Laura Knepp
Sharon Abrahamson, Gary Stephan
Salli Kurt, Susan Kleitsch
Cheryl Hoglan, Rich Straight
Carole Gillespie, Nita Rauch, Phil Blakley

STAFF
Editors: Laura Knepp, Sharon Abrahamson
Activities Editor: Susan Kleitsch
Seniors Editor: Salli Kurt
Advertising: Gary Stephan, Richard Straight
Photography: Phil Blakley
Typists: Dale Leeper, Nita Rauch, Cheryl Hoglan
Proofreaders: Carole Gillespie, Koral Santman

Photo Credits
We appreciate the pictures contributed by the forestry students and the authors; and we would also like to thank Russ Foust and Phil Blakley for their time in processing and developing the prints.

Acknowledgements
We are grateful for the help and suggestions received from our advisor, Dr. Dean Prestemon, Mr. Robert Schwartz of the ISU Press, and graduate student Carl Ramm.

Art Credits
Many thanks go to the previously “unknown” artists of forestry, Roger Chemnwick and Barry Graden, who came up with some great sketches.
Editors' Note

This year the 1978 Ames Forester staff is proud to present an expanded Forester. We felt that many times the various facets of forestry are not recognized as an integrated unit, so we hoped that by expanding the Forester to include a diversity of articles from recreation to research, it could play a part in broadening our view of forestry.

Our initial inquiries for articles were answered with such enthusiasm, that we decided to include them all, thus making for one of the largest and most inclusive editions ever.

Due to increased participation and enthusiasm of the students, Forestry Club has been busy with new activities, all of which we tried to cover in this issue.

We hope that this year’s issue will express the unity and closeness of the forestry students and faculty which we feel is truly unique to our department.

Many thanks to the authors who contributed much of their time and effort; to the alumni and advertisers for their financial support; to the students and faculty for their enthusiasm; and to the staff, who with their cooperation and dedication made this year’s Forester a success.

Sharon Abrahamson
Laura Knepp
Patrons

Margaret Stoughten Abell
Robert M. Allen
Robert Appenzeller
W. H. Arlen
W. D. Arnold

Donald R. Ball
Frederic C. Battell
Charles T. Beatty
Bruce M. Bebensee
Dwight Bensend
Lad W. Bellehrad
F. S. Broeran
Bruce Brown
Jon L. Bugenhagen
Thomas E. Burk

Russell L. Chipman
John I. Christiansen
Robert D. Clauson
E. H. Clocker
Lauress C. Collister
Keith Cranston
Fred Cubbage
Vern H. Cutler

Carla Jayneen Derby
Albert F. Dodge
William A. Duerr
Paul M. Dunn

Palmer Ericson, Jr.
Robert L. Ethington

Bert Fellows
Roger Fight
John L. Froelich

Russell E. Getty
Nels G. Glesne
Richard A. Goins
John Gordon
Kurt W. Gottschalk
Robert B. Grau
Charles H. Greef
Phil D. Grimes
Harry L. Grove

Richard B. Hall
Howard G. Halverson
Leland F. Hanks
Wendell H. Harmon
Stephen Harrell
George B. Hartman, Jr.
Ted Hartman
E. F. Heacox

J. W. Helsher
Gene Herrel
Harry S. Hinkley
Clark E. Holscher
Jack Holland
Clyde C. Hoover
Fred S. Hopkins, Jr.
Robert N. Hoskins
Lowell E. Horton
Richard A. Howard
George Hungate
Donald L. Husman

David M. Ilch
H. C. "Chuck" Johnson
Robert C. Johnson
Robert E. Jones

Wendell D. Kaiken
David W. Kaney
George W. Kansky
Derrel Keller
Michael R. King
Douglas Kirk
Harvey W. Kruse

Laurence E. Lassen
Wayne C. Lewis
Kim Libby
John Linch
Paul Linduska
Ward O. Linder
Gregory Linn
Howard S. Lovestead
Howard E. Lowe

Harold R. McAlpine
James A. McIntyre
Robert G. McKenzie
Raymond M. McKinley
Harold S. McNabb, Jr.
Robert Meier
Roger W. Merritt
Don Meyer
Gene C. Meyer
Hans C. Milius
Milan M. Miller
Norman R. Miller
Donald J. Morgan
Dorsey J. Morris
John Frederiek Moyer

David K. Nelson
Dewitt Nelson
Kenneth D. Obye
Lloyd M. Patterson
Raymond R. Phillips
Delbert L. Ploen
George T. Porter

James J. Rettenmaier
William Rice
Dean Richardson
Hugo W. Richman
William B. Rozeboom
Sylvan Rumble
Ronald Rydberg

Con H. Schallas
Walter L. Schipull
Howard N. Schmidt
Ralph A. Schmidt
Harold R. Scholz
James L. Schuler
Clyde T. Smith
Jerome B. Smith
Joe E. Smoke
Donald H. J. Steensens
Robert Earl Stewart
G. H. Stradt

Donald E. Thomson
J. Tomaszewski
Vance A. Tribbett
Ronald E. Trochuck
Robert Tyrrel

Bradly A. Upfield
John P. Wakefield
D. Arthur L. Wallace
Charles R. Widmark
Charles W. Warren
C. D. Warrick
Douglas K. West
Ed Whitmore
George R. Wilhelm
C. R. Witmer
John R. Worster

Dave Young
Kurt Ziebarth
To write about Dwight Bensend is not an easy thing for me to do. A letter of thanks to him for all of his kindnesses through the last 30-odd years—yes; a memorial statement—yes; an analysis of his manner of living—yes; but to select those few hundred words that explain to young people how he came to be so much revered and how those facets of his life that have come to be so admired might be copied, I find almost beyond me.

He was born on March 3, 1913 in Turtle Lake, Wisconsin, the last of seven children. He was so far the last, in fact, that he always thought of his oldest brother as a father-figure and he was surrounded by nephews that were of an age pattern more nearly resembling cousins. Looking back, this seems to me to explain both his awareness of the problems of the old and his desire to surround himself with the young and to help with the infinitely diverse complications that face them.

While never one to allow the foibles of the young to go uncorrected, he would recall the scrapes and sophomorisms of one-time students who had matured to plateaus of staid responsibility. “Canoe Shoes of the Kaniksu” is now a prominent international consulting forester who, for reasons of economy, bought two unmatched and too large boots for camp wear. The story of the Alaskan BLM staffer who tried to ride a log down the old Diamond Match flume in 1948 is a great favorite. The time he bluffed, after a wood tech exam, that he knew two people had cheated but that he would not grade them down if they confessed—and six students came in—another often told story. Despite biblical enjoinder to hate sin and love the sinner, this is not an easy directive. I believe Dwight Bensend has resolved the conflict and students instinctively know it.

The Professor in a professional school is continuously in contact with a student body, the majority of whose members are in transit from one career choice to another. It is all very well to recognize vacillations as students search out life-time goals; it is something else to have personally experienced uncertainty in a time when opportunities were fewer than now and living was harder. Dwight Bensend was a good, small-town athlete and visualizing himself as a basketball coach, he started college in Wisconsin at LaCrosse State Teacher's College to prepare for a life that he saw through the eyes of youth. Widened horizons opened up, but a year of college led to a decision to leave coaching for high school teaching with specialization in mathematics and physics. That career choice gave way to another because of a brother-in-law who was a forester for the State of Minnesota. Therefore the Bensend goal-changes were no different than those that current students undergo and the pattern behind the changes is identical: high school athletics suggest coaching, coaching suggests teaching, teaching leads to broadened alternatives from which are selected familiar avenues made attractive by family suggestion or natural inclination. Scratch any forester and the chances are good that you will find the path to career selection remarkably similar.
The School of Forestry at the University of Minnesota was an obvious choice for a western Wisconsin farm boy and it was from here that he graduated with distinction in 1937. He would have graduated earlier if he had not suffered from the almost universal malady of poverty that afflicted college students all over America during the depression years of the thirties. Being entirely without funds, he dropped out in the Spring of 1935 to work on a U.S. Forest Service inventory crew.

A picture of Dwight and a crew of foresters inventorying the State of Wisconsin by running transect lines east and west across the entire state has stuck in my mind forever, and I’ve told students about it over and over again in lectures about forest inventory. Despite bad boots, deep snow, continually wet feet and a wage of $80 per month plus found, Dwight was able to save $100 a month and return to college in the fall and then graduate in 1937.

In 1940 or earlier (great romances are not necessarily publicly documented), Marguerite Molony, one of the student trainee nurses from the Public Health Department, caught Dwight’s eye. The romance developed smoothly except that Marguerite was campused for two weeks for sitting on the porch with her forester friend with the lights off. In 1941 the couple was married and Public Health nurse-Mrs. Bensend by day became thesis-typist and analysis-of-variance-calculator by night until 1942 when the Ph.D. was finally awarded for the study of thiamin and niacin and their effect on the growth of Jack Pine seedlings.

That the degree awarded was to be in silviculture and that Jack Pine was the subject species comes as a surprise to those Products graduates who feel it necessary to “put-down” Management and to those Management students who make the mistake of thinking that “Doc” doesn’t understand silviculture.

How did the shift to products and utilization come about? Chance and blind luck play their same hands over and over through the generations. The War put great demands on the forests in many ways, but none more dramatically than in the field of packaging, for if America was to be the arsenal of democracy then vast amounts of munitions and materials had to be crated and sent around the world to the widespread theaters of war. The U.S. Forest Service Products Laboratory in Madison, Wisconsin was charged with developing packaging techniques and specifications, and its need for scientifically educated foresters, chemists, engineers, et al. was great. From 1942 to 1945 new Doctor Bensend and his bride lived in Madison and there learned the products trade without once drawing on his knowledge of photosynthesis and nutrition of Jack Pine.

When the war ended and forestry schools began to return to strength with the influx of returning veterans in 1945, Utah State University hired Dwight to teach some products courses and to run the forestry camp in Logan. These were perhaps as happy years as a young man could have. Friendships of a lifetime were formed here with such men as Dean Louis Turner and Professor Ted Daniels. The stories of duck and deer hunting in the Tooele and Uinta country were told and retold in later years to students and fellow traveller on long pheasant hunting trips that replaced duck hunting when Dwight came to Iowa.

The Iowa years started in the fall of 1947. I was a green graduate student, one of two or three, and was invited to lunch in the Union to meet a candidate for the Products position recently vacated by the much-loved George Hartman who had decided to return to the wood preserving business with Long-Bell in DeRidder, Louisiana. "Prof" Hartman was also a father-figure and it was difficult to imagine anyone replacing him as his interest in students was unparalleled, his every-day morality was the perfect model for Christian living and his understanding of employment in industry and the whole profession was the cornerstone on which all of us expected to get jobs. His departure was considered catastrophic. Who, then, was this unknown product-type that we had never heard of that was to fill a place in the department that had had no staffing changes for nine years? No one else was interviewed in those days that preceded Affirmative Action and democratic decision. Dwight Bensend was to be the new products man if he were willing. Look your best. I remember that day 31 years ago as if it were yesterday and my own pain at Dwight Bensend's retirement is doubled because now the cold winds of eternity blow unbuffered on me—the only one left from those receding times.

Doc Bensend's "Indian heritage" played a part in his involvement with forestry.
Among other things assigned to Professor Bensend (he was brought in at the unprecedented rank of full professor and thus has had no promotions for 31 years—something of a record that can only be altered by offering him six stars as a grateful public did to General Pershing) was the task of being the Summer Camp Director to replace the alternating directors that we had utilized before. Dwight has assisted at the Itasca Summer Camp when he was a Graduate Assistant at Minnesota and had, of course, reopened and run Utah's Camp for two years. The 1947 Camp was to be held for the third year in a row at an old CCC camp north of Priest River, Idaho. We had two cooks and seven faculty members, including me as "gopher" for Alan "High Gear" Goodspeed to teach mensuration, and Dwight, who was to handle logging and mill trips for the 120 students. My recollections of the Bensends that summer are relatively few since he didn't start directing Camp until the following year. I do recall that they brought a big bag of pecans from a Missouri relative (and this turns out to be the farm to which Dwight and Mareguerite will retire), their middle daughter, Betty, who slipped through the floor boards of an old bridge while the family was fishing and got snatched out of the water by her ponytail, and that he brought order to the previously unsolved question of who was to be responsible for staying in Camp on the weekends. Up to that time everyone stayed in Camp because it was considered shirking of duty to leave. It was a simple enough process to assign responsibility to one staff member to stay on duty, but apparently hadn't been done before. This innovation, being a departure from the norm, was considered somewhat revolutionary.

It was the second year in Idaho where Dwight took charge of Camp that I began to see what a formidable bundle of energy I was to spend my career following. During the Winter of 1947-48 the heavy snows had taken down most of the mess hall so the Camp Director (Dwight) and the advance party, Dave Herrick (now Director of the USFS Rocky Mountain Forest Experiment Station), rebuilt the mess hall, replumbed all of the broken toilets by pouring cement around them, cleaned the dead ground squirrels out of the water system and had the place all ready to operate before, thank goodness, I appeared to start teaching cruising to 110 foresters. Outside of having a cook who threatened to quit in mid-camp and a Finnish ladj-nutritionist who was given to skinny-dipping in the students' swimming hole, it was a reasonably uneventful summer. Uneventful, that is, until Dwight began to carve out procedures for Camp duties, packing one's own lunch (although one meat, one cheese, and all the peanut butter, etc. was established at the time of the Carthaginian wars and is not unique to Iowa State no matter what you've heard), compiling of student evaluations and a host of things that I adopted when I started running Camps six years later. Parenthetically, it can be noted that there was but a single Camp from 1947 to 1977 that Dwight Bensend or George Thomson (and often both) didn't attend. It is no wonder that he and I seldom have to ask what the other one thinks about something.

In the next thirty years the directions taken by the Iowa State Forestry Department were continually influenced by the energies, aspirations and good sense of our Products man, Dwight Bensend. The swing from a general forestry curriculum to one where students could specialize in either Management or Products was due to his balanced concept that wood was meant to be used and that foresters should understand how best to use it. His forest biology background made him capable of visualizing careers for foresters where woodlands management and mill production and products sales were all parts of a continuum. His approach to curriculum planning stamped a wider breadth and a more rigorous depth on

Summer camp of 1951.
Iowa State Foresters. His own inherent morality and natural respect for the work ethic further helped our students become sought-after producers and ultimately managers and leaders in both the management and the products areas.

Dr. Bensend helping a student during wood technology class.

While never funded for research in a salaried sense, he stimulated large numbers of undergraduates to consider graduate work in the Products area by encouraging them to take on special problems that gave each a taste for scientific investigation. His graduate students were closely guided and by his personal involvement with their projects and their lives each student grew to levels of leadership and competence that puzzle wood products colleagues from universities where support for utilization research has been far greater in terms of equipment, funds and proximity to the industrial arena. It must be conceded that Iowa State has developed more top quality wood products researchers from the smallest amount of program support than any forestry school in the United States. The secret? The dedication of Dwight Bensend.

Early in the 1960's, when Dr. Bensend was approaching that apogee of professional energy that marks the onset of the fruitful fifties (or frightful fifties if one has not laid down a good foundation), the opportunity to go with FAO and the University of Kentucky Mission to Indonesia stimulated the entire Bensend family to take leave from Iowa State and go to Indonesia for almost two years. There is little doubt in my mind that this was another turning point in Dwight Bensend's life, for it was here that exposure to a desperately impoverished population showed him the vast opportunity that exists for helping those who are truly underprivileged by circumstance.

A tour of duty in a foreign land is always stimulating professionally in about the same measure as return to a home base, where life has gone on without one, is depressing. From these two opposed stimuli came a part of the Bensend career that reached a new peak of humane concern. He sent back two Indonesian young men to study at Iowa State. He became the counselor for all of the Indonesians that ultimately came to Iowa State. He combined his activities in the Collegiate Presbyterian Church, where he is an Elder, with that of his profession to support first Indonesian students and later other foreign students from Egypt, Korea, Taiwan and Turkey. When the efforts of the United States began to turn to the support of black students, it was this increasingly supportive man that we naturally assigned to work with Tuskegee Institute and through that connection to support seven black students who have come to our department to develop their careers. The professional who is also a humanist in action must be a model for all who wring hands, beat breasts and forever ask, "But what can I do?"

This Ames Forester is dedicated to Dwight Bensend upon his retirement after he has put forty-five years of his life into Forestry and thirty-one of those into Iowa State. But in three years students may see his name and say, "Who was Dwight Bensend?" Neither this journal nor this dedication can prevent that. But that is not all there is:

- 1400 forestry graduates took courses under "Doc" Bensend.
- At least two dozen foresters with advanced degrees learned directly of his philosophy.
- Dozens of foreign students in and out of forestry have come to know America through his behavior.
- Seven and more black Americans have felt his helping hand.
- Thirty or so forestry teachers of all ages have worked closely with him at Iowa State and scores of professional foresters have had contact with him and have come to respect Iowa State because of him.

History, journals and dedicatory articles make poor monuments, but people, when changed by a good man's example, spread an influence that endures forever.
Partners in Research: The Future Role of Forestry Schools and the Department of Agriculture
by Glenn A. Cooper

Where We Have Been

The Twentieth Century has produced many great scientific and technological advances. We have vaccines against many diseases, space travel, electronic computers, artificial organs, nuclear power, satellite communications, and fast growing, pest-resistant food and fiber plants. These have not been produced by the efforts of solitary scientists, but by organized research and development programs employing the genius of many scientists, the facilities of many laboratories, and funding from many institutions.

Over the past 50 years, industry, Forest Service, and University scientists have made many contributions that have advanced forestry. Tree growth studies have made it possible for us to establish management and harvesting guidelines for 40 major forest types. New and improved wood products such as particleboard and fiberboard have extended fiber utilization to meet new consumer needs. We were provided with ways to reduce losses from insects, disease, and fire. Added knowledge of fish and wildlife habitat requirements has made it possible for us to develop guidelines to help some species thrive. Through research on forest-associated rangelands, we were supplied with a basic understanding of range ecology and given the tools for making forage production compatible. We can now sustain high levels of recreation use while protecting our renewable resources. We know much about the management of forests for clean water production.

Forest, range, and related resources research has been conducted principally by the Forest Service, the State agricultural experiment stations and forestry schools, and forest industry. These research programs are interrelated by having common sets of research priorities and by joint planning and programming—particularly between the Forest Service and the State agricultural experiment stations and forestry schools.

Where We Are

The research effort to date has given us a bounty of continuing benefits from our forests, but if we are to minimize the contribution of forests to American society in the coming years, we must maintain a dynamic research program. In recognition of this need, there has been in the past 2 years a very concentrated research planning effort.

The Association of State Colleges and Universities Forestry Research Organization (ASCUFRO), the Cooperative State Research Service, and the Forest Service (USDA) have jointly planned research for the forests and associated rangelands of the United States. Their cooperative efforts provide guidelines for a public forestry research program through 1985 and suggest research needs, staffing levels, and funding projections.

The research program was developed within the framework of a Regional and National Planning System. In conferences in each of four regions of the United States in 1977, and in a National Conference in January 1978, the American public, university and USDA scientists, and research administrators developed regional and National research programs and projections of scientist effort needed to accomplish high priority research.

Seven major categories were used for aggregating studies and projects (Table 1). The research effort for forests and associated rangelands, to be made by universities and the Department of Agriculture, is expected to go from 1,552 scientist years in 1975 to 2,354 scientist years in 1985 to achieve the goals set.

<table>
<thead>
<tr>
<th>Research Program</th>
<th>1975</th>
<th>1985</th>
</tr>
</thead>
<tbody>
<tr>
<td>Multiresource inventory, appraisal, and evaluation</td>
<td>112</td>
<td>262</td>
</tr>
<tr>
<td>Timber management</td>
<td>396</td>
<td>627</td>
</tr>
<tr>
<td>Forest protection</td>
<td>323</td>
<td>383</td>
</tr>
<tr>
<td>Harvesting, processing, and marketing of wood products</td>
<td>328</td>
<td>470</td>
</tr>
<tr>
<td>Forest watersheds, soils, and pollution</td>
<td>220</td>
<td>309</td>
</tr>
<tr>
<td>Forest range, wildlife, and fisheries habitat development</td>
<td>109</td>
<td>210</td>
</tr>
<tr>
<td>Forest recreation and environmental values</td>
<td>64</td>
<td>93</td>
</tr>
<tr>
<td>TOTAL</td>
<td>1,552</td>
<td>2,354</td>
</tr>
</tbody>
</table>

Where We Are Going

The USDA/university research program gives us direction and goals. It is optimistic, as it should be, about what can and really should be achieved by 1985. No attempt is made to separate the effort between university and USDA research. The projected effort for 1985 represents a 52 percent increase over the 1975 base. With this increase, we intend to make impressive contributions in each of the following seven program areas.

1. Multiresource Inventory, Appraisal, and Evaluation

Conflicts are increasing as the demand rises for more goods and services from the Nation’s limited forest and rangeland base. How can we best provide multiple uses? Which uses should be provided in each location? First, we need to know what our resources are and what the demand is for each. We must find out what
resources the land can provide singly and in combination with many users. We must be able to predict the physical, social, and economic results of each land use. We will do this through multiresource inventory, appraisal, and evaluation research.

This research, recognizing that some uses are competitive, others complementary, will provide us with data for developing comprehensive forest land-use planning systems. These systems will recognize the need to allocate natural resources according to political and economic forces, while maintaining a quality environment.

2. Timber Management

Through research we will develop improved trees with faster growth and greater disease and insect resistance. We will evaluate the costs and benefits from genetic improvement and alternative cultural methods, and develop new reforestation methods to improve stocking of harvested areas and to reclaim abused land. Yield tables for managed stands of a number of major forest types will be available.

We will strive for new cell and tissue culture technology to ease propagation and planting of superior trees; we will find ways to improve soil and site quality and seeding and planting techniques. It is expected that all of these methods will greatly increase the production of usable wood on our better sites.

3. Forest Protection

We will focus forest protection research on minimizing losses caused by insects, diseases, and wildfires—losses estimated at 2.4 billion cubic feet or about one-fifth the annual harvest. We will concentrate on preventive, as well as control, measures to reduce these losses.

Besides developing effective insecticides that are environmentally safe, we will expand studies of biological control agents such as parasites, predators, pathogens (Figure 1), and synthetic behavioral chemicals such as sex attractants, insect growth regulators, and feeding deterrents. Improved understanding of insect population dynamics and methods of redetecting population trends will help prevent outbreaks. By 1985, we expect to have improved systems for integrated management of some major pests in commercial forests.

Through fire research we will strive to learn more about the physical, biological, ecological, economic, and social effects of fire management. Researchers will develop methods of prescription burning and devise more efficient fire planning and fire fighting techniques.

Prescribed fires can be used under specified conditions to reduce fuel accumulation, promote specific vegetation, and control forest stand composition. Studies will also lead to more effective prevention of man-caused fires and to fire use strategies that produce desired ecological goals.

4. Harvesting, Processing, and Marketing of Wood Products

Energy, environmental, and economic constraints dictate that we develop better harvesting methods with less waste. We expect to expand research to develop harvesting equipment and systems that will make it environmentally, economically, and technically feasible to remove a greater volume of the available fiber from steep slopes, areas of fragile soil, and small tracts that should be harvested. We will have lower cost equipment suitable for thinning diverse stands and harvesting small trees and dead material normally left as residue.

Future research in processing and utilization will enable us to make greater use of wood residues, wastes, and low quality trees as feed stock for petrochemical substitutes such as alcohols, chemicals, adhesives, and fuel (Figure 2). Wood products industries will be made largely energy self-sufficient through better utilization. Processes will be developed to recycle more wood fiber, and use more whole tree chips.

Higher yielding pulping processes that use more hardwoods and the increased development of products made from reconstituted residues will greatly increase utilization efficiency. Construction will be improved through better engineering designs, and better methods of protection against termites, decay, fire, and weathering.

Economics research will provide the knowledge to develop public forestry programs through studies of wood use, foreign trade in wood products, forest taxation, and methodologies for multiple-use forest management. Such information will help managers improve timber utilization by allocating each part of the tree to its highest use. From marketing research we will have knowledge of economic and institutional factors that affect timber harvesting, production, transportation, and consumption of wood products. Such information will benefit private industry plus provide a major input into periodic assessments of national and international timber demand.

5. Forest Watersheds, Soils, and Pollution

Two-thirds of the Nation's high quality water comes off our forests and rangelands. Timber, forage, recreation, and wildlife habitat are provided for by the same lands; these uses influence water quality and yields. Through research we must develop ways to minimize impacts and maintain the best mix of activities. Thus, in the coming years we
will seek better understanding of how water yield is influenced when vegetation is manipulated under different soil and climatic conditions. We will develop road design and construction criteria so that timber can be harvested without polluting nearby streams. With increased dependence on coal, we need to reduce the impacts of surface mining on water quality and soil erosion. We will be able, through research to properly select woody and herbaceous vegetation for planting on soil banks.

We plan continued research to determine the relationships of soil environment to the quality of water and growth of plants. The effects of intensified management on soil properties, water quality, and long-term changes in soil properties resulting from successive harvests with maximum fiber utilization will be investigated.

In pollution research we will aim at establishing practical guidelines for minimizing water and air pollution from forestry activities. We expect new research to focus on the nature, extent, and effects of pollutants resulting from intensive timber culture, prescribed fire, and construction. We must develop standardized procedures for predicting pollutants resulting from various land management practices. We will continue to determine the capability of forests and rangelands to absorb and neutralize pollution forced on it by people and technology.

6. Forest Range, Wildlife, and Fisheries Habitat Development

Increasing demand for red meat and rising feed grain costs increase the importance of range forage. Part of the forage demand must be met by forest rangelands which must also furnish wildlife forage and browse, and provide recreation, open space, and natural beauty.

We expect knowledge of the economic constraints and ecological impacts of grazing to help when designing alternative management systems. When developing scientific management systems for ranges, we will seek additional information on the interaction of several range uses. Expanded efforts will include adoption of nitrogen-fixing plants for rangeland use, biological control of pests and undesirable plants, prescribed use of fire, use of grazing livestock to beneficially manipulate wildlife habitat, and determination of habitat requirements and management plans necessary for maintenance of endangered species.

Through research efforts that emphasize game and nongame wildlife, fish, endangered species, and urban wildlife, we will develop better management guidelines. We will identify and quantify habitat requirements, and gain greater understanding of animal community responses to plant community changes. We will develop a predictive ability by learning the relationships between successional stages of vegetation and the associated impacts on habitat and wildlife population. Similar work on fish habitat will help us to determine the influence of both natural and man-caused activities on streams, stream banks, and aquatic ecosystems.

7. Forest Recreation and Environmental Values

The goal of forest recreation and environmental values research is to widen the variety and availability of amenity or noncommodity values. Projected research in this area includes assessment of present and
future recreation demands and identification of the relative capabilities of private and public forest lands to meet those demands. We will also study the carrying capacity of forest lands to provide recreation uses in harmony with other uses.

The goal of environmental research will be to enhance urban and rural forests by development of unique management systems. Planned research will lead to better protection of great plains shelterbelt plantings from the effects of insects and diseases. Such plantings alleviate severe climatic effects on crops and livestock, provide wildlife habitat, and prevent soil erosion. In urban areas environmental forestry research will assess the demand for and the quality of human benefits resulting from various intensities of urban forest management.

It will seek ways to improve forest vegetation for various urban needs and integrate forest management systems into the urban planning and development process. We will use research from the areas mentioned earlier to enhance environmental values of forest land by improvement of water quality, reduction of air pollution from forest fires, and through better insect and disease control.

**Conclusion**

The USDA-university forestry research partnership has a challenge that is of great social, economic, political, and environmental importance. We have met challenges in the past and achieved noteworthy results. We expect our present day planning efforts to increase our ability to meet the challenges before us. Today’s students—as the researchers, planners, and users of 1985—will judge how well the USDA-university research planning effort has paid off.

1. Now part of the Food and Agriculture Science and Education Administration.

---

Glen Cooper—is presently the Assistant Deputy Chief for Research in Washington, D.C. He graduated from Iowa State University with a B.S. and M.S. in forestry. He went on to get his Ph.D. from the University of Minnesota in 1971.
Foresters, tourists, and landowners are shocked when they enter the eastern foothills and Ponderosa Pine belt east of the Continental Divide in Colorado.

During the late 1800's most of the accessible timber was cut from the first mountain range rising from the plains, extending north and south of Denver. This area, locally called Colorado's front range, was exploited by the developing mining industry and to build the towns of Denver, Boulder, Colorado Springs, and agricultural communities in the plains to the east.

By the early 1900's most trees of any size had been cut and a new forest was developing. As this forest grew the mood of Colorado's people changed; they no longer exploited the forest, but protected it.

The second generation of trees growing along the front range developed largely without the influence of natural thinning factors such as fire, insects, and disease. Young Ponderosa Pine stands grew into dense, almost even-aged, stands. Trees began to need to compete for the limited soil nutrients, water, and sunlight. Growth and plant vigor declined and in the 1930's an endemic pathogen, the pine beetle (Dendroctonus ponderosa), began to attack the unhealthy trees. A pine beetle epidemic raging through the pine forests was diminished by an extended period of extremely cold weather dropping to as low as —43° in 1950.

During the 1960's, the front range experienced rapid development of mountain land for residential purposes. Public demand by "Environmentalists" thwarted efforts by foresters to manage the lands. The emphasis by local residents was to protect the lands for recreational purposes. During this period, climatic conditions were mild and dry. The mountain pine beetle population became epidemic and in 1975, 1.5 million trees were killed by the mountain pine beetle within the 580 thousand acre ponderosa pine belt.

Recreational opportunities on the public land and values of the private lands were being threatened. A three hundred acre fire in 1976 raged through dead fuels left by the beetle, and the public began to realize the threat of wildfire in dense stands or in areas of fuel accumulation.

Great concern by the public, the Colorado Congressmen, local, County, State, and Federal agencies began to develop for foresters to "do something."

Beetle epidemics, though not completely understood, are one of nature's processes for naturally regenerating pine forests. Human desires, for a multitude of differing values, are not tolerant of these processes. Management, through application of proven techniques, can modify the life cycle of growth, maturity, and death and maintain a level of growth, thus reducing the potential of a catastrophe in the forest.

The forest can be managed through application of proven techniques, to perpetuate the beauty, wildlife, and recreational opportunities and reduce the likelihood of devastation by fire, insect, and disease.
A pilot project applying intensive forest management activities to 34 thousand acres of private and public lands in Boulder County, Colorado, was proposed jointly by Boulder County, the Colorado State Forest Service, and the U.S. Forest Service. This project will, on a pilot basis, demonstrate applicability of treatments, refine cost estimates, and establish criteria for expansion to an additional 500 thousand acres of threatened pine stands on the Front Range of Colorado.

The project goals are:

1. Establish a healthy and vigorous forest through Silvicultural treatment. Favor genetically superior and visually attractive trees. Reduce mountain pine beetles to an endemic level.
2. Manage forest fuels to reduce major wildfire potential.
3. Maintain or improve wildlife habitat for a variety of species.
4. Restore and maintain scenic quality.
5. Maintain a wide range of outdoor recreation opportunities on public and private lands.
6. Conduct research and demonstrate results.

Within the Forest Service, U.S.D.A., the project represents a concerted effort to integrate the responsibilities of National Forest System, State and Private Forestry, and Research into a viable problem solving, results oriented program.

Project Area

The pilot area encompasses approximately 50 square miles in Boulder County, Colorado and the Roosevelt National Forest. The area was selected because it: typifies intermixed landownerships in the Front Range (44 percent private, 56 percent public or quasi-public); has sixteen residential subdivisions (population 4 to 5 thousand); is heavily infested with beetles; has four established designated pine beetle control areas (an area where beetle control is carried out in an organized way); has several active landowner associations; contains informed, active citizens that have demonstrated a desire for management solutions; and has excellent rapport and cooperation between private landowners and governmental entities.

Planned Activities

Based upon specific site and vegetative conditions, several management techniques will be applied: (1) Thin and product removal to reduce stand density (13,600 acres); (2) Cut and chemically treat, burn, or remove infested trees (6,500 acres); (3) Reduce fuels for forest fires by removing, piling, burning, and chipping debris (16,600 acres); (4) Plant trees or browse plants for wildlife (12,000 acres). In most cases more than one technique will be applied to each acre.

Research will test the applicability of results from other regions and lead to an improved understanding of the benefits occurring to recreation, wildlife, fire protection, and the forest ecosystem in general. This pilot scale application provides a mechanism for effective transfer of our current state-of-the-knowledge in ponderosa pine management. Specific activities include:

- Evaluate the response of users to the esthetic qualities of areas receiving different vegetative treatments.
- Evaluate the response of wildlife on a species specific basis to varying levels of habitat improvement activities.
- Demonstrate the usefulness of thinning in second growth ponderosa pine as a means of mountain pine beetle control.
- Determine utilization potential for the fiber being temporarily removed from both the pilot project area and from the entire Colorado Front Range Vegetation Management Program.
- Quantify the fire hazard reduction resulting from fuel treatment, improved fire access, and fuel breaks.
- Evaluate the economics of fire protection, taking into account presuppression costs, fire readiness costs, and fire fighting costs balanced against values and risk for the Colorado Front Range.
- Appraise the effects of the pilot project with respect to dispersed recreation use with special focus on increased accessibility and awareness of the area by post-treatment users.
- Investigate interactions between thinning densities and dwarf mistletoe, root rot, and insect pests.

An environmental analysis was conducted and approved by Rocky Mountain Regional Forester Craig Rupp, Colorado State Forester Tom Border, and Boulder County Commissioner Margret Markey.

The project proposal was carried to Washington by the Boulder District Ranger, Boulder County Forester, and Local Colorado State Forester, and presented to the Chief of the U.S. Forest Service, U.S. Office of Management and Budget, and Colorado Senators and Representatives.

The three million dollar project was approved, financed, and is well on its way to completion. Public support for this project has been most gratifying; only time will tell if it is truly successful.

James E. Ficke—is now the District Ranger for the Boulder and Estes Park Districts on the Roosevelt National Forest. He graduated in 1959 from Iowa State University, a forestry major. In 1978 he was selected by the Colorado State Forest Service as “District Ranger of the Year.”
Researching the Southern Pine Beetle
by Peter L. Lorio, Jr.

Various bark beetles such as the southern pine beetle (*Dendroctonus frontalis* Zimm.) commonly reach epidemic levels in unmanaged or extensively managed pine forests. This tiny insect, that ranges from extensively managed pine forests. This tiny insect, that ranges from Pennsylvania to Texas and from New Mexico and Arizona to Honduras, caused the loss of about 10 billion board feet of pine timber in Honduras in 1962-64, and killed over 52 million cubic feet of pine in Texas in 1976 alone. During the past 10 years this insect has infested more than 40 million acres in the South. It is the major insect threat to our southern pine forests.

Early research efforts on the southern pine beetle were aimed at determining its life history and biological characteristics. Although some attention was given to its host, major emphasis was on the beetle and the development of effective direct control, either chemical or mechanical. In spite of the application of recommended methods in states across the South, outbreaks still recurred intermittently in the same general areas.

In 1962 the U.S. Forest Service’s Southern Forest Experiment Station established a southern pine beetle Research Project at Pineville, Louisiana that included a tree physiologist and a soil scientist as well as entomologists. The objectives of this group included intensive study of host tree and site characteristics in relation to bark beetle biology and ecology. Hopefully, such an approach would lead to the recognition of factors that enhance or inhibit outbreaks, and provide for the development of silvicultural control of the beetle. Public demands for more efficient management of forest resources and less use of undesirable pesticides encouraged this approach.

The Beetle

The southern pine beetle (Fig. 1) is about the size of a grain of rice. It is short-legged and stout with a rounded hind end that distinguishes it from other bark beetles known as engravers. Mature beetles are dark reddish-brown. Beetles attack in pairs (male and female). Many thousands may invade a single tree. Pairs bore through the bark and construct galleries winding between the bark and the wood. The female deposits pearly white eggs barely visible to the naked eye in niches along the sides. The galleries crisscross one another and effectively girdle the tree, often from the base to the lower crown. If this isn’t enough, a fungus known as blue stain grows into the wood and blocks water-conducting tissue.

The eggs hatch into larvae that mine in the inner bark. When fully developed, they mine to the outer bark and pupate. When pupation is complete, the young adults chew exit holes through the bark, fly away, and invade new hosts.

In colder portions of the South, overwintering broods reach maturity, emerge, and begin to attack uninfested trees about the time flowering dogwood is in full bloom. Depending on latitude and elevation, there may be four to seven generations each year, with considerable overlapping of generations at all times. During outbreaks, the number of infestations usually peaks in early summer in the Gulf States and in late summer and early fall farther north. Beetles may increase tenfold in a single generation and populations may reach epidemic proportions by early summer. Detectable infestations are usually nil by mid-November.

Since beetles may overwinter in any of the life stages, some adults may emerge during warm spells and reattack the brood trees from which they came. Thus, even with temperatures too low for flight, populations may increase during winter without any new trees being attacked.

Research Progress

The southern pine beetle spends most of its life hidden under the bark, and study of its biology and ecology is most difficult. Little is known of its habits, associated parasites and predators, diseases, its nutrition, or even its love life. Laboratory studies are hampered by the unavailability of an artificial diet that will allow adult-to-adult rearing. Of necessity, many aspects of bark beetle research have been explored only during major outbreaks, when field populations were readily available and forest managers were most concerned.

Although it is generally conceded that the southern pine beetle can attack even the healthiest of the southern pines successfully, weakened trees can be overcome more easily. Drought or continuous flooding reduces diameter growth and lowers the pressure and flow of oleoresin. Resin flow from pines is a primary mechanism of resistance to

Figure 1.—Scanning electron microscope photo of the southern pine beetle. This frontal view, approximately 130 times natural size, suggests the “monstrous” characteristics that many forest managers attribute to this formidable pest.
bark beetle attack and fungal infection. Recent experiments with limited beetle populations have shown that if the resin supply is low or the pressure that contributes to flow is reduced, the chance of successful attack is greatly increased.

The roles of many microorganisms associated with the biology and ecology of both beetles and hosts are not known. Some are even beneficial to beetle development. Prospects for developing any kind of biological control with microorganisms appear dim at the moment. Some insect parasites and predators of the southern pine beetle have been found and studied, but again, practical use of knowledge in control efforts seems remote. Although the greatest potential for such a development might be with exotic candidates, the well known dangers of introducing foreign organisms into a new environment suggest caution with this approach.

Mites, related to the ticks and chiggers that plague humans, are also potential control organisms of the beetle. But, even less is known about mites than insect parasites and predators. Many new species have just been described in recent years and only a few appear to be possible parasites and predators. In fact, some even appear to benefit the southern pine beetle by preying on parasitic nematodes that sometimes infest the beetles. This whole complex reminds one of the Budget of Paradoxes by Augustus de Morgan:

"Great fleas have little fleas upon their backs to bite 'em and little fleas have lesser fleas, and so ad infinitum.

"And the great fleas themselves, in turn, have greater fleas to go on; while these again have greater still, and greater still, and so on."

Although the picture painted thus far may seem quite gloomy, progress has been made in understanding why outbreaks occur. Two very important factors that affect potential southern pine beetle population growth are quantity and quality of food supply and an adequate habitat for brood development. The southern pine beetle needs an abundance of bark surface area and volume. Large sawtimber-size trees provide an ideal environment for them. Overstocked stands also provide an ideal habitat. The flying distance from tree to tree is reduced, and trees are under more stress because between-tree competition for water and nutrients is greater. Large areas of these kinds of loblolly or shortleaf pine stands are most conducive to uncontrollable outbreaks.

Development of outbreaks can also be enhanced by soil water regime and tree rooting characteristics. Wet sites, especially those that are seasonally wet and dry, restrict the development of a permanent root system to shallow depths. Feeder roots are killed from time to time by a lack of oxygen and by pathogens known as watermolds that thrive in wet conditions. As the trees grow taller and the crowns larger, extreme stresses begin to develop. Eventually, the root systems cannot supply the large crowns' demand for water and nutrients, growth declines, and the trees become most susceptible to southern pine beetle attack.

How can this knowledge help us to deal with the southern pine beetle? Fortunately, much of the basic resource data collected by anyone attempting to manage southern pine forests (forest type, tree size, tree age, stand size, stand density, and some knowledge of the water regime) are closely related to the factors that determine a stand's potential for outbreaks. Even if some of these factors are not known precisely, knowing a combination of the others can significantly aid forest managers in planning.

Prospects for the Future

We are currently testing a preliminary southern pine beetle stand hazard rating system in the Kisatchie National Forest in Central Louisiana. The system uses only information readily available in the National Forest System's Continuous Inventory of Stand Conditions (CISC). Each stand has been placed in a hazard rating class. First evaluation of the system is encouraging. Infestations have occurred much more frequently in stands designated as high hazard than in others. At present, stand density information is not directly available in the CISC. Its inclusion will greatly improve the power of the hazard rating system.

Historically, foresters have not included formal consideration of southern pine beetle hazard in their management plans. Only when outbreaks appeared would plans be developed to try to control the pest. A convenient, simple, hazard rating system would allow forest managers to consider the risk of southern pine beetle infestation in all stages of planning. By knowing the location and extent of high hazard stands, foresters could make better decisions about which stands to regenerate or thin first in a management period. Even if other factors prohibited treatment, the potential risk being taken would be known at the outset. Should outbreaks develop between planning intervals foresters would immediately know which stands constitute the greatest potential hazard. We believe our research can provide foresters with this kind of flexibility and result in better management of a most valuable resource.

Peter L. Lorio, Jr.—is a researcher with the Southern Forest Experimental Station and is currently Project Leader of a Research Work Unit of the southern pine beetle. He received his B.S. degree in Forest Management from Louisiana State University, his M.S. from Duke University and in 1962 received his Ph.D. from Iowa State University in a joint forest-soils major.
Not everyone had the good fortune to know Aldo Leopold, but everyone should know about him. A farm boy from Iowa? Yes, sir, this is the Aldo Leopold who passed successively from the most simple stage in his attitude toward conservation to the most profound.

Born in 1887 he roamed the woods and fields hunting and fishing during boyhood. As a young professional forester, his thoughts on conservation became clear and firm. Throwing his gun down, he took up the bow and arrow as a more sporting weapon. In later years though he hunted with either gun or bow and arrow, he used pencil and paper freely in the woods, making notes on trees, wildlife, birds, ecology.

Leopold's professional career began with the Forest Service in the southwest in 1909. Promotions came fast. On National Forests he helped shape forest management policies and initiated the idea of reserving portions as wilderness areas. In 1924 he was made Associate Director of the Forest Products Laboratory and in 1928 he left the Forest Service for work with a sporting arms institute and for consulting work.

Already widely known in forestry, ecology, and game management circles, the University of Wisconsin, Madison, created a chair for him in game management in 1933.

Leopold's *A Sand County Almanac and Sketches Here and There* is a masterpiece penned about his 120 worn-out acres of farmland hard by the Wisconsin River. Of course there is no Sand County, Wisconsin, as such because it represents no geographic location. The story describes the sand farm he purchased in 1933 in Sauk County, and his human endeavor to restore the vegetation and land to its former self. Early white men mistakenly assumed the land was theirs to devastate, stripped it of forest and through steady cropping destroyed its fertility and character. Every year for thirteen years Leopold and his wife Estella and their children planted pine trees on it by hand, restored conditions suited to songbirds, heard them sing mating songs, observed their beauty, reintroduced wildflowers—sought in their own way to bring the land back to the way the Great Power over us made it in the first place.

Leopold painted with a delicate brush in portraying Sand County, a heart-warming book on nature, ecology, and man. The book intrigues one with personal observations on geese, songbirds, wildlife, and importantly—trees. Yet, he made the cutting down of an oak a strikingly vivid history of the tree from beginning to end.

Here was a man who grew on you, through personal contact and through his writing—yet sometimes you wondered if you knew him. In the late 1930's it so happened that I had arranged for him to be a member-speaker at a Society of American Foresters meeting in Madison. After the meeting he said in his usual quiet manner, “Can you go with me come Saturday and see the white pines we planted on Sand County farm?” As a young forester with more energy than worldly knowledge, I was delighted to accept.

**That Man Leopold**

*by Theodore Kouba*
Leaving Madison by car early on Saturday we drove on a hard-top highway, thence on an ungraded dirt road. Near the end of the trip we bounced merrily along a winding lane filled with potholes which snaked through brush and open field. We then arrived at Leopold's Sand County. Even before we reached this Shangri La, I realized I was in the company of no ordinary man, instead a thinking man of brilliant mind. During our trip, one of his thoughts I well remember. "There are two kinds of people," he said softly, "those who can live without wild things and those who cannot. I happen to be one who cannot." Continuing, he said with thinking tone, "We all seek a higher standard of living but now some of us wonder whether it is worth the cost in things natural, wild and free. I for one treasure the opportunity to see geese as more important than radio, and a chance to find a pasque-flower as a right as inalienable as free speech."

Upon reaching Sand County he told me with some sadness that "conservation was getting nowhere because it was incompatible with our Abrahamic concept of land. Witness this worn-out farmland. We in America abuse land because we regard it as a commodity belonging to us. When we view land as a commodity to which we belong, we will begin to use it with love and respect."

Parking our car near "the Shack" we walked hither and yon over his sand acres. Pines were scarce, but red birch had seeded it at irregular locations. Nature in its slow way was gradually recovering what it had lost during the century of white man's rule. Stopping at a small white pine of less than two feet my host confided that not all trees were born free and equal. "Some trees push out others. Some, man destroys. Here, where a white pine and a red birch are crowding one another, I have a priority bias; I always cut the birch to favor the pine. Why?"

Then he described how he carefully planted the pine with his own hands whereas the birch seed blew in and planted itself. But then he became concerned that his planting bias could not be the whole story and admitted that if the white pine had seeded in naturally like the birch, he still would value it more than the birch. "Perhaps it is because the birch is common in Sand County, whereas pine is scarce and becoming scarcer." Thus I asked him what he would do if he had land on which pine was abundant and birch scarce. "I must confess I don't know," was the reply, "but pine will live for more than a century and the birch for only half of that. Also, my pines will give shelter to grouse but my birches will feed them. My pine timber will bring me more money—much more, but surely it is not because I have my eye on the bank. All of these reasons carry some weight for my bias but not very much."

Thinking even more deeply he began again, "Under this pine tree may grow an Indian pipe, a trailing arbutus, or a twin flower, whereas under by birch a bottle gentian is the best I can hope for. In the trunk of my pine a pileated woodpecker may chisel his nest; in the birch only a hairy squirrel will home. Through my pine branches in April the wind will play soft music to my ears, while the birch will rattle only bare branches. Do these reasons carry any weight, or is it because the pine excites my imagination and hopes more deeply than does the birch? If so, is there a difference in the trees or is it in me? The only conclusion I can reach is that I like all trees, but I love pines."

As we walked farther into the uncultivated field, the voice of a bobwhite caught our ears. The lonesome bird was singing his heart out, singing so long I thought he would fall from his perch on the top of a rotted fence post, but he didn't. On every few calls he would stutter with the first note, doing it twice instead of the usual once, and his final cut-off note, was short though distinct. "He's an energetic bachelor calling for a mate," my host confided, "after he finds one he will become lazier with his song."

Surely it would be improper for one to feel that Aldo Leopold was unconcerned with social problems, but his attention was not between man and man. His primary concern was between man and animals and soil and plants and water bound together with a mutual interdependence not subject to man-made laws.

Proceeding farther, more white pines were evident, each purposely planted about a foot north of a birch twice its height so its leaves would give the young pine shade from a scorching sun, come summer. "In a few years the pines will drive a long candle skyward, then one of the two trees will be removed. I needn't tell you which one it will be."

At the particular time, I happened to be the state leader of white pine blister rust control work in Wisconsin, working under Henry N. Putnam, regional leader, located in Milwaukee. In this federally sponsored program we collaborated closely with the state through state entomologist E. L. Chambers, and with local people. Crews employed by federal, state, and county governments, and by private individuals were engaged in removing currant and gooseberry bushes from their respective properties wherever these plants threatened important white pine stands with destruction by the blister rust disease. Under favorable conditions at the Sand County farm, I assumed these bushes could spread the disease to pines approximately 900 feet away. Inasmuch as my host was fully informed on blister rust, we noticed a narrow ravine that had chewed its way into the sandy soil when the land was being cultivated by the farmer whose ownership faded over the years. Following this ditch seven large American black currants were discovered. At the woods edge were a few Missouri gooseberry plants and a few more currants. "I
will remove the plants later today," was my host's sharp reply, "as I want no disease destroying my trees." Then we went to "the Shack" and I was treated to a delicious cup of hot drink, as well as to my host's fascinating words of wisdom. Thereafter, we returned to the bushes and removed them with our own hands and muscle.

During our conversation I mentioned that I had checked the speed of a wild bear during a trip to Vilas County the previous autumn. This black bear, running fiercely, attempted to cross the blacktop highway in front of my car. Running alongside the vehicle on the rough shoulder, hind feet hitting his chin and front paws his seat, he attained a speed according to my speedometer of over thirty miles an hour.

"Remarkable!" countered my host. "I'm so pleased to have the speed of a black bear," and hurriedly wrote something in his little notebook.

Leopold's hospitality was charming. Returning to "the Shack" he showed me where the door key was hidden and invited me to take shelter there anytime. "If I am here," he said with feeling, "I want you to stop and break bread with me."

Here was a man who knew nature like a book but had no time for matters he considered less important. On a bright Sunday afternoon, one autumn day, he was travelling en route to Madison with some men friends. Suddenly he found himself with no cigars so stopped at a small restaurant along the highway at Poynette. There over the radio he heard while he shopped the voice of Russ Winnie broadcasting under great stress the football melee between the Chicago Bears and the Green Bay Packers. Leopold quietly returned to the car and for many a mile remained silent, then—suddenly he asked in a loud voice, "Will someone please tell me who the Green Bay Packers are?"

If Aldo Leopold depicts his inner feeling anywhere, perhaps it is in his Sand County Almanac when he describes the passenger pigeon:

"The pigeon was a biological storm. He was the lightning that played between two opposing potentials of intolerable intensity: the fat of the land and the oxygen of the air. Yearly the feathered tempest roared up, down, and across the continent, sucking up the laden fruits of forest and prairies, burning them in a traveling blast of life. . . ."

"Today the oaks still flaunt their burden to the sky, but the feathered lightning is no more. . . . The wonder is not the pigeon went out, but that he ever survived through all the millennia of pre-Babbittian time."

"The pigeon loved his land: he lived by the intensity of his desire for clustered grape and bursting beechnut, and by his contempt of miles and seasons. Whatever Wisconsin did not offer him gratis today, he sought and found tomorrow in Michigan, or Labrador, or Tennessee. His love was for present things, and these were present somewhere; to find them required only the free sky and the will to ply his wings."

Fortunately Walter E. Scott urged Leopold to write a tribute to the passenger pigeon for a memorial booklet entitled "Silent Wings," a sober thought dedicated to the extinction of this fine bird. A monument with this inscription was dedicated a quarter century ago at Wyalusing State Park.

It was sometime later that Leopold asked me to come to his "Shack" before daylight on a particular day. I knew not the reason but learned that he was checking songbird calls with light intensity. As a species burst into morning song my host quickly checked his light meter and recorded the amount of daylight available at the moment. It seemed that different species of birds begin their choice songs when light attains a certain intensity, and only a few seem to agree on the exact time of day to start their song.

As the sun was reaching well above the horizon, my host's thought returned to his pines. "Every pine carries an open bankbook in which its cash balance is recorded by late June each year. If the elongated candle has developed a terminal cluster of ten or twelve buds, it tells me that it has absorbed enough rain and sun for a two-foot or even a three-foot thrust skyward next spring. But if there are only four or six buds, the thrust will be a lesser one although still enough to go along with solvency. The 1937 growth was short on all my pines, a result of the universal drouth of 1936. But when one tree shows a short growth when its neighbors do not, one can judge a local or individual adversity; the gnawing at the base by a meadowmouse, a windburn of the foliage, a base fire-scar, or some below-the-soil-surface difficulty."

It was in his beloved outdoors that Aldo Leopold died on April 21, 1948, while fighting a grass fire on a neighbor's farm. The state and nation suffered by the loss, but through his pen fond memories of him shall linger on.

The following year when A Sand County Almanac and Sketches Here and There by our Aldo Leopold was published, I cherished one single thought after reading the book. If by some incredible stroke of fortune I could have had my choice of authoring any book published in America, this particular book is the one I would have chosen.

Ted Kouba—is a 1926 graduate from Iowa State University. After publishing his book, Wisconsin's Amazing Woods—Then and Now, Mr. Kouba has been working on a manuscript about ancient man in North America.
One of the most significant laws passed by the U.S. Congress in this century—one that charts a new course in public land management—is the Federal Land Policy and Management Act (FLPMA) which was signed into law in October 1976.

This law is a very important one to our nation for it establishes a foundation for the management of some 470 million acres of Federal lands administered by the Bureau of Land Management (BLM). These vast acreages, that range across the West and Alaska, are what remain of America's early public domain. They also represent a significant part of our nation's economic, social, and environmental future. They must produce for today and be preserved for tomorrow. From the very beginning, the laws Congress gave us contemplated the eventual settlement or disposal of all public lands. While this philosophy gradually turned around to one of retention and management, it persisted until passage of the FLPMA.

Americans were exploring and settling the vast reaches of wilderness long before we wrote the constitution, and that exploration and expansion ceased only when our nation spanned the continent, from ocean to ocean. Today, there is no further need to move on to new frontiers, no need to conquer wilderness.

We are seeking instead ways to manage the lands and resources rather than dispose of them, ways of wise use of non-renewable resources, and ways of providing sustained yield on renewable resources.

We are the first generation of Americans to live with the fact that there are no new frontiers to be conquered. The challenge of today is no longer survival of man against a hostile environment. It is very nearly the opposite. Today, we must all be concerned about making balanced, sensible use of our resources, protecting and preserving some of those which are irreplaceable, including some of the remaining natural areas of public lands. The Congress wisely made provisions for just such action in the FLPMA.

Among the many policies and guidelines contained in this law is a provision directing the BLM to conduct an inventory of roadless public land for the purpose of identifying those areas having wilderness characteristics.

Prior to FLPMA, wilderness management had not received the attention it deserves, for there was no clear mandate to identify and preserve or otherwise manage wilderness areas. The 1964 Wilderness Act did not include lands managed by BLM. Now, wilderness will take its rightful place in the framework of multiple use management. As a result, many other aspects of multiple use—recreation, minerals management, grazing, watershed, to name a few, will be affected by the wilderness program initiated by the act.

To identify and protect the wilderness resource of public lands, Congress gave the BLM several specific requirements. First, the Bureau is to study all roadless areas of 5,000 acres or more, and roadless islands having wilderness characteristics, by 1991.

Second, and on a much shorter time base, recommendations concerning inclusion in the system must be reported to the President by July 1, 1980, on all natural or primitive areas which are formally identified by the BLM prior to November 1, 1975.

Finally, subject to certain conditions, lands having wilderness character are to be managed to protect their wilderness qualities until Congress makes a determination on wilderness designations.

A new responsibility, a new challenge, and one to which the BLM, both nationally, and in Montana will rise aggressively and enthusiastically, has led us to search out a new type of specialist. This past summer and fall, a determined young woman, in jeans and hiking boots, and pushing a four wheel drive vehicle, could be seen driving the public lands of western Montana.
The rig usually wound up parked at the far reaches of nowhere, at the end of what used to be a road. Tracks led off into the wilderness.

The young lady, Cynthia Copeland, who more closely resembles a cheerleader than well, a bureaucrat works for the BLM in its Butte, Montana, district office. She is a Wilderness Review Specialist and she has just begun the rather considerable task of inventorying public lands in western Montana that might have potential for inclusion in the nation's wilderness system. Cynthia is one of a new breed, dedicated to the discovery and protection of a very valuable wilderness resource. Soon there will be more like her.

Cynthia began her inventory with the three primitive areas administered by BLM in western Montana, Humbug Spries, about 25 miles south of Butte; Bear Trap Canyon, 30 miles west of Bozeman; and the Centennial Mountains, on the Idaho border 40 or so air miles west of Yellowstone Park. Together, they total almost 50,000 acres.

Starting the inventory with the primitive areas wasn't a personal preference on Cynthia's part, but rather a mandate of the 1976 Act. As stated earlier, one of the first requirements of the Act concerning wilderness is that by July 1, 1980, BLM must send to the President recommendations on all presently designated primitive and natural areas. It is to meet this deadline that Cynthia is spending her time on the three designated areas. The law requires completion of the entire inventory by October 21, 1991.

What's in an inventory? Well, let's take a look at what Cynthia has done in Humbug Spries. Inventorying this one will be typical of other designated primitive areas, says Cynthia. She spent 22 days and 5 nights in Humbug in a two-month period. In extensive field notes, she recorded the opportunities for solitude in the different parts of the area, the opportunities for unconfined recreation, and the degree to which the area remains in its natural state.

Most areas, however natural, bear some mark of man's intrusion. Cynthia's inventory addresses the extent of man's work at Humbug. What might be the psychological effect on the wilderness experience, for example, of an abandoned cabin once used by bootleggers, or, can the traffic on nearby Interstate 15 be heard in the area?

These and other intrusions will be identified and measured. Beyond a certain limit, rehabilitation isn't possible, and consequently wilderness designation of such areas will not be made. That limit will be all important when it comes time for final recommendations, and Cynthia knows that careful and accurate recording of the existing situation is a must.

In addition, vegetation, geology, and topography are being cataloged. Possible management options in the event of wilderness designation are sought. Archeological values, historic features, and artifacts of historical or cultural importance must also be cataloged. In this phase, Cynthia was aided by Karla Hamilton, an archeologist who, sometimes on foot, sometimes on horseback did this part of the inventory.

Nor is field work over yet at Humbug. In order to complete her inventory, Cynthia will have to revisit the area in winter and in spring. Only after witnessing conditions during all the seasons will she begin a full compilation and analysis.

And, of course, the primitive areas are only the beginning of BLM's wilderness review.

We estimate that roadless areas 5,000 acres or larger on public land may total over one million acres in Montana. Every acre of this must also be reviewed and recommendations made for or against designation to the President. We expect to complete this inventory by the due date in 1991.

It's a big job, and an important one. Only if we act now, while we still have them, can we protect and preserve these remaining examples of America's great natural heritage.

Edwin Zaidlicz—is presently working as State Director with the BLM for Montana, North Dakota, and South Dakota. He graduated from ISU with a B.S. in Forest Management.
Although Iowa is one of the prairie states, original surveys show that about 6,690,000 acres, or approximately one-fifth of the state was wooded. The survey shows that in parts ninety-five percent of the land was originally covered with timber growth. The original cover of timber gradually decreased from the eastern and southeastern portions of the state to the northwest where relatively small areas of tree growth were found.
Since the early days, many small sawmills in Iowa have cut lumber and timbers for domestic use. In 1943, 1,087 sawmills were either operating or cutting lumber.

The earliest settlers quickly recognized the protective value of trees, and in the prairie sections many woodlots and shelterbelts were planted. The planting of trees through the years has not kept pace with the clearing of timberlands. Millions of acres of woodlands have given way for agricultural production or grazing crops.

The average woodlot owner in Iowa has not usually considered his forest land as a particularly valuable part of his farm. This has been due to many causes including irregular markets for his surplus timber products and to the overshadowing importance of agriculture in the state as compared to forestry. It has been difficult to get the landowners to realize that forest land should be made to contribute toward the farm revenue the same as the better agricultural land (1).

This general statement of the Iowa forestry picture, written by "Prof. Mac" in 1944, could be made with equal accuracy today. The history remains, the trends and land use pressures are the same—only the acreage of woodland has changed. Forest Service survey information gathered in 1954 showed 2,600,000 acres of forest land in the state (2). A comparable survey in 1974, shows a total forest area of 2,000,000 acres (3).

Some adjustment, because of definition, between the 1954 and 1974 surveys is necessary, but the current rate of loss appears to be over one percent per year. It is interesting to note that this rate is comparable to that between 1854 and 1954 as we dropped from about 7 million acres to 2.6 million.

There are two factors which could increase the loss to over two percent per year in the next twenty-year period. The management level and the condition of the present woodlands will contribute. Grazing continues to be a severe problem to private woodlands. Many of the forested tracts with large trees will be lost because there are no seedlings to replace the mature trees.

In addition to the loss of timber through lack of proper management—a gradual process—the direct clearing of land for agricultural production is increasing as land values and agricultural crop prices escalate.

The needs of consumers have had a profound influence upon the woodland resource. Early settlers utilized crops from the forest for fuelwood, fence posts, and building materials. They knew the value of these products, but were also faced with the need for cropland. This led to a mixture of protection and utilization of the woodlands on rougher areas and to the clearing of level lands. Major building needs of the prairie areas of the state were, and are today, supplied by softwoods from the lake states and other parts of the country.

The early windbreaks and woodlots of the prairie areas have fallen into decadence or have been eliminated. There are fewer farmsteads as farms are consolidated with less need for the windbreaks, which were always a part of the Iowa landscape. The need for wind protection is recognized by this generation of owners and there are some new windbreaks being planted. This is an encouraging development in the face of the general decline of tree cover.

The number of mills processing Iowa timber had dropped to less than one hundred although their average size has increased. This demand for wood crops is likely to persist if the current acreage of forest can be maintained. However, present trends will result in loss of industry, loss of jobs, and loss of income to the landowners.

The upsurge in interest in burning wood for fuel as an alternative energy source will have an impact on the forest. It remains to be seen whether the possibility of selling fuelwood will encourage owners to use the income to pay for clearing or encourage them to manage for a continuous forest income. Those Iowans who do not own forest land hold a certain "public attitude" toward the resource. This attitude is perhaps best described as an uneasy disinterest. There is an appreciation of fall leaf color, pleasant landscapes, places where squirrel, turkey, deer, and grouse can be hunted. But, there is little knowledge of who owns the land, who controls the land treatment, and what role we all can play in controlling the amount of forest land in the state. We hear an occasional voice raised in alarm at the clearing of a familiar woods, but no effective way to prevent the loss has been developed.

The "official" policy with regards to forests and forestry in Iowa is not really a written policy at all. It could be stated "to encourage the planting and wise use of woodlands." The "plan" to activate the policy includes several measures which were developed independently, rather than as a total resource plan. The early homestead laws, although not specific to Iowa, required tree planting in order to "prove up" on the land. Special property tax provisions have been in effect in Iowa since about 1870. The current Fruit Tree and Forest Reservation Act has been in existence since 1906. Taxes now range from forty to sixty cents per acre per year under the provisions of this act.

A state-operated nursery to provide low-cost planting stock to encourage tree planting has been in operation since 1912. Iowa State College fulfilled this role until the mid-1930's when the Civilian Conservation Corps and the State Conservation Commission began nursery operations. Private landowners have planted from 1,500 to 4,000 acres each year from this source. These plantings have reduced the net loss somewhat, but have been no match for the loss to livestock and the bulldozer.
Cost-sharing assistance in tree planting and timber stand improvement has been available to private landowners since the 1940’s. The federal payments were from 75 to 80 percent of the cost, thus providing an incentive for woodland establishment or retention. This was another tool in carrying out the policy of woodland encouragement. Professional forestry advice has been provided to landowners since the 1940’s in some parts of Iowa through cooperative federal-state service forestry programs. All counties in the state are now accorded this service, which serves to assist owners with the management of their woodlands. This program, coupled with the informational and educational programs of Iowa State University, provides owners with the needed decision-making tools for best management.

The net result of the efforts to implement the forest policy is the continuing loss of over one percent per year of forest. Not an encouraging record nor a bright future for this resource, unless new measures are adopted.

The Report on the Iowa 25-Year Conservation Plan, written in 1933, discussed future needs for Iowa woodlands as follows: “Probably no other element of conservation planning is so important as ‘forest conservation’, the conservation of Iowa’s woodlands. This fact is due to the dependence of all other elements upon the restoration and preservation of trees and small growth. Erosion control, elimination of silting in the lakes and water courses, cover for wildlife and game, recreation places, and the landscape—all tie back to woodland conservation. The greatest difficulties in attempting to save Iowa’s wooded areas arise from two factors. First, land values are relatively so high that no public agency can now come anywhere near purchasing a large proportion of the remaining wooded areas; hence, we are driven in the main to measures for aiding the landholder to effect reasonable conservation himself. Second, insecurity of tenure renders it virtually impossible for the owner of today to take a long-term conservation point of view (4).”

The situation is very similar after forty years. One might ask whether we have wasted the efforts of a great many people and considerable sums of money in the attempt to encourage the woodlands? There are two facts which would indicate a negative answer. First, we cannot know what the woodland situation would be if the incentives had not been in place. Second, hindsight is considerable more enlightened than the foresight required by those who set in motion the incentives of the past generation. Another fork in the road has been encountered and it is we who must now chart the future course for woodland policy.

There has never been a “public” definition of the desirable amount of woodland for Iowa. Defining such a goal is a logical first step for any change in policy. Without it, there is no strong sense of a need for change. The discussion to adopt a forest acreage minimum must be made by all the people. Iowa land use policy legislation has set in motion the development of a state policy for land management and use. The forestry issue needs to be considered along with all others. Hopefully, a goal for forestry will be defined in this process.

If public agreement on the role of forest becomes a reality, some additional measures to maintain or increase our woodlands are possible. Legislation authorizing and funding state leasing of “timber rights” on private land, lower woodland taxes on steep land with high taxes for row crops on that land and regulation of the cropping on critical, erosive lands would promote woodland as a land use.

Iowa has a two million-acre woodland base from which to work. Will we maintain this resource, add to it or see it reduced to one million or a half-million acres? Will the only forest be on public lands? The crystal ball is somewhat cloudy at this point. There are many forces at play and the responsibility is not clear. The obvious benefits to society are not the responsibility only of the woodland owner. He cannot be expected to make individual sacrifice for society’s benefit. Yet, the very existence of the forest resource depends upon this private owner.

We must see to it that woodland ownership is rewarding to the owner, if we are to have it retained for those values we have all taken too much for granted. The Iowa landscape of the year 2000 is being formed today. To what extent will the familiar woodlands be a part of that landscape?

LITERATURE CITED


Gene Heret—graduated from Iowa State University in 1950 with a B.S. in Forestry. He is currently the State Forester of Iowa and the immediate past president of the National Association of State Foresters.
Professional careers in the management and use of our nation's forests have not been considered by many black Americans. In a recent survey it was discovered that only one black student indicated forestry as an intended field out of a group of 330,000 black students who had taken the SAT, Scholastic Aptitude Test. Less than 100 blacks are included in approximately 19,500 undergraduate students in some 50 forestry schools in the United States. Out of a membership of almost 20,000, the Society of American Foresters has less than 10 black members.

Why are there so few blacks interested in the challenge offered by careers in the management and use of this important renewable natural resource? Actually there is a composite of reasons. The black forestry student has no one to emulate or with whom to relate. The image of forestry has not been an attractive one to the blacks. The career in forestry has been related to the black's experience in pulpwood cutting and other menial tasks related to timber. He often does not see a career in forestry as a means of improving the status of blacks in our society.

To break through this barrier Tuskegee Institute in Tuskegee, Alabama established a preforestry program in 1968 in cooperation with the U.S. Forest Service. The Forest Service provides a full-time staff member and about half of the support of a second staff member. They have also provided many summer jobs for students. In 1972 the Weyerhaeuser Company Foundation awarded a 5-year grant of $200,000 to Tuskegee Institute for student scholarships. Later St. Regis Paper Company and Georgia-Pacific Corporation provided annual scholarships of $1,000 each. Tuskegee Institute provides support for one full-time staff member and part of a second. As a result, there are three full-time forestry staff members at Tuskegee.
A major recruitment program was started soon after the establishment of the preforestry program. A brochure was published and many high schools were contacted. Summer jobs were provided for potential preforestry students. For example, in 1975 some 74 summer jobs were provided for potential and current preforestry students. These jobs were mostly with the U.S. Forest Service. To further combat the poor image forestry has among Southern black students, recruitment should begin in the seventh grade or earlier. This is a slow but effective way to change a concept. Recruitment should also be extended to other states where blacks do not have as strong a preconceived idea of forestry.

Students came to Tuskegee for preforestry. They were scheduled in general background courses, but to stimulate interest in forestry three courses were developed: Dendrology, Introduction to Forestry, and Natural Resource Ecology. Several guest lecturers were invited to the campus to be involved in these courses. I had the privilege of presenting lectures for one week for four consecutive years. This brought me in direct contact with many black preforestry students, which was a delightful and enlightening experience. On some of the trips I was accompanied by Ron Taplin, a black student advisor at Iowa State University. Ron was of immense help in giving me a better understanding of the problem.

The Tuskegee forestry staff soon recognized that over half of their preforestry students were deficient in mathematics and chemistry. Some were deficient in English and biology. Further study revealed that most of the students had majored in vocational agriculture in high school and as a result were not ready for college. In most cases the high school Vo-Ed instructor was the major recruiting contact through his elementary farm forestry course. Many preforestry students transferring to other universities were experiencing difficulty due to lack of background in basic sciences. As time went on, the universities receiving Tuskegee preforestry students reported their difficulties to the Tuskegee staff. I, representing Iowa State University, related to the Tuskegee staff our transfer requirement and the scholastic difficulties encountered.

Two major conferences were held at Tuskegee. The first one was February 24-27, 1975 and was "A Workshop on Entry of Minorities into Natural Resource Careers." Dr. Henry Webster represented Iowa State University at that conference. The second conference was April 18-19, 1977 and dealt with an in-depth look at the Tuskegee Institute preforestry program. I was asked to speak on "Transfer Requirements and Problems." My comments would apply to any transfer student entering Iowa State University and particularly forestry. First, the student needs a strong background in mathematics, chemistry, and biological sciences. Transfer students would be more successful if they had mathematics up to or through a beginning course in calculus. Basic inorganic chemistry is needed and a course in organic chemistry would be an advantage. A course in "Study Skills" is highly recommended because many students have very serious problems in budgeting their time. They have yet to succeed in "value clarification" and establishing their life goals. The transfer student should be prepared to make up deficiencies that may include lower level courses, and to work very hard right at the start. If a student is not successful scholastically it is difficult to avoid the development of a self-defeating behavior.

The transfer student will face stiff scholastic competition and, if black, he or she will be surrounded by white faces. This is not a disadvantage but an advantage because the student will be able to contribute to a better understanding between blacks and whites. And, after all, in the profession of forestry these are the people with whom he or she will work. The black students need to socialize with all other students, and in their careers, work with all groups regardless of race or color. This is, however, a two-way street and the black and white students must work equally for a better racial understanding. Often black students are asked to do more in this respect than their studies will permit.

A milestone in the relationship of Iowa State University and Tuskegee Institute occurred on March 29, 1976 during Dean B. D. Mayberry's visit to our campus. A joint agreement between Tuskegee Institute and Iowa State University concerning "Education for Careers in Forestry, Forest Products and Forest Recreation" was signed. Signatures obtained that day were: B. D. Mayberry, Dean of the School of Applied Sciences at Tuskegee; George W. Thomson, Chairman, Iowa State University Forestry Department; Lewis M. Thompson, Associate Dean, Iowa State University College of Agriculture; and Lee R. Kolmer, Dean Iowa State University College of Agriculture. Later the signatures of M. A. Maloney, Jr., Head, Department of Agricultural Science at Tuskegee, Tuskegee President L. M. Foster, and Iowa State University President W. Robert Parks were added.

Several very important developments have occurred. At the last conference, a "Tuskegee Institute Forestry and Renewable Natural Resource Council" was organized. There were 61 representatives from industry, U.S. Forest Service,
The Tuskegee forestry staff at the meeting included Dr. Earl P. Stephens, Coordinator-Preforestry, Mr. Du Viet Le, Instructor-Preforestry, and Mr. Robert M. Lillie, Forester-U.S. Forest Service. Fortunately, this Council has grown rapidly in the months that followed and has increased Tuskegee's preforestry support at a time when Weyerhaeuser's original grant was terminating.

Tuskegee staff members have taken a new look at their recruitment and now are concentrating on students with strong basic science backgrounds. The program stresses equally the discipline requirements and the benefits of forestry as a profession. They have modified their curriculum to include whatever background courses the student needs and have made the program either two or three years. Better students take two years and deficient students three years. Increased emphasis on cooperative programs with the U.S. Forest Services and other government agencies and with private industry has been a major development.

Progress in terms of the number of graduate black foresters has been slow. In the 1975–76 Tuskegee Preforestry Annual Report an accumulated total of seven Tuskegee students had graduated from four-year Forestry schools. Among those was John Yancy, who graduated from Iowa State University. John has been successful in progressing up the career ladder in the U.S. Forest Service. It has been a great pleasure to me to receive Christmas cards and an occasional letter from John.

During the past year we have had four Tuskegee preforestry students in forestry at Iowa State University: Earl Bradley, Gladstone Innis, Thomarikka Hollins, and Elaine Ward. We also have Jerome Thomas, who received his Masters degree in Plant Science at Tuskegee, working toward a Ph.D. degree in Forest Biology and doing a very fine job. Financial assistance is available to all qualified black students and tutorial services are provided if needed. Also black students have available the Black Cultural Center and other social activities.

The Tuskegee students at Iowa State University are among the finest individuals I have ever had the privilege of advising. They are friendly, considerate, and most cooperative. They will all make very fine professional foresters. Some have had scholastic difficulty, but they keep working on toward their career objectives. With encouragement and hard work I am sure they will succeed.

We would all do well to listen to a nationally-known black minister from Chicago, Jessie Jackson. We live in a privileged country and can attend any university or seek any career. We must discipline our lives to meet this challenge. As Dean Mayberry said when he spoke at our Iowa State University game banquet, "things don’t just happen, you have to make them happen."

---

Stacks up!

TO THE BEST BUYS IN
FORESTRY, ENGINEERING, AND
EDUCATIONAL SUPPLIES

All the tools of the trade to help make your job easier, faster, and more efficient. A reliable source for over 20 years. Selection...quality...fast service anywhere on the continent...all at a fair price...and we stand behind everything we sell. You'll find the right answer in our catalog...over 5,000 tools for the professional.

If you've requested our catalog in the last four months you will automatically receive the new twelfth edition. If you don't have our catalog, order one on your letterhead today.

FORESTRY AND ENGINEERING SUPPLIES

THE
Ben Meadows Company
3589 BROAD STREET, ATLANTA (CHAMBLEE), GEORGIA 30366
404/455-0907, CABLE ADDRESS "BENCO"

---

AMES FORESTER
Integrating Fire With Land Management Planning and Action—A Process
by Dr. Richard J. Barney


Introduction

It has long been an axiom of forest management that, to be managed, a forest must be protected. Hence, land management agencies have built a strong fire control program. As stated by Graves in 1910: “The first measure necessary for the successful practice of forestry is protection from forest fires.” Fire is an integral part of the natural forces that shape the land and its resources, and hence, fire management and land management planning cannot be separated. They are synergistic in their relationships. Forest Service Chief, John McGuire (1975) said: “Fire management cannot be separated from total forest management. It must always be considered in land use planning . . . fire management must be included in our land use plans. I view fire as an equal environmental component—along with soil, air, water, land, and life forms . . . Fire managers must constantly insure that fire is considered an equal component in forest ecology. . . .” This paper outlines one approach merging fire management and land management in an orderly, flexible manner. Properly executed, this technique will reveal both the beneficial and harmful consequences of fire in a forest ecosystem or resource unit.

Planning in Review

To prevent misunderstanding, I want to review some general concepts relative to planning and fire management. All planning, regardless of its intent, has a similar pattern: (a) setting objectives, (b) identifying issues, (c) gathering information, (d) developing alternatives, (e) selecting a course of action, (f) feedback and final (adjusted) decision, and finally, (g) developing individual activity plants (Lyon 1977).

In addition to the general planning process, almost all governing agencies, whether they be Federal, State, or private, have various levels of planning. That is, for various administrative reasons, we may have very general plans and then move to more specific plans as we get closer to action on the ground. As an example, we can have Federal, State, county, city, and neighborhood planning. The difference at each level is the resolution, size of the planning area, and time allowed for execution.

I define fire management as follows: The Integrating of Fire-Related Biological, Ecological, Physical, and Technological Information into Land Management to Meet Desired Objectives (Barney 1975). One approach for blending fire management and planning is illustrated by figure 1. The upper portion of the diagram above the fire management block could be considered the objective formulation phase. It is at this point where land capabilities and use demands are assessed. Key values are identified, as well as their relationships to fire. Below the fire management block, the fire integration phase begins by assessing fire danger or hazard for the planning area. Included throughout this phase is the prediction of change relative to fire caused by any proposed management action or alternative. Fire management considers alternative strategies for fuel management, as well as necessary fire control and suppression activities. The assessment of benefits and damages resulting from any proposed action can feed back to reshape planning direction and emphasis or it can support the use decision made initially.

Why Integrate Fire Management Into Planning?

Throughout time fire has influenced the formation or perpetuation of the various vegetative types that we manage today. Therefore, we must consider fire in management actions that manipulate vegetation. If fire has an influence within the ecosystem being managed, then it should be considered and integrated into the planning process for that piece of land. Consideration of fire is also important to insure compatibility between adjacent planning units.

Undesirable fires will occur in many of our ecosystems, and managers must prevent and suppress them. Fire may also be used as a management tool. To sum up, we must integrate fire into land management planning to determine the kind and amount of fire protection and use appropriate for our objectives and to coordinate management of adjacent units.

Some often overlooked points in integrating fire into planning are the legal requirements, expressed and implied, set forth by Congress. Congress has indicated that wildlands must be protected from fire, yet fire must be used to perpetuate and enhance our ecosystems (Barney 1976). These points were enumerated in the Organic Act that launched the Forest Service and in the National Forest Practices Act of 1976. Unless we integrate fire into the overall land planning process, we will not be able to determine either adverse or beneficial effects of fire. After all, it’s not the fire that we are concerned with directly, but rather how fire affects productivity of the resources we are trying to manage. We are concerned with costs, losses, and an array of environmental considerations.

Fire must be considered early and throughout the planning process. Failure to do so can cause untenable and, often, embarrassing results. For example, unless we plan out fire management activities, how can we develop the costs of our management programs? Without good cost estimates, how can we decide the most promising approach to our objectives?
Fire is only one of many components that must be considered in the planning process. However, it is one component that can have dramatic effects on the overall success or failure of a plan. We must consider all important factors in our decisionmaking process relative to meeting land management objectives. Fire could be one of these.

**What to Consider**

Throughout the planning process, the manager must consider public demands, resource potential, and legal and dollar constraints. Out of this process comes specific plans for meeting public needs and protecting the resource. The plan covers resource allocation and the quality, quantity, and timing of the management activities. Therefore, the manager must have funds to implement the plan. Management activities might include such things as timber harvesting, range improvement, road construction, or vegetative type conversion. Plans might also include recreational use permits or merely information sign placement to encourage recreational use. The public use of consumption of resources will feed back to change the inputs to planning in the form of changed demand.

Forest and rangeland ecosystems are complex with interacting relationships. Attempting to develop a land management plan for these systems is, indeed, difficult. It is important to develop a perspective of the component parts and their interactions.

The system components include both physical and biological site factors. Physical factors include the geologic and physiographic properties of the area. The biological factors include the vegetation and wildlife resources of the area. The system modifiers are those components that impact or influence the area. They can be broken down by natural and cultural or man-induced factors. Weather, erosion, insects, disease, and wildfire are some of the natural influences. These influences change the area over a relatively short period of time. Cultural impacts include such activities or actions as grazing, harvesting, and prescribed fire. It is at this level that fire enters the system. Fire is simply one of the many natural or cultural factors to be considered and accounted for in the process of balancing resource potential and resource demand. We must include both direct and indirect fire effects in the immediate and long-term range on natural and man-made components of the landscape and their effect on land use (Derman and Naveh 1977).

A key to including fire considerations in planning is to project the consequences of any proposed fire strategy in terms of its long-term and short-term consequences on the ecosystem.

Starting with the proposed fire strategy, we estimate fire behavior, fire effects, and finally, economic consequences. By doing this for
several iterations for several strategies, one strategy should evolve which meets the performance criteria established earlier in the planning process; and this one then can be implemented.

A fire management decision system model is illustrated in figure 2. This diagram shows the three phases of the system of fire behavior, fire effects, and economic evaluation. A fire behavior system begins with an inventory on site. Combining fuels information with topographic and weather information, models are developed to predict fire behavior. Fire behavior predictions can be in terms of fire intensity, duration, and rates of spread. The fire effects system then uses the fire behavior information to predict the impact of fire on resources within the area. This module is visualized as having two phases—prediction of primary effects and prediction of long-term responses. The primary effects can be divided into effects of fire on soils, vegetation, and air quality. These immediate, or primary, effects are then used as inputs into an ecosystem production module. These primary fire effects are projected as to their long-term consequences on resource productivity. In a similar manner, these immediate effects must be looked at in terms of long-term environmental responses to fire. This would include such items as the offsite effects of water quality and air quality.

To complete the decision system, the long-term economic effects of fire must be evaluated. Changes in resource productivity must be evaluated in terms of increased or decreased human happiness. Environmental response must also be evaluated. Both of these, then, are combined in terms of how well they meet or exceed the performance criteria in the planning process. This evaluation, combined with implementation cost, provides a basis for comparing management strategies. The fire decision that is made in the planning process is to choose the most feasible strategy in meeting management objectives. This strategy will most likely be some combination of fire prevention, fire suppression, and fire use.

The process I have reviewed can be mind boggling. There seem to be more boxes and arrows than our abilities to handle them. Such is really not the case. We now have the capability to help managers integrate fire into the planning process. Computerized simulation is one tool by which this can be accomplished. This is not an idea that is far off, but a technology that is available today. Indeed, refinements may be necessary to meet some of our specific current requirements. But the hardware, software, and know-how are here. The basic problem is defining our problems and needs. We have only to start using the tools available.

The need to consider fire in our management plans was recently emphasized by Dr. M. Rupert Cutler, Assistant Secretary of Agriculture (Cutler 1977). “There must be a link between land management planning and fire management planning. Land management planning is not complete

---

**Figure. 2.—Detailed Information Flow for a Fire Management Decision System.**

---

\[\text{Louis T. Egg] Integrating fire into the land management planning - A perspective. (In process.) USDA For. Serv., Intermt. For. & Rge. Exp. Stn., Ogden, Utah. 1978.}
without the consideration of fire. This does not mean that fire has to be a major factor in every plan, but it should be considered. On the other hand, fire could be very important in protecting, modifying, or perpetuating the ecosystem. We must also assess the potential affect of planned management actions on the future fire situations. This must all be done on an interdisciplinary basis. Without interdisciplinary considerations, we haven’t done our jobs as professional managers.” We have defined a general procedure for incorporating fire into our planning. Managers are the key to the implementation.

Publications Cited

Barney, Richard J.


Cutler, M. Rupert

Derma, A. and Z. Naveh

Lyon, William N.

McGuire, John R.

Notes


Richard J. Barney—is a graduate from Montana State University with a B.S. in forestry. He went on to attain his M.S. from the University of Minnesota and Ph.D. from Michigan State in the area of land management planning. He is currently a Planning Team Leader of the Fire in Multiple Use Planning, Research, Development, and Application Program headquartered in Missoula, Montana.
Swan River
Youth Forest Camp
by Melvin Mohler

The Swan River Youth Forest Camp is a correctional institution for men, housing both juveniles and young adults. This unique camp, with a capacity for 50 residents, is located in the 39,000 acre Swan River State Forest in Northwest Montana. This forest is managed by the Montana Forestry Department, Department of Natural Resources. The Youth Camp staff are employed by the Correction Division of the Montana Department of Institutions. The young men from the Youth Camp provide the work force.

The crews work a 40 hour week with holidays and weekends free. The work program is very productive for Montana, however the guiding principle is the young man and his future instead of “production” for the State. The philosophy of teaching good work habits is judged more important than the dollar value of the work produced.

The Youth Camp residents do not remain in the program long enough to receive professional training in a skill or vocation; the average length of stay is approximately six months. The main thrust is developing good work habits and helping the youths realize their potential interests, and attitudes. After release, a training program will help them become productive members of society.

The work program revolves around work plans developed by state forestry technicians and professional foresters for state-owned forests. Timber management and forest stand improvement are done primarily through thinning. Each crew member learns about desirable species, proper spacing, healthy trees, insects, and release cuts. While they do not become professional foresters, they do learn practical forestry. Many crew members have sufficient qualifications to secure employment on federal or industrial thinning crews. Regeneration and brush disposal are also an important part of the work plan.

Fire Crews start training early in the year in order to be fully prepared for the fire season. The forestry work crew foremen know that an untrained crew member can be an unsafe worker and a potential danger to the crew. Each Youth Camp resident is given the opportunity to train for the “Hot-Shot” fire crews, and receive intensive instruction. Refresher courses are given throughout the fire season, and a rigorous physical fitness program is conducted prior to and during the fire season. The “Hot-Shot” crews are well trained, and are recognized as outstanding fire fighters.

All the carpentry work for the State Forestry system is done at the Swan River Youth Camp. Many residents receive valuable training and work experience. A few become proficient and seek employment in carpentry trades; others receive trade-school training after release in order to attain journeyman status. This program turns out thousands of items each year; three years ago two fire towers (complete with cabins) were built for use on state-owned forests.

A mechanics program has been added during the last three years. The shop has been gradually improved and is presently capable of doing major engine overhauls and rebuilding worn-out vehicles. The State Forestry Department is eligible to receive GSA excess and military surplus equipment and machines. Many fire-fighting units and other equipment are rebuilt and are being used today throughout the state system. Work crews receive training and experience in all areas of mechanics and repair. Although it is impossible for them to receive enough training to become skilled mechanics, many of them discover an aptitude and enter Vocational-Technical school after they are released.

Other areas of the work program include road and trail maintenance, as well as bridge repair and maintenance. The state-owned camp-
grounds in the Swan Valley are maintained by special crews.

One project of special interest is the Conservation Braille Trail at the Montana School of the Deaf and Blind at Great Falls. This special project has been designed by interested State Forestry personnel, and the work is done by the Youth Camp crews. Each spring a special crew of boys goes to Great Falls to plant trees and to expand this conservation program.

Each crew member is observed as he works, and receives a daily score in safety, effort, conduct, and production. This grade is used as a means of evaluating progress and performance and to determine overall performance of the Youth Camp program. The counselors or social workers use these evaluations in developing release plans; such plans may include employment or further training in an area in which the young man has demonstrated interest and aptitude.

The corrections division counseling and social work program is conducted during late afternoon and evening hours. Individual case work and group therapy is done after the evening meal, and may continue late into the night. Social workers wear ‘‘many hats’’ in addition to being counselor they are also disciplinarian, recreation leader, supervisor, advocate, confidant, and good friend.

The staff at the Swan River Youth Camp do many things, but the most important contribution is their ability to give LOVE. The young residents respond to this and quickly realize that the camp staff is genuinely concerned about them. This positive relationship is essential to rehabilitation. Counseling is designed around improving each resident’s self image. Each social worker is knowledgeable in transactional analysis and facilitative counseling, as well as reality therapy and other counseling programs. The Youth Camp Staff is not locked into one type of program, the counseling program can be described as ‘‘Relationship-Milieu Therapy. ‘‘

The recreation program also teaches the proper use of leisure time. During the summer months recreations is no problem since the whole outdoors is available, however, the winter months are different. During the winter the gym in Bigfork is rented one night each week, for the use of the residents.

Medical and dental needs are cared for by a registered nurse who works half-time. The nurse is responsible for supervising medical and dental problems and works with doctors and dentists in either Bigfork or Kalispell. In September of this year an alcohol and drug counselor was added to the staff. The staff also includes a part-time chaplain who helps the young men with emotional and spiritual problems.

An education program is also conducted in the evening from 6 p.m. to 9:30 p.m. Students write their own programs and set their own goals. Programs encompass everything from very basic functions (reading and writing) to off-campus college courses. Most of the students enter into the G.E.D. (Graduate Equivalent Degree) program and are able to attain a high school equivalency diploma. During the past year, 45 students have attained the G.E.D.

A survival skills course is also included in the training. Such things as job seeking, employment interviews, completing job application blanks, and income tax forms, handling check books, and budgeting are taught.

A Work Training Team has just been developed in which the training program of each resident is structured to meet his needs, both at the camp and after release. Each resident enters the outside world through the State of Montana Job Service. Each young man has a ‘‘training jacket’’ and a specific plan which is continued as he adjusts to living and training or employment in his home community.

The Bigfork Lions Club, the Eastshore Club of Flathead Lake, and the Kalispell Lions Club all contribute to the camp. The Eastshore Club’s Christmas party is an eagerly awaited annual event. The Bigfork Club conducts one meeting a year at the camp and spends considerable time in socializing with the residents.

Hopefully, in the future money will be available for a multi-purpose building. Another hope is the development of an outward-bound type of recreation program. This would include summer and winter survival programs to help residents cope with stress and discover more about themselves.

The Swan River Youth Forest Camp will be ten years old in July of 1978. A low relapse rate of 10 to 12 percent over the 10 year life of the camp indicates the camp’s effectiveness. Large volumes could be written, but it is sufficient to say that the camp really works, helping young men who desperately need help.

Lend me the stone strength of the past and I will lend you The wings of the future, for I have them.

Robinson Jeffers

Melvin Richard Mohler—graduated from the University of Nebraska in 1949, with a B.S. in Vocational Education. He taught vocational agriculture for several years before becoming director and later superintendent of the Montana State Industrial School. In 1968 he became superintendent of the Swan River Youth Forest Camp.
Equal Opportunities for All Foresters?

"The road of progress must be trodden by both sexes."
Mustafa Kemal (Ataturk) 1923

The ISU Forestry Department and Forestry Club took a big step down the road of progress when they recognized the need to hold the workshop: "Equal Opportunities for all Foresters? Women and Men Working Together."

Initially, Dr. Thomson, Forestry Department Head, felt there should be a special workshop for women to give them an opportunity to discuss their role in Forestry. However, at the wise insistence of the females on the planning committee, the workshop was opened to both sexes. This gave the men and women enrolled in Forestry a chance to discuss mutual concerns of employment, career development, and the competition and cooperation involved with the mixing of sexes in a once-masculine profession.

The workshop was held Oct. 14 and 15, with six speakers representing many facets of forestry. The evening seminar opened with speeches given by the guests. They stressed many personal experiences relating to their particular jobs; the joys as well as the challenges involved with working in the field of forestry. Speakers included: Kate Hutcherson, an assistant district forester of the South Carolina Piedmont District with Westvaco; Louise Odegaard, an ISU '71 graduate in outdoor recreation, presently of the Mark Twain National Forest. Christine Walroth, senior forester with Owens-Illinois Inc., Big Island, Va.; Thomas Wood, director of the Lake Superior Basin Studies Center in Duluth, Minn. Beckie Judge Curran, a biologist at the Study Center; and Roberta Moltzen, in charge of hardwood research with the Scott Paper Co., Mobile, Ala.

The single female forester is met with a variety of problems and challenges as she begins work in a predominately male field, but as Chris Walroth quotes one of her supervisors, "Problems are opportunities to be dealt with and used to your advantage; not brick walls in your path."

The female forester, as well as other minorities, is often met with more scrutiny and skepticism than the male forester. She is pushed into believing that she is only hired to fulfill Equal Employment Opportunities (EEO) requirements. This may lead her to compete against her male co-workers as she tries to prove her competence. Roberta Moltzen says that the female forester should just concentrate on doing her best; learn to work with men and not against them. "Don’t become paranoid about filling a quota, an incompetent female is let go just as easily as an incompetent male."

Kate Hutcherson feels that in some instances the female forester is somewhat limited in her physical capabilities, a shortscoming she cannot let defeat her. The forester must realize that there are many different niches to fill in the field of forestry and not all foresters are equally qualified in all areas. Certain female qualities may be especially suited to certain jobs; for instance leading a nature hike for children. The female forester does not have to reject her sex to be a professional.

Tom Wood goes on to state: "Women have proven that they can take on a traditionally male task and still maintain a concept of self that doesn’t cause them to reject their sex. The difference between male and female can inject a sense of vitality in an organization stagnated by sameness. Creativity and in-
A Farewell to Dr. Bensend

"Dear Dr. Bensend,

You have been so generous to those whom you have touched here at Iowa State. You have given some of us the path to a professional career. You have armed others with respect for the next man. You have opened up many student's minds to a real love of learning. And God bless you, you've made us laugh."

In a Sunday afternoon reception 140 faculty members, students, and friends gathered to honor Dr. Bensend. Dean Kolmer presented him with Professor Emeritus. Dr. Thomson handed Dr. and Mrs. Bensend a deerskin purse containing $200 in silver dollars from the faculty and alumni. Both awards tried to express materially how appreciative we are of Dr. Bensend's 30 years of service at ISU.

innovativeness can blend with required routine and tediousness by having people with different needs, abilities, and values."

Many times the female forester finds it difficult to be treated as a professional. This is especially true when, as Louise Odegaard stated, "the males you work with act as either your father or your brother or your lover." These men have to recognize the fact that not all female foresters are in the field because they want to play with baby deer, or because it is a fad, or because they are out to get a husband. They are in the field because they want to be professional foresters, treated with equal respect and consideration, not as daughters, sisters, or lovers to the males they work with.

Other problems can arise when a female forester is working with married male foresters. Many wives do not like the idea of their husbands spending time in the field with a single female. There can be a strain on the marriage as well as the working relationships of the foresters working together. "The female forester must be careful," according to Moltzen. "Get to know the wives. Ask them how they feel about you working with their husbands, and tell them how you feel."

Marriage is another issue the female forester must deal with. She will need to make a decision on whether or not she sees it in her future and how this will effect her career. Kate Hutcherson hopes that when that decision needs to be made, she will be able to choose according to her own personal desires and not feel she has to "jump on the Women in Forestry Bandwagon and support the 'cause' rather than get married and perhaps raise a family."

All of the speakers felt that the forester's success in coping with these various problems and issues depends on their ability to communicate openly and honestly. The problems have to be voiced before they can be solved.

The atmosphere of the workshop allowed these problems to be voiced, giving the student foresters in attendance some new insights and very favorable impressions.

Rachel Anderson felt that the workshop helped develop a real comradeship within the department. "It was a great sharing experience and I felt like I gained a lot of personal support as a female in forestry."

An advisor and instructor, Steve Jungst, said that the workshop gave him some good insights on how he could better serve his female advisees.

According to Carole Gillespie, "The speakers gave us an indication of what we are up against when we get into the 'real' world."

Curt Krambeer felt the workshop was a real success. "It opened my eyes to problems that I never realized existed and made me reflect on my own thoughts and behavior with the hope that I can be a part of the solution rather than a part of the problem."

The workshop's two seminars are over, but the impressions and inspirations remain alive as the students and faculty begin to apply them toward the establishment of better working relationships. This is the beginning of the practical experience of working together that will continue as they enter the professional field of forestry.
New Teachers

Dr. Carl Mize has been hired by the department to assist in teaching Forest Biometry. Mize got his bachelors degree in Chemistry and Math at Brockport State, New York. After spending the next four years as a full time scientist he decided to try something else. He attended Humbolt University where he got a masters degree in Silviculture studies with emphasis towards quantitative analysis. Mize then completed his Ph.D. in Forest Biometry and Silviculture at Syracuse University.

Mize will be teaching 342 (Dynamics of Forest Stands) along with carrying out several research projects.

Dr. Greg Brown

After nearly twenty years away, Dr. Greg Brown has returned to ISU Forestry to fill the position vacated by Dr. John Gordon. Brown received his B.S. in Forestry from ISU in 1959, his masters in Silviculture from Yale in 1960, and his Ph.D. in Tree Physiology from Duke in 1963. He worked at the Oakridge National Laboratory (forest research) in Tennessee until 1966, then joined the staff at the University of Missouri.

Brown has done extensive research in Environmental Stress Physiology, primarily with cold hardiness, but also including drought, radiation, heat, and mineral deficiency hardiness of trees. He will continue his research, as well as teach Forestry 301 (Forest Biology), 481 (Wood Chemistry), 601 (Research Methods), and 602 (Advanced Forest Biology).

Dr. Ted Born joined the staff last Spring in the area of Forest Recreation. He has most recently been Assistant Professor of Natural Resources at George Williams College, Downers Grove, Ill. Born spent about eight years in Hawaii after having graduated from Northwestern with a B.A. and M.A. in History and Education. He then became interested in natural resources so returned to the mainland and got his M.S. and Ph.D. from the University of Arizona in Watershed Management and Sociology.

Born will be teaching Forestry 360 (Forest Recreation) and 304 (Silviculture of Recreation Sites).
The Faculty
Secretaries and the Janitor

Can I have a copy, too?

Wanda Fortune, Rose Turner, Deb Krogmeier

Robert Sundquist—the man who had to sweep around the “night owls” of Bessey.
Graduate Students


Carol Cochrane, Chris Walker, Carl Ramm

Xi Sigma Pi

1st row: Mike Cloughesy, Terrie McCoy, Craig Boldman, Karen Olson, Cheri Hendrichs, Steve Paarmann, Dan Jondle, Tom Green, Rich Ullrich. 2nd row: Brian Heuer, Paul Schoeder, Mike Harris, Phil Baird, Don Howlett, Keith Walton, Jim Aldeman, Joel Tuby, Carla Derby, Mike White, Mike Milota, Mark Webb.
Seniors 1977–1978

ROGER CHEMNICK
Solana Beach, California
Forest Management/Forest Biology
Roger attended the 1975 Cloquet summer camp. In 1977 he worked for the Ames Nursery. His duties included landscaping, transplantings, and tree maintenance. After graduation Roger hopes to work on the West Coast. Roger was a member of the Forestry Club, Pak Tae Kwan Do Club, and Beta Theta Pi fraternity. He also enjoys hunting, rock climbing, and silversmithing.

MIKE CLOUGHESY
Arvada, Colorado
Forest Management/Range
Mike went to summer camp in 1976 at Cloquet, Minn. The following summer he worked for the USFS in the Fremont National Forest on tree improvement. After graduation Mike would like to work for the private forest industry. He enjoys jogging and skiing during his free time. He was a member of Forestry Club, Xi Sigma Pi, and participated in intramural sports.

TIMOTHY J. GANNON
West Des Moines, Iowa
Forest Products/Industrial Engineering and Administration
Tim spent last summer working for the Shelter Construction Company here in Ames. Upon graduation he desires a position in the area of management, in a forestry related field. He attended summer camp in Cloquet, Minnesota in 1975. He is a member of Phi Kappa Theta Fraternity and played intramural basketball, broomball, and football. Tim enjoys sports, music and travel.

The rung of a ladder was never meant to rest upon, but only to hold a man’s foot long enough to enable him to put the other somewhat higher.

Thomas Henry Huxley
JEFF HIEDEMAN  
Ames, Iowa  
Forest Resource Management /  
Forest Land Evaluation  
The summer of 1976 found Jeff fighting fires in the Black Hills of South Dakota. In 1977 he was a Forest Intern for the Story County Conservation Board. Jeff was married on February 25, 1978 to Sue Tempel and after her graduation in the fall of 1978, plans on looking for a job in the West. While at ISU he was Vice-President of Theta Delta Chi fraternity. Jeff attended camp in 1975 in Cloquet, Minn., and enjoys hunting and motorcycle touring.

BRIAN HEUER  
Davenport, Iowa  
Forest Wood Products /  
Resource Management  
Brian worked for the Ledges State Park in 1977 giving park tours and supervising the YCC. After graduation he hopes to work for private industry. While at ISU, Brian was a member of Forestry Club and Representative to the Ames Conservation Council. He attended camp in 1976 at Cloquet, Minn. and enjoys skiing and hunting when he is not spending time with his wife Marti.

DAVE JOHNSON  
Ames, Iowa  
Forest Resource Management /  
Outdoor Recreation  
Dave attended summer camp at Greenough, Mont. in 1977. He worked part-time at the Strautman Tree Farm in Ames and in his spare time enjoys backpacking and hunting. Dave has been active in the ROTC program which included the Rifle Team, the Pershing Rifles, and working with the ROTC Veishea Display. After graduation he has a military obligation at Ft. Benning, Georgia as 2nd Lieutenant.

DAN JONDLE  
Callender, Iowa  
Forest Management / Forest Biology  
Dan graduated in the fall of 1977 and plans to establish a nursery in Estherville, Iowa. He worked for the USFS on the Rio Grande National Forest at Del Norte, Colorado, in 1977 after having attended the 1976 summer camp in Cloquet, Minn. He was a member of Forestry Club, Xi Sigma Pi and was the chairman of the Fall Forester's Day Barbeque. Dan enjoys woodworking and sports. He and his wife Kim, are the proud parents of a daughter, Erica.

WILLIAM KOPPEN  
Dubuque, Iowa  
Forest Management  
Bill spent the summer of 1977 working on the Medicine Bow National Forest on timber sales preparation. While attending ISU, he was an active participant in intramurals and sporting events. He attended the 1975 summer camp in Cloquet, Minn.
DALE LEEPER
Harvey, Iowa
Forest Products/Industrial Engineering and Forest Management
Dale spent the summer of 1977 working for the Iowa Conservation Commission at Ledges State Park. He was a transfer student from Iowa Wesleyan College and attended summer camp in 1976 in Cloquet, Minn. Dale hopes to work in private industry relating to a production management job in a particleboard, plywood, or paper industry. He was a member of Forestry Club and Xi Sigma Pi and enjoys fishing, hunting and outdoor activities, as well as spending time with his wife, Susan.

MARK LIEURANCE
Council Bluffs, Iowa
Forest Management/Wildlife Biology
Mark was a member of Theta Delta Chi Fraternity and Forestry Club. He worked for the Story County Youth Conservation Corps in 1974-75. He attended camp in 1975 at Cloquet, Minn. He enjoys black powder riflery and gas model airplanes.

STEPHAN MEYER
Cedar Rapids, Iowa
Forest Management/Outdoor Recreation
Steve graduated in the fall of 1977. He had previous experience working for the USFS as a Forestry Aid, Recreation Technician, and Fire Control Aid. He accepted a position as Forester I, and will be stationed in Aberdeen, S. Dak., in a fire related position. Steve went to camp in 1971 in Quebec, Canada. He enjoys traveling and spending time with his wife, Glenda, and family.

KAREN OLSON
White Bear Lake, Minnesota
Outdoor Recreation/Recreation Program Administration
After graduation Karen hopes to get a job in a park or a recreation program position. She received experience working as a counselor at Camp Thunderbird for Girls in Bemidji, Minn. and as a supervisor for the University Recreation Services. Karen was on Freshman Honorary, Forestry Honorary, and National Scholastic Honorary. Karen enjoys crafts, skiing, and canoeing.

TERESA L. McCOY
Bellevue, Nebraska
Forest Management/Forest Recreation
Teresa hopes to begin a career working with a private forest company. She worked for the Wallowa-Whitman National Forest in Wallowa, Oregon, in 1977, taking condition and trend sampling on rangelands. In 1976, she attended camp at Cloquet, Minn. She was an active member of Forestry Club and Xi Sigma Pi and her hobbies include ballet and jogging.

DANIEL NEWQUIST
Des Moines, Iowa
Forest Products/Industrial Administration
Dan attended camp at Cloquet, Minn. in 1976. In 1977 he was a YCC Forest Work Leader in Florida. He was Student/Faculty Relations Committee Chairman for the Forestry Club, Craft Center member and a member of the Boxing Club.
RICHARD PARIS  
Coopers Plain, New York  
FOREST RESOURCE MANAGEMENT/Managerial Sciences-Economics  
Richard was a member of Xi Sigma Pi, Tomahawk Service Fraternity, and acted as Vice-President of Chamberlain House and a member of UDA Main Cabinet. During the summer of 1975, he attended camp at Cloquet, Minn. and in 1977 worked in Houston, Missouri for the YCC as a crew leader. Richard enjoys camping and hunting.

ERIC SCHATZ  
Des Moines, Iowa  
FOREST MANAGEMENT/Forest Recreation  
Eric was a member of Phi Kappa Theta fraternity and Society of American Foresters. In 1975 he attended the Cloquet, Minn. camp and in 1977 he worked for the Mead Paper Co. in Escanaba, Mich., in the Woodlands Division. After graduation his plans include working for the private industry. Eric enjoys cross-country skiing and fishing.

DENNIS SANDE  
Roland, Iowa  
FOREST MANAGEMENT/Agronomy  
Dennis attended summer camp in Greenough, Mont., in 1977. His future plans include a job with an emphasis in soils, or possibly graduate school. He enjoys watching, and participating in all types of sports.

BRUCE SIEFKEN  
Clarion, Iowa  
FOREST MANAGEMENT/Forest Recreation  
Bruce received experience last summer while working for the YCC and USFS in Salmon, Missouri. The summer of 1975 found him at camp in Cloquet, Minn. While at ISU, he was house president and IM chairman of Brown House. Bruce likes hunting and rock climbing.

DIANE SCHMIDT  
Mason City, Iowa  
FOREST LAND MANAGEMENT/Geology  
Diane spent her 1976 summer at camp in Cloquet, Minnesota. The following summer she worked for the New Zealand Forest Service at Kaingaroo Forest, near Rotorua in the North Island. Her job was working on continuous forest inventory. After graduation Diane hopes to obtain a job with the USFS in the Southwest. She spends her free time riding horses, swimming, and reading.
CLARK TIECKE
Muscatine, Iowa
Forest Management/Forest Business
After attending summer camp at Cloquet, Minn., in 1976, Clark spent the
summer of 1977 working for the USFS at Idaho Springs, Colo. Clark was sup-
ervisor of a 30-man TSI crew, which included keeping payroll, training em-
ployees, and firefighting. He wishes to pursue a career in forestry, after
graduating in the fall of 1978. Clark was a member of Forestry Club, Ames
Conservation Council, and Society of American Foresters. Clark enjoys
hunting, fishing, and swimming.

RICHARD TURPEN
Council Bluffs, Iowa
Forest Products/Civil Engineering
Rich spent his 1977 summer attending
camp in Greenough, Mont. He worked
for Pikes Construction in Ames in 1976
and hopes to work for private industry
after graduation. He was active in the
ISU Rugby Team and is past president of
the Veterans Club. Rich enjoys hunting,
fishing, and camping.

DAVE WALSH
Missouri Valley, Iowa
Forest Management/Agronomy
Dave went to summer camp at
Lubrecht in Greenough, Mont. in 1977.
During 1973 he worked at the DeSoto
National Wildlife Refuge in Missouri
Valley and has worked as a lab technician
for Bertrand Conservation Laboratory.
After graduation he hopes to work for the
SCS or NPS. Dave was a member of
Delta Chi fraternity and participated in
many service projects with the fraternity.
He enjoys painting and sports.

MICHAEL WHITE
Red Oak, Iowa
Forest Management/Forest Soils
Mike was a member of Forestry Club
and Xi Sigma Pi Natural Resource Honor
Society. He went to the 1976 summer
camp at Cloquet, Minn., and in 1977
worked for the SCS as an aide, learning
skills in surveying, farm planning, and
terrace building. After graduation he
wishes to work for the USFS or SCS.

KEITH WALTON
Urbandale, Iowa
Forest Management/International Studies
Keith was a member of Forestry Club,
and acted as Vice-President in 1976,
Christmas Tree Co-Chairman in 1975,
and most recently as Co-Chairman of the
Holst Tract Committee. He also served
on the Ames Appalachian Committee in
1977–78. He attended the 1975 summer
camp in Cloquet, Minn. and spent the
next summer as a Forestry Intern for
Vancouver Plywood Co. Inc., in
Louisiana. In 1977 he was a Forestry
Intern for Weyerhaeuser in Arkansas.
After graduation, Keith hopes to work in
the states for a few years and then try his
hand at tropical forestry in South
America.

Silent and invisible seniors: Rick
Hildebrand, Richard Schwien, Philip
Baird, Gary Case, Dave Carlson, Matt
Craddock, Paul Schroeder, Bill Smith,
Lawrence Johnson, Kirk Irwin, Mike
Milota, Jon Wiessman.

Perhaps the most valuable result of
all education is the ability to make
yourself do the thing you have to do,
when it ought to be done, whether
you like it or not . . . however early
a man's training begins, it is probably
the last lesson that he learns
thoroughly.

Thomas Henry Huxley
Without your SpencerTape, you're naked.

For years, forest professionals all over the world have been using their SpencerTapes to save steps and save time. SpencerTapes are so widely used that many professionals feel naked in the woods without them.

We build each SpencerTape to last. And our red, white and blue colors make it easy to find your SpencerTape if it's left in the woods or in the snow. Spencer tapes, wedges and other fine products are meant for the heavy demands of forestry application.

Each 75 foot and 50 foot SpencerTape is built rugged, dependable, fully automatic and ready to put to work. Genuine Spencer parts and replacement blades are always available. See your authorized Spencer dealer.

SpencerTapes save time, steps: (1) Tape hooks at butt end of tree, unreels against spring tension, leaves both hands free for use of saw. (2) Tape unhooks with flip, rewinds automatically. (3) Only one trip along length of tree to measure, limb and buck!

"Your Measure of Quality"

1134 Poplar Place South • Seattle, Washington 98144
(206) 329-2020
Forestry Club Members
1977–1978

Freshmen: (1st row) Les Olney, Shelley Hutzell, Katherine Faber. (2nd row) Jan Kramer, Bernie Bornong, Terry Davis, Randy Kleitsch, Mike Martin, (unknown), Bruce Herzberg.


Seniors: (1st row) Terrie McCoy, Mike Cloughesy, Russ Foust, Lynn Rand. (2nd row) Bob Houseman, Clark Tiecke, Brian Heuer, Keith Walton, Rick Paris, Mike White.

Those not pictured: Shellie Aneweer, Dwayne Beckman, Rob Blum, Mark Breese, Elaine Caldbeck, Kim Coder, Dave Curtis, Dave Dean, Dave Everson, Larry Gullett, Tom Hasty, Dave Harwig, Tom Hayes, JoEllen Heimberger, Jeff Hiedeman, Bill Hildebrandt, Robert Honeywell, George Ivory, Klint Johnson, Dale Leeper, Mark Lieruance, Jim Melsch, Sue Mellerup, Andy Mitchell, Sue Porter, Kathy Ramsey, Connie Reints, Teresa Salak, Scott Salom, Mark Sandvik, Mike Scanlon, Dave Schramm, Teri Simses, Tim Smith, Dough Stokke, Steven Strempe, Roy Schwenke, Phil Thomas, Greg Utte, Dave Wahl, Mark Walther, Mark Witt, Mark Woolley, Jim Zeman, Steve Hyland, Dan Hibbs, Karl Kreh, Bill Koppen, Roger Chemnick, Craig Boldman, Dave Watson, Dan Newquist, Darilyn Maas, Salli Kirt, Ron Bockhaus.

The President's Report

The "purpose" for an organization is one of the most important arm-holds for establishment, and without this purpose set down clearly in the minds of all persons, an organization lacks reason for its own existence. Once we all become aware of this fact, and a purpose is determined, then the paths to progress and achievement can be more easily conquered. To those working closely with the club, this becomes quite clear in regards to our own activities, but to those that are new or unassociated with the group, further explanation is required.

The Forestry Club is often referred to as being a very unified group of people (in logger's terms—unsplit). We are also one of the closest and more active groups found on the ISU campus. This is largely attributed to the Club establishing within itself a place where people from all walks of life can come and join together in a common effort to share their own talents, learn from others, and be as expressive as they desire. Yes, our purpose is to promote both an inward and outward growth that for at least nine months of each year is never less than dynamic. (In fact, ISU Foresters are well known around the country for bringing this type of enthusiasm into their summer and permanent jobs.)

One hundred student members may not sound like many when you think of the student population at ISU, or maybe even your own home town, but put that many together into a close-knit, working organization that strives toward similar interests and goals and you have an explosively moving unit. This is what the ISU Forestry Club has been, is, and will continue to be.

There have been many students whose devotion to the club has required many hours away from their scholastic requirements, but the rewards attached to the social and human interaction have more than made up for a few lower grades. This, to me, is equally important in our four years of obtaining a college education, as is building a strong scholastic foundation. Personally, I have received from the members of the Forestry Club a tremendously warm and encouraging feeling regarding my position as President and representative for the Club.

I also wish to extend a commendation to the forestry faculty for their efforts at strengthening the communications between themselves and the students. We have one of the most unique forestry schools in the country because there exists this excellence of rapport, where the professors actually want to work with undergraduate students, rather than concentrate solely on research, and where a direct line of contact is maintained between the students and faculty through the club President. Within the College of Agriculture this remains a novelty shared by few other club organizations. Also, these efforts bring forth the personal touch of professionalism to our education and growth as budding foresters. No, I have not neglected the club achievements of this year by any means, but to list them inclusively would require another few pages. However, let me add that financially, organizationally, and spiritually, these achievements were a result of hard work and excellent leadership on the part of our committee chairmen. Without their consistent leadership and creativity, the Club could not be at the level of success that it is today.

As you view the Ames Forester, keep in mind that what you read and see is the artistic overview of a very successful and wonderful year. Often, when a painting or drawing is completed and the artist puts aside his brush, the lines and figures all tie together to bring forth that very special meaning. Then other viewers come along and miss it completely, mostly because they are not aware of the artist's purpose.

I hope that this brief collection of thoughts will help bring to you our purpose and our inner drives so that the meaning of the Club's final art piece (Ames Forester) will not be lost.

Creative Club executives at work.

Foresters don't always study.
Forestry In Ames
Elaine Caldebeck

"What's your major?"
"Forestry."
"Oh, you want to be a Park Ranger and sit in a fire tower all the time."
"No, not really. You see I want to be in research."
"Research?"

But how do you make sure you've made the right choice? You never know for sure, but you can try a dream and see if you like it. That's what I did for my summer job. I was a lab technician in Forest Pathology here at ISU.

Exciting? I thought so. My summer job included learning how to make five kinds of agar, planting 1400 poplars, traveling around Iowa collecting disease samples, and taking a two-week trip to Georgia by way of Michigan.

I was involved in all sides of research, from washing glassware to planning and completing a research project. The project included writing and submitting an article to the Journal of Economic Entomology.

The emphasis of the summer was pathology: insects and diseases of trees and their relationships. I accumulated field knowledge about pathology that would be hard to obtain in class.

With my boss, Dr. Sande McNabb, and his graduate students, I attended two professional meetings. The meetings provided me with a feeling for the variety of definitions of research and for the spectrum of people and ideas found in a scientific field.

One of the meetings I attended was the third North American Conference on Mycorrhizae in Athens, Georgia. The meeting included four days of papers—all given on mycorrhizae. (If I never hear of mycorrhizae again it will be soon enough.) It was intriguing to hear the questions the mycorrhizal researchers asked, answered, generated, and ignored. It allowed my mind to travel many new pathways.

As a lab technician, I saw a bit of the country, learned lab techniques, met many interesting people, and enjoyed myself. Do I still want to go into research? Yes, I do. But I also want to spend some time in the woods. Next year I hope my summer job will be in Oregon or Washington or Alaska, anywhere but Ames, Iowa!
My first summer job in a forestry-related field found me in Wallowa, Oregon, population 920. I was working with the Forest Service on the Wallowa-Whitman (W.W.) National Forest. My job title was Range Technician.

The W.W. National Forest is located in the north-east corner of Oregon, an area that is very beautiful, yet rather diverse. My job involved a great deal of traveling around the forest, so I saw much of the beauty of eastern Oregon. The Snake River Canyon country is the driest and hottest part of the Wallowa-Whitman. Grazing of cattle is the only use this country receives for it is too dry for trees to survive, yet grasses grow well. However, the valley country near the Canyon is farmed and such crops as apples, peaches, wheat, and corn are raised.

The Wallowa Mountains, with elevations over 8000 feet in many places, support a beautiful forest of Douglas and white fir, ponderosa pine, Western larch, lodgepole pine, Engelmann spruce, and at the highest elevations, whitebark pine. These high mountains are called "the Little Switzerland of America." Beautiful lakes carved from glaciers are located throughout the mountains. Located in this area, also, is the Eagle Cap Wilderness. Since this area had very little range land, I was not able to spend much time gazing at the beautiful granite mountaintops and forested slopes and valleys.

Besides getting lost in all the magnificent beauty of the land, I did some work. My job involved condition and trend sampling of the range.

Each district of the National Forest divides their lands into allotments, whereby the local people rent these allotments for cattle grazing during certain parts of the year, primarily spring and summer. The Forest Service draws up the management plan for the range, and rules are established as to how and when the certain ranges are to be used for grazing. The permittees (or renters) are to follow these rules so that the rangelands will be utilized most effectively—no over or undergrazing.

In order for the Forest Service to plan a management system, data on the range condition must be known. This is necessary so that specific activities are done, or not done to keep the range in good condition. It is also important to find a trend for interpreting how the range is doing in the long run, under the present management system. It was my job to obtain this condition and trend (C&T) data.

The data was composed of pictures, both slides and prints, taken of the range. Plant composition and coverage was also recorded. I obtained this data in the exact places that previous data had been obtained (from four to twenty years ago). These two sets of data would be used to interpret the trend of the land.

My first duty was to find the old C&T cluster. A cluster consisted of a witness tree, supposedly marked on a map or aerial photograph, and two or three transects. A transect consisted of three iron stakes, one at the 0 foot end, one at 50 feet (midpoint), and one at the 100 foot end.

One of the hardest parts of the job was to find the witness tree, as after 20 years, the paint was usually faded or the tree was no longer there. Once I found the tree, I had the task of searching for the stakes. And, as you can imagine, that can be difficult, especially in areas recently logged or where cattle and elk graze heavily and step on or kick out the stakes, or where frost either gulps the stakes under the ground or heaves them out.

There were a few times, though, that I was able to find the transects. Then I would stretch out a 100 foot tape, from the 0 foot stake to the 100 foot stake. I would photograph two long shots of the area, at the 0 foot end looking towards the 100 foot end, and at the 100 foot end looking back to the 0 foot end. Then, I would take pictures of the ground (a square yard outlined by rulers) at 5, 30, 55, and 80 feet.

Next I would take a 1/10 square meter plot (a wire rectangle 50 cm. × 20 cm.) and lay this at 4, 8, 12, 16, 20, 24, and 28 meters. At each plot, I would identify the plant species and estimate the percent coverage of that falling within the plot. This was routine at each transect, and took about 45 minutes to complete.

Plant identification was the hardest part of the job. I knew very little about taxonomy, and being in such a different part of the country, all the grasses and forbs seemed to look alike. They are quite different from Iowa's corn and soybeans. However, I did work much of the time with an ecologist from the Ranger District, and with his help, I gradually learned about Eastern Oregon plants and grasses.

All in all, the summer was a good learning experience. I learned a few things about range management and plants. I was also closely involved with the structure and procedures of a Ranger District and with the Forest Service in general.
A Dream Come True
John Jennett

John, bucking a “small cottonwood. At 32 feet, the diameter was 4 feet.

The job that I am writing about can’t really be considered a summer job. It started long before the summer of 1977 and will last for many years to come. (If I’m lucky.) Actually, everything began nine or ten years ago when we were having some logs sawed at a neighbor’s sawmill. As I worked carrying slabs away and stacking the finished lumber, my senses were hard at work taking in all of the sights, sounds, and smells around the mill. Gradually a strange feeling came over me. It was puzzling at first but I finally realized that I had sawdust in my blood. I said to myself, “Self, this is for us. Some day we have to own our own sawmill.” The years passed and I dreamed of the day when I would be the head sawyer at my own mill. Finally, after finding mills that were over priced, worn out or already sold, we located a small mill in the northeast corner of the state. At last, things were beginning to take shape.

In the fall of 1976, my father and I traveled to Elkader, Iowa to see the mill. It wasn’t anything big or fancy, but it seemed to be in fairly good condition, and the price was right. After finding a trucker to haul it home, we began the task of dismantling it. This was fairly easy and only took half a day. When the mill was delivered, I found that putting it back together would not be quite as easy. The ground had to be prepared and a foundation strong enough to support the mill needed to be built. Finally, after two weeks of hard work it was finished. I packed up my tools (and all of the parts that were left over) and prepared to saw my first log.

I chose a spruce log that wasn’t very good and after a few cuts I discovered that something wasn’t quite right. The boards were one inch thick at one end and one-fourth inch thick at the other. This would be fine if I was cutting shingles but they wouldn’t make a very good table top, so I started reading books to find the problem and its solution. I made a few adjustments and tried it again. The boards were getting better and after a few more adjustments, were uniform.

Between school and a part-time job at the Strautman Tree Farm near Cambridge, I didn’t get too much lumber sawed. Then winter set in and nothing got done. Things around the sawmill went pretty slow until the middle of the summer. We began getting custom sawing orders and calls from people wanting to sell trees. In the middle of August, another job came in. This consisted of about twenty thousand board feet. At last we were on our way to becoming the largest commercial sawmill in Story County. (Never mind the fact that we were the only commercial sawmill.)

I can truthfully say that I have learned more in the last few months than I ever have. These few jobs have brought me in contact with almost every aspect of forestry. I have learned about buying logs and standing trees, logging, trucking logs, sawing lumber and selling the finished product. I have also had to deal with land owners and the general public. There are so many things that I have learned from this job that I could write a book.

A modern day philosopher in northeast Iowa once said, “Sawing logs is a real trip. You are seeing something that nobody has ever seen before.” After sawing many logs, I have to agree with him. To see a crooked, ugly looking log go on the carriage and seeing even boards with beautiful grain patterns come off is fantastic. It feels so great to be working in this field that I hope that Walnut Lane Wood Products and I can continue to work and grow for many years to come.
North to Alaska
Craig Boldman

Last spring and summer I had the great fortune of working in Southeast Alaska with the Forest Service. I worked in the Stekine area of Tongass National Forest and was stationed in Petersburg, Alaska.

As for a bit of information about Southeast Alaska, I'll start by saying if you're planning a trip to Norway don't bother to go. You can see the same sites in Southeast Alaska. The sites I'm referring to are the steep, narrow fjords, the snow-capped mountains, the glaciers, the fishing communities, the logging camps and the hemlock and spruce forest.

With regards to the weather in this area it is very different from what it is here in Iowa. The temperature during the summer averaged 55°-65°. The precipitation was heavy enough so that if you ever wanted to go up there to work you better have a good set of raingear.

Now that I've given you some details about Southeast Alaska, let me suggest a cheap way to get there. First off, flying is not what I had in mind, so “can” that notion. If you don't mind riding on a train for four days and going nuts on a ferry for another two days you can save yourself a heap of dough. I suggest riding the Canadian National Railway from Winnipeg, Manitoba to Prince Rupert, British Columbia and from there riding the Alaskan Marine Highway Ferry to Southeast Alaska. The cost was under $200, but I went strictly third class all the way.

Now that I've guided you to Southeast Alaska, what is there to do once you are there. I would have hoped you brought your camera, fishing gear, and your favorite forestry textbooks (unless you are one of those light-weights that like to read normal books)!

The basic kinds of fishing include salmon and halibut, but there are many excellent trout streams, too. If you like hiking and taking pictures, there are many interesting subjects to take pictures of, e.g. wildlife (bald eagles, moose, bear—brown and black, mountain goats and mountain sheep). But remember when you are out hiking around you are in bear country and that is a good enough reason for you to carry a big bear rifle (.375 magnum). I agree it is a big pain in the rear to drag a rifle wherever you go. I had to do it all the while I was working up there.

Now that I've told you what I did in my spare time, I'll explain briefly what my job entailed. I worked on a stand density study with a crew of four. Our job was to fall second growth hemlocks and spruce in the fifth acre plots that had been marked for cutting. The “leave” trees, or the trees that were not cut, were measured for total height and height to live crown using clinometers, and measured for dbh using a standard “D” tape. Also the crown classes and species were recorded.

The basic aim of the study was to determine at what spacing you would get optimal growth from hemlock and spruce.

In conclusion, the experience was well worth taking a quarter off from school. I learned a great deal and saw a great many things.

And when he fell in whirlwind, he went down
As when a lordly cedar, green with boughs,
Goes down with a great shout upon the hills,
And leaves a lonesome place against the sky.

Edwin Maritain
"In respect to this and much more I am hoping to return this summer to a land that is truly God's Country."

The above quote was taken from my summer work article written for last year’s Ames Forester. I have included it as a sort of extension to this past summer’s events and to emphasize that my hopes and dreams were not left unanswered. When June 1, 1977 rolled around, after a very busy, but rewarding Spring quarter, I was packed and eager to travel the highways and the by-ways that would lead me back to a land that I have come to love, admire, and respect. Yes, I was returning to the land of the sun and the mountains—Avery, Idaho.

My employment status and position was the same as the summer preceding. However, this summer I was to be living in a far more remote section of the district; The Roundtop Work Center. Roundtop is fifteen miles south of Avery and 2,600 feet higher in elevation. Nestled back among the Sub-Alpine Fir and the Engelmann Spruce, Roundtop offered facilities capable of supporting 25 to 30 persons. This summer 23 people were stationed at Roundtop including the Avery Fire Crew, K.V Crew, and the timber crew. I was employed with the timber crew and spent most of my time with field work, in and around the Roundtop area.

The job itself centered around all the techniques of pre-sale timber layouts. This involved everything from cruising, marking, and profiling, to actually mapping out the sale. This map would include elevation changes that the engineers would later need in surveying the roads to be built within the sale. Most of the sales were prepared four, five and six years in advance of the time they would go up for bid. The field work always seemed worthwhile when, all the data was laid out in map form, volumes were determined and the roads surveyed, because it was then that we could grasp the over-all importance of our positions.

Working benefits were improved above the previous summer as we were each given the opportunity to test our skills in every category of a timber sale. In years past, each person had only one particular responsibility, i.e., timber marking, or traversing, which often times led to moral problems due to lack of diversity and experience in other areas. I personally was very pleased with the production of our crew this year as was our immediate supervisor. Of course, a little fire fighting on the side always managed to break any cumbersome routine! And fires are one thing the Pacific Northwest and Coastal Regions were not lacking this past summer.

Upon graduation this coming spring I am hopeful that a more permanent position will open up either in forestry or pest management. However, Avery is not a bad alternative for work experience, even if only a six month appointment is available. Only time will tell and patience endure. After all, time is eternal.

Moon Pass, north boundary of St. Joe.

Round Top Work Center, elevation 4,900 ft., St. Joe National Forest.

A Forester’s Addiction
Bob Houseman
Driving twenty-three miles over gravel and dirt to buy a beer, seventy miles to get groceries! Having everything you own constantly covered with pumice dust. Sleeping in a tent with no door, no floor, and with a hole in the roof.

Wait a minute, you say. Is this an article about the French Foreign Legion or a forestry summer job? Well, even if I do make it sound rather dismal, living in a Forest Service camp in Central Oregon's Pumice Belt was a new and interesting experience.

I was employed by the Supervisor's Office of the Fremont National Forest, and was to be stationed at movable camps rather than at a district compound or bunkhouse.

Our crew was given an eighteen-foot travel trailer and a government surplus Army tent. All this was to house six people and serve as an office and cook shack! We camped at Wickiup Springs in a beetle infested stand of Lodgepole pine for the first half of the summer. Around the middle of July we moved camp southeast about thirty miles to the Puddle Springs Work Center. This was located in a beautiful stand of mixed old growth and second growth Ponderosa pine and had the advantages of both electricity and adequate indoor plumbing.

The worst part about living in a camp like this was that the only people you had contact with were the members of your crew. I was fortunate to be on an excellent crew, but it still seemed that I never really went "home" from work. Dinner conversations and most aspects of our social life would invariably degrade into talking shop.

My job title was Forestry Technician and I was working on the Forest's Tree Improvement Program. This mainly involved selecting trees that were supposedly genetically superior and then taking various measurements of them to be fed into the computer. Trees that seemed to be superior were scrutinized carefully for absence of serious insect, disease and mechanical damage, and for clear evidence of cone production. Trees that passed these criteria were compared to other trees in the stand that were of a similar age, were of the same species and relative vigor, and were growing in similar micro-environments. This comparison was based on diameter growth rate. A difference of 20-25% was generally considered to be significant. Diameter growth rate is used as a basis of comparison because the main objective of the Fremont's Improvement Program is to improve volume growth rates. Diameter growth is thought to be directly related to volume growth and is much easier to measure, both quickly and accurately in the field. In stands where there were serious insect and disease problems, and where growth was below average, trees could be chosen on the basis of resistance and form.

After selecting a tree, various stand and tree parameters were measured or estimated, and recorded. These included: species composition, slope, aspect, number of trees per acre, site class, tree height, diameter, age, bark thickness, branch angle, average number of branches per whorl, crown shape, etc. After measurements and observations were made, the tree was located on the appropriate compartment map, legal description was determined, and relocation directions were written. (This last phase was often the most interesting part of the job as I wasn't always right where I thought I was, and the maps and road signs were often in disagreement.) The final stage was to prune and tag the tree, paint on its number, and set a post to aid in relocation if the tree wasn't visible from the road.
“... Purple mountain majesties above the fruited plains . . .” is an excellent way to describe the area in which I worked this past summer. The area was the West Cascades, and the district was Packwood Ranger District in the Gifford Pinchot National Forest, Packwood, Washington.

Packwood is a small (as compared to my hometown of Cedar Rapids) logging town snuggled in a glacial valley. It is surrounded by the Gifford Pinchot National Forest and is outside Mt. Rainier National Park. A good percentage of the people work for the Forest Service with a percentage of the others working for logging companies.

In the summer, there is quite an influx of people from all over coming into Packwood, to work as either seasonal or summer employees. I was one of the summer employees working the silviculture unit.

My partner, Mary, and I worked on the genetic tree or super tree program. We covered many miles on foot and in the rig checking individual stands for trees that would have a good seed crop and eventually produce superior trees. Along with locating super trees, we also flagged and traversed boundaries, counted cones, fought off black flies and no-see-ums and even planted trees for a day. After about a month and a half of supertrees, I was drafted or was lent to the fire crew.

For a normal Washington summer, it rains most of the time. Unfortunately for the inhabitants of Washington, but happily for those that melt when it rains, the Gifford Pinchot was experiencing a drought along with the rest of the West coast.

With our main fire crews fighting fires in California and fire danger being anywhere from high to extreme, everyone was drafted into the ranks.

Along with the two ten-man fire crews, there was also a Fox Trot crew or the F-Troop as it was fondly called. One of the more dangerous missions F-Troop had to carry out was the extinguishing of a campfire at the edge of the swimming hole. Unfortunately, two women in bikinis had already got it under control by the time F-Troop had arrived, so a fire line was put around the ashes and scouts were sent to look for sparks.

Behind every curve in the road, there was one object that stood above everything else, and that was Mt. Rainier. Mt. Rainier has got to be the biggest pile of rock and ice I have ever seen. Mt. Rainier was beautiful in the sunlight and awesome at night, but the best thing about it was, I could see it from my front doorstep.

There are many things about Packwood I will never forget; F-Troop, Mt. Rainier, berry pie (yum, yum), and of course all the people I met. Although many of my memories are now getting overlaid with formulas and general busy work associated with school, I will always have a soft spot in my heart for Packwood, Washington.
Experience With The Soil Conservation Service
Michael L. White

In April of 1977 I was interviewed by the Soil Conservation Service for the position of Student Trainee. With the arrival of summer vacation, I was notified that I was to become an "official" Soil Conservationist. Malvern, Iowa became headquarters and I proceeded there without delay.

Malvern has a population of around 3000 and is located in Mills County, 30 miles east of Omaha, Nebraska. Mills County is unique because of wide differences in the landscape within the county. On the west is the Missouri River Basin, in the center are high wind blown loess hills, and the eastern portion consists of rolling farm land.

The title of Student Trainee encompassed a wide range of job tasks. To cope with my new responsibilities I was given the assistance of two secretaries, a desk, an olive green pick-up and a lovely office shared with five others.

I began the summer as a survey technician. This job consisted of laying out terraces, sewage lagoons, farm ponds, and dams to federal specifications and later checking the construction of the projects to insure the specifications were met. After I began to feel the ropes of the trade, my supervisor assigned me to getting data from the individual farmers on crop residue use. Another survey consisted of obtaining data to determine soil erosion losses within the county.

Field experience did not include everything. As a trainee I was assigned to become familiar with the many different government procedures and specifications of the different programs; and become familiar with the structure and rules of the Soil Conservation Service. Two overnight orientation meetings were required to show the trainees how the Soil Conservation Service (S.C.S.) operated and what would be expected of us when we began as full time employees.

From the viewpoint of the S.C.S., the student trainee program was a way to evaluate future college graduates and be able to give those students who worked well at their job a position with the S.C.S. upon graduation.

The knowledge gained as an Iowa State Forestry Student became a useful tool with this position. Forestry, surveying, photogrammetry, economics, and agronomy all became basic rudiments in working with the Soil Conservation Service.

It was a rewarding position in which other forestry students should consider as another career alternative.

Grass that is made each year equals the mountains in her past and future;
Fashionable and momentary things we need not see nor speak of.
Robinson Jeffers

WE'VE BEEN MAKING QUALITY BOOTS BY HAND FOR OVER 50 YEARS!

SMOKE

JUMPER

Hand sewn, stitchdown with Vibram® Montagna® or composition sole. 8" or 10" top. Black.

PACKER

Hand sewn, stitchdown designed for riding or walking. 8" top. Brown Elk. Leather or composition sole.

LOGGER

Best quality, calked with high supporting arch. 8" or 10" top.

Send for FREE catalog . . .

WHITE'S SHOE SHOP INC.

509/624-3731  W. 430 Main at Stevens  Spokane, WA 99201

ARCH EASE

AMES FORESTER
During the summer camp of 1977 in Greenough, Montana, we students did not limit our education to the four subjects being taught by the instructors. Besides being well versed in forest ecology, wood ecology, wood utilization, forest resource measurements, and multiple use operations, we also became familiar with the use of axes, knives, potato peelers, closets, and Dodge van windows.

Gary Stephan and Dave Johnson were considerate enough to take time from their studies in order to demonstrate to the rest of us the extended use of the hatchet and 3/4 axe. The purpose of Gary's demonstration was to show that a sharp hatchet works as well on calculators as it does on wood. Dave, however, seemed to value his calculator more than his foot and proved that a foot could be cut even through the formidable protection of a tennis shoe. It cost him several stitches and two weeks on crutches, but the rest of us thought it was well worth the lesson learned.

Knife safety was demonstrated to us by Mark Woolley during Dr. Thomson's visit to camp. Dr. Thomson was generous enough to provide several large watermelons in order that we might have an after
CAMP '77

dinner feast. Mark volunteered to slice the watermelons and in his overzealous efforts to become better acquainted with Dr. Thomson, he not only did an admirable job on the watermelons, but he also managed to lacerate his thumb quite severely and had to be rushed to the hospital in Missoula.

Though the word 'camp' may, for some, have the connotation of a summer vacation, those who have attended know that at times it is quite the opposite. In our efforts to survive the seemingly endless stacks of reports to be written, columns of figures to be calculated, and diagrams to be drawn, we discovered that we had to 'keep our humor.' We use this phrase rather loosely, as it was interpreted by many people in many different ways.

One of the men's cabins thought the word 'humor' mean stuffing a twenty-five foot Douglas fir through the open window of their neighbor's cabin. Upon return to their cabin, the neighbors quickly concluded that the tree was definitely not a misplaced identification sample and wasted little time in establishing a rivalry between the two cabins.

Connie Reints, on the other hand, interpreted the phrase a little differently, as she changed a chipmunk's idea of a warm cozy cabin into his own death trap. She discovered that by thrusting large pieces of firewood at the closet, behind which the chipmunk was hiding, she could smash the poor thing into the wall. Needless to say, she was quite successful.

Others of us were not so creative and resorted to such things as kidnapping Koral Santman and sending ransom notes for her return via flying pine cones, or playing combat in the woods at night using weapons which highly resembled the modern day fire extinguisher.

These attempts at 'keeping our humor' must have been fairly successful since no reports were made of permanent insanity due to 'booking it' too hard.

Weekends became quite a treat for us while we were at camp and it would have been a next to impossible task to keep tabs on all forty-nine of us. Saturdays and Sundays were perfect for short camping trips, during which some of us even discovered the art (pleasure) of skinny dipping in 40° stream pools without causing any serious damage to ourselves . . . like our health. Warmer bled people preferred the solar heated Blackfoot River, upon which they rode down in inner-tubes. Of course, the cooler of beer had an inner tube all its own, and while the journey started out being one big water party, it ended up being one big body-fry, as the temperature reached well over 80° that day.

The Holding Company, a discothèque in Missoula, was a popular place to meet on weekend nights on the town. In fact, it wasn't long before we were no longer 'carded' at the door since everyone knew who we were. Popular music, however, wasn't our only choice to dance to. On one occasion many of us met, quite by chance, at the Flamingo Room of the Park Hotel in Missoula to listen and dance to the hand clappin', foot stompin' music played by the Salt Creek bluegrass band.

Homework and weekend activities were not the only things that kept us busy during our six week session. Each of us was assigned one week of KP duty which entailed assisting the cook in food preparation, serving the food, and cleaning up after the meal.

Potatoes were a favorite vegetable for the evening meal, and needless to say, this required the peeling of hundreds of pounds of them; a job which was delegated to students on KP. This job was not a favorite of Gary Bosch's (who often got stuck with it anyway), and in an imaginative effort to relieve himself of the duty, he sliced off the tip of his left index finger. The injury, however, was not so serious that Gary couldn't serve out the rest of his KP week mopping floors and wiping tables.

On the fourth Saturday evening meal the score was: Diners-4 and Servers-6, during an all-camp post-meal foil fight (from the baked potatoes); another attempt at keeping our humor. The servers didn't normally have trouble like this, and this particular uprising was attributed to the mounting tensions of four weeks of homework and not the food.

While working on KP we students became quite proficient at the sport of towel whipping, not as a means to aggravate, but in our own defense against the cook, Laura Schilling. Laura was an expert towel snapper who had a range of one half the length of a cafeteria, and often used her skills to keep the KP students in line and on their toes.

The cafeteria also doubled as a classroom/study hall which was utilized mainly for Dr. David Countryman's forest measurement class. The tables served well for spreading out our map projects (the

**Ransom note: To whom it may concern:**
*We have Koral. We demand one Woolley pillow in return. Drop it off at the big PiPo by the Royal Gem CLEAN!!*

**the R.G's**
map must have measured five feet by six feet) on which we spent many LONG hours, sometimes completing our work just before breakfast. The actual drawing of the map, however, was only half the entire project. An entire week was spent in the field collecting data in crews of 5 students each. These crews ran a boundary traverse around a 30 acre plot, taking elevation measurements, and eventually laying out several sampling plots. Most of us used hand compass and pace to locate these sample plots, but Kim Coder decided against this method, and by calculating the circumference of his waist, located his crew’s plots using the “hand compass and roll” method. He usually started by tripping over a strategically placed log.

These same crews of five often worked together in Ole Helgerson’s forest ecology class. In this class several things were emphasized, including the importance of boots which was demonstrated by Ole himself when he purposely stomped across a creek to bypass slow rock-jumpers and log-crossers. Another topic which was stressed was the effects on a forest from “a four legged bovine which gives forth lactile, good for young and old alike.”

Ole often lent his own brand of levity by performing his imitation of Floppy, a children’s afternoon cartoon TV star. This not only gained our attention, but also our admiration for Ole since no one could do the imitation quite like he could.

We all felt fortunate to have Dr. Dwight W. Bensend as our wood utilization instructor since it was his last summer camp before retirement. We were especially impressed by his vast knowledge of wood processing for which he is well known. He often corrected and supplemented the information given to us by the tour guides during our trips through nearby mills.

At the close of our six week session we presented Dr. Bensend with a plaque in appreciation of his years of service to the forestry students of ISU.

Dr. Wendall Beardsley’s multiple-use operations class involved trips to seven different forest management organizations, each with a different set of purposes and goals, giving us insight to the many aspects of forest management.

On one of these trips, Rich Straight, during one of his sessions of story telling for which he is famous, repaid a gas station attendant’s courteousness by shutting the attendant’s fingers in a Dodge van window. This happened as Rich pulled the pop-out window shut in order for the attendant to wash it. Rich, engrossed in his story, was unaware that the attendant’s fingers were in the way.

On the last Sunday night of camp the instructors provided refreshments around a campfire where Ole Helgerson, accompanied by a few other students, provided banjo and guitar sing-a-long music, and the “Royal Gems” provided entertainment in the form of a skit which included impersonations of the four instructors.

All in all, the forestry camp of 1977 was an enjoyable, as well as educational experience, remembered fondly by all of us; the students, the instructors, and the cook alike.
Cooling off after a hot day of tours, the group makes use of the greenhouse fans.

Burlington-Northern logging operations near camp.

MEMORIES . . .

Chipmunks eating everything; apples, sandwiches, and those precious, rationed cookies.

Choking in the dust riding in the back of the truck.

Who could forget the time Bob P. peeked under the floorboards at Mikie's pet mouse and the poor thing jumped up, rolled over twice and died of heart failure. (Bob wasn't that ugly.)

Dan Hertel: (the night in the Bob Marshall Wilderness) "... Hes... Hes... Hesler... . . . H.E.L.P.!!! I think it's a bear!"

Remember the panic when we thought George would drive us over the side of the mountain?

Ole: "'Gul darn!'"

The coed buddy system works well on field trips. Instead of one getting lost in the woods, two can!

Wasn't somebody tied in the outhouse once?

How about the morning Dr. Beardsley sat down on that broken chair and landed in a heap on the floor? (Wonder who fixed that up?)

Some of the guys were pretty worried about their looks around all the girls... All the mirrors in the guys john disappeared.

Don't forget how Dr. Countryman taught us to be graceful foresters. It's not everyone who can fall down in the swamp on the traverse.

Remember the big white horse who kept poking his nose in the classroom? No, you late night partiers, you weren't dreaming!!

Hey, Robin! Did you ever eat that moss you were stewing for four days?

Oh, I am a lumberjack and I'm okay
I sleep all night and work all day
I put on ladies dresses
and go down to the bars.

Oh, I am a lumberjack and I'm okay
I work all night, I sleep all day
I'm up at six to do KP
and get those 'taters peeled.

Oh, I am a lumberjack and I'm okay
I work all night, I sleep all day
I cut and fill and pace out chains
I rot out all my brains

Oh, I am a lumberjack and I'm okay
I work all night, I sleep all day
I go to all the local mills
and wish they all were stills.

Oh, I am a lumberjack and I'm okay
I work all night, I sleep all day
I follow Ole till I'm sick
of Ribies and Kinnikinnick.
Game Banquet—
1977

—a chance to dine on deer, pheasant, rabbit, squirrel and more.
—a chance to recognize our peers of high scholarship.
—a chance to learn more of forestry's part in the Resource Planning Act.
—a chance to name those who will be officers of Forestry Club.

Lance Logan, chairman for the event, tied all these elements together for the Wild Game Banquet of 1977. Vice-President, Keith Walton emceed the program.

David Herrick of the Rocky Mountain Forest and Range Experiment Station gave the local presentation. He explained the concepts behind the Resource Planning Act through his lecture and slides.

Award winners were Elaine Caldbeck for the Bauer, Terrie McCoy for the Cone, Mike Dawson for the Strom, and Curt Krambeer for the Hoo Hoo Award.

There was a very special occurrence during this Game Banquet. Mother Nature apologized for her cold, dry winter with one beautiful evening. From the Campanile Room we watched the last six inches of winter fall on the fountain and surrounding pines.

Recipients of the Hartman-Montgomery Travel Award were Terrie McCoy, Joel Tuhy, Keith Walton and Bob Meier (not pictured).

Elaine Caldbeck receiving the Keith A. Bauer Award from Chris Walker.

Dwight Bensend presenting Mike Dawson the Strom award.

Dwight Bensend presenting Curt Krambeer with the Hoo Hoo award.

David Herrick, speaker of this year's banquet.
In spite of Spring Quarter's Forestry 302 and 454 reports and presentations, the Veishea display, English 414, and a few more unmentionable iron balls, five people escaped to Northeast Iowa for a weekend of fun, sun, and canoeing on the Upper Iowa River.

After camping Friday night at Kendalville, the group put into the river the next morning. The weather was good, even to the point of causing a few sunburns. The river was low and the canoes were loaded which meant walking occasionally. The crew camped downriver from Bluffton that night, after a full day of river water and limestone bluffs.

Sunday morning found everyone sleeping late and just beginning to feel the activities of the day before. The canoers then packed up and tried to sneak back to their homework before anyone noticed they had been gone.

There's got to be a morning after—with packing up included.

Rest and Relaxation.
Spring Fling

It was on a bright, sunny May 1st that the Agricultural College again invaded Brookside Park for its annual Spring Fling. This year the Forestry Club entered not only one team into the afternoon’s activities but three fiercely competitive teams. Besides competing with the other departments, these three teams had to battle against themselves.

The afternoon’s activities included a mattress race, pyramid build, seven-legged race, egg toss, a straw bale race and others. There were also any number of water fights to join. The last event was the tobacco spit for which the three forestry teams united to cheer their entrants. With this event over, the results of the afternoon were announced. One forestry team placed 3rd overall and the other two teams put up a good fight.

The All Agie Awards were also announced. These were students selected from the Agricultural College and recognized for their outstanding support and leadership to their club and department. Carla Derby, a member of our ranks, was one student awarded this honor. It was then time to chow down.

So with full tummies and an afternoon's exercise behind them, the members of the Spring Fling teams went home content and ready for a good night's sleep.
May 1, 1977

Grunt! The mighty force of Forestry Club.

"Watch out, here it comes!"

Team work—spider style.

"Flit Shinger."

On to the Olympics for Clark.

AMES FORESTER
The 1977 Vieshea festival full of fun, sun, displays, and parades offered the students at Iowa State an opportunity to relax from studies and take a break from the routine of classwork. It also offered the opportunity for students and their organizations to show off, and regarding this point, the Forestry Club was no exception.

Placing second to the Animal Science department for over-all best display, the club did well to represent the many aspects of forestry and the management of its resources. The highlight of our display was the new addition of “Wally the Walnut Tree.” The idea was derived from the Forestry Center in Portland, Oregon, where a very large and simulated Douglas Fir is arranged to display, with colored moving lights and a recording, the insides of a tree. It included the cambium, phloem, xylem, and pith. Our tree, Wally, was not quite as sophisticated as its counterpart in Oregon, however, he did a very acceptable job of informing the public about his internal structures. It would be inappropriate to include at this time Wally’s structural make-up due mostly to top security measures by forestry club engineers?! If your curiosity to witness a talking tree in action overcomes you by Vieshea time 1978, come to Bessey Hall, second floor, and see Wally the Walnut Tree for his second debut.

The curriculum at Iowa State centered around three major areas. They are management, products, and forest recreation. All three of these were also represented in some form or another so as to develop the theme; “More to a tree than you can see.” These included posters depicting the curriculum structure from the freshman to senior levels, slides of forest management at work in both government and industrial operations, a tree pathology display that Dr. Harold “Sande” McNabb arranged for the club, several wood product displays, and the scale model of the Holst Track State Forest.

Probably the most attracting figure to the forestry display and seedling sale was Smokey the Bear. Smokey proved a big hit with small and “large” children alike.

THE 1978
Mike Vorwerk's second year as seedlings chairman was impressive. Rich Faltonson described the young seedlings as, "The best looking set of trees I have ever seen grown for the Forestry Club." Then Koral Santman fully illustrated a new set of signs for the Central Campus Sale with the caption "Baby Tree Sale." The hard work, creativity and expertise of those who worked on the sale paid off. Literally, with well over $400 in profit.

"Let your fingers do the walking." Everyone's a forester at heart. Plant a tree.

The year's work paid off with big returns.

"Ooh, it's mushy."

Watch Nita's hand grow.

"You've come a long way baby."
Freshman Welcome

Friday, September 16th, Freshman Welcome 1977 initiated its annual awakening. In years past this affair was held at Soper’s Mill with a crackling fire, blackened hotdogs and plenty of drink. This year, Bob Houseman and Mark Webb offered their backyard and kitchen for the affair. This offer was accepted enthusiastically by the club.

Beginning early in the afternoon our welcomees began to arrive and participate in an active game of volleyball. Others formed small spectator groups at the sidelines.

With the guests occupied in the backyard, Mark, Bob, and their roommate were pooling their culinary skills together. Pizza and potato salad of extra-ordinary tastebud tantalation became the products of this collection of skill.

When the food had disappeared, everyone casually sat down in the yard, sipped beer, and talked into the night. The weather being excellent, cuisine fantastic, and attendance great, the 1977 Freshman Welcome ended with success.

SAF Convention—Albuquerque, New Mexico

All of Ames seemed to be asleep in the pre-dawn darkness and early morning last October. While others slept, seven eager forestry students were shuffling and mumbling around a van as they arranged and rearranged their gear and themselves before departing on a week-long excursion to the west. The day was October 1 and Carole Gillespie, Sue Kleitsch, Koral Santman, Curt Krambeer, George Ivory, Bob Houseman, and myself were on our way to the National Society of American Foresters (SAF) Convention in Albuquerque, New Mexico. With funds from the Hartman Montgomery Travel Award to pay for travel expenses and lodging, the seven of us decided to take a week off from school to attend the convention and do some touring through the desert and mountains of the Rocky Mountain region.

The trip went smoothly. With everyone taking turns sleeping we made that “long step” across Nebraska and the plains, passed through Denver, and made it to the Rockies by nightfall where we camped. Awakened to a brilliant mountain sunrise Sunday morning, we took our time as we travelled south through Colorado and into New Mexico. October in the mountains means aspenglows, and we were continually confronted with hillsides aglow with the gold of aspen amidst a sea of green, all under a sunlit mountain-blue sky. The “oohs” and “ahhs” were almost continuous...
"It's better than Virginia Slims."

and we were constantly stopping for pictures. Ames, school, and even the books we brought along, were easily forgotten while viewing such beautiful panoramas. But there was business to tend to, and soon enough we arrived in Albuquerque for the "real" purpose of our trip.

The convention, entitled "Forests for People: A Challenge in World Affairs," began at the Albuquerque Hilton Monday morning with a poolside breakfast, followed by a General Session highlighted with keynote address speaker Norman Borlaug (Iowa's Nobel Peace Prize Winner). There were an estimated 1400 members in attendance, with 130 students. Iowa State reportedly had the largest student group. ISU faculty attending the convention included Drs. Thomson, Bensend, and Countryman.

Aside from the meetings, the convention was filled with lectures, presentations, demonstrations, and discussions concerning a wide variety of topics, all having something to do with forest management, research, and production. There was a special meeting for students and employed professionals to discuss job and career possibilities in forestry. We also took part in a gathering of ISU alumni. All of these things and the convention as a whole added greatly to our educational experience. We were exposed to many new management aspects, we reinforced some of our learning here at ISU by delving more deeply into some subjects, we met and talked with many professionals working and teaching in the field, and were exposed to other students. The convention closed on Wednesday afternoon with a large, formal banquet.

Aside from the convention, there were other things about Albuquerque to enjoy. We visited Old Town, a historic sector of the city in which many old structures and some of the original adobe buildings are preserved; we rode the tram to the top of Sandia Peak (part of the Sandia Mountains, which rise to 11,000 feet just east of Albuquerque) and viewed the city at night; and we enjoyed a night or two on the town.

Instead of returning home at the close of the convention, we decided to do a little more travelling. Wednesday night found us camped near the Painted Desert and Petrified Forest National Park in Arizona. We toured the park Thursday morning and then headed north, camping that night at Mesa Verde National Park. We toured the Indian Dwellings and Ruins at Mesa Verde Friday morning, then proceeded north once again, travelling through the San Juan Mountains of SW Colorado. It had snowed the night before and all the mountains glistened with a fresh snow-cap beneath a "puff-balled," partly cloudy sky. The combination of aspenglow and fresh snow seemed too much to leave, so we lingered a long time travelling through the San Juans. By Friday night we knew it was time to head for home, and home we came, all of us at least a week behind with school work. You may ask, "Was it worth it?" Despite the fact that some labs and lectures were missed, some tests blown, and a grade or two lost, I think we would all say—"definitely."

The fall '78 SAF National Convention will be held in St. Louis, only a few hours (rather than a few days) from here. Explore the possibilities of going, and if possible go. It will be an experience you won't forget and one that will certainly enhance your educational experience.
Despite the rather inclement weather, there was a good showing of people at Holst Forest on October 22, 1977 for Fall Foresters Day. As the temperature dropped and the rain continued to fall, the fireplace in the shelter became more popular than the events. Despite the rain, all events were run except for the water boiling contest. The days activities were concluded with the tapping of the keg and a feast of smoked pork chops.
I thought they were supposed to use the other side of the saw.

Ski... Iowa.

I thought they were supposed to use the other side of the saw.

Come on teammate. I'll give you an "A" if we win.

Placings

Overall
Tie: John Jennett
    Mark Lieurance

One Man Buck
1. Randy Kleitsch
2. Gary Stephan

Two Man Buck
1. Jennett-Lieurance
2. Jondel-Krambeer

Chain Throw
1. Mike Cloughesy
2. Laura Knepp

Tobacco Spit
1. Mark Lieurance
2. Andy Mitchell

Dendrology
1. Mike Cloughesy
2. Terrie McCoy

Log Rolling
1. Lieurance-Jennett
2. Krambeer-Cloughesy

Bolt Throw
1. Mike White
2. Andy Mitchell

Wood Technology
1. John Jennett
2. Carole Gillespie

Match Split
1. Laura Knepp
2. Elaine Caldbeck

Pulp Toss
1. Straight-Hutzell
2. Houseman-Kleitsch

Speed Chop
1. John Jennett
2. Mike White

Tree Felling
1. Randy Kleitsch
2. Mike Cloughesy

Nail Pound
1. Sue Kleitsch
2. Teresa Salak

Egg Toss
1. Houseman-Kleitsch
2. Gillespie-White

Compass Traverse
1. Mike Cloughesy
2. Jeff Strang

Dizzy Izzy
1. Russ Foust
2. George Ivory

AMEE FORESTER
October 7 marked the departure of the ISU Conclave Team for Purdue University and the 26th Annual Midwestern Conclave Competition.

Under the guidance and leadership of Mark Lieurance the team had prepared for the competition and was determined not to come in last and again acquire the bearskin.

Saturday morning was crisp and cloudy. After slipping and sliding down the hill to the contest grounds, the team got down to business. Bruce Siefken placed second in the bolt throw, giving the team three points, and Rick Straight acquired fourth place in the traverse for one more point. The team finished with four points but this says nothing for the close scores. Missouri regained its first place title and ISU was proud to place eighth of the twelve teams.

The annual “adjustment hour” was held that night at the bottom of the hill, presenting a difficult situation for some. Sunday morning, however, found most of the ISU team ready for the long drive home.
Woodward Service Project

Eight volunteers from Forestry Club spent a warm spring day at the Woodward Children's Hospital in spring 1977. We shoveled through load after load of soybean silage to mulch 500 pine seedlings planted throughout the compound. The groundskeeper enriched our experience with a lecture-tour of the fruit tree grafting and ornamental plantings there.

Christmas Caroling

If Christmas carolers are very good they usually get invited in for a cup of chocolate and a quick 'how do you do'. But carolers who fill the night with heavenly song and radiate a certain brilliant, unavoidable charm (like the Forestry Club did this year) inspire grateful connoisseurs to literally throw open the doors of their home.

A caravan of cars full of carolers serenaded each faculty member's home and family in turn. Then students and faculty shared cookies and hot buttered rum around the fireplace and piano of Dr. Countryman's home. It was a faculty-student encounter of the most enjoyable kind.

Spring Folk Dance

A civil engineer named Mike Meyers set feet a dancin' one April night at the Issac Walton League clubhouse. We kicked, stomped and clapped our way through Czechoslovakian children's dances, Little Black Book, Amos Moses, the Philadelphia Hustle and the Virginia Reel. Forestry Club invited Fisheries and Wildlife Biology Club to join in the fun. It was a unique event for everyone and was enjoyed tremendously.

Pumpkin Caroling

What do you get when you mix eight foresters, one Halloween weekend, and five song sheets? You guessed it; pumpkin carolers. It might have been a shock to the innocent bystanders on the street to see seven "lumberjacks" and a Minnie Mouse walking around. It also might have alarmed one household to see eight people trying to light pine knots on their front lawn. Likewise, the forestry staff was downright surprised to see these same eight people on their door steps singing about a six-foot seven waitress and her lover that pounded his whiskers in with a hammer and bit them off inside. After the initial shock, everyone enjoyed the songs that many had not heard since summer camp days. All in all, a "different" idea turned into a lot of fun for everyone. Next time we go pumpkin caroling, however, we'll have to invite the professor's wives since most knew the songs better than we did.
Chairman of Christmas Tree Sales, Mike Cloughsey led his committee with determination this year. "Publicity was our big thing," he said. Local newspapers carried paid ads, posters were up all over campus, and the Daily even ran a front page shot of Mike in the process of peddling the pungent pines. The sale was very successful. The strong leadership, good participation in sales by Forestry Club members, and publicity paid off.

"Let it snow, let it snow, let it snow."

"Well, at least you can see the tree."

"Santa just brought them in on his sleigh."

Our fearless leader.
Friday night, January 27th, was the evening for the hardy Forestry Club members and their guests converged on "WINTER PLAYGROUND," just east of Humboldt, Iowa. With the use of a school bus and several cars everyone arrived ready to do some night skiing.

For many it was the first time on skis, but after a few jostled downhill ventures, the majority seemed to maneuver the hill rather well. The skiers were not the only ones jostled that evening. A small amount of posterior bruising was also accomplished by those sliding down the hill on inner-tubes.

Indoors, people were huddled around a glowing circular fireplace or peeping out the windows to see who next would bounce on their bottoms trying to make it down the hill. For refreshments, hot chocolate, chili, cold beer, and pop were served in the warm atmosphere of the lodge.

At 11:30, the drawing of the raffle prizes took place. First prize, a mini cassette recorder was won by Chris Walker; second prize, a two-burner gas camp stove was won by Joyce McClure; third prize, an instamatic camera was won by Dr. Carl Mize; and fourth prize, an outdoor cookset was won by Robin Winter.

As the evening wore on, the food disappeared, the lights on the slopes died, and the bus was started to warm up the interior and take the people home. It was three a.m. when the tired group finally returned home, but I'm sure the late arrival was well worth the good times we had at the ski party.
CLASSES

"Look at that girl!!!"? Civil Engineering 210

True and dedicated foresters in the reading room.

Calculations and more calculations.

"And this, you foresters, is Ribes..." Dendrology Lab

"All I can see are black dots..."
Athletics

"Where's the other team?"

It's mine! I've got it!

The softball team displaying new talent. . . . ???
They should have tried harder at playing softball!

Look at that man go!

What form! What talent!
"Any idle moments during the past year were utilized looking for and finding, Indian artifacts on a secret farm site near Madison, Wisconsin. Discovered by me about 30 years ago, the landowner requested no publicity, and of course, I was willing to comply with the request.

"Finding over 2,000 artifacts on this site has been most enjoyable, many points dating back to 11,000 years ago after the glacier had receded. Artifacts include both Clovis and Folsom Man—stone spearheads, perforators, scrapers, knives, and gravers. Arrowheads are conspicuous by their absence, inasmuch as the bow and arrow had not yet been invented."

"Without disclosing the location, except to say it was in Dane County, and showing my prize pieces, I approached the State Board of the Wisconsin Department of Natural Resources to see if the state would purchase the farm as a Historic Park. Surprising even myself, favorable action came. The state appraiser with whom I have been working, sworn to secrecy, cannot even disclose the farm location to others within or outside the department. Much progress regarding purchase has been achieved."

"Since Wisconsin's Amazing Woods—Then and Now has been published, I have been working like mad on a manuscript about ancient man in North America. Not too strangely, my wife and I enjoy ballet, opera, plays, concerts, and circuses. We attend several each season."

Ted Kouba

"Some of us are getting older. Fourteen years in Arizona, I have learned to grow cacti just as well as I used to grow trees."

Jack B. Hogan

"Still enjoying life."

Raymond M. McKinley

"Retired in 1969 after 40 years with the U.S. Forest Service. Continue to be active with travel, photography, gardening and lawn bowling."

Donald R. Ball

"Two items of news here. Last September, I had two complete knee joint replacements (metal and plastic)—no wood! Started playing golf again about the middle of last November, and have been playing 18 holes, two or three times a week, since early January.

"Also, I am busy defending foresters, and Forest Service policy against Robert Redford and other ‘environmentalists.’"

John W. Kulp

"Beginning to zero in on my third retirement."

E. F. Heacox

"Life is pretty good."

Clyde T. Smith

"Iowa Staters continue to do well. Jack Crellin is now supervisor of Carson National Forest here. Evelyn and I go on about as usual. Had a fun trip to South America in the spring. Down the west side, over and up the east side, out at Caracas in Venezuela."

Kurt Ziebarth
'33
"Retired."

Edwin Grau

'34
"I am enjoying retirement among the oaks on the shore of the Mississippi. Cutting fuelwood keeps me in shape and there aren’t many idle days with six grandchildren to cater to."

John W. Hubbard

"Masters degree from SFA University, Texas. Retired from USFS."

Carl H. Stradt

"After leaving the forestry profession (SCS) in 1938 I went back to school at SUI and Columbia and became a librarian. After a few years on the library staffs of CCNY and SUI, I became librarian of the Minnesota & Ontario Paper Co. (later Boise Cascade) for 18½ years. In 1966 I became librarian of the North Central Forest Experiment Station from which I retired on June 30, 1976."

Frederic C. Battell

'35
"Have been retired from the U.S. Forest Service for four and one-half years, during which time I have been employed by a local office machine and supply company."

John I. Christensen

"I retired from Kaiser Cement & Gypsum Corp., St. Helens, Oregon, on November 1, 1977."

Dorsey J. Morris

'36
"As a senior citizen I find great peace-of-mind working with the Red Cross, and civitan and improving on my photography. ISU grads in the BLM Salem District office are Paul Kuhns ’47, Daniel Madson ’48, and Joe Patton ’48."

Vance A. Tribbett

"Does anyone know of our classmate and ROTC, George Dixon, Engineering Department?"

Keith Cranston

"Retired in June and have been taking care of a health problem since. Hope to be back on the trail by the summer of 1978 if all goes well."

Ken C. Compton

'37
"Retired from U.S. Forest Service (1974) to a small town on the eastern shore of Chesapeake Bay. Enjoying the water, fish, crabs, oysters and good hunting."

Clark E. Holscher

"John Wilson, 1938, still in cut-to-size parts, manufacturing rep.—plus importing lumber, etc. from far away places in the Orient.

"Clifford Swanson, 1938, stopped by this summer. He’s retired.

"‘Gus’ Gustine, 1938, advised in Christmas greetings he will be down this way—middle January.

"Wayne Lewison, 1937—retired Rockwell International—New Hampshire doing consulting work for them 2 days per week. Has visited 44 of the 48 states and hopes to cover the last 4 real soon."

Hugo B. Werner

'38
"Now retired. Am interested in many friends and classmates. All are welcome to banana belt Michigan."

Raymond R. Phillips

'39

Norman R. Miller

"I retired from the Santa Fe Railroad on Oct. 1, and the Railway Tie Association presented me with their Branding Hammer Award—allegedly for outstanding contribution to the Tie Industry.

"Right now, I’m a consultant for the Association of American Railways—Wood Ties—in the Fast Track Test Center, Pueblo, Colo."

Lauress C. Collister

"Will retire end of February 1978."

Robert N. Hoskins


Norman R. Miller

'40
"W. M. Brandams and we attended the Peach Bowl which is the first college game that I have seen since Georgia beat Alabama with a flea flicker back when son Danny was on UGA campus. We enjoyed the day, band, crowd of folks from the mid-west, etc. Felt sorry for you folks going back to the “north country.” I am very familiar with the Mason City type winters of the ’30’s. Would have been nice if our half would have been bigger than N.C. States, but that is the way some things work out.

"Chris and I were on the campus for a couple of hours Labor Day. How young the students looked. Don’t think we farm boys were ever so young. Most of us tried to get out of our overalls but they and the fuzzy faces are in your woods as well as ours.

"George, your letter mentioned an award for L. C. Collister, which I am sure is well deserved. Now he writes that he has retired. Bob Hoskins and Gene
Middleswart are doing the same thing this year. Bill Brandau retired from the USFS a couple of years ago. I did not realize that those brush apes were that much older than I when we were on the campus.

"Georgia Pacific and IPC have real woods lady foresters who get to our Savannah Area Forestry Club meetings occasionally."

Vern Cutler

"Retired (from) Iowa State Conservation Commission (in) 1976. Awarded "Frueden Forestry Award" by Iowa Chapter, SAF, 1977."

C. R. Witmer

"Retired from Forest Service in September 1976."

Harold J. Derr

"Still occupied as a Marketing Economist with the Department of Agricultural Economics, NDSU. Part of my job is broadcasting twice daily the North Dakota Grain Market News by toll-free telephone and over 16 North Dakota radio stations."

Donald E. Thomson

"Enjoyed Dr. Thomson's letter very much. The comment about "whittlin' and sniffin' " brought back many happy memories.

"Hal Coons, '32, visits us every summer for a month of salmon fishing.

"Dick Quintus, '39, retired in our area and is busy building a new home.

"October 1976, the class of '39-'41 had a mini-reunion at Lewiston, Idaho. Royce Cox, Henry Schwane, and Louis Schnabel were present."

Louis F. Schnabel

"Still selling lumber at the wholesale level. Celebrating my 29th year in Michigan. Never fail to learn something new each week."

Bill Rice


Kenneth D. Obye

"Retired from Soil Conservation Service May 20, 1977 after almost 32 years as a federal employee. I am presently working for my wife—painting, etc. around the house."

Lloyd M. Patterson

"Last July, I started having some trouble that led to loss of vision and then to a stroke and cardiovascular surgery, but now, after complete recovery, I am starting back to the old grind. It sure will be a happy day for me when I can once again hit the woods in earnest, which seems to be approaching very rapidly."

Howard N. Schmidt

"I retired in 1977 after serving the U.S. Government in one way or another."

Phil D. Grimes

"Saw Vern Cutler '40 at the Peach Bowl. I am supervisor of Union Camp 11 Suwannee Forest—166,000 acres."

Roger W. Merritt

"We had some excitement out here on the Los Padres N.F. on the edge of the continent for three weeks where the Marble Cone fire burnt 175,000 acres last August. Now we are sweating out the flood threat along the Big Sur River from the water shed destruction. Of course, this would have to be an abnormally wet winter after several dry ones.

Dave Velson, an ISU Landscape Arch. grad was one of the fire bosses. Even I got in on the outer edge of things running errands in my trusty-rusty pick-up for the Transportation Department.

Brian Steen, ISU '71, is doing a great job as our USFS fire prevention officer. Maybe some of his good nature can be attributed to his charming new wife, Pat."

Ted Hartman

"I am president of Transworld Trade Technology, Inc., Bahia del Rincon, S.A. de C.V., Inversionismo S.A., and spending much time in Mexico developing resorts and hotels. The U.S. Alpental ski resort was sold last year. Write me a note to Tacoma if you plan a trip to Mexico."

Jerome B. Smith

"I am employed at Wisconsin Valley Improvement Company as Forester and Field Technician. My duties are as follows: Manage 7500 acres of forested company watershed lands, control gates of dams on two reservoirs and one natural lake, take daily reading of weather conditions, reservoir levels and stream flows."

"I also conduct snow surveys in the winter, collect water samples on study lakes and rivers for chemical, physical and biological analysis, conduct company's educational program on water resources and surface water management, manicure 1.75 × 10^23 blades of grass, set up, inspect and administer timber sales on company lands.

"My family and I live on the Wisconsin River at Rainbow Dam (a most ideal situation—George Thomson wanted to trade positions with me last summer)."

Lee A. Andreas

"Fire Management Officer, Tahoe National Forest."

David K. Nelson
"I am on loan from the Forest Service (Dept. of Ag.) to the Bureau of Outdoor Recreation (Dept. of Interior) to assist them in preparation of a National Recreation Plan, due in Congress, Dec. 1978. It is interesting to observe another department after 18 years at all levels with the USFS."

Robert R. Tyrrel

'My present position is Management Analysis, U.S. Forest Service, Ogden, Utah."

James A. Lawrence

"New job—Manager of Governmental and Public Affairs, Western LNG Associates, 700 So. Flower St., Suite 3300, Los Angeles, California."

John R. Torrens

"I operate a business, "Woodland Services," a consulting forestry service for small private ownerships."

Milan M. Miller

"I am a Navy ROTC instructor at the University of Notre Dame. Concurrently working on a masters degree in environmental design."

Bruce G. Koltz

"I have gone into business for myself as Ken Libby Homes, Inc. in the Des Moines area. I specialize in pre-sold and custom built homes."

Ken Libby

"I am presently an Area Educator with the Texas Forest Service in Conroe. My duties include information and education activities, directed toward newspaper, radio, and television media, as well as civic and school groups. Another ISU forestry alumnus, Jim Blott '63, also is employed by the Texas Forest Service in Conroe. Jim is now an Area Forester responsible for a three-district, 15-county area."

Mahlon C. Hammetter

"In the past year I've been promoted to the position of Superintendent of Parks and Planning of the Elmhurst Park District. I've been employed by the district for the last seven years. I've married an ISU alumni, Barbara Vann '73, an Arts School graduate with a major in crafts."

Steve Harrell

"Associate Professor, Forestry, ISU. Have two daughters, Janelle 10, and Christine 5."

Richard B. Hall

"Completed my M.S. in Resources Management at SUNY-CESF, Syracuse, NY. Currently sawmill supervisor for St. Regis Paper Company in Klickitat, Washington."

Charles T. Beatty

"Employed by Weyerhaeuser Company as assistant contract logging supervisor."

Douglas K. West

"I am presently engaged in graduate study at the U. of California-Berkeley, as part of a professional development program in timber management planning sponsored by my employer, the U.S. Forest Service. If all goes well, I will be receiving my M.S. degree this June and will then be going on to a new assignment, hopefully one utilizing my new training.

"I will most likely be returning to the Eastern Region of the Forest Service, although nothing is certain at this time.

"The forestry school here at Berkeley has a very strong undergraduate curriculum, the students are intelligent and serious-minded and will present formidable competition for jobs. However, I have noticed one important weakness on their parts, a rather curious parochialism. The majority of the students here seem to think and act as if the world, as far as they are concerned, ends at the borders of California.

"I believe one of the greatest strengths of Iowa State's program and its students is, and has always been, an open-minded, cosmopolitan viewpoint. Also, its strength in quantitative skills is more important than ever, as is the need for strong communication skills.

"The job market appears to be improving now. Good luck!"

Mark Delfs

'I married Pauline Hardy on October 8, 1977. Her father was in charge of the U.S. Forest Service fire prevention program. We are enjoying married life immensely.

"I graduated from the University of Georgia with my M.S. in Forest Biometrics in August. Concurrently with the masters program, I did consulting work for a private consulting firm and the Georgia State Fish and Game Commission.

"I've started permanent employment with the Northeastern Forest Experiment Station, now in Broomall, Pennsylvania. I work as a research forester with the Resources Evaluation Unit (Forest Survey). I'm responsible for developing a new multi-resource inventory for the Northeast as well as improving the present timber survey."

Chip Scott

After graduation I returned to the Northeast Experimental Station in DuBois, Penn. for another season of timber cruising. During winter quarter I took a few courses at ISU and now have a permanent position at Crown Zellerbach in Centralia, La. If you're ever down for the Mardi Gras stop by.

Carla J. Derby
R. S. BACON VENEER COMPANY

100 South Mannheim Road, Hillside, Illinois 60162
Phone: 312—547—6673

Hubbard Walnut Div., Dubuque, Iowa
Phone: 319 583-9728

BUYERS OF WALNUT Logs, AND OTHER TIMBER

Sliced Hardwood Veneer
Large and complete inventories of all foreign and domestic fine face veneers including our "Treasure Chest" of rare stocks for custom architectural woodwork.

Architectural Paneling—Veneers
Available in Rosewood, Teak, Walnut, Butternut, Pecan, Oak, Cherry, Elm, Birch and many others.

ORIGINATOR OF PANAWALL®—
The Original Grooved Panel With The True Plank Effect

PANAWALL CO. (LTD), KING'S LYNN, ENGLAND
Licensees For Manufacture And Distribution Of Panawall Other Than Western Hemisphere.