PROFESSORS EMERITUS

Chester F. Banasiak Associate Research Professor Emeritus of Wildlife
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
Harold E. Young Professor Emeritus of Forest Resources

FACULTY ASSOCIATES

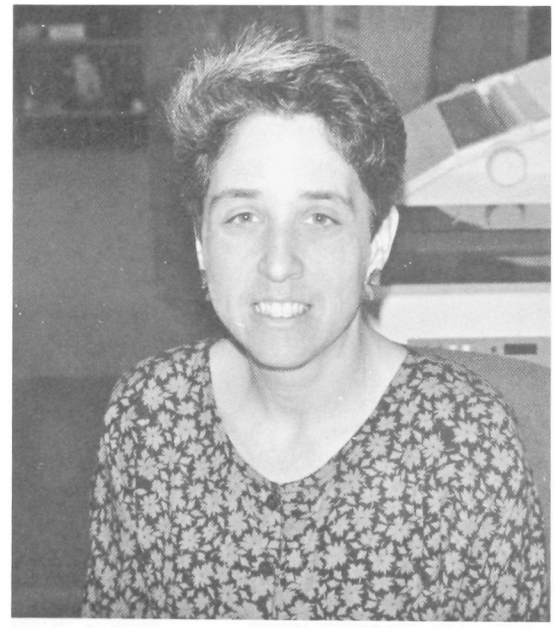
Barton M. Blum, Project Leader, USFS
Michael Coffman, Champion International Corporation
Patrick Corr, Maine Inland Fisheries and Wildlife Department
Hewlette S. Crawford, Research Wildlife Biologist, USFS
Richard Dressler, Maine Inland Fisheries & Wildlife
Kenneth Elowe, Maine Inland Fisheries & Wildlife
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 lastest 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 Academeia. 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

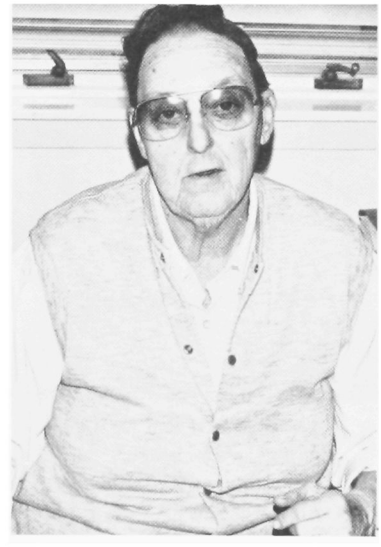
CINDY PASCHAL

DOLORES STONE

PEGGY SMART

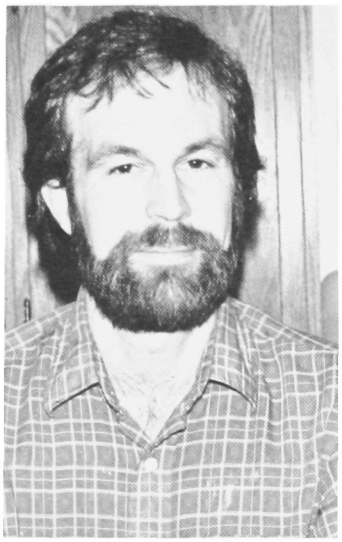
GINA PELLETIER

SHIRLEY MOULTON

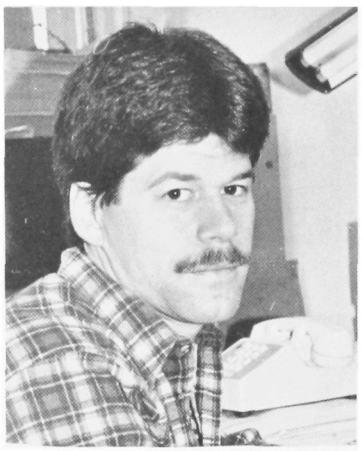


MAXINE HORNE

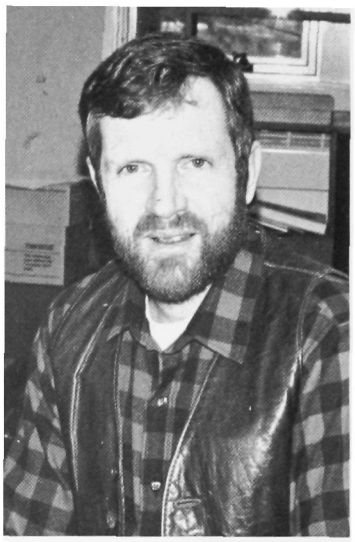
PROFESSIONAL STAFF



JONATHAN CARLISLE
Research Associate

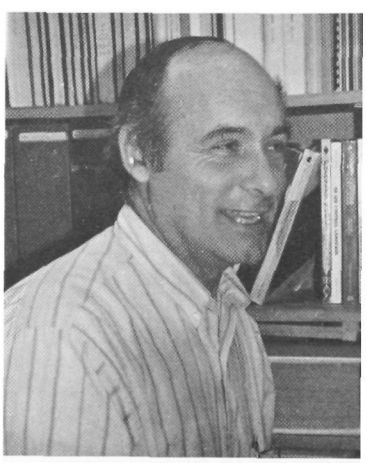


RONALD LEMIN
Research Associate

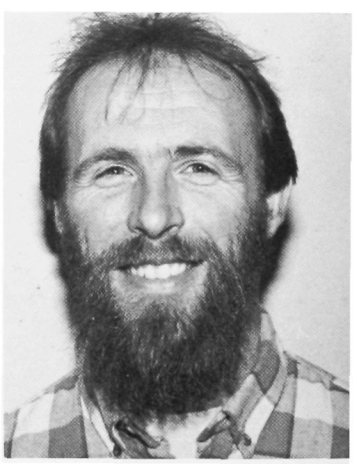


R.A.LAUTENSCHLAGER
Research Associate

JILL WEBER
Research Associate

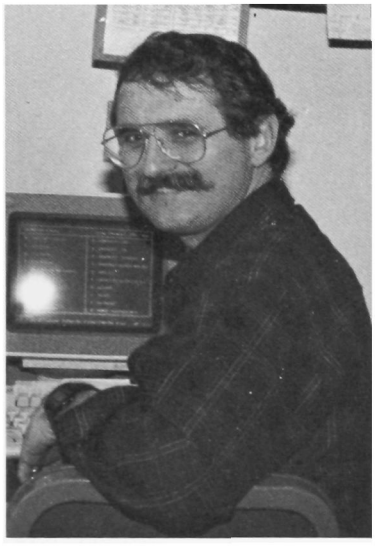


PETER CARON
Research Associate

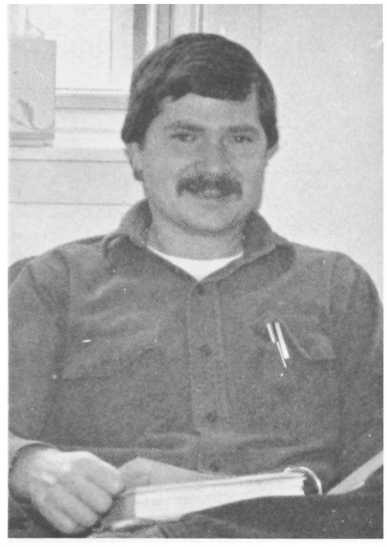


JACK WITHAM
Research Associate

PROFESSIONAL STAFF

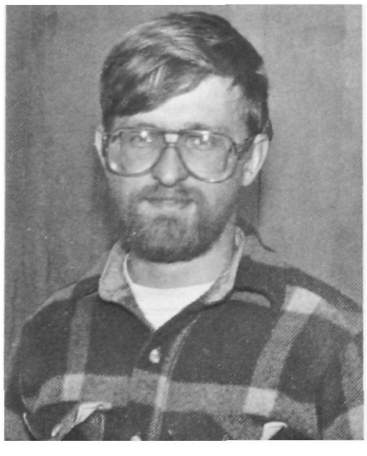


JERRY LONGCORE
U. S. Fish and Wildlife Service

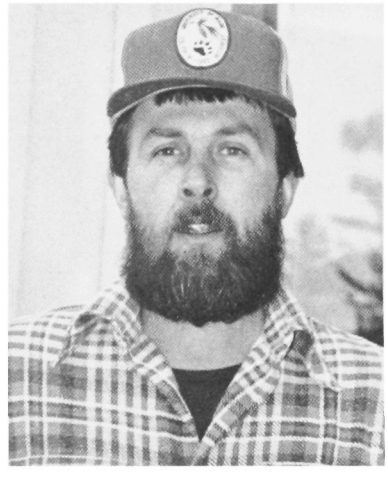


DAN McCAULEY
U. S. Fish and Wildlife Service

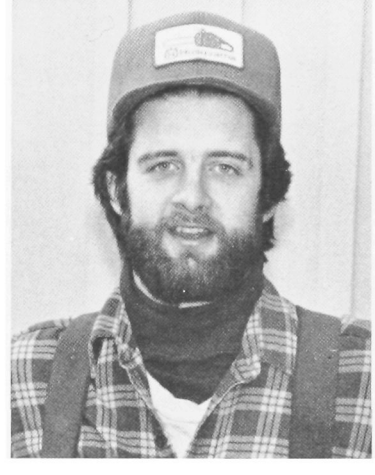
THOMAS P. HODGMAN
Research Associate
B. S. Unity College, Environmental Science Wildlife Management, 1985,
M.S., Washington State University Forestry and Range Management, 1988



MARK McCOLLOUGH
Caribou Project Leader

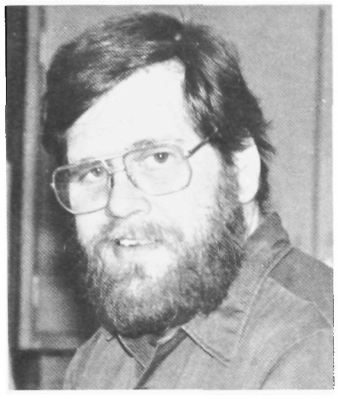


CHUCK SIMPSON
Forest Superintendent



STEPHEN FOLLETTE
Scientific Technician
University Forest

SUPPORT STAFF

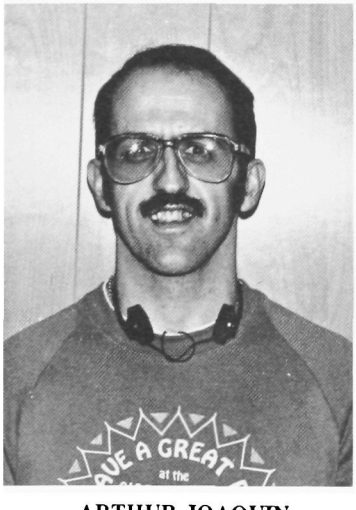


KIM ADLER
TECHNICIAN

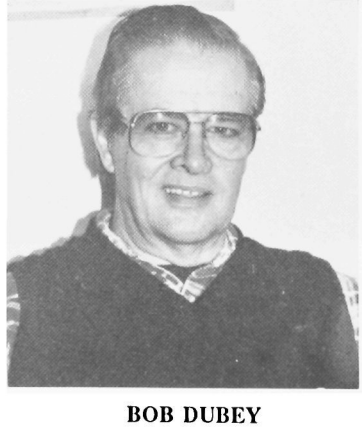
PEIHFANG TSAI
RESEARCH ASSOCIATE

ULMA HOMOLA
RESEARCH ASSOCIATE

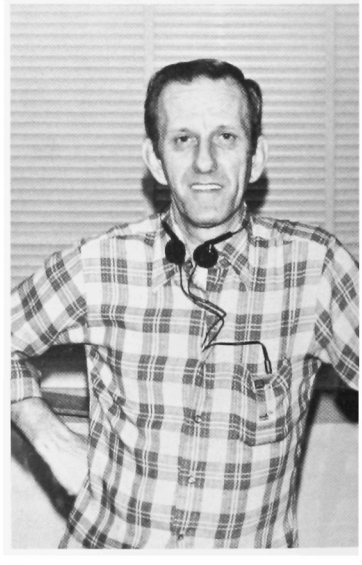
SUSAN SERREZE
REASERCH ASSISTANT



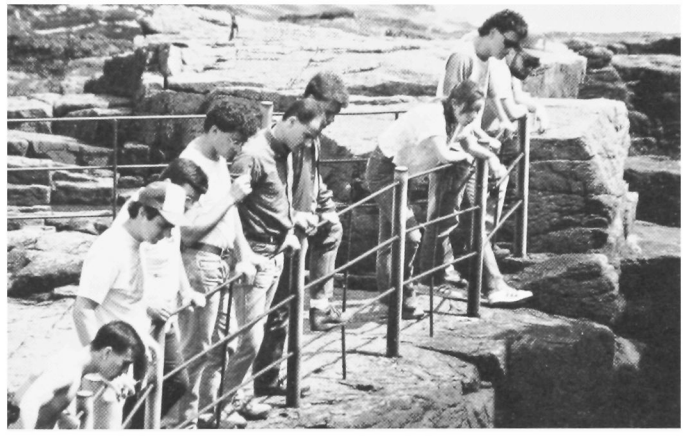
ARTHUR JOAQUIN

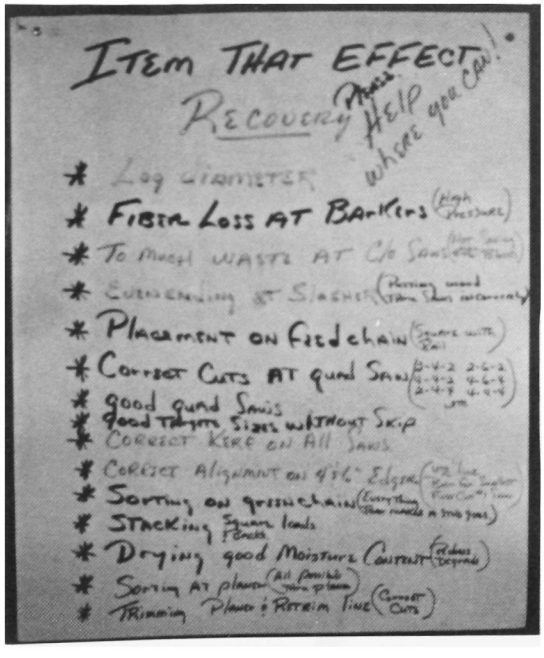


BOB DUBEY



PAUL BERTRAND




ITEM THAT EFFECT
RECOVERY
Please HELP where you can!
Log DIAMETER
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PLACEMENT ON FEEDCHAIN
CORRECT CUTS AT QUAD SAWS
good QUAD SAWS
good TOPPER SIZES WITHOUT SKIP
CORRECT KERF ON ALL SAWS
CORRECT ALIGNMENT on 4'6" Edger
SORTING on GREENCHAINS
STACKING
DRYING good MOISTURE CONTENT
SORTING AT planer
TRIMMING PLANER & PATTERN TIME


STIHL

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', "floppy", "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 unkown, 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

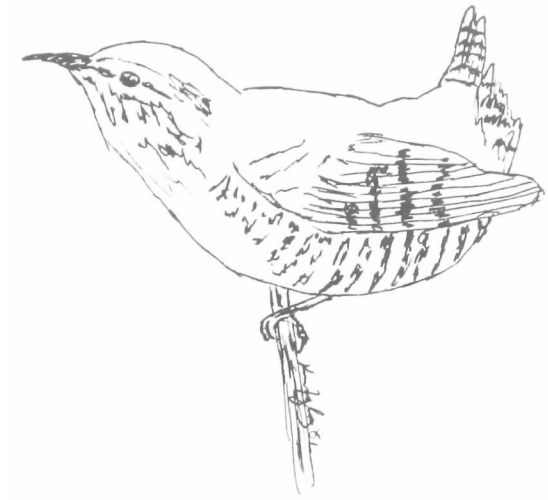
Technology involves the transfer of knowledge. According to Webster's **Third New International Directory,** technology is "the application of scientific knowledge to practical purposes in a particular field."

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.

World Deforestation



Soil

Following deforestation, the soil on many sites in the tropics and in the sub-tropics quickly reverts to harsh, improverished conditions. The most desireable 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 beocme 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.

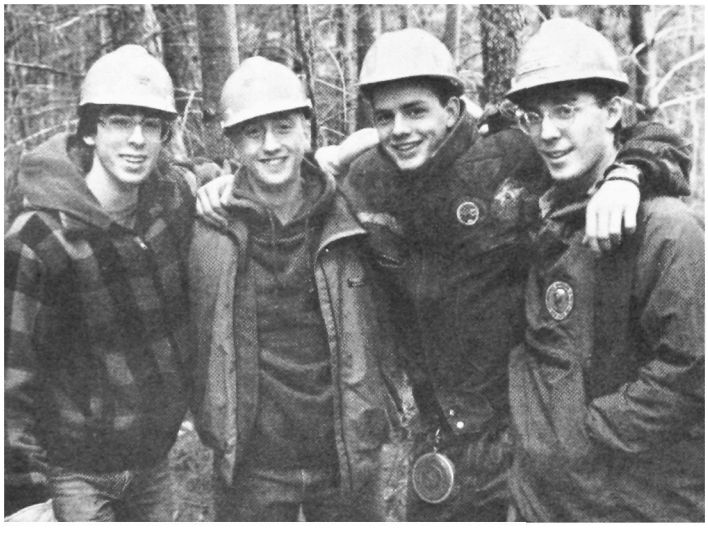
On April 4 and 5, 1989 14 caribou were transplanted from the nursery herd at the University of Maine to a temporary enclosure at the release site. Unfortunately, one caribou hyperventilated and died from overexertion, while another died from shock after her femer was broken by a tranquilizing dart. On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

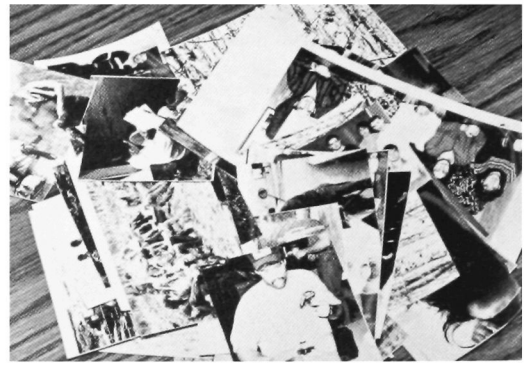
Prior to their release radio collars were fitted to each of the caribou to allow biologists to monitor their movements. Over the course of the summer, information on dispersal, social behavior, habitat use, and survival of the caribou was collected. As with any wild animal, predation is a natural mortality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

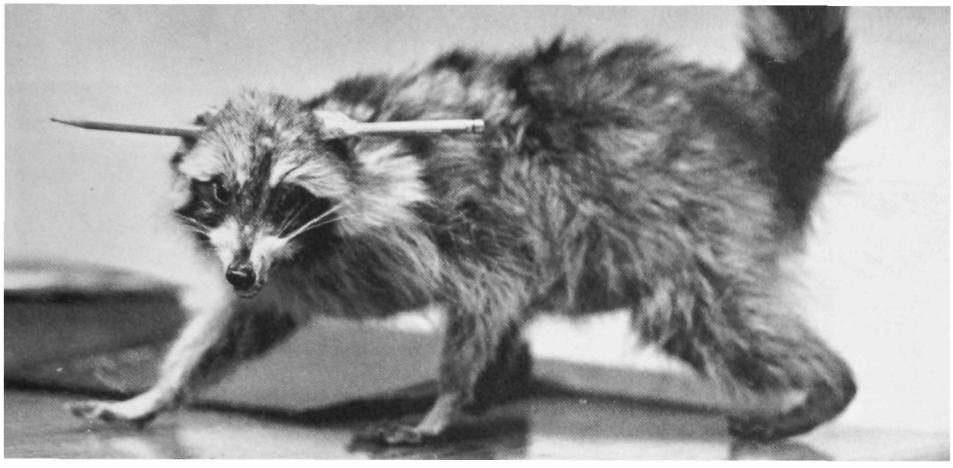
Since twelve of the fourteen caribou transplanted for release, died over the summer, some individuals may see the Caribou Project as a failure. However, optimists would see this project as it is, an experiment. Important knowledge has been collected that will be valuable to groups in several lake states, Minnesota, and Maritime Providences, 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.

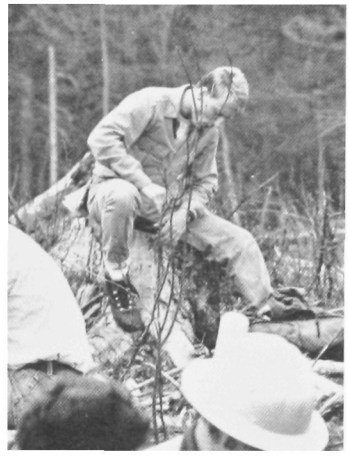
Newfoundland has approved an arrangement with the state of Maine to provide up to twenty-five caribou a year, for the next three years based on yearly reveiews of the project's developemnt. Currently, there are plans this spring to release twenty caribou from Newfoundland, with an additional twenty to twenty-five caribou from the university nursery heard. 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. . .

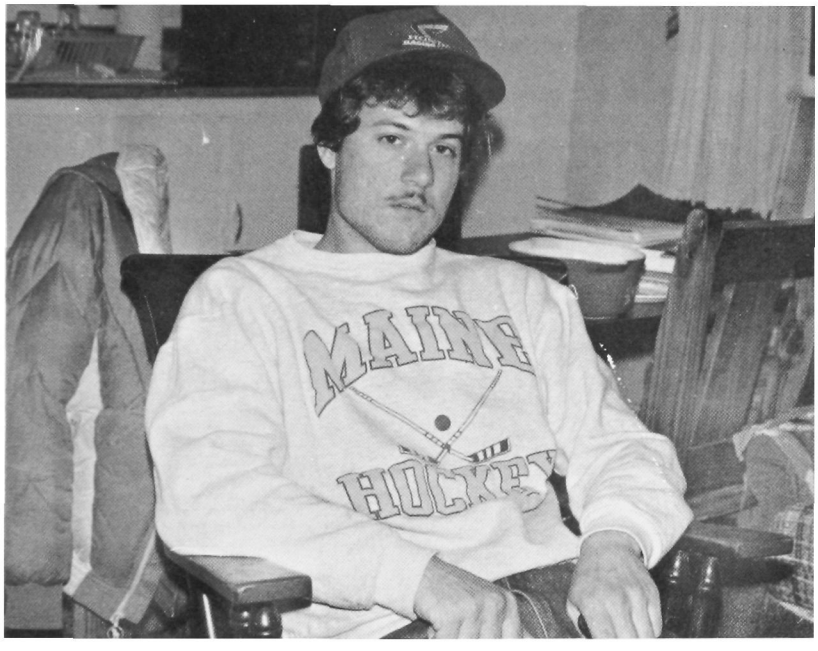
Gerry Hayes

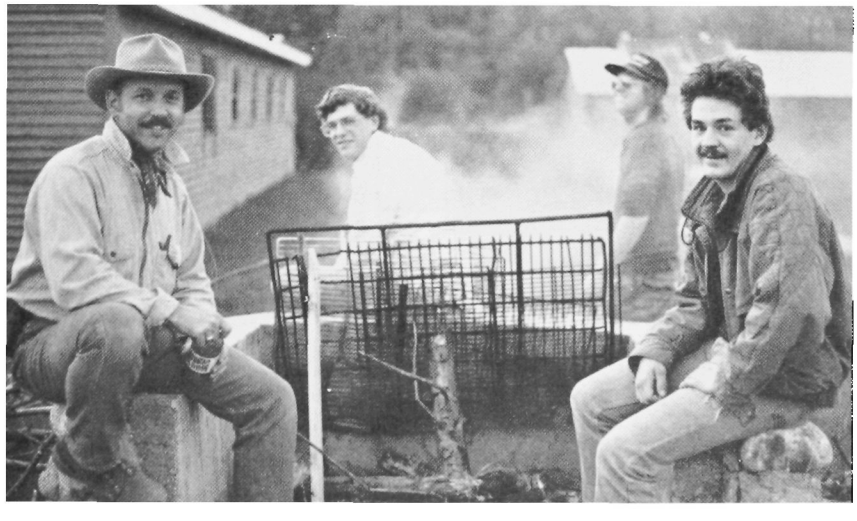









MAINE



GRADUATE STUDENTS

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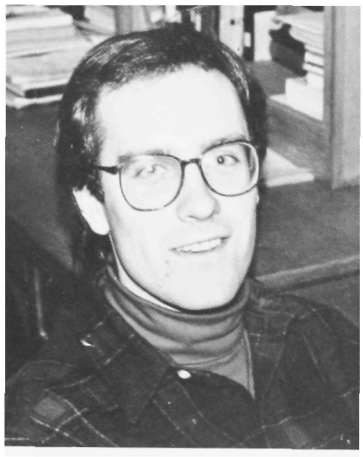
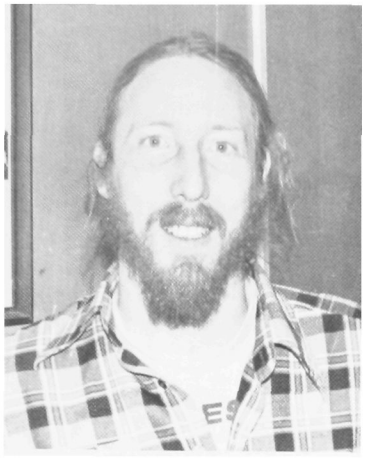
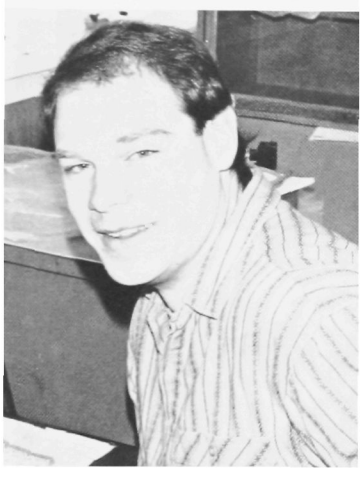


DAN KUSNIERZ

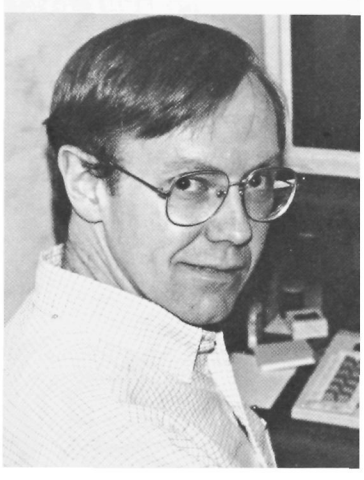


CHRIS WINNE

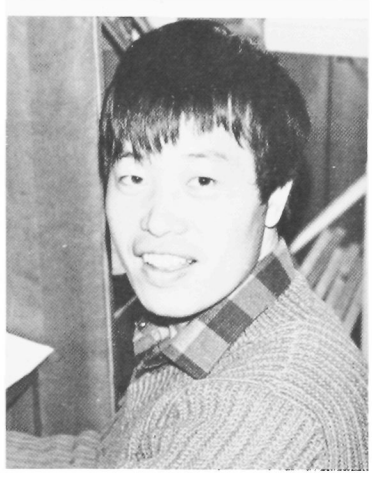
SUSAN HILLS



XIANDONG MENG



BILL BRAGG

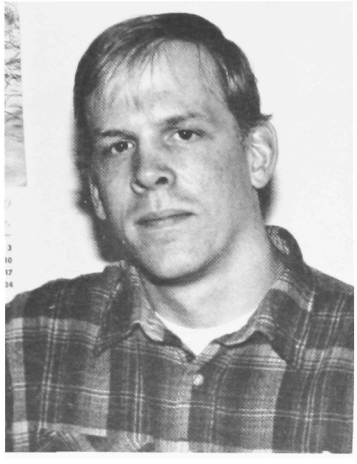


BRIAN BOGACZYK

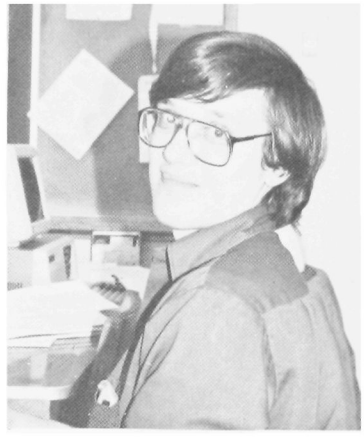
MARKA SUMMERS

CHRIS VERA

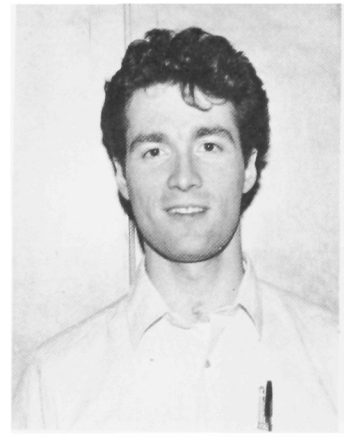
DON KATNIK



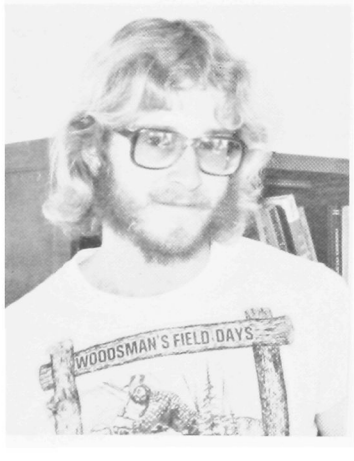
DAN GILLMOUR



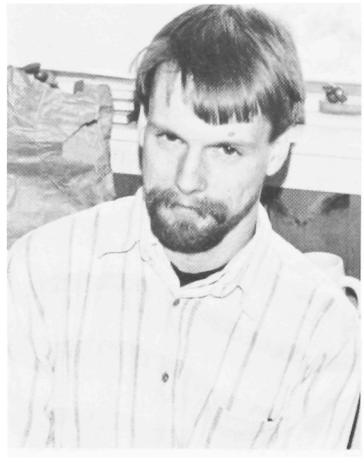
JAMES RUDNICKY



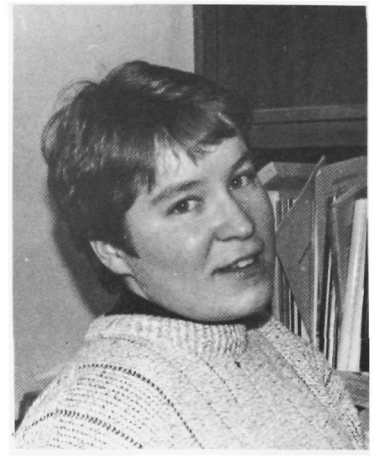
CRAIG MacLEAN



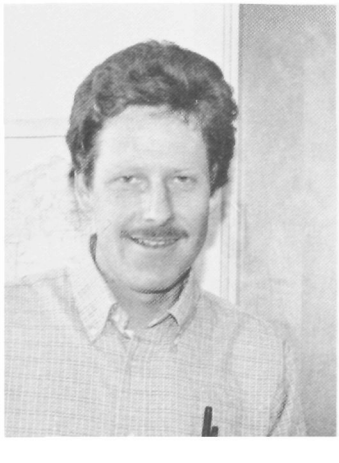
TOM PARAGI



MORTEN MOEHS

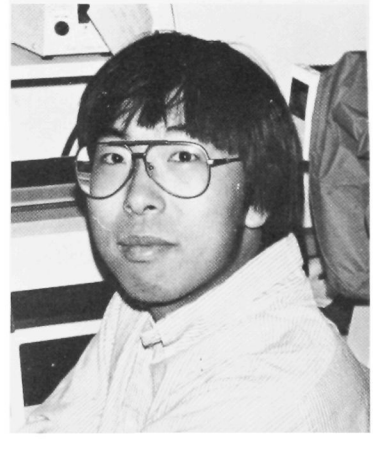


SHARRI VENNO



TOM McCALL

MARY ANN FAJVAN



YASVO TAKEMOTO