FEATURE ARTICLES

THE GREENWOODS PROJECT–

a brief description

D. Gordon Mott, William Kemp and Karl Imdorf

On June 1, 1979 the Green Woods Project was formed as an endeavor of the School of Forest Resources. The project mission is to develop and implement an approach to one of the most difficult problems in forest management in the State of Maine: spruce budworm. Green Woods' approach lies along the path of Integrated Pest Management—a newer concept in applied entomology.

Integrated pest management—a concept as diverse as its proponents—has emerged in the seventies as the panacea for budworm as well as a wide assortment of other pests. Somehow, on a vague intuitive level, everyone finds great hope that there is a halcyon world ahead with freedom from both insect attack and the ominous cloud of chemical pesticides. It is difficult to span the diversity of concept about IPM. To some, it is straight science fiction. Computer programs feed the most current counts of pest population density made by machines that sense fluorescence from egg capsules, couple those data with weather trends and analyses of foliar nutrient content. Forest composition, determined from satellite imagery, is processed by other computers, maps of spray blocks are optimized in shape, and flight plans are drawn by intricate algorithms to most favorably limit insecticide use. The long-term economic and forest productivity consequences of protection are assessed by simulation and decision models, and then the selected pest control action is carried out with the aid of intricate satellite-based navigational systems and aerial equipment worthy of the military.

To some, IPM is biological engineering. Fundamental biological properties of the insect are vulnerable to man's deep probes and thrusts. A confusing abundance of synthetic sex pheromones disrupts mating; plant extracts and synthetic compounds stop feeding; development can be modified by growth regulators. Bacteria lethal only to lepidopterans, and viruses and fungi, can all be produced in artificial media on alternate hosts and introduced in sufficient unnatural abundance to control some pests. The genetic structure and fecundity of pest populations can be manipulated.

To others, IPM is ecosystem engineering. Chemical and biological pesticides are selected and applied in carefully timed smallest possible doses to best augment the effects of natural parasites and predators. Habitat and host plant characteristics are managed to reduce vulnerability. Each component of the intervention system is manipulated to obtain incremental advantages which collectively produce a whole equal to or greater than the sum of its parts. There is no reliance on a

single ingredient. This, an integrated pest "intervention" system is, of course, what was meant when the term "integrated pest management" was introduced. Nothing is lost by sharpening the semantics here a bit.

And some consider that IPM consists of coordinating management in the administrative sense: setting policy, and directing of activities of diverse institutions and agencies.

Of course, integrated pest management is all of these things—or one, if it is indeed a silver bullet, or a few arranged together if they do the job. In concept, the "integrated" approach selects from the array of interventions and decision methods the set of approaches that does the job best. "Best" seems to come to rest on the balance between maximum cost effectiveness and minimum chemical usage.

In some cases in agricultural practice, there is a happy coincidence of aims. When chemicals can be selected for their preferential treatment of natural enemies and sparingly applied at the right times to work best in the same sense, the net cost of a slight reduction in crop yield can be more than offset by the savings in pesticide cost.

But agriculture is a simpler, more artificial biological system than a forest. Man knows a great deal more about the simpler plant crop systems for which he as-

sumes most of the burden of existence—planting, defending from competition, feeding, and so forth. In a forest, as in fisheries and wild animal resources, man is a novice intervener for the most part ignorant of the ultimate consequences of his presence and profoundly dependent upon activities he knows virtually nothing about carried on by many organisms he has not yet seen. In the end, empiricism must be brought to bear: our knowledge for the most part derives from our experience. Our experience with spruce budworm is now beginning to gain some length.

It is hoped that such an approach can be developed here and ultimately lead to a substantial reduction in insecticidal treatment without major losses of wood fiber, thus insuring a sustained wood supply for landowners with different management objectives, and reducing the vulnerability and susceptibility of the forest to spruce budworm.

The Green Woods initiative begins with coordinating Integrated Protection Management which involves the integration of harvesting and spraying on an optimal basis, using detailed information and analysis of the resource. Green Woods is working on four key elements of such an IPM system. The first of these is a wood supply analysis, which will indicate how much softwood is required to sustain various levels of industrial output. Second, target definitions are being developed so that harvesting and spraying can be developed to complement one another. This essentially involves an improved forest-type mapping system. Third, work is underway to be able to deliver more precisely targeted aerial spraying to only those stands that require treatment. Fourth, refined silvicultural systems and forest management strategies are being developed to implement targeted harvesting that concentrates on

removing balsam fir, and thus partial cutting in a modified shelterwood approach.

The Green Woods Project is now in the process of introducing these IPM approaches on three demonstration areas in Maine. Here the principles of IPM will be tested and demonstrated. Each of these demonstration areas represents different ownerships and forest characteristics as well as different management objectives. The first of these areas is on Great Northern Paper land and consists of 120,000 acres in the headwaters region of the St. John River. Here harvesting operations are underway, and fiber production is the principle management goal. The second area is 40,000 acres in northwestern Maine, owned and managed by the Seven Islands Land Company. Management goals here are for an integrated product mix of both sawlogs and pulpwood. The third area of approximately 20,000 acres comprises the Scientific Forest Management Area of Baxter State Park. Future management in Baxter Park has the potential for an integrated product mix. In all areas Green Woods works closely with landowners and land managers to develop and direct harvesting practices and insecticide application, if needed, to ensure a continued wood supply for the future.

The need for Integrated Protection Management is real. As budworm damage progresses, the potential exists for a problem with maintaining a long term wood supply. Since the late 1950's large scale aerial applications of chemicals to protect the forest have been conducted. Previously there has been little, if any, coordination between harvesting and chemical protection. In recent years it has become clear that insecticides are not sufficient nor desirable long term answers to the spruce

Boom House

budworm problem. There are growing concerns about public health and environmental contamination, and increasing pressure on state and federal agencies to limit dependence on chemicals.

A major part of the Green Woods Project takes place in the field. Studies are being conducted to prescribe and monitor the response to various management treatments. Budworm population monitoring is done before and after chemical treatment and also in untreated areas. Foliage protection surveys evaluate the degree to which foliage was preserved by spraying. Hazard ratings determine the vulnerability of stands to budworm attack. Spray deposit assessments help determine deposition patterns, quality of coverage, and degree of targeting. On the environmental impact side, sampling is conducted to assess the impact of spraying on aquatic and terrestrial organisms.

The Green Woods Project's offices and laboratory are housed in the newly remodeled Scientific Research Building on the south side of the UMO campus. Summer field operations are headquartered at Chesuncook Lake just west of Baxter State Park at the "Chesuncook Boom House" (courtesy of Great Northern Paper) a historic and rustic structure once used to house men working on the log drives. The project also maintains outpost camps in each of the demonstration areas. Green Woods is administered by co-directors Professor John Dimond of the Department of Entomology and Gordon Mott of the U. S. Forest Service. There are

Associate Scientists Bill Kemp, Jay Krall, and Bob Seymour; also Assistant Technologists Beth DeHass, Sue Heinemeyer, and Karl Imdorf. During the summer months the project employs approximately fourteen students from the University of Maine and other institutions. Students are also employed in laboratory work and computer graphics.

During the coming years the Green Woods Project will strive to continue and expand development of the Integrated Protection Management System, improve cooperation with landowners and government agencies, and assume its role as an integral part of the School of Forest Resources and the University of Maine. Of paramount importance will be the fulfillment of the professional responsibility to protect and perpetuate for future generations Maine's most valuable resource.

What are you Going to be When you Grow Up?

by

Terry A. May
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University of Maine at Orono

The question of what a person is going to be when he/she grows up is most likely associated with the uninhibited fantasy of children. However, I am forced to admit that I often reflect on this question at frequent and regular intervals, usually when I am not immersed in the day-to-day struggle to survive until the next professional crisis. (The writing of this essay is my current professional crisis.) Does this mean that for all practical purposes, I am still a child and have not grown up? Notwithstanding age, I hope the answer to both questions is yes. I say this, because children are uninhibited, inquisitive, unbiased, receptive to new ideas and experiences, and are eager to learn. These are characteristics that we should all have in order to respond the best possible way to issues concerning natural resources, their management, and the relation of this management to society as a whole. Unfortunately, the process of growing up often causes us to become just the opposite; reserved, set in our ways with inherent biases, and so greatly over-committed that it is difficult to seek new knowledge or find the time to question old values. An analogy can be made with the ecological processes in forests; young forests are green and growing while mature forests are in equilibrium and nearing degradation.

In this essay, I want to offer my thoughts concerning the synthesis and responsibilities of a professional resource manager. I believe it is appropriate to do this for the *Maine Forester,* because the graduating seniors of 1980 have accomplished much. Still, everyone in the graduating class must recognize that a diploma from the University of Maine does not necessarily mean that they are professional resource managers nor that they will be for all time. In essence, what the graduating seniors have shown is that they deserve to be combined with that closely-knit group of individuals who now have the responsibility for managing our earth's renewable resources and who want to become natural resource managers when they grow up.

First and foremost, I believe resource managers should be scientists, regardless of personal and specific areas of concern. My dictionary defines a scientist as an expert in science. This sort of circular definition would deserve no more than a C in any Fy class, so it is necessary to amplify the meaning of science. Science is a branch of knowledge or study dealing with a body of facts or truths systematically arranged and showing the operation of the physical and biological world. This body of facts and truths is larger today than it ever was in the past and will continue to be ever increasing in the future. Therefore, the conduct of science must result in new information.

New information is gained through systematic study. Systematic study does not mean the process of learning new facts presented in lectures nor in the vast numbers of volumes found in Fogler library. Rather, systematic study means the development of new information gained via the scientific method of identifying a problem, collecting relevant data, formulating an appropriate hypothesis, and empirically testing the hypothesis. This same process was used to discover the presence of a force we call gravity, the usefulness of antigen and antibody systems, the high energy of radiation, as well as the usefulness of fertilizers in agriculture. These are all things we take for granted today but were great discoveries in their time. Therefore, the quality of a scientist is not measured by vastness of stored knowledge but by the intensity and creativity of the research for new knowledge.

Vandemark (1978) discussed the synthesis of a scientist and stressed that it is a continual process which extends over the life-time of the individual. Some of the things Vandemark considered to be important were intellectual capacity, positive attitudes about one's self (e.g. being self-respectful, self-disciplined, self-confident, and self-reliant) and colleagues (e.g. being respectful, communicative, trusting, and flexible), and the possession of desirable personal qualities (e.g. ambition, courage, perseverance, awareness, and promptness). Vandemark likened teaching a person to be a scientist to teaching someone to love. Much of what we are to become is the result of experiencing life. Therefore, you must make a long-term creative commitment to become a scientist and you should be consciously aware of not manipulating anyone out of being a scientist.

As previously stated, scientists deal with facts and truth yet there are those who consider the scientist as the perpetrator of all sorts of evils brought against mankind. It is likely that science itself did not cause the difficulty but rather the way that scientific discoveries were used. Therein is what I consider to be an important responsibility of the natural resource manager; that is, to maintain motives which give equal weight to the betterment of society and the maintenance of the

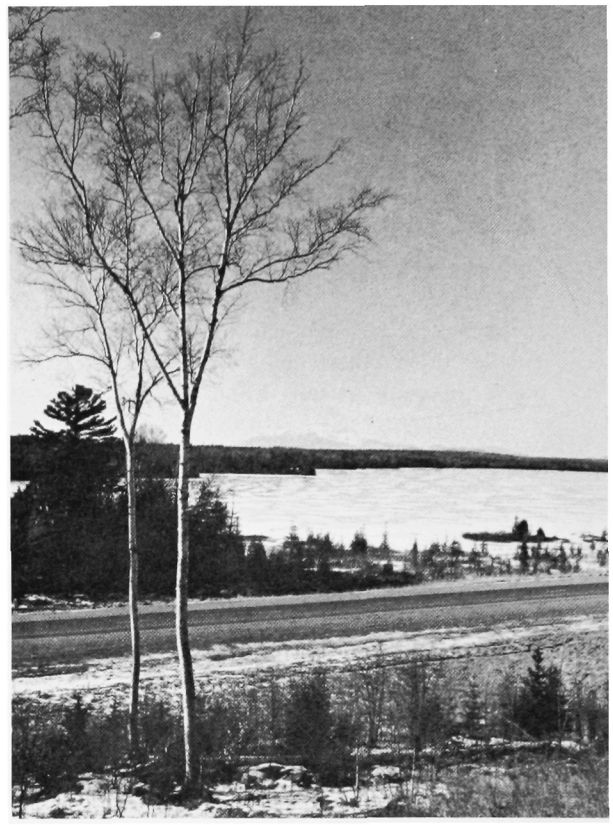
ecological integrity of our natural resources. Therefore, day-to-day decisions concerning natural resources must not be made on the basis of self-centered motivation.

Even with acceptable motivation, resource managers occasionally disagree concerning a particular resource issue. How can this be? Generally in such cases, disagreement is based upon differing value systems. For example, LeResche (1979) discussed the role of the wildlife manager in wildlife conservation and made suggestions appropriate to all resource managers. He maintained that managers have traditionally dealt with products (e.g. permissible levels of harvest of game or trees) but that omnipotent manipulation is seldom without far-reaching negative effects on other components of ecosystems. In some cases, the crop itself is even less important that the diversity of experiences the resources can provide. Therefore, all resource values should be given credibility, even the value placed upon unmanipulated habitats.

LeResche also suggested that wildlife managers (in a broader sense resource managers) must become less insular in outlook. Wildlife managers are no longer solely accountable to hunters, and forest managers are no longer solely accountable to the logging or paper products industries. Hunters and forest industries may, in fact, be paying the bills, but it could be considered as money spent to preserve productive forest systems. Therefore, resource managers are working for the resource, the future, and all who come into contact with the resource, not merely for those who do the actual harvesting of products.

In recent years, disagreement over resource issues has also occurred because of differing value judgements, rather than due to differing values as discussed already. This is particularly true in the debate over the use of pesticides. Lowrance (1976) wrote about science and the determination of safety and pointed out for scientists to default the appraisal of complex technological issues onto non-technically trained political leaders is not the solution. Recognizing that they are making value judgements for the public, scientists can take measures toward converting an *arrogation of wisdom into a stewardship of wisdom*. Therefore, the distinction between judgements based on factual information and value-laden inferences should be respected and identified openly (Lowrance 1976) and management decisions should include a safety factor to allow for the facts that knowledge is limited and institutions are imperfect (Holt and Talbot 1978).

Lastly, resource managers must continue to question what is relevant. Egler (1978) included an editorial reprinted from Business Week by permission. The editorial lamented that at the proceedings of the national meeting of the American Economic Association, the sessions were dominated by papers seeking to refine methodologies that have already been proven ineffective while no group or individual offered anything resembling a new idea for addressing the important question of incompatibility of full employment and price stability. Similar examples can be drawn from resource management. The editorial went on to liken this approach to science with the rearrangement of old furniture. I challenge all the graduating seniors to not spend their professional careers simply rearranging old furniture nor in blaming inadequacies on low salaries, the bureaucratic system, poor textbooks, ineffective teachers, or poor administrators. Creative and responsive resource management requires creative commitment and that only comes from real thinking.



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A Forest Biomass Energy Policy For New England

by

Harold E. Young*

The dramatic increase in oil prices by OPEC countries in 1973 was a clear signal that America did not want to hear. It ominously indicated the likelihood of further price increases and emphatically brought to public attention the finite nature of world oil reserves as well as the finite nature of the reserves of all other fossil fuels. A careful synthesis of events since 1973 led me to the conviction that our national energy policy should be to achieve a state of energy self sufficiency to (a) meet our energy requirements, (b) stabilize our economy and (c) to minimize our involvement with the unstable middle east. In order to accomplish this we must explore all alternate sources of energy in addition to conservation. Within this framework each region of our country should make maximum use of its energy potential. The southern states can go back to solar energy which was important before oil, the coal regions can expand their mining efforts and forested regions can use forest material.

The principles of sound forest management were developed over a period of hundreds of years and there is no need to depart from them now. Inventory and annual productivity are the basis of management planning for products as well as clean air, clean water and recreation. All of this to be done in such a fashion that the health and viability of the forests are maintained or improved in perpetuity. Furthermore, the use of the forests for all purposes and the use of all species for all products is the best use of forests in terms of the total population. Up to the present time product use has been limited to the merchantable bole (stump to upper limit of merchantability usually four inches in diameter) of only certain species. Now we must broaden our perspective to include all tree and shrub species. The Complete Forest Concept has been studied at the University of Maine for twenty years and is now defined as the biological and technological investigation of all woody shrub and tree species, from the root tips to the leaf tips, for intensive management of some portions of the forest, and utilization to include (a) solid and liquid fuels, (b) food and fodder, (c) cellulose and textile fibers (d) structural material and (e) basic materials for the chemical industries. With this expanded perspective we can do much to help ourselves. There is no need for New England to "freeze in the dark." We can produce a policy statement that can serve as a model for the nation and we

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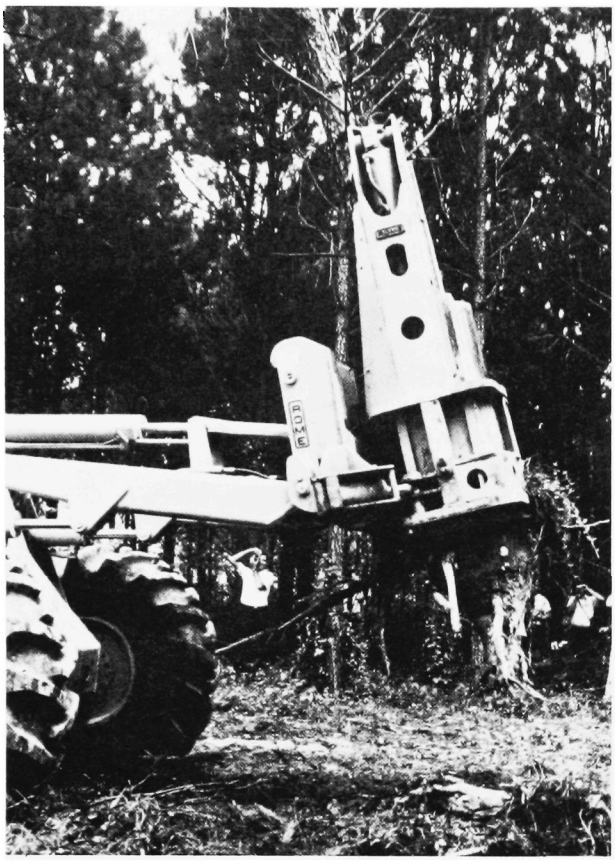
The Complete Tree, intact and by components



Koch-Rome "Stumparvester"

can begin to implement that policy now. We have no other alternative that is as attractive and possible.

THE FORESTS OF NEW ENGLAND CAN CONTRIBUTE SIGNIFICANTLY TO THE ENERGY REQUIREMENTS OF THE REGION NOW. THE FOLLOWING POLICY STATEMENTS ARE LISTED BY PRIORITY BUT ALL MUST BE IMPLEMENTED SIMULTANEOUSLY WITH FUNDING PROPORTIONATE TO THEIR RELATIVE IMPORTANCE.

1. Biomass quantification: inventory of the standing forest and its annual productivity. The key to this is preparation of weight tables of all tree and shrub species of the entire region.

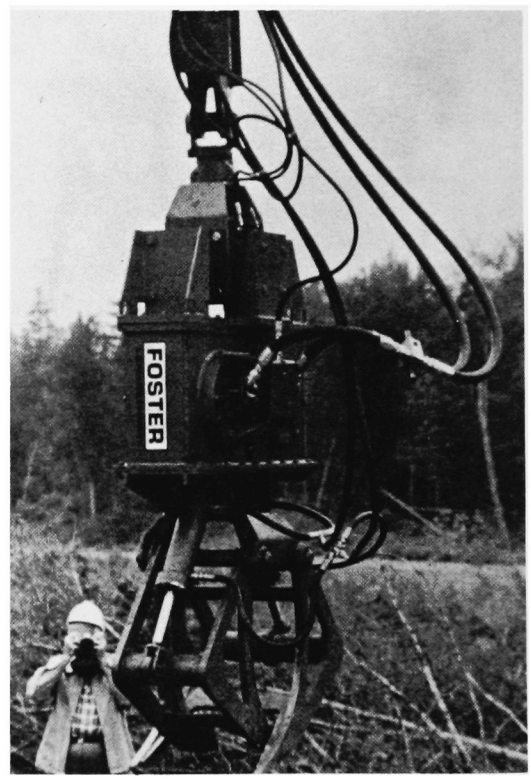
We know that more than sixty percent of the land area of New England is covered with forest. Many have tried and all have been unsuccessful in converting published U.S. Forest Service timber resource reports from volume of the tree bole to weight of the entire tree. This is not a reflection on the USFS for they produced what the forest managers wanted and that didn't include the energy potential. Modern forest inventory methods involving airphotos, statistical methodology, computers and precise field instruments can be used for biomass inventory by (1) including all tree and shrub species with small fixed plots for seedlings and saplings and (2) by substituting weight tables for volume tables.

The key is the production of weight tables which may be for the entire region or segments of the region. The weight tables are necessary for determining the annual dry matter production of our forests as the basis for management planning. The annual harvest must be planned in terms of annual growth to properly manage the forests on a long time basis commonly considered to be in perpetuity.

Inventory and productivity are the basic ingredients for the management of forest land whether it is a large owner with 500,000 acres or a person with a 10 acre woodlot. We cannot predict with any reliability the potential of the forests of New England until such time as we have reliable biomass inventory and biomass productivity data bearing in mind what portion will actually be available for energy. To accomplish this we need weight tables. Compared to power plants these are cheap and can be produced quickly.

2. Harvesting and transport equipment. It matters little if we have vast forests but cannot afford to use them.

There has been rapid development of mechanized equipment in the past twenty years primarily for the harvest of the merchantable bole, which means for fairly large pieces. It has been clearly established that the tops and stump-root systems of large trees harvested for



Foster "Vibro" Stump puller

sawlogs or pulpwood can be used for energy. This is equally true of small trees as well as shrubs. In particular, material could be removed in thinning operations of seedling and sapling size that would appreciably augment the tonnage of forest material available for energy purposes.

It is economically not feasible to harvest the material described above with the equipment designed for the large merchantable bole. Equipment manufacturers have not begun to develop equipment to handle smaller trees because (1) the development of an individual piece of harvesting equipment is costly and an entire array to meet the requirements of the entire country is very costly, and (2) they have not seen a market for such equipment.

This impasse can be eliminated by having the Department of Energy underwrite the costs of the necessary equipment for all terrain and climatic conditions of the country much as the Department of Defense underwrites the development of new planes and tanks. The difference in this case is that the government will not have to purchase the final products. As soon as they are on the market at prices within the financial limits of contractors and land owners and able to produce energy wood efficiently and economically there will be few problems with sales.

3. Communication and education. The forest community has a miserable record and this must be rectified immediately.

The public wants to know (1) how to manage land to produce energy material as well as other products, (2) how to harvest wood safely, (3) how to store wood, and (4) how to burn it efficiently. This should be the responsibility of foresters and forest industry people. These things are well known by the forest community and they must be made available to others, particularly the suburban dweller who may own a half acre or more of trees and shrubs.

Part of the problem is of long duration in that none of the forest schools have an active recruitment program. Those who enroll in forest schools arrive by a process that may not be best for them or the profession. Today foresters are executives, scientists, writers, sales managers, etc. We need to recruit for the whole range of career possibilities in forest land management and utilization.

There are less than 100,000 foresters and more than 220,000,000 people in our country. We need to move foresters into energy offices and energy planning. We need to have foresters communicating sound forestry to all segments of our society. How can we do this? By pressing everyone within forestry into some aspect of this important work, but primarily by bringing in people with good liberal arts training and a love for words and the forests. Then we must work with these specialists to expand their knowledge of the forests and to assist their efforts in all types of communication that will intelligently and objectively inform the American people.

4. Markets. Every forest owner would practice more intensive forestry if he had more markets.

Every uninformed urbanite reacts in a similar fashion when he sees the tree tops in the forest that have been left behind. He asks "Why haven't they been used?" The simple answer is "no market." No forest land owner wants to leave the material there but he has no choice when the cost of removing them would exceed any price that he could get for it. This problem, to some extent, will be alleviated with the development of new harvesting equipment. It will still be a problem that will require the full time attention of market specialists who can keep abreast of markets and who will, when the occasion arises, develop new markets.

5. Financial matters. These are usually more complex and difficult than technical and scientific matters.

Ample forests and efficient equipment will not bring forest material into energy power plants until all financial problems are solved. These may involve the purchase and retention of forest land to insure adequate supplies of forest material, purchase and maintenance of harvest and transport equipment, construction of power plants of all sizes and development of sales organizations.

Pallari "Busharvester"

Mor Bark "Chiparvester"

There is a tendency for professional foresters and engineers to emphasize the technical and scientific aspects of their fields. Markets, financial matters and communication and education are integral portions that are equally important to achieve success: a significant contribution by the forests to our energy requirements in New England. A holistic approach or a systems approach requires that bankers, writers and marketing specialists must be integrated into this team approach from the very beginning.

6. Increasing forest production. We already have the knowledge to increase it considerably but we must know the upper limit for long range planning.

The biomass studies at the University of Maine have established that the annual dry matter production, above and below ground, is about 1.5 oven dry tons of wood and bark on average sites. This is the natural production of fully stocked stands with a minimum of forest management. By the application of management techniques such as fertilization, planting superior stock and thinning, this can be doubled or tripled in a relatively short time. We need applied research to determine the upper limits of production by such methods. In addition, we need to explore the potential of controlled environments. That is plastic greenhouses with periodic additions of carbon dioxide in addition to superior planting stock, fertilizers, water and lights. The artificial environment may increase productivity to 25 oven dry tons or more per year. This gain in productivity must be weighed against the increased costs. This procedure would require much less growing space so, with an expanding population and the need for forests for clean air, clean water and recreation, the added cost may be very worthwhile.

7. Leadership. The catalytic agent that is as vital to achieve success as chlorophyll is to the photosynthesis process.

Last, but far from least, is the role of leadership essential to achieve a large measure of success. Sometimes this may be embodied in a single person. More often leadership is an executive group effort in order to accomplish the goals of a massive program, as forest energy will become. There must be leadership and it must surface quickly for the time for action is now.

Foresters and engineers cannot do all aspects of the forest-energy program alone or on a piece meal basis. Coordinated efforts must be made to get the project "machinery" moving. It is time for clear, rational thinking by leaders, either designated or self appointed, to be followed by immediate action in all aspects. The leadership must provide means for coordinating all aspects continuously to insure maximum progress. We have the means for success. If we can exhibit the desire to achieve success, the role of leadership, then we will reach our goal: significant amounts of energy from the forests of New England for New England.

Cooperative Education

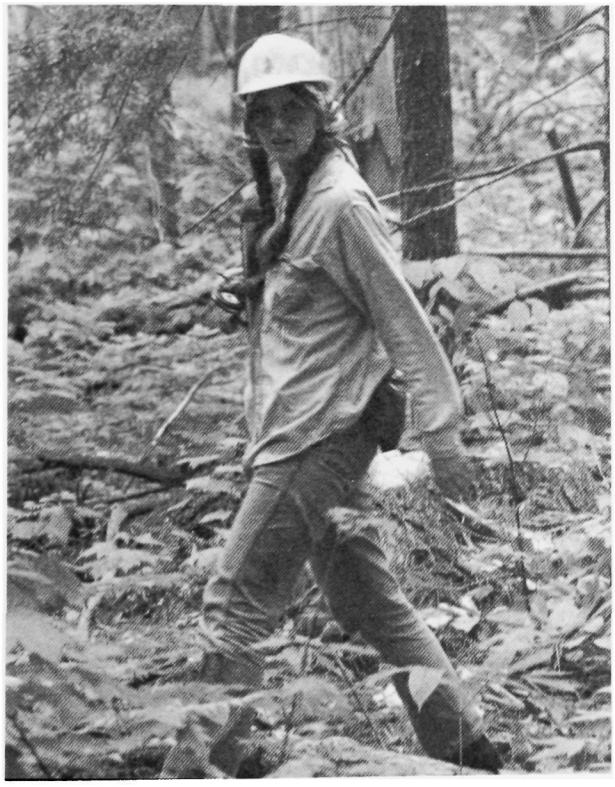
(A New Opportunity at Maine)

By:

Jill Ippoliti, Russell Sackett, David B. Hatton

Being a Coop. Student is a great opportunity to become familiar with the duties and responsibilities of an industrial forester. Coop. Students have a chance to experience all the duties of a forester: location of and walking timber, tree marking, checking cutting operations, road and boundary line maintenance. The students are exposed to regulations on harvesting procedures imposed by the state and the paper company.

December 31, 1979 marked the end of the first four month block of a successful and hopefully expanding cooperative education program between the University of Maine and the International Paper Company. Cooperative Education is a period of time for the student to work in his field of study and earn college credit.



Jill Ippoliti in the field

Well-managed red pine in New York

A semester in the field is a good chance to use some of the information learned in school and to discover differences between textbook forestry and applied forestry. It also gives meaning to some courses taken in the past and a clear reason for taking others in the future.

Working with a large company for a semester gives the Coop. Student a chance to see how it operates, and the working conditions of an industrial forester. It also gives the company a chance to look at the students and evaluate them for future hiring.

In this block of four months all the Coop. Students from U. Maine were assigned to work in New York state. This was a great opportunity to work in the northeastern hardwood forests and to see some of the management problems that are unique to them.

No discussion about the cooperative education program would be complete without mentioning the chance that is available to earn some money while learning and living on one's own. The experience also looks very good on a resume and gives the individual an edge over the average student in the job market.

Quotable Quotes

"He's one of those 'rotten foresters' like Campana."
Dick Hale (In reference to Alex Shigo)

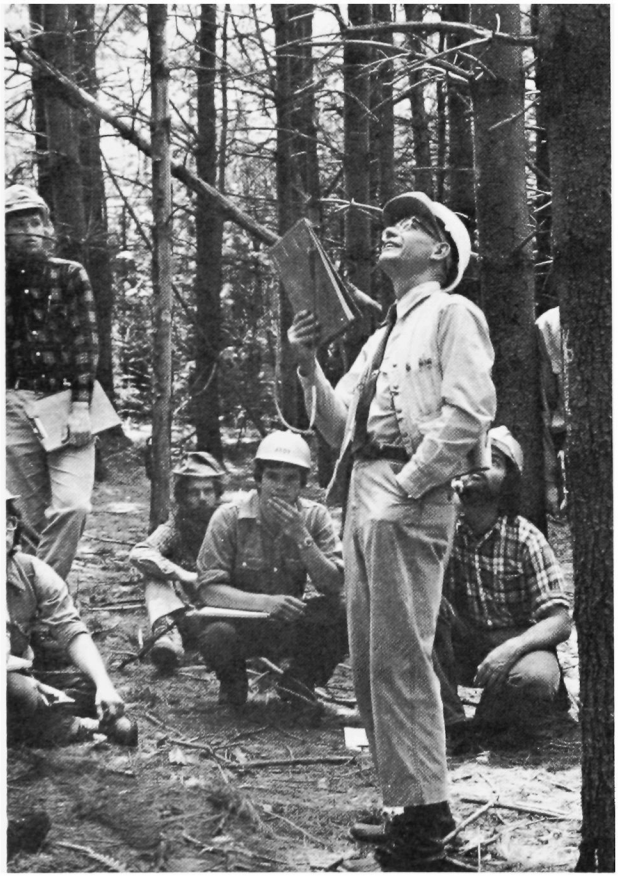
"The Forest Service application procedure is a bunch of &¢%*$(@."
Marshall Ashley

"Some of the things I teach you in this course may be of marginal value."
Dave Field

"I never found anything I couldn't prove was significant."
Anonymous

"Just because it is statistically significant doesn't mean it is important."
David Smith

"I could tell you all I know in ten minutes."
Ralph Griffin



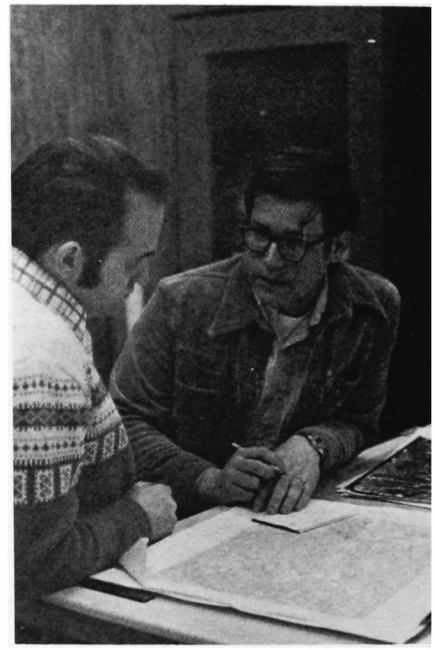
"Some people say he is my clone."
Tom Corcoran (In reference to Dave Field)

"FTD"

In regards to woods workers' wages: "Bread is not enough, they need a little peanut butter."
Bud Blumenstock

"Is that a sign or a symptom?"
Richard Campana

"If you're afraid of me, God help you when you face your first boss."
James Schottafer



"That's your problem."
Tom Brann

"Grass carp will go -BANG- right in the mid section, or maybe a little lower . . . My first method in birth control."
Dr. Stanley

"No matter how great, the statues of men are but the latrines of birds."
Anonymous

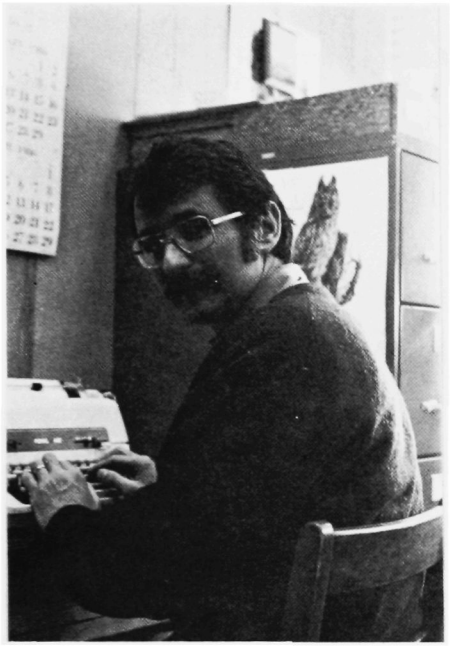
Definition of a Lecture

"The transfer of the professor's notes directly to the student's notes without passing through the mind of either."

Dr. Warren Burns

"All I see is a white elephant eating marshmallows in a snowstorm."

Richard Campana



"Why are you taking my picture? I never get in the yearbook!"

Jerry Longcore

"Well, I hate to put it like this, but we're finally going to talk about timber management."

Dave Field on December 7th

Definition of a Grad Student

"A grad student is one that writes down everything the professor says even 'Good morning'."

Dr. Burns

"Milton Friedman is on Saturday mornings, opposite your favorite cartoons."

Bud Blumenstock

"Most people believe that if you let a balsam fir tree grow it will turn into a redwood."

Floyd Newby

"It wasn't until I was 19 that I saw my first beaver."

D. K.

Spoken but not forgotten

Talking about a man with a German accent

"I can't see how anyone living in the same place for 20 years can still have an accent."

Ralph Griffin, Fall 1970

" and I don't want to see this quoted in the Maine Forester!"

Marshall Ashley, Summer 1969
and every year since

"There are only two things you have to do, come to Silvics and die!"

Ralph Griffin, Fall 1969

"Now I don't pick Loblolly Pine because it's a southern tree "

Ralph Griffin, Fall 1969

ASSOCIATE DEGREE PROGRAM

Whoa, I really hung those suckers up!

First Year Forest Technicians

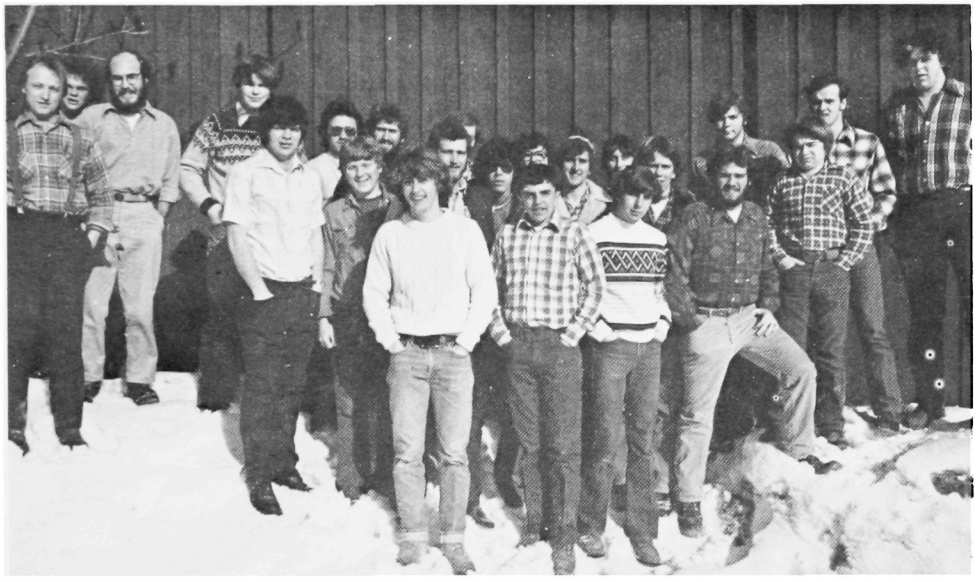
by Bruce C. Reed

On the first day we entered the School of Forest Resources as a group of freshmen still wet behind the ears. Since then we have experienced many things and even learned a new thing or two.

Back then a tree was just a tree, just another part of the forest. Now the woods have taken on a whole new meaning. A car was just something that got one from point A to point B. Not so says Tom Christensen.

We headed into class with Charlie Williams to learn about statistical analysis and linear regression. It sounded more like a problem in economics than a principle applied to forestry. After class we headed into the university forest for our first laboratory exercise. Here we learned the do's and don'ts of throwing a Gunter's Chain. After a frustrating afternoon, a few of us had thoughts of throwing that thing as far as possible.

As we look back on the opening moments of our college career, we realize that the experiences of the past semester have been just the tip of the iceberg. With a little luck and a lot of hard work, one more class of "Techies" will be found stomping through the woods, Gunter's chain in hand!



Technician Summer Camp

By

Robert Bond

Summer camp for the technicians was exciting to say the least. It let us use all those courses that we waded through the first two semesters. From cruising the timber to making up marking guides and selling the timber, we all got a taste of what managing a forest is all about. Many people at camp were exposed to new things, like running a chain saw and seeing the Koering tree harvester, which even made Al Steele look small.

Things were a bit different this year than they have been in the past. Not as many one day field trips were bestowed upon us. Instead the trips were three or four days long. Our head chef on these adventures was Professor "Charlie" Williams. Many had never had corn in their pancakes or cold beans until this summer. But we got used to them, because we had no choice. Charlie always made us do the best with what we had, and a strong amount of respect goes to him for this lesson in life.

Professor "Wally" Robbins kept a watchful eye and ear on our attempts to go to Idaho to fight fire. Never was the national news watched by so many technicians. Everyone wanted to go but the call never came through. It's funny though, even now when the phone rings down the hall I can hear faint voices singing out "Idaho".

It would be terrible to forget "Uncle Al" Steele, our faithful teaching assistant. He was helpful in our studies and a good man to sit down and have a few beers with. Someday, hopefully, his unending search for a hard hat that fits will end.

One of the most memorable events of summer camp was sharing our encounters with mother nature with each other at the dinner table. A daily tally was kept on hornet stings as the enthusiastic young stumpies fought their way through the rubus jungle of Coplin Plantation. And then there was Gary Bowman joining a sow and her cub for a drink of stream water. There was a moose attack too. Chris Kane and Dave Lemay sure did look funny sitting up in that tree. Their crew partner disclosed nothing of his where abouts, but was close behind I'm sure.

Summer camp is over now, but the memories will stick in my mind forever. The class is starting a new chapter, two more semesters and then work. I would like to extend the best of luck to everyone that was at the technicians summer camp. We'll never be able to go back and do it like that again. We'll just have to do the best with what we have.

Forest Technician Seniors

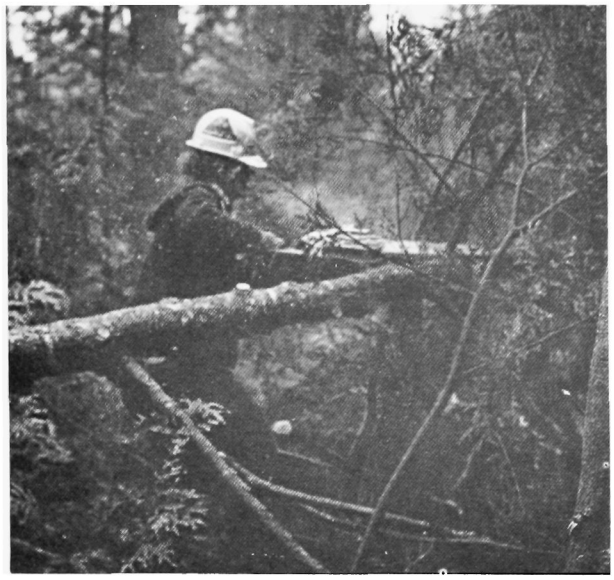
By

Tom Merril

At the end of summer camp it seemed as though everyone was ready for six weeks of vacation, but, to our dismay, we were back after only one week. The fall was supposed to be our easiest semester; yet, with courses like Aerial Photo Interpretation and Forest Protection with Professor Robbins, Forest Soils with Ivan Fernandez, and Accounting with Professor Dunham it did not turn out so relaxing. Through these courses we finally got out of the woods and got a taste of office work. However, a little variety was added to our life by taking such electives as Meat Cutting, Psychology, Maine History, and four clowns tried Forest Planting.

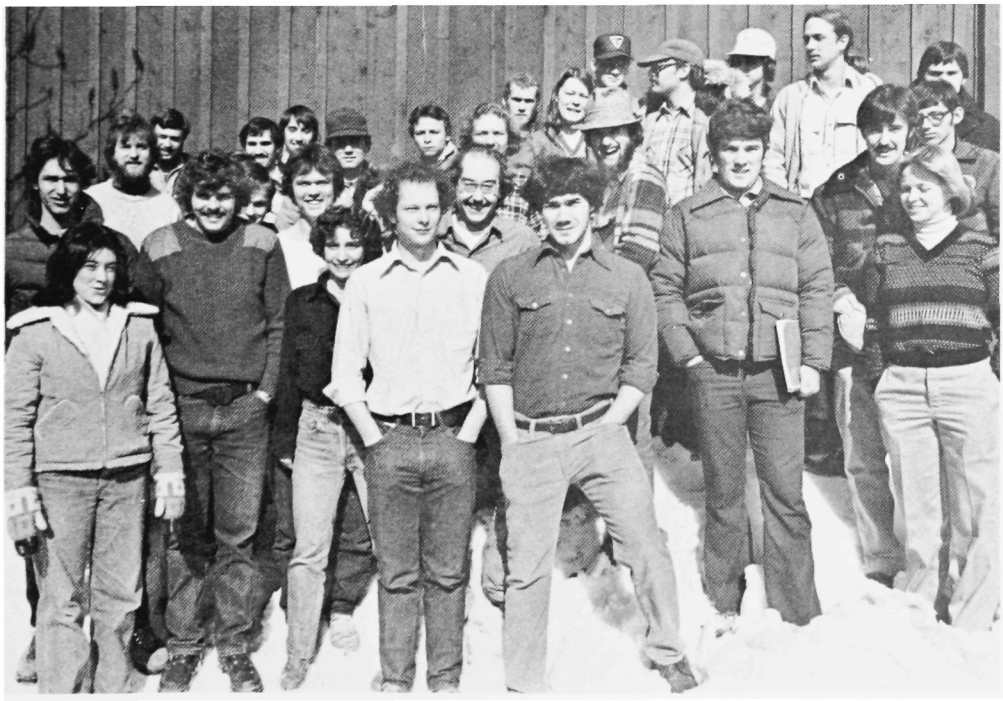
The return to school brought back Wally Robbins in Photo Interpretation and Forest Protection. In Photo Interpretation we learned how to find principal points and to tell the difference between an anchored boat and one that is moving. In Forest Protection Prof. Robbins recalled some of Maine's past forest fires. "I remember the 1935 Fire; that was the year my father . . . ." Towards the end of the semester we studied gypsy moths, spruce budworms, round-headed borers, and other assorted arthropods.

From our other courses we were exposed to a variety of new things. I'm sure accounting was everyone's favorite class as Wally Dunham taught us to balance Continental Moving Co.'s balance sheet, to LIFO and FIFO Palisades Corr's inventory and to basically play mental gymnastics. In Forest Soils Ivan Fernandez did



a good job though someone should explain to him that dirt and soil are the same thing.

All in all it has been a pretty full year and most of us are looking forward to entering the "real world." For those of us who are moving on, don't work too hard and try to have some fun; to those who are staying or don't know where they are going, the best of luck.



Two-Year Forest Management Technology Seniors

Craig Stephen Anderson
Westbrook, Maine

Bruce Sturges Bogart
Verona, New Jersey

Robert Charles Bond
State College, Penn.
Forest Management Technology
SAF Student Chapter,
University Forest Woods Crew

Gary Bowman
Madison, Maine

Joseph Bradbury
Windsor, Maine

Walter George Breck
Stoneham, Massachusetts
Forest Management Technology
Soccer Team, Lacrosse Club

Marianne Carello
Coventry, Rhode Island
Forestry Club, Treasurer

Lance Allan Christopherson
South Portland, Maine
Forest Management Technology
SAF Student Chapter

Daniel Colby
Biddeford, Maine

Dwight Steven Danie
Millinocket, Maine

David Arthur Fowler
Brewer, Maine

Christopher Grimes
North Port, New York

Donna M. Herbert
Kennebunk, Maine

Michael D. Higgins
Bangor, Maine

Cynthia Holmes
Weymouth, Massachusetts

Donald Barry Isaacson
Milford, Maine

Larry M. Jones
Honolulu, Hawaii

Christopher William Kane
Surry, Maine
Forest Management Technology
SAF Student Chapter

Mark William Kresge
Acton, Massachusetts

Robert William LaForge
North Sullivan, Maine

Cynthia Gay Larson
Holden, Massachusetts

David Jacques Lemay
Westbrook, Maine
Forest Management Technology
Intramural Sports

Nels T. Liljedahl
Plainville, Connecticut

Brad R. Lodge
Saco, Maine
Forest Management Technology
SAF Student Chapter

Kathleen Ann Madden
Woolwich, Maine
Forest Management Technology
Forestry Club

Thomas Carnegie Merrill
Exeter, New Hampshire

Robert Paul, Jr.
Old Town, Maine

David Lansing Prescott
Bangor, Maine

Peter R. Roy
Waterville, Maine

Michael Francis Ricci
Eliot, Maine

Elizabeth Schaeffer

Jamie Robert Sernatinger

Anthony Allen Raymond III

Karen Marie Soucie
Milford, Maine
Forest Management Technology
Forestry Club

Allan Joseph Steele
Troy, Maine

Scott Manson Taylor
Harmony, Maine

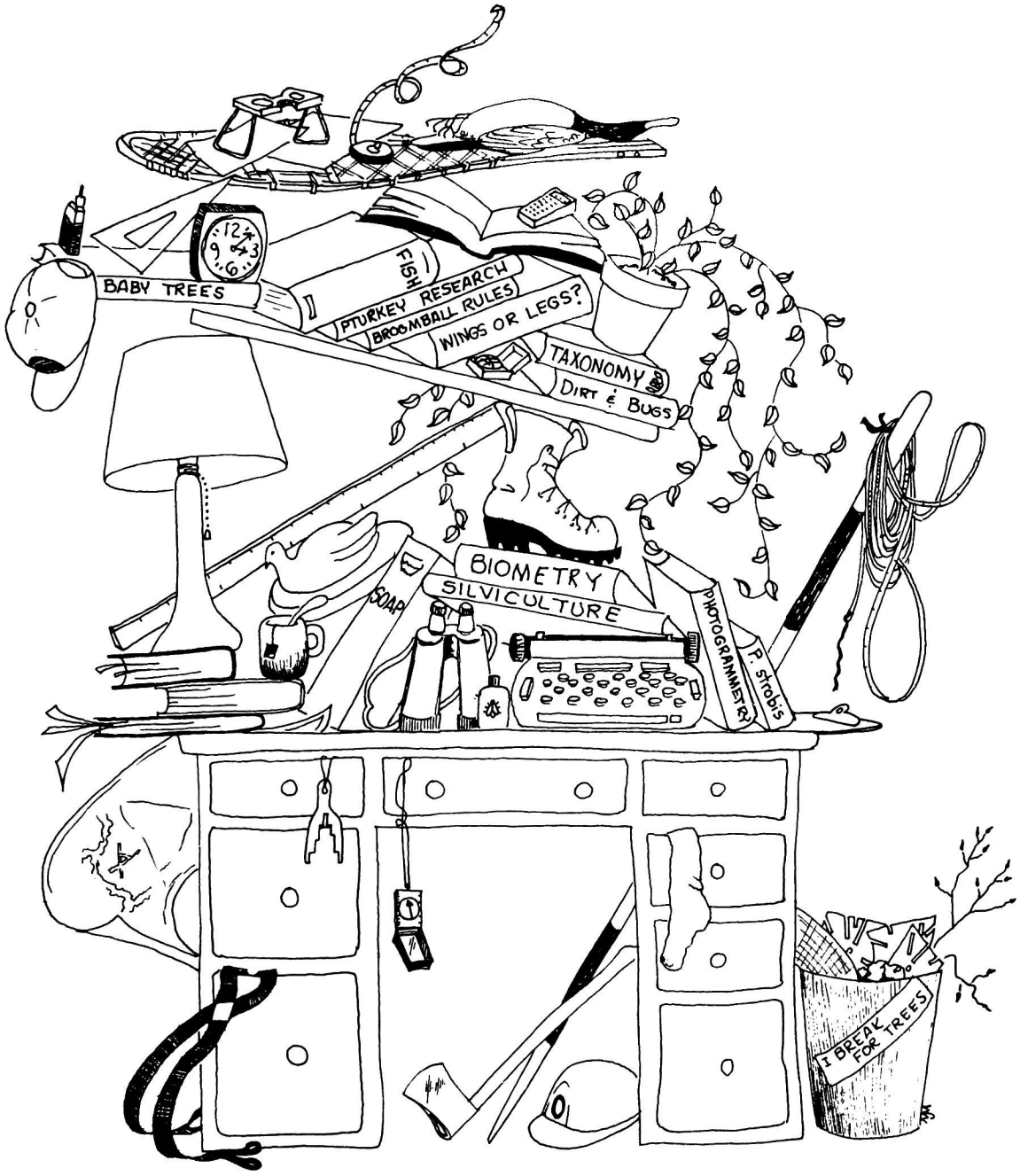
Peter F. Tracy
Farmington, Maine

James Donald Videtta
Canton, Massachusetts

Richard Howard Whiting
Auburn, Maine

Michael S. Woodworth
Bar Harbor, Maine

BACHELOR OF SCIENCE DEGREE PROGRAM



Recipients of the Robert I. Ashman Award

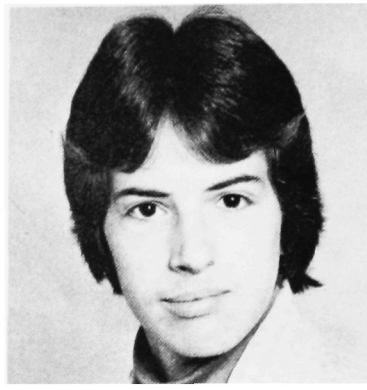
The Robert I. Ashman Award is presented annually to the senior in the School of Forest Resources who most nearly represents the character, judgement, scholarly attributes, and devotion to the profession of forestry and to the welfare of his students and colleagues as portrayed by Professor Robert I. Ashman.

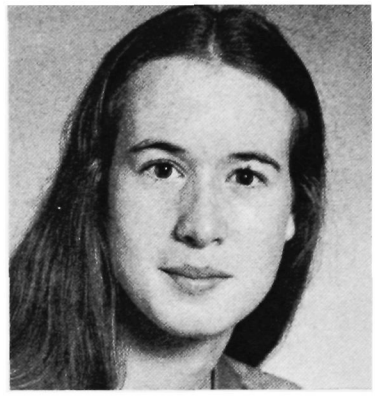
This year the Ashman Award was shared by two students, Betsy Martin and Michelle Donovan. Betsy is a double major in forestry and wildlife management and Michelle is a wildlife major.

Betsy, the daughter of Mr. and Mrs. John Martin, is from Rutland, Vt. She is the current president of Xi Sigma Pi, forestry honor society, and last spring was the recipient of the Clarence E. Stubbs Scholarship from the Penobscot County Conservation Club. Betsy is also a member of Phi Kappa Phi, university scholastic honor society, is active in forest resources clubs and is a member of the UMO women's cross country ski team.

A UMO Merit Scholar, Betsy is also a participant in the university Honors Program and is completing a senior honors thesis comparing vegetation in two different types of bogs.

Michelle, who transferred to UMO from Mt. Holyoke College, is the daughter of Mr. and Mrs. Vincent P. Donovan of Dalton, Mass., and has a brother, Michael, who is a junior wildlife major. She was elected to Phi Kappa Phi, all university scholastic honor society in her junior year.





Recipients of the Dwight B. Demeritt Award

The Dwight B. Demeritt Award honors the late Dwight B. Demeritt of Orono who was the head of the Forestry Department from 1934 to 1946. This scholarship is awarded to a senior majoring in a professional curriculum in the School of Forest Resources who in the opinion of the faculty is "academically able, has good personality and character and has good leadership qualities."

Nathan Putnam, a senior in forest engineering, has been named the school's 1979 Dwight B. Demeritt Award Winner.

Nate, the son of Mr. and Mrs. Donald Putnam, is from West Newbury, Vt. Nate is a member of the Agricultural Engineering Association, the Society of American Foresters, treasurer of Alpha Zeta (honorary society of the College of Life Science and Agriculture) and vice president of Xi Sigma Pi, forestry honorary scholastic society. He is also a member of the Maine Outing Club, the varsity ski team and was named to Phi Kappa Phi, all-university scholastic honor society in his junior year.

FRESHMEN

SOME GOES IN
Easssy...
Others GO IN A
LITTLE ***HARDER.***

Freshman Class

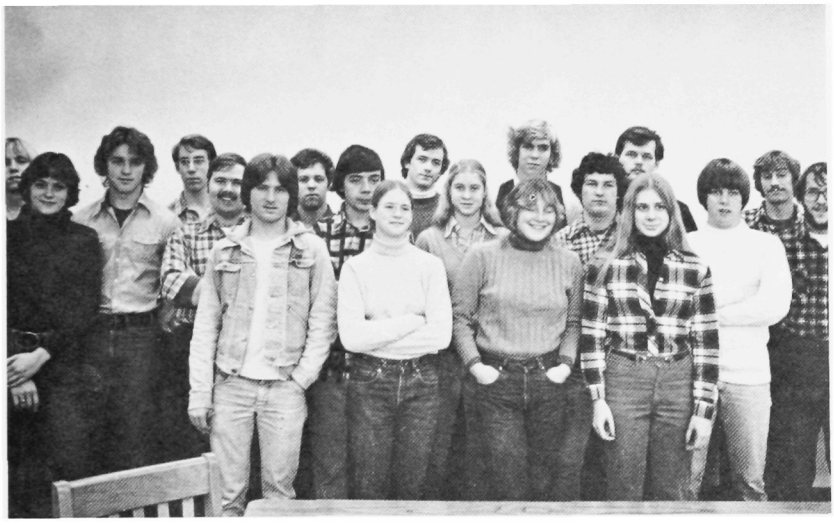
by Dave Walsh and Bob MacGregor

I suppose one way to look at being a freshman is that it is a good place to start. About one hundred of us thought that UMO would be a good place to begin our careers in forestry or wildlife.

We all set our compass bearings for Nutting Hall; yet, somehow we were off by a few degrees and ended up in the Bio-1 center or even worse, Ch-11 in Aubert.

When we learned how to draw a map to get us from East Annex to Nutting, Fy-1 was waiting. Ron Tebbetts said we could go cruise around Woodlot C; that sounded great till he explained that cruising meant trudging through the mud and snow to measure all the trees. He told us there were two methods of sampling, fixed radius plots or point sampling, sometimes called plotless (or was that pointless?). Then there was the time Ron gave everyone a trash bag full of bird wings, and we were to find how frequently a *Philohela minor* (not to be confused with a liberal arts major) would turn up in a chi-square. At this point we all thought of racing to see if the five week drop period was up. But, with a little luck, most of us survived the semester till that week in December when reality struck-Finals!

Second semester saw us get right back into studying, yet somehow we lost a few along the way. But for the hearty freshmen stumpies, who can easily find Nutting without even a staff compass, the next three years look challenging, yet fun.



SOPHOMORES

CRUISIN'

Sophomore Class

by

Mary Gaudette

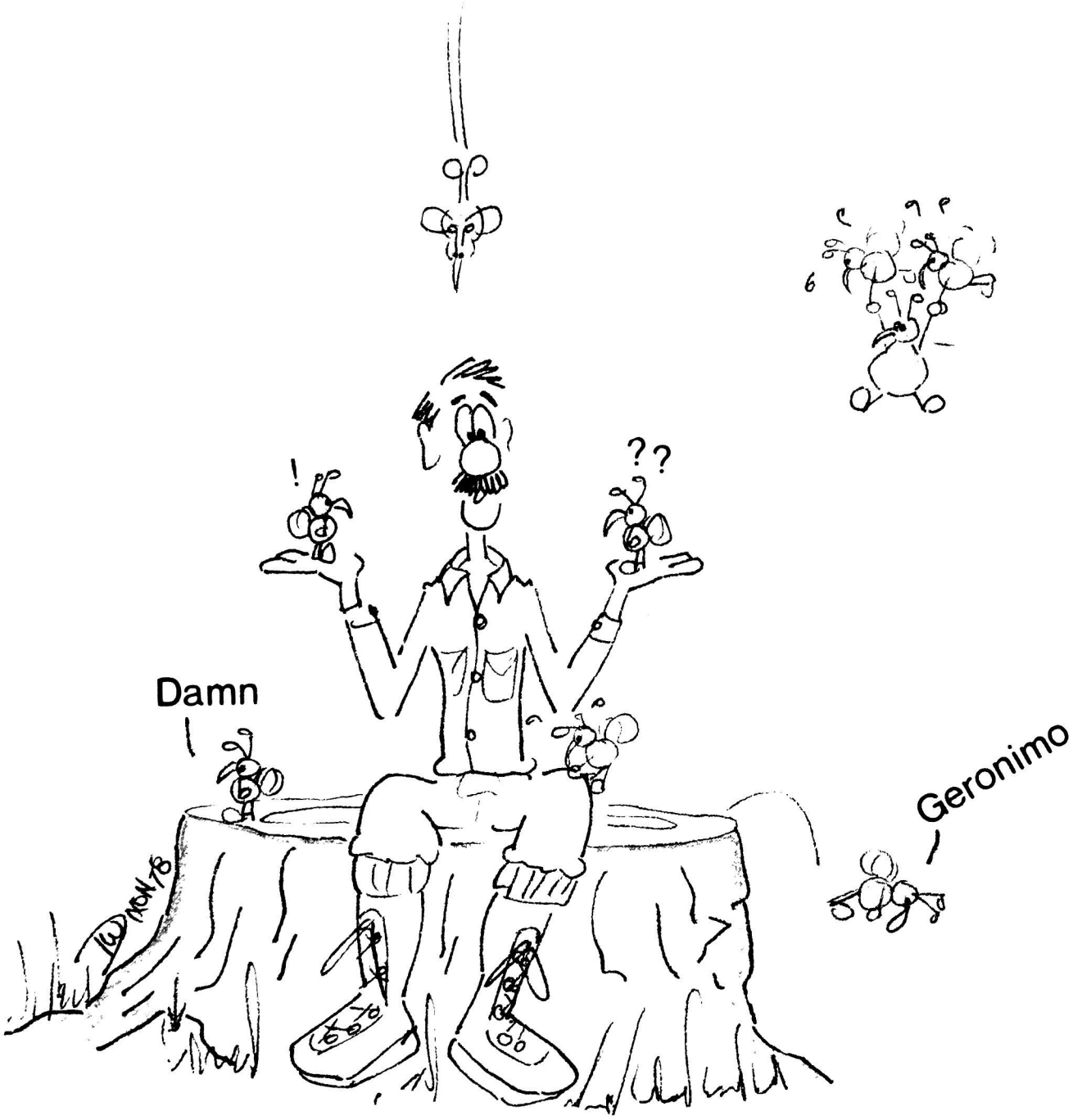
Is it possible that we are already well into our sophomore year? It seems like such a short time ago when we first walked into Nutting Hall as freshmen. Yes, it is true, folks; we are nearly half-way there!!!

We are maybe halfway there, but to get there still involves a lot of work. When we returned to Orono after the summer we quickly found ourselves immersed in lectures, labs, and studying. Dendrology, vertebrate biology, and economics were some of the courses that we found ourselves working on. Surveying has to top my list of impossible courses. Somehow all those knobs on the theodolite still continue to confuse me even after hours in lab. The best part of surveying lab was when Wells Commons decided to let their "pet rock" play in the middle of my traverse line. They sure know how to make a surveyor happy!

One thing that most of us have discovered is how much the university has to offer us in addition to classes. We are learning as much outside our classes as in them. There are all the clubs and organizations, such as the Wildlife Society and Forestry Club. And some of us have been lucky enough to find work-study jobs that are giving us work experience. We are also getting to know the faculty. There is so much here!

When May arrives and everyone else is heading home, we will be packing up to go to summer camp. The stories that we have heard have some of us wondering, but I am sure that we will all manage to make it through and have a terrific time in the process!

FORESTRY SUMMER CAMP



Sorry fellas, but I'm a quart low today

Forestry Summer Camp

by Someone who's been there

In the beginning, there was the Bridgton 34 and the Capricorn 35

At Capricorn lodge rooms came on a first come first served basis the first got singles and saunas, the last got GD1, floods, and spiders. The first day, 35 eager forestry students emerged with hard hats and vibrum soles only to face a day indoors with Fat Jane and first aide. Discoveries in the first week included the following: sleeping past 6:00 a.m. was punishable by a lack of a mid-day break, LURC and colored pencils, Nobbit and his designer meals, hedgehog hill, and black flies.

For those who had just arrived from vacationing in balmy Bridgton, Capricorn presented a shocking change of pace. Our days were filled with cable logging on a 5° slope in a parking lot, traversing square (?) blocks, cruising on a 75° slope, (cable logging possibilities?), 100% tallies, plane table mapping do we really carry those into the woods?, cutting and yarding exercises, measuring bridges, and professional guidance in wading through all those endless but necessary (?) statistical computations (that's your problem). Undisputably, the most enjoyable learning experience was the logging exercise facilitated by Roger Taylor's expertise and patience.

Evenings at the "caves" were often occupied by map-making, calculating, and vacuuming the lounge, but kegs, frisbee, softball, trips to Lac Magantac and Rogers (featuring the dancing fool), more than made up for the quiet times.

Other highlights of Capricorn included throwing people in the stream and leaving.

The original Bridgton 34 started out with the benefit of the gym, the lake, and unlimited ice cream privileges, but to the Capricorn group it meant equal housing, gaining back the pounds lost at Capricorn, and an

entirely different format. Field trips and lectures made up a large part of the curriculum. Field trips involved some long bus rides (although Professor Hale tried to shorten them). One tour taught us that there's a lot more to recreation than meets the eye. Tree-marking, cut-leave, CFI plots, title search and cruising a plot were the field exercises. The cut-leave exercise neces-

I realize this is an all-terrain vehicle, but has the possibility occurred to you that we might be stuck?

sitated the cooperation of the entire camp, the result being a map, report, and several sleepless nights.

One of the most beneficial features of Bridgton was the interaction with professional foresters. We were able to display our eloquence and knowledge during the presentation of our management plans. Generally, it was agreed that the opportunity to present our opinions of the camp in a journal was appreciated.

Our free time was filled with swimming, softball, basketball, sand sculptures, canoeing, 6:00 p.m. news, and drinking, of course. Fourth of July found us doing CFI plots, attending the Naples fireworks display, and the Highlander (shots of Jim Beam). While at Capricorn, it included a field trip to Eustis followed by the incredible cave party featuring movie entertainment for the low, low price of a rock ticket.

For those of you who can't appreciate this reminiscing (in other words if you don't have a clue) I guess you just had to be there.