

idaho forester

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The Working Tree. Our Goal Is To Use It All.

Today the challenge to the forest industry is to stretch our resource to fit all of America's needs.

So at Potlatch, when we convert one of our working trees, we try to use every last part of it.

Small logs and tops of trees formerly left in the woods are being processed. We're also using wood

strands to create a new kind of plywood. We use sawdust to make pulp. Bark and wood waste is burned for our own energy needs.

We're constantly trying to find more efficient methods of using our timber. The end result: a resource base that is as fully utilized as possible.

Potlatch

We grow the working trees.

On October 14, 1976, Dean Emeritus Ernest Wohletz passed away. We are proud to dedicate the 1977 Idaho Forester to a man so closely connected with the advancement of natural resource management in Idaho and the development of the College of Forestry, Wildlife and Range Sciences.

editorial

Our magazine was created in 1917 both to serve as a yearbook and to tell people who the "Idaho forester" was and what he did. At that time, the forester was the only renewable resource manager around, and was concerned chiefly with timber inventory and harvesting. Through the years, the role of the resource manager, and that of our college, has changed considerably, and the *Idaho Forester* has reflected the changes. Today, the renewable resource field encompasses a wide range of disciplines and a high degree of specialization. The fact that no single aspect of the field is entirely separate from other aspects makes communication among professionals, students and the public of prime importance if we are to manage our resources effectively.

This year's *Idaho Forester* is the largest and most informative ever. With a staff of 22 students, we have been able to produce a broad range of articles and illustrations. Because of the high degree of interest and participation, the length has jumped to 68 pages. Sales are at an all-time high—500 copies to students and faculty, 475 copies to alumni (up 75 percent over last year), 200 copies to other universities, public officials, industries and societies, and 150 copies to the general public.

The 1977 *Idaho Forester* is not a yearbook or technical journal, but a forum of expression by the students of the College of Forestry, Wildlife and Range Sciences. In broadening our horizons to include the entire renewable resource field, we have realized unlimited potential for expression. As the magazine continues to grow it will need input and support from students, faculty, professional people and concerned citizens.

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James Doering

Editorial Staff: James Dunn, Victor Bullen and Greg Outcalt



ERNEST W. WOHLTZ 1907-1976

In dedicating this issue to Dean Emeritus Wohletz, the IDAHO FORESTER takes note of his consistent support of student interests and activities and presents this brief account of his career.

He was born in Nekoma, North Dakota, and grew up in Los Molinos, California. He entered the University of California in 1926, received a B.S. in forestry in 1930, and continued as a graduate student. From 1933 to 1935, he was employed by the U.S. Forest Service. Returning to U.C., he served on the faculty for the next two years and continued his graduate studies part-time. He majored at first in ecology and range management but later shifted to economics. During his graduate years at Berkeley, one of his principal duties was to assist with instruction at the

Forestry Summer Camp.

In 1937, he was recruited to Idaho's School of Forestry faculty. For several years while he carried a heavy teaching load — during the war years he even taught physics and coached the baseball team — his graduate work was in limbo. By 1947, it was evident that circumstances made completion of his doctorate infeasible, so California awarded him an M.S. on the basis of the work he had completed.

It has been suspected that Ernie's experience at Cal's summer camp, as well as his qualifications in biometry and mensuration, played a large part in his being hired by the University. Idaho's forestry faculty had for some time been deliberating on the question of whether to establish a summer camp as part of the curriculum. The decision to do so was reached at about the time he joined the staff — as was the selection of the site on Payette Lake.

Summer camp

Summer camp was very dear to Smokey Joe's heart. (He acquired that monicker during his spare time baseball playing days at Cal's camp.) For more than a dozen years he was in direct charge of the program, carrying the major — often the sole — responsibility for instruction as well as physical development of the camp. Beginning with nothing but tents for the classroom, kitchen, dining and housing facilities, and no running water, he supervised the construction of the first — and for a decade the only — permanent structure, the Lodge, from selection the logs at the mill, to overseeing the labor, and spending Sundays applying many coats of linseed oil. Though he gradually had to relinquish his share of teaching there, he continued to exert his personal influence on its operation. His deep-seated interest in everything connected with summer camp was probably second to none throughout his years at Idaho.



With his teaching of biometry and mensuration into the 1950's, of economics into the 60's, and of policy until his retirement — in addition to the years at summer camp — he had classroom contact with the vast majority of all upper-division students of the College for 35 years. Highly competent in each of the subjects he taught, but confronted with the characteristically negative disposition of many students toward some of these, he maintained a high level of expectations and, by his own attitude and energy, managed to inculcate both an appreciation for their worth and a strong grasp of their fundamental principles. A source of great satisfaction to him was the frequent acknowledgment by former students that what they had learned, or should have learned, from him had proved to be far more valuable than they had realized at the time.

Student advisement was another of Ernie's prime concerns. In this area his style combined support for the integrity of the curricular requirements — even when stern measures were required for

recalcitrant students — with support for the sincerely striving student in the face of academic adversity.

Another development early in his years at Idaho was the establishment, in 1939, of the Forest, Wildlife and Range Experiment Station as a unit of the college. Appropriation of funds for the Station, however, languished until after the war. Then, with the designation of Wohletz as its first Associate Director, the research program began its gradual but steady growth.

One research project which Ernie himself conducted — investigating methods and economic feasibility of the cold-soak application of pentachlorophenol in treating fence posts — yielded a publication which had a significant impact and is one of the most widely distributed ever put out by the College.

Deanship

In 1953, D. S. Jeffers, who was the school's fourth head and whose 18 year tenure as dean was subsequently matched by Ernie, reached retirement age. The selection of Wohletz as his successor had the unreserved endorsement of the faculty, students, alumni, industry and public resource agencies. During the period of his administration, 1953-71, tremendous changes came to the College. The faculty grew from ten to thirty, some of this increase representing the addition of specialists in such disciplines as genetics, entomology, soils, fisheries and recreation. Enrollment rose from less than 200 to over 500, with a more than proportionate rise in numbers of graduate students. Of the approximately 2000 degrees the College awarded in its first 62 years, nearly two-thirds were granted during his tenure as dean. Programs leading to the Ph.D. were inaugurated. Budgeted support for research increased from \$5000 to \$500,000 and the allocation of staff time to research from a nominal level to 50 percent or more. The Fishery Unit was established and the Wilderness Research headquarters acquired. The old Forestry Building came to be fully occupied by the

College and a thorough renovation of the building was carried out. The Administration-Classroom Building was built at summer camp and the construction of permanent housing there was begun. The designing, funding and completion of the widely acclaimed new Forestry Building occupied the final years of his administration. It was fittingly climactic that the dedication ceremonies for the new facility and Ernie's retirement banquet were held in the same 24-hour period in April, 1972.

He was an exponent of participatory administration, continuing the pattern of his predecessors in holding frequent and regular staff meetings. All members of the faculty were kept informed on administrative matters and, more importantly, they took part in a democratic decision process where policy matters were concerned.

Other professional contributions

Dean Wohletz always maintained a high level of involvement in academic and resource-related professional affairs. In addition to membership on the Academic, Administrative and Faculty Councils, he served on many other University committees. He was for many years Idaho's faculty representative to the old Pacific Coast Conference. He was a member of the State Cooperative Board of Forestry and also of the U.S. Forest Service regional advisory councils for administration and research. He was on the national advisory board of the McIntire-Stennis research program.

A member of numerous professional organizations, he was most active in the Society of American Foresters. He held offices, including that of chairman, in the Society's Inland Empire Section and in the Economics and the Education Divisions. For many years he served on the S.A.F. Committee for the Advancement of Forestry Education, the national agency for accreditation of forestry schools. He was a member of the Land Use Committee of the Western Forestry and Conservation Association and of the Natural Resources Com-

mittee of the U.S. Chamber of Commerce. He regularly participated in the affairs of the North and Southern Idaho Forestry Associations. He wrote several articles, made numerous speeches, and frequently served on panels concerned with forestry economics, policy and education.

Ernie was especially gratified by the establishment of the scholarship which bears his name and it is difficult to conceive a more fitting memorial to the man and the purposes to which he devoted his life. It is not merely trite to say that his passing marks the end of an era for the College of Forestry, Wildlife and Range Sciences, for he made an unequalled contribution to its development. Those who knew him sorely miss one in whom they recognized an exceptional devotion to duty and loyalty to the institution, the profession and his associates. ■



Studying problems with logging slash

The frontiers are not east or west,
north or south, but wherever man
fronts a fact.

—Anon.

THE "OTHER" SUMMER CAMP

by Gerry Wright

Gerry Wright is a junior in Wildland Recreation Management.

Last summer I had the opportunity to attend the Wildland Recreation Summer Camp. This was the first summer that the Wildland Recreation Management program was held separately from the Forest Resources Summer Camp in McCall, and the first time since 1939 that a summer camp was held in Moscow. Both the Moscow and the McCall camps offer eight credits for an eight-week instructional period.

At McCall, four weeks of forest measurements are followed by four weeks of forest ecology. At Moscow, a week is spent on forest mensuration, covering air photo interpretation, surveying, and tree measurement, and then the emphasis shifts to field measurements related to recreation. During the last four weeks, we examined the relationships between man, vegetation and wildlife in the wildland ecology portion of the course.

What impressed me most about summer camp was the practical approach. We spent 90 percent of our time in the field examining management plans, gathering data, performing quadrat studies for plants and animals, and designing facilities in park areas. There were also projects to complete and papers to write throughout the eight weeks.

Teton Dam

On a two-week field trip through three states, we met with representatives of state and private organizations, and discussed and compared their techniques in management. In southeastern Idaho we visited the nearly completed Teton Dam project. A top Bureau of Reclamation official was flown in from Boise to meet us. We saw a nicely done slide presentation on the Bureau's recreation program, then hard hats were passed out, and we were shown

around the dam site. The pool was nearly full and construction crews were putting the finishing touches on the dam. We were taken to an overlook platform where there was a large, ornate sign giving the names of the architects, engineers and construction companies responsible for the dam. As we stood there, someone in our group asked, "How long is this dam supposed to last?" The man from Boise told us that a dam of this type should last about 100 years. The very next day, on the road to Wyoming, we heard the news of its collapse!

As this was the first year summer camp was offered in Moscow, there were some definite problems, arising partly from the fact that the faculty was experimenting with a new curriculum. Some of the projects seemed to be little more than busy-work; next summer some areas of instruction should be strengthened and others should be deleted. I believe the one-week mensuration unit should be increased to two weeks. A week was far too brief a time in which to cover the material, and we skimmed over it too quickly. In wildland ecology, more emphasis is needed in the area of recreational impacts on wildlife and vegetation.

Summer camp provides something not found in the classroom. Although the days are long and a large amount of work is squeezed into a short period of time, what is learned in the field far surpasses what can be absorbed from lectures. Apart from academics, a strong bond of friendship is formed between all participants in summer camp. It also provides a chance of getting to know professors on a personal basis. ■



Corallorhiza striata

drawing by
Anita Cholewa

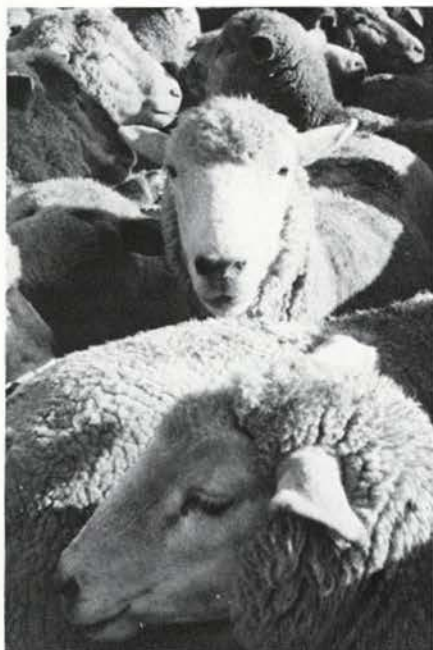


John Schumaker

Never a dull moment



Mark Vedder



Mark Vedder

RANGE INTERNSHIP

by Mark Vedder

Mark Vedder is a junior in Range Resources and was one of the interns this past summer.

Within the last twenty-five years, a growing number of students from urban backgrounds have earned degrees and subsequent employment in range management agencies. An increasing percentage of these urban graduates lack awareness and appreciation for the ranch environment and its needs. The result has been poor management decisions imposing financial losses and inefficient operations upon ranchers using public lands. This has sometimes had the effect of discouraging cooperation between ranchers and public agencies.

With this problem in mind, the UI Range Resources program, headed by Dr. Lee Sharp, designed a program to acquaint the student with ranching by means of actual ranch work. Through discussions with the Idaho Wool

Growers Association, a pilot program was arranged for the summer of 1976. After examining the results of this beginning, Range Resources and the 1976 interns will design the 1977 program so that the student and the rancher may gain more from it.

The 1976 interns obtained four credits for the internship by successfully completing two and a half months of ranch work, assembling a plant collection, and writing reports on the operation of the ranch, its problems in the use of public lands, possible solutions to these problems, and an evaluation of the internship. The student could petition to substitute internship credits for summer camp credits; the remaining four camp credits to be made up during the school year.

Ranch employees

The students were to work as ranch employees and to be paid for their work. The final terms of each internship agreement were decided upon by mutual agreement between the student and the rancher. All four interns received room and board, plus monthly wages.



Mark Vedder

Certain requirements were set up for the ranchers. Since the interns generally had little ranching experience, the ranchers were to acknowledge their lack of basic ranch skills and expected to provide a variety of work. The use of public land and the operation of the livestock enterprise were also to be shown, explained and discussed.

The first four range interns were Bruce Connery, Steve Spafford, Fred Parady and Mark Vedder. The experiences of Bruce Connery, who worked for John Faulkner's cattle and sheep ranch in Gooding, Idaho, were typical. Bruce arrived in Gooding in mid-May and was immediately introduced to the fine arts of building fence, cutting hay, bucking bales and moving irrigation pipe. In addition to that, he spent a large amount of time herding, trailing, branding, separating and shipping sheep. The cattle also received their fair share of attention, being pregnancy-tested, branded and rounded-up. Bruce also traveled with Faulkner on several public agency trips for additional exposure to the problems of public land use.

Asked what were some of the problems of the internship, Bruce replied, "I felt that my lack of background in ranch operations was the biggest problem. Sometimes I felt, as the other interns did, somewhat lost in what was going on at the ranch." The interns and range faculty are currently discussing possible adjustments to the range curriculum which could provide future interns with some background to ranching practices.

In general, the students who participated feel they gained insight into problems of public land use. When these students become resource managers, both ranchers and public agencies are certain to benefit from more experienced, more understanding people making the crucial management decisions. ■



Rob Dodge

GOING STRONG

The 1977 Idaho Forester would like to take you for a trip down nostalgia lane. Here are some gentlemen who have been with us for a reasonable length of time and are still going strong.

The partridge in the college since 1960 has been Doc Partridge, forest pathology. A man not to mince words or suffer stoically, he'll "be damned if he knows why he's stayed here so long." He fills his free time "drinking beer and chasing women."

If Chi-Wu Wang isn't busy raising "super" larch in the genetics lab, he is busy raising three sons through the ranks of Boy Scouting. He also has been in forest resources since 1960. The word for the day is "variation, variation, variation!"

Lee Sharp has been trying to get some cows on the cover of the "Idaho Forester" for 28 years. Besides teaching and research, Lee is executive secretary of the Idaho Rangeland Development Committee.

Ken Hungerford has been with the college for 30 years. He is planning a study of night life. That is, rare nocturnal birds, we understand. Ken also enjoys white-water kayaking in the University pool and archery hunting.

Howard Loewenstein is a native of New York and has been in forest soils since 1958. "It is only dirt when you get it on the rug," states Howard.

The man in charge of summer camp is Arland Hofstrand, forest products. When not at work, he can be found in the Wood Utilization Lab breaking 2 x 4's in the press, chuckling something about the modulus of rupture. Arland has been with the college for 18 years.

Fred Johnson, forest resources, is not sure how long he has been teaching forest ecology at summer camp and won't admit how long he has been with the college. You have been at camp for 21 summers, Fred, and we won't tell how long you have been

at — 1952 (damn typewriter). Fred asks, "What's a university scale?"

When he isn't busy classifying what the foresters have left unclassified, Minoru Hironaka, range resources, can be found playing with electronics and carpentry. Min has been here since 1964 and can't figure out what is so damn interesting about trees. "Sagebrush is the coming thing!" he exclaims.

Craig MacPhee tells some mighty big fish stories, but secretly he would rather have a hamburger. He is planning a study of bio-assays of chemicals at different temperatures and pHs as soon as they fix the leak in the two man raft. "I might have to get a grad student with big thumbs if the leak isn't fixed soon," comments Craig. He has found the college a good place to do research over the past 20 years.

Once a student, always a student, is the philosophy of the soft-spoken, sharp-witted man who has been in forest products since 1956. John Howe is taking six hours of studies this

semester and likes the vines of Central America. John says his 12" switch blade is only for carving the late wood in ponderosa pine.

The best is saved for last. Frank Pitkin has been with the college for 37 years. His pride and joy is the school forest which provides work experience for students and a source of income for research. In forest resources, he is keeper of the keys, and you can hear Frank jingling half-way across campus. ■



Fred Johnson

Where's Jane?



Fred Johnson

Who said 37 years?



Art Partridge

FORESTRY CLUB HAS BIG YEAR

This year a long-time dream of the Forestry Club finally took shape — our competition Woodsman's Site became a reality. The installation of a birling pond last fall was the first step. The University Buildings and Grounds Department dug the hole and let us use their concrete forms to finish off the sides. The most obvious landmarks on the site, the climbing poles, were donated by MacFarland's Pole Company and Carney Pole Company. O. H. Arnberg of Deary erected the poles. The school forest let us use wood for practice and to set up axe-throwing targets, obstacle pole buck courses, and fencing. Potlatch Corporation donated wood chips to give our site a working surface — it also helped to differentiate it from the parking lot!

At the same time this fall, the Club was involved in sawing and splitting firewood for our annual cordwood project. The proceeds from the project help fund transportation to meets and other club activities for the year.

Some activities club members were involved in were touring Bennett's Lumber Mill and visiting the Orofino Lumberjack Days. Doc Partridge gave a demonstration one day on stump removal with explosives; it was a real blast. A Thanksgiving dinner gave all the members with nowhere else to go something to groan about. Doc and Mrs. Partridge polished off the semester with a dinner at their place. Finally, Forestry Club co-hosted the Christmas dance with SAF. It was a big success and really topped off a good semester.

On the road

Spring semester was busy for everyone in the Club. The Woodsman's Team practiced daily for their competition meets. First and farthest meet of the year was at the British Columbia Institute of Technology (BCIT) in Vancouver. With professionally sharpened saws and lots of practice, the University of Idaho team was better

prepared than ever before for the competition.

Spokane City College hosted the next meet. Although their site is not as elaborate as BCIT's, it was still the scene for some stiff competition.

WSU and the U of I joined forces for a combination meet that was designed to initiate our site and be the high point of Natural Resources Week. Events were held at both schools, with the visitors participating both in competition and Natural Resources Week events.

The Forestry Club has big plans in the future for the site. We plan to expand the birling pond to almost twice its size, to better conform with safety codes. The speed chopping stands will be moved out, making the area larger and also allowing a safe distance for chips to fly. Sometime, far, far in the future, we hope to have a lathe to make our own competition wood. Someday we'll have a site that will rival the professional ones.

Along with the work of putting the site together, we had a lot of fun. Various dinners and get-togethers at Doc's made everyone feel like close friends. In fact, after a busy year and a big meal at Doc's, we're all ready to turn in and saw a few logs (ouch!). ■

630 BUNS

The Fall Barbecue was once again an astounding success. For the second year it was held at "the farm" near Genesee. There were 308 hungry people and a beautiful fall afternoon. One-hundred and thirty pounds of hamburger, 175 pounds of potato salad, 75 pounds of baked beans, 630 hamburger buns (made by Betsy Swartley and Victor Bullen), and various other fixin's were eaten. Nine kegs of beer, numerous six packs of blue ribbon homebrew and two bottles of whiskey were consumed. A raffle, square dancing, logging events and long lines were all part of the festivities. ■



James Diering

1977 Forestry Club

Anyone can carry his burden, however hard, until nightfall.

Anyone can do his work, however hard, for one day.

—Robert Louis Stevenson

HELL'S CANYON 1960, A DIFFERENT KIND OF ECOLOGY

We were into field ecology four days when the fire call came. We had 84 men at camp that summer of 1960, and they were soon in the 2-ton trucks headed for the Salmon River Canyon. After a stumbling march in the dark, we spent an uncomfortable night on a bony ridge. The fire burned brightly below, and we found by dawn's light that it had swept over the fire-camp flown in for us, leaving food and sleeping bags and all equipment a charred mass. But we soon settled down to a "fine fire". The late Bill Parks, an Idaho forestry alumn (BSF-1937) and ranger on the New Meadows District, was an admirable fire boss. Dave Adams (now U. of I. professor of silviculture) and John Hunt (now professor of forestry at Utah State U.) were the summer camp T.A.'s. Along with me, they completed the roster of the summer camp overhead—we had 84 students that year—an all time high, I think.

After five days we had the fire well under control. I hassled the Payette Forest to get us back to camp—but they offered everyone a helicopter ride out if we'd stay on the line one more day. This saved a 10 mile, uphill climb—how could we lose? Easy! "Stub" Lent and I made the first trip out along with Max Fee (BSF-1948) and a load of cargo 'chutes. The chopper hit an air pocket on top of Maxwell Point, none of us was hurt, but the chopper was out for the duration. That night we saw fire in the sky—two spectacular dry-lightning storms swept past us—one strike shattered rocks a few hundred yards away. The rest of the crew hiked out the next day—tired and more than upset at missing the 'copter ride out.

But back in McCall, fire pay was waiting; and after a hot shower (well, at least for the first few), the boys hit town with both feet. There were a lot

of White boots sold at the Merc. that afternoon, and the good Lord alone knows how many gallons of beer went down our collective gullets that night.

110° in the shade

At seven the next morning, the air was charged with expectancy, and not at our renewed contact with cold pancakes. Lightening the night before had done its work well. Our fire call came during breakfast, "Hell's Canyon is burning—it's 110° in the shade and you're all headed for Big Bar on the Snake River". Some of us learn too late to mistrust all directions and promises on project fires. But we were all-trusting, and so headed out with light clothing and an insufficiency of candy bars. We ended up that night at 7,000 ft. Kinney Point—no food and no sleeping bags. No fire boss either—our Forest Service liaison quit in disgust. We spent a cold night lighting fires—to keep warm.

How did we fight fire in a mile deep canyon? Very slowly. A sunrise

start from on top would find us near the fire by 10:00 or 11:00 o'clock—just in time for things to be too hot to handle. More than once we scrambled for high ground, with the sound of exploding gas cans and whirling fire brands hard on our heels. John Hunt and I were also time-keepers and everyone sure put in long days. We all agreed it was a spectacular fire, and watching the burn over in Oregon was fascinating.

After almost three weeks at Kinney Point the fire was some 20,000 acres, in both Idaho and Oregon, and a long way from out; nonetheless, it was time for "Field Ecology" to officially cease. However, an emergency had been declared, the National Guard was everywhere, and the Forest Service wouldn't release our fire fighters. Students were trucked back to McCall in groups, packed their gear, put it in a Forest Service warehouse and went back to Hell's Canyon. A skeleton crew, mostly Adams, Hunt and I, folded the tents and put summer camp to bed for the winter.



110° in the shade

Fred Johnson

It was a memorable camp. All hands made lots of fire pay and some of the crew stayed on the fire until school started in late September. Present-day ecology students still go to Hell's Canyon every year – we camp overnight at Big Bar, and around the campfire at night, I tell the greenhorn students how tough summer camp used to be. I tell 'em 'bout the big Hell's Canyon fire of 1960, and I watch their eyes bug out. Chances are they don't believe me. ■

Fred Johnson, who has taught field ecology at summer camp for the past 21 years, wrote this historical vignette.



James Doering



Fred Johnson

CAMPUS WITCHES

by Anne Firman

Anne Firman is a graduate student in Wildland Recreation Management.

*Round about the cauldron go
In the poison'd entrails throw
Toad, that under cold stone
Days and nights has thirty-one.
Swelter venom sleeping got,
Boil thou first i' the charmed pot.*

*Double, double toil and trouble
Fire burn and cauldron bubble.*

Shakespeare

Eerie, foreboding forms, they appear under a pale winter sky like witches from the dark pages of Shakespeare's *Macbeth* – now melting into the black of night as the silver moon pauses behind a cloud, now reappearing with arms outstretched, muttering and brooding over their bubbling, boiling cauldron of evil.

Witches? In Idaho? Shakespeare's witches do indeed appear on the University of Idaho campus in the form of the bending, gnarled Camperdown elms (*Ulmus glabra* var. *camperdownii*) that line the lower half of Campus Drive by the Home Economics Building.

One of the first things you notice about the trees is their strange, twisted shape and the branches that sprawl in a downward direction. Often called umbrella trees or weeping elms because of the pendulous, drooping branches, the Camperdown elms appear to be composed of two trees stuck together and that is exactly what they are. The Camperdown elm, because its drooping branches do not provide good support, cannot survive on its own, but must be grafted onto the straight bole of a sturdy Scotch elm.

Camperdown elms are not native to the United States but are from Great Britain and are used as ornamentals. You may often see them in cemeteries, adding to the otherworldly atmosphere or in parks, providing a unique contrast with the other trees.

The trees on the University of Idaho campus were planted about 40 years ago by E. V. Price, a nurseryman in the Forestry Department. The Forestry Department used to take care of the campus grounds and many of the older trees on campus were planted by them.

Next time you pass near Campus Drive at night cast a glance at the twisted forms and don't be surprised if you shiver a little, even if it's a warm summer night. ■



A LOVIN' GLASSFUL

by Greg Outcalt

Greg Outcalt is a senior in Forest Resources, specializing in forest genetics.

Most everyone enjoys a good beer from time to time, especially me. With the increasing prices of mass-produced commercial beer, I have found it increasingly difficult to maintain a comfortable and affordable level of consumption. In retaliation to these high beer prices, I decided to brew my own beer. This way, cost does not limit my consumption.

I feel as though I have beaten the system. I am able to brew a beer that is more satisfying to me at a fraction of the cost. For example, instead of going to a tavern and buying a bottle of beer, I can brew my own and have one for myself and one each for 24 of my friends for the same price. That is what I call economizing, not to mention anything about a sudden increase in the number of friends you have dropping in to see "what's going on."

With the pressure always on to conserve the all-mighty dollar, I feel it is my duty and privilege to pass on what I have learned about brewing in the

past two and a half years. I will present you with a list of all the equipment and ingredients necessary and a simple recipe that has had great success locally. By this, I mean this recipe has won two blue ribbons, one red ribbon, and one white ribbon in the last two Latah County Fairs. As a matter of fact, the blue ribbon winner last year entered his first batch using this recipe. So, do not count yourself out before you get started; it is as simple as falling off a log. Here we go—

Ingredients

- 3 lbs. of hop-flavored malt extract
- 6 gal. of water
- 1 1/4 tsp. uniodized salt
- 1 tsp. citric acid
- 1/2 oz. compressed hops
- 8 1/2-9 cups corn sugar (about 4 lbs.)
- 1 packet of bottom-fermenting beer brewing yeast; do not confuse with brewer's yeast
- 1 pinch of yeast nutrient
- 500 mg. ascorbic acid (Vitamin C tablets)

1 1/2 cents per bottle



Equipment

Chances are you probably already have some of these items needed in your home. In any event, all these items are not hard to find.

- 1 4-5 gal. canning pot (enamel or stainless steel)
- 1 8 gal. tub, referred to as the primary fermenter
- 1 5 gal. carboy (jug), referred to as the secondary fermenter
- 1 1 gal. carboy, also a secondary fermenter
- 2 fermentation locks (these can be homemade)
- 1 wire mesh strainer
- 1 hydrometer
- 1 bottle capper
- 1 4-6 ft. siphon hose
- 1 box of bottle caps (144 per box)
- 64 12-ounce bottles

Recipe

Yeast starter – Dissolve 1/3 cup corn sugar and beer yeast in 4 cups of room temperature water, set aside.

Cook the wort – Heat 3 gallons of water in the canning pot to 150°F, dissolve citric acid, plain salt and malt extract (at this stage the beer is called "wort"). Cook at 150°F for 1/2 hour.

Add the hops – Add hops, stir occasionally and cook at 150°F for 1 1/2 hours.

Transfer into primary – Strain the wort into the primary fermenter, add all but 1 cup corn sugar, stir until dissolved, add 3 gallons cold water.

Add yeast starter – When the wort has cooled to room temperature, measure and record the specific gravity reading from the hydrometer (should be around 1.032), add yeast starter.

As a general rule, the most successful man in life is the man who has the best information.

—Disraeli



David Mattson

CHUCK'S CORNER

by Chuck Harrison

Chuck Harrison is a graduate student in Forest Genetics.

Want to have an outdoor barbecue with an exotic flavour? Why not try an authentic South African *braaivleis* (pronounced brī'-flāys; exotic as it sounds, the word simply means "broil meat" in Afrikaans.)

The essential bill of fare consists of mutton chops, boerewors (bood'-re-vōrs; farmer's sausage—see recipe below), *mielie pap* (mē'-lē-pāp; corn porridge) and plenty of beer. In addition, serve salads, breads, and whatever else strikes your fancy. Anything goes at a *braaivleis*, so long as the four "musts" listed above are included.

Make up the *boerewors* ahead of time. You will need:

6 lb. pork	¼ lb. marjoram
2 lb. mutton	¼ lb. salt
2 lb. beef	2 oz. black pepper
¼ lb. sage	several feet of sausage skins

Cut meat into small pieces. Mix all ingredients well. Pass through a meat grinder. Have the skins ready. See that they are quite clean, then fix them onto the nozzle of the grinder, which will fill them as it grinds the meat. Extra seasoning of cloves and allspice may be added if desired, but very sparingly; say three minced cloves and a teaspoon of allspice added to the above ingredients.

Have a good-sized washtub or bucket of mutton chops ready (in America, you may have to settle for lamb unless you buy a full-grown sheep on the hoof and have it butchered yourself.)

Start preparing your bed of coals an hour or so before mealtime. Always burn wood—charcoal is cheating. Wait until several minutes after the flames have died, then place a large grill over the bed of coals. Spread the chops and *boerewors* over the grill. Turn fre-

quently and allow to cook evenly and thoroughly. Season the chops with salt and pepper. A few drops of beer sprinkled on the chops as they cook also adds to the flavour.

Just before ringing the dinner bell, make the *mielie pap*. The procedure is simple: just mix a tablespoon of salt with two pounds of white corn meal; add boiling water slowly, mixing until porridge is about the consistency of modelling clay, or a little softer; then serve with the meat. Tell your guests to simply grab a hunk of *mielie pap* and eat it along with the meat. The meat is always eaten by hand at a *braaivleis*.

The beer, of course, should be freely available from the moment the guests arrive. If you happen to be a wine fancier, by all means serve wine at your *braaivleis*. South Africans are enthusiastic producers and consumers of fine wines. ■



David Mattson

Secondary fermentations

Primary fermentation—The yeast will start working within 24 hours. A head will develop and this head should be skimmed off every 4 to 6 hours. When the head has subsided (takes from 3 to 7 days, depending on room temperature), check the specific gravity again. It should be 1.020-1.010.

Secondary fermentation—At this point the wort is siphoned from the primary into the 5 gallon and 1 gallon carboys, known as the secondary fermenters. Affix the fermentation locks to both carboys; be sure they are airtight. Place in a dark, cool and quiet place for two weeks. At the end of two weeks your terminal specific gravity should be around 1.002.

Bottling preparation—At the end of two weeks, soak 64 bottles in bleach and water, then rinse thoroughly in hot water so that no bleach odor remains, and set aside. Then siphon the wort back into the primary fermenter. Heat 4 cups of this wort and dissolve enough corn sugar, from ½ to 1 cup, to bring the specific gravity back up to 1.008.

Bottling—Siphon the wort into the bottles to a level 1 inch from the top. Place your bottle caps in water before capping to insure a good seal. Cap the bottles.

Racking—Place the bottles in a dark, cool and quiet place for two weeks. At this time your beer will be ready to drink. The beer improves with age from this point on.

For those of us who like to have a lot of beer on hand, I recommend starting another batch immediately. With your friends realizing your ability to brew, you will need as much as you can make, as fast as you can make it. ■



Greg Outcault

Finger lickin' good



Lynn Burton

THE WILDLIFE SOCIETY

The University of Idaho student chapter of the Wildlife Society is one of fifty-six university chapters devoted to establishing and maintaining high professional standards and developing wildlife management to its fullest potential. The chapter is especially oriented toward students majoring in wildlife or fisheries, but is open to all in the natural resources field. Some 70 members formed the membership this year.

This year's officers are Barbara Schrader, president; Clint Rand, vice-president; Lynn Burton, secretary; and Gary Hompland, treasurer. Faculty advisors are Elwood Bizeau and Steve Peterson. Justin Naderman is serving as acting past president.

A few of the speakers at the monthly meetings this year, and their respective topics, were: George Schaller, "Lion Behavior"; Leslie Pengelly, "Yellowstone Elk"; Don Zigler, "Washington Mule Deer"; and Mike Kochert, "Birds of Prey Natural Area". The evening programs, educational and entertaining, also provide a relaxed atmosphere in which to meet and talk with "professionals" in the natural resources field.

Selected movies also warranted numerous crowds. Movies such as "A Noble Challenge", "A Question of Hunting", and "So Little Time" were a few of the more talked about.

Natural Resources Week was one of the major highlights for the chapter last spring. Several dedicated members produced a first-rate parade float titled "Wildlife Management Involves", which dramatized several important roles often performed in wildlife management, including research, public relations, habitat management and law enforcement. Besides the float, members prepared display cases and took part in other exciting Natural Resources Week festivities.

In January, the chapter hosted its first Wild Game Potluck. Members provided such gourmet dishes as "Seven

Devils Surprise" (i.e., mountain goat stew), porcupine-muskrat curry, bear stew, almond duck, deer lasagna, and salmon loaf. The excellent food, supplemented with college students' favorite beverage, a toasty fire and relaxing music, made for a memorable evening.

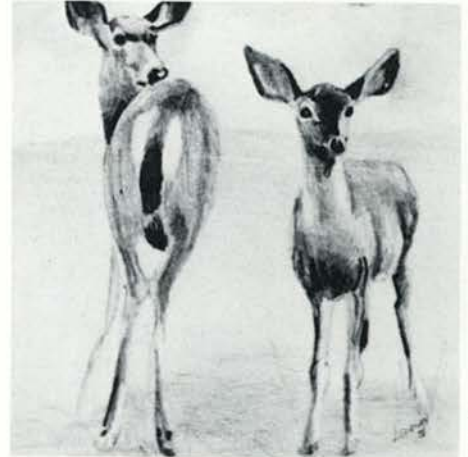
The chapter is presently drawing up plans to build and place bird feeders at selected campus locations. It is hoped that people will view at a distance so the feeders can function properly. As in the previous year, our chief money-making activity was cleaning the A.S.U.I. Kibbie Dome on the Sundays following each of the four evening home football games. Members learned to appreciate those who don't toss popcorn and coke cups on the floor.

The Wildlife Society has become one of the more active clubs in the FWR college, largely through membership participation. Students are invited to join in the organization's activities. ■



Lynn Burton

WILDLIFE CONCLAVE BOWL TEAM



John Dorman

WILDLIFE CONCLAVE 1976

The University of Idaho student chapter of the Wildlife Society was well represented when participants traveled to Las Cruces, New Mexico last April, 1976. The Idaho chapter won first place in the Western Division Wildlife Student Conclave Bowl by defeating, in double elimination, such schools as Texas A & M, Colorado State, U.C. Davis, and Humboldt. All aspects of wildlife were fair game for questions in the bowl (management, research, laws, etc.). Ten chapters participated; second and third places were taken by Humboldt and the University of Wyoming, respectively.

The chapter also received the first place Conclave award for participation in field trips, demonstrations, and social get-togethers. While Idaho was putting up with snow flurries, wildlifers who ventured to New Mexico enjoyed the dips in the pool, walking bare-footed on the dunes of White Sands National Monument, and sunburn. Those who drove private cars also toured such areas as the Snake River Birds of Prey Natural Area, Idaho; Zion National Park, Utah; and Saquaro National Monument, Arizona.

This year, Colorado State will host the annual Conclave, April 7-9, and some twenty University of Idaho chapter members are planning to attend. ■



Susan Heib

FORESTER ABROAD

Ed. Note - Arlene Blade graduated in May 1976 (B.S. Forest Resources). To our knowledge, she is the first woman graduate from the college to work abroad. She is a Smithsonian (Peace Corps) Volunteer in Upper Volta, Africa and began her training in December 1976. (In February 1977 Kathryn Hunter, B.S. Forest Resources, began her training as a Peace Corps Volunteer in Honduras.) Here is a portion of the letter Arlene sent to Fred Johnson, Professor, Forest Resources.

Nobere, Haute-Volta

My dear Fred, another letter so soon because I have an idea now of what my job will be and I need some help, some technical assistance. Please consult a map if you have one. I will be stationed 17 km northwest of Bobo-dioulasso, the former French colonial capitol. Formally, I should be working on "Amanagement du Forêt Classe." Besides writing a management plan for this 8,000 hectare "forêt classe", the FAO guy, for whom I will be working, is interested in a fairly thorough investigation of the natural vegetation. Apparently, no one knows what is out there other than the major tree species. Just about no *Adansonia*, but lots of *Bombax (costatum?)*, *Parkii biglobasa*, *Gardenia* spp. and *Combretum* spp.

I will be put in this "affectation" because I am the only forester of the five of us who has had any tropical "stuff". If I am able to spend most of my time and emphasis on this, Fred, I would like some help getting floras (or any written material) as well as suggestions of "summer camp" type techniques of sampling. I do have most of those notes with me. Actually, what I am trying to say is that this may turn out to be a heavy-duty research type project with a good bit of responsibility in light of the limited background we both know I have. I am really excited, but realize I need some help. This may warrant a visit from you, Fred.

A description of Dinderesso (the village, nursery, plantation and forêt classe that will be my home in a few

weeks). Some sandy, sandy soil around Dinderesso, particularly so considering all the laterite in Upper Volta. A general Thorn Forest, and I really cannot be more specific than that for a name. I have only cruised through the "undisturbed" part in a Landrover one time. Several hundred hectares are now planted to *Eucalyptus* sp., *Cassia* sp., *Azadiracta indica* and *Gmelina* sp. and *Tectona grandis*. There is this nursery that relies on a most amazing little river for its irrigation. The vegetation along the river and the fact that the construction of a bridge is being supervised by some Chinese guys, makes the whole place reminiscent of "The Bridge Over the River Kwai". There is a bamboo plantation across the river, near the bridge. Lots of outrageous birds around, some Boas (snakes) and during the lazy, lazy African afternoons, the insect life just hums! Sad to say, the village of Dinderesso is not much of a village. Rather it is a small forestry school (ten students) and the workers for the nursery and some from the plantations. Life could be a bit lonely out in tranquil, shady Dinderesso.

Colonial life in West Africa agrees with me. I am already slipping gracefully into the gin and tonic (slice of lemon) habit. Since I am down south now, I have been sucking on Baobab fruit while writing this and this morning I picked a most gorgeous *Erythrina* blossom - orange. My finger has a large rip in it as a result of my foolhardy enthusiasm.

We are here at the Po National Park until Friday when we become Volunteers. Today we saw real elephants, baboons, water bucks, various antelope-type creatures and some Abyssinian rollers. It is too exciting to be here, Fred. No electricity or running water, but I will have a well. Please come to visit.

*My fond regards,
Beano Blade*

In life, as in chess, forethought wins.

-Buxton



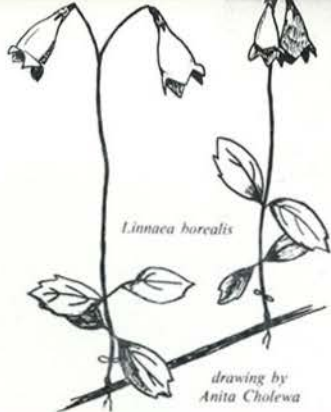
James Doering

NATURAL RESOURCES WEEK 1976

Forestry Week has seen a name change. April 1976 saw the beginning of Natural Resources Week. The students of the college felt this name would better reflect the entire college. It was a week full of activities, contests and guest speakers.

The "What the hell is that?" contest saw teams comprised of students from different options try to identify everything from bird skulls to finished wood. There was beer brewing and duck carving exhibitions. The dance was a success for once and over 350 people turned out for the Barbecue. The highlight of the week was the parade down Main Street with Woodsy Owl and Smokey Bear. Winners of various awards were: Jerran Flinders (wildlife resources), teacher of the year; Kate Sullivan, outstanding senior; Greg Outcalt, all around best beard; Anita Cholewa, best beard effort with the least results; Robert Irwin, tobacco spitting (longest and most accurate); Clint Rand, elk bulging; and John Nycum, coyote calling.

Natural Resources Week 1977 (April 18-24) promises to be even better. The highlight of the week will be a 24-hour bike marathon in the Kibbie Dome. Since there was no theme in 1976, the students felt that a week so important should have one. This year we are "Working Together Today for Tomorrow."



John Schomaker

Practical!

RATTLER RESEARCH

by Jack Whitman

The rattlesnake is probably one of the least liked members of our animal world. Its caricatures adorn the structures of countless societies throughout the world. Facts are shrouded in imaginative mystery. Serpents of all classes have been, and still are, the most persecuted members of the natural fauna. But to a group of student researchers at the University of Idaho, this buzz-tail reptile is the object of a fascinating study.

In early May 1976, using funds from their own pockets, the rattlesnake researchers initiated the mark-and-release phase of their study on the poisonous northern Pacific rattlesnake (*Crotalus viridis oreganus*). Equipped with snake tongs, branding iron (yes, branding iron), and muslin snake bags, the snake biologists trekked the talus slopes repeatedly in search of the snakes. The spring sun that heated the black basalt lured the overwintering snakes out of their damp hibernacula.

The rattlesnake research was initiated by undergraduate Mark Armbruster.

From the Georgia swamps where he searched for cottonmouths and eastern diamondbacks, Mark had acquired a rich background in the ways of the poisonous snakes. He, along with fellow snake enthusiasts Jeff Copeland and Jack Whitman, made up the team.

Winter hibernacula

The principal object of the research was to determine, through marking techniques, whether northern Pacific rattlesnakes return annually to the same winter hibernacula. Rattlesnakes are known to congregate in vast numbers in these "snake pits" in the early fall. The initial effort of the project was to locate two or more hibernacula in close proximity to one another and mark as many individuals as possible from each. Then, through subsequent recaptures the following spring, determination of philopatric tendencies would be possible.

Several days were spent on the breaks of the Potlatch River in search of the snakes. Two major hibernacula were located. Then the work began; tension mounted as more and more snakes were drawn out with tongs and loaded into the muslin bags.

One by one, the snakes were weighed, measured and branded; notes were made of their physical condition and each was released at its capture site. These operations, so simple in description, usually left the investigators sweat-drenched and tense. One small blunder could have meant abandonment of the project, not to mention a hurried trip to the hospital for treatment.

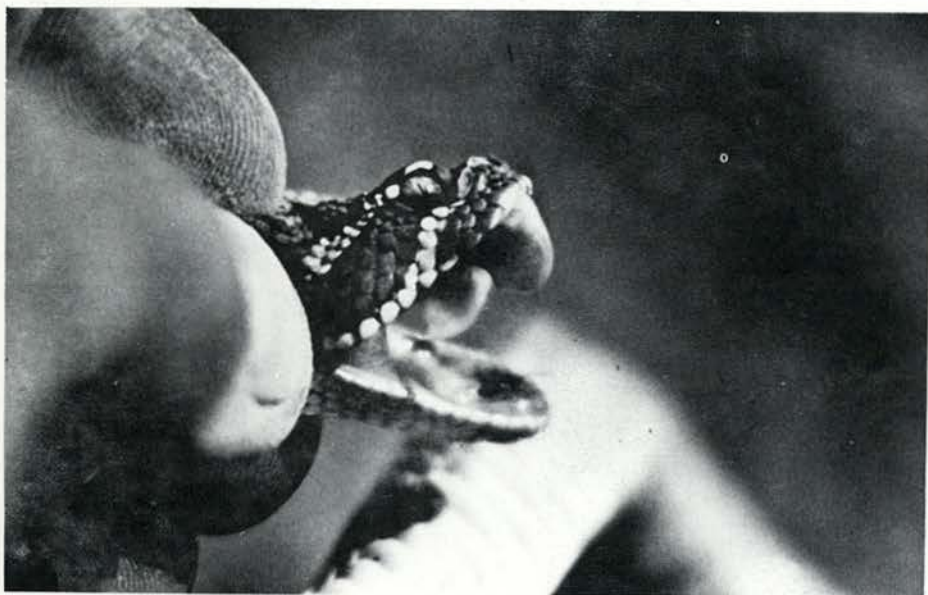
Later in the spring, when weather conditions were more favorable for the snakes, they dispersed from the areas of the hibernacula. Fewer and fewer snakes were to be found, so the first phase of the rattlesnake research was terminated. The researchers reluctantly returned their full attention back to their academic studies, and awaited eagerly the arrival of the next spring. ■

WILDLAND REC IN PRACTICE

During our years in college, we often ask ourselves, "Am I learning anything practical?" With this in mind, the Wildland Recreation Association began another year of activities.

September saw a successful field trip to Packer John's Cabin State Park near New Meadows, Idaho. Armed with pencils and plane tables, we surveyed the park to assist the state in planning. The following week saw us at the annual meeting of the Idaho Recreation and Parks Society, where we heard lectures and demonstrations on current topics in recreation. Throughout the first semester we had a series of mini-courses on such topics as safe use of an ax and recognition of hazardous trees. The second semester saw activities such as movies on Alaska and the Idaho Primitive Area, a day hike and involvement in Natural Resources Week.

Membership in the association has increased, but we still need more participation and interest. We can no longer use the excuse of being a new organization. The association is an excellent opportunity for Wildland Recreation students to meet other people in the field and to "learn something practical." ■



Jack Whitman



Rob Dodge

The Thrill of Victory

SAF HAS A BUSY YEAR

The student chapter of the Society of American Foresters enjoyed a successful and rewarding year. Under the direction of an enterprising group of officers, members focused their energies upon supplementing their forestry education and strengthening the quality of the chapter's program. As a result, interest and attendance at SAF activities increased dramatically, and membership expanded to over 70 students.

Besides the regular monthly business meetings, SAF played host to a wide variety of presentations. Guest speakers covered such topics as "The New Alaska", "Weyerhaeuser's High Yield Program", "Multiple-Use Planning in the Forests of Honduras", "Southern Pine and Hardwood Management", "Alaskan Wildlife", and "Forest Management Problems Created by the Delineation of Critical Grizzly Bear Habitat". In addition to speakers, the chapter arranged two field trips. On the first trip, members studied incorrect forestry practices and discussed how to avoid them. The second trip was a joint venture with The Wildlife Society to look at the impact of various silvicultural systems on wildlife and their habitat.

Always accused of concentrating on academic pursuits, the chapter emphasized social activities more than it had in previous years. Over the 1976-77 school year, SAF directed its energy towards college functions such as the FWR Fall Barbecue, the FWR Country Christmas Dance, and the FWR Natural Resources Week Parade. Other activities included guided tours of the FWR building and a fund drive for the Ernest Wohletz scholarship project.

In order to raise money to finance their activities, chapter members spent the Sundays after home football games sweeping the Kibbie Dome. Although completely flabbergasted at how many pounds of peanuts 15,000 people could eat, SAFers were not deterred from

manning their brooms. The clean-up was a dirty, dusty job, but by far the most profitable fund-raising activity to date. ■



Bart Simpson

The Agony of Defeat

The trucks! The cats! The yarders! I say more power to 'em. Booger these peckerwoods always talkin' about the good old days. Let me tell you there weren't nothin' good about the good old days... Far as workin', loggin', it was bust your bleedin' ass from dark to dark an' maybe you fall three trees. Three trees! An' any snotnosed kid nowadays could lop all three of 'em over in half a hour with a Homelite. No sir. Good old days. The booger! The good old days didn't hardly make a dent in the shade. If you want to cut

XI SIGMA PI GETS INVOLVED

The U of I chapter of Xi Sigma Pi, the national forestry honorary society, has presented monthly noontime seminars during the academic year, working in conjunction with Associate Dean Ali Moslemi and the college's Research Committee.

The seminars, which began in February, involve each major natural resources study area. The first, given by Bill McLaughlin of the Wildland Recreation Management program area, covered computer mapping and analysis techniques; subsequent seminars were those of Dr. E. B. Thorud on the People's Republic of China, and of Jack McGee on "Flying into the Wilderness Area."

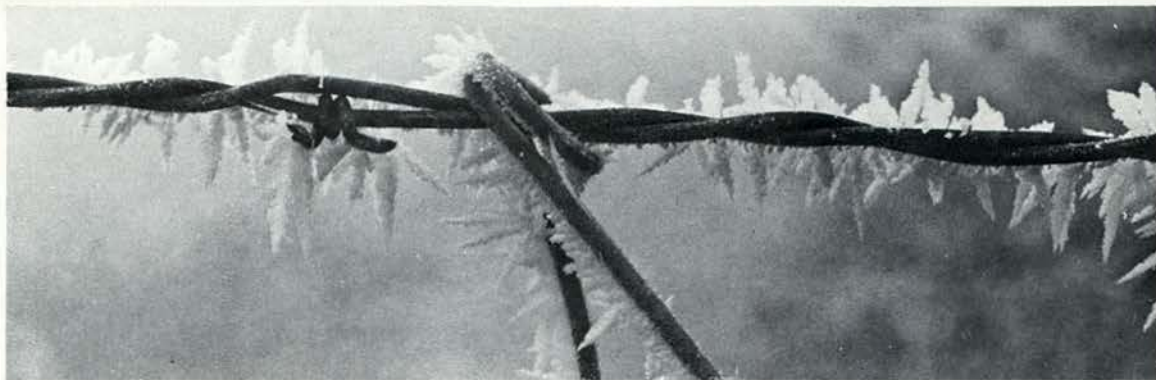
A project intended to promote community awareness of natural resource issues is in the embryonic stage; hopes are to provide Moscow citizens with background knowledge of the principles of resource management through a program which would involve students, faculty, and other college resources, including the University Forest.

A fringe benefit to the college was the society's sponsorship of the beard-growing contest during 1977 Natural Resources Week. ■

a piece you can see out in these goddamn hills you better get out there with the best thing man can make. Listen: Evenwrite an' all his crap about automation... he talk like you gotta go easy on this stuff. I know better. I seen it. I cut it down an' it's comin' back up. It'll outlast anything skin an' bone. You need to get in there with some machines an' tear hell out of it!

—Henry Stamper

from Ken Kesey's
Sometimes a Great Notion



NEW FACES IN THE COLLEGE

Six new members have joined the ranks of College of FWR teaching and research personnel. From the looks of things, all six are a definite asset to the college.

Wildlife Resources is glad to welcome Winifred (Wini) Kessler. Wini has a B.A. in Zoology and an M.S. in Range Management from the University of California at Berkeley. She is about to receive her Ph.D. from Texas A & M in Range Science. Endangered species and habitat relationships are of prime interest to Wini. With Dr. Peek, she is investigating food habits of deer, big-horn sheep and elk in areas of range overlap. In her spare time Wini likes to "make music" in traditional American style on the autoharp and dulcimer.

Oz Garton is also in Wildlife Resources and is planning a study of prey selection by predators through the use of qualitative analysis. Oz feels that Idaho is a good area for wildlife research because it has areas that are relatively undisturbed. He received a B.A. in Biology from Stanford University, an M.S. in Ecology and a Ph.D. in Wildlife Ecology at the University of California at Davis. Oz Garton is an avid trout fisherman and upland game hunter (looking for those relatively undisturbed sites).

Ken Mitchell is the new man in Forest Resources. He has worked for the past sixteen years with computer growth models of conifers, especially Douglas-fir. Ken got his B.S.F. from the University of British Columbia (you know he is from B.C. when he says "about"). An M.F. and Ph.D. from Yale add to his list of credentials. Ken is impressed with the West and the nice in Room 10.

Bill McLaughlin has a Ph.D. from the University of Colorado in regional resource planning and is now on the faculty of the Wildland Recreation Management program. He also has a National Foundation Fellowship for analyzing resources in oil shale and computerizing environmental impacts.

When not at work, he enjoys backpacking, technical rock climbing and listening to contemporary music.

Moving into the Forest Products program is Lee Medema. In addition to working on his Ph.D. in forest economics, Lee teaches Economics of Conservation and co-teaches Forest Policy and Administration with the Dean. Unique research opportunities and love of the West brought Lee to Moscow. In the short time he has been here, Lee has been out scouting likely spots for good fishing holes (which may be a little on the dry side this year).

Kjell Christopherson is also new in Forest Products. He comes back to Idaho from Norway where he worked with a consulting firm (NORCONSULT). While with NORCONSULT, Kjell worked in Panama on forestry development and in Saudia Arabia on urban development. In 1966 he got a B.S. in Business (specializing in foreign trade) and in 1970 received an M.S. in Economics from the University of Idaho. Kjell later went on to get his Ph.D. from Washington State University in Research Economics. He plans to teach a course in forest business and economics (about time).

The 1977 *Idaho Forester* would like to extend a warm welcome to these

six new faculty members. It is our sincere hope that they will be able to contribute to continuing education about natural resources in Idaho. ■

THE RANGE CLUB AND PLANT TEAM

The 1976-77 school year has been a busy one for the Range Club. Events included a packing demonstration, attendance at the Idaho Wool Growers Meeting in Idaho Falls and the Idaho Cattleman's Association meeting in Boise. In February, with a keg of beer for the prize, the undergraduates smacked their lips and beat the faculty and graduates in a plant identification contest.

The highlight of this year's activities was attendance at the annual Society for Range Management meeting held in Portland, Oregon on February 14-17. The plant team, consisting of Justin Naderman, Lynn Burton and Steve Wyatt, finished fourteenth out of nineteen teams. The teams were responsible for recognizing 200 plants commonly found on rangelands. Those students, range majors and non-range majors alike, who are interested in trying out for next year's I.D. team should contact Dr. Ken Sanders in the Range office. ■

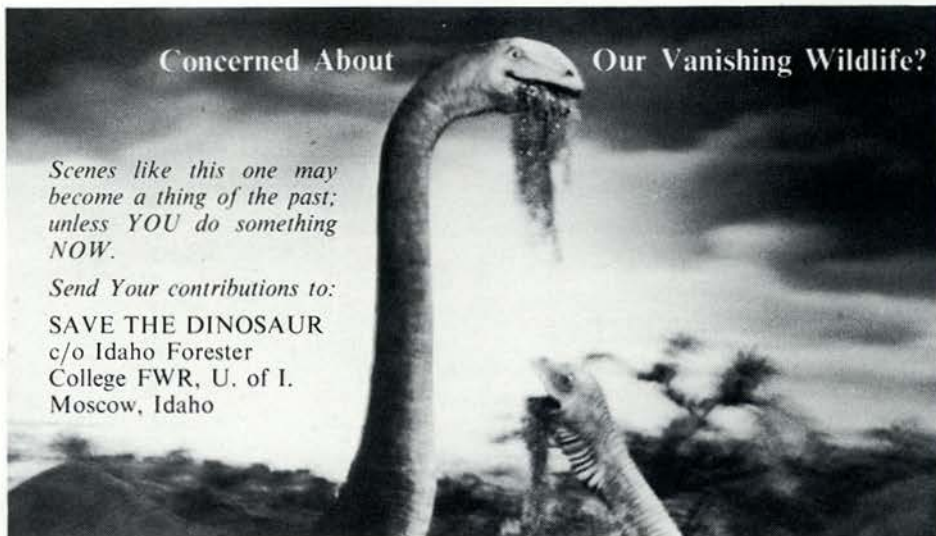
Concerned About

Our Vanishing Wildlife?

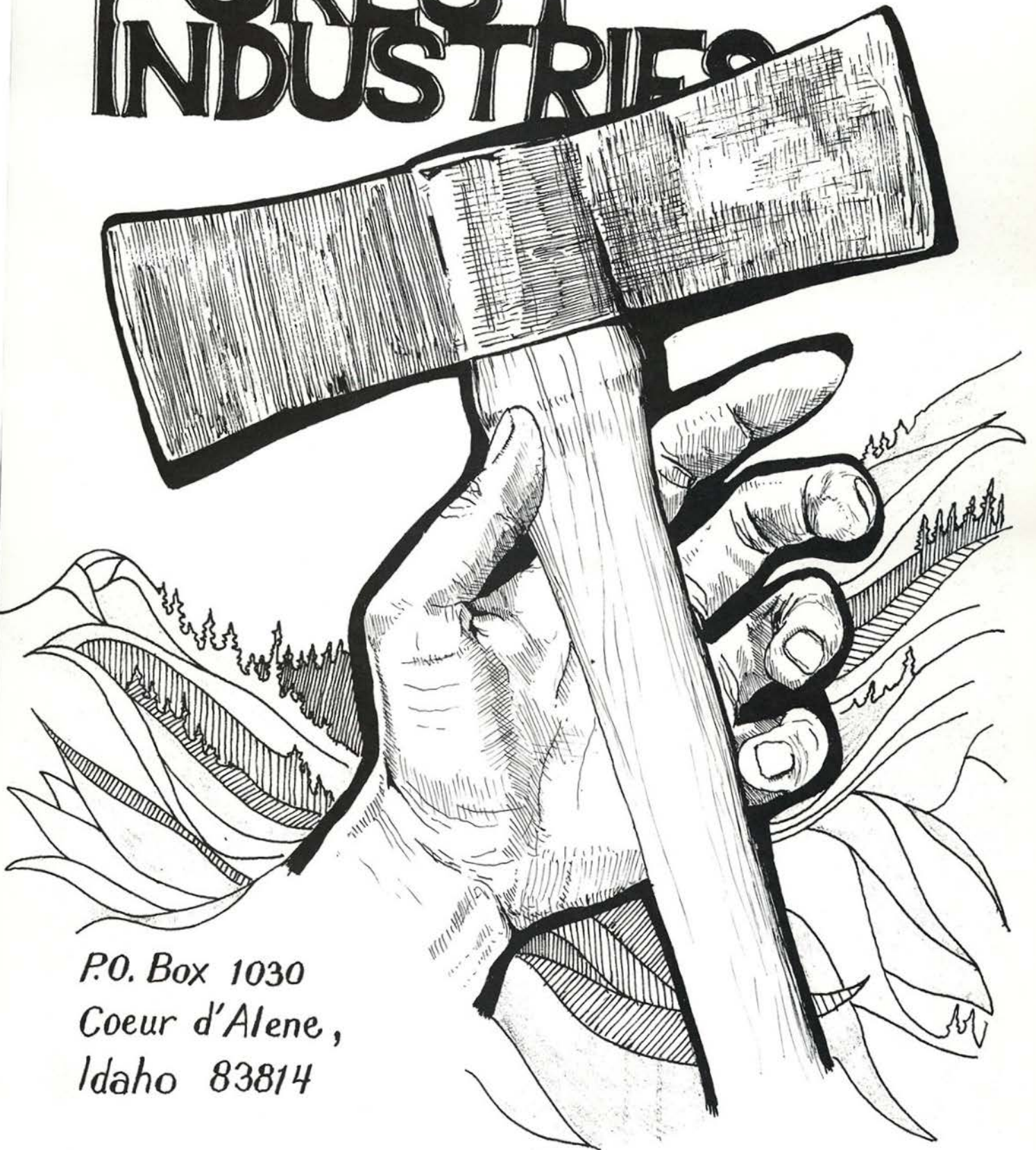
Scenes like this one may become a thing of the past; unless YOU do something NOW.

Send Your contributions to:

SAVE THE DINOSAUR
c/o Idaho Forester
College FWR, U. of I.
Moscow, Idaho



IDAHO FOREST INDUSTRIES



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Coeur d'Alene,
Idaho 83814

what's happening in forest products

Idaho Forester Interview With Professor John Howe

by Ron Herman

Professor John Howe has been with the University of Idaho since 1956. Professor Howe's education started at Amherst, where he received an A.B. degree in chemistry and economics. At Yale he received his M.S. degree in wood science and technology; his Ph.D. came from Michigan, also in wood science and technology. He is chairman of the Forest Products program area and is doing research in seasoning, preservation and mechanical properties of wood (railroad ties); wood quality (effects of irrigation); and full forest utilization. He has had numerous publications, many of which have appeared in the Forest Products Journal.

Forester: Are the people in the wood industry at this time utilizing everything they can from the forest?

Howe: There are many interesting developments along this line. It wasn't so many years ago in Idaho when they just took the stems of a few species. In fact, during the Depression the only thing that kept the mills going in Idaho was the white pine. Since then, many of the so-called "weed species" are being used, and are now very important; white fir is an example. In fact, there aren't very many trees we can't find a use for now.

If you turn your attention to the tree itself, we have some interesting developments. At the Southern Forest Experimental Station in Pineville, Louisiana, Dr. Peter Koch has developed a machine for species with taproots that will go into the forest and, instead of just cutting off the stem and leaving a stump, it takes the whole thing out like a carrot, taproot and all. The studies have shown that there is much valuable material in those taproots; an increase of 14-20 percent in yield.

Another interesting development is the use of the whole tree in pulping, using a whole-tree chipper.

Forester: You mean they are now utilizing the bark and the branches?

Howe: Yep, depending on the market demand for chips. When there is a big demand, they will accept material that they ordinarily would not when the demand is low. Another interesting development some Americans brought back from Russia, is that the Russians are using foliage as a source of animal food. They process the foliage and call it "muka", and they claim that for every ton of muka, they free a ton of grain for human consumption.

Oregon State University has recently developed a wax that they process from Douglas-fir bark. A company near Eugene not only produces a wax from this bark, but also they separate the fine material out and use it for an amendment in glue for making plywood.



James Doering

Forester: Are the mills utilizing their waste products for fuel, with the shortage of energy?

Howe: You bet. The value of wood bark for energy is fairly low on the list, but whenever the industries can't use wood-waste material for anything else, you will find them firing their boilers with it. The shavings from planer mills used to be used to make pres-tologs or just burnt in their boilers. Now shavings are getting scarce because they can use them in particleboard. I understand that the new mill Potlatch

has constructed in Post Falls was built on the provision that it would use no outside energy.

Forester: Is this why you don't see the tepee furnaces burning wastes anymore?

Howe: Yes. There are two reasons for this. One is that the air quality standards are phasing them out; secondly, they can chip up the waste and make paper out of it.

Forester: This particleboard you mentioned: does it have good strength qualities, and could it be used for the core of plywood, with two layers of veneer on the outside?

plystran; a real innovation from the Potlatch Corporation

Howe: That is one of the hottest items in the forest products industry today. It is called "plystran"; a real innovation from the Potlatch Corporation. Plystran is like plywood, but the central core is made of a special particleboard. The particles are all lined up in the same direction, so you get very similar properties to regular plywood, and it competes with plywood. Let me give you a very rough illustration of how plystran conserves wood. In normal plywood construction, you need three trees, two for the outside veneer and one for the core, with a lot of waste. In plystran you use only two trees; you get the veneer, and use the wastes for the core's particle construction.

Forester: You could also use poorly formed, low-grade material in this particleboard.

Howe: Exactly. That is what makes this product a good conservation item. You can utilize the waste, and extremely low-grade material, and end up with a very good quality product. That's progress!

Forester: Are they working on processes to utilize the small trees, that we can grow more of and faster, than the large, perfect trees?



Howe: It is inevitable that the forest products industry is coming to this. We are running out of the big, old trees and we don't have time to replace them. We have many small hardwoods and softwoods, like lodgepole pine. We are working on a project now to make these into railroad ties. You can't make a whole tie out of these trees, but you can make half a tie. Then by taking a metal dowel, you can pin the two halves together and get a laminated railroad tie.

Forester: This certainly would be a good conservation project. I used to work for the old Penn-Central Railroad back east, and I know that many tracks need to be replaced. On many lines there is a 10-mile speed limit.

Howe: Yes, and another new product along this line that a company in Portland, Oregon developed is making new ties out of old ones, similar to particleboard. This is a good way to conserve, utilizing the old ties instead of discarding them.

There is a lot of material in the woods today just going to waste. One project we are working on right now is utilizing dead white pine, and there is plenty of dead white pine in Idaho. The amount of trees dying in the forest each year in Idaho is equal to, or greater than, the amount harvested and taken to the mill. We searched for a novel idea, and found one in Oregon. A company there makes paneling out of dead ponderosa pine that is stained and has worm holes in it. People like the paneling, and the manufacturers cannot produce enough of it. If they can do it in Oregon, we can do it in Idaho, using white pine, which can also have the worm holes and stained appearance. This paneling sells for the same price as that made from good, clear wood.

I've eaten doughnuts made out of wood. These things are being produced. I've eaten them and they are good.

—Dean Ehrenreich

Forester: By utilizing this dead material, you are also removing the snags that create a fire hazard and breed insects and disease.

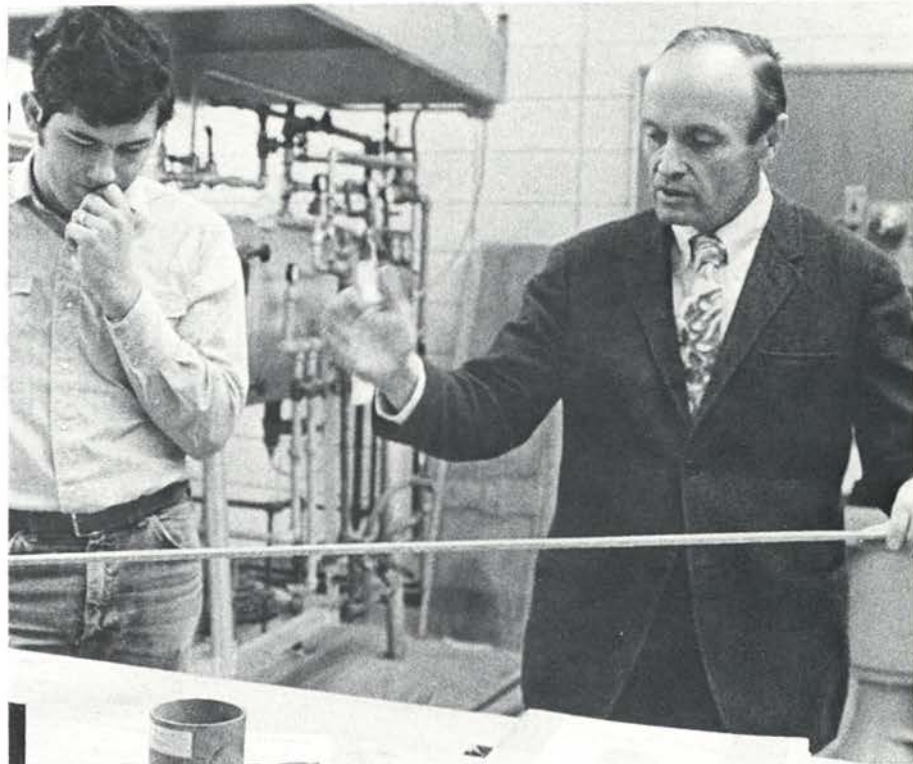
Howe: Exactly. And if you look around the forests in Idaho, you see millions of board feet of white pine and lodgepole not being utilized. Professor Leonard Johnson is working on using the dead material for energy. By removing the dead material when they cut the high-grade or stressed material, it would probably pay to take the dead material out and get it to the boilers, factories or wherever it can be used. I think we will find that in using this material, we are going to have to use it for more than one product.

Along the lines of conservation, we are looking into a project with the forest geneticists on the conservation of energy. We have three sites now, two nuclear and one geothermal. Here we are setting up tree farms and using the warm water to irrigate them.

Forester: I remember reading about a similar project in Europe, where they are using the warm water to irrigate crops. The problem is they are not sure how many more insects the warm water will propagate.

Howe: That is true, whenever you create conditions like this that are better for the trees, you also make it better for the trees' enemies. That is part of the job; to see if the idea is practical. One thing is certain, people do not want this warm water from these huge power plants dumped into the streams.

Well, I've told you about some of the new developments and some of the projects we are working on at the college. Now, I'd like to mention again that good wood utilization is good conservation. By totally utilizing what you remove, you can cut down on the total amount that you have to take out of the forest. ■



living the land ethic

by Mark Fleming

Mark Fleming is a senior in Forest Resources Management and Wildland Recreation Management.

As Aldo Leopold noted in A Sand County Almanac, "the most serious obstacle impeding the evolution of a land ethic is the fact that our educational and economic system is headed away from rather than toward an intense consciousness of land." Being as true today as it was in 1949, we are continually guided by economic self-interest rather than by an ethical consideration for the planet we live on. By contrast, Leopold's land ethic would "presuppose the existence of some mental image of land as a 'biotic mechanism' in which the individual feels responsible for the health of the land. The land ethic simply enlarges the boundaries of the social community to include soils, waters, plants, and animals, or collectively: the land."

What is to be gained from wilderness and its associated land ethic? How does it fit into our modern techno-economic system? How can we develop a land ethic in our fast-paced society? What should the land ethic consist of? Keeping these questions in mind, I hope to show the land ethic's role as a guiding and unifying force for our social and economic needs.

Economic self-interest

Under a land ethic, our economic values should be subordinated to ecological principles. It would not preclude the use of our "resources" but would safeguard their continued existence while insuring their proper allocation. Presently, the state of evolution of the land ethic is represented by our protection of undeveloped wildlands, as embodied in the Wilderness Act of 1964 and other environmental acts. Though these acts have been initiated in light of ethical and ecological considerations, they have been compromised in many cases by economical self-interest.



**'weeds in the
city lot convey
the same lesson as
the redwoods'**

Economically and legally, wilderness is viewed in terms of the Multiple Use and Sustained Yield Act of 1960, which aims to maximize the annual flow of benefits derived from the wilderness experience and associated values. Until recently, Americans have failed to recognize the value of wilderness, and even today are not fully aware of the opportunity costs precluded by development of wildlands — the cost of foreclosing future options by irreversible decisions. Traditional land economics and benefit-cost approaches have likewise failed to take this into account on decisions relating to development. David Brower summed up the situation in Wilderness-Conflict and Conscience, “we need to remember that our choice to preserve is a temporary determination at best. Our choice to sacrifice, however, requires all future men to live by our choice.”

Flora diversity

Another uncommon economic value attributed to wilderness is the genetic diversity of its flora. Hendee, Stankey, and Lucas said in their forthcoming book, “the complex ecosystems that develop in undisturbed areas support a genetic diversity that maximizes the possibilities of the evolutionary process. Wilderness becomes a ‘gene bank’ that evolution can draw upon to offset man’s influence in narrowing the number of species on the planet.” Closely related to this is the medical potential of diverse botanical communities, which provides a source for our continuing advances in medicine.

It is obvious from this discussion that the economics of undeveloped wildlands has many far-reaching ramifications, which must be taken into account for proper resource allocation. Economics, in this case, is a tool and not the sole criteria for allocating land use. Nor should we invent subterfuges to give non-economic objects and ideals economic value in order to justify their existence or allocation.

Aldo Leopold had far-reaching foresight in these matters when he stated, “no important change in ethics was ever accomplished without an internal change in our intellectual emphasis, loyalties, affections, and convictions. In our attempt to make conservation easy, we have made it trivial.” In order to bring about a more serious approach to conservation and the land ethic, we must rely upon education as the “engineering for support,” as phrased by David Brower. Education such as this must occur not only in our public and private institutions but should pervade

our daily lives. Our very existence is a learning process; it is time we took advantage of our situation.

As we learn and evolve towards this ideal, it is not necessary for everyone to “run to the woods.” In fact, this would be in violation of the very ethic we are trying to create. Aldo Leopold further noted that, “the only true development in American recreational resources is the development of the perceptive faculty in Americans. The weeds in the city lot convey the same lesson as the redwoods.” Instead of “loving the woods to death,” we should strive to make where we are a paradise and not expect to have one waiting for us in “Yellowstone.” Individual responsibility toward the land will bring about empathy and an ethical consideration for our community: the planet Earth. ■

**‘the redwood
is a
magnificent
tree’**

—Ron Mastroguiseppe



snake river birds of a feather

by Jack Whitman

Jack Whitman is a junior in Wildlife Resources and has worked at the Snake River Birds of Prey Natural Area for two summers.

Slowly, cautiously, a sun-scorched face peers over the canyon rim. Seconds later a rope is flung down. As the rope uncoils in descent, a screaming golden eagle leaves her nest. Before the eagle is out of sight on the upwelling currents of air, a climber is halfway to the nest. He swings into the massive stick nest and removes his pack. The data forms and other research equipment are laid out and, systematically, each is put to use. The cry of the eight-week-old eagle nestling and the occasional gash

in the biologist's hand from the young eagle's feet are hardly noticed. The climber is now an apprentice, learning the ways of survival of the eagle, the hawk and the falcon.

Research on the many species of raptors (birds of prey) in the Snake River Birds of Prey Natural Area has been going on for over a decade. The Natural Area, administered by the Bureau of Land Management, is the site of the densest breeding population of prairie falcons found anywhere. Perhaps as much as ten percent of the world's known population of prairie falcons nest there. The majestic golden eagle nests in the area in equally high densities. Fourteen raptorial species,

including red-tail and ferruginous hawks, barn and great horned owls, and kestrels are quite common.

High diversity

The combination of suitable nesting cliffs and abundant prey is unequalled anywhere. Diversity among the floral and faunal components of this semi-desert community is high. Townsend ground squirrels, black-tailed jackrabbits, gopher snakes, and many of the lizard species are frequent contributors to the food list of the raptors.

Raptor research began in this area in 1966 under the U.S. Fish and Wildlife Service. The Idaho Cooperative Wildlife Research Unit followed with ecological



Jack Whitman

The majestic golden eagle, with a wingspan up to 7 feet, is a common nester along the basalt cliffs.



Jack Whitman

The Black-tailed jackrabbit serves as the basic food source to many of the Natural Area's predators.



Jack Whitman

The occurrence of high nesting cliffs and abundant prey makes the Snake River Birds of Prey Natural Area one of the most unique raptor breeding areas in the world.

studies on the raptors from 1968 through 1971. In October 1971, the Snake River Birds of Prey Natural Area was formally established as the first preserve dedicated to birds of prey. In 1972, the BLM began sponsoring research in the area; they have since undertaken an immense, ecosystems-approach research project there.

The Snake River Birds of Prey Natural Area consists of 755 square miles of near pristine basalt cliffs, river riparia, and sagebrush-covered flats. It is located approximately 35 miles southwest of Boise, and extends for 33 miles up the Snake River canyon. Cliffs up to 600 feet high provide nesting sites. The flats adjacent to the cliffs, predominantly sagebrush, provide the habitat for the prey of the raptors.

Raptor ecology

The BLM's research on the Natural Area has been designed from the start to analyze the ecology of the raptors for the ultimate betterment of management practices. The BLM has initiated projects dealing with virtually every facet of the communities of the Natural Area. Research into the distribution, reproductive performance and food habits of the raptors has been emphasized, but the terrestrial predators, reptiles, vegetation and small mammals and birds are all objects of research projects. These studies are not individual entities, but are interwoven parts of the research plan.

Researchers from the University of Idaho play an important role in the ongoing studies. Of the nine projects supported by BLM funding in 1976, five were contracted through the University of Idaho; three through the College of Forestry, Wildlife and Range Sciences or the Idaho Cooperative

Wildlife Research Unit, and two through the Department of Biological Sciences.

The Wildlife Resources program, College of FWR, with Dr. Steven Peterson as principal investigator, is responsible for two phases of the research. Dr. Peterson is conducting investigations to assess human activity and the associated degree of disturbance in the Natural Area. The Wildlife Resources program is also examining nesting habits and feeding behavior of the three major raptorial species in the area—the golden eagle, the prairie falcon and the red-tail hawk.

Non-avian predation

The Idaho Cooperative Wildlife Research Unit has undertaken the other College of FWR based project, with Dr. Maurice Hornocker as the principal investigator. It focuses on non-avian predation; Hornocker's investigations include work with badgers,

coyotes and bobcats, determining their abundance and impacts on the various foods utilized by the birds of prey.

Other studies being conducted on the Natural Area encompass a wide latitude, from lizards to peregrines, and from mice to songbirds. As previously mentioned, this multi-faceted research is an immense undertaking. The need for this type of integrated research is clear; without it, the true picture of the interworkings of the entire ecosystem would be impossible. The effects of different land use practices will ultimately affect the balance of biotic and abiotic factors which support the unique raptor population found in this Snake River preserve.

In this age of increased industrialization and shortages of natural resources, other preserves like the Snake River Birds of Prey Natural Area need to be set aside now. The progressive encroachment of farming into the deserts must be critically reviewed and impacts realized before it is too late.

The BLM has placed a moratorium on land alteration in the sagebrush flats immediately adjacent to the Snake River cliffs while it assesses the impact of farming and other land practices on the raptor populations. The rich desert soil is being sought by farmers with a view to irrigated cropping; sheepmen utilize portions of the Natural Area for winter range; mining firms have shown interest in parts of the area. Through its integrated research program, the BLM is attempting to assess the effects of these various uses. Because of these efforts, the Snake River Birds of Prey Natural Area will continue to be a place where the eagle and the falcon, the coyote and the rattlesnake, can survive mankind's sometimes heedless progress. ■

Speeds over 200 mph have been recorded for the prairie falcon. Idaho has the densest breeding population found anywhere.



Jack Whitman

the hungry route

by J. Jerome Montague

J. Jerome Montague is a senior in Wildlife Resources.

Trying to avoid detection by the roving special agents of Spokane's Yardly railroad yard, I was hunkered down on my pack behind one of several dozen Ford Mavericks fresh off the assembly line. The morning sunlight on the perforated shielding of the automobile carrier cast a soft, reassuring light much like that of the sun filtering through the foliage of a stand of young maple. This was in sharp contrast to the otherwise cold, hard world of steel and the deep-throated rumblings of the diesel-electric units.

My thoughts wandered to the earliest railroad; its cars were like wagons and the locomotive was hardly more than a boiler on a cart. Skeptics were a dime a dozen, and proponents were probably limited to the inventor, engineer and financier. As the infant train chugged its first miles, the local vagabonds were probably quick to realize its potential, and likewise were among the pioneer practitioners of what came to be known as "rail-roading". Some

penniless traveler trying to get from the bogside to London proper, crouched low and inconspicuously in the grass alongside the rails, awaiting dusk and the coming of man's clamorous new invention. As the vehicle clattered into sight, his pulse quickened and his muscles prepared themselves. Amid the smoke, clangor, fear and anticipation, he burst from his ambush and boldly boarded the mechanical snake. Thus the hobo was born. Over the years, his ranks have risen from a handful to colony proportions during the depression era; but now . . .

My stomach knotted up as I heard a vehicle slowly approaching us in the gravel beside the train. I crouched lower, and beneath the Maverick I could see my three hobo-comrades doing likewise. Bert was tightly clutching the muzzle of Pearl, his black lab, in a further attempt to prevent our disclosure. The white van slowed to a disheartening stop even with our car. The door slammed, a broad figure appeared at the end of the car, and I heard the stern question, "Do you-all want to go to JAIL?" At that I suddenly experienced a temporary queasiness in the vicinity of the bladder. Jay quickly

jumped to his feet and informed him that we didn't; a wise reply in my estimation. "Don't you-all know anything 'bout hoppin' freight trains? Why if you can't find an open boxcar, then stay clean out of these yards." As the four of us, five counting Pearl, dejectedly climbed down from the train, the special agent continued, "I still ought to throw the lot of you in jail." At this point most of us realized that we were pardoned, but Greg, last off the train, caught the impression that we were about to be carted off to the city building and protested, "Hey, what are you going to do?! You can't do this to us just for getting on a . . ." The three of us immediately set upon Greg to settle him down; not such an easy undertaking with an enraged six-foot, 220-pound Pole.

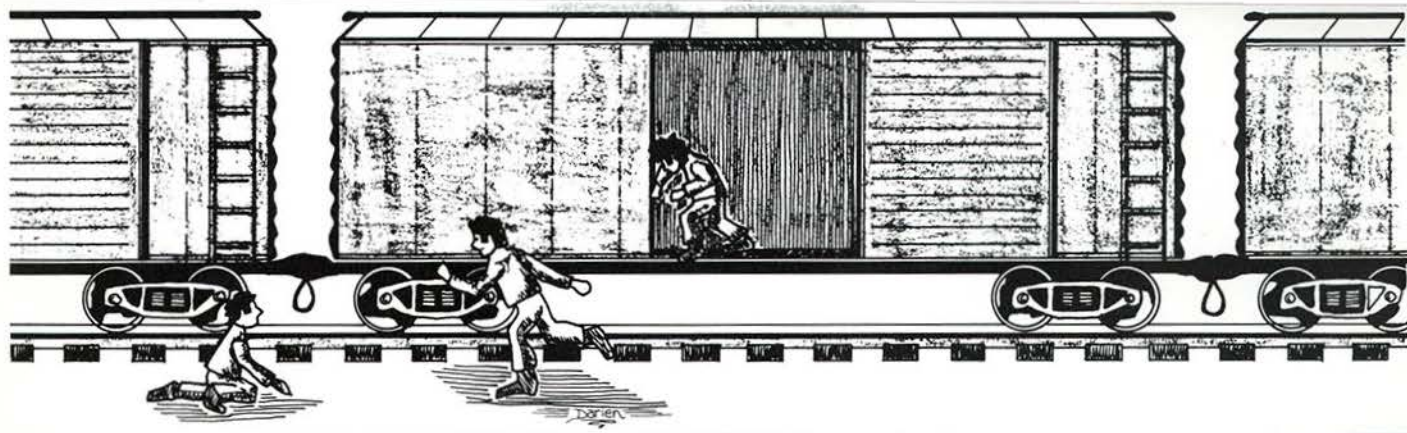
As the rail cop drove off, I became aware that we were not alone among the rail-yard shanties and piles of scrap. And whoever our company might be, their raucous laughter and slapping of knees gave the impression that they were very amused. I began to feel like a buffoon. The three of them were straight out of Hemingway's "Nick Adams" stories. They were huddled around a coffee can with a fire built in it that proved more successful at getting them dirty than it did at keeping them warm. In addition, they had a big piece of cardboard to their windward side adding to their "comfort" as they sipped a stiff brew of unknown composition.

As we approached, they seemed to simultaneously discover something of great interest in their coffee cups. Greg, naturally, was the first one to start chewing the fat. The oldest of the three proved to be a veritable encyclopedia of hobo lore. He began, "Yep, I saw you-all get on that car carrier, and I saw the dick standing at the end of the train. Yep, he can see the whole train from there."

I asked him what he was doing around there. He said, "I am just trying to pass the time." He emphasized "trying", as if he were having only mar-



J. Jerome Montague



ginal success at this endeavor. "Where you boys headed?" he asked. "Minneapolis," we replied. "Oh, Minney, eh? That's the hungry route, you know. The train never stops near a town long enough for you to run and get a bite to eat. Why on the old S.P.&S. (Spokane, Portland & Seattle R.R.) there used to be a dick, that if he caught you on the train, he'd make you prove you had a bag and enough food. If you didn't, he'd make you go to a store and get a jar of peanut butter and a box of crackers."

Trackin'

During the conversation our train pulled out, and the rail cop was opening and inspecting a boxcar on a train the next track over. He got back into his van, and as he passed us he called, "You know, that train's going to Minneapolis." The minute he was out of sight, we bade hasty farewells to our new acquaintances. Greg gave the dingiest one a pocketful of change as we bolted for the open boxcar.

After our failure minutes before, the fact that we had now actually hopped a freight was twice as exhilarating. Fearful of being foiled after that initial success, we cautiously took to the corners, the darkest areas of the box. By our first stop at Rathdrum, Idaho, most of the apprehension was already gone, and we felt like old hands. In a moment we were heading north, and soon the forest gave way to the deep blue waters of Lake Pend Oreille and its mile-long trestle. Unlike a highway bridge, a trestle lacks a safety railing; there is nothing between your boxcar door and the water but open air. When the door is moving along at 40 mph, the instincts of self-preservation try to yank you back into the safety of the car, but your senses of sight, touch and smell keep you from moving. May is warm and fragrant on the lake, but white reflections in the water tell of a tenacious winter only slowly relinquishing its grasp.

Sandpoint clings to Lake Pend Oreille much like a burl on a tree;

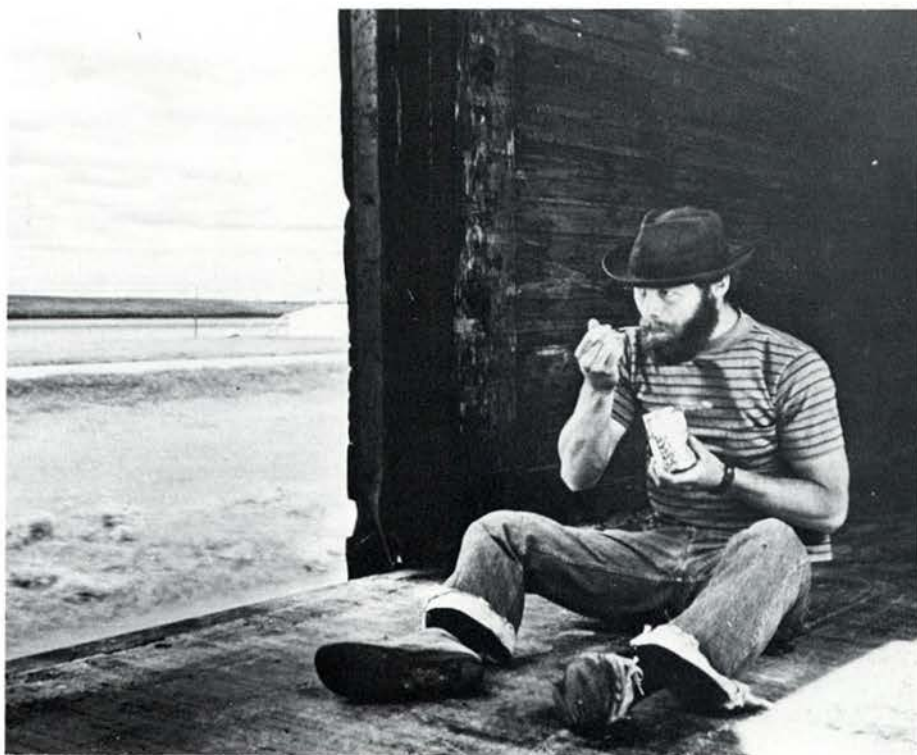
beautiful in itself, but detracting from the graceful splendor of the lake. The hills were becoming small mountains. I thought I might like to live in Sandpoint. At least that's what I thought until we pulled into Bonners Ferry. We all concluded that the north Idaho sun rises and sets in Bonners.

We were in the 120th car of a 180-car drag of empties. The unfortunate encounter with the Burlington Northern authorities in Spokane prevented us from riding train Number 80, the "hotshot" to Minneapolis. So rather than highballing up the grade out of Bonners Ferry with a short train rocketed by five units, Number 88's three diesels rumbled madly, spewing jets of soot-laden exhaust skyward as, with a determined heave, the front of the train began to move. The domino-like action of the slack coming out of the train created a sound that reverberated off the canyon walls like a gatling gun. The four of us braced

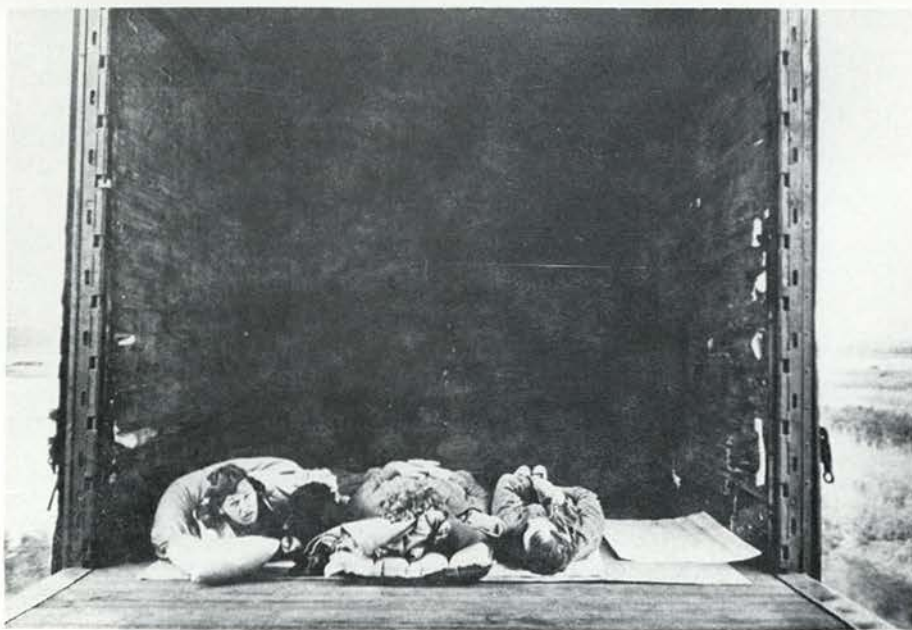
ourselves against the inevitable jostling, as Pearl slept in ignorant bliss. The familiar "jostle" left us sprawled and laughing in the back of the box, and the hapless dog lay heaped against a copper slab paralyzed with terror.

Down under

As we got higher into the Rockies there was a rapid sequence of tunnels, trestles and snow houses. Again we were unexpectedly plunged into the subterranean gloom. The roar of a freight train within the echoing confines of a tunnel is so all-encompassing that it blots out all other sound and actually gives the effect of noiselessness. As it was late in a long day, I decided to make use of this respite from light and "noise" by taking a nap. I was shortly overtaken by a surprisingly pleasant slumber. Some time later I awoke, violently clutching in near-panic the cardboard I was lying on. The blackness felt heavy on my eyes and my head was spinning dizzily. The air was thick



J. Jerome Montague



J. Jerome Montague

with a nauseating cloud of diesel fumes. The train was travelling noticeably downhill; this, combined with the continued darkness and my own dizziness, filled me with the nightmarish sensation of falling into a bottomless pit. I was afraid to move lest I slip out the gaping doorway. I had read that hobos often lose consciousness from the engine fumes in Colorado's six-mile-long Moffit Tunnel. Soon I concentrated all of my dwindling determination on remaining conscious. I was unsure how long ago we had entered the tunnel, but it seemed at least six miles worth.

The train blasted out of the tunnel. The instantaneous glare of the blazing sunlight painfully seared my eyes as my lungs gasped for the fresh mountain air. Three feeble cheers echoed my own relief. The seven-mile-long Flathead Tunnel was behind us. In Colorado only the hard-cores ride the Moffit run.

The expansive yards of Whitefish, Montana seemed far out of proportion to the size of the rest of the town. Number 88 had apparently lost all further interest in the east, so after an hour of patient waiting we decided to hunt up a new train. A young and very understanding switchman told Greg that the train two tracks over was enroute to Minneapolis, due to leave in a half hour. We clambered aboard a jumbo Boston & Maine boxcar two tracks over and one car up from our old box.

Our new car had both doors pulled wide open, an improvement over the old box with only one door jammed barely a foot open. Aside from the aesthetics of being able to view the passing scene from either side, it was safer. We had heard of a couple of boes accidentally locked in a car full of empty beer bottles. Needless to say,

we blocked both of our doors wide open with pieces of wood Greg found beside the tracks.

Twilight caught us as we neared Glacier Park. I climbed into my sleeping bag and lay on my side watching the ever-changing splendor of the Northern Rockies from my panoramic vista until my nose got too cold. I pulled the bag up and fell into a restless sleep filled with visions of Ernest Borgnine crowning my head with a sledge hammer. I awoke after daybreak somewhere in North Dakota. The rugged wilderness beauty of the "Divide" was now passed, superseded by the gently rolling range lands of the northern Great Plains. Jay and Bert were already up and about. Physical movement brought me to the realization that I felt as if I had been knocked cold in a street fight and had absorbed a dozen choice kicks from my victorious opponents. Besides that, I smelled rank. Jay asked, "How'd you sleep?" "Great," I replied, "I didn't sleep worth a damn, my bones feel like jello; it was like sleeping in a square-wheeled wagon rolling down Everest." Greg turned over on his air mattress and murmured something about one being born every minute.

On the flat ground the three units made good time. By measuring the time between mileposts, I figured we were doing better than sixty miles per hour, at least according to my crude calculations. Several hours later brought us into the maze of tracks making up Burlington Northern's Minot, North Dakota yard, which we dubbed "Little Chicago". A slowing train clanks, moans and whines like an industrial menagerie. The clamor was silenced by the grinding cessation of movement. Only the relaxing hissing of the air brakes remained to be heard. The bump

of a switch engine directed our attention to the outside in time for us to see half our train being pulled away. It was like finding your car sitting on cinder blocks in the driveway. We made our exit.

No one was about so we split up in search of someone to aid us in continuing our excursion. Greg's and my search proved fruitless, so Greg formed the plan of going into the dispatching tower and asking.

Viva le Burlington Northern

Trying to look like yardmen, we climbed the four-story tower under many a suspicious stare. The stairs ended at a glassed-in room containing innumerable instrument panels and two men resembling F.B.I. agents. I stood



Mark Vedder

"A hobo rides the trains from one job to another; a tramp rides the trains looking for work; but a person who simply rides the rails is a bum."



J. Jerome Montague

unobtrusively outside the door as Greg boldly entered and said, "Hey, do you think you could tell me where Number 80 is at?" The face of a prison warden looked back at him in an expressionless manner. I got ready for Greg to be arrested. "Number 80's gone, where you going?" the dispatcher asked. "Minneapolis," Greg replied. "That train is leaving for Minneapolis in five minutes," said the gesturing dispatcher. Greg looked down onto some fifty trains and said "Which train?" The man pulled Greg over to the window and said, "That one with the yellow and orange caboose."

We sprinted up through the yard, dodging behind cars and buildings to avoid the attention of the special agents, when a "HEY" from a loud speaker echoed across the yard. I slowed, sick with apprehension and turned around. The voice from the sky continued,

"YEAH, THAT TRAIN JUST TO YOUR LEFT WITH THE RED LIGHT. JUST HOP ON THAT FLATCAR IN FRONT OF THE CABOOSE AND HANG ON TIGHT." We both looked at each other in utter amazement and slapped each other on the back. I could have kissed that dispatcher. We gathered up Jay, Bert and Pearl and soon resumed our trek.

Later that night when everyone else was asleep, the train stopped at some small town whose name eludes me. I heard the crunching of footsteps in the ballast, and looking out, discovered a harmless old duffer working his way along the tracks. "Howdy," I said, getting his attention. "We're hoboing to Minneapolis." He looked at me and said, "A hobo, eh?" He raised his head and continued, "A hobo rides the trains from one job to another; a tramp rides the trains looking for work; but a

person who simply rides the rails is a bum." The train lurched forward and I thanked him for that bit of information. After pondering our position, I faced the facts and concluded that we must be bums.

It was near noon and the sun was uncommonly warm. Greg was standing in the doorway pointing out many of his childhood haunts as a Minnesotan. "How close are we to Minneapolis?" I asked. "Oh, we're getting pretty close, maybe 20 miles yet," he replied. I slid out of my bag and began packing everything into my makeshift dufflebag-backpack. I didn't want to be greeted by our arrival unprepared. The sights so familiar to Greg inspired a stream of colorful stories that were never quite finished; each was interrupted by another, equally astounding. Those 20 miles passed rapidly.

Passing by

"Hey, there's two chicks out here." Jay exclaimed, his head out the door. Greg went off to a corner to relieve himself as I went to the door to see this rare sight. They were waving furiously at us, and instantly I knew it was Greg's wife Tony and her friend. A lucky guess had put them in the right place at the right time. A poor time for Greg to be taking a leak in the corner of the car. As we passed, they both screamed "Don't jump!" I found this a bit amusing, since the train was going 40 miles per hour. "Greg, that was your wife," I said, but he only nodded being more concerned with the business in hand.

"The train usually stops in the yard below my old house," Greg told us. But then we watched his house go by at 35 miles per hour. "If it doesn't stop here, it usually slows down in a few miles over by Tony's house." The train felt as if it was slowing down, and we all gathered by the door in anticipation. We seriously discussed jumping, as it was then only going about 30 mph, but better sense prevailed and we de-

continued on page 62

idaho's natural areas

preservation; not recreation

by Jesse Dobbs

Jesse Dobbs is a junior in Wildland Recreation Management.

Management activities and practices tend to reduce the diversity of plant and animal communities. Systematic establishment of natural areas is an effort to preserve representative samples of the diversity of natural phenomena.

Exactly what are natural areas? They are relatively small (averaging several hundred acres) tracts of land on which natural features are preserved in as nearly undisturbed a state as possible for research and educational purposes. Natural areas serve as baseline areas for comparison with those modified by man. They are also important for

ecological studies, as well as to preserve the gene pools of typical, or rare and endangered, organisms. The natural area classification can apply to federal, state and some private lands. The U.S. Forest Service calls natural areas within national forests "Research Natural Areas".

There are as of February 1977, 13 established natural areas in Idaho (Fig. 1). Idler's Rest Nature Preserve, owned by the Nature Conservancy and the University of Idaho, is the closest to home; only six miles north of Moscow off Route 95. There are two "botanical areas" on national forest lands in Idaho. As their main purpose is preservation of old-growth western redcedar forests for the education of the general public, they are actually much the same as natural areas. Three other natural areas are now in the process of being established in Idaho. Twenty-three more sites have been formally proposed and are under consideration.

Natural area selection

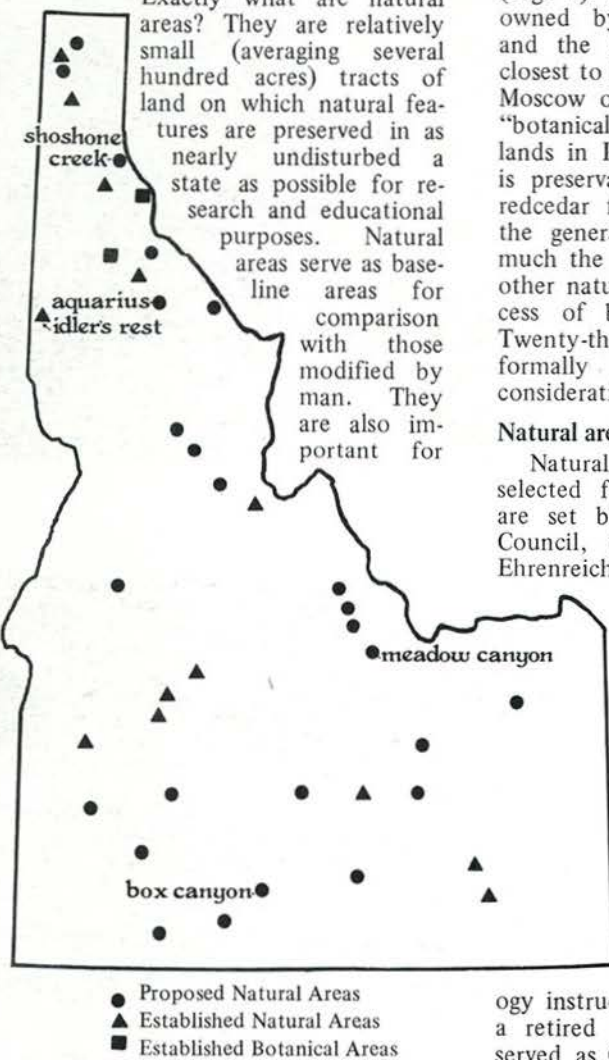
Natural areas are not randomly selected for establishment. Guidelines are set by the Idaho Natural Areas Council, chaired by Dean John H. Ehrenreich of the College of Forestry, Wildlife and Range Sciences. The Council is also responsible for making professionals aware of natural areas and for obtaining financial support. In 1974, as a product of the Natural Areas Workshop, "Research Natural Area Needs in Idaho, a First Estimate" was published. Professor Frederic D. Johnson, UI dendrology instructor, and Charles A. Wellner, a retired Forest Service silviculturist, served as Coordination Committee Co-chairmen of the workshop, and as the publication's editors. At this and

subsequent workshops, knowledgeable people in seven technical committees (Fig. 2) classified natural features by geomorphic province (e.g., Snake River Plains). After deciding which features in each province were worth preserving, the technical committees checked to find what types were already represented in existing Idaho preserves. The remaining outstanding needs were combined in suitable land and water areas by the Coordinating Committee. Following are descriptions of some proposed natural areas, and the reasons why they were selected.

At present, no alpine areas within the state have been set aside for natural area status. Three sites were recommended for preservation by Douglass Henderson, Director of the UI Herbarium and Chairman of the Alpine Areas Technical Committee. They were chosen to be representative of alpine plant communities in the Lemhi Mountains of eastcentral Idaho. As many rare alpine plant species as possible were included within the boundaries of the proposed areas. One of the areas proposed is Meadow Canyon, which features alpine and sub-alpine communities, plus limestone cliffs near the junction of the south and main forks of Meadow Canyon. Some rare (in Idaho) species of columbines grow on quartzitic talus slopes. After some field work in the summer of 1976, Henderson advised that some additional acreage north of the canyon deserved inclusion. What he and his staff found was an alpine tundra on a limestone substrate located on a flat bench at 10,240 feet. A very rare plant species, *Draba oreibata*, is well represented on this bench. Henderson noted, "The series of habitats are distinctly different from those found just across the canyon in the originally proposed area."

Shoshone Creek natural area

The proposed Shoshone Creek natural area would include the drainage basin of an un-named stream at the head of Shoshone Creek in the



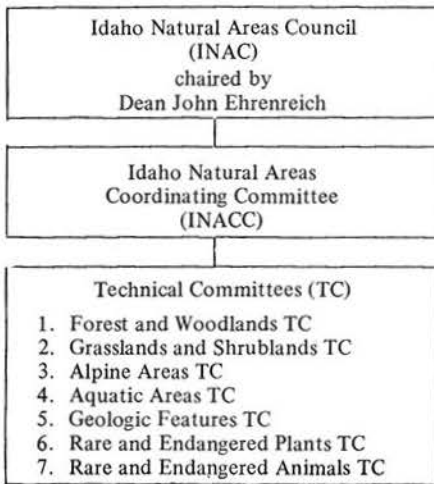
cartography by
Timothy McGarry

Fig. 1. Idaho Natural Areas.

"The last word in ignorance is the man who says of an animal or plant, 'What good is it?'... To keep every cog and wheel is the first precaution of intelligent tinkering."

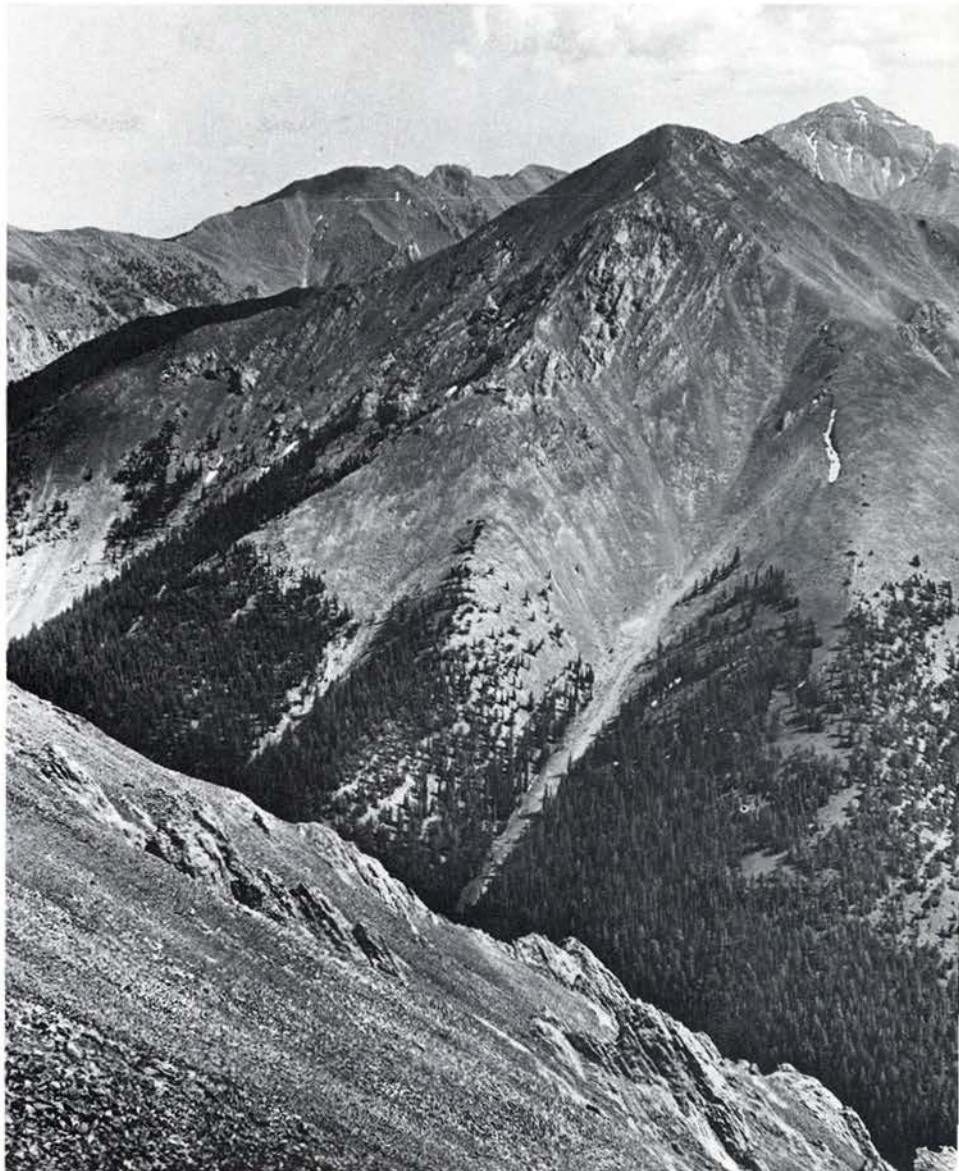
—Aldo Leopold

Fig. 2



Coeur d'Alene National Forest. The watershed, which drains to the southwest, is a young v-shaped valley with steep-sided slopes. The high point of this area lies at 6466 feet in the Bitterroot Mountains. Within the 1400-acre proposed boundary, there is nearly 3000 feet of change in elevation. Chuck Wellner, a veteran in establishing natural areas, recommended this one "to reserve an example of mature mountain hemlock forest. At present, mountain hemlock is not represented within any established natural area in the Northern Rocky Mountains." The soils vary in composition from deep, loamy soils to shallow soils and rock slides. The stream has a relatively high zinc content for northern Idaho, which may affect the aquatic biota. The proposed natural area can serve as a benchmark for eight habitat types and small watersheds in northern Idaho.

Professor Johnson describes a natural area on the North Fork of the Clearwater River, proposed in 1973. "This area is a refugium for Pacific coastal plants and contains two unique forest habitat types. The proposed Aquarius natural area contains the last un-roaded stretch of the North Fork; some five miles immediately above the Dworshak Reservoir and



Douglas Henderson



Douglas Henderson



Fred Johnson

North Fork Clearwater River

below the Canyon Ranger Station on the Clearwater National Forest. The total area proposed is about 3000 acres, rather large for a natural area, but the canyon walls here are very steep and intensive uses are not likely. River level here is about 1700 feet, and the object is to include both north and south faces of the canyon up to about 3000 feet elevation; near this point disturbance from logging starts. One of the notable features is the abundance of ferns. Perhaps half of all the fern species in Idaho, about 20, would likely occur in the proposed boundaries. A recent paper describes a dozen plant species from this general area, including three ferns which heretofore had not been known in Idaho. Other features include a very large, old landslide which supports the largest stand of red alder east of the Cascades; an endangered plant species and two that are classed as threatened; forest representing four western redcedar/fern associations; the highest concentration known in the Rockies of Pacific coastal disjunct plants; and five miles of beautiful river."



Fred Johnson

Aquatic natural areas

In 1974, UI zoology professor Fred Rabe, and Nancy Savage received funding to classify Idaho's surface waters and develop a systematic method



Fred Johnson

Proposed Aquarius natural area

for selecting aquatic natural areas. They identified aquatic cell situations in lakes, marshes, bogs, fens, thermal waters and streams. One of several possible natural areas identified is the proposed Box Canyon natural area. A tributary to the Snake River near Hagerman, Box Canyon was formed, Rabe and Savage explain, "by the erosive effects of discharge springs from the Snake River aquifer. Contained within the 1¼ mile-long canyon are numerous springs, deep spring pools, a swift-flowing stream, and a 12-foot waterfall." The annual discharge of 850 cubic feet per second makes Box Canyon the eleventh largest spring source in the United States.

This proposed natural area is one of the few remaining undisturbed box canyon ecosystems in the Snake River Plains. The stream source and canyon have biological, geological and hydrological significance. Box Canyon also provides a sanctuary for a diverse wildlife community including endangered birds of prey. Most of the canyon is privately owned and the high quality water is in demand for trout farms in the area.

Wildlife natural areas

It is difficult to identify land units that should be preserved for wildlife, especially for birds and larger mammals, because their range requirements are often too large to be accommodated in the small tracts typical of natural areas. The approach taken by the Idaho Natural Areas Council has been to preserve a wide variety of habitats in the hope of providing shelter for a

wide range of animal species. Land areas that can be identified as "critical habitat" for rare and endangered species can sometimes be considered for designation as natural areas.

Why do we, as natural resource managers, need natural areas? They save opportunities for researchers and environmental educators that might otherwise be lost; the impacts of logging, grazing, hunting and general recreation can be best evaluated by comparison with a biological control. We cannot expect to progress in our attempts to manage resources properly without increasing our base of ecological knowledge. The original "cogs and wheels" must be preserved. ■



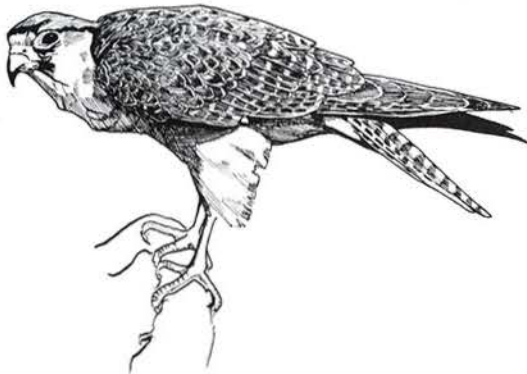
Fred Rabe

Proposed Box Canyon natural area

If it is the truth, what does it matter who said it?

Anon.

drawings by david mattson



*And I had done a hellish thing,
And it would work 'em woe:
For all averred, I had killed the bird
That made the breeze to blow.
Ah wretch! Said they, the bird to slay
That made the breeze to blow!
—The Rime of the Ancient Mariner*

nongame management

by Justin Naderman

Justin Naderman is a senior in Wildlife-Fisheries Resources.

Wildlife — each of us when we see or hear the word envision some kind of undomesticated mammal, bird or reptile roaming freely in forest, meadow or park. This perception is based on our past encounters and experiences.

People always seem to have been fascinated by wildlife. Tribal peoples associated different species of wildlife with strength, wisdom, healing and evil; throughout history artists and sculptors have tried to capture the strength, grace of movement and beauty of wildlife on canvas, bronze, wood and plaster.

Not only have wild beasts been an inspiration to man, but to primitive people they provided subsistence and, in more recent times, sport. All of us know from grade school history classes about the dependence upon game for food and clothing by early Americans. The settlers recognized early the importance of game to their survival; it is not surprising that some of the earliest laws of the Plymouth Colony dealt with game. Generally the colonists

contended that game should be free to all, a view still held by many today.

Eventually, as the dense forest lands of the east were cleared, and the production of food and fiber from agriculture increased, the dependence upon wild game for subsistence decreased. Although the clearing of small interspersed patches in the forest initially benefited many species of small game and deer, increased hunting pressure coupled with a loss of habitat and an ever-increasing human population, soon caused the numbers of many species to decline. As a result, states reluctantly passed laws to limit the number of animals harvested.

Non-hunting values

From this slow beginning, the art of managing wildlife has developed into the science that we know today. In 1933, Aldo Leopold wrote in his book *Game Management*, "History shows that game management nearly always has its beginnings in the control of the hunting factor. Other controls are added later. The sequence seems to be about as follows: Restriction of hunting, predator control, reservation of game lands (parks, forests, refuges, etc.), artificial replenishment (restocking and game farming), and environ-

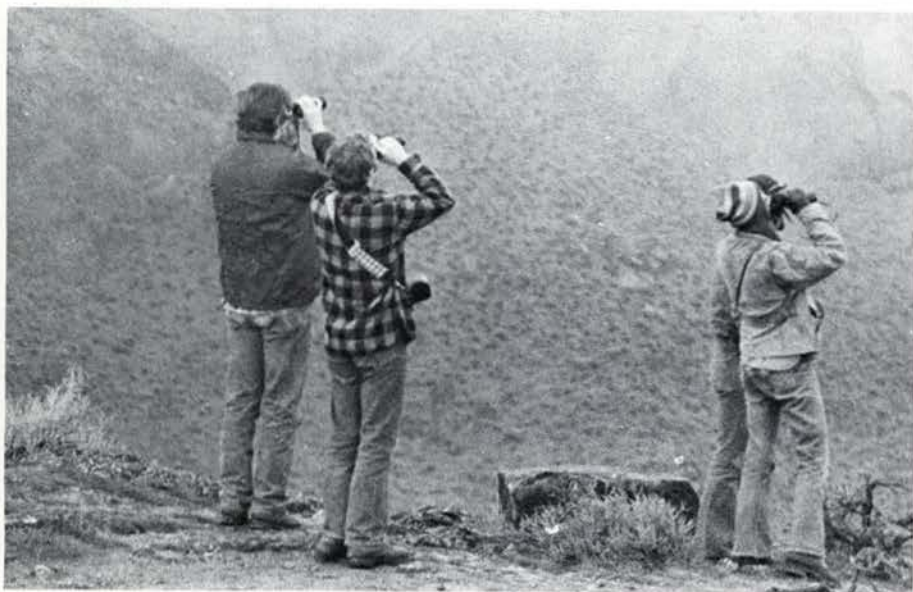
mental controls (control of food, cover, special factors and disease)." Although this sequence has been followed fairly closely, since 1933 other values in addition to hunting have been recognized. The amenity values derived from recreation, aesthetics, and mental fortitude are now considered by many to be more important than the enjoyment obtained by those who hunt for sport. In addition, the important role that nongame species play in maintaining the ecological health of a community is being recognized as the science of wildlife management continues to develop, and provision is increasingly made for their management.

It is true that the realization of the importance of all species of wildlife is not new. Early naturalists like John Audubon and Alexander Wilson recognized that there were other values in addition to hunting obtainable from wildlife, and emphasized the need to manage all species. Unfortunately, most efforts were directed toward increasing the numbers of certain game species, while the other species benefited only accidentally or, as with predators and "varmints", were actively persecuted for the benefit of game.

Nongame wildlife — just what does the term mean? Probably many of us think of the wild animals of forest and meadow that are not hunted; but nongame wildlife includes more than this. There are also the wild birds and animals, both native and introduced, that exist in, and are associated with, urban areas.

Urban wildlife

Most cities and towns today, in addition to the trees and shrubs planted along streets and around buildings, have a park, golf course and picnic areas. Although these are not specifically intended for wildlife, they nevertheless provide habitat suitable for many different species of mammals and birds. In addition, their location near populated areas provides opportunity for visitation and enjoyment by many people. Management of wildlife



Lynn Burton

Things do not change; we change.
—Henry David Thoreau



Don Fries

in these areas, however, is not without problems. In the absence of natural predators, introduced species such as the starling and the Norway rat often not only force many of the more desirable species away, but also cause human health problems and economic loss. The management of such areas therefore, involves more than the provision of nesting, feeding and shelter areas for wildlife. It also involves controlling species whose populations have gotten out of hand.

Interference by human activity during periods of mating and nesting discourages some species from occupying an area; others become so accustomed to the presence of man that they can scarcely be considered "wild" anymore. To cope with such man-caused conditions, the wildlife manager must be a sociologist and public relations specialist as well.

In the wilder parts of the country, direct human interference is usually a smaller problem. Although these areas are used by many people, they do not provide the opportunity for visitation that the urban parks do. Natural population-regulating systems are still relatively intact so population control is minimal. Human influence takes other forms; chief among these is destruction of habitat. Old mature trees and snags are cut, leaving no nesting cavities for hole-nesting birds and mammals; streamside vegetation is heavily grazed by livestock, destroying nesting, feeding and escape cover; mining activity and road building cut off traditional migration routes. In these areas the wildlife manager must first be con-



Don Fries

cerned with finding out what wildlife species exist in a given area, what their requirements are, and how the development of other resources can be made compatible with these requirements.

All species considered

The wildlife manager is no longer simply a game manager. The individual must be concerned with all species of wildlife in all areas. They must understand not only the biological needs of certain animals, but also the ecological relationships of entire natural communities and the sociological and economic relationships involved with competing resource uses.

How are colleges responding to these challenges in training those who will manage our wildlife resources tomorrow? Many now offer courses in nongame wildlife management. However, adding new courses to a curriculum is expensive; many schools, already forced to operate on limited budgets, find it difficult to provide faculty and space for additional courses. Fortunately, many game management principles are also applicable to nongame management, and many courses which heretofore dealt primarily with game management have been broadened to provide instruction on the ecological relationships and techniques used to manage all species of wildlife. The relationship between the animal and its habitat is emphasized, along with a recognition of the importance of all wildlife values.

At the graduate level, interest in nongame research has increased dramatically in the last decade. Research projects which only a decade ago would have been considered unimportant from a practical management standpoint are today considered vital. Presently, the most critical factor limiting additional nongame research is funding, but as the direction of nongame research becomes established, and the values derived from nongame are realized and appreciated by more people, new and additional sources of funding will become available.

Wildlife experience

Today, because of the social tensions associated with living in a society where so much is artificial, there is increased need to renew our relationship with the environment in which we evolved. Placid flower-filled meadows, cool forests, sparkling streams, and towering mountains all play their part, but it is the sight of a chipmunk, a deer, or a wood duck in the dimness of the early morning light; or the sounds of an owl, a loon, or a coyote at evening that arouse the emotion and make the experience unique. The challenge faced by the wildlife manager—to provide for the needs of wildlife and the sociological needs of the public, while at the same time coping with conflicts associated with the development of other resources—is great. Whether it is met will depend not only on the manager's understanding of all the relationships involved but also on the committed support of everyone. ■



*I swear I feel a little yen,
Old smoke-warm shroud, in your disguise
To swagger as a lecturer again,
In consciousness of being wholly wise;
A trick that scholars seem to know,
The Devil dropped it long ago.*

—Faust, Goethe



The ignorant man marvels at the exceptional; the wise man marvels at the common; the greatest wonder of all is the regularity of nature.
—G. D. Boardman

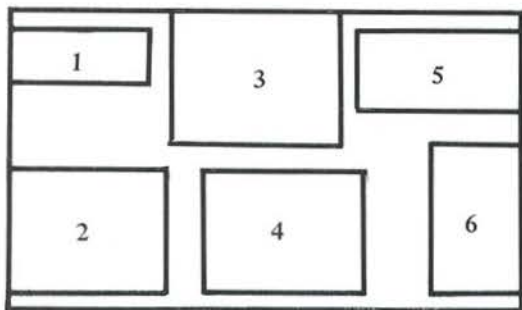




*When we try to pick
out anything by itself
we find it hitched to
everything in the un-
iverse.*

—John Muir





The photographs on the preceding color photo essay are described and credited as follows:

1. A butterfly on a *Lilium philadelphium* (wood lily) in a ponderosa pine woodland in South Dakota. Photograph by David Mattson.
2. Basking in the sun. Taking a short break during a cross country ski venture. Photograph by Andy Scott.
3. *Phlox idahonis* is one of the rarest plants in the United States. Insofar as extensive surveys indicate, it is confined to a 10-acre meadow near

Headquarters, Idaho. This phlox is a handsome plant, standing about two feet tall and topped by a large cluster of perhaps a hundred, quarter-sized blue-purple to pink flowers. It wasn't discovered until 1941, when the noted *Phlox* expert Edgar Wherry found it in the meadow mentioned. Its nearest relatives are species of eastern North America, since western *Phlox* are all caespitose, shrubs or subshrubs. Idaho phlox is a good example of an endangered species and has appeared in that category since the first list published in the Federal Register. We know little about the

autecology of the plant, but it is entirely possible that the entire known population might be eliminated by a fire or by a sudden concentration of grazing animals. Potlatch Corporation owns all of the land on which Idaho phlox is found and they are taking whatever precautions necessary to preserve the gene pool. Meanwhile, the college has a research project designed to investigate this and other endangered and threatened plants in forest habitats. Photograph by Fred Johnson.

4. The scenic Lemhi Mountains of southern Idaho. Photograph by Douglass Henderson.
5. Four mule deer bucks on the National Bison Range in Montana. Photograph by Danny On.
6. *Castilleja chromosa*, the unmistakable Indian paint brush. Photograph by Douglass Henderson.

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Manufacturers & Treaters
of Western Red Cedar,
Coast Douglas fir, &
Lodgepole Pine
Poles

quaking aspen and the northern rockies



by John Andrews

John Andrews is a junior in Forest Resources Management.

Quaking aspen is one of my favorite trees. It is also a favorite of beaver, deer, elk, moose, and a host of other creatures. If you have ever walked in a grove of "quakies" you probably share my feelings. Did you ever wonder why aspen trembles so? If you pick up a leaf that has the petiole attached, you will see why. The leaf blade is attached at ninety degrees to the flattened petiole, so that the slightest breeze sets a whole grove a-glittering. In the fall when groves are cast with a golden hue, this is one of nature's most dazzling shows of beauty.

Quaking aspen (*Populus tremuloides* Michx.) has one of the widest distributions of any North American tree. It is found in the boreal forest to the northern limit of trees, reaches down the Rocky Mountains to northern Mexico, and is trans-continental from the western parts of Alaska all the way over to the eastern parts of Canada

and the United States. But in the Northern Rockies it is relatively scarce, existing on rather specialized sites.

There is a lot of aspen in the mid-montane forests of Utah and Colorado, and even though it is recognized as a pioneer species, rapidly establishing itself on the mineral soil of burned-over sites, it can persist there in practically pure stands for so long as to seem permanent. But in the Northern Rockies, despite the importance of fire in the overall scheme of things, large groves of aspen are rare. What is it that makes the Northern Rockies different from the other mountain masses in western North America where aspen is found in more significant numbers?

Moisture and drought

Part of the answer may lie in weather patterns. The Central Rockies receive much of their weather from the Gulf of Mexico, particularly in the summer when thunderstorm activity brings moisture during the growing season. By contrast, the Northern Rockies get virtually all of their weather from the Pacific Ocean. After the snows melt in the Northern Rockies, a fairly predict-

able drought sets in during the months of July and August, whereas the Central Rockies receive rainfall in a more evenly distributed monthly pattern after the snows melt there.

Rockies go on receiving rainfall in a more evenly distributed monthly pattern after the snows melt there.

Although temperature, precipitation, topography, and soils vary greatly over its range, quaking aspen exhibits relatively specific requirements as far as growing conditions are concerned. Generally it grows best on rich, deep soils where water is present within the top two or three feet of the soil mantle; though it does grow, with reduced vigor, under conditions significantly divergent from these ideal ones. Rooting depth seldom exceeds five feet. Rockiness of the soil inhibits the lateral spread of roots, and dry weather during the growing season reduces vigor; conifers generally are more suited to such conditions in the Rockies.

Poplar borer

A clear relationship exists between dry, warm weather, such as is often present in the Northern Rockies during July and August, and the successful reproduction of the poplar borer, an insect whose larvae kill young stands of aspen by girdling beneath the bark. Black carpenter ants use tunnels created by the poplar borers, and cause further damage to trees not already killed. Along with the tent caterpillar, the poplar borer is one of the most important biotic threats to the livelihood of aspen.

The forests of the Northern Rockies contain a rich mixture of flora displaying boreal, Pacific coastal, and Rocky Mountain affinities. Among tree species, there is an abundance of conifers suitable to occupy most habitats that may occur. Several species can occupy sites potentially favorable to aspen. On burned-over areas, lodgepole pine comes in quickly, but grows in rockier and drier sites than aspen is capable of occupying. Both western larch and

continued on page 58

help from our friends

These selected comments were made by the respondents to our survey in an attempt to pass along what cannot be taught in the classroom.

"My advice to students of forestry in your excellent School of Forestry is to major in Logging Engineering as I did in 1932."

C. Taylor – B.S. For., Wood Ut. – 1932



1939 Idaho Forester

"I believe the best field for a graduating forester to aim for today is the ownership of his own forest... the owner may or may not get rich, but if he is a good manager he will make a good living and be healthy and happy."

Milton Edwards – B.S. Gen. For. – 1935

"Getting a job is going after it. They don't hand them out – Mr. 'Cream Puff' gets what's left, if any."

Scoop March – B.S. Range – 1937

"I found the education I received to be a good general education, but the degree in forestry was a poor one to qualify for most available work."

Unsigned – B.S. Forestry – 1939

"If you plan to go into administration, either public or private sector, take every opportunity to get training other than the technical fields – public speaking, human relations, decision making, personnel management. And do not neglect English – both speaking and

writing ability often means you either get 'upstairs' or leveled off in the middle echelons!"

William Deshler – B.S. Gen. For. – 1940

"U of I grads should get on the Civil Service Register so they can be available when jobs become open."

Unsigned – B.S. Range – 1954

"As far as a government position is concerned a graduate would have to have a civil service test score of at least 105% to even get to first base."

Ward Brookwell – B.S. For. Mgt. – 1954

"We only have about ten entry level positions opening each year in California Dept. Fish & Game (wildlife management function)."

John Speth – B.S. Wildlife – 1956

"I can tell you that the Forestry Summer Camp at McCall helped me out. I hope the U of I doesn't do away with it."

Charles Ohs – B.S. For. Mgt. – 1954

"If your requirements for graduation and course of study goes the same way that many other forestry schools are going – that is the unstructured curricula – we will be hiring more and more technicians instead of professionals."

"... we occasionally have an opening for a permanent position in our operation. I like to keep my finger on who is available at all times, as quite often we don't have much lead time."

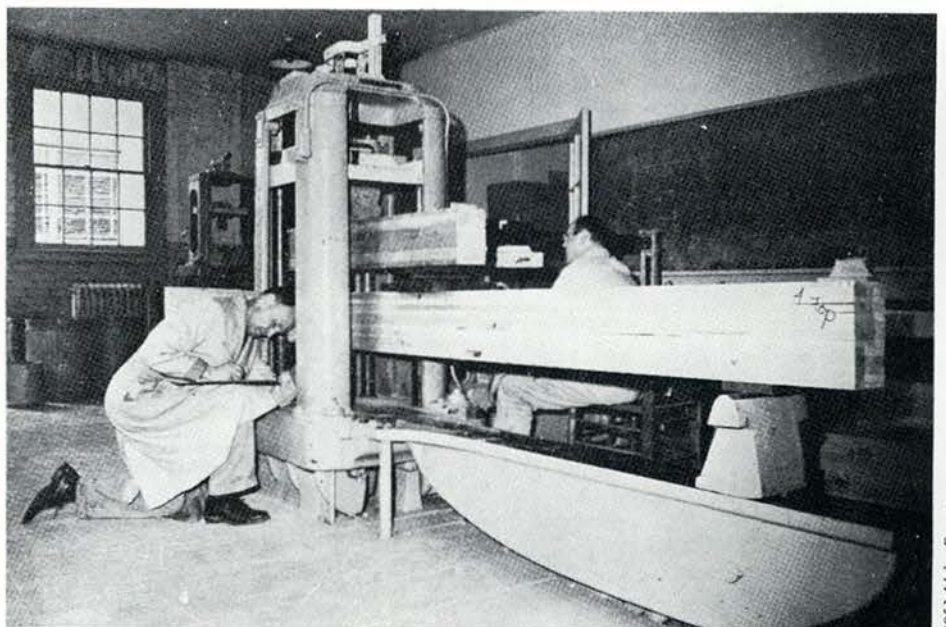
Russ Hudson – M.F. For. Mgt. – 1957

"We do need to convince county planning department that foresters are needed in planning commission and department."

Thomas Smith – B.S. Forestry – 1958

"The type of educational background you receive in forestry at the U of I gives you such a broad base that you can move free across a broad base of vocations... the future holds a mystery that you cannot predict. You have to be ready to see the window when the door is closed."

Arthur Stauber – B.S. Range – 1959



1953 Idaho Forester

Take any job you can get; it puts your foot in the door



1931 Idaho Forester

"Experienced people are currently hard to find and job experience is often regarded as being as important as schooling."

Steve Koskella - B.S. For. Res. - 1974

"...those people who are most successful in their careers have acquired a superior understanding of the English language, both in writing and in speaking. The key is reading."

Thomas Haumont - B.S. Forestry - 1950

"The best way to get employed after graduation is to make your contacts during the summer employment periods...start competing for the summer jobs - crank out the best job applications you can."

H. Vosen - B.S. For. Mgt. - 1963

"He should take as many personnel and business management courses as his work load will permit."

Cecil McConnell - B.S. For., Wood Ut. 1963

"Be willing to move, and often - do it."

Darrel Pistorius - B.S. For. Mgt. - 1969

"Seasonal part-time jobs seem to be abundant. However, within the past month I read a memo from the Regional Office (Region 4) that this region had an excess of GS.5 and GS.7 foresters. The prospects for future full-time hiring looks bleak."

Douglas Austin - B.S. For. Mgt. - 1973

"I would suggest that a student begin trying to get on all the rosters when he/she is in his/her junior year."

Charles Prausa - M.S. For. Mgt. - 1975

"The logging and milling course should be made into two courses with more time devoted to each. There are many problems or different aspects of timber harvesting that I think should be emphasized more."

Steve DeMasters - B.S. For. Mgt. - 1970

"Federal agencies...have lots of work but weak funding."

Brian Sindelar - Ph.D. Range - 1968

"I would like to keep in touch with the job market as I hire people from time to time. I feel that the students coming out of the U of I are very well trained."

Garwin Lorain - M.S. Range - 1968

"Nobody advertises for foresters because they would be deluged with applications...you have to knock on doors in order to have a chance of becoming employed as a forester. While the average college student feels it is perfectly fine to dress the latest style - dirty, tattered clothing; long, unkempt hair; and a dirty, shaggy beard, this is a sure-fire way of being told there are no job openings now or in the near future. Most company personnel officers are old-fashioned enough to expect job applicants to be wearing a clean, pressed suit; hair of reasonable length, combed and cleaned; no hair on face - unless maybe a neat well-trimmed mustache; but most beards are a real 'turn-off' for job interviews. Since foresters are a dime a dozen, a person must be willing to give 110% on the job once he has been hired. While the things I mention here may not seem entirely fair, nevertheless, they still are a fact of life."

Unsigned - B.S. For. Mgt.

"If you're looking for a federal job as a professional, you will have to 1) be a veteran, or 2) join the Peace Corps, or 3) get an advanced degree. A score of 100 is a wait of a year or so - any less will mean a longer wait."

Unsigned - B.S. Forestry - 1959

"You and your fellow classmates will be the people that elevate the N.R. (natural resources) in this country to the high priority they should maintain."

Paul Krausman - Ph.D. Wildlife - 1976

"Those people who believe that the civil service commission will help them to get federal jobs are candidates for disillusionment. The first thing a graduating forestry student should do is to get on the forestry (or whatever other speciality) section register under the biological sciences announcement and take the P.A.C.E. examination for jobs not directly related to their education (such as 'outdoor recreation planner', etc.). The graduate cannot wait until June to act...he must act as early as possible to avoid the springtime closing of civil service registers and to allow for the exceedingly slow processes of the civil service commission."

Edson Griswold - M.F. For. Mgt., Outdoor Rec. speciality - 1965

"Many recent graduates have their sights set too high - they expect to land a job that they really aren't qualified for...most companies fill positions from within the company whenever possible...don't expect to walk into the glorious career of your dreams from an interview at the Career Information Center."

Steve Pamela - B.S. For. Res. - 1974



1933 Idaho Forester

Hard work doesn't go unnoticed

fwr employment



Victor Bullen

by Greg Outcalt

Greg Outcalt is a senior in Forest Resources.

The University of Idaho's College of Forestry, Wildlife and Range Sciences (FWR) has undergone numerous changes since its inception in 1909. These changes in forest management were necessary to meet the requirements of an increasingly technical profession striving to accommodate an ever-increasing rate of demand on forest resources. Specialization, as in other fields, had found its place in effective natural resource management.

In 1909, a department administered program consisted solely of a curriculum in forest management. With an increasing demand for forest products,

the department added a wood utilization program in 1914. This marked the advent of the School of Forestry administered program of 1917, with range management a part of its curriculum. A wildlife management curriculum was added in 1942, and fisheries management in 1951. The school became the College of Forestry in 1953; ten years later its name was changed to the present one. Following the addition of the wildland recreation management program in 1974, the College of FWR now offers four degrees in six major disciplines with specializations in 14 different areas of study.

The survey

One means of evaluating the effectiveness of a technical college is to measure the market's acceptance of its

graduates. A survey was conducted recently in an attempt to determine how marketable FWR graduates are and, indirectly, how effectively the curriculum has kept pace with the demands of the market place. FWR alumni were asked, in general, what work they do, for whom they do it, and how long it took them to land jobs and advance in their professions. The survey results are presented here in the hope that they will alleviate some of the uncertainties which students experience in trying to find their places in the professional world; they may also provide alumni with a yardstick for measuring their own relative success.

The survey questionnaires were mailed in October of 1976 to the 1998 living alumni whose addresses

Table 1A. Major-related employment success by major.

Major (Total) ⁴	1st job major-related	1st job not major-related	Present job major-related	Present job not major-related	Retired ¹	Un-employed
Forest Products ² (71/71)	85.9	14.1	69.0	14.1	15.5	1.4
Forest Res. Management (337/334)	83.4	16.6	64.8	17.7	12.3	0.3
Range Res. Management (83/84)	85.5	14.5	59.5	17.9	21.4	1.2
Wildlife-Fish. Management ³ (105/107)	70.5	29.5	71.8	25.2	1.9	1.0
Wildland Rec. Management (10/10)	70.0	30.0	90.0	0	0	10.0

¹ An average of 93.9% of those retired had jobs in their major field.

² Includes majors in wood utilization, forest business and forest products.

³ Includes majors in fishery management, wildlife management and wildlife-fisheries management.

⁴ (Total) = (number of respondents first job / number of respondents present job).

Table 1B. Major-related employment success by degree.

Degree (Total)	1st job major-related	1st job not major-related	Present job major-related	Present job not major-related	Retired ¹	Un-employed
B.S. (468/473)	79.9	19.7	64.9	21.7	12.7	0.6
M.F. (35/34)	88.6	11.4	88.2	5.9	5.9	0
M.S. (60/61)	88.3	11.7	82.0	6.6	10.0	1.6
Ph.D. (40/39)	90.0	10.0	87.2	2.6	7.9	0

¹ An average of 95% of those retired had jobs in their major field.

Table 2A. Amount of time lapsed from graduation from College of FWR, U of I until acquiring a major-related job - by major.

Major (Total)	Time Lapse					Have not acquired major-related job ¹
	Less than 6 months	6 months to 1 year	1 year to 2 years	2 years to 5 years	Greater than 5 years	
Forest Products (69)	76.8	10.1	2.9	4.3	1.4	5.8
Forest Res. Management (324)	74.1	5.9	4.6	6.8	4.6	4.0
Range Res. Management (81)	82.7	4.9	3.7	7.4	1.2	0
Wildlife-Fish. Management (99)	62.6	9.1	5.1	9.1	1.0	13.1
Wildland Rec. Management (9)	55.6	0	11.2	22.2	11.1	0
Overall	73.7	6.6	4.6	7.4	3.0	4.7

¹ This category includes those graduates who acquired additional degrees in fields other than natural resource management and are working in the field of their latest degree.

Table 2B. Amount of time lapsed from graduation from College of FWR, U of I until acquiring a major-related job - by degree.

Degree (Total)	Time Lapse					Have not acquired major-related job ¹
	Less than 6 months	6 months to 1 year	1 year to 2 years	2 years to 5 years	Greater than 5 years	
B.S. (459)	70.1	7.2	4.6	7.2	3.3	6.1
M.F. (34)	79.4	2.9	8.8	0	0	5.9
M.S. (60)	78.7	4.9	1.6	8.2	4.9	1.6
Ph.D. (39)	76.9	5.1	2.6	10.3	0	0

¹ This category includes those graduates who acquired additional degrees in fields other than natural resource management and are working in the field of their latest degree.

were known (out of a total of 2559 graduates). Of those receiving questionnaires, 31.2 percent (624) responded. The figures in this article and in the following tables and graphs are presented as percentages of those responding, unless otherwise specified.

Results

Survey results indicate that FWR graduates enjoyed a high degree of success in finding major-related employment upon graduation, as shown in Column 1 in Tables 1A and 1B. As Table 2A and 2B indicate, most graduates did not have to wait long to obtain their first major-related jobs. (It should be remembered that graduation meant loss of Selective Service deferment for most of the respondents.) The figures above the line in each category in Tables 3A and 3B give an analysis of those whose first job was major-related by first employer, by degree, and by major, respectively.

The figures in Column 3 of Tables 1A and 1B indicate the percentages of respondents presently working in major-related positions. The figures below the line in Tables 3A and 3B indicate by whom the graduates are currently employed. Table 4 shows the present geographic distribution of graduates in each major field. Unfortunately, too few respondents answered the questions on full-time vs. part-time and permanent vs. temporary employment to provide meaningful information.

This "worked example" illustrates the use of the tables: A 1977 graduate with a B.S. in Range would like to know how people like himself have fared in the past. He consults the tables.

1. Table 1A, Column 1:
85.5% of range respondents' first jobs were range related.

(.855 x 83 = 71 people)

Table 3A:

69.0% of range people whose first jobs were range related were hired by the federal government.

(.69 x 71 = 49 people)

2. Table 1B, Column 1:
79.9% of B.S. respondents have major-related jobs.

(.799 x 468 = 374 people)

Table 3B:

53.5% of B.S. respondents whose first job was major-related were hired by the federal government.

(.535 x 374 = 200 people)

3. Table 2A:
82.7% range people obtained major-related jobs in less than 6 months.

(.827 x 81 = 67 people)

Table 3A. Cross tabulation of major-related jobs — by major.

Major (Total)	Private			Public			
	Industry	Association/ Consultant	City/ County	State ¹	Federal ²	University ³	Other
Forest Products (61/44)	<u>54.1</u> 63.3	<u>1.6</u> 0	<u>0</u> 0	<u>9.8</u> 8.2	<u>29.5</u> 22.4	<u>1.6</u> 4.1	<u>3.3</u> 2.0
Forest Res. Management (281/233)	<u>17.1</u> 22.3	<u>1.8</u> 3.8	<u>.04</u> 0.9	<u>17.1</u> 15.5	<u>56.2</u> 48.1	<u>5.0</u> 6.0	<u>2.6</u> 3.4
Range Res. Management (71/50)	<u>2.8</u> 6.0	<u>0</u> 10.0	<u>0</u> 0	<u>18.3</u> 6.0	<u>69.0</u> 48.0	<u>7.0</u> 18.0	<u>2.8</u> 12.0
Wildlife-Fish. Management (73/74)	<u>5.4</u> 8.1	<u>1.4</u> 1.4	<u>2.7</u> 1.4	<u>52.7</u> 41.9	<u>24.3</u> 32.5	<u>12.2</u> 10.8	<u>1.4</u> 4.1
Wildland Rec. Management (7/9)	<u>14.3</u> 0	<u>14.3</u> 11.1	<u>0</u> 0	<u>14.3</u> 33.3	<u>42.9</u> 22.2	<u>14.3</u> 33.3	<u>0</u> 0

¹ Includes all state governments and agencies.

² Includes Peace Corps and military.

³ Includes students.

Table 3B. Cross tabulation of major-related jobs — by degree.

Major (Total)	Private			Public			
	Industry	Association/ Consultant	City/ County	State ¹	Federal ²	University ³	Other
B.S. (374/307)	<u>19.0</u> 24.1	<u>1.0</u> 4.3	<u>0.8</u> 1.3	<u>22.7</u> 19.5	<u>53.5</u> 42.7	<u>1.3</u> 4.2	<u>1.3</u> 3.9
M.F. (31/30)	<u>25.8</u> 26.7	<u>3.2</u> 3.3	<u>0</u> 0	<u>6.5</u> 6.7	<u>58.1</u> 53.3	<u>6.5</u> 6.7	<u>0</u> 3.3
M.S. (53/30)	<u>11.3</u> 12.0	<u>1.9</u> 6.0	<u>0</u> 0	<u>32.1</u> 26.0	<u>37.7</u> 42.0	<u>17.0</u> 8.0	<u>0</u> 6.0
Ph.D. (36/34)	<u>11.1</u> 15.6	<u>5.6</u> 3.1	<u>0</u> 0	<u>13.9</u> 12.5	<u>30.6</u> 18.8	<u>36.1</u> 53.1	<u>2.8</u> 8.8

¹ Includes all state governments and agencies.

² Includes Peace Corps and military.

³ Includes students.

Table 2B:

70.1% B.S. holders had jobs in less than 6 months.

(.701 x 459 = 322 people)

4. Table 1A, Column 3:

59.5% range respondents currently hold range jobs.

(.595 x 84 = 50 people)

Table 3A:

48.0% of range respondents working in range are currently working for the federal government.

(.480 x 50 = 24 people)

5. Table 1B, Column 3:

64.9% B.S. respondents are currently working in major-related jobs

(.649 x 473 = 307 people)

Table 3B:

42.7% B.S. respondents currently having major-related jobs are hired by the federal government.

(.427 x 307 = 131 people)

Table 1A, Column 5:

21.4% of range respondents are retired.

(.214 x 84 = 18 people)

Of those 18, an average of 93.9% had jobs in range.

(.939 x 18 = 17 people)

Table 1B, Column 5:

12.7% of B.S. respondents are retired.

(.127 x 473 = 60 people)

Of those 60, an average of 95% had jobs in their major field.

(.95 x 60 = 57 people)

6. Table 4:
26.2% respondents holding degrees in range are working in Idaho; 23.8% are working in the Rocky Mountain States.
7. Graphs 1 and 2:
Graph 1 shows survey figures tend to be an under-estimate for the 1970's.
Graph 2 shows survey figures to be an under-estimate for B.S. holders.

It is important to note the survey results may be misleading in some respects. Most importantly, the 31.2 percent who responded may not represent the 68.8 percent who did not respond to the survey. In this connection, graphs of the relative frequency of respondents with the relative frequency of graduates against year and degree (Graphs 1 and 2, respectively) may be helpful. These frequencies may show whether some groups tend to be over-represented or under-represented in the data.

Recent trends

A closer look at the fortunes of the graduates of the past two years may help answer the questions of those who



James Downing

will graduate in the near future. The University of Idaho's Management Information Services, which conducted a more intensive and exhaustive survey, was able to supply detailed information about 1975 and 1976 graduates of FWR. In 1975, 83 percent of the respondents in all fields had full-time jobs within six months of graduation; of that 83 percent, 87 percent were employed in positions at least faintly

related to their major fields. Of that 83 percent, 68 percent felt that their jobs had career or possible career potential. Of the remaining 17 percent without full-time jobs, half were looking for jobs and half were not.

The 1976 graduates experienced a lower employment rate immediately after graduation, with 68 percent obtaining full-time jobs. Of these, 89 percent felt their jobs had possible career potential. Of the 32 percent who did not have full-time jobs, again about half were looking for jobs and half were not. Average beginning salaries in 1976 were \$9,600 for Bachelors of Science, \$11,800 for Masters of Science and Masters of Forestry, and approximately \$16,000 for Doctors of Philosophy.

Forecast

The overall employment outlook for this and coming years in natural resource management indicates there will be more jobs available than in previous years, according to the U.S. Bureau of Labor Statistics. But, they also say the competition for these new jobs will be keen, since qualified people are entering the job market even faster than new jobs are becoming available.

Several sources of information may be consulted on current employment policies. One, pertaining to the Department of the Interior, is the Federal Land Policy and Management Act of 1976 (Bureau of Land Management Organic Act), which has created openings for range students in excess of the current supply, especially for temporary positions. The U.S. Department of Agriculture saw its National Forestry Management Act become effective in 1976. This act makes



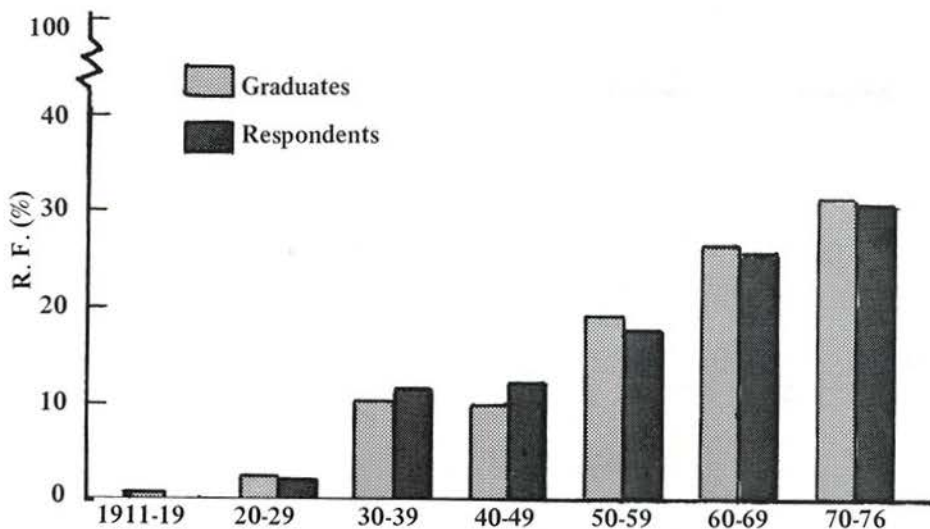
cartography by Timothy McGarry

Table 4. Percentage distribution of respondents for all present jobs¹ - by major.

Major (Total)	REGION											
	North-east	Lake States	South-east	Plains	Rocky Mountains	South-west	Pacific North-west	Idaho	California	Alaska	Canada	Abroad
Forest Products (71)	8.3	5.6	8.3	2.8	6.9	2.8	25.0	26.4	9.7	1.4	1.4	1.4
Forest Res. Management (342)	2.3	4.4	6.4	2.6	11.4	2.6	24.0	27.8	11.1	0.3	1.5	5.6
Range Res. Management (84)	1.2	0	0	2.4	23.8	11.9	14.3	26.2	8.3	3.6	1.2	7.1
Wildlife-Fish. Management (107)	2.8	2.8	5.6	7.5	7.5	3.7	15.0	31.8	11.2	3.7	0.9	7.5
Wildland Rec. Management (10)	0	20	10	0	10	0	20	30	0	0	10	0

¹ Does not include those who are retired; does include both major and non-major-related jobs.





Graph 1. Relative frequency of respondents compared with the relative frequency of graduates by decade.

provision for increased management flexibility for the U.S. Forest Service. Recently, the U.S. Fish and Wildlife Service announced that approximately 500 new jobs will be available, primarily for the establishment and maintenance of wildlife refuges, with provisions also being made to increase the number of jobs opening up in the National Park Service. The forest products industry is currently placing considerable emphasis on the development and marketing of previously unusable wood resources, such as dead trees, wood

chips and bark; opportunities may be available here.

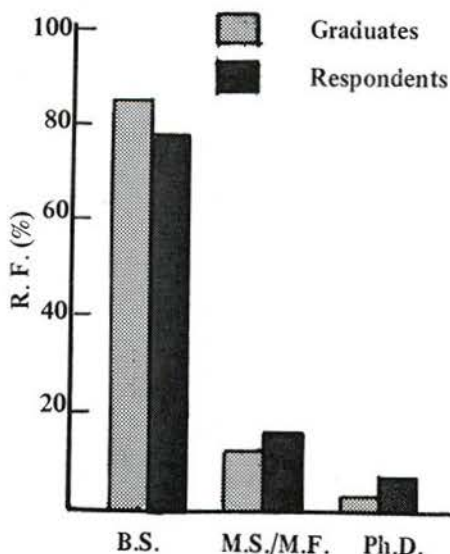
Useful information

The *Idaho Forester* survey also asked graduates whether they had knowledge of job opportunities which they were willing to communicate to the College. About 100 alumni responded favorably; a fact suggesting that improved communications between alumni and students might be helpful to those seeking employment. Partly on account of this high job-knowledge

response, the FWR Student Affairs Council has begun work toward adding a new "employment seminar" to the college's curriculum. The purpose of the course would be to maintain old lines and establish new lines of contact with the professional world. Students will also learn how to present themselves to potential employers, who will be invited to talk on pertinent aspects of the profession.

The technical background required for today's jobs is greater than before in natural resource management as in other fields. Students will be wise to recognize this trend and prepare themselves accordingly. Knowledge of goals, sound academic advising and a desire to work hard are prerequisites for success in employment. Success does not just happen.

In handling all the surveys returned, I was impressed with the desire of alumni to help their future colleagues. Many had helpful suggestions concerning academic and employment preparation (see page 38); these will be used in evaluating the current curriculum. I encourage all alumni, students and faculty to comment on any aspect of natural resource management by writing the *Idaho Forester*. Personally, I would like to thank the alumni respondents for their efforts and enthusiasm in providing information. If more detailed survey results are desired, feel free to contact me through the *Idaho Forester*. ■



Graph 2. Relative frequency of respondents compared with the relative frequency of graduates by type of degree.





drawings by john dorman





photos by r j naskali





Bill Hensel

Madill Model 078 West Coast Tower working in a configuration of a side mount tower.

the logging managers and their logging machines

by Bill Hensel

Bill Hensel is a graduate student in Forest Products.

It is 1977. The modern age is here. For most professions, and for forestry in particular, the age of specialization is upon us. One hears of the fisheries biologist, the hydrologist, the wildlife expert, the range manager, the silviculturist: specialists within forestry who catch public attention, envy and praise. Timber harvesting also has its specialist—the logging manager or forest engineer. Occasional poor performance in the past, and protests over the appearances created by clearcutting—even properly prescribed clearcutting—have all too frequently placed this specialist in a bad light.

Increased public environmental concern has presented problems to the logging manager. Most timber harvesting operations are correctly planned and carried out; however, as in any endeavor, occasional wrong decisions are made. Poor planning of any logging operation is the major cause of the “black eye” that the logging manager

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Bill Hensel

Running skyline Skylock Model 78 working on burn near Elk River.

instream flow needs for aquatic life



Suitable spawning areas generally have six inches of water.

Sockeye salmon *Onocorhynchus nerka*



Severe reduction in flow will create unfavorable conditions for fish populations.

by Dudley Reiser, Richard Uberuaga
and John Easterbrooks

*The authors are graduate students in
Fisheries Resources.*

Water use in the West has risen sharply in the past few years. Increased demands have resulted in the appropriation and diversion of large amounts of water from streams. Such withdrawals can reduce streams to water levels precariously low for stream life; in extreme cases streams may go dry. Many streams in the West already have had all of their water appropriated, and have become nothing more than pipelines for transporting water to the next point of use. In this year of extreme drought, farmers, ranchers, cities, industries and power companies have expressed great concern over an impending water shortage. Little consideration has been given to instream uses such as fisheries and recreation. Other water users can accurately quantify their needs, but the amount of water needed to maintain the aquatic resource is not readily ascertained. Recently, however, fisheries biologists have teamed up with hydrologists, geologists and others to try to answer this question of the instream flow needs of aquatic life.

To gain understanding of the complex nature of this question, let's first look at the general habitat requirements of salmonid fish (trout, salmon), and then consider some effects which reduction or augmentation of flow may have on them.

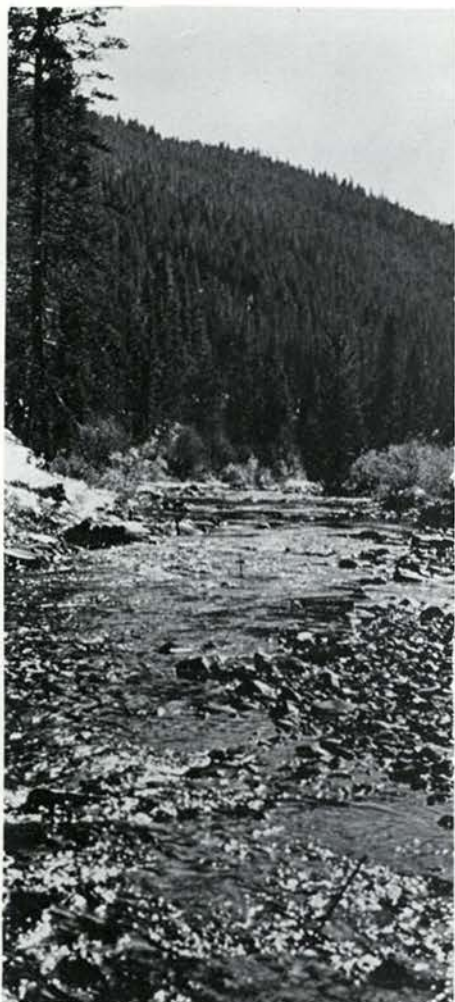
The general habitat needs of salmonids can be roughly categorized as a) food-producing areas; b) spawning-incubation areas; and c) cover.

The best food-producing areas in a stream are located in the riffle sections, where the increased velocities increase the exchange rate of oxygen between the food organism and its environment.

Riffle areas typically provide the major input of food organisms into the aquatic "drift" mechanism which carries them downstream to the fish.

E. Nelson

James Downing



Low flow

Salmonid spawning activity consists of the excavation^o of a nest (redd) in the stream substrate, followed by the deposition and covering of the fertilized eggs. The nest-building activity cleans the substrate of sediment and debris, making it more permeable. The incubating eggs are dependent upon the flow of water through the substrate, bringing oxygen to the respiring eggs and removing their metabolic wastes. Suitable spawning areas are generally associated with water velocities of 0.5-3.0 ft/sec, water depths of 6 inches or more and substrates of 0.25-3.0 inches in diameter.

Cover provides salmonids refuge from possible predation and shelter from extreme water velocities. In addition, cover creates shadow areas more congenial to the many photonegative salmonid species. It may be provided by undercut banks, overhanging vegetation, submerged logs, roots, aquatic vegetation, rubble-boulder areas, water turbulence or deep pools.

Change of flow

Alterations of natural streamflow patterns may result from a number of uses, including irrigation and power generation. Damming a section of free-flowing stream may severely affect the aquatic biota both above and below the point of impoundment. Storage reservoir operations in the West are generally characterized by low-flow releases during the fall, winter, and early spring months, with increased flows during the irrigation season. Hydroelectric power generation creates a variety of flow-release regimes which result from seasonal diurnal power demands. With the onset of winter and the need for more electricity, daytime peaking flows are often released. These are generally far in excess of normal flows, and usually occur over a relatively short period of time.

Severe reduction in flow during all or part of the year will create unfavorable conditions for fish populations. The most apparent change is the physical loss of habitat and cover, which may increase competition and aggression among fish and result in higher natural mortality. In addition, fish may become concentrated in pool areas, and thus be more vulnerable to anglers.

Reduced winter flows may allow anchor and border ice to accumulate, forcing fish into the middle of the stream where water velocities are greater, exposing them to predation or exhaustion. Decreased flows in fall and spring may severely affect spawning fish by: a) eliminating or delaying the seasonal upstream spawning migration;

b) reducing the amount of suitable spawning habitat; c) dewatering redds after spawning; and d) diminishing the intragravel water movement. Seasonal extremes in flow fluctuation may have either beneficial or detrimental effects. High-volume flushing flows are helpful in transporting sediment out of spawning areas. However, if the same flows occur at the wrong time, eggs and fry may be destroyed. Extreme flow fluctuations, such as those that occur with peaking, may alter the natural drift pattern of insects and change their community structure. Considering these far-reaching effects of flow alteration on the aquatic biota, the need for recommending suitable instream flows becomes apparent.

Many methods

In the past, the aquatic biologist had to rely primarily on experience and intuition when making streamflow recommendations. Today, available methodologies range from subjective techniques utilizing little or no field data, to detailed analyses involving computer simulation. This creates additional problems; it is often difficult to select any one particular methodology when so many are available.

One commonly used estimation technique is based on USGS streamflow records, and requires very little field evaluation. In general, 30 percent of the average annual flow of a particular stream will sustain good survival habitat for most aquatic life forms. This simple formula is particularly useful in the "reconnaissance" stage of water resource planning.

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High flow

from page 46

sometimes gets and rightly deserves. Poor planning ought now to be a thing of the past.

Learning from mistakes

Today, educated and field-experienced forest engineers can harvest timber from the forest without damaging the land. Today's logging manager has learned from past mistakes. He does not carry on logging operations during wet conditions, detrimental to land and machinery. He uses cable harvesting systems on steep slopes to prevent gouging and the erosion of fragile forest soils. Although present timber harvesting operations in Idaho take place in remote areas characterized by steep slopes, fragile soils and limited road access, the logging methods and machines available for use in these areas are capable of harvesting timber from slopes steeper than 40 percent with little detrimental effect to the land.

Several different timber harvesting systems are currently in operation in northern Idaho, within half a day's travel from the University of Idaho.

Horse logging — the oldest, least costly system and the only one relatively free from mechanical breakdowns — can still be seen in the Deary area. Vernon Tall, an experienced horse logger, has made a reputation and a way of life for himself. He is known for entering his teams in the pulling contests during Logger's Days events in the region.

Productive, reliable and inexpensive

The common ground-skidding systems which employ crawler tractors and rubber-tired skidders are in use throughout the area on relatively gentle slopes and flats. This timber harvesting method is productive, reliable and inexpensive. Operation during the dry summer months, or on snow cover in the winter, prevents damage to soils and the residual stand. The method is not suited to extremely wet conditions.

A relatively new ground-skidding machine to aid the logging manager in troublesome areas is the FMC skidding machine. This piece of equipment has the advantages of low ground pressure, good production capability, and high travel speed, but is very high priced.

The colorful "Idaho jammer" is still with us. A jammer is usually shop-made from an old truck or crawler chassis, a 200 HP (or larger) engine, a wooden A-frame boom and miscellane-

ous discarded parts. However, the most important components of the Idaho jammer are the creator-builder-owner's imagination and determination to create something capable of harvesting timber for very little cost. Jammers are set-up to use the high-lead cable logging system, are limited to a yarding distance of approximately 500 feet, and work best in clearcuts. A parallel road network with road spacing of 500 feet is necessary for optimum performance.

New harvesting equipment

What about newer and more complex timber harvesting equipment? There are several up-to-date systems operating in northern Idaho. All were designed to (1) harvest timber from steep slopes with little detrimental effect upon the land, (2) harvest both clearcuts and partial cuts, and (3) harvest both large timber and small logs.

The running skyline logging system has proven itself efficient, productive and environmentally practical. It can suspend logs fully or partially off the ground, and can yard at distances up to 1000 feet. However, it is costly to purchase, maintain and operate. Initial price of such a system is approximately \$250,000. Most logging managers consider these machines to be good investments because of their mobility and high production rate. There are four Skylok 78's in operation near Headquarters, and two Skagit GT-3's working near the towns of Elk River and Avery.

The writer is completing research on the Wyssen skyline logging system, now in operation near Elk River. This system can be set-up in single span or multi-

span configuration, is capable of yarding logs over distances exceeding one mile and yard uphill or downhill. The system has a reasonable initial cost — for a logging system — of \$100,000. However, the system requires men capable of topping and rigging intermediate support trees. The logging manager suffers from lengthy set-up time (4-10 days) for each skyline road; he also must deal with low production rates if yarding distances are excessively long.

A shorter skyline system utilizing a side-mounted tower has been operating near Headquarters and Lolo Pass for nearly two years. The Madill 071 tower with mechanical slack-pulling carriage has a good production rate like the running skyline system, but is somewhat cheaper. It is a large machine, mounted on tank tracks.

Two helicopter logging shows were in operation near Headquarters during the past summer. Total expenses of around \$6,000 per hour for aircraft, personnel and auxiliary equipment make this method of timber harvesting more "unique" than practical. Turn times of two minutes or less are impressive, but problems of bad weather conditions, restricted payload capacity and split-second timing make helicopter logging a manager's nightmare.

I hope this brief overview of current logging equipment has stirred an interest in you, whether you are a fisheries biologist, a range manager, a wildlife expert, a wildland recreation manager, or a forest engineer, — after all, we are all "foresters", right? ■



Future logging managers

Mark Fleming

western white pine: wanted dead or alive

by Glenn Gernert

Glenn Gernert is a graduate student in Forest Products.

Nearly two-thirds of the estimated 21 billion board feet of western white pine (*Pinus monticola*) in the United States is located in the region known as the Inland Empire. This region produces 90 percent of the nation's western white pine lumber.¹ However, mortality — chiefly caused by white pine blister rust (*Cronartium ribicola*) and mountain pine beetle (*Dendroctonus ponderosae*) — in this important tree species is high: it is estimated at 318 million board feet per year.

Most of this mortality — about 237 million board feet — is physically accessible. Yet only seven percent of the accessible mortality is usually utilized; about 218 million board feet per year are simply left in the woods. Because the decay season is short in the white pine region, most dead trees remain in usable condition for long periods; thus, the actual standing volume of potentially usable dead white pine timber is much greater than the annual mortality.²

The nation's rising demand for wood products combined with a shrinking land base for commercial timber production makes residue utilization important. Removal and utilization of these dead trees can yield several benefits to the forest and forest industries. The resource base will be enlarged and the available supply of timber extended. Both the risk of fire and forest manage-

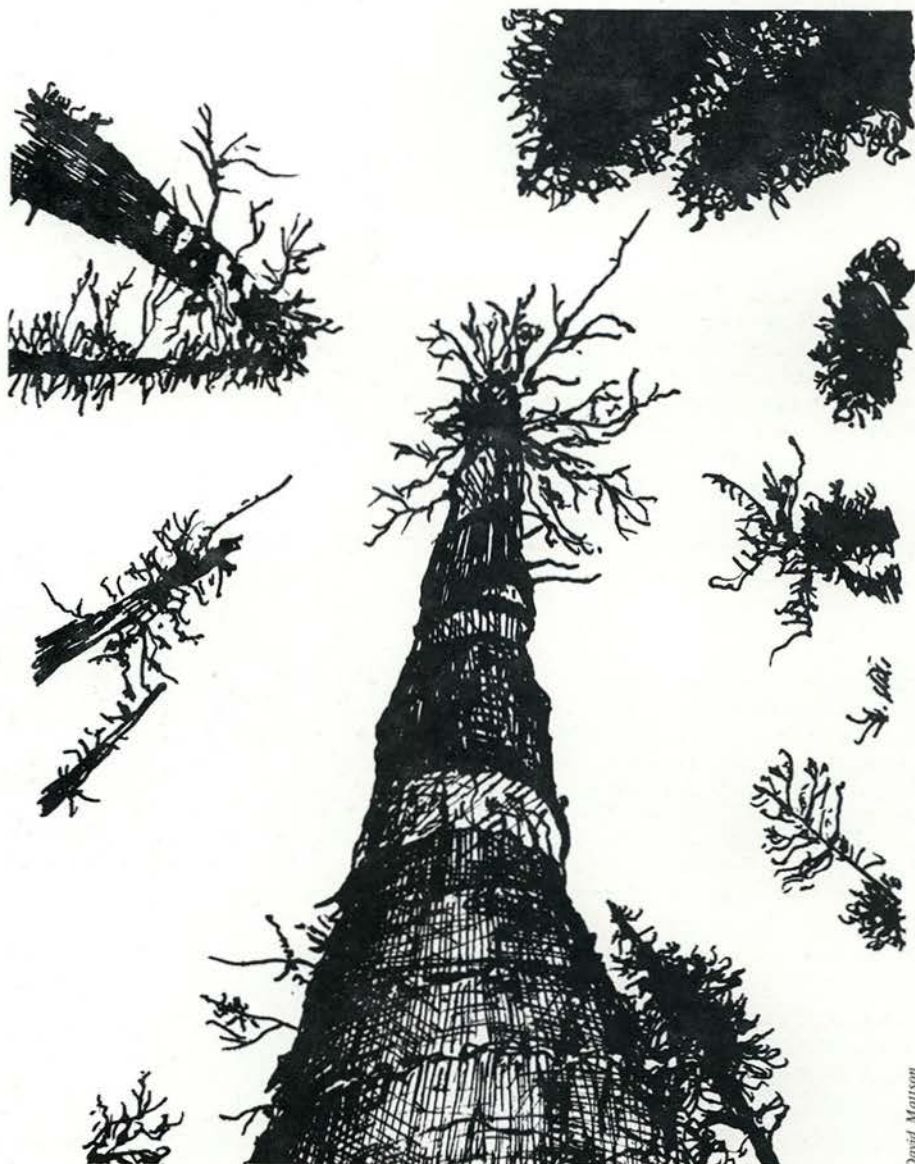
ment costs will be reduced. The aesthetics of many logging operations will also be improved.

The physical difference

But how much of this 217.9 million board feet of dead western white pine is actually usable? To answer this question, we are comparing some of the

physical properties of wood cut from dead trees with that cut from live trees. Moisture content, specific gravity, and shrinkage characteristics are the properties under test.

Past studies have stated that there should be no difference between wood



218 million board feet per year is simply left in the woods

¹ Western Wood Products Association. 1970 Statistical Yearbook. WWPA Stat. Dep., 28 p., 1971.

² Information from inventories of Forest Survey at the Pacific Northwest Forest and Range Experiment Station and the Intermountain Forest and Range Experiment Station. Other information from unverified data provided by the Clearwater National Forest.

*Let us be heroes on our own,
Let us by ourselves grasp the anterior
glory.
And by ourselves share the posterior
one.*

*—The song of Igor's Campaign
C. 1138 A.D.*

cut from dead and living trees.³ The argument is that wood cut from living trees is itself mostly "dead" because the heartwood is physiologically inactive. This hypothesis, however, remains untested; and prejudice exists in most areas against the use of lumber cut from dead trees.

The first phase of this study was completed during the summer of 1976 and involved extensive sampling of white pine in Idaho. Sampling was done near logging operations to minimize collection costs; thirteen areas scattered throughout northern Idaho were sampled. Professional loggers and Forest Service personnel felled the sample trees and bucked off sections for testing.

In each area, three live trees, three dead standing trees, and three dead fallen trees were selected for sampling. These trees were sound (free from rot) and typical of the area. Within each category, trees of different diameters and different elapsed times since death were chosen when possible.

An 8-inch-thick section was cut from the top of the first 32-foot log of each sample tree. All sample trees had to have a diameter of at least 10 inches at a height of 32 feet to provide sufficient material for the necessary test blocks. Samples were quickly end-coated and placed in plastic bags to prevent moisture loss and checking. Descriptive data including diameter breast high, tree height, estimated time since death, and an evaluation of the overall tree condition were recorded for each tree. Samples were brought back to Moscow and stored until the sample collection was complete and testing could begin.

Testing, currently underway in the Forest Products Lab at the University of Idaho, follows procedures outlined by the American Society for Testing and

³ Comparative value of timber cut from live and dead trees. USDA Forest Products Laboratory, Technical Note No. 101, Madison, Wisconsin, February 1953.

Materials. Each sample section is cut in half, and a duplicate set of three test blocks is obtained from each half. A 2" x 2" x 6" block is used to measure both volumetric shrinkage and specific gravity. Radial and tangential shrinkage blocks are each 1" x 4" x 1". A measure of moisture content is made on each block. Approximately 702 test blocks will be prepared (13 samples areas, 9 trees per area, and 6 test blocks per tree). Comparison of the growth ring pattern of dead trees with those of live trees from the same site gives another estimate of elapsed time since death.



Extensive sampling

In the final phase of the study, the physical properties of the three different categories (live, dead standing, and dead down) will be compared statistically to delimit significant differences in the physical properties. Regression analysis will be used to estimate the effect of time and diameter on each physical property, and analyses of variance will be used to distinguish differences between sample areas. At

this time, testing is near completion, but it is still too early to draw any definite conclusions.

Check limit

The biggest obstacle in the utilization of these dead trees appears to be the numerous shrinkage checks (cracks) that occur in the wood after the tree dies and begins to dry. Major checks do not usually occur until the bark begins to slough off the tree. This occurs approximately two years after death. The wood remains sound and free from rot for up to six to eight years after death, but checking becomes progressively worse as time goes on.

So far little practical or economical use has been found for the vast volume of dead western white pine in the Inland Empire. There is a market for rustic interior paneling sawn from these trees, but it is limited. Pulping of dead trees for paper has not been successful as the wood is generally too dry and produces "fines" (powder) which degrade pulp quality. Washington State University researchers have met with limited success in chipping the dead wood for manufacture into particle-board. Lumber yield has been marginal because of checking. Economically it is impracticable to remove these trees from the forest unless they "can pay their way to the mill". However, it is becoming increasingly important to utilize all woody material in our forests, not just the best. Clearly, we must know more about the properties of the wood and wood fiber of these dead trees if they are to be economically utilized.

This research is a cooperative effort between the University of Idaho College of Forestry, Wildlife and Range Sciences and the Intermountain Forest and Range Experiment Station at Missoula, Montana. Dave Lowry, a wood technologist at the Intermountain Forest and Range Experiment Station, is providing technical advise and consultation; Professor Arland Hofstrand is supervising the project at the University of Idaho. ■

summer camp inside out

by Patrick Falter

Pat Falter is a junior in Forest Resources Management.

With the age of computers well upon us, who needs to learn the practical and technical aspects of forestry field work? Can a summer camp program be helpful in a forestry career? Why not take an internship instead, and get paid for the work and learning experience? These are questions a forestry student of today may ask himself/herself regarding field instruction. Today, more than 68 percent of U.S. institutions offering professional forestry programs require attendance at a summer camp or field station. Let us take a closer look at one program in particular, the forestry summer camp of the University of Idaho, examining the birth and growth of this program, what it offers and how it benefits the student.

Spring finals were just over in 1939 when 26 "campers" gathered at Willis Sweet Hall on the U. of I. campus to embark on the first summer program of the School of Forestry. The ten-week program consisted of five weeks of surveying, one week of forest communities study and four weeks of mensuration. The surveying portion was held entirely on campus, consisting mainly of chaining, transit work, map-making and solar observations. After five weeks of continuous work on the campus, the eager crew was more than ready to head for the woods to study and observe plant community development. They saw still more of the wooded area surrounding Moscow during the mensuration section. Cruising, mapping and familiarization with the various measuring instruments occupied the majority of their days in the field. The first alumni of forestry summer camp pulled out of Moscow with happy hearts and clear consciences — no final exams!

Move to McCall

With the dawn of the summer of 1940, another first was recorded in the U. of I. record book — summer camp at



Ernie Ables

McCall, approximately 40 miles from the Oregon border in central Idaho. The camp was, and still is, located one mile northeast of McCall on the shores of scenic Payette Lake. The academic program was identical to that of the previous year, but the physical accommodations had changed considerably. Tents replaced the dormitory; sixteen tents in all, a regular "tent city". Tent frames and floors were erected by the local C.C.C. camp, with lumber and other building supplies furnished by the university. The camp was not quite as primitive as it may seem for they did have lights — electric lights at that!

Shortly after getting settled, the boys initiated the long-lasting tradition of heading for the brighter lights of McCall. The taverns were not the only item on the agenda; in no time at all, they discovered the Girl Scout leaders at

the nearby camp, the bitterly cold waters of Payette Lake, and the excellent fishing the area afforded. An article on the summer camp of 1940 claims that, "Almost every time fishermen returned to camp, they brought with them sufficient cutthroat and rainbow trout to give the entire camp a big feed." (Some fish story!) The day before camp was scheduled to close, everyone was called out on fire duty as a result of a lightning storm. A full week later the exhausted foresters returned to pack their belongings and soon departed in all directions of the wind. A new tradition was born — in the years to come, the fire call interrupting summer camp would become an expected event.

There were only minor changes in the physical structure of the camp until 1952, when the "shower house deluxe" was completed for everyone's use. This marked the end of the memorable era during which it had been necessary for students and faculty to make regular trips to the local hot springs for their Saturday night baths — although when the lake was sufficiently warm, it was a more convenient place to clean off the daily accumulation of sweat and dust. Although the shower house ended one era, another and perhaps more enjoyable era began, in which the hot springs were used more for plain old soothing relaxation than for any other purpose. And indeed, it was very relaxing.



John Diorman



Mark Fleming



Fred Johnson

“Non-landmarks”

Such hot springs as Goose Creek (Last Chance) and Donnelly are not the only landmarks still frequented by summer camp troops today. Anyone who has attended camp at McCall will recall the often-visited peninsula and swamp, and perhaps Lick Creek summit, the South Fork of the Salmon, Hell’s Canyon and Eck’s Flat. And I am quite sure everyone can remember two “non-landmarks” of the McCall area — those masters of surprise, the infamous ticks and the ever present mosquitoes. The mosquitoes of 1971 had to change their plan of attack with the advent of four newly constructed cabins on the camp grounds. Rather than sneak underneath the tent flaps as their ancestors had, the new breed swarmed outside the cabins anxiously waiting for their prey to emerge. The four eight-man cabins multiplied into eight in the following years, plus two more for faculty members and one for the camp cook.

The present curriculum is divided into two four-week sessions. During the first four weeks the student learns the principles and proper use of the various measuring instruments em-

ployed in the woods and mills. Surveying, aerial photo interpretations, log scaling, cruising, and individual tree and stand measurements makeup the bulk of this course. The entire gamut of information obtained during the first three and a half weeks is compiled into an extensive cruise report, and many a lamp burns late the night before the reports are due.

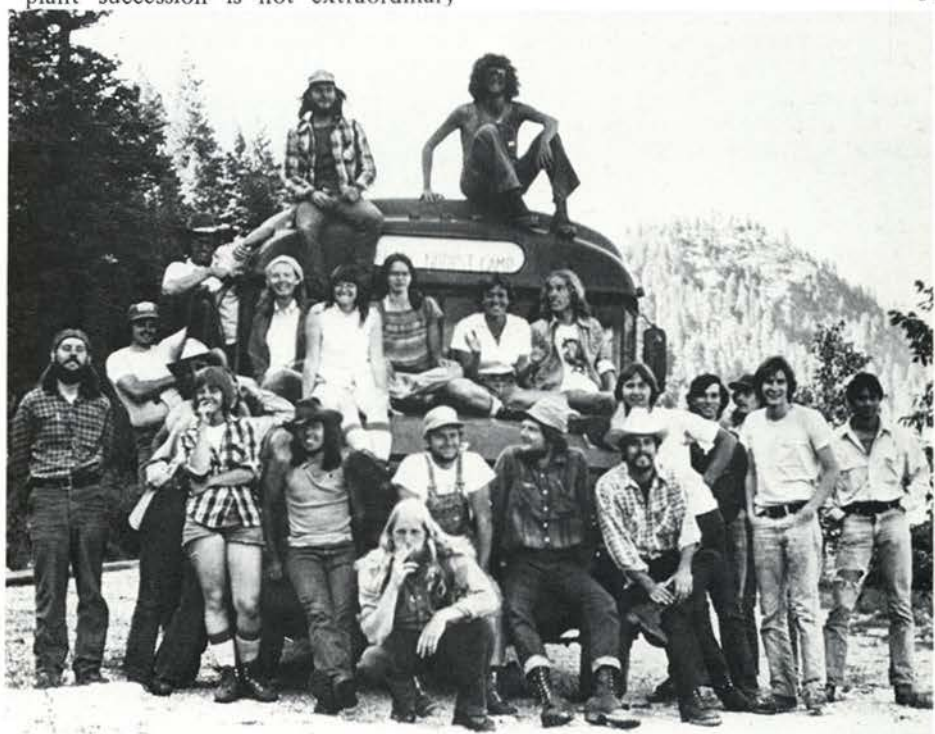
Wildland ecology

The remaining four weeks deal with wildland ecology. Instructors from various fields, including range, wildlife and fisheries, are brought together to present their views and assist the student in piecing together the ecological interactions involved. An overnight trip is made to an elk winter range on the South Fork of the Salmon, another to Hell’s Canyon to learn some basic limnology and fisheries in the artificial impoundments there. But the central portion of the course involves two important aspects of forestry — plant succession and habitat typing. Studying plant succession is not extraordinary

when it comes to field training at a summer camp, and most forestry schools offer it. However, the University of Idaho is perhaps the only institution in the nation to teach habitat typing in the field. Where the Forest Service takes only one-half to three days to instruct its employees in habitat typing, the University of Idaho allots the greater part of four weeks to instruct students on how to classify forest lands.

At the close of summer camp students depart with a more complete understanding of the complicated ecological world, a foundation upon which to build in the remaining years of college. Some, on the other hand, realize during the eight weeks that they were not cut out to be foresters; in such instances, summer camp acts as a proving ground, and may prevent the waste of more time and money.

What of the questions asked at the opening of this article? In a 1976 survey, professional foresters, who at



Mark Fleming

one time attended a summer camp, provided some answers. Are the practical and technical aspects of forestry needed in this day and age? Ninety-eight percent replied yes. Can a summer camp program be helpful in a forestry career? Seventy percent replied that summer camp most definitely helped them by providing some of the more basic knowledge used in day to day forestry work.

When asked what the strengths and weaknesses of such a program were, the most common strength noted was that summer camp provided the opportunity to learn much needed practical experience. The second most common strength noted was the strong comradeship formed while at camp. This closeness instills in one's self a deep feeling of kinship which endures through the remaining years of college and often throughout their professional careers.

The weaknesses of this program, as stated by these professionals, were not near as numerous as the strengths, and the most commonly mentioned was the financial burden it imposed on the already struggling college student. However, many said that in retrospect, the experience gained during the eight-week period was well worth the temporary loss of income.

In January 1977, students presently enrolled in forestry at U. of I. and who had recently attended summer camp were asked whether they would rather have eight weeks paid work experience or go to summer camp. Fifty-three percent preferred camp — despite the financial pressures that go along with obtaining a college degree. Most of these cited the well-rounded education received at camp as the supporting reason.

Future location

Forestry summer camp at the University of Idaho will continue, but the future location of the camp is in question. State appropriations are failing to keep pace with expenditures for salaries and maintenance of the camp at McCall. The university has put the buildings and facilities of the McCall camp up for sale, but the land itself belongs to the state and is being leased by the university. Because of the large number of students expected to attend camp in 1977, half of the students will go to McCall, while simultaneously, the remaining half will attend camp on campus in Moscow. When a price is agreed upon, the camp will most likely be relocated on the school forest near Moscow Mountain. The school forest does not have the great ecological

diversity that the McCall area has, but the faculty has assured me that the program would not be severely hurt by this move. Long field trips would be taken to visit geographical areas similar to those in the central regions of Idaho. So by the summer of 1978 the camp may be back in the Moscow area where it all began 39 years ago. ■

I know it's a co-op, but you guys don't know zip about these matters. We'll have chili and like it.

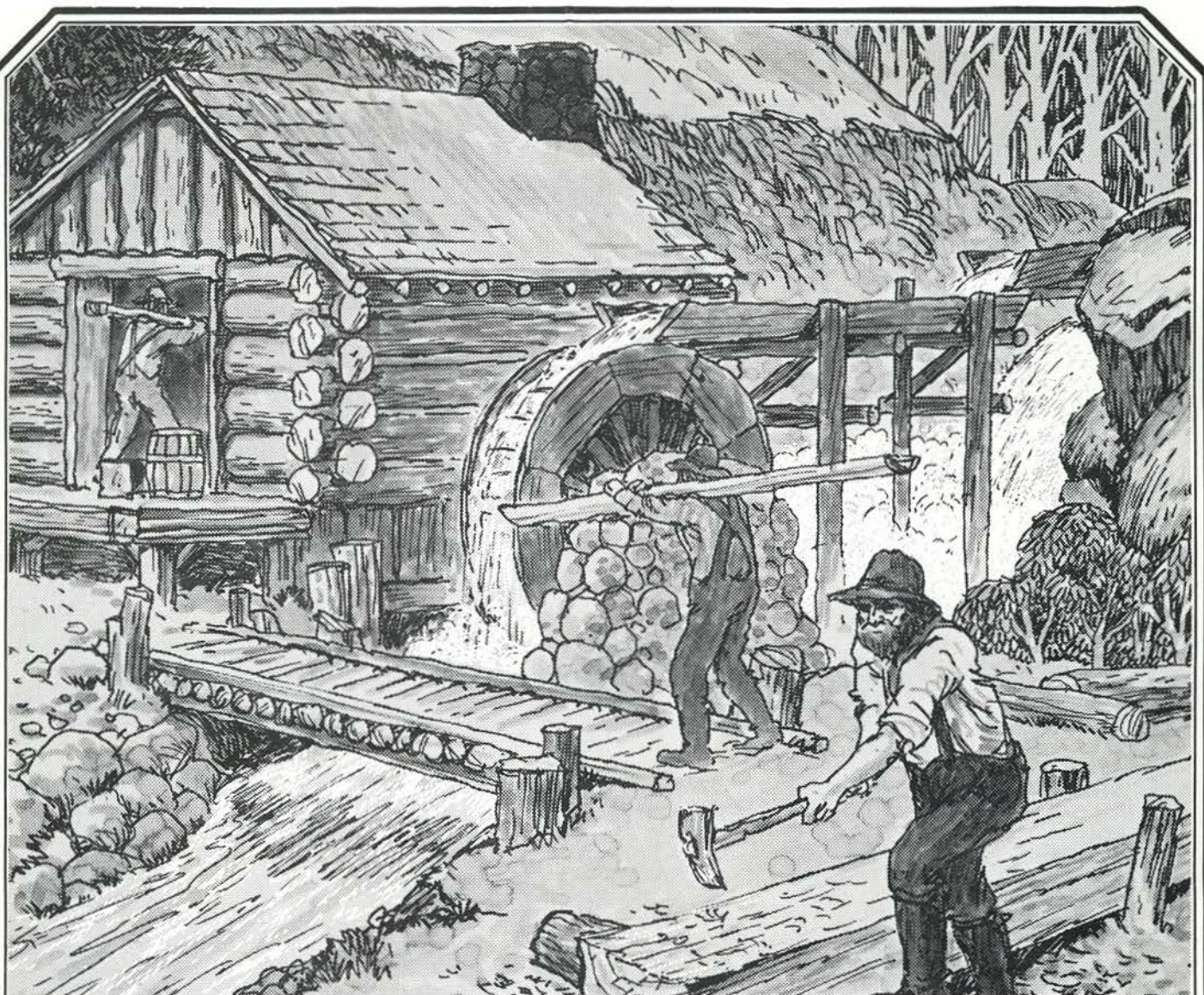
—Fred Johnson



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That was a saying of the early settlers and it referred, among other things, to using the gifts of nature to lighten the burdens that plagued their lives.

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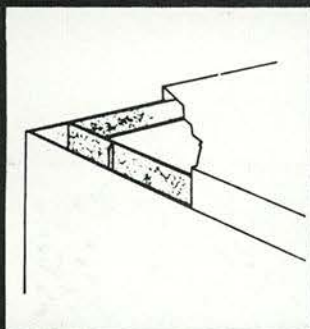
The ultimate losers in a power crisis will be the nation and its people. Public support and understanding is urgently needed if these power plants are to be built in time.

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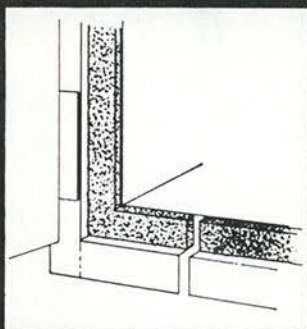
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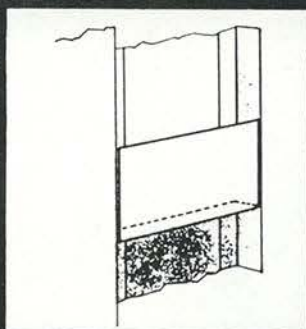
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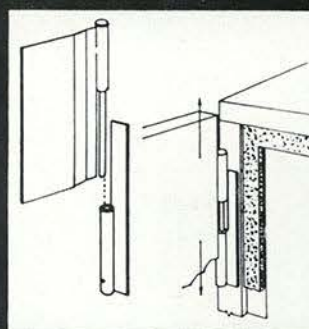
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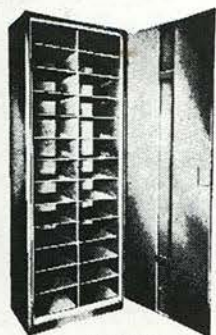
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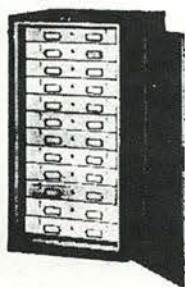
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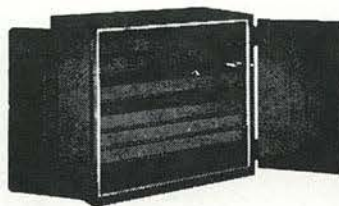
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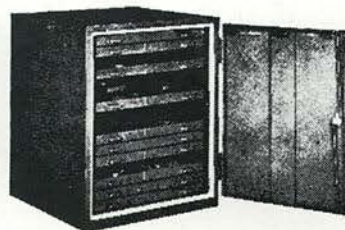
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Professor Lee Sharp has finally succeeded in getting trees to grow at the Point Springs Experiment Station in southern Idaho. "We tried willows and Russian-olive and all kinds of trees but never thought of trying date palms. We're going to plant palms from now on instead of that stupid crested wheat-grass."



Professor Len Johnson is excited about his new experimental logging equipment. He said, "This new model is certain to cut down on our gas consumption, however, we'll all have to try to buy rubber boots." Len is also opening a fertilizer store where he'll market "Elephant Doo" for house plant lovers. Proceeds from sales will go to the Faculty Coffee Fund.



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The study of economics won't tell you how to get out of the red. It just tells you why you are there.

—Lee Medema

aspens from page 37

western white pine come in after burns on more northerly and easterly exposures where more moisture exists — prime sites for aspen. Larch is more tolerant of drought than aspen, and enjoys its best development in the Northern Rockies; it has probably adapted itself better to conditions in the Northern Rockies than aspen has been able to, aspen being more closely allied to the boreal or northern deciduous forests. Western white pine also reaches its best development in the Northern Rockies and is much longer-lived and more shade-tolerant than aspen. Douglas-fir, too, can establish itself on mineral soil after burns and is quite a bit more drought-hardy than aspen. These conifers also possess root systems capable of recovering water at depths much greater than aspen's five-foot limit.

Lack of hardwoods

There is a conspicuous lack of hardwood trees in the Northern Rockies. One that does well around the Lake Pend Oreille area is paper birch (*Betula papyrifera* Marsh.). This is particularly interesting in view of the ecological and geographical similarities between it and aspen. Both have boreal affinities, although paper birch has not extended its range down the Rockies as aspen has. Ecologically the two are quite similar, both being pioneer species after burns, intolerant of shade, and preferring moist sites. Paper birch's occurrence in the Lake Pend Oreille area probably stems from the fact that it found refuge there from the glacial ice that extended into north Idaho; but why aspen is not there as well in significant numbers is puzzling. Certainly paper birch did not stray as far in seeking refuge from the ice as aspen did, not going much further south than the southerly extent of the ice.

In those relatively rare places such as the North Fork of the Clearwater River and the lower Selway and Lochsa River drainages, where fogs are frequent and more effective precipitation is available, elements of the Pacific coastal flora are able to thrive in conditions



approaching those on the coast. Among these is red alder (*Alnus rubra* Bong.), a tree species similar to aspen in invading burned-over areas.

Aspen vs. shrubs

Certainly a goodly amount of seral shrubs grow vigorously upon disturbance in the Northern Rockies; why is it that aspen cannot behave similarly to these shrubs? Aspen is a tree, not a shrub. The seral shrubs of the Northern Rockies only reach tree form under the most ideal conditions. Doubtless there are instances in which shrubs in the earlier successional stages reach tree form; instances which would seem to favor aspen. By their nature, these shrubs are better suited to the successional conditions that usually occur in the Northern Rockies. They can

withstand dry soil conditions much better than aspen, a tree whose crown will wither and die back with severe moisture stress. The seral shrubs are ready to take advantage of that rare instance when a habitat suitable for aspen becomes potentially available. The seral shrubs are in a position to out-compete aspen if conifers do not.

In the spruce-fir zone of the Rockies where snows lie deep, aspen often has twisted trunks and does not grow well. It is interesting to note that at mid-montane elevations in the Central Rockies, the snow is dry and powdery; it probably does not hinder the growth of aspen as much as does the somewhat wetter snow of the mid-montane forests of the Northern Rockies.

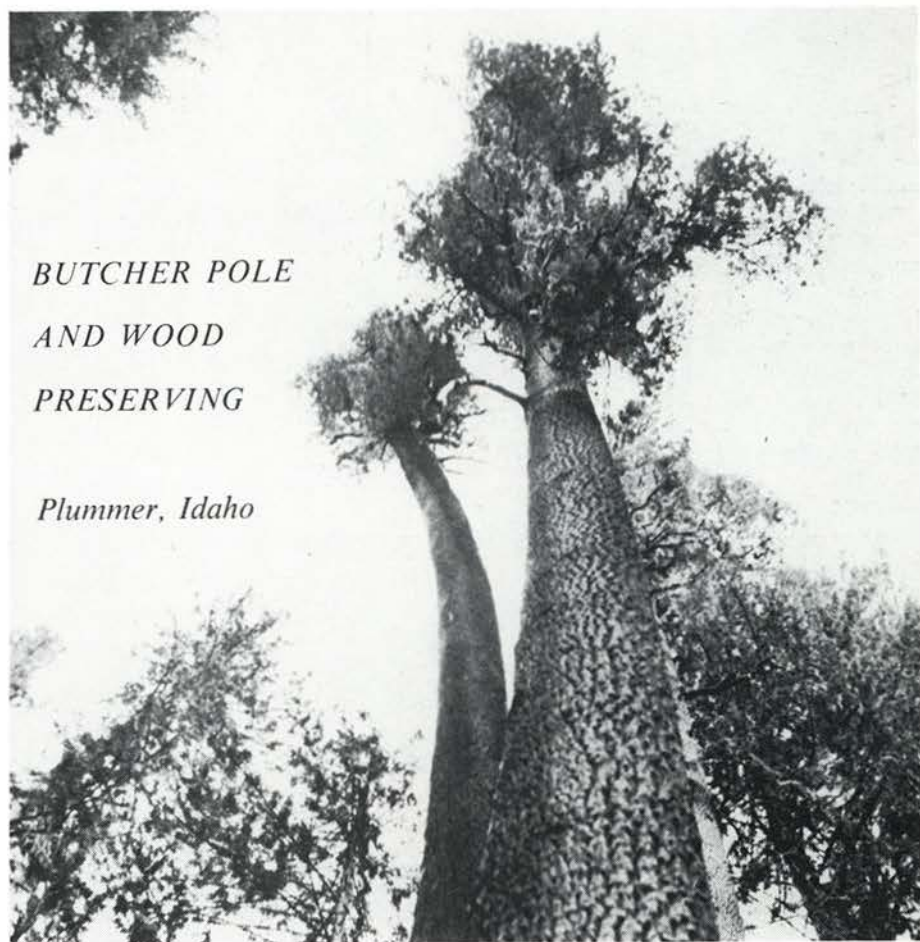
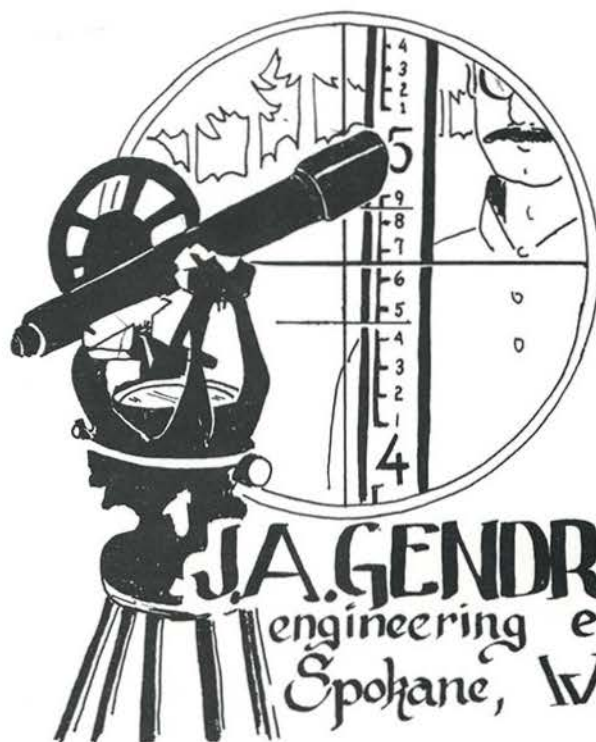
Specialized sites

Aspen exists on rather specialized sites in the Northern Rockies. Very rarely is it seen on slopes. It is largely confined to seepage areas, the later stages of hydroseres, streamsides, rich, deep soils, and the forest-basal vegetation ecotone. All of these habitats except the last indicate aspen's preference for plentiful soil moisture. The argument for aspen's existence at the forest-sagebrush or forest-grassland ecotone (which can be quite dramatic) is that its status here is that of relict groves from the glacial period. Subsequently these relicts have been able to stay on as a result of the lack of competition which characterizes the mid-montane forests higher up. Aspen, by its habit of asexual reproduction through root-suckering, is able to extend its bounds more readily than conifers, which must germinate from seed. The number of conifer species, and the number of individuals able to provide seed to occupy such sites, are much lower than in the better developed forests above. This reproductive advantage has been favored by fire exclusion, which in many cases has allowed aspen to invade the prairie. While it is true that aspen root suckers can sprout after fire, vigor is diminished if they are forced to sprout repeatedly.

Significant establishment of quaking aspen, a species of northern deciduous or boreal forest affinities, seems to be most limited by insufficient soil moisture and competition from other trees and shrubs in the Northern Rockies. Aspen is found only where plentiful soil moisture exists. In the Northern Rockies it is largely restricted to water-courses. Conifers and seral shrubs seem better adapted to drier soil conditions; hardwood tree species are scarce in the Northern Rockies. Deep, somewhat "wet" snows, the correlation of dry, warm weather, the poplar borer's reproductive success, and competition from paper birch and red alder in local areas may all play a part in keeping aspen out of the Northern Rockies. ■

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—Biff Adams



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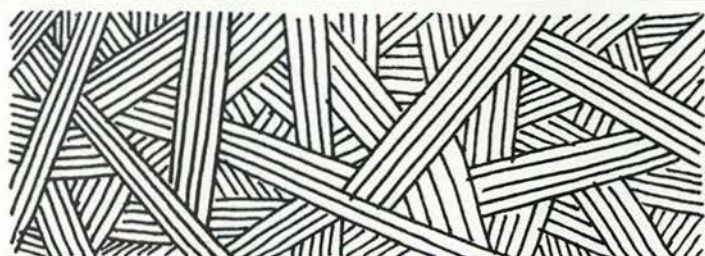
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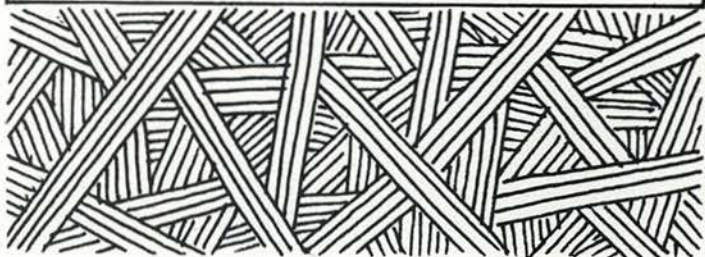
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Instream flow
from page 48

Several methods employ a transect-analysis approach, relating habitat loss to reduction in discharge. Transects are established across a given river or stream, and various hydraulic parameters (e.g., velocity, depth) are measured at intervals along each transect. The cross-sectional stream profile is drawn for a reference flow at each transect, and a "reference habitat value" is assigned. Computer flow models can predict what relative changes in the hydraulic parameters would occur during flow reductions. New habitat values are then computed and plotted against discharge. Flow recommendations can be made by noting the discharge resulting in the greatest habitat loss.

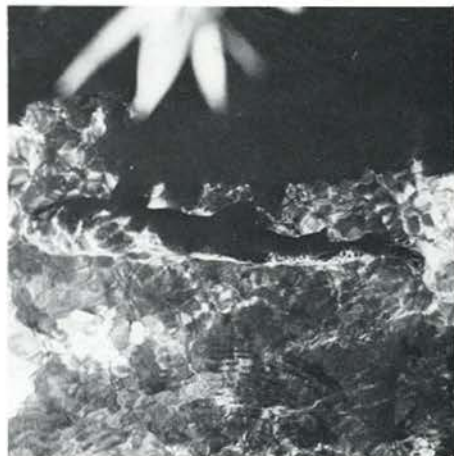
Many methodologies have been developed for recommending appropriate flows during particular life stages of fish (e.g., spawning, passage, incubation). Such methods require detailed knowledge of the ecological requirements of each species. Where information is insufficient, an "indicator species" may be designated—usually the species with the most stringent requirements. Adequate flows for the indicator species may be assumed to be

sufficient for all others.

Idaho flow

Both the Department of Fishery Resources and the Idaho Cooperative Fishery Unit at the University of Idaho have been active in instream flow research. The Coop and the Idaho Department of Fish and Game have jointly developed a methodology which utilizes the indicator-species approach in recommending flows for large rivers. The Coop has also recently been involved in a study to determine the effects of water withdrawal on fish populations, using a USFS Computer Program. Two projects currently in progress are a laboratory study, conducted in artificial stream channels, to determine the population response of rainbow and cutthroat trout to flow reduction, and a field project to evaluate the effects of peaking flows on aquatic invertebrate and fish populations of the South Fork of the Boise River. Two proposals addressing other problems of instream flow research have recently been submitted. One concerns the development of a methodology for determining suitable incubation flows; the other deals with quantifying the relationship between discharge and fish biomass.

Research will uncover more and more answers to the questions of specific instream flow needs. Unfortunately, as previously noted, all of the water of many streams is already appropriated; for these, instream flow is an academic matter. Moreover, the majority of the western states—including Idaho—do not recognize instream flow as a "beneficial use" of water; thus there is no legal basis for its reservation. Flow recommendations can have little influence until such legal problems are resolved. ■



NEVER STAND IN A BOAT



from page 27


cided to wait a bit.

Minneapolis lay in the distance behind us, and we were now surrounded by the towers of St. Paul. I felt like a child watching his first movie. The view of the big city from the tracks was fascinating, although blurred somewhat by our uneasiness about getting off. The Mississippi River was becoming visible ahead of us, and the train was still going about 20 mph. Greg said, "If it crosses the bridge, it is going on to La Crosse (Wisconsin), and we will have to jump." I turned in time to get a glimpse of Pearl, as Bert sailed her off the train. She seemed to halt for a split second in mid-air to look back in at us, her eyes as big as golf balls and an expression that seemed to say, "I didn't to it." "What are you doing Bert?" I shouted. "I thought you said to jump," replied Bert uneasily. We all looked at each other with a sense of urgency and headed for the door. Bert flung his pack off and madly leaped out the door as if he were about to save a drowning man. Greg, old hand that he was, calmly set his pack beside the door and hung off the side of the car, his feet running full speed. He smoothly contacted the right-of-way, and with a smile he couldn't hide, he grabbed his pack and veered away unscathed. Jay held his pack to his chest and leaped off with the form of an expert skydiver. I dropped my pack off and glanced toward the rear of the train. Pearl was still bouncing. Bert and his pack were side by side somersaulting to a stop. Greg was off to the side laughing loud enough to be heard across the river. Jay was in mid-air, four feet off the ground exactly as he had left the train. I gave a rebel yell and leaped out, hitting the ground in a sitting position, then tumbling forward to a painful halt. I looked up, laughing feebly, and sensed an eerie silence. I quizzically arose on my elbow in search of an explanation. I looked slowly around me and stopped at a boxcar, a boxcar standing still. Number 188 had stopped. ■


Three days of uninterrupted company in a vehicle will make you better acquainted with another, than one hour's conversation with him every day for three years.

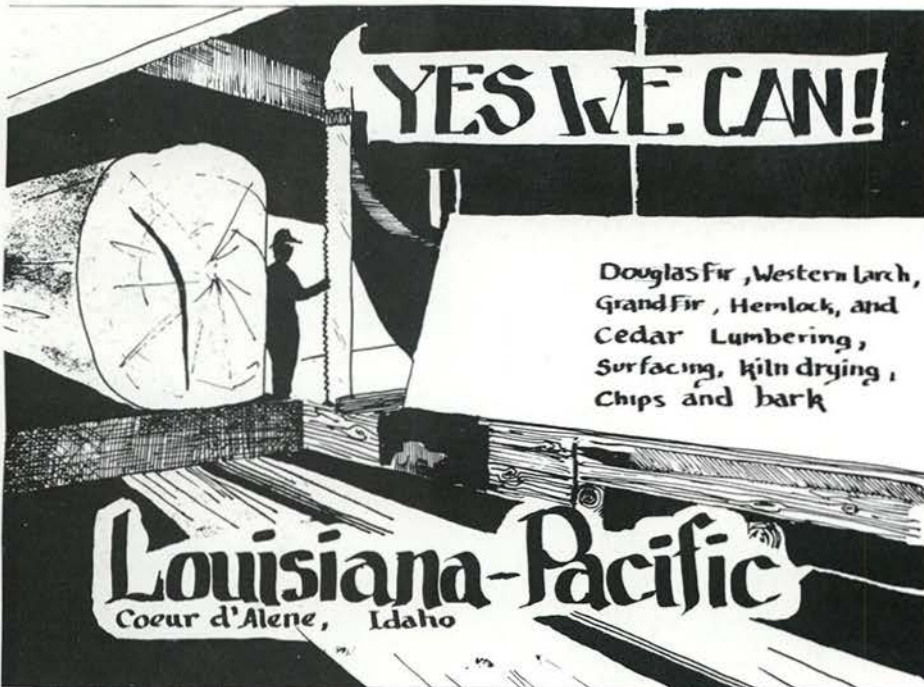
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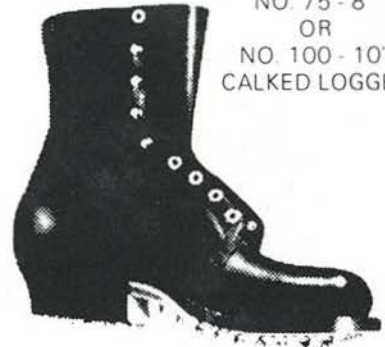


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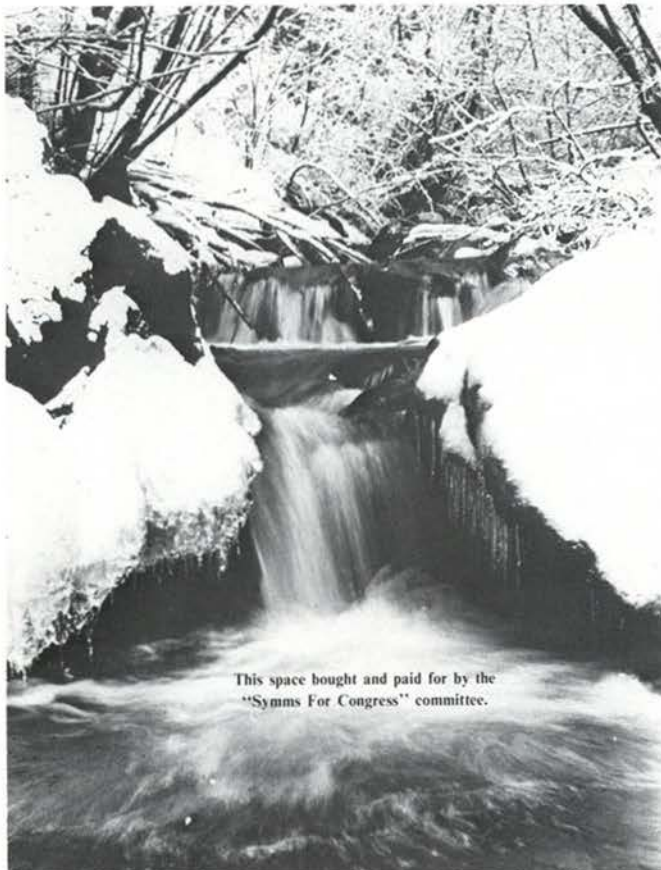
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What America's forests mean to you.

Many people thoroughly enjoy forests. They enjoy fishing and hunting and all the other recreation forests can offer. Other people simply like to view a huge tract of trees and marvel at one of nature's most beautiful creations. Still others take a strictly utilitarian viewpoint—forests are watersheds, trees produce oxygen, wood is a raw material. But whatever their point of view, all Americans have this in common: they rely on forests in many ways.

Jobs and a Payroll

Many people rely on America's forests directly for a livelihood. In 1975, the forest products industry—including wood, pulp, paper and furniture—employed an estimated 1.15 million people whose paychecks for the year totaled nearly \$11 billion. But that's just the initial value of the paychecks. The sawyer in the lumber mill spent some of his paycheck for groceries. The grocer used part of the same money to buy clothes. The clothier used a portion of the money which he received from the grocer to pay the plumber. And so it goes. A single paycheck spreading out to purchase a wide variety of goods and services. And all of it ultimately derived from forests. In addition, several million other people in thousands of companies earn their livelihood selling products and services to the forest products industry.

Taxes and Services

Privately owned forests also provide tax revenue. Last year, taxes paid by companies in the forest products industry amounted to many millions of dollars. Part of these dollars went to the federal government. The rest helped to support local schools, fire and police departments, sewage disposal systems, and other services provided by state and local governments.

So the government relies on forests for tax revenue, and people, in turn, depend on the services which are provided by the taxes.

There are thousands of companies in the forest products industry. These companies manufacture a variety of products ranging from plywood and lumber to pulp, paper, and chemicals. Georgia-Pacific is one of these companies.

Georgia-Pacific employs over 33,500 people. The Company owns more than 4.5 million acres of timberlands in the U. S., Canada, and Brazil; and has exclusive cutting rights to another 1.5 million acres, mostly in Indonesia and the Philippines. G-P's significance is reflected in some revealing statistics: In 1975 Georgia-Pacific's assets amounted to \$2.4 billion. Sales totaled \$2.36 billion. And the Company paid out a total of \$525 million in payrolls to employees and taxes to the federal government, and state and local governments.

The Endless Bounty

Today, more than 5,000 products are made from wood. Many products which we have come to consider as necessities are derived from forests. And it seems that new products are continually being developed from

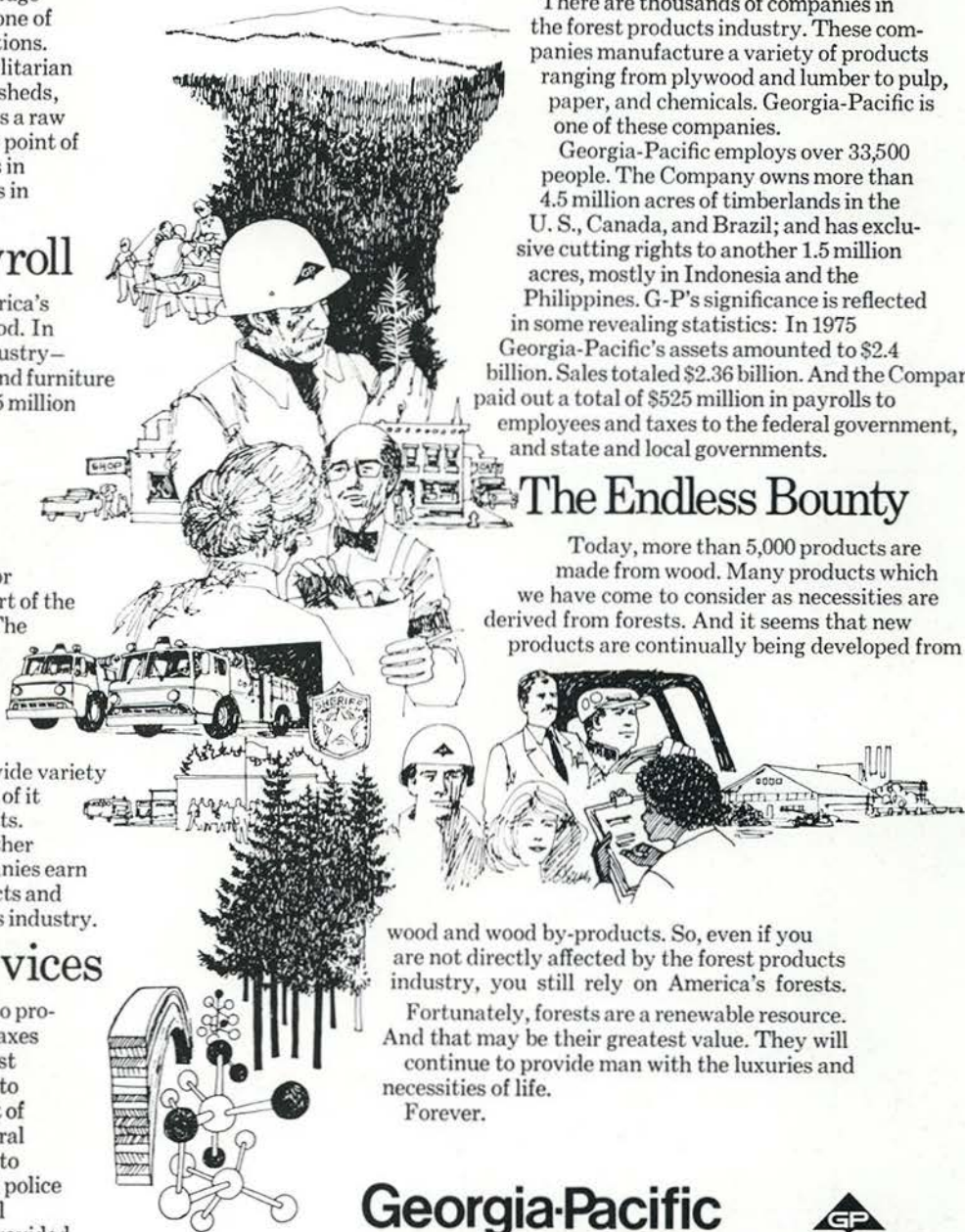
wood and wood by-products. So, even if you are not directly affected by the forest products industry, you still rely on America's forests.

Fortunately, forests are a renewable resource. And that may be their greatest value. They will continue to provide man with the luxuries and necessities of life. Forever.

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FORESTRY, U of I

Solomon Levi tune

*We're Foresters from U of I
And we're wild, wooly, and tough.
We pack the broncs and fight the fires
And do everything that's rough.
We're always light-hearted and free from care
As we hike on mountains high.
But you'll always find us ready to fight
For dear old U of I.*

*Who are we, sir?
Forestry men are we. Chorus
From U of I, sir
And we shall always be —*

*Ho! Hoppitty! Hippitty! Hi!
Forestry - Forestry! U of I
HO! HI! HO! HI!
Forestry - Forestry! U of I*

*We cruise the timber and map the land
And learn to herd the sheep.
Whenever there's something about to drop
You won't find us asleep.
If you will look about you
And roam the lands afar,
You'll always find things up to date
Wherever we foresters are.*

(Chorus)

from 1917 IDAHO FORESTER



I would like to compliment you on the quality of recent issues of the Idaho Forester. I was editor of the 1917 issue and can see that you have come a long way since then.

—R.N. Cunningham



A publication of the students of the College of Forestry, Wildlife, and Range Sciences, University of Idaho
devoted to improving the quality of life

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