitment, and just plain hard work, but no one ever said that good natural-resource management was easy in any country.

Dr. Ham and Mr. Sutherland are, respectively, associate professor and graduate assistant in the Department of Wildland Recreation Management. Mr. Barborak is a lecturer for the Natural Resources and Quality of Life Program at the University for Peace, San Jose, Costa Rica.

Fred Johnson

Typical campesino (peasant) dwelling, with five of the seven children.

Cattle Grazing and Ponderosa Pine Regeneration

by James L. Kingery

Can cattle grazing and plantation establishment coexist? Results from a seven-year project studying the effects of cattle grazing on ponderosa pine regeneration is showing that they can.

To assess animal impact on tree seedling establishment is not new, as there have been a number of studies that specifically address grazing impact on forest regeneration. However, with the recent increase in emphasis and cost associated with plantation establishment, and the need to optimize returns from these areas (not just from forest products but from other values, as well), it has become essential to further expand the base of information on the compatibility of livestock use in areas critical for reforestation.

This study ("The Effect of Cattle Grazing on Ponderosa Pine Regeneration") represents a cooperative research project involving the U.S. Forest Service-Region one regional office in Missoula, Montana, the Intermountain Research Station, located in Moscow, Idaho, and the University of Idaho, also in Moscow, Idaho.

This project also represents an interdisciplinary effort involving silviculturalists, wildlife biologists, range resource specialists and livestock operators. The co-project leaders of are R.T. Graham, a research forester and silviculturist at the Intermountain Research Station, in Moscow, Idaho, and J.L. Kingery, a range scientist with the University of Idaho, studying agroforestry systems on forested lands in the Pacific Northwest.

During the summer and fall of 1982, a study area was located in north-central Idaho (Figure 1) to study the influence of cattle grazing on plantation performance of ponderosa pine (*Pinus ponderosa*) seedlings. The area is located in the Salmon River Breaks on the eastern slope of the Seven Devils Mountain Range. The site is situated on the Slate Creek Ranger District on the Nez Perce National Forest. The potential vegetation for this area is classified as a *Pseudotsuga menziesii/Physocarpus malvaceus* (Douglas-fir/ninebark) habitat type, which represents a high potential for both range use and timber production.

Prior to harvesting, the stand consisted of mature ponderosa pine and Douglas-fir. A total of 680 hectares. (1700 acres) was harvested in 1976, leaving a much reduced seed-tree overstory of ponderosa pine. Natural regeneration from the seed tree overstory was moderately successful, however, not to the degree expected. Consequently, the entire area was operationally planted to Douglas-fir and ponderosa pine in 1980.

The elevation of the study sites is 1,280 meters (4224 feet). Southeasterly slopes of up to 50 percent prevail. Soils of the study area are quite fertile, as they are derived from a sedimentary, limestone parent material. They have been classified a fine-loamy, mixed, typic agrixerolls.

Geologically, extensive mass wasting has occurred in this area. However, rooting depth of these soils is deep, and available water holding capacity is high. Precipitation averages near 50 centimeters (12 inches). The mean maximum temperature is 19° C (40° F). Temperatures above 30° C (90° F) can be expected during the summer months.

Within the study area, three replications were chosen for construction of a deer, elk, and cattle exclosure, .4 hectares (one acre) in size. A similar site was chosen outside each exclosure to represent grazed treatment. Two-year-old, nursery grown, ponderosa pine seedlings were used for the study. A scalp was made to remove competing vegetation in the immediate vicinity of the tree seedling. All study plots were planted at a rate of 700 trees per hectare. This resulted in a 2-meter (6.6 feet) spacing between tree seedlings.

Frequent, periodic observations made it possible to define and quantify causes of damage and mortality to the tree seedlings Accuracy was further increased by determining the seasonal distribution patterns of deer and elk, and timing observations around livestock turn-on and take-off dates.

For data analysis, damage was combined into 5 categories (because the objective was to determine that impact actually attributed to livestock use, it was necessary to identify, quantify, and separate out the other causes of damage and mortality to the tree seedlings).

Damages observed on tree seedlings:

Nonanimal	Pocket gopher	Other rodents	Big game	Cattle
Planting	Browsing	Browsing	Browsing	Browsing
Handling	Root removal	Girdling	Trampling	Trampling
Drought	Tree removal	Tree removal		

The five categories were: 1) *nonanimal,* (this included the different physical factors that influence the tree seedlings, as well as the condition of the tree seedlings and the time of planting. It also considered the handling and planting of the seedling and how that may have influenced survivability), 2) *pocket gopher,* 3) *other rodents,* 4) *big game* (deer or elk), and 5) *cattle.*

The following tabulation shows the types of tree damage observed during the first six years of the study. (See table)

In looking at the results of the study, we noted that cattle grazing had a minimal impact on ponderosa pine seedlings in terms of injury and mortality. Most of the damage was due to trampling and resulted in growth abnormalities, reduced growth rates and/or mortality. The majority of the damage and mortality due to cattle trampling, occurred during the first 2 years of the study when the tree seedlings were less than 30 centimeters (12 inches) tall.

Overall damage (that is, tree seedlings incur sustained injury rather than mortality) resulting from cattle use was less than 2 percent. Mortality from cattle use was less that 3 percent. Damage and mortality were primarily a result of trampling injury during the first year after planting when the tree seedlings were small, less than 30 centimeters (12 inches) in height, and the rooting systems were not yet well established. Average height of the tree seedlings damaged by cattle was 83 centimeters (33 inches), compared to 114 centimeters (46 inches) for the undamaged seedlings. This 27 percent reduction in height was found to be significant.

Sustained injury resulting from deer and elk use amounted to over 18 percent, causing a 30-percent decrease in the height of the tree seedlings. Deer and elk caused the greatest amount of damage, and the greatest reduction in overall growth of the tree seedlings. This was a result of terminal growth removal by browsing and trampling injury during the first two years of the study and by browsing injury during the last four years of the study. Browsing injury during the first year generally resulted in mortality rather than growth reduction. Mortality from game use was over 9 percent. This was primarily due to excessive browsing and trampling injury during the first two years of the study.

Damage and height reduction from game use was primarily a result of browsing injury. However, under certain circumstances, substantial trampling from game use was observed. This occurred on some of the steeper slopes where animals use the scalped planting sites as "stairsteps" in traversing these areas, concentrating hoof activity in the immediate vicinity of the tree seedlings. This phenomenon occurred on moderate slopes as well, but to a lesser degree.

It was also noted that a higher amount of trampling injury to the seedlings by deer and elk occurred during the spring and fall months when soil moisture conditions were high. Under these circumstances young trees are more susceptable to sustained trampling damage due to a high amount of soil displacement and compaction. High soil moisture conditions generally occur prior to the time of livestock use and following the time they are removed.

The reason for so much discussion on wildlife impact is because this is an impact that is often confused with that of livestock. It is also a use that is in some areas being managed for. There is increasing interest in the Pacific Northwest in game farming as an alternative use of forested lands.

Sustained injury from pocket gophers resulted from above-ground browsing or from mounding activities which covered seedlings, causing reduced growth, poor vigor and structural abnormalities. This resulted in 2.1 percent damage on the grazed plots and 9.4 percent damage in the exclosures. This difference was found to be significant, and was attributed to a greater amount of above- ground activity in the non-grazed treatments during the winter months, where under the protection of the snow cover, gophers would obtain the non-grazed plant material for food and bedding.

Pocket gopher injury caused the greatest amount of mortality to tree seedlings due to animals—this was over 9 percent for the grazed and over 10 percent for the non-grazed plots. Injury to tree

seedlings from these rascals was generally fatal rather than growth-limiting, due to the nature of the injury. The most common type of injury causing mortality was root pruning or complete removal; also under certain conditions pocket gophers would remove the above-ground portions of the tree seedlings as well.

Damage and mortality from rodents other than pocket gophers was only 2.6 percent on the grazed and 2.7 percent on the non- grazed plots. This was not significantly different between the grazing treatments.

Overall, the greatest amount of damage and mortality resulted from non-animal causes. This was 39 percent in the non-grazed plots and 21 percent in the grazed areas. Competition from ungrazed forage vegetation appeared to influence this significant difference in seedling vigor and survival.

In summary, because of the the importance of this area for cattle and game use, we expected damage from cattle to be much higher. By the sixth year there was no apparent relationship between cattle use and other damaging agents. Long-term impact of cattle grazing on the growth and development of the planted tree should be negligible.

The plantations enclosing the study sites were managed in a 3-pasture rotation system, which provides for good animal distribution. Without the level of management, more cattle- related damage may have occurred under similar levels of utilization. Season of use, distribution, and total time cattle spend in a plantation may be more important than the actual amount of forage utilization.

Based on observations during the study, the timing of grazing use may also help reduce overall damage and mortality to tree seedlings. Restricting grazing during the first months after planting did appear to benefit tree establishment. Later in the season when the soils are drier, they are less subject to displacement and compaction, thus reducing the severity of trampling impact to individual tree seedlings. Also, tree seedlings themselves are more resilient to trampling injury due to hardening off of the new growth and a better established root system.

James L. Kingery is assistant professor of range resources.

Raising Chinook At the Speed of Light

by Rod Nichols

With all the advancements that have been made in the science of fish culture, hatchery biologists still must comply with nature's timetable in raising chinook salmon. Twenty-two long months elapse from the time adult fish enter the ladder at Dworshak Hatchery to spawn until the release of their progeny as smolts.

Not content with the slow pace of chinook rearing, a U.S. Fish and Wildlife Service biologist is using a trick to cut the development time in half.

"I wanted to produce chinook smolts in one year," said Travis Coley, in explaining his reason for building a special fish tank at Dworshak in which 16 adult salmon spent last summer without ever seeing the light of day.

Covered with plywood and sealed to eliminate any light leaks, the 10-foot by 20-foot tank has its own light source: several sodium vapor lamps.

It has long been known that changes in day length, or photoperiod, trigger many physiological responses in animals, from the growth of thick winter hair in mammals to the urge to migrate in waterfowl.

In the case of chinook salmon, the gradual waning of daylight in late summer alerts the adult fish to the onset of autumn and prompts them to spawn. In the closed environment of Coley's tank, this change of season came early.

"We placed the fish in the tank June 12. I started them on 12 hours of daylight, then reduced the day length 15 minutes each day," he said. "The idea was to try to trick them into thinking it was fall before it was."

The deception worked: the test fish spawned in only five weeks. Under a conventional regime, chinook spawn in a minimum of 10 to 11 weeks from the time they enter the Dworshak fish ladder.

"We have feeding fry, while they're still taking eggs," he said,

noting the jump in development his experiment had achieved over normal spawning methods.

What worked for the adult salmon is also working for their offspring. By manipulating day length on the young fish, Coley is seeing faster growth.

"Our next objective is to determine if the progeny of photoperiod parents can reach smolt stage in eight months," he said.

Traditionally, spring-run chinook that are spawned in the summer produce eggs which develop into smolts ready to be released in the second spring following. Thus, the progeny of a salmon spawned in 1989 will not begin the downstream migration to the Pacific Ocean until the spring of 1991.

Smoltification, the physiological transformation that occurs in young salmon to enable them to survive in a salt-water environment, occurs when a fish reaches a certain size. If the experimental fish continue to grow at their current rate, they will migrate as smolts in spring 1990, shaving a year off conventional hatchery development time.

Compressing the chinook rearing cycle holds obvious benefits for anglers, such as bringing a hatchery salmon back to the state a year earlier than before. This method can also increase the number of salmon a hatchery can rear.

Yet another advantage relates to the specter of disease that has haunted chinook salmon production in recent years.

A lethal kidney disease called BKD has dogged hatchery chinook programs throughout the Columbia River Basin, killing thousands of juvenile salmon each year. And of the young fish that survive the disease to develop into smolts, it is suspected that many succumb later to a recurrence of BKD brought on by the stress of migration.

Since disease spreads more quickly in the crowded environment of a hatchery, the photoperiod manipulation technique will expose growing chinook to that hazard for a much shorter period of time.

In the past, hatchery tampering with natural fish development has occasionally produced undesirable results. A well-known example is the alteration of the migration and spawning schedule of steelhead.

But in the case of day-length manipulation of hatchery chinook salmon, the biologist said no such permanent changes should occur.

"One thing I want to stress is that we're not changing these fish genetically in any way," he said. "We're just tricking them into spawning early. A returning adult that was reared under photoperiod treatment will still spawn at the same time as other fish."

Coley plans to approach the Bonneville Power Administration to obtain funds to expand the project this year.

Rod Nichols is the information and education specialist for the Idaho Department of Fish and Game in Region II.

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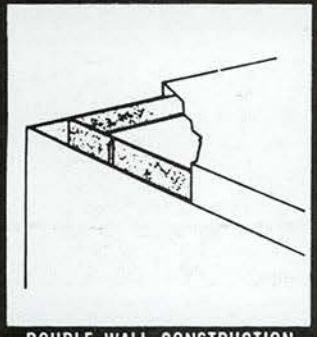

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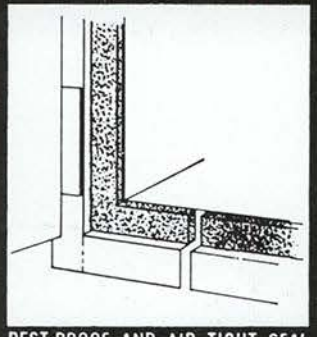

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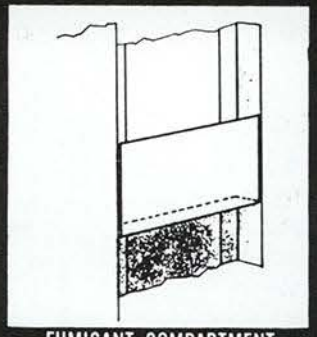

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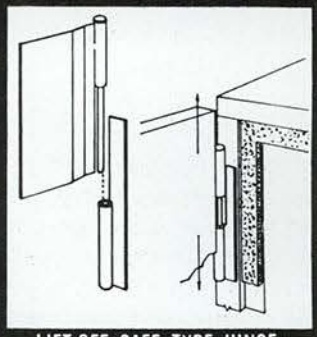
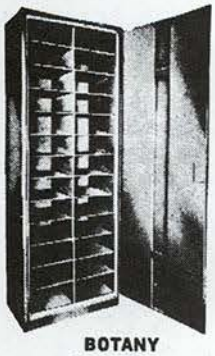


LIFT-OFF SAFE TYPE HINGE



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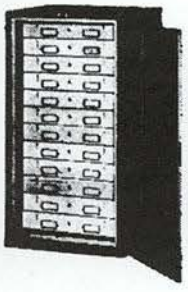

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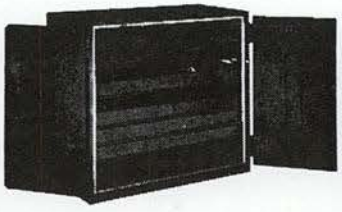

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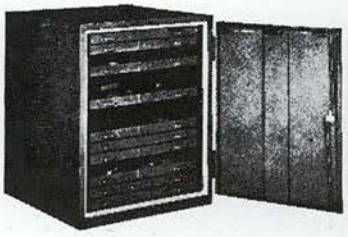

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Idaho's Northern Pike

by Bruce Rich

Consider the northern pike, a fish loved by many and hated by many others. Pike are found around the globe in the northern hemisphere, and its names (great northern, snake, water wolf, hammer-handle, gator, etc. . .) are as many and varied as the places it occurs. One thing that everyone agrees on is that pike are voracious predators and are usually eager to be caught on hook and line. They also fight well and have fine-flavored flesh.

Because of their sporting qualities and ability to control abundant prey species like perch and suckers, pike have been widely stocked outside their original North American range, which extended only east of the Rocky Mountains. It was through an illegal introduction in the early 1970's (by "helpful" fishermen) into the Coeur d'Alene Lake system that pike first became established in Idaho. Viable pike fisheries have developed since then in several lateral lakes along the lower Coeur d'Alene River and in Coeur d'Alene Lake itself. The popularity of pike in northern Idaho and public concern for their future prompted the Idaho Department of Fish and Game to fund research by the UI Deptartment of Fish and Wildlife Resources to determine basic life history and population dynamics information necessary for future management of the northern pike.

Professor David Bennett has coordinated the project, with Bruce Rich as the student investigator. Field work in 1989 started in a snowy March and ended in a chilly November. Fish were sampled with a variety of methods, including trapnets, seines, rotenone, angling, and gillnets tended frequently to prevent harm to captured pike. Preliminary results indicate that recruitment (year class production) is probably limiting, possibly due to highly variable water levels and temperatures during spring runoff, which coincides with pike spawning. Growth rates, which were calculated by measurement of growth "rings" on pike scales, are apparently some of the highest recorded anywhere in North America. Abundance of pike in the Coeur d'Alene system is low, however. Other facets of the study indicate that pike in the lateral lakes eat yellow perch primarily and are controlled to some extent by angler harvest.

After one year of data collection and analysis on the lateral lakes of the Coeur d'Alene River, it appears that pike are not only there to stay, but also to provide a popular "trophy fishery" with no apparent negative effects on native fish species. During 1990, field work similar to that done in 1989 will be conducted at the north end of Coeur d'Alene Lake. In addition, habitat use of large individuals (up to 30 lbs.) will be monitored by tracking pike equipped with low-frequency radio transmitters. Findings from this part of the study should help Fish and Game biologists understand what habitats, depths, and locations pike use to spawn, feed and rest.

When the study ends in spring 1991, the information needed to manage the increasingly popular pike fisheries of the Coeur d'Alene Lake system should be at the fingertips of Idaho Fish and Game biologists. They can then continue to provide fishermen with a "bonus fishery" for a non-native species that has made a place for itself in the hearts of at least some Idaho fishermen, the "great northern" pike.

Bruce Rich is a graduate student in fisheries resources.

Bruce Rich

The author weighs a northern pike captured by spring gill netting before tagging and releasing it.

Bruce Rich

A happy Coeur d'Alene-area angler shows off a twenty-pound-plus northern pike, a real trophy anywhere in North America.

Database and Decision Model for Wood Fuel for the University of Idaho Heating Plant

by Richard Cleavenger

The University heating plant produces steam by burning mill residue hog fuel. However, there are major impediments to the continued use of wood fuel by the heating plant and by wood to energy facilities in general. For instance, the current price of natural gas, on an equivalent BTU basis, is only marginally higher than the cost of hog fuel. The volumes of both in-woods and mill produced hog fuel have decreased. In 1985, Idaho mills produced approximately 2.0 million bone dry units (BDUs) of residue compared to 2.5 million BDUs in 1979. One BDU equals 200 cubic feet of wood chips at oven dry conditions and weighs approximately 2,400 lbs.

In the last five years, increased production in the forest products industry has been accompanied by higher utilization of mill produced hog fuel than ever before—from 89% of the total in 1979 to 99% of the total in 1985 (Folk, Govett, Johnson, Lee 1988). There are still localized concentrations of excess mill residues, but the changing economic situation, along with the trend toward greater production efficiency, has made mill owners reluctant to commit to long-term supply contracts.

The absence of proven, cost-effective harvesting and transportation systems of in-woods derived wood fuel on commercial or industrial scales has also contributed to the current attitude of limited acceptance of biomass fuels as a viable energy source. Competing uses of the biomass resource, such as the increased use of wood for residential heating in recent years, has not helped to mitigate this attitude, but has resulted in even more uncertainty about the cost and availability of biomass fuels for industrial use. Physical availability is not the issue—rather the issue is one of economic availability and marketing.

The most important implication of the present energy supply situation is that the economic viability of the heating plant is critically dependent on securing access to a low-cost, stable supply of biomass fuel. This challenge confronting the university finds a parallel in the Pacific Northwest's wood-fired cogeneration powerplants. While hydropower and fossil fuels will continue to meet the bulk of our energy needs, wood fuel will be a significant factor in the region's power plan equation, providing a solution can be found to the problem of securing a low cost, long-term fuel supply.

Uncertainty about the costs associated with alternative sources of wood fuel could be eased with a better information base about fuel sources within reasonable distances of the point of use. A decision support database and model would allow decision makers to determine the lowest cost source of fuel among the alternatives of mill residue, residue left after commercial harvests, and residue in low-growth or stagnant timber stands.

The research problem is to determine the least expensive way to supply the University of Idaho heating plant with wood fuel. The objectives which must be attained in order to formulate a solution to the problem are: 1) determine the availability of wood fuel from different sources to the University of Idaho heating plant; 2) determine the cost of recovery, processing and delivery of the fuel to the plant, and 3) integrate this information on the cost and availability of wood residues into a decision support model which will provide a basis for wood fuel decisions under a variety of cost and resource assumptions.

Specific project tasks include the collection of information on resource availability, development and integration of existing information on resource recovery costs, and building and testing of a decision support model. The model, applicable to the University of Idaho heating plant and local supply sources, provides a methodology that can be transferred to wood combustion facilities in general. The data base for the model includes estimates of supply availability of the various classes of residue, location of the residue resources, methods and equations to calculate the cost to purchase and/or process and deliver the residue, characteristics of the fuel resource, such as moisture content and particle size, and their effects on delivery costs, and constraints, such as season, on the availability of the residue resource. Model results allow users to rank alternatives by availability and cost through a type of break-even analysis under a variety of resource and cost assumptions.

Richard Cleavenger is a graduate student in forest products and is currently employed at Idapine Mills Incorporated.

Hunter Study to Complement Lochsa Bull Elk Study

by Rod Nichols

"We spend all of our time studying elk—what they do, where they go, etc.—then we try to manage the animals without information on the people who hunt them."

According to Idaho Department of Fish and Game research biologist Pete Zager, that glaring lack of knowledge is the reason his agency began a survey of elk hunters last fall, to learn precisely where they are hunting in the region and how much pressure they are exerting on the herds.

Through data gleaned from an ongoing radio-tracking study of elk in the Lochsa River drainage, biologists can point out on a map exactly where bulls are being killed. What is lacking is solid information about the density and distribution of the hunters who are killing them.

"If we lose a lot of animals in an area, we figure we have a lot of hunters there," said Zager, "but we can't really pin that down."

While the elk study attempts to correlate habitat security (a composite of cover thickness, miles of open road per section and other factors) to the vulnerability of bull elk, the hunter survey will look at the other half of the equation.

In order to make useful comparisons, researchers have broken out elk hunting areas into basic types: areas with full access (heavily roaded with most of the roads open to vehicle use) and areas with low densities of roads or no roads at all. A possible third category would be areas with partial access (many roads but with some road closures).

The hunter survey will be limited to big game management units 3, 4, 10, 10A and 12, those units that lie within the two elk research projects currently underway in northern Idaho.

The thrust of the study, according to Zager, is "to find out what hunters are up to in each type of hunting situation and where they are located." Once researchers have that data in hand, they will try to correlate it to what has been learned so far in the Lochsa study about elk vulnerability to the gun.

In a similar study in Montana, at least one suprising fact came to light: in a managed forest where roads had traditionally been kept open, initiation of a closure policy actually increased the concentration of hunters and the harvest of elk.

"In terms of reducing elk vulnerability, road closures in that case may not buy anything," said Zager, "But habitat types figure importantly in this."

He noted that the ease of foot travel in the Montana study area may well have encouraged hunters to hunt there in spite of the restriction on vehicle use. A factor contributing to the increase in pressure may have been the attraction of hunting in an area where roads are closed.

Follow-up surveys with more detailed questions were mailed to hunters previously interviewed afield. The on-site portion of the survey extended through both the firearms and the archery elk seasons. Survey clerks are scheduled to contact Lochsa elk hunters for interviews during the 1990 season as well.

Rod Nichols is the information and education specialist for the Idaho Department of Fish and Game in Region II.

Dave Silcock

Walking Alone

. . . Once you have discovered solitude—the gigantic, enveloping, including, renewing solitude of wild and silent places—and have learned to put it to creative use, you are likely to accept without a second thought such small additional dangers as the solitude imposes. Naturally, you are careful. You make darned sure that someone always knows where you are, and when you will be "out." You leave broad margins of safety in everything you do: hurrying (or not hurrying) over rough country to make up time; crossing (or not crossing) the creek on that narrow log; inching past (or not inching past) that perilously perched boulder. And when it comes to the all-important matter of luck, you keep firmly in mind the Persian proverb: "Fortune is infatuated with the efficient."

But if you judge safety to be the paramount consideration in life, you should never, under any circumstances, go on long hikes alone. Don't take short hikes alone either—or, for that matter, go anywhere alone. And avoid at all costs such foolhardy activities as driving, falling in love or inhaling air that is almost certainly riddled with deadly germs. Wear wool next to the skin. Insure every good and chattel you possess against every conceivable contingency the future might bring, even if the premiums half-cripple the present. Never cross an intersection against a red light, even when you can see that all roads are clear for miles. And never, of course, explore the guts of an idea that seems as if it might threaten one of your more cherished beliefs. In your wisdom you will probably live to a ripe old age. But you may discover, just before you die, that you have been dead for a long, long time.

Colin Fletcher

Reprinted from The Complete Book of Walking III, *with permission from the publisher.*

Club News

George Savage

I'm sure I can fit ten more cows on this here range! Dr. James Kingery during Lee Sharp's retirement party.

Dave Bennett

Pucker up sweetheart! Mark Liter working on fisheries research project.

Jeff Wolter

Just try and catch me now! Andy Peterson on the U Of I Student Logging Crew.

Mark Mousseaux

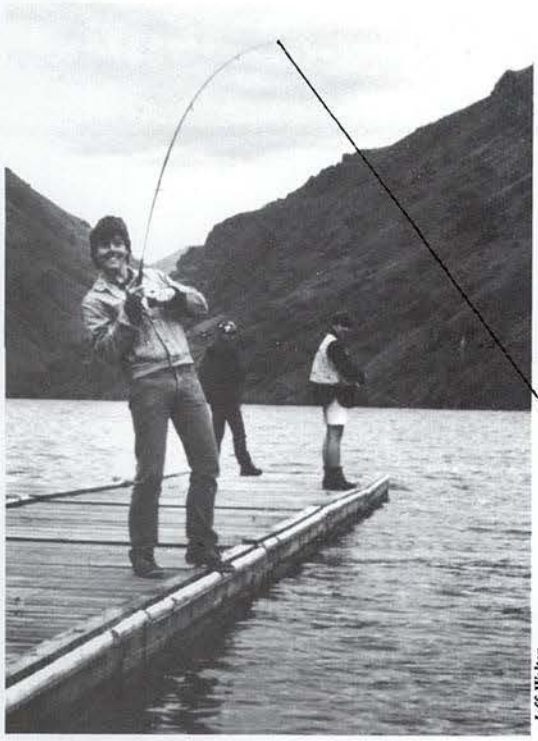
I told you there was beer up here!
Guy Gifford and Brian Glodowski building trail on the school forest.

Chris Maranto

Leon imitation by Mark Mousseaux.

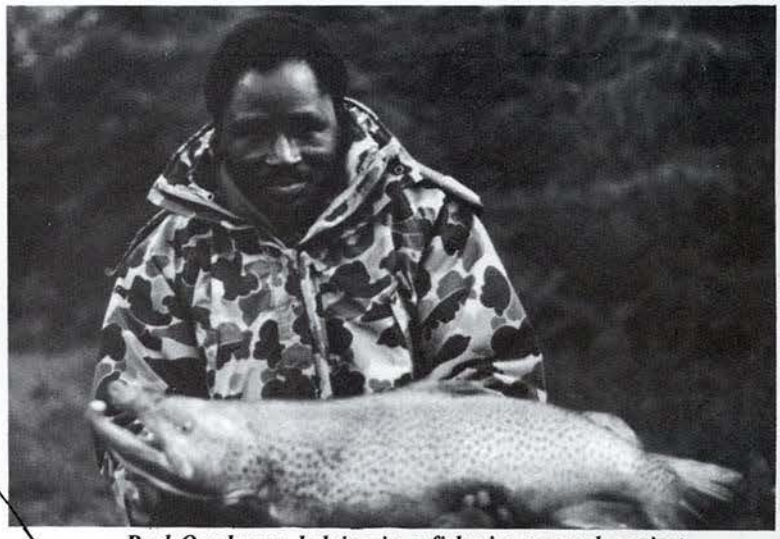
John Lamb

U of I Fisheries Research Vessel.
Wendi Albrecht placing goose nesting structures.



Jeff Wolter

Hey Lori, look who I caught!
Jon Hunter fishing in Hells Canyon.



Dave Bennett

Paul Ouedraogo helping in a fisheries research project.

Jeff Wolter

Who said summer camp was so bad?
Clockwise from left: Kay Williams, Donna Reed, Gerhard Weiss, Guillermo Navarro, Tim Wincentscen, Jim Mital, Cynthia Mital, and Guy Gifford living it up at summer camp.

Gerry Snyder

For this I went to college?
David Gabrielsen during conclave competition.

Brian Glodowski

This is your brain. This is your brain on college. Any questions?
Gary Machlis, Ron Robberecht, Joe Ulliman, Charlie McKetta, and Chris Moffitt at the annual SAC Pancake Breakfast.

American Fisheries Society Palouse Unit

by Colleen Fagan

The Palouse Unit is a subdivision of the Idaho Chapter of the American Fisheries Society. The unit is dedicated to the advancement of fisheries science and the conservation of renewable aquatic resources. Membership consists of, but is not limited to, fisheries and aquatic resource students, faculty/staff, and resource professionals from the University of Idaho and Washington State University.

Unit meetings are usually scheduled on a monthly basis and are open to the public. Following each meeting is a presentation from a guest speaker on some aspect of aquatic resources. Topics this year have included: the future of the new Aquaculture center and program at the University of Idaho, mysis shrimp and kokanee interactions in Pend Oreille Lake, hydrological engineering applications to enhance fish passages and habitat, and the future of fish diseases.

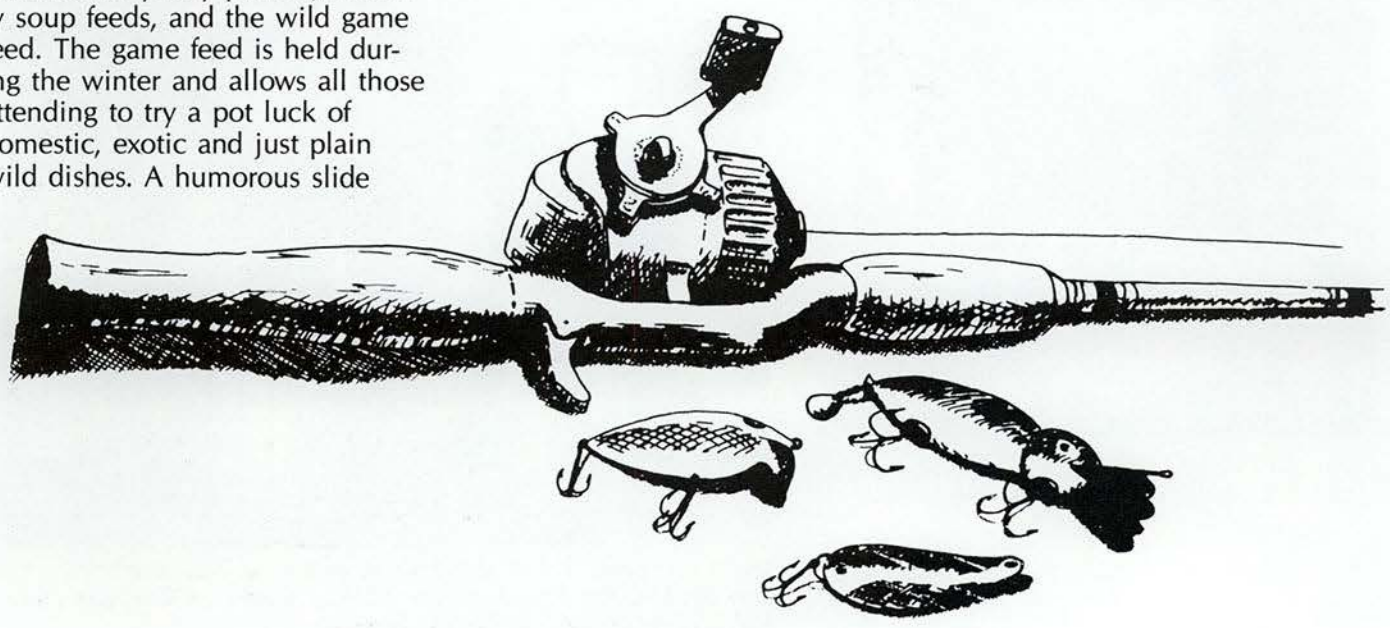
Among the unit's other activities are two yearly picnics, monthly soup feeds, and the wild game feed. The game feed is held during the winter and allows all those attending to try a pot luck of domestic, exotic and just plain wild dishes. A humorous slide show and raffle of many fine prizes add up to the semester's top extravaganza.

Each year the unit makes it possible for a number of its members to head to the annual Idaho Chapter of the American Fisheries Society meeting in Boise. During the conference, the Palouse Unit administers the best paper awards. This year, two unit members will present papers: master's candidate Robb Keith and Ph.D. candidate Cleve Steward.

Colleen Fagan is a graduate student in fisheries resources.

Mark Hale

From left: Dr. Michael Falter, Bruce Rich (Pres.), Tom Dresser, Doug Hatch (past Pres.), John Carlson, Ken Lepla, Mark Liter (vice Pres.), Steve Lee, Duke Kress.



Range Club

by Marlene Eno

The University of Idaho Range Club spent the fall semester raising money for the students to attend the Society for Range Management international meeting in Reno, Neveda, February 11-16, 1990. Club fund raisers included working concessions during football games and conducting the annual raffle ticket and calendar sale. All funds raised go to support the cost associated with the international meeting.

During the meeting, 12 students participated in a number of activities, including a plant ID contest and an Undergraduate Range Management Exam.

Idaho students competed against students from 26 colleges, including students from Mexico and Canada. Range Club also prepared a display and competed against nine schools for three awards. Displays are judged based on set criteria such as theme, color, transportability, and originality, to name a few. Each year the international meeting has a theme, and the students center their displays around the theme. The theme for the 1990 meeting was "Rangelands 2000: A New Focus." University of Idaho Range Club received top honors for their display, which focused on riparian improvement.

Marlene Eno is a senior in range resources.

Shane Dickard

From left: Brett Dumas, Marlene Eno, Jay Pence, Libby Milliron, Kelly Crane, Mike Courtney, Dale Schmidt. Not pictured: Donna Reed, Rick Noggles, John Adams.

Xi Sigma Pi

by Amy Adams

Xi Sigma Pi had a small, but active group this year. Our 1989-90 officers were: Adare Reynolds, Forester; Lynn Pence, Associate Forester; Amy Estes, Ranger, and Dan Kenny, Treasurer.

We participated in several different activities this year. First of all, we continued our daily supply of coffee and doughnuts to the reading room, and fed and caffeinated many tired and hungry students. Our initiation project consisted of working on the McDonald School project, where we pulled thistles and transplanted Palouse vegetation to a special area where children can see what the Palouse looked like before all of its wheatfields were planted. We plan to do more work at the McDonald School this spring. A pizza party to unite new and old members is also being planned for later this spring.

Our new 1990 initiates were: Deborah Koziol, Todd Butts, Linda Lilly, Jeff Knudson, Kim Pence, Brian Glodowski, Carol Hennessey, Paula Yochum and Steve Szwec. Congratulations to our new members.

Amy Adams is a senior in wildland recreation management.

Society Of American Foresters Student Chapter

by Chris Maranto and Mark Mousseau

It was an incredible year for our student chapter. We sent close to a dozen students to the annual S.A.F. section meeting in Post Falls, Idaho in April of 1989. Our student chapter sponsored, organized and moderated a timber supply panel discussion during Natural Resources Week. The panel was comprised of representatives from the U.S. Forest Service, Potlatch Corporation, Wilderness Society, a U of I forest economist and an outdoor reporter for the *Lewiston Morning Tribune.*

One of our members and former president of the chapter, Mark R. Mousseaux, was the student sub-committee chairman on the arrangements committee for the SAF national convention in Spokane, Washington. From December until the week-long convention in September, our student club was busy assisting him in planning activities for students at the convention. We organized the student tour and speak-out. We also arranged and hosted the student hospitality room. In the spring we contacted every SAF student chapter and forestry school in order to spread the word about the convention. We apparently were successful, because the student participation at the convention was at an all time high. We knew we should have minored in advertising!!! We sent 18 members to the convention, and an informative and good time was had by all, except for the maid that had to clean our rooms.

The student chapter spent a lot of time last spring raising a record amount of money for the convention. We worked a number of odd-jobs on the school forest, gaining experience "at the grass roots level" (or is that tree roots?), and we also worked for the College of FWR taking care of general maintenance and helping the Dean's Office with pre-registration. Some of our members also worked at the S.A.F. national convention (talk about dedication) performing a survey for our "beloved" economics teacher and co-advisor, Dr. C. McKetta; they learned the value of a discounted dollar.

Our new chapter president, Chris Maranto, has been carrying the torch forward and is very busy with recruiting new members, fundraising, and planning future activities. Assisting Chris are Vice President Mark Summers, Secretary/Treasurer Buddie Carroll and SAC representative Brian Glodowski. Chris recently won the U of I outstanding S.A.F. student award for 1990.

During Christmas, we sold hand-crafted wreaths, and for Valentines Day we had our annual carnation sale. We are also involved in the U of I recycling project and hope to set an example for the rest of the University. We are currently planning a two-day ski trip to the Flat Creek cabin area on the school forest, where we will demolish and set fire to a decrepit cabin. Additional activities which are planned include: the annual S.A.F. section meeting in Spokane, Washington, on March 30-31, 1990, which will address forest productivity and its relation to timber supply; Community Forestry Day, which will coincide with the 20th anniversary of Earth Day; and sponsoring a guest speaker who is a renowned natural resources story teller and played an instrumental part on the first Earth Day.

The chapter would like to thank the student members who worked hard on the 1989 S.A.F. convention and the array of other activities. Thanks, too, to faculty members Harold Osborne, who always seems to have some work for us on the school forest; and Ron Mahoney and Charlie McKetta, who are always willing to lend us their homes for the semesterly "Prof-N-Stein." We would like to give a special thanks to Fred Johnson who helped us a lot with planning the convention and for his 30-plus years of service to the students and S.A.F.

Chris Maranto and Mark Mousseaux are both seniors in forest resource management.

The Wildlife Society

by John Lamb and Mark Sands

The University of Idaho Chapter of The Wildlife Society had an event-filled year. During the 1989 spring semester, former president Greg Wooten worked hard soliciting speakers for presentations and lining up projects for members.

Dan Davis, wildlife biologist on the Clearwater National Forest, started the semester off with an exhilarating presentation on the gray wolf. His presentation included the current and future status of the gray wolf in central Idaho, and the politics involved with its re-introduction.

Next, we had a few members show up for our traditional building of bird boxes. We managed to construct 2 American kestrel and 2 screech owl boxes. We then distributed them around the campus, and also checked on the ones we hung the previous year. We came to the conclusion that all of the boxes were being used, not only by birds, but by the fox squirrels as well. Maybe next year we'll change the name from just bird boxes to bird and squirrel nest boxes.

We were also able to assist the Idaho Department of Fish and Game (IDF&G) with their annual survey of Canada goose nests on the Clearwater River. Not only do the few lucky members who are able to go gain good experience, but they also get to enjoy a thrilling jet boat ride.

John and Greg attended the Western Students Wildlife Conclave in Las Cruces, New Mexico. They had a great time and met many interesting people. On their way back to Moscow they passed through gorgeous canyons and were able to view some beautiful scenery. Their campsites varied from a cozy pinyon-juniper woodland to a dry wash and a wind-swept prairie—wind-swept as in they tied a cinder block to their backs to avoid being blown away with the coyotes.

Nearly every week, John took a few members over to Washington State University to fly a variety of raptors. For many members this is an excellent way to gain some experience handling birds of prey.

As the semester wore on and our funds ran low we had our annual chili cook-off during Natural Resources Week. Juanita Ables took first place once again. First prize was a nice buck knife and flashlight donated by the Moscow Army/Navy store.

Finally, IDF&G invited us to their cabin on the Craig Mountain Wildlife Management Area. After being jet boated across the Snake River, we had the opportunity to watch a slide presentation on the area, and to view a variety of wildlife species. We also found a few antler drops and had a huge bonfire on the beach. And this concluded our spring semester.

The fall semester started off great, with the highest membership turn-out ever. This semester began with a presentation by graduate student Dale Miquelle on the social behaviors of moose in Alaska. His talk was interesting and very entertaining.

Some members assisted IDF&G with their waterfowl and big game check stations. Also a few privileged members had the opportunity to ride along with local conservation officers, Clint Rand and Tanna Reagan.

A few members joined Dr. Peek's class on a field trip up the Lochsa River to see how burns can improve elk habitat. We saw a video on the different methods of starting fires and controlling them. We also stayed in the bunkhouse at Fenn Ranger Station and enjoyed some of Dr. Peek's infamous hamburgers and beans.

Towards the end of the fall we built four floating goose nest structures. We then placed them in the "pristine" sewage lagoons of Kamiah, Idaho. Hopefully these will enhance the goose nesting success of the area.

Finally, range student Donna Reed was the winner of our new t-shirt art contest. Her prize included 25 dollars and a t-shirt.

That wraps up The Wildlife Society activities for 1989. We hope that members were satisfied with projects and events that they participated in. Next year will be just as great and we look forward to seeing you in 1990.

John Lamb is the president of the U. of I. Student Chapter of The Wildlife Society and is currently a junior in wildlife resources. Mark Sands is an active member in The Wildlife Society and is also currently a junior in wildlife resources.

The Wildlife Society

Nathan Fullner

Top to bottom Ist row: Brittany Waldock, Lorraine Blasch, Chuck Maddox, Marlin French. 2nd row: Wendi Albrecht, Joanne Van Houten; 3rd row: Mark Sands, Lori Hurd, Zach Bane, Greg Wooten, Janet Seabolt; 4th row: Lisa Bates, Allen Jenne, Jerry Deal, John Lamb, David Silcock, Brian Glodowski.

Society of American Student Chapter Foresters

Nathan Fullner

Back row left: Brian Glodowski, Buddie Carroll, Doug Nelson, Rick Noggles, Mark Mousseaux, Guy Gifford, Keith Brink, Wayne Hutchins, Amy Stillman, Patti Wold. Front row: Chris Maranto, Christine Favata, Mark Sommers, John Roberts. Not pictured: Tim Wincentsen, Frank Roberts, Deb Wilkins, Patricia Bruderer, Marianne Emmendorfer.

Wildland Recreation Association

Nathan Fullner

From left: Jon Hunter, Jo Tynon, Mike Swenson, Travis Bosworth, Wes Bonzo, Cindy Gradin, Meeka Triplett, Mike Tetwiler, Jeff Knudsen.

Wildland Recreation Management Association.

by Jeff Knudson

The spring of 1989 proved to be a busy semester for the Wildland Recreation Management Association (WRMA). We had a lot of activities planned and completed, including Earth Day, Natural Resources Week activities, work with Whitman County Parks, and club functions.

WRMA took an active role in Natural Resources Week by sponsoring a softball tournament, a Natural Resources Bowl, and Earth Day activities. The Natural Resources Bowl pitted teams from different majors in the College of Forestry, Wildlife and Range Sciences against each other, testing their knowledge on a number of topics. For Earth Day, WRMA worked with local grade school children and made buttons as well as sponsoring an essay contest, "What natural resources mean to me." WRMA also worked with the Student Management Unit to make the Moscow Mountain Mud Mayhem a success.

After spring break, WRMA held elections of club officers. The new officers were:

Greg Aurand—President
Jeff Knudson—Vice President
Dee Bruce—Secretary/Treasurer
Bart Smith—Student Rep. to Faculty, SAC Rep.
Mike Swenson—SAC Rep.

WRMA would like to thank Nick Sanyal for help, guidance, and friendship as our faculty representative.

The spring semester also marked the most ambitious fund raiser this club has seen for some time. WRMA worked with Whitman County Parks to help them rake pine needles from their picnic areas. With the help of about 10-15 students and our faculty advisor, Nick (as well as his ambitious children), the club made $500 in three hard-working days.

After spring semester ended and we all tried to make the best of the summer, the fall 1989 semester came upon us—and along with it a few changes. Due to a few officers not returning, WRMA held new elections. The new officers were:

Jeff Knudson—President, Student Rep. to Faculty
Mike Tetwiler—Vice President
Cindy Gradin—Secretary/Treasurer
Bart Smith/Mike Swenson—SAC Reps.

Jo Tynon was also approved as the faculty rep. She proved to be a valuable member of our group. Thanks Jo.

With the start of the fall semester, WRMA had its annual faculty-student potluck picnic at East City Park. Good food, good people, and some of the best volleyball playing in the world were witnessed.

In October, several club members also journeyed to Sun Valley for the Governor's Conference on Recreation. The trip was a valuable learning and professional experience (as well as a culinary delight). WRMA took advantage of the fall to host a retreat at Big Meadow Creek, a Halloween party, and a Christmas Party.

This fall the club also sponsored a brown bag lunch welcoming a past WRM student and outstanding senior, Brian Gilles. Brian spoke on non-traditional job opportunities for WRM students.

WRMA also started to work this fall on the activities for the 20th Anniversary of Earth Day for April 22, 1990. Along with WSU, the citizens of Moscow, and Pullman, and surrounding communities, the Earth Day interest grew and became a major emphasis for the spring of 1990.

Jeff Knudson is the president of WRMA and an undergraduate in wildland recreation management.

Student Management Unit

by David Persell

The Student Management Unit (SMU) is the only real "hands-on" organization within the College of FWR where all factions of the college can come together as a whole. People from all of the departments provide individual input for projects on the SMU portion of the school forest. While working on these projects, planning, cooperation, and follow-through are needed, as well as dedication. The work is volunteered by the students, and in return they have fun and gain skills that can be used throughout their individual careers.

The beginning of last spring semester found us with a lot of snow, which caused some difficulty. This did not deter a select few of our members who went out and tried to gather firewood in five feet of snow. We ended up just playing in the snow and having fun. The big event of last spring was the Moscow Mountain Mud Run. Before the SMU began organizing the event, it was just a foot race. We turned it into a foot race/mountain bike race/fun day. We had about fifty people show up, and it was quite successful, considering that most of us were slightly at a loss as to what we were doing.

This past fall we had an extremely high turnout at our first meeting: around twenty people showed up. This soon tapered off, though, to about fourteen. Our first function was a fish fry and an overnight trip to the Flat Creek cabin. Everyone had fun and learned a little about the school forest and each other. We also had a day at the Big Meadow Creek recreation area, where we cleaned up the garbage in the area and felled some dead snags. One of our big projects was clearing the old fence line at the Blodgett Unit of the school forest; we also cleared the road of small trees and brush. Our final event of the year was a raffle of a real fur teddy bear made by David Persell. It was very successful, and Dick Bottger won the bear.

The year was a successful one and we, as a group, are looking towards brighter horizons and many more interesting experiences.

David Persell, chairman of SMU, is a sophomore in forest resources.

Mark Hale

From left: Chuck Maddox, Neil Kerr, John Lamb, Dave Sparks, Zach Bane, Wendy Albrecht, Carl Brenner, Len Young, Brenda Claire, Logan Brudenell, Mark Sands, Allen Jenne, Matt Cerkel.

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Forest Products Club

by Kim Pence

The UI Forest Products Club has endured a busy year at the FWR. Its members experienced a variety of activities including tours, conferences, fund-raisers, and social events.

The club would like to thank the 1989 officers: Andy Peterson, president; Tony Brede, vice-president; and Kim Pence, secretary/treasurer. The club would also like to extend special thanks to its faculty advisor Tom Gorman for his great ideas and guidance.

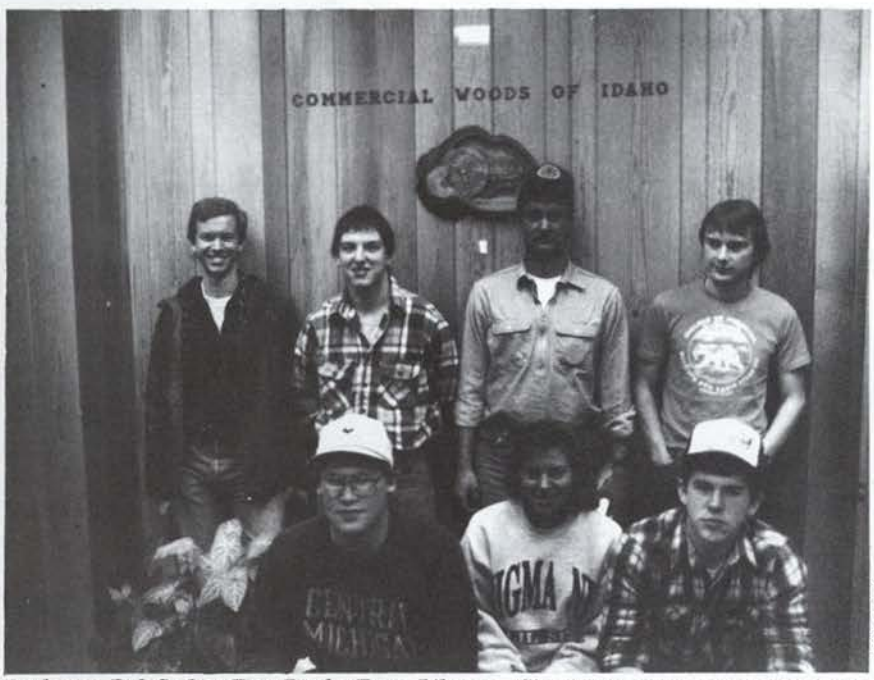
Some of the many tours and conferences that the club attended include the Intermountain Logging Conference and Equipment Show, the Inland Empire Forest Engineering Conference, a tour of Potlatch Pulp and Paper mill, and a tour of the Inland Empire Paper mill.

The main fund-raiser for the club this year was the completion and selling of Cantilever Bookshelves. Last year the club engineered the bookshelves, and this year the club completed the assembly and marketed them. The project proved to be both an educational experience and a good money-maker for the club. The club also presented bookshelves to ten of the various mills in the area in appreciation for their educational assistance and tours.

To finish the spring semester on a fun note, the club held its annual pig roast at Professor Harry Lee's house. This activity provides for some positive interaction among the Department of Forest Products faculty, students, staff, alumni and their families, while at the same time providing enjoyment in the form of great food and conversation.

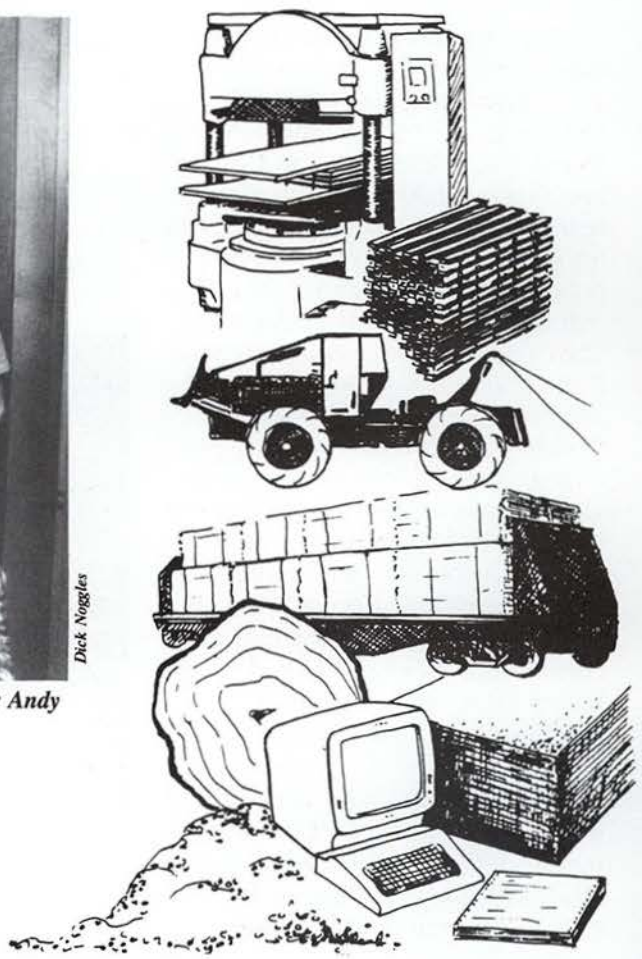
In January of 1990 the club had elections for the new year. The new officers include: Dennis Scott, president; Kim Pence, vice-president; and Paula Yochum, secretary/treasurer.

Kim Pence is a sophomore in forest products.



Dick Nogales

Back row: Bob Stoker, Tony Brede, Tomn Biltonen, Chuck Reinmuth. Front row: Andy Peterson, Kim Pence, Dennis Scott.



The Snag

by Kara Lagerquist and Sandy Pike

The *SNAG* is a bi-weekly newsletter put out for students by students. We try to act as a communications medium between the students, staff, faculty, and clubs.

As editors, we try to get one *SNAG* ready for distribution on the day of registration to help the students with times and procedures. After that, we generally have around seven deadlines for each semester. During their first two years at school, students get the *SNAG* mailed to them so they can see what is going on in the college when most of their core classes keep them out of it. Also, a number of locations around the college have *SNAGS* available for students.

Our regular features consist of messages from the dean, editorials, crosswords, club notes, The "*SNAG* Saga," "Employment Alert," "Spotlight," "Trivia," "Grad Corner," and "Looking Ahead". The club notes are a way for club officers to let members know what is happening in the club and when meetings are held. The "*SNAG* Saga" is a creative writing piece that continues throughout the semester. We also try to tell students about others in the college with "Spotlight," an interview segment. We include forestry tidbits with "Trivia," and a special page is devoted to the graduate student in "Grad Corner." And to summarize all the events that are coming up, "Looking Ahead" is a list of dates, meetings, and deadlines.

We currently have five members on the staff. Our artist, Jonelle Jeffers, keeps the pages alive with her drawings and cartoons. Lorraine Blasch and David Gariepy are our staff writers in charge of "Spotlight" and "Trivia." As co-editors, we pull it all together preparing layouts, keeping in touch with the Dean's Office and college departments, writing editorials and the saga, and attending Student Affairs Committee meetings to get information for "Looking Ahead."

Keep on reading!

Kara Lagerquist, a sophomore in forest resources, and Sandy Pike, a sophomore in Wildland Recreation Management, are co-editors of the Snag.

Mark Hale

From left: Kara Lagerquist, Sandy Pike. Not pictured: Lorraine Blasch, Jonelle Jeffries, David Gariepy.

Student Affairs Council

by Bart Smith

The Student Affairs Council coordinates the activities of the various student clubs and organizations within College of Forestry Wildlife and Range Sciences (FWR). We also serve as the representative body to the Dean's Office.

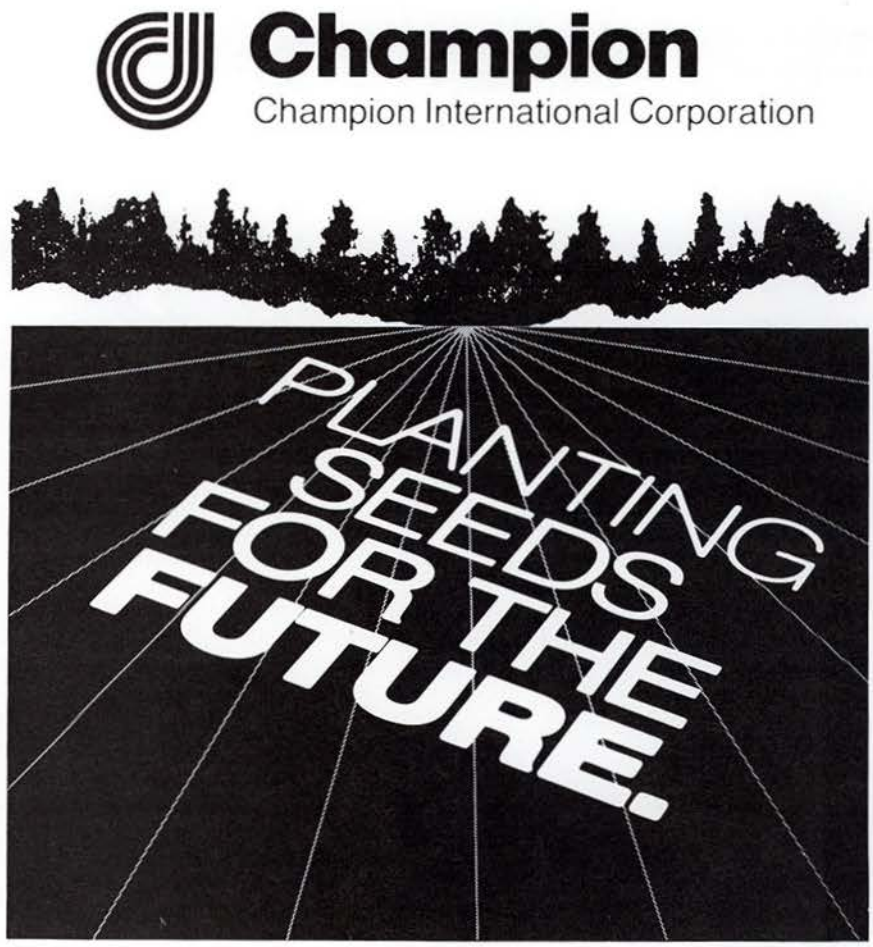
SAC provides students with the opportunity to have some direct input on issues that concern them. This year we got a telephone down by the reading room, five microcomputers were installed in the FWR basement cluster site, and we are still trying to upgrade the furniture in the reading room. SAC orders and sells FWR hats and shirts each year. We stayed with the same logos this year, but next year they will change, so this will be the last year these deluxe models and styles will be offered!

The annual FWR Pancake Feed was a great success this year. It was held at the Moscow Community Center, and we had a great community turnout, in addition to the traditional FWR feeders. SAC also coordinates Natural Resources Week each spring. Activities on this spring's agenda include a mountain bike race, movie night, guest speakers, activities day, a softball tournament, and the FWR college trivia bowl.

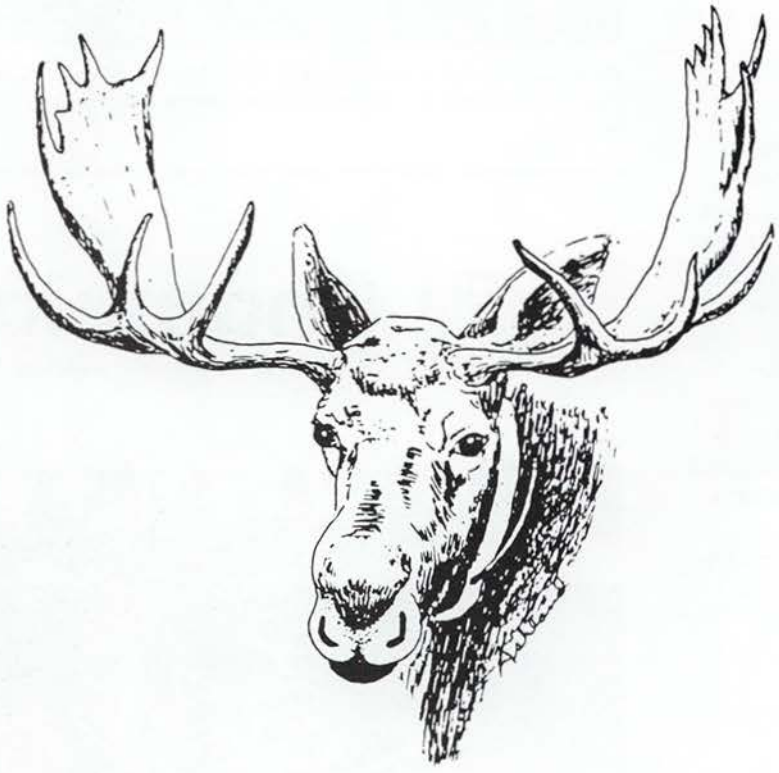
Bart Smith is a senior in wildland recreation management.

Brent Dumas

Back row from left: Chuck Maddox, Mark Hale, Jay Pence, Kara Lagerquist, Sandy Pike, Dr. Leonard Johnson; Front row from left: Jerry Deal, Wendi Albrecht, Jeff Barney.



College Focus



1989-1990 CALENDAR OF EVENTS

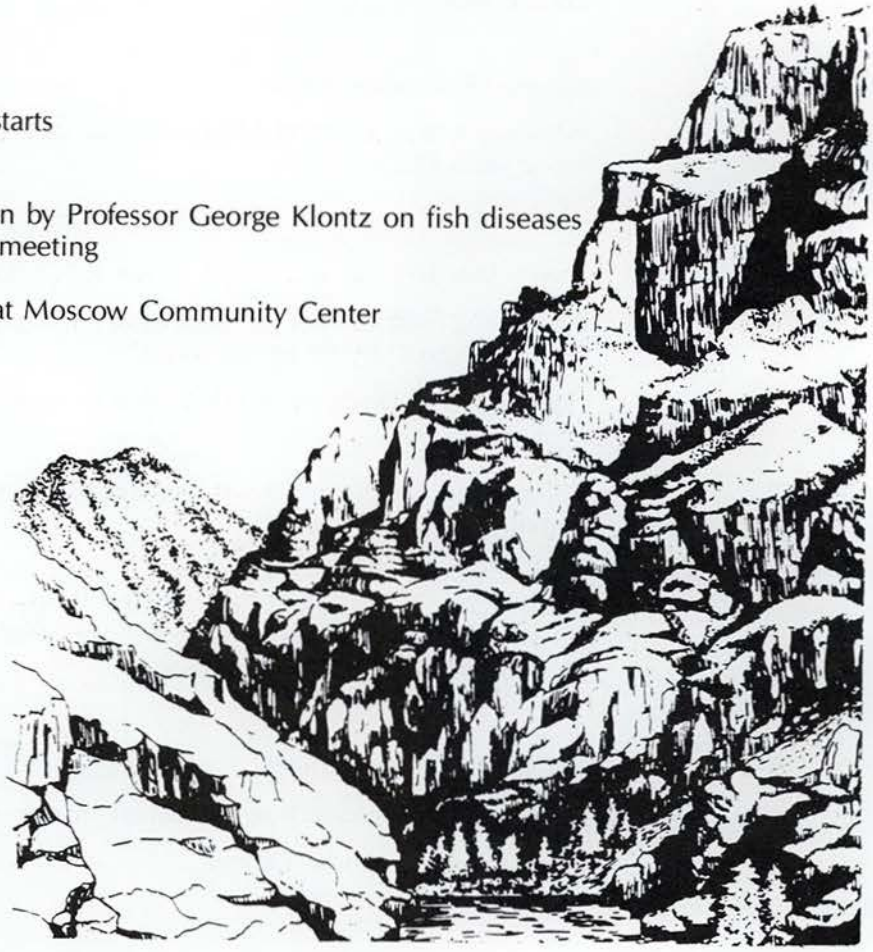
1989

February 4	CFWR Prof n' Stein
February 17	Wild Game Feed sponsored by the Palouse Unit of the American Fisheries Society
February 24	Coffee and donuts with the dean in the Reading Room
March 1-2	The Inland Empire Forest Engineering Conference at the University Inn
March 28	Forest Product Seminar 496/501
March 29	Placement Center tour for Ag and FWR students
April 14	Honors Convention in Memorial Gym
April 16-22	Conclave/ Loggers Sports
April 20	"Wilderness in Native American Culture" Wilderness Resources Distinguished Lecture by Chief Oren Lyons
April 21	AWFC Student Conclave Logger Sports Competition
April 22	Sourdough Pancake Breakfast AWFC Student Conclave/Logger Sports Competition
April 23-29	National Resources Week
April 23	"Moscow Mountain Mud Mayhem" bike race and mud run, BBQ, and music from KUOI
April 25	Brown Bag Seminar sponsored by the Range Department
April 26	Brown Bag Seminar-"Recreation Opportunities on the Nez Perce National Forest" by Brian Vachowski
	FWR National Resources College Bowl Contest
April 27	Yellowstone Fire films (Brown bag lunch) sponsored by FWR Student Management Unit
	Timber Supply Panel Discussion Bill Morden, USFS; Craig Gehrke, The Wilderness Society; Bill Loftus, Lewiston Morning Tribune; Mike Sullivan, Potlatch Corporation; Charley McKetta, FWR Associate Professor
April 29	FWR Softball Tournament
	Forest Research Nursery re-dedication in memory of Frank Pitkin
	Frank Pitkin Memorial Dinner

April 28	FWR Guidance Council Meeting and Spouse Program
	Chili Cook-off, lots of food for sale, Trivia Contest, What's It Competitions, etc
	"Using Beavers in Riparian Management," by Lew Pence, Coordinator Wood River Research Area
	Student Awards Banquet at Moscow Moose Lodge
	Student Awards Presentation; Keynote speech "Peace and the Environment: A World View" by Ambassador Philip Habib, FWR Class of '42
April 30	John Howe Annual Pig Roast/ Potluck
September 24/29	SAF Convention
November 8	IdaHost program.
November 18	CFWR Annual Pancake Breakfast at Community Center.
December 21	Christmas Break

1990

January 16	Second Semester starts
February 13	Lecture presentation by Professor George Klontz on fish diseases following the AFS meeting
February 23	Wild Game Feed at Moscow Community Center



Association of Western Forestry Clubs Conclave 1989

by Carl Brenner

It was Monday. 7:00 am. The Moscow police officer noticed a group of sleeping bags on the grass over by President Gibb's house. He walked over and kicked the inhabitants awake.

Almost immediately, they awoke and jumped out of their sleeping bags fully clothed. Even boots. He asked for their ID. They read Montana.

The Forestry Conclave had started.

For a week, April 17-22 1989, over 150 forestry students wandered around Moscow. They came from 15 college and universities for the 50th Annual Association of Western Forestry Clubs Conclave.

Monday brought the first arrivals. Some stayed in hotels—some in the dorms—some camped in the Ag fields.

The Conclave started on Tuesday. The traditional UI Experimental Forest/Nursery tours were given. In the forest, the participants saw state-of-the-art line machine skidding with a Cat 225, donated for the forest use by Caterpillar; they also watched innovative ground skidding with a John Deere farm tractor. Most were amazed at the hands-on experience that the students of the University of Idaho obtain on the forest and the nursery.

Afterwards, a wonderful buffet meal was consumed at Potlatch's Log Inn, which officially got things underway. Keith Peterson, the local historian who had just recently published *Company Town*, talked on the local history.

Wednesday started a little too early for most people. Two buses were loaded and the participants toured the Potlatch Mills, the Dworshak Dam, the National Fish Hatchery, and the Nez Perce Indian Museum. They either saw the Potlatch's new sawmill or its famous paper mill. At the dam, they took the traditional tour and watched *The Last Log Ride*. Some lucky people actually got to pet salmon at the fish hatchery, and they learned about the Native American history.

Thursday was definitely tri-modal. Some stayed in Moscow to practice their logger sports skills for the upcoming competition. Some toured Bennett Lumber and St. Maries' Plywood along White Pine Drive. Others hopped on three jet boats and rode the Snake River.

The warm and sunny day made the trip overly ideal. As the boats raced the river, we were able to see some deer and goats, and looked at the wonders of Hell's Canyon. We were able to meander around an old island homestead and a miner's cave. Lunch on the sandbar featured some crazy folks who thought that the spring water would be something to swim in. Needless to say, it was quite a memorable trip.

Friday and Saturday featured the Logger Sports Competitions. We had tremendous judges (Bob Bosworth and Alvie Marcelus) and scorekeepers (Peach Baker and Jill Bosworth), and a mouth of an MC (Clint Stevenson), all without which the competitions would not have been nearly as much of a success.

After the competitions, we were treated with some professional logger sportsmen's demonstrations.

George Savage

Conclave 1989.

Idaho fared quite well as the relatively young and inexperienced team was able to take first and second men's, first and third women's, and second team overall. From the competition here, the team should do very well in 1990.

The Closing Banquet was on Saturday. A seafood buffet was held at the Elk's Lodge. The Logger Sports awards were given to the top 3 placings of each event along with a luscious kiss from our King and Queen of the Meet. After the awards, the dancing began, as everyone swung to the beat of Cabin Fever.

Many of the visiting folks commented that the 50th Anniversary Conclave was the best in quite some time. Seniors Dan Johnson and Darwin Baker led the committee, which included: senior Lynn Pence, juniors Carl Brenner, Dave Gabrielsen, Dave Sparks, Karen Sheldon, and freshmen Kim Pence and Paula Yochum. Help from Linda Kossman, Elaine Meyer, Linda Geer, and Dayna Willis is as always, understated. Professors Harry Lee, Richard Folk, Alton Campbell, Harold Osborne, Ross Appelgren, and Dave Wenny also helped more than their fair share.

The conclave could not have been done without the help of private citizens, such as Mark Lesko, local merchants, and various corporations, whose recognition is shown by painting their names on our climbing poles.

The whole team is looking forward to this year's conclave, at Humboldt State University, where this time we can have fun, as we let other people do the work that we did here for the 50th Anniversary Conclave.

Carl Brenner is a junior who is double majoring in forest resources and forest products.

Attending schools:

HUMBOLDT STATE
U. OF MONTANA
OREGON STATE U.
WASHINGTON ST. U.
U. of IDAHO
FLATHEAD C.C.
SPOKANE C.C.
MODESTO JR. C.
U. of NEVADA RENO
CENTRALIA C.C.
U. of CALIFORNIA CAL-POLY
U. of CALIFORNIA BERKELEY
COLLEGE OF THE REDWOODS
SIERRA COLLEGE
COLORADO STATE U.

IDAHO'S PLACINGS:

WOMEN'S EVENTS

Double Buck:

Meg Mitchell and Lynn Pence received first place.

Birling:

Dee Bruce received first place.

Pole Climb:

Karen Sheldon received fourth place.

Single Buck:

Lynn Pence received first place. Meg Mitchell received second place.

Axe Throw:

Meg Mitchell received fifth place.

MEN'S EVENTS

Obstacle Pole:

Phill Berreth received first place.

Jack 'n Jill:

Mike Waissennan and Meg Mitchell received first place. Dave Gabrielson and Lynn Pence received fourth place.

Double Buck:

Dave Gabrielson and Mike Waissennan received first place.

Horizontal Speed Chop:

Phill Berreth received second place.

Single Buck:

Dave Gabrielson received first place. Mike Waissennan received second place.

TECHNICAL EVENTS

Dendrology:

Meg Mitchell received first place.

OVERALL

Teams:

1st FLATHEAD VALLEY COMM. COLLEGE WITH 117 PTS
2nd UNIVERSITY OF IDAHO 108 PTS
3rd COLORADO STATE UNIVERSITY 67 PTS

Men:

1st MIKE WAISSENNAN UI 27 PTS
2nd DAVE GABRIELSON UI 23 PTS
3rd BILL DEAN CSU 18 PTS

Women:

1st MEG MITCHELL UI 28 PTS
2nd KATHY CHOCIEY CSU 15 PTS
3rd LYNN PENCE UI 13 PTS

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Outreach 1989

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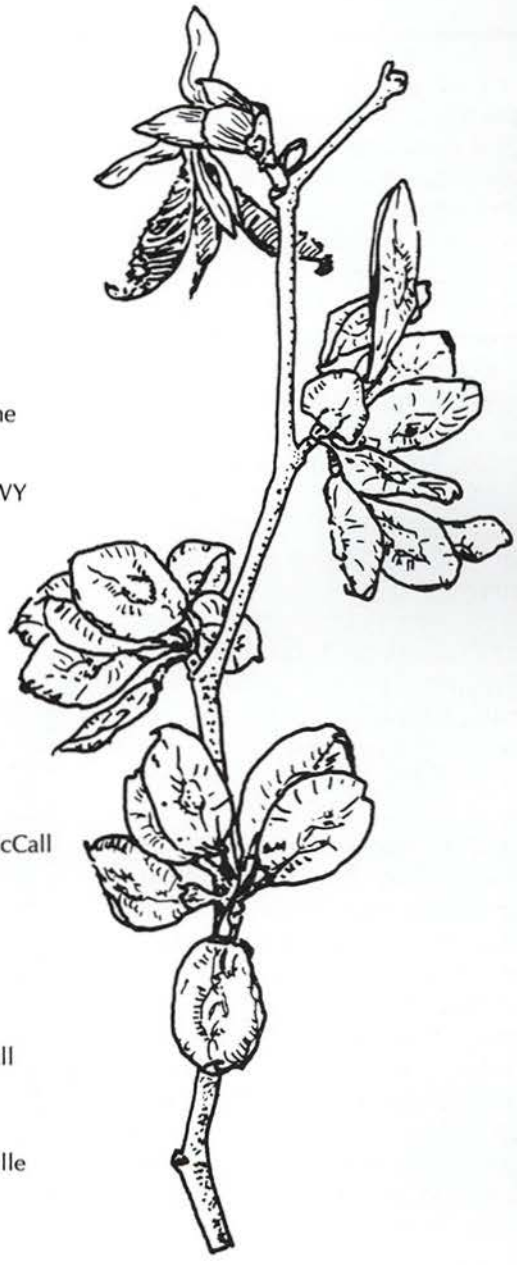
For more information about any of these courses, call Carol Spain at (208) 885-6441 or write to her at the College of Forestry, Wildlife and Range Sciences, University of Idaho, Moscow, ID 83843.

January 14 & 15	Animal Tracks and Winter Ecology—Clark Fork
February 22	Fire in the Urban-Wildland Interface: Could Moscow Mountain Burn Like Yellowstone? (panel discussion)—Moscow
February 25	Beginning Fly Tying and Casting—Clark Fork
March 4	Woodland Workshop for Private Landowners and Advisors—Lewiston
March 18	Panhandle Country Fishing—Clark Fork
April 1	Wetland Ecology and Water Birds—Clark Fork
May 6	Community Forestry Day—University of Idaho Experimental Forest
June 5—8	Hoofed Mammals of Grand Teton and Yellowstone National Parks—Kelly, WY
June 5—9	Grizzly Bear Biology, Ecology, and Management— Yellowstone National Park
June 10 & 11	Elk of Yellowstone: Biology and Ecology— Yellowstone National Park
June 12—17	Natural Resources Workshop for School Teachers— Ketchum
June 13—16	Eagles and Hawks of Greater Yellowstone—Kelly, WY
June 13—17	Large Mammals of Yellowstone—Yellowstone National Park
June 18—24	Natural Resources Workshop for School Teachers— Harrison
June 21—23	The Greater Yellowstone Ecosystem—Kelly, WY
June 24	Mushroom Identification—McCall
June 24—25	Getting Published—Clark Fork
June 24—27	Interpreting Tracks and Sign—Kelly, WY
June 24—27	Field Botany: Flora of the Tetons—Kelly, WY
June 25	Lakes and Streams of Central Idaho: Ecology and Management Challenges—McCall
July 3—7	Illustrating from Nature—Kelly, WY
July 8 & 9	Wild Flower Identification—McCall

July 9—15	Elderhostel: Wild Country Botanizing—Clark Fork
July 14 & 15	Animal Behavior—Kelly, WY
July 15	Wild Flower Identification—McCall
July 16—21	Elderhostel: The Wild Nature of Idaho—McCall
July 16—21	Alpine Ecology—Kelly, Wy
July 22—25	Pattern in Nature—Kelly, WY
July 26—28	River Channels—Kelly, WY
July 29	Archeology and History of McCall—McCall
July 30	History of the Pend Oreille Country—Clark Fork
July 31—Aug 4	An Island Ecosystem: Conserving Biological Diversity in the Greater Yellowstone—Kelly, WY
August 2—4	Wildfire: Fire Ecology of the Greater Yellowstone - Kelly, WY
August 12 & 13	Wildland Photography—McCall
August 13—17	Ecology Through the Lens—Kelly, WY
August 14—18	Landscape Watercolor Painting—Clark Fork
August 19 & 20	Outdoor and Nature Photography—Clark Fork
August 19 & 20	Writing Workshop: How to Get Published—McCall
August 24 & 25	Wildland Photography—McCall
August 26 & 27	Payette Lakes—The Story of Ancient Glacier Bulldozers—McCall
August 28 & 29	Woodland Management Workshop—McCall
September 1—3	Wildlife Management Policies and Practices—Kelly, WY
September 9 & 10	History and Archeology of Long Valley—McCall
September 18	Research Presentation: The Future of Hells Canyon—McCall
October 7	Fire, Man, and the Environment - Clark Fork
October 21 & 22	Fossil Collecting and Geologic Tour of the Lake Pend Oreille Area - Clark Fork
November 11	Herbs and Herb Craft - Clark Fork
Ongoing	Project WILD workshops
Ongoing	Project Learning Tree workshops



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University of Idaho Alumni

1989 FWR Awards Banquet

Each spring, some 300 students, alumni, faculty, and other guests gather for the Annual FWR Awards Banquet to honor those students and faculty members who have distinguished themselves throughout the year. Each of the five departments within FWR chooses a student, or students, to be that department's outstanding senior(s). An outstanding senior is also chosen for the college as a whole. Three faculty awards are given based on outstanding teaching, outstanding research, and outstanding continuing education activities.

Dale Alan Olson (fisheries program) and Michael William Schrage (wildlife program) were chosen as the Department of Fish and Wildlife Resources outstanding seniors. The Department of Forest Products honored Kenneth Leonard Pratt II as their 1989 outstanding senior, while the Department of Forest Resources chose Terry Mac Shaw. Lynn Adele Pence was honored by the Department of Range Resources. Interestingly enough, Lynn's father, four uncies and two cousins are FWR graduates, while her sister and another cousin are currently undergraduates. Last but not least, Marvin Wade Brown was elected the Department of Wildland Recreation Management's outstanding senior.

For the college as a whole, senior Daniel Goodwin Johnson was honored as the college's outstanding senior. Dan is a forest resources major from Cody, Wyoming. Being a strong leader, he has been a former president of the UI student chapter of the Society of American Foresters. Last year, Dan was also a recipient of the University of Idaho Alumni Association Award for Excellence.

Outstanding Faculty awards went to David L. Wenny, Ronald Kasten Dumroese, James M. Mital, and Jo Ellen Force. The Research award went to both Dumroese and Wenny for their work in improving containerized conifer seedlings. Jim Mital was Outstanding Teacher, and Force was honored with the Outstanding Continuing Education Award.

George Savage

Mary Bean, Wildland Recreation Management grad student - First Place Writing Award.

Other awards received at the Banquet were writing awards, with first and second place going to Mary Bean and David Sutherland, respectively, both of the Department of Wildland Recreation Management. Third place went to Peter Kolb from the Department of Range Resources.

Members of the Class of '42 reached their Class of '42 Scholarship Endowment goal of $10,000 this year and are now trying to raise $25,000 in the next 5-year centennial pledge period.

It is encouraging to see so many talented students, faculty, and alumni receive these awards. The College of Forestry, Wildlife, and Range Sciences obviously has produced some outstanding professionals who care about the younger students currently following in their footsteps. Let's show that we care just as much.

George Savage

George Savage

FWR 1989 Outstanding Senior went to Dan Johnson.

Alumni News

Dr. Thomas Buchanan graduated from the College of FWR with a B.S. in forestry. He went on to receive his M.S. from the University of California and finally his Ph.D. in forest pathology from Yale. He began his government service in 1928 with USDA's Division of Forest Pathology, and in 1943 he joined the Marine Corps in World War II and was captain in Air Combat Intelligence. In 1945, he was discharged from the Marines and was employed as a forest pathologist by Weyerhauser Co. for two years. In 1947, he joined the faculty of the University of Idaho and served his alma mater for 4 years as associate professor of forest pathology.

In 1951 he went to Suakoko, Liberia, where he organized and operated the first agricultural experiment station in that country, studied the swollen shoot disease of cacao, and discovered coffee leaf rust on the west coast of Africa. Five years later he joined the Forest Service as assistant director of the Division of Forest Disease Research; it was this position from which he retired in 1972.

Dr Buchanan has been a member of the Society of American Foresters, Society of Sigma Xi, and Xi Sigma Pi. He has written 50 articles for governmental and scientific journals and has traveled all 50 states and 40 countries. On January 5, 1990, after leading a successful life, Dr. Thomas Buchanan passed away.

Hank Kipp is a 1960 graduate of the College of FWR. He worked a number of years as, first, a state employee, then with the BLM and the Bureau of Indian Affairs. He is involved with the integrated resources management planning and information systems field, enjoys working with the interdepartmental and intra-interior in that line of work, and does illustrations for publications.

Russ LeBarron is a 1931 graduate of the College of FWR. He became interested in the University of Idaho through a Sunday School teacher who, after learning of his interest in forestry, subscribed to *American Forests* for him so he could pursue his interests. Since graduation, he has served most of his professional life with the Forest Service, served the State of Hawaii for 5 years, and worked for the United Nations in Uruguay and Venezuela. He has had the pleasure of traveling around the world twice and working with great foresters such as Raphael Zon, Windy Eyre, Carlos G. Bates, Hardy Shirley, Charley Connaughton, Claire Hendee, and Axel Lindh.

Sa-ard Boonkird was the first Thai to study at the University of Idaho. He graduated with a B.S. from the College of FWR in 1954 and completed an M.S. in forest management in 1955. After graduation, he left the USA to start a course in aerial photo-interpretation at Kasetsart University, Thailand, where he remained until 1967 when he resigned. He then worked in the Forest Industry Organization, where he started large reforestation projects which eventually lead to agroforestry and community forestry; he later wrote a textbook on this subject. In 1980, he retired and joined the College of Forestry as an emeritus teacher, where he was granted an honorary doctoral degree by the then King of Thailand in 1982. He is very happy with his wife, Varaporn, and his three married children and four granddaughters.

Sorrells Dewoody is a 1978 graduate of the College of FWR. After graduating, he obtained a part-time job with Pacific Crown Lumber Co., where he cruised timber, and, on the side, attempted to develop a paneling product out of beetle-killed white pine. That winter he joined the forestry staff in Coeur d'Alene for the BIA, where he worked as an inventory forester, installing continuous forestry plots on tribal lands. His big break came when he interviewed with Weyerhaeuser at their Klamath Falls Tree Farm in Oregon. He worked there for 5 years, then left a district forester position for his hometown in Arkansas, where he thought he had found another position with a local hardwood mill. The job was not there when he arrived, and he later decided to return to school for a computer science degree. This led to his current job as a software engineer with Bull HN. After three years, he and his family (Kathy and two daughters) are ready to move on and get back to the Northwest.

The FWR Guidance Council

by John C. Hendee

The Guidance Council of the college of Forestry, Wildlife and Range Sciences is comprised of approximately 70 representatives of federal, state, and local organizations from throughout the West.

The Guidance Council was formed as part of the college's Quest For Excellence Plan, and plays an important role in helping the college stay in touch with the needs of our constituent groups. Guidance Council authority is advisory, but has a major influence. The entire council meets once each year, and departmental subcommittees meet on an as-needed basis throughout the remainder of the year.

Responsibilities of the Guidance Council include:

1. Assisting the college in developing balanced and relevant goals, objectives and programs.
2. Helping to keep CFWR informed on emerging resource problems, needs and situations that can be addressed in the college's teaching, research and service programs.
3. Becoming informed about the college's activities, accomplishments, operations and problems, and advising on their implementations, communications and resolution.
4. Providing ideas and input to plans, directions and proposals by the college.
5. Helping to arrange and conduct forums aimed at strengthening relationships between the college and constituent groups, and discussion of renewable resource concern.
6. Helping to communicate and provide support for college programs among constituent groups, the public, the legislature and the university system.

John C. Hendee is dean of the College of Forestry, Wildlife and Range Sciences.

Executive Council

by John C. Hendee

The Executive Council of the College of Forestry, Wildlife and Range Sciences is comprised of the dean, two associate deans, the director of administration, five department heads, one faculty representative, one graduate and one undergraduate student representative.

The mission on the Executive Council is responsibility for coordination of teaching, research, and service missions of the college. While the dean is ultimately responsible for decisions, the purpose of the council is to achieve participatory management and college-wide cooperation through pro-active internal communication.

The Executive Council works as a management team, advising the dean and recommending action on issues affecting the college. It takes into consideration that tradition, energy, wisdom of staff and faculty, along with stu-

tives and independence, are the key to the college's productivity and integrity.

John C. Hendee is the dean of the College of Forestry, Wildlife, and Range Sciences.

Nancy Matthews

Clockwise from bottom: Leon Neuenschwander, Molly Stock, Joe Ulliman, Ali Moslemi, Jim Mital, Dean John Hendee, Richard Bottger, Michelle Mazzola, Kendall Johnson, Mike Falter, Mark Hale, Jim Fazio. Not pictured Leonard Johnson.

Recycling For Wildlife

by Lisa J. Bates

Recycling can help save wildlife and now you, too, can help in the effort. Everyday we use resources that are derived from the lands that serve as wildlife habitat, and it is well known that the main reason for the depletion of wildlife numbers is loss of habitat "Interrelatedness" is the key word used to describe an ecosystem; the more resources we use, the more wildlife habitat will be destroyed. Because of this basic concept, even the smallest of acts can reverberate throughout an entire ecosystem.

For example, how many of us are aware that the simple act of placing waste paper in a recycling bin, as opposed to a garbage can, can help to preserve our precious wildlife habitats? You might not think the few pieces of paper that you throw away each day could make much difference, but with a campus population of 8300, recycling even this small amount could save a tree.

Annually, 35% of the world's harvested timber is used to produce paper products. Through recycling, we can reduce the number of trees that would need to be harvested (each ton of recycled paper saves about 17 trees). This would not only preserve wildlife habitat directly by leaving the habitat intact, but it would also help protect remaining forests. By producing paper from recycled waste rather than from virgin wood pulp, water pollution can be reduced by 35% and air pollution by nearly 75%. Producing recycled paper also preserves hydroelectric energy, which is attributed to having deleterious effects on fish populations.

Recycling works not only to preserve habitat here in the Northwest, but also can help to alleviate pressure on some of the world's most fragile habitat types—tropical forests and the arctic tundra. Whether you choose paper, glass, aluminum, tin, or oil, recycling helps preserve wildlife habitats by reducing the need for raw natural resources.

So how can you help?

The U and I Recycle Committee, working in conjunction with the University of Idaho's Physical Plant, has been setting up a recycling program campus-wide. You can help save wildlife habitat by placing your wastepaper in the bins that are being conveniently set up around campus. Because everything in an ecosystem is interconnected, perhaps that one extra piece of paper recycled will be the very one that makes the ultimate difference between a self-sustaining habitat and one that is non-existent. For more information, contact the U and I Recycle Committee through Larry Kirkland, Program Supervisor, at 885-6222, University of Idaho Physical Plant.

Lisa Bates is a junior in wildlife resources.

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The Darndest Things Happen on Field Trips

by Ken Hungerford

When I first started teaching in the College of Forestry in 1946, I inherited a course called the Big Game Field Trip. This was a two-week trip to some of the more important big game ranges and usually included Yellowstone National Park. By the time I made the second trip to Yellowstone, and other points in March of 1948, Dean Jeffers had been pushing the faculty to do a better job of publicity—to "put the school on the map." One of the seniors in that year's class had taken a course in journalism, so I asked him to get some writeups to the *Argonaut,* the University of Idaho's newspaper.

On our field trips we always took snowshoes along for each one on the trip. With deep snows, that was the easiest way to get around. It did limit the enrollment to the number of pairs of snowshoes the school had, or could borrow. This particular year the snows were deep, and the game were in trouble. We spotted one bull elk in the Lamar Valley of Yellowstone, not far from the road, just standing in the snow. What was remarkable was the tremendous set of antlers he carried. It was truly a trophy set. Two of the students wanted pictures, so we stopped the Travelall and the World War II surplus ambulance beside the road while they got their snowshoes and cameras. I won't mention names, but one of them was my brother, a senior that year.

While they snowshoed toward the bull, I asked the rest to notice that the old bull didn't have long to live. You could count each rib, and a lot of other signs indicated he was on his last legs. The elk acted like he was in a stupor and didn't even make a move to leave. This made the photographers a little bolder, and finally my brother was about 5 feet away from him, crouched down on his snowshoes trying to get that huge rack against a better background. Finally the old bull had enough. He ground his teeth, bared them, and took two steps toward those cameras, and stopped. That was about all the energy he had. The reaction by the others though, was immediate. I don't know how they did it, but both photographers did a 180 degree turn, literally ran right out of their snowshoes, and bogged down in the deep snow.

After much hilarity in both vehicles, I turned to Grant, our publicist, and said, "There is your story." He agreed, and with a little embellishment, it made the *Argonaut.* But it didn't stop there. It made the Associated Press and went coast to coast. We heard about it for months. A handicapped person in Virginia made a wallet, hand-tooled with a bull elk on it, and sent it to my brother. He said he was looking for business, and the wallet was so nice he got quite a few orders. In fact I got one for my next birthday.

We didn't always go as far as Yellowstone. Many times we spent a week on the Selway and Lochsa rivers, staying at the Fenn Ranger Station, or at the old Selway Falls Guard Station. In one mild winter we even hiked into Maiden Creek and stayed in a tent camp. This year, though, there was a slide at Selway Falls. We parked below the falls and walked up a narrow road to check it out. We got diverted watching the steelhead leaping to get over the falls. Jim, a student, decided he needed a picture of the leaping fish, and headed down a steep bank to get a closer shot. The roar of the falls kept him from hearing our shouted warnings of ice on the rocks, frozen from the spray of the falls. He had his eyes only on those big fish. Then he hit a big rock that slants down and drops off into the turbulent current of the falls. He slid and bounced down, digging in his fingernails and whatever else he could, until his boots caught a ledge, just before it dropped off into the water. By that time, I was running for the truck where we had a coil of rope. We pulled him up—no picture—but maybe he was little wiser. At 20 degrees it's no time for a bath in the river.

Sometimes we took one-day trips from Moscow, usually on a Saturday. Yes, we had classes on Saturday morning, too. One of my favorite short trips was up the Palouse River to look at some of the white-tailed deer yards there. It gave the guys some practice using snowshoes before the longer trips. This particular day we had a lot of snow—three to four feet on the level. We crossed the Palouse River on a crude bridge and followed an old logging road to a deer yard I knew about. On the way back, I came last to make sure everyone was out of the woods. At the river crossing, one of the fellows told me that Clyde had fallen in the river. He pointed to the tracks of snowshoes leading from the water's edge.

I thought they had set me up, until I noticed water drops in those tracks. He had gone too close the edge of the bridge on the snow to look for fish, and the snow caved in under him. About 30 feet below the bridge the water went under ice and windfalls for about a 100 yards. I hustled on down the road to find the fellows had found an old cedar cutter's shelter and a lot of split cedar trash. One of the students, a gypo logger, carried a fifth of coal oil (kerosene) in his pocket, and in just a few minutes, the fire was roaring. We took turns rubbing the circulation back into Clyde and then began to share clothing with him. One of the students had two pairs of socks—one went to Clyde. I had two shirts—he got one, and so on. But it was Clyde who made the classic comment on the way back to the trucks: "You know, Doc, it's sure hard to swim with snowshoes on." It took most of the next class period to get all the clothes back to rightful owners. Yes, I got my shirt back.

Yes, a lot happens on field trips, and now you know why some of the emeritus professors have a few gray hairs.

Dr. Ken Hungerford is professor emeritus of wildlife resources.

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—Indian Proverb

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Dee A. Bruce
B.S. Wildland Recreation

Buddie Carroll
B.S. Forest Resources

Jeff Cook
B.S. Wildland Recreation

Greg Danly
B.S. Forest Resources

Brett Dumas
M.S. Range Resources

David Gabrielson
B.S. Forest Resources

Guy Gifford
B.S. Forest Resources

Carol A. Hennessey
B.S. Forest Resources

Linda Lilly
B.S. Forest Resources

Chris Maranto
B.S. Forest Resources

Mark Mousseaux
B.S. Forest Resources

Doug Nishek
B.S. Forest Resources

Jay Pence
B.S. Range Resources

Mike Schrage
B.S. Wildlife Resources

Mark Sommer
M.S. Forest Resources

David Sparks
B.S. Forest Resources

Robert Stoker
M.S. Forest Products

Deb Wilkins
B.S. Forest Resources

Douglas B. Wortman
M.S. Forest Resources

Dawn Zebley
B.S. Wildlife Resources

Graduates Not Pictured

Brett Turley
B.S. Wildlife Resources

Stuart Markow
B.S. Wildland Recreation

Kelly Crane
B.S. Range Resources

Keith Billi
B.S. Wildlife Resources

Brett Tiller
B.S. Wildlife Resources

Bart Smith
B.S. Wildland Recreation

Scott Bruce
B.S. Forest Resources

Andrew Peterson
B.S. Forest Products

Thomas Curet
B.S. Fisheries Resources

Ronald L. Steiner
B.S. Wildlife Resources

Michael Blenden
B.S. Fisheries Resources

Marlene Eno
B.S. Range Resources

Anthoney Brede
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Barbra Holliday
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STUDENTS
College of Forestry, Wildlife and Range Sciences, 1989—1990

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CHRISTOPHER J. STAROSTKA

SOPHOMORES

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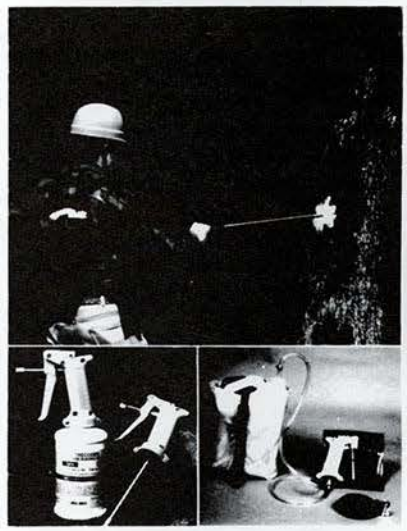

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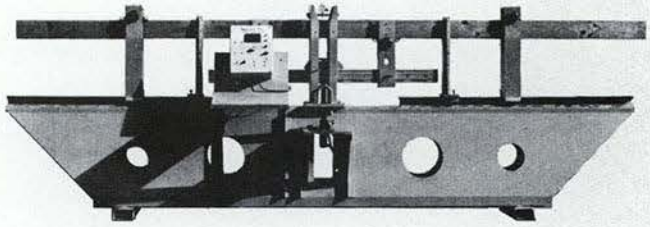

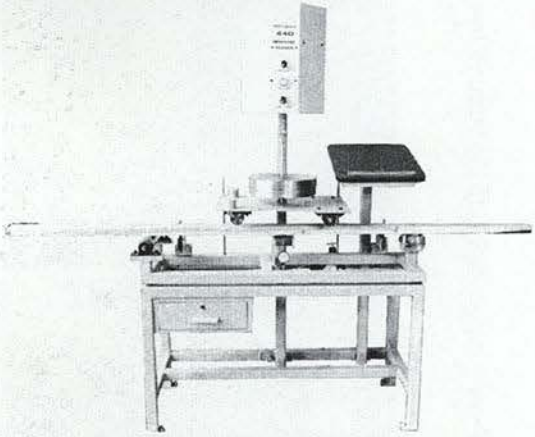

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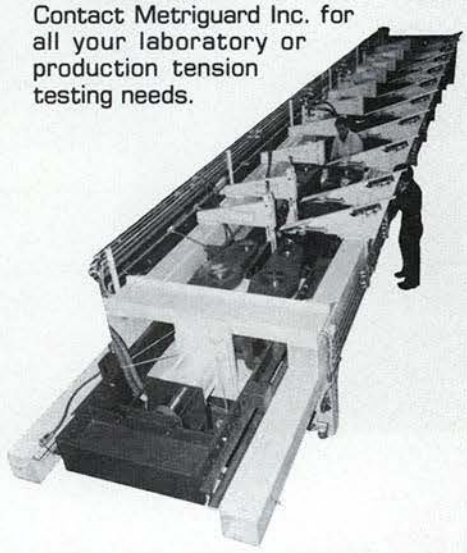

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The Idaho Forester

by Brian Glodowski

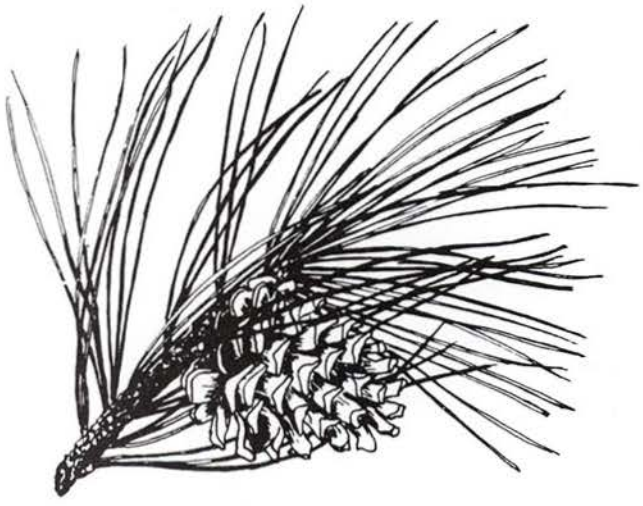
In the 11th-hour scramble of putting this year's issue together, we decided to go to the college reading room for a well-deserved break. Lying on the coffee table was a 1978 issue of the *Idaho Forester.* Curious, I started browsing through it to see what our predecessors had done. Through the articles and pictures I began to see people of the college, their personalities, and the work and humor that went into the magazine. This stuff was great! It really cracked me up. Several friends joined me to see what was so amusing and, before we knew it, we had dozens of issues scattered about. Everyone started laughing and talking about the articles and pictures, or some part of the magazine that caught their eye. This went on for over an hour. It was a special event being together with good friends that I will always remember.

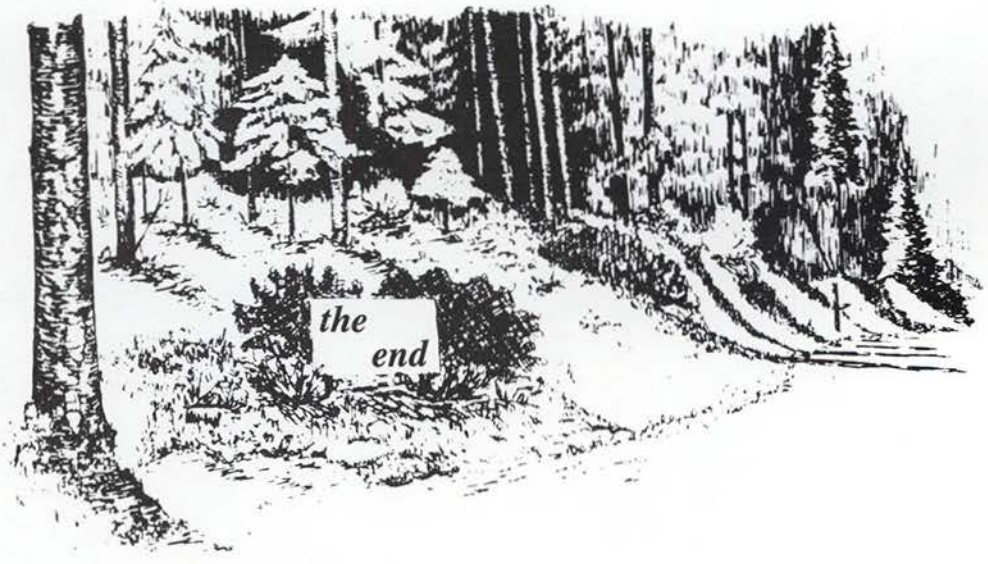
In this year's issue, we strived for such achievement. It is our hope that this issue will be enjoyed now and for years to come. Our goal to maintain the tradition of the Forester was met head-on by the staff, and everyone can be proud of his or her efforts.

Maybe someday students will be sitting in the reading room and pick up our *Idaho Forester,* just as we did our predecessors', and share in some laughs and friendship that make being part of the staff a special part of our education and memories.

John Lamb

Front row: Lynnette Lyon, Lori Hurd; Second row: Greg Wooten, Mark Sands, Janet Seabolt, Matt O'Brien, Shane Dickard; Third row: Brian Glodowski, Kris Saxton, David Silcock; Back row: Nathan Fullner; Not pictured: Mark Hale, Stuart Markow, Travis Bosworth, Linda Lilly, Marianne Austin, Pat Harper.

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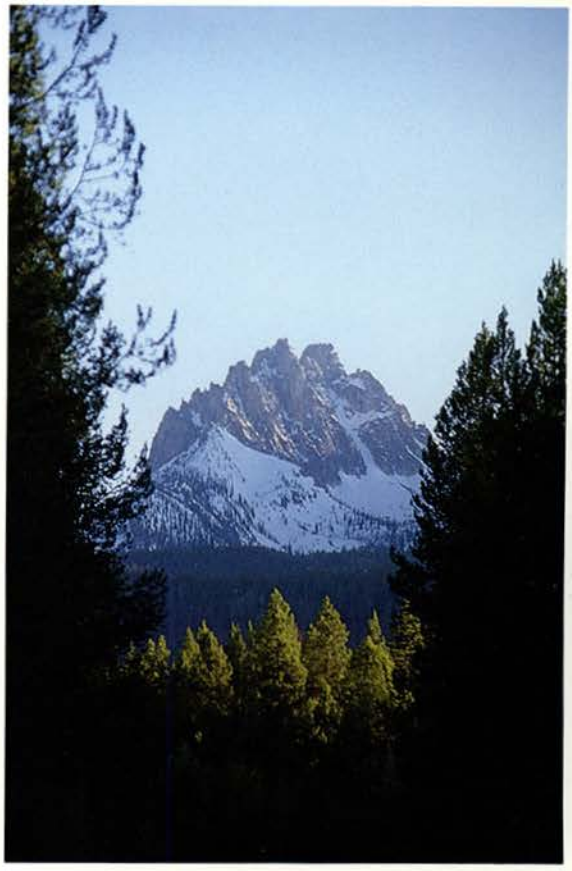

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