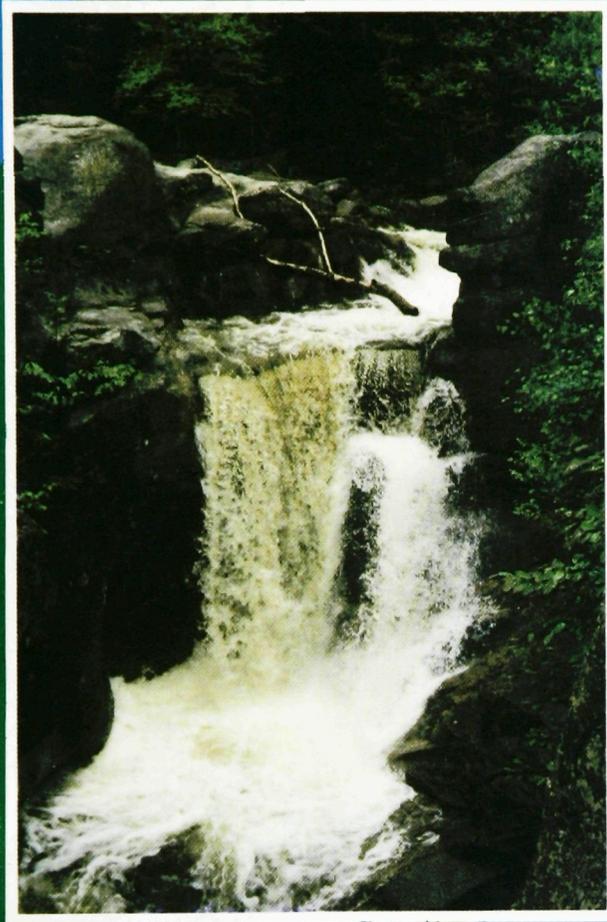


THE MAINE



FORESTER
1990

**TAKING FOREST RESOURCES TECHNOLOGY
INTO THE 1990'S**



Published Annually by
The Students of the
COLLEGE OF FOREST RESOURCES
University of Maine

DEDICATION



Dick Hale, Associate Professor of Wood Technology joined the staff of the School of Forest Resources in 1966. Dick attended Phillips Andover Academy and continued on to receive his B.S. from the University of Maine, with time out to serve as a First Lieutenant in the Armored Infantry in World War II. After receiving his M.F. Degree from Yale in 1948, Dick entered the logging and saw mill business in Maine.

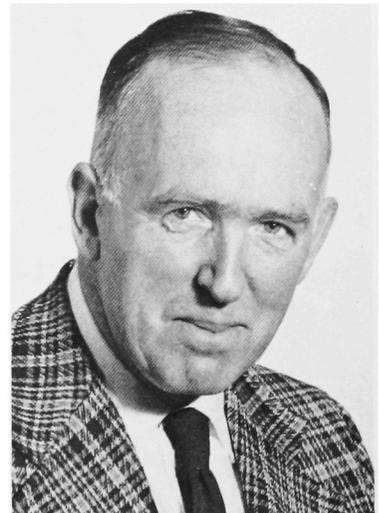
During the years he owned and operated his business, Dick became an expert with the equipment and machines used for timber processing. Following this interest, he became a full time forestry and wood processing consultant in 1958. Many of the innovations and improvements he introduced into Maine mills during these years may still be seen in use today.

Since joining the faculty of the College, professor Hale has taught courses which emphasize the processing, treatment and drying of forest products. While much of his research has reflected his knowledge of our forest resources, he has participated in a host of projects ranging from the marketing of Maine lumber to forest tree improvement. He has been particularly active in the Forest Products Research Society and the New England Kiln Drying Association. No member of the College teaching faculty has devoted more time to the pressing needs of the forest products industry of Maine. No one ever asked what the intent of Dick Hale's research was; the problems were real and the application direct and immediate. Throughout the years, Dick's devotion to the quality of his courses and the professional lives of his students has never faltered. The success of his students, who have served the industry throughout the nation and much of the world, reveal his accomplishments as a teacher and advisor.

Dick has served the college, its students, and the faculty well beyond the time when most faculty retire. His regular participation in the life of the college will be sorely missed.

On the other hand, he talks of consulting opportunities with his colleagues, and his constituents in industry continue to press him for assistance and advice.

Is the past prologue?



GREETINGS FROM THE DEANS

The theme of the 1990 *Maine Forester* requires all of us to take a close look at what we are doing now then use a crystal ball to make a judgement about our expectations for the new decade. This is an interesting and difficult task requiring that we use our imaginations while utilizing the tremendous amount of data available to us to make judgements. We know that natural resources and the environment will receive much attention during the 1990's. Will we as natural resource managers be up to the challenge?

The faculty, staff and students of the College are all involved in attempting to solve resource problems and have received the message of good stewardship in their course work. We hope that every graduate of the Class of 1990 will leave the University committed to the improvement of our environment and the goal of world peace.

As we look forward to the decade of the nineties, we might benefit by a look back at the past decade. Our College of Forest Resources has made significant progress. At the start of the 1980's we were not a College, thus the most significant change came in 1982 when the College was established. Dean Gregory Brown was appointed in 1983 and lead the College with great skill for the next three years. We expanded significantly during those years and added some very fine faculty to the College. The last half of the decade were years of economic expansion and jobs were plentiful for our graduates. The College added several new graduate degrees and student numbers began to increase, especially in the Parks, Recreation and Tourism program.

On the State and national scene, the environmental problems began to receive more and more attention as the decade progressed. We commenced in-depth research on the problem of atmospheric pollution and demanded a reduction in the amount of pollutants in our air. We began to recognize the severe problems that could affect our environment by the loss of ozone in the highest levels of our atmosphere. We came to recognize more clearly the long-term effects of global climate changes and heard predictions of severe losses of our natural resources as a likely result. We became more and more concerned about the environmental problems associated with solid waste disposal and began to pay more attention to removal of toxic materials, plastics, and in recycling. Sometimes these very challenging massive problems make us lose sight of our more common responsibilities for high-quality stewardship and management.

The College has been in an unusually stable situation during this academic year. The faculty has had no one leave and has added no new members. However, as the year comes to an end, two of our faculty will retire. Dr. Benjamin Hoffman will retire at the end of the academic year (May 31) and Professor Richard Hale will leave on June 30. We are beginning the process to obtain replacements for both of them. At the moment, positions are not being filled but we expect to be moving ahead on at least one of these positions by the time this yearbook goes to press.

A visiting team of scientists appointed by the Cooperative State Research Service of the U.S. Department of Agriculture reviewed the research programs of the College during the spring of 1989. This was coupled with a review of the graduate degree programs in forestry and wildlife. The team's research report was complimentary about many aspects of our research including overall productivity, but had some specific comments on areas the team viewed as needing improvement. The reports of the reviewers of the graduate programs were very positive. The undergraduate program in Wildlife Management was also reviewed in 1989 and received high praise from the outside reviewer.

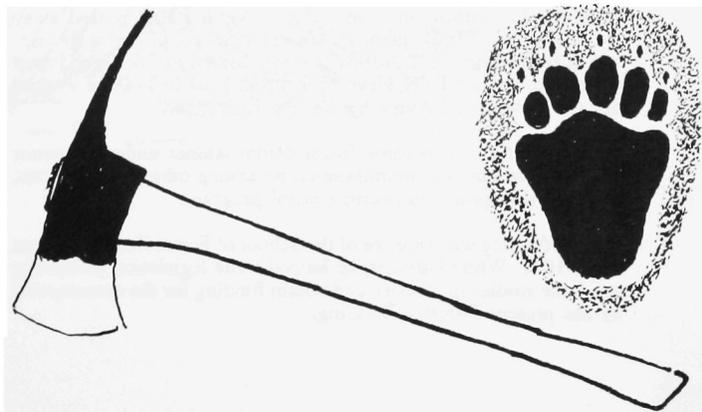
We were provided additional space in ANNEX B located behind the USDA Building. The program in Parks, Recreation and Tourism has been moved into this building. This temporary structure was extensively renovated and the spaces are ample for the program. The move has provided some additional space for the people in Nutting Hall, especially for our graduate students. We are hopeful that a second building will be provided within the next two or three years.

The end of this academic year finds us all scrambling to find ways to reduce expenditures. Income has not met the State's expectations and those receiving State funds are expected to reduce their budgets. We will be able to do so by careful management over the next few years but will be less active in some areas. We will not reduce our emphasis on students and will continue to provide all courses as scheduled in the past. Other states are having similar and often worse problems so continue your efforts in recruiting. Our programs will continue to be superior to the others in the region.

Each of you who graduate in 1990 will have the environmental problems discussed earlier as responsibilities in your jobs. We know you are well prepared to do what is needed in your special area to reduce the impacts on our precious resources. You have demonstrated your skills in many ways and are ready for the future. Jobs may be slightly more difficult to locate in 1990 because of the weakened economy. However, your job is out there and you must be more persistent, more patient, and must work harder to find it. We hope you will leave here with a strong sense of affection for the University and especially for your College. Our wish for you is a lifetime of success in a world where freedom and peace are common characteristics.

Fred B. Knight
Dean

Katherine L. Weber
Assistant Dean





ALBERT D. NUTTING

Albert D. Nutting, the namesake of Nutting Hall passed away on January 7, 1990. He graduated from the School of Forest Resources in 1927. From 1927 to 1931 Nutting worked for the Finch Pruyn Paper Co. in Glen Falls, New York. From 1931 to 1948 he worked for the Extension Service here at the University.

In 1948 Nutting became forest commissioner under Governor Horace Hildreth. As commissioner, he among other contributions, initiated the spruce budworm control program.

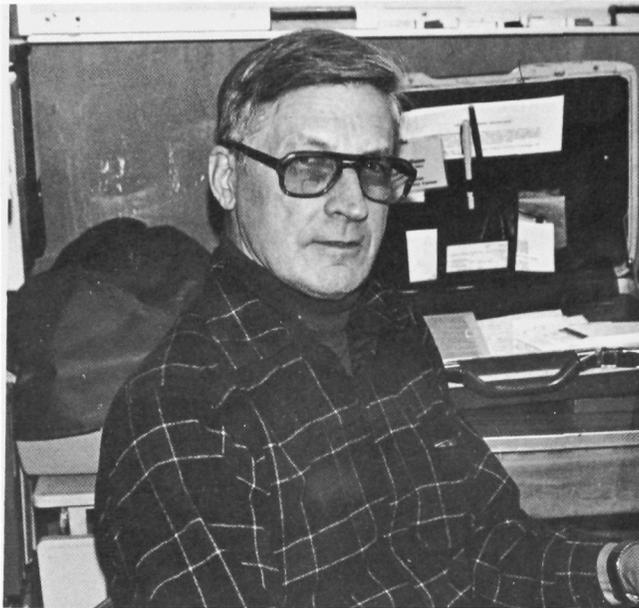
A.D. Nutting was Director of the School of Forest Resources from 1958-1971. While Director, he helped write legislation promoting graduate studies in forestry and obtain funding for the construction of the present Forestry Building.

Nutting was holder of the Black Bear Award given to alumni for outstanding service to the institution. In 1987 he was given an honorary doctorate from the University of Maine. He was former director of the Baxter State Park Authority and The State Parks and Recreation Commission. He received numerous awards on the state, regional, and national levels. He was also a 30-year member of the Bridgeton Academy Board of Trustees.

The students, faculty, staff and alumni will always remember Mr. Nutting for his endless dedication and numerous contributions over the years to the forestry profession. He will be sorely missed.

FACULTY





DR. BENJAMIN F. HOFFMAN, JR.

At the end of this academic year Dr. Benjamin F. Hoffman, Jr. will retire from the University of Maine. Dr. Hoffman has been on the faculty of the College of Forest Resources since 1977. He is a Professor of Forest Resources and Forest Engineering, specializing in timber management, and timber harvesting.

Dr. Hoffman received his B.A. degree from the University of Virginia in 1951, and his M.F. degree in Forest Management from Yale University in 1957. Dr. Hoffman also received his M.Phil. degree in Silviculture from Yale University in 1981, and his Ph.D degree in Harvesting and Timber Management in 1982.

Dr. Hoffman is a Registered Professional Forester, and Registered Land Surveyor. He is a member of the Society of American Foresters. From 1982 until present he served on the Board of Directors of the Northeastern Loggers' Association. Dr. Hoffman has served and been a member of many other Professional organizations.

Some of his non-Academic Professional experiences have been Chief, State Land Management for Vermont from 1971-1977. He also managed a hardwood veneer mill from 1965-1967.

In the past eight years he has had 44 publications, and at the present time he is writing a text book on Harvesting. In 1978-79 Dr. Hoffman received the Distinguished Professor award of Forest Resources.

Mr. Hoffman has been a positive influence on the students of the College of Forest Resources. His presence will be missed, we wish him luck in the future.

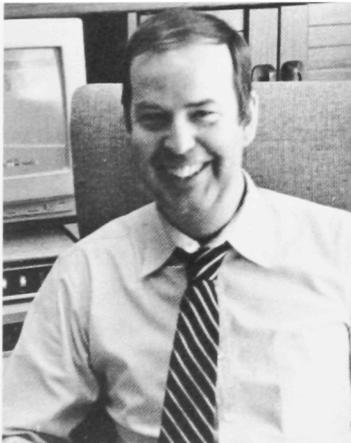
ADMINISTRATION



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Dean
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Cooperating Professor of Entomology
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Forestry, 1949
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Entomology, 1950
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and Forest Mensuration, 1956



KATHERINE L. WEBER
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Coordinator for Professional
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B.S., University of Maine, Forest
Management, 1973
M.F.S., Yale University, Forest
Pathology, 1975
Ph.D., University of Maine, Plant
Sciences 1981
Forest Pathology



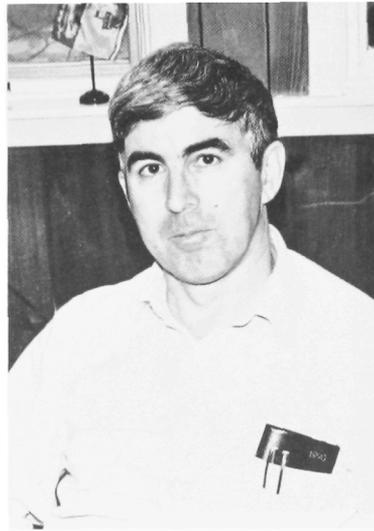
JANICE L. GIFFORD
Assistant to the Dean
for Finance
A.S. ICS Center of Degree Studies
Business Administration 1986

FOREST MANAGEMENT



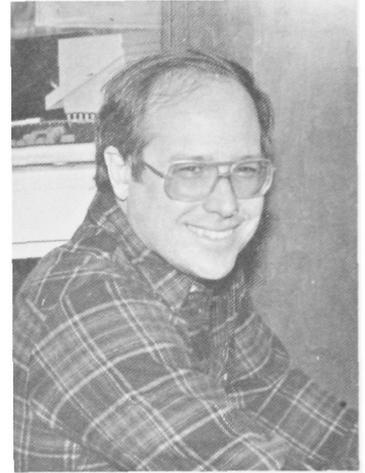
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*Chair, Dept. of Forest Management
Professor of Forest Resources
Professor and Co-Administrator of
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B.S.F., Mich., Technological
University, Forestry, 1955
M.S.F., Purdue University,
Forestry, 1962
Ph.D., Purdue University, Economics,
Industrial Engineering, Statistics, 1962
Engineering Economics*



DAVID B. FIELD

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Ph.D. Purdue University, Forest
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and
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RICHARD A. HALE

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M.F., Yale University, Forestry, 1948
Primary Wood Processing*



JAMES E. SHOTTAFER

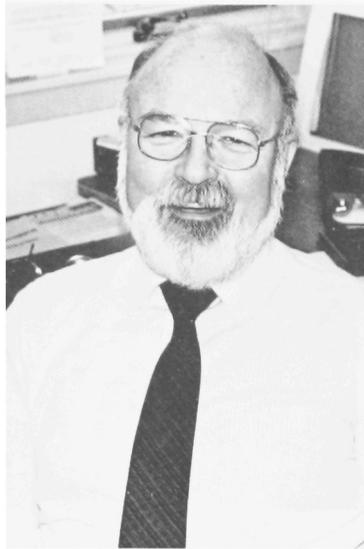
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M.S., State University of New York,
Syracuse, Wood Technology, 1956
Ph.D., Michigan State University,
Wood Science, 1964
Wood Properties and Processing*



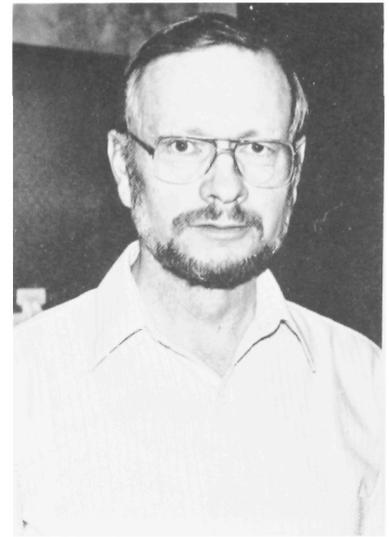
FOREST MANAGEMENT



BENJAMIN F. HOFFMAN, JR.
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Management, 1957
M.Phil., Yale University,
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Ph.D., Yale University, Harvesting, 1982
Timber Management



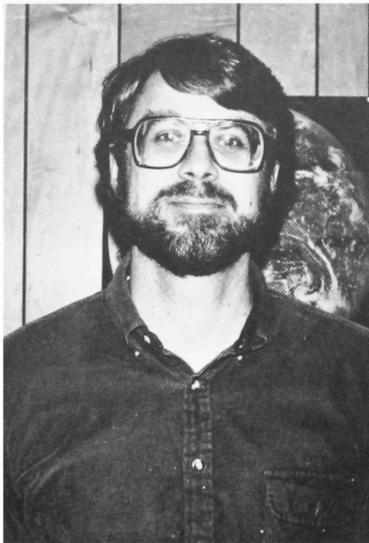
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Forest Economics 1963
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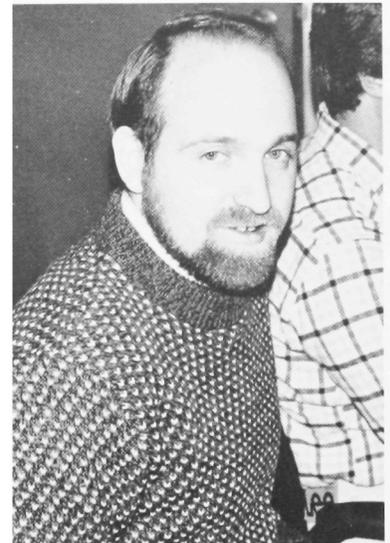
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Ph.D., University of Michigan, Forestry
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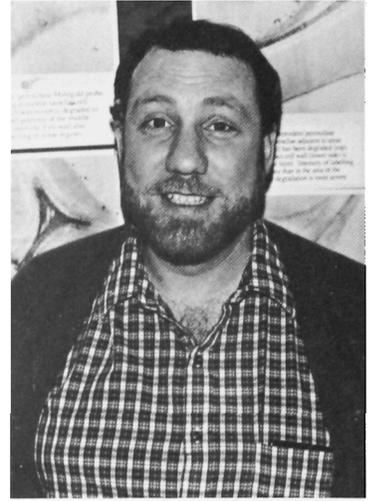
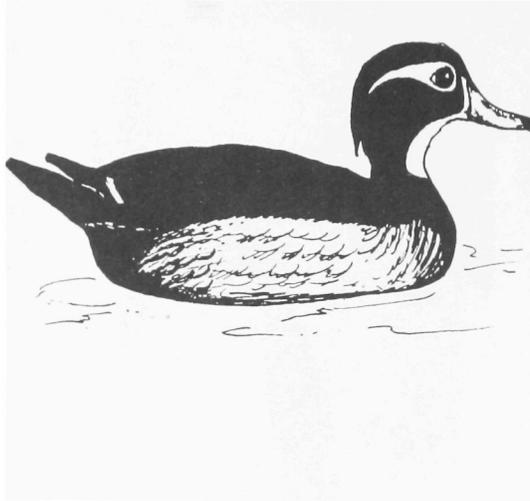


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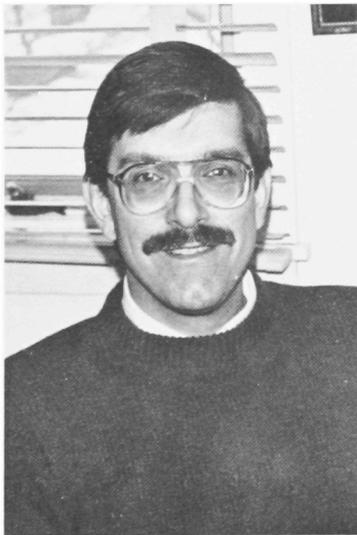
FOREST BIOLOGY



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Ruth Hutchins Professor of
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Professor of Forest Resources
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Tree Physiology



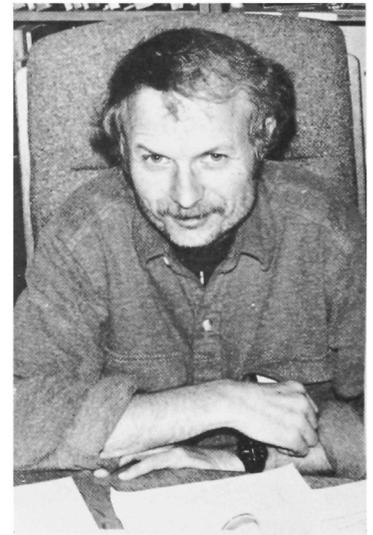
BARRY S. GOODELL
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Botany and Plant Pathology, 1976
M.S., Oregon State University,
Forest Products, 1980
Ph.D., Oregon State University,
Forest Products, 1983
Wood Science and Technology



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Wood Anatomy

RECREATION, PARKS, AND TOURISM PROGRAM



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Botany and Biological Sciences, 1966
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Entomology, 1969
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Wildlife Biology, 1976
Environmental Interpretation*



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B.S., Utah State University,
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Forest Recreation, 1966
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Forestry, 1971
Forest Recreation, Recreation and
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HARRY ZINN

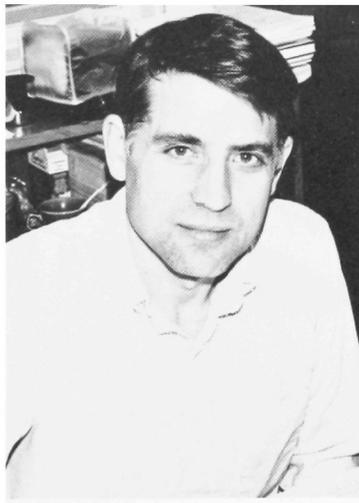
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English, 1970
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THE COOPERATIVE FORESTRY RESEARCH UNIT



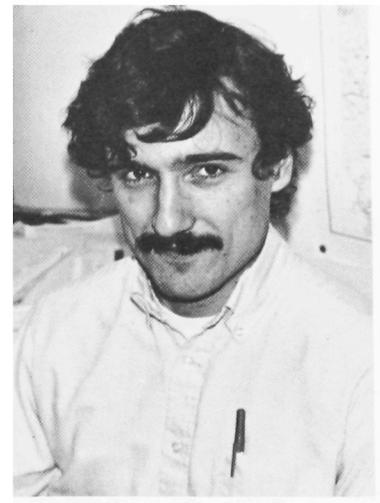
MAXWELL L. McCORMACK, JR.

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Ph.D., University of Idaho, Wildlife
Science, 1974
Population Dynamics



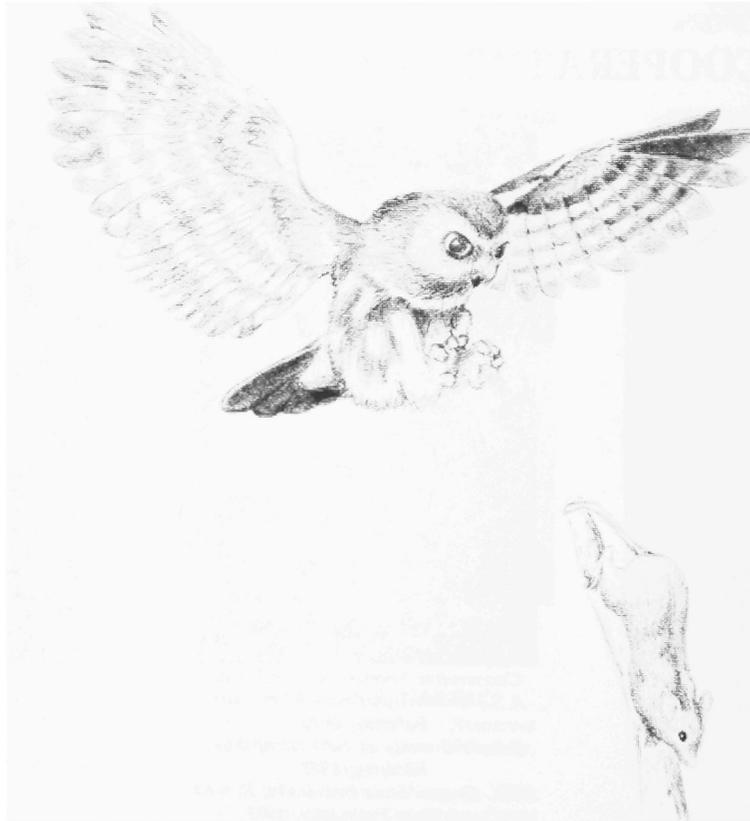
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Wildlife Management 1980
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Ph.D., University of Maine,
Wildlife 1985

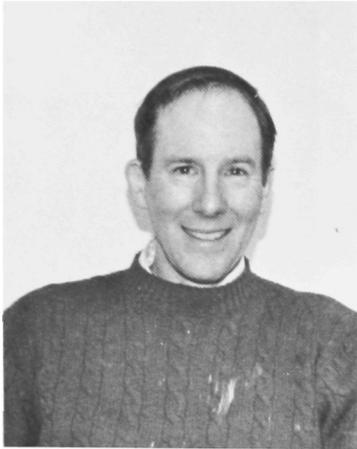


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1978
Wildlife Ecology



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Ph.D., University of Illinois,
Ecology, 1968
Wildlife Ecology*



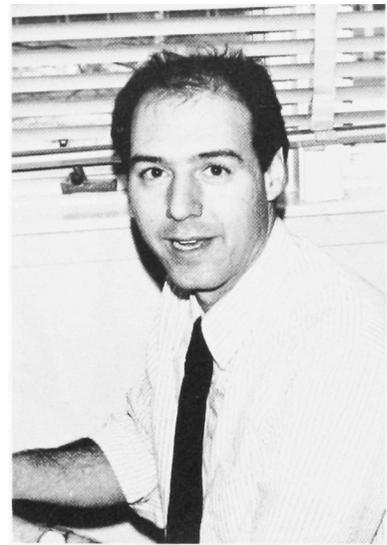
RAYMOND J. O'CONNOR

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Ph.D., Edward Grey Institute for
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Growth and Development of
Nestling Birds*



D. BRAD GRIFFITH

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Ph.D., University of Idaho, Wildlife Resources, 1988*



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and Forestry, Forest Biology, 1979
M.S., Virginia Polytechnic Institute and State
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Ph.D., Virginia Polytechnic Institute and State
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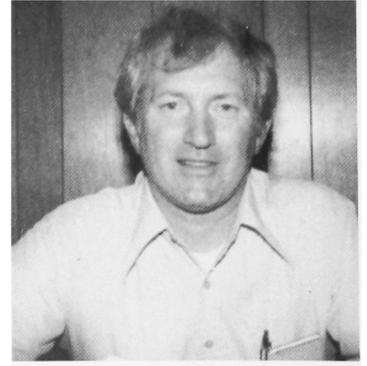
COOPERATIVE EXTENSION SERVICE



BUD BLUMENSTOCK



WILLIAM LILLEY



JAMES PHILIP



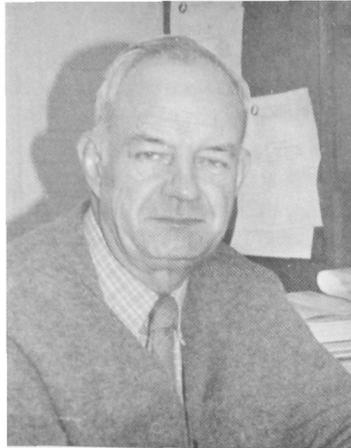
CATHERINE ELLIOTT



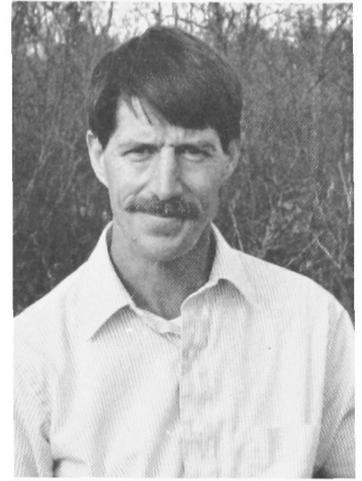
COOPERATING FACULTY



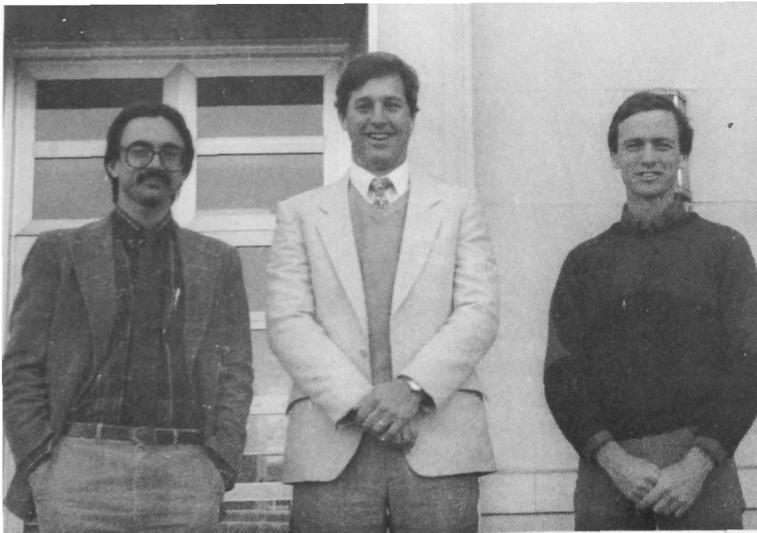
JOHN B. DIMOND
Professor of Entomology



HAROLD GIBBS
*Professor of Animal
and Veterinary Sciences
and Wildlife Resources*



CHRISTOPHER CAMPBELL
*Associate Professor of
Plant Systematics*



IVAN FERNANDEZ
Assistant Professor of Soil Science

WILLIAM LIVINGSTON
Assistant Professor of Forest Pathology

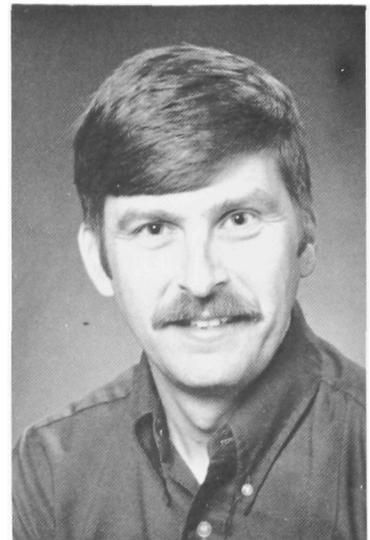
WILLIAM MITCHELL
Associate Professor of Landscape Architecture



WILLIAM B. KROHN
*Leader, Maine Cooperative Fish and
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B.S., University of Alaska,
Wildlife Management, 1968
M.S., University of Maine, Wildlife
Management, 1969
Ph.D., University of Idaho, Wildlife
Science, 1977
Migratory Birds*



HAYDEN SOULE, JR.
*Associate Professor of
Agriculture and Engineering*



THOMAS CHRISTENSEN
*Associate Professor
of Agriculture and Engineering*



NORMAN SMITH
Dean, Engineering and Science



WARREN HEDSTROM
*Associate Professor of
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JODY JELLISON GOODELL
*Assistant Research Professor
B.S., University of New Hampshire,
Botany, 1977
M.S., Oregon State University,
Botany and Plant Pathology, 1980
Ph.D., Oregon State University,
Plant Virology, 1983
Biodegradation of Wood*

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Frank K. Beyer - Associate Professor Emeritus of Forestry
Lewis P. Bissell Extension Forestry Specialist Emeritus
Richard J. Campana Professor Emeritus of Forest Pathology
Malcolm W. Coulter - Professor Emeritus of Wildlife Resources
Edwin L. Giddings - Associate Professor Emeritus of Forest Resources
Ralph H. Griffin Professor Emeritus of Forest Resources
Howard L. Mendall Professor Emeritus of Wildlife Resources
Albert D. Nutting Director Emeritus
Henry A. Plummer Associate Professor Emeritus of Forest Resources
Arthur G. Randall Associate Professor Emeritus of Forest Technology
Roland A. Struchtemeyer Professor Emeritus of Forest Soils
Roger F. Taylor - Forest Superintendent Emeritus
Wallace C. Robbins - Associate Professor Emeritus of Forest Resources
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Michael Coffman, Champion International Corporation
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Hewlette S. Crawford, Research Wildlife Biologist, USFS
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Kenneth Elowe, Maine Inland Fisheries & Wildlife
Robert M. Frank, Research Forester, USFS
David Gimble, Forest Entomologist
Alan Hutchinson, Maine Inland Fisheries & Wildlife
Lloyd C. Irland, The Irland Group
Oliver Larouche, Hirundo Wildlife Refuge
Jerry Longcore, Biologist, U.S. Fish and Wildlife Service
George Matula, Maine Inland Fisheries and Wildlife Department
Thomas B. Saviello, Research Forester, International Paper Co.
Lawrence Safford, Research Forester, USFS
Dale S. Solomon, Research Forester, USFS
Bret P. Vicary, James W. Sewall Co.

STAFF



NUTTING NEWCOMERS



We would like to welcome Louise Bennett, the latest addition to the secretarial staff in the Forest Biology Department. Ms. Bennett brings with her an extensive background. She has worked as a secretary for the FBI; in Australia as an Executive Secretary to the Director of the Windarra Nickel Project; and as a secretary for Hazeltine Corporation (manufacturers of submarine sonar). Louise was a sales rep for MADCO, worked in the mortgage department for Northeastern Savings; as well as a sales and marketing rep for Knapp Shoes; and most recently for Johnson and Johnson and Northrop Corporation's.

Louise enjoys picnicing with her daughter, traveling, walking, hiking, studying cetaceans, birdwatching, knitting and reading mysteries.

New to College and the Dean's office is Sherry Ladd. An Old Town native, she has been working for the University for about 10 years now. Sherry started in the secretarial pool, then went to the Math Department for about 5 years. Now here she is, our latest link to the administration of this wonderful world of Academia. She would really like to get to know us all so stop by if there's anything you need.

Sherry enjoys the outdoors and being active. She does aerobics and enjoys biking, walking, snowshoeing, canoeing and swimming.



ADMINISTRATIVE STAFF



SHERRY LADD



LOUISE BENNETT



LINDA HAWKINS



ELEANOR HEINZ



MARIE ROY



CINDY PASCHAL



DOLORES STONE



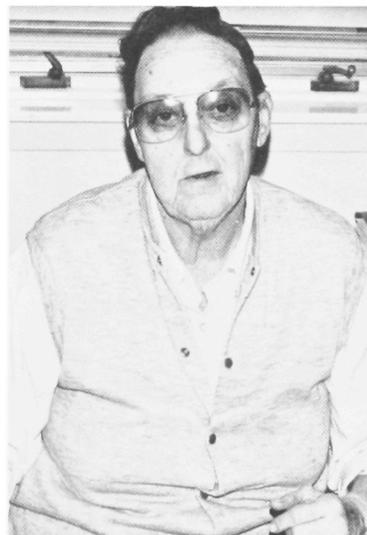
PEGGY SMART



GINA PELLETIER



SHIRLEY MOULTON

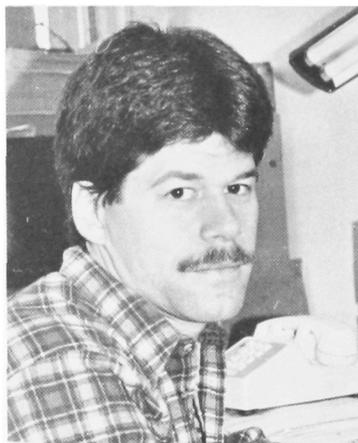


MAXINE HORNE

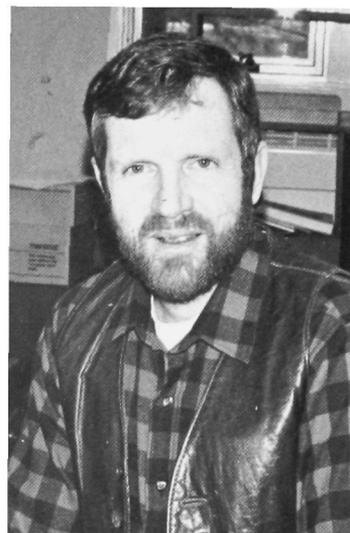
PROFESSIONAL STAFF



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Research Associate



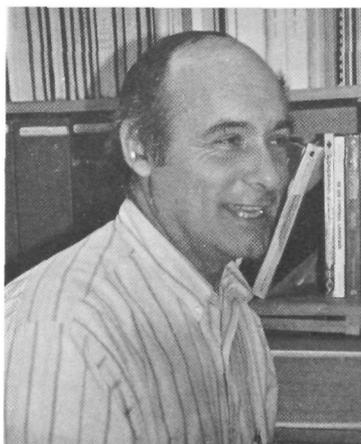
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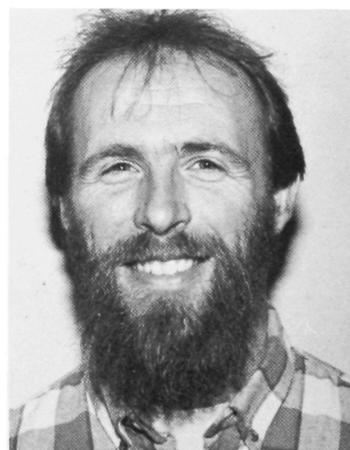
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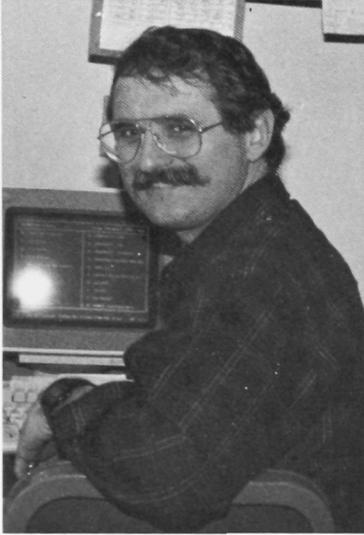


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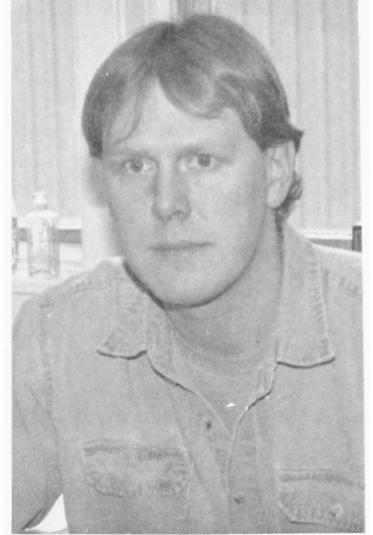
PROFESSIONAL STAFF



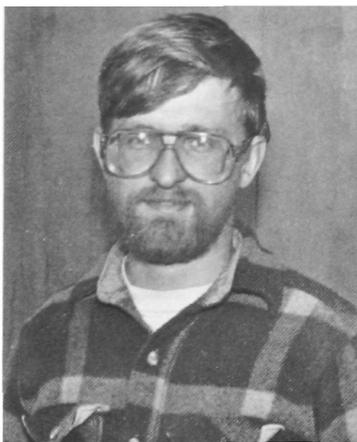
JERRY LONGCORE
U. S. Fish and Wildlife Service



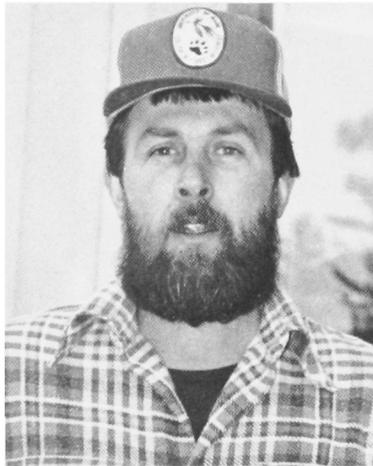
DAN McCAULEY
U. S. Fish and Wildlife Service



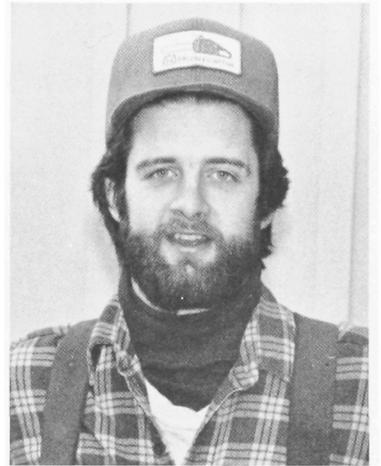
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SUPPORT STAFF



KIM ADLER
TECHNICIAN



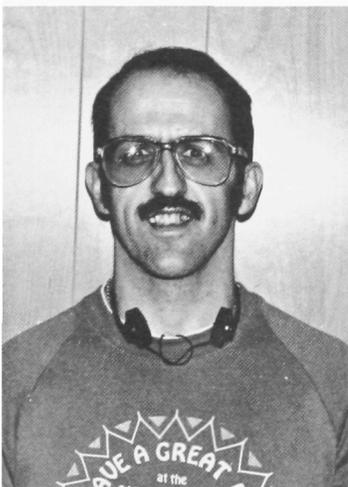
PEIHFANG TSAI
RESEARCH ASSOCIATE



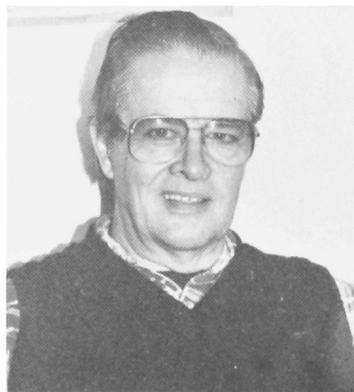
ULMA HOMOLA
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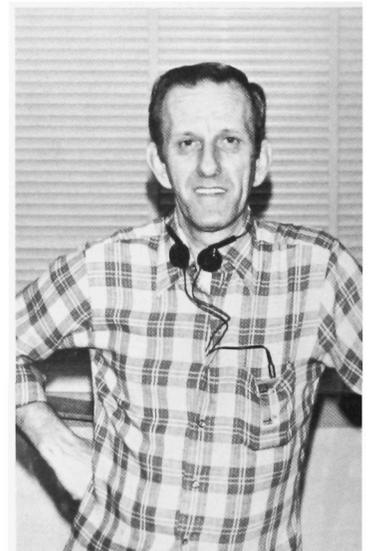
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ARTHUR JOAQUIN



BOB DUBEY

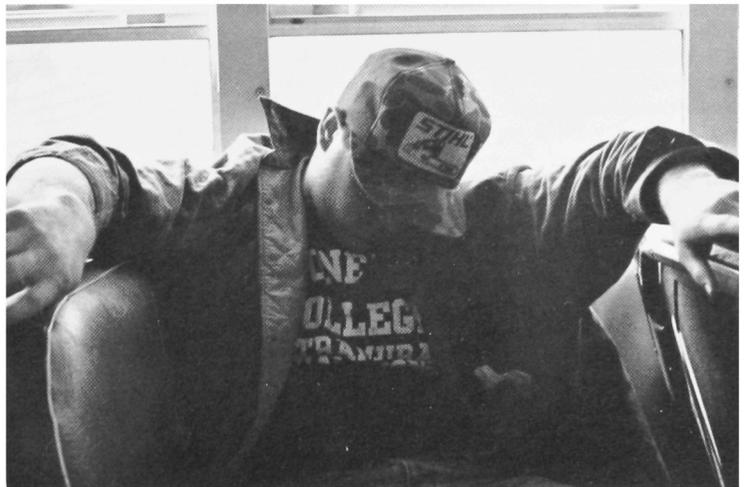


PAUL BERTRAND



ITEM THAT EFFECT
RECOVERY *Press*
Help
where you can!

- * Log DIAMETER
- * Fiber Loss AT Barkers (High Pressure)
- * To Much WASTE AT C/O Saws (New Saws)
- * Embedding AT Slicer (Penny wood)
- * Placement ON Feed chain (Square with)
- * Correct Cuts AT gund Saws (2-4-2 2-6-2
2-4-2 2-6-2
2-4-2 2-6-2)
- * good gund Saws
- * good Thym Sizes WITHOUT SKIP
- * Correct Kere on All Saws
- * Correct Alignment on 45° Edges (Use line)
- * Sorting on green chain (Keep thin)
- * STACKING Square loads
- * Drying good Moisture Content (Reduce)
- * Sorting AT planer (All possible)
- * Trimming Planer & Retain line (Correct Cuts)



FOREST TECHNOLOGY — PAST PRESENT AND FUTURE

By Tom Brann

As any good mensurationist would tell you, one of the best ways to predict stand growth and development for the next ten years is to first examine the growth for the previous ten years.

The 80's produced remarkable technology advances for foresters which can be most easily viewed by examining changes in the forestry education process. On entry to the 80's the super calculators of the 70's were gradually being replaced by personal computers with amazing computational powers. By the mid-1980's it became obvious that the expansion of the capabilities of personal computers was going to dwarf the development rate of the calculators of the 70's. Forward looking people got excited and purchased computer after computer only to find that by the time their latest and greatest system was delivered, the computer companies had generated still a newer and greater system. New terminology entered the forester's everyday life - "user friendly", "Poppy", "RAM", "ROM" - and old terminology took on new meaning - "boot", "Winchester", "restart". For a short time confusion and chaos had many foresters retreating to the woods. There was, as usual, a light at the end of the tunnel which rapidly went super-nova. Everyone began to embrace personal computers as the wonder of the decade. Software packages proliferated the market place overnight. Students turned from debating the "best chainsaw" to debating the "best PC". Foresters now had a tool that could spell for them, process their inventories, balance checkbooks, write checks, dial the telephone, turn on the coffee pot, then there's artificial intelligence. Truly utopia had been discovered hiding in a silicon chip. As always utopia, when discovered, is short lived.

What will become of us in the 90's? One needs only examine the science fiction of the 80's to obtain a glimpse of things yet to come. The important question is how should foresters cope? The education process is going to be put to but another test. Foresters must learn all there is to learn about each wave of technology, but educators and foresters alike must not fall prey to the technology trap. We must embrace the wisdom of the computer experts of the 50's, 60's, and 70's and remember that a computer is only a tool. If we blindly accept everything a computer has to offer, then we become a tool and the computer becomes the "expert". We as foresters are the custodians of the future's environment and we must never knowingly act in a way which will diminish the quality of our trust. Computers can process data, recall facts, follow logical decision trees, and make optimal decisions based on its knowledge. It cannot anticipate the unknown, it cannot dream or imagine the future, it cannot feel joy or remorse for its actions, it cannot instinctively reject conclusions based on its facts, and it does not have to live in the world it creates. It will rust away long before the results of its recommendations are known.

Advice to future foresters is to use their technology to the fullest, but only as a tool. The decision to act and the responsibility for these actions are yours. Do not allow computers to become the "experts" They cannot see the forest beyond the trees.



TAKING OUR KNOWLEDGE OF FOREST RESOURCES TECHNOLOGY INTO THE 1990'S

By Bud Blumenstock & Bob Shepard

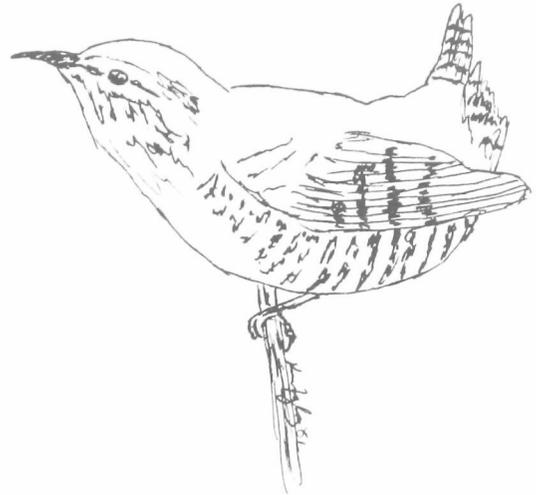
World Deforestation

Technology involves the transfer of knowledge. According to Webster's *Third New International Directory*, technology is "the application of scientific knowledge to practical purposes in a particular field."

Forestry is a practitioner's science, and as we look at future forest resources we should consider the opportunities for transferring and applying knowledge to problems, wherever they exist. Some of the opportunities hold import for the entire world while others are regional or local in scope and importance.

Forest technology will not solve all environmental problems but it can aid in the amelioration of many conditions involving soil, water, climate, tree cover, and of course one of the most obvious, wood product supplies including firewood. We, as foresters, are challenged by the need to take the current state of knowledge and use it in addressing these problems.

One large scale problem the world faces is caused by deforestation. Although deforestation occurs primarily in the tropics, it is also common in some countries outside of the tropics. Reforestation is the obvious key to solving this problem. In Maine the major challenge that we face is ensuring a sufficient wood supply in the future, but other benefits will also accrue from intensive forest management.



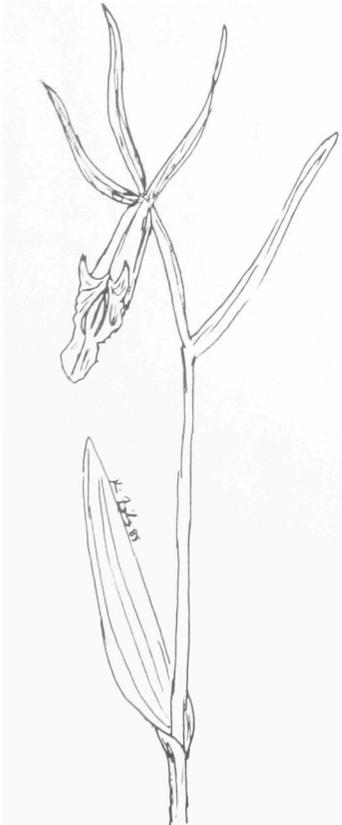
Soil

Following deforestation, the soil on many sites in the tropics and in the sub-tropics quickly reverts to harsh, impoverished conditions. The most desirable trees to reforest such sites should display rapid early growth, require little silvicultural care and be relatively resistant to disease and fire. Basically, what we need might be termed "user friendly" trees.

Trees belonging in the legume family appear to have some "user friendly" characteristics and may be well suited for use in reforestation in tropical conditions. Legumes have the ability to convert nitrogen gas in the soil atmosphere into compounds that can be absorbed by the tree. With this feature, leguminous trees should be planted to grow where available nitrogen in the soil is insufficient to support the rapid growth of other species. In addition, the decomposition of the nitrogen-rich foliage may create favorable conditions for other plant species and become an aid to agricultural farming.

Water

Characteristics of soils in the tropics and sub-tropics are such that drastic reductions in infiltration capacities occur after complete forest removal. The deforestation affects the water cycle in a very negative way. Streams and springs that previously flowed year-round dry up or become intermittent. The severity of floods and erosion is increased because of the very rapid storm runoff. We know that establishing trees on these harsh sites will improve and protect the soil. Soil infiltration capacity will improve, allowing more water to enter the ground and be slowly released. In time, water courses should return to their pre-deforestation flow patterns.



Air

When trees are reestablished on a deforested site they can also aid in the reversal of another effect of loss of tree cover. Trees require carbon dioxide for growth, and as a by-product of photosynthesis, they return oxygen to the atmosphere. Many scientists believe that increased concentrations of carbon dioxide occurring in the atmosphere will lead to a rise in the atmospheric temperature due to a phenomenon known as the "greenhouse effect." Temperature increase would be undesirable for many reasons. Because trees use carbon dioxide and supply oxygen to the atmosphere, reforestation will lessen the potential harm from the "greenhouse effect" by reducing carbon dioxide concentrations.

Windbreaks

Trees also alter normal airflow patterns and are frequently used in windbreaks and shelterbelts. The ability of trees to mechanically change air flow patterns and to modify the microclimate make them valuable allies in the war on advancing deserts and desertification that may occur under some climate regimes following deforestation. Windbreaks provide the additional benefits of soil stabilization and for improved habitat for birds, animals and micro organisms.

Fuelwood

In many countries wood is the only source of fuel for cooking and heating. Yet in many cases, forests have been so severely ravaged that obtaining wood for these purposes has become a major task. By taking advantage of the rapid growth of some legumes, it is possible to grow trees large enough to be cut for personal use within one to two years and perhaps enough to supply small wood-fired power plants. Also, these trees tend to sprout prolifically, thus providing for a continual supply of fuel. These benefits can be obtained at the same time that the trees are helping to combat the "greenhouse effect" and restore or maintain the normal water cycle.

Challenges for Forest Technology in Maine

Here in Maine we are faced with the necessity of growing more wood, with a focus toward ensuring a sufficient future supply of wood for forest industries. We lack species that will grow as rapidly on our sites as some of the legumes do in the tropics and subtropics, and therefore, must apply our knowledge to the task of growing available species faster. Emphasis on growing more volume per acre of spruce and fir and other conifers is necessary if Maine is to remain competitive with other regions over the longer term.

Many acres of the Maine spruce-fir type are understocked and yields will be less than with full stocking. Future yields can be improved through proper attention to natural regeneration at time of harvest and by precommercially thinning that regeneration at the appropriate time.

Optimal stocking of regeneration can be realized by planting or by precommercial thinning, which have the potential to improve future yields on all sites. These practices allow for controlling the species composition of future stands; planting may be the only way to convert a site from one species or group of species to another, such as from hardwoods to softwoods. Planting of genetically improved stock will markedly increase yields over those achievable with seedlings germinated from "wild" seed.

We know that not all sites are equally productive, for reasons related primarily to differences in moisture and nutrients. Intensive management will be directed to the better sites where there are greater opportunities for higher yields. There is an opportunity to improve the nutrient status of some sites by applying a secondary sludge, either municipal or papermill, or ash from a wood-fired boiler. These residuals contain nutrients essential to tree growth, and their disposal through the traditional method of landfilling will be more difficult in the future. Application to forest lands is becoming increasingly common and is expected to improve growth.

Opportunities exist on a global scale and on national, regional, and local scales to apply forest resource technology. As our total environment is being used, manipulated, and exploited, there are myriad challenges and opportunities that must be addressed. Foresters, with technological training are suitably prepared to aid the people and economies of many regions in the solution of some of today's pressing problems.



WOODLAND CARIBOU IN THE NORTH MAINE WOODS

Woodland caribou (*Rangifer tarandus*) once inhabited northern Maine woods less than one hundred years ago. However, caribou numbers rapidly declined in the 1880's as a result of overharvesting, logging practices and range expansion of white tailed deer, which brought with it the lethal brainworm parasite *Parelaphostrongylus tenuis*. As recent as 1908, caribou were seen roaming the area now known as Baxter State Park and even the top of Katahdin. Reintroducing caribou to Maine was first proposed by Governor Percival Baxter. Other state and federal wildlife agencies proposed reintroducing caribou to Maine in subsequent years, but none of these proposals were ever carried through.

In 1963, the Maine Dept. of Inland Fisheries and Wildlife reintroduced 23 woodland caribou in Baxter State Park. However, this attempt failed due to reasons unknown, although, dispersal, brainworm, and illegal killing are thought to be causes. The Maine Caribou Transplant Corporation established in 1986 to determine, once and for all, if caribou could occupy their previous range, now occupied by white-tailed deer. Twenty-seven caribou were captured by Newfoundland wildlife biologists to establish a nursery herd at the University of Maine. The nursery herd grew rapidly over the next two years. In 1989, a remote area of Baxter Park was chosen as the release site, since caribou once abounded in this region of the state. A plentiful food supply, low deer densities, and a low incidence of brainworm were the key factors in choosing the release site. With the approval of the Baxter State Park Authority, caribou were on their way to once again roam the "wilds" of the state of Maine.

On April 4 and 5, 1989 14 caribou were transplanted from the nursery herd at the University of Maine to a temporary enclosure at the release site. Unfortunately, one caribou hyperventilated and died from overexertion, while another died from shock after her femur was broken by a tranquilizing dart. On May 3 all remaining 12 caribou were released into the wild.

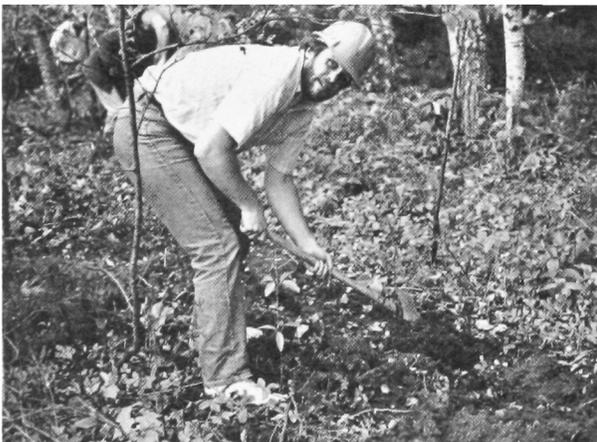
Prior to their release radio collars were fitted to each of the caribou to allow biologists to monitor their movements. Over the course of the summer, information on dispersal, social behavior, habitat use, and survival of the caribou was collected. As with any wild animal, predation is a natural mortality factor. Over the subsequent months, caribou fell to predation by coyotes and black bears. Brainworm and natural injuries were other mortality factors.

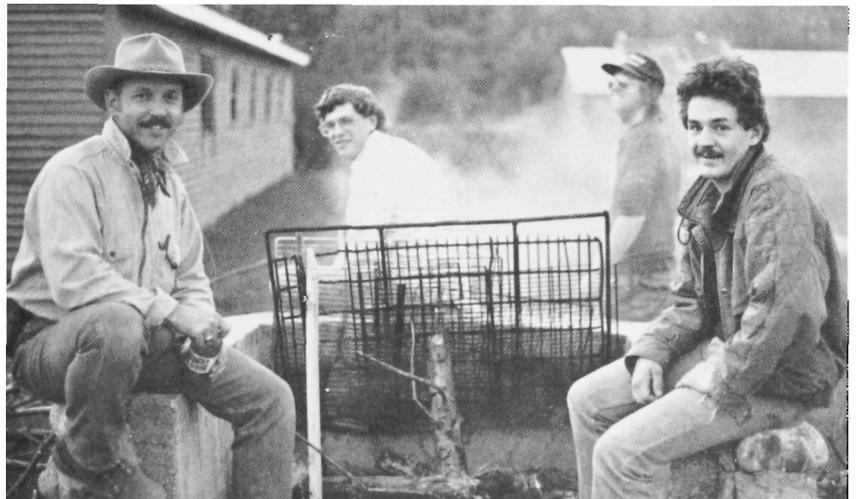
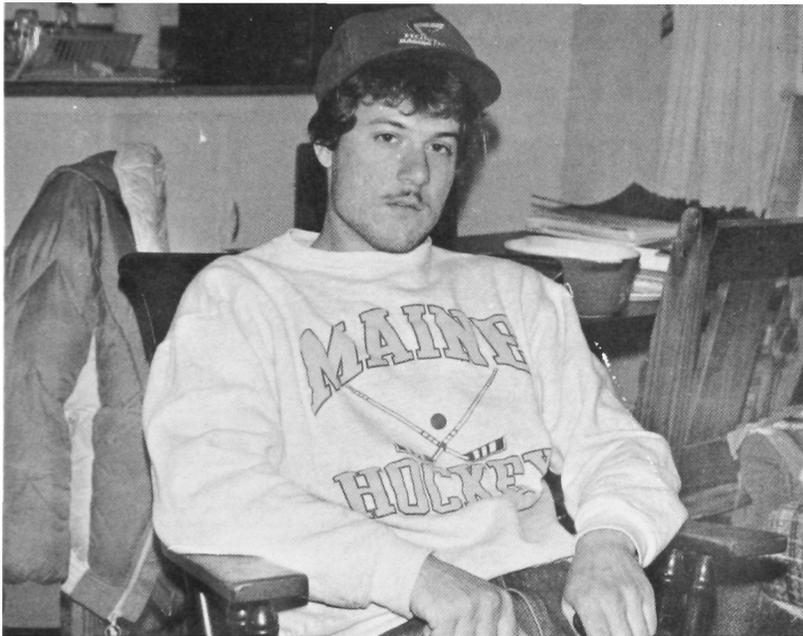
Since twelve of the fourteen caribou transplanted for release, died over the summer, some individuals may see the Caribou Project as a failure. However, optimists would see this project as it is, an experiment. Important knowledge has been collected that will be valuable to groups in several lake states, Minnesota, and Maritime Provinces, who are debating similar reintroduction programs. Scientific knowledge that we have learned from past events, will be applied and used to ensure a more successful release this spring. One must realize that reintroductions take several years to implement and there are many ups and downs along the way. The success of the project will be determined after years of dedication, experience gained from the project's experiments and answering once and for all if caribou can occupy their previous range.

Newfoundland has approved an arrangement with the state of Maine to provide up to twenty-five caribou a year, for the next three years based on yearly reviews of the project's development. Currently, there are plans this spring to release twenty caribou from Newfoundland, with an additional twenty to be released from the university nursery herd. With the knowledge gained for last year and the large number of caribou to be released this spring, caribou biologists are very excited and enthusiastic about the continuation of the experiment that will test once and for all if caribou can occupy their previous range, now occupied by white-tailed deer. We hope that both the public and professionals in the natural resource field, support our efforts. . .

Gerry Hayes







GRADUATE STUDENTS



DAN KUSNIERZ



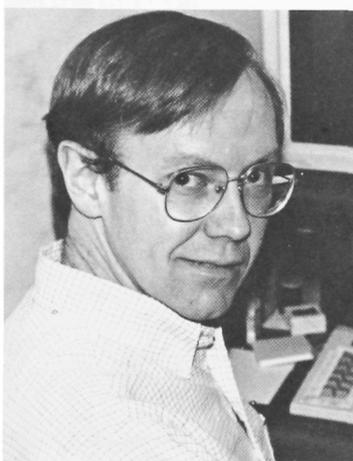
CHRIS WINNE



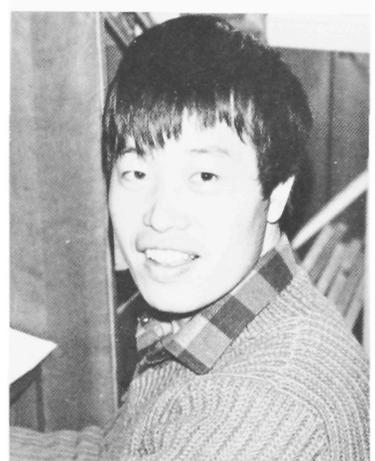
SUSAN HILLS



XIANDONG MENG



BILL BRAGG



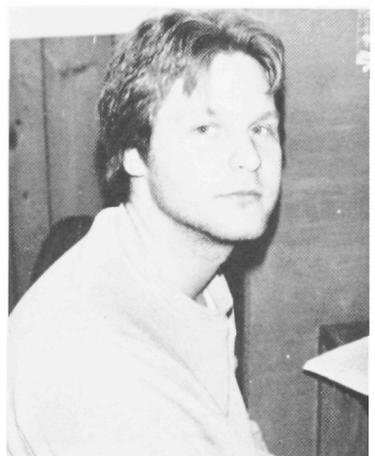
BRIAN BOGACZYK



MARKA SUMMERS



CHRIS VERA



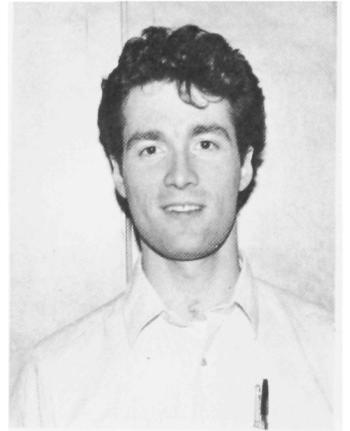
DON KATNIK



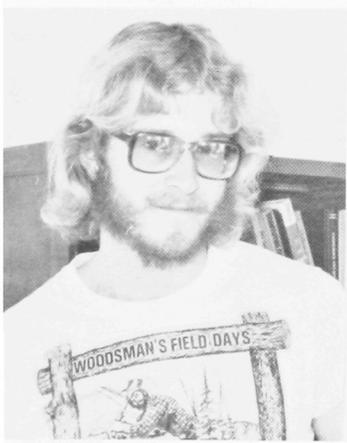
DAN GILLMOUR



JAMES RUDNICKY



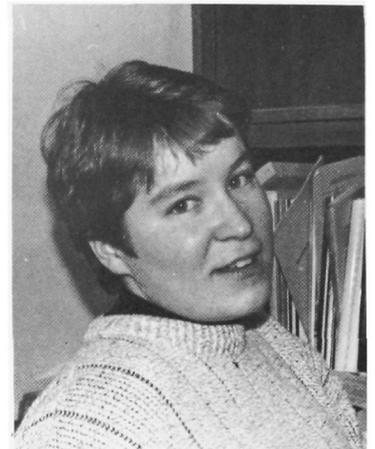
CRAIG MacLEAN



TOM PARAGI



MORTEN MOEHS



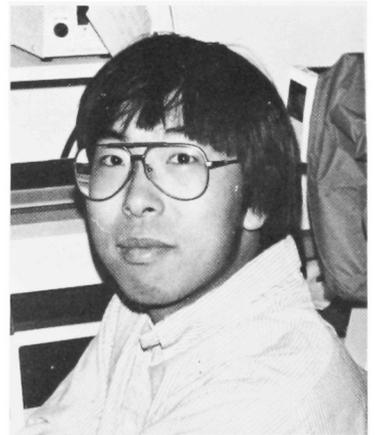
SHARRI VENNO



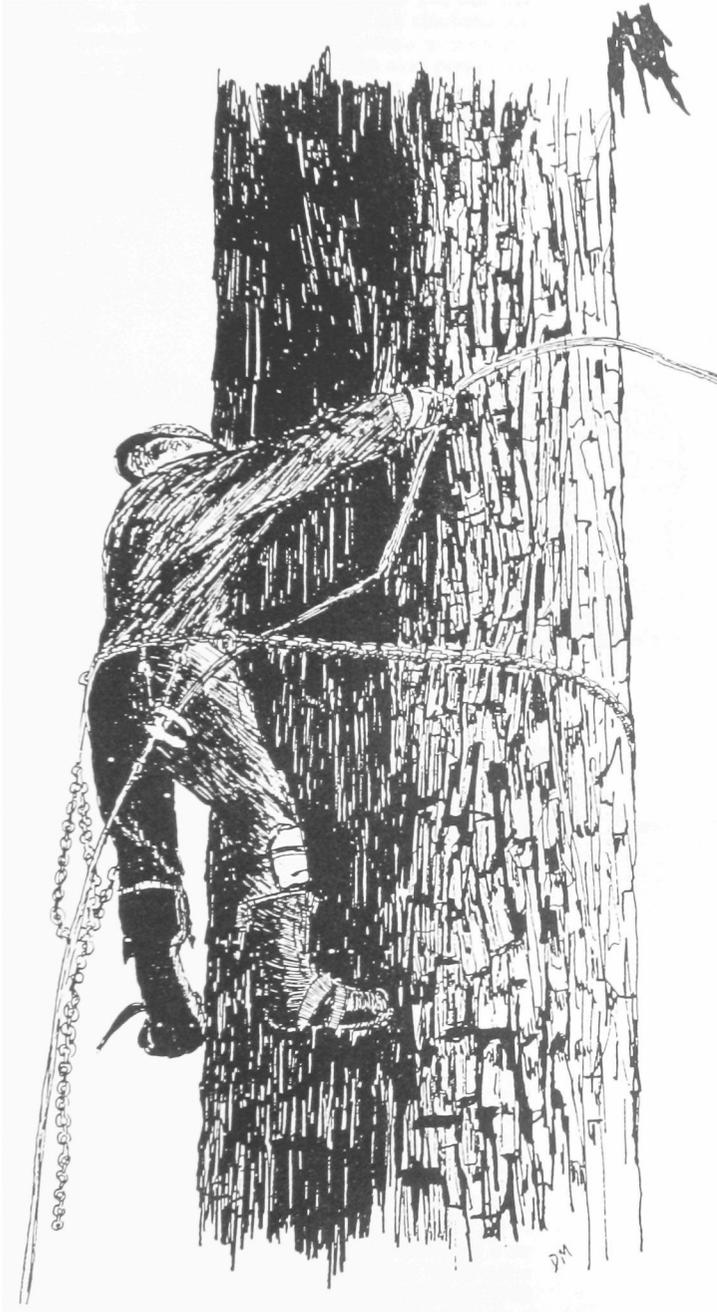
TOM McCALL



MARY ANN FAJVAN



YASVO TAKEMOTO



UNDERGRADUATES

CONGRATULATIONS AND DEDICATIONS

CONGRATULATIONS RUSS !!!

Ma, Dad, Maggie, Timothy, Daniel, Jonathan, David

Congratulations to you, Waldo B. Archer, II! ! We are both proud and happy that you are graduating from college. When you remember that first year or two, we realize you have come a long ways. God bless your life as you encounter one milestone after another. Just continue to "Do your best!"

Mom and Dad

Charles,

This is your time to shine. You always did your best. No one could be more proud of you than we are. The best to you now and in the future. All our love.

Mom, Dad and Leslie

Bill W.,

"May you be strengthened by yesterday's rain, walk straight in tomorrow's wind, and cherish each moment of the sun today."
Congratulations! We are very proud of you.

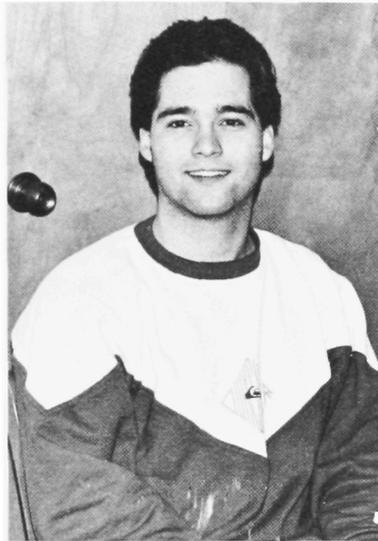
Mom and Dad

SENIOR ARTICLE

Well, it's hard to believe but four years of our life have flown by. It seems like we were freshmen just yesterday. Remember our first day in Nutting Hall? The class was FTY101 and our first encounter with Dean Knight. I'll never forget his charisma and enthusiasm that reassured us as freshmen. He seems to possess a unique aura that we will always remember. The next person that we came into contact with was Louis. For the next four years we would interact with Louis for one reason or another. No longer was he a part of the faculty, but a face and voice we could trust.

Along with our classmates, professors became our friends and mentors. We'll always remember Dean Knight, Louis, Hale, Shot-tafter, White, Bragg, Murdoch, Field, Kimball, and the rest of the professors and faculty that influenced our lives. They would help with problems involving school, but also took the time to help us with problems outside of the classroom. Whether it was a cheery "hello" as we passed them in the hall or a joke they wanted to share with us, the class of 1990 thanks all of the professors for their time and effort. Let's not forget the secretaries for some of the things they had to put up with. All of you will certainly be missed!

19



90

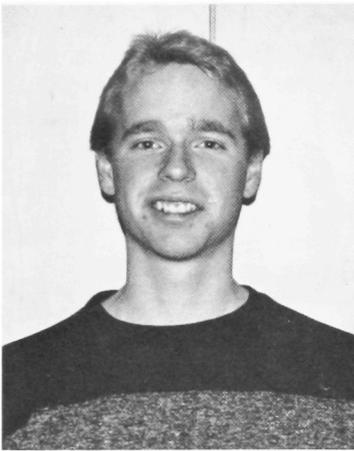
As we pushed on, the basic classes such as Chemistry and Math were weeded out of our curriculum. More and more we were becoming familiar faces in Nutting. Not only to fellow classmates, but to faculty and staff. Our courage would build and the formation of lasting friendships would soon develop.

The class of 1990 began to form as a family. The "Holy" crew, as Hale puts it, was formed with Jake and Elwood, Chinwester, Wild Bill, George, Ernie, Studer, and Settle. Others joined our family from different schools like Vivian, Trish, and Grateful Fred. We'll never forget Bill J., Jeff M., Chick C. and the rest of the class of 1990 for all of their contributions. We were handed down the rumors of the upcoming forestry classes from our superiors like older brothers or sisters hand down to their younger siblings. How can we ever forget classes like Inventory, Forest Economics, Silviculture, and Finance just to name a few. We would find some of the rumors to be true and appreciated them graciously knowing that these classes were an essential tool for our future.

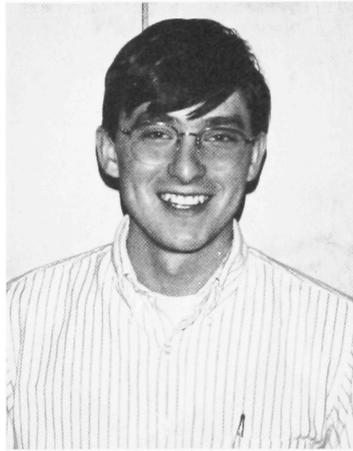
Finally, the four years of our college career have come to an end. Some of us will continue with our education and others will begin their life with the working force. Although this is a sad ending, remember all of the good times and the friends that you've made. Yes, it is the end of an important part of our life but it is also a beginning of another facet of our life. So I bid you farewell class of 1990. May you all succeed and fulfill your dreams.

Charles D. Gaura

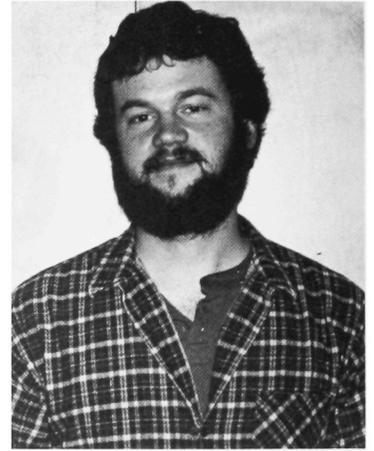
CLASS OF 1990



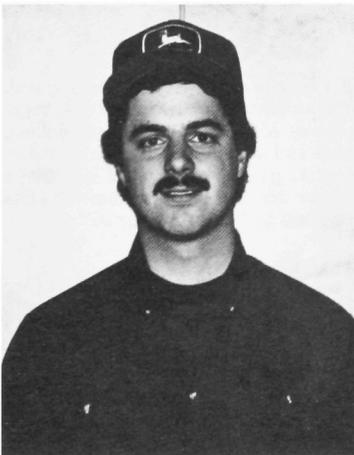
Douglas Ahl
Bristol, CT.
Forest Management



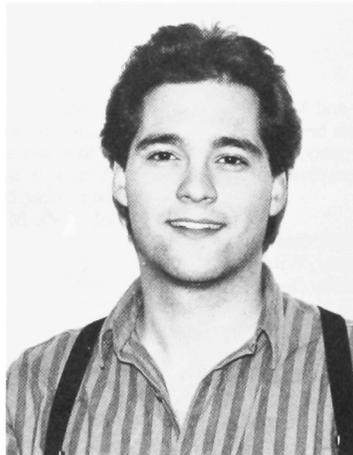
Peter Forester
Wyomissing, PA
Forest Business



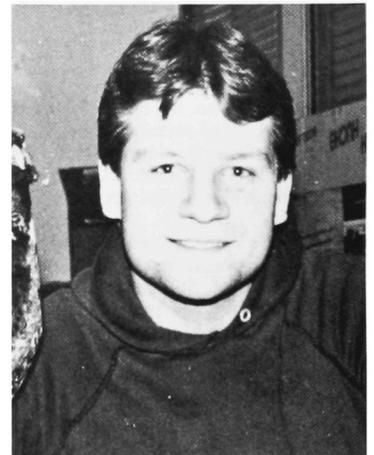
Gregory Frohn
Stillwater, ME
Timber Utilization



Gregory Fuller
Cumberland Ctr., ME
Timber Utilization



Charles Gaura
Pleasant Valley, CT
Timber Utilization



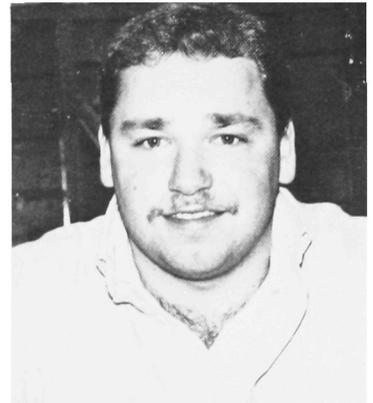
David Gouveia
Hanover, ME
Wildlife



Bryan Hardison
Seneca Falls, NY
Forest Management



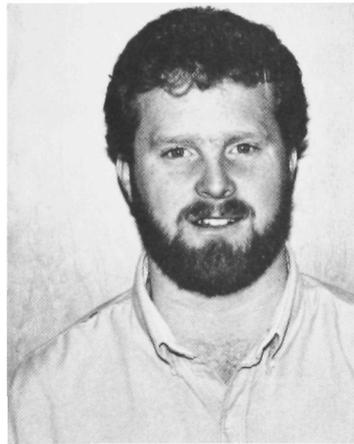
Patricia Heppner
West Hartford, CT
Forest Management



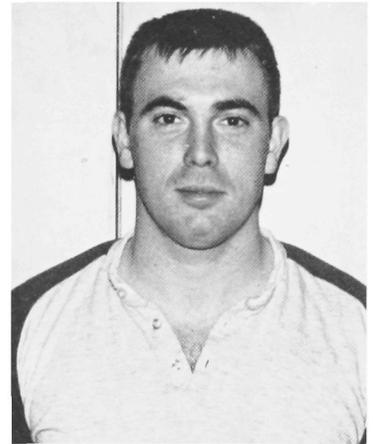
Jordon Hesbacher
Philadelphia, PA
Wildlife



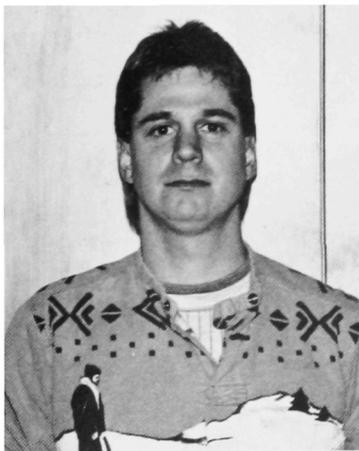
William Jewell
Old Town, ME
Forest Management



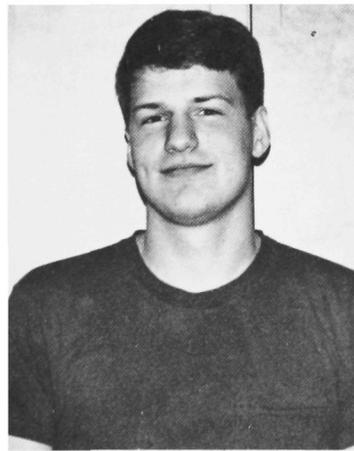
George Meyer
Kingsley, PA
Timber Utilization



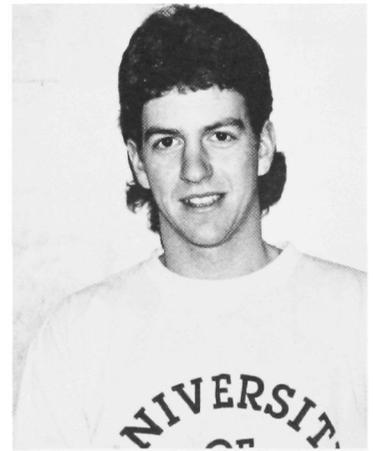
Blaine Miller
Anson, ME
Forest Management



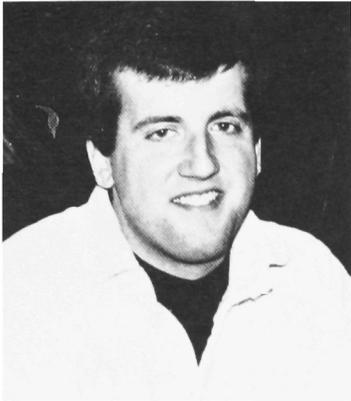
Thomas Pelletier
Milford, ME
Forest Management



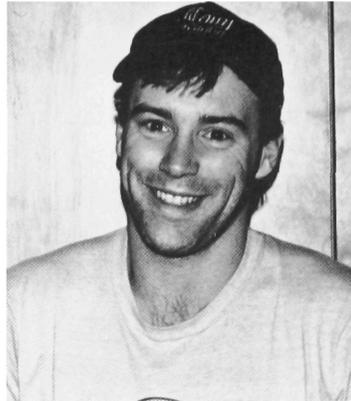
Michael Quinn
Tuxedo, NY
Forest Management



Stephen Richardson
Orrington, ME
Forestry & Wildlife



Michael Risinit
Rye, NY
Wildlife



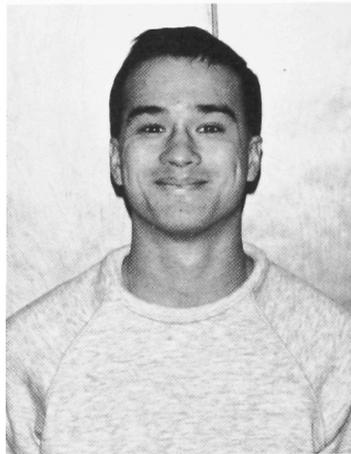
Douglas Settele
Greenwich, CT
Timber Utilization



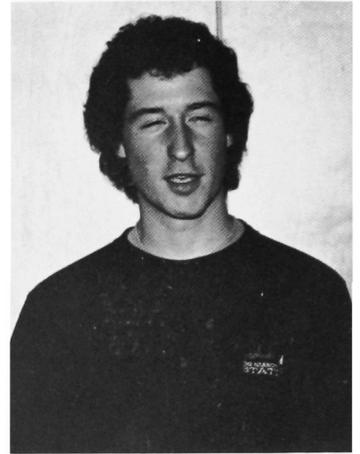
James Sheehan, Jr.
Braintree, MA
Wildlife



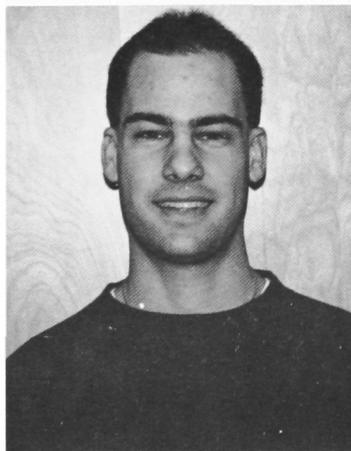
Karl Stuart
Clinton, CT
Forest Management



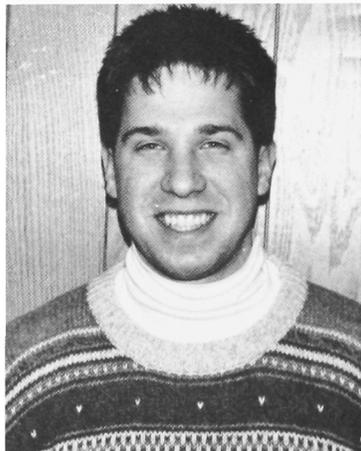
Andrew Torelli
Riverside, CT
Forest Business



Jeffrey Vickers
Costigan, ME
Forest Management



Alec Vincitorlo
Waterbury, CT
Forest Management



William Winchester
Barkhamsted, CT
Timber Utilization

*Best Wishes
To The
Class of 1990*

JUNIORS



B. Anstett, K. Forlier, R. Brown, J. Schultz, M. Jurgiewich, S. Bodkin, R. Thibodeau, J. MacLaren-Touissant, D. Russel, T. Gamron, R. Oaks, P. Ivey, C. Liros



J. Begulieu, J. Grustas, J. Gunn, S. Pierce, A. Mechau, S. Crowley, K. McGrody, G. Bock, J. Maier, S. O'Conner, M. Moehs

SECOND YEAR TECHNICIANS



P. Hachey, S. Johnson, T. Knight, R. Dionne, T. Anderson, M. Wahl, T. Roy, A. Meister,
J. McBreen, J. Curler, J. Nichols, R. Anderson

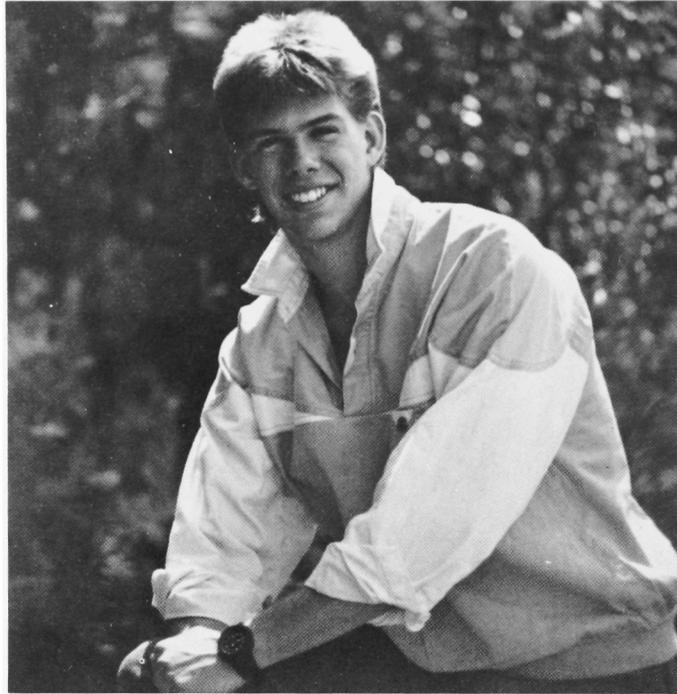


SOPHOMORES



Front Row: J. Pine, P. Taylor, D. Maxsimic, C. Conrad, B. Cunningham, K. Yankus, J. Lindburg,
J. Morin, C. Beebe, C. Nealy, M. Maines, J. Dion

IN MEMORY OF DAVID KEENE



In November of 1989 our friend Dave Keene was killed in the path of a drunk driver. He had no idea of what was about to happen nor of what had happened. We all miss Dave very much.

Although some did not know Dave as well as many others did, he was part of all of our lives for a time. He brought many smiles to our faces during that time, for this he will always be very special. He was very smart and made lab an enjoyable time. We cannot believe he is gone. We thought we would come back from break and everything would be the same. Well, surprise, Dave will no longer be with us as we learn our forestry, wildlife, chem., bio., and more. He will no longer laugh with us on our crazy bus trips to lab. He will no longer do any of these things nor will he have the chance to experience all there is left for an 18 year old to experience.

It is hard to understand why things like this happen. Perhaps we never will as long as we are humans on this earth. There must be a reason, but for now it is simply inconveivable to comprehend something of this magnitude. Dave does know the reason now, and he is happy and at peace now. This brings much comfort to our hearts.

The Freshman Class