

# Class of 1961

*By* DENNIS JETTE

Four years ago the doors of college were opened to us, and we obtained the opportunity to prepare ourselves for the future. We are now about to exit through these doors and end the first phase necessary for a successful career, that of technical knowledge.

Whatever future use we will make of this classroom acquired technical background will soon lie in our own hands. We have only acquired basic knowledge in a technological field where professionalism is being given more and more emphasis. Whether we will use our technical backgrounds in a lecture room, laboratory, or in the field, we must not feel that our need for education has come to an end. If this be the case, then we will fall short of our potentialities.

We, as graduating foresters, are taking on the responsibility of being ready at all

times to promote our profession and to promote it well.

Our relationship as a class has become quite close during the past four years. We have come to be a local fraternity of our own, and we are about to join the larger fraternity of professional foresters. We have undergone many similar experiences. None of us will be likely to forget the deer flies, the mud, and the mosquitoes of Indian Township. We have endured many of the same prelims, quizzes, and reports and seen the same numerous stands of red pine. We have all benefited in some way from our experiences and acquaintances.

Our many thanks to the members of the staff and faculty whose doors have always been open to us. Without their guidance we would be unable to approach and to answer the demands of this technical age.



# UNDERCLASSMEN



# Class of 1962

*By* DAVID A. LIBBY

Upon returning to Deering Hall from all parts of the country after a summer of sunshine, work, and other memorable experiences, it was a little difficult to realize that vacation was over, and it was time to hit the books again. Behind us is the West, the cool summer nights, the fishing trips, and the paydays when the money was rolling in, and ahead of us lies the hope and for success in the future.

From the start of the first semester of our freshman year the class has been constantly shrinking away until there are only a few of us left from the original class. This year there were a flock of transfers into the junior class from other schools which added color and new concepts while increasing the size of the class considerably.

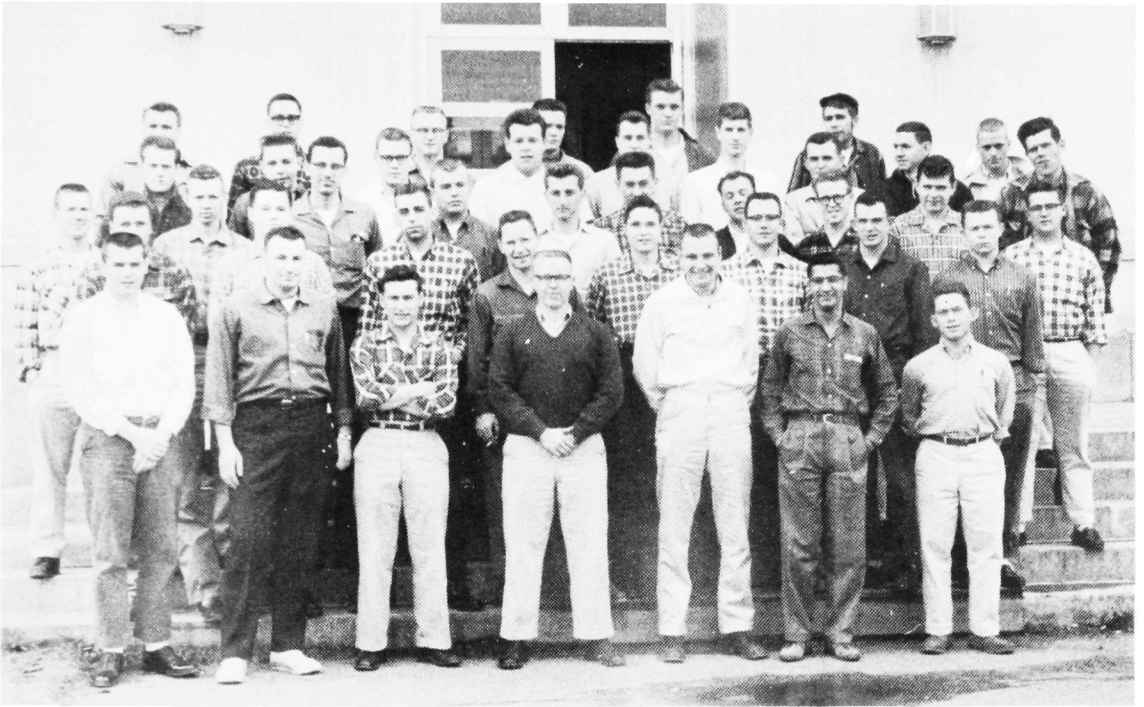
During the fall semester we were introduced to Plant Anatomy, Soils, Physiology, and Silvics; along with a number of electives—History, Astronomy, Weather, and Music—to name a few. Writing reports became an never-ending task while the last exam usually was the most popular topic of conversation. Probably the long, cold, wet trips to the University Forest for Silviculture labs and the sliced

fingers from wood identification will long be the most remembered activities of the spring semester.

Interests in extra-curricular activities ranged from varsity sports, Track, Outing Club, Rifle Team, Geology Club, Forestry Club, Hot Shots, and other various activities as the class is well represented in campus life. A few have elected Advanced Military, and once a week they swap their axe for a rifle. At any of the social events, dances, movies one would not have to look far to find a for-ester from the “Class of 62”—especially at the Bear’s Den.

As each day goes by, the time for spring trip and summer camp looms closer and closer. Some of us are looking forward to summer camp, while others are in doubt as to whether they can afford it. At any rate the rumors thrown around by the seniors make one wonder. Looking ahead, most of us feel some anxiety (as the end may seem in sight for some of us), toward that day in June 1962 when we will have that seal of approval to wade through the bogs and swat mosquitoes.

# JUNIORS



## *Forestry*

Allen, Douglas Charles  
 Angevine, H. William  
 Atkins, John Pearson  
 Authier, Pierre Harbort  
 Berchet, Dennis G.  
 Cahoon, Donald Malcolm  
 Childs, Albert Jerome, Jr.  
 Cote, Robert Ernest  
 Cunningham, Seymour  
 Downing, Malcolm Frank  
 Hussain, Nemah Kati  
 Jewell, Thomas Robert  
 LaTourette, Alvah Norman  
 Libby, David Arlyn  
 Millard, William D.  
 Moore, Henry Winslow  
 Morrill, Gayden Wells  
 Morse, Sherwood Harry  
 Osborn, Robert Weymouth  
 Pare, Maurice Romeo  
 Rhoades, Robert Norman  
 Sachsenmaier, Warren Wesley

Schwink, Frederick Joseph  
 Skorski, Edwin Anthony, Jr.  
 Stevens, Richard A.  
 Streeter, Donald Wesley, Jr.  
 Teubner, Stuart W.  
 Thayer, Richard Cutler  
 Turner, David Harvey  
 Turner, Terry Lawrence  
 Utton, Jack William  
 Verduin, Robert William  
 Warren, David William  
 Waskiewicz, Malcolm Donald  
 Whittemore, Bruce H.  
 Wilcox, Frederick Thomas

## *Wildlife Management*

Barclay, John Scribner  
 Davis, Clarence W.  
 Davis, Peter Reese  
 Incerpi, Angelo  
 Nickerson, Richard Barrett  
 Rollins, Glenn Leslie II  
 Scott, Matthew  
 Venno, Paul Maurice William



# Class of 1963

By RICHARD STAIGER, AL LARSON, DAVE RICHARDSON

This past fall the Forestry Class of '63 returned to its base of operations Deering Hall. We had seen the West and some parts of the East. We returned numerically decreased by better then a half from a year previous but with increased enthusiasm. By now the majority of those remaining had made their decision to pursue a course of Forestry and settled down for a year of hard studying.

In making our decision to become professional foresters many factors were considered and upon evaluation some realized that this wasn't their professional calling and switched fields. We have now come to realize that a modern forester doesn't have to come out of the woods looking and smelling like a piece of old growth timber.

We found our courses this year more directly applicable to forestry. Instead of basic science and art courses, practical

sciences such as Mensuration, Dendrology, Entomology, and others were studied.

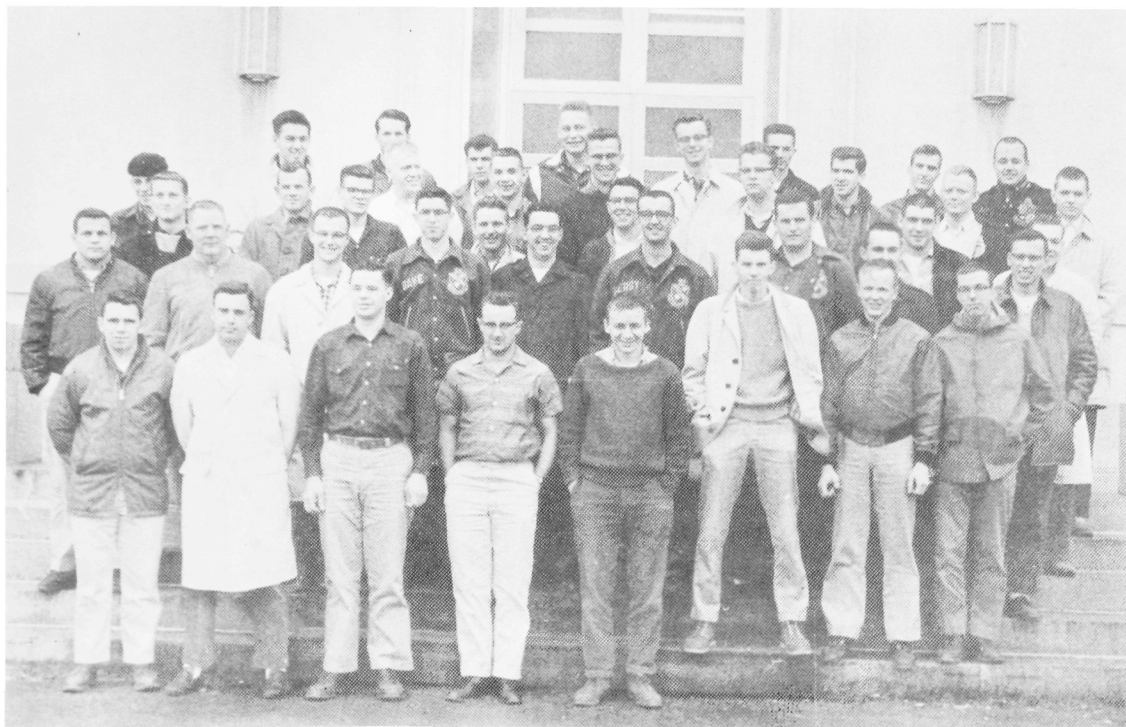
Realizing that study alone doesn't make a well rounded forester, snowshoes, guns, and decoys were cleaned and readied for action. These will be replaced this spring by fly rods and creels. Besides these off-campus activities the Sophomores took an active part in Professor Randall's Hot Shot Crew, with Lee Hoar heading up the activity. Forestry Club was also a success, and there too the Sophomores were in evidence, with Al Larson as Treasurer and Lee Hoar as Vice President holding executive offices.

As we near the mid-way point of our college career and with the inspiration and guidance of our professors, we are beginning to realize what is to come. The wide profession of forestry is opening up before us and we are preparing, as best we can, to meet this ever increasing challenge.



"West of the Penobscot"

## SOPHOMORES



### *Forestry*

Arseneault, Norman George  
 Bleicken, Eric Vaughn  
 Brackley, Allen Marquis  
 Brown, Richard Lindsay  
 Dionne, Joseph James  
 Dudley, Tyler Edward  
 Field, David Badger  
 Gammon, Calvin Burchard  
 Hoar, Leigh Eric, Jr.  
 Holden, Eric Jan  
 Keene, Clifford Ramsdell  
 Kendall, William Everett  
 Larson, Albert Lloyd  
 Lipsey, John Ogden, Jr.  
 Lovejoy, Richard Albert  
 Mallett, Ronald Joseph  
 McGlaufflin, Hollis Arthur  
 McKenna, Richard  
 Mitchell, Roger James  
 Nason, Richard George  
 O'Brien, Lewis Bernard  
 Palmer, Hubert Samuel  
 Percival, Gary Willis  
 Porch, Stephen Letson

Purinton, David  
 Richardson, Charles David  
 Richardson, Ernest Merrill  
 Roberge, Paul Laurier  
 Root, Robert Alan  
 Sarnow, Stuart Grant  
 Shaw, Jonathan Lassell  
 Shepard, Robert Kent  
 Smith, Converse Burr  
 Staiger, Richard Dreyer  
 Taylor, Allyn Chandler  
 Toomey, John Philip  
 Trundy, Gerald Erlon  
 White, Dennis Henry  
 Wilson, Stephen Packard  
 Young, Barry Allan

### *Wildlife Management*

Andrews, Philip Scott  
 Ferguson, Edgar Lochlin  
 Florence, Ben Mayo  
 Gramlich, Francis James  
 Heinrich, Bernard  
 Moulton, John Clemons  
 Murphy, Charles Richard

# Class of 1964

*By* BOB AUGUST AND ERNIE TOROK

September 17, 1960 saw seventy-three freshmen foresters arrive on the campus. Although everything was new and perplexing, our tour of the campus and the University's forest during orientation made us better acquainted with the University. Freshman orientation terminated with the Freshman Mixer which introduced us to the other freshmen and made us feel right at home.

The next few weeks saw us begin a new way of life. Many of us were out on our own for the first time and found it a unique experience. Our lives soon became a mixture of social activities and studies, with the emphasis on the former quite often.

Realizing the task before us, we quickly settled down to work. To many of us, the library became a second home. We owe a debt of gratitude to our advisors who did a tremendous job in keeping many of us from falling behind in our work.

Prominent among our activities was the Forestry Club under the direction of Professor Beyer. We heard lectures, saw slides, and heard several guest speakers who were involved in all fields of forestry. The club helped to increase our knowledge of the profession of forestry.

Early in the fall semester the "Hot-Shot" crew was organized. Approximately forty freshmen and upperclassmen under the fiery eye of Professor Randall composed the crew. As usual, much practical experience and good, wholesome exercise was gained by those who participated.

The highlight of the program was a demonstration-outing held in Dixmont during Fire Prevention Week in which the Maine Forest Service and the "Hot-Shot" crew participated.

Many of us were also active in sports. Although a great majority participated in track, we were also well represented in football and baseball.

In addition to sports, dances, movies, and the Union occupied much of our hard-pressed time during the first semester.

The beginning of second semester saw many of us caught up in rushing activities. It will be hard to forget that first hectic week in which many of us spent our meal periods at the various houses and became more and more confused as we met so many new friends in such a short period of time. Finally, we were faced with the tough decision of choosing a house that best suited our taste.

With the spring semester came our quest for summer employment to fulfill our experience requirements. Many of us have accepted jobs in the western part of the country while others are planning to work closer to home.

As the year draws to a close and the time when we will officially become sophomores draws near, some of us will have to decide whether we will go on to major in forestry or change over to wildlife. But, whatever the decision, we all will be eagerly awaiting the opening of the fall semester.

## FRESHMEN



Allen, Peter Bernard  
 Bourque, Peter Michael  
 Briggs, Leon Robert, Jr.  
 Bruce, Robert Gordon  
 Cahoon, John Burton  
 Caler, Bruce David  
 Davenport, James Alan  
 Demora, Stephen John, Jr.  
 Dodge, Norman Henry  
 Edge, Thomas Valentine  
 Ellison, Arthur Frank  
 Erskine, Douglas Dwight  
 Feltman, Thomas George  
 Field, John Early, Jr.  
 Galvani, Peter Francis  
 Gill, Robert Pearson  
 Gordon, Robert Stanley  
 Gray, Morrell Dexter, Jr.  
 Handschumacher, Ronald Wayne  
 Hanson, Neil Walter  
 Jackman, Gregory Adelberg  
 Lacroix, Jeffrey Alan  
 Richardson, Dale Morris  
 Dineen, Norman John  
 Mantai, Kenneth Edward  
 Martin, Robert Wesley  
 Newman, Thomas Kenneth  
 Parker, Michael Lee  
 Puleo, Vincent Salvatore  
 Seaha, Walter Peter  
 Severson, Daniel John

Smith, Daniel Adams  
 Smith, Elliot Winthrop  
 Stevens, Alan Ray  
 Thomson III, James Laurence Hutton  
 Titcomb, Alan Barbour  
 Torok, Ernest Arthur  
 Trouant, Peter Lynn  
 Whitman, William Raymond  
 Young, Dennis Julian  
 Yuodsnukis, Anthony Joseph  
 August, Robert Martin  
 Beal, Kenneth Lee  
 Benning, Douglas Stanford  
 Brann, David Wilbur  
 Casey, Dale Cameron  
 Cluff, Bruce Gordon  
 Colt, Richard Lewis  
 Frew, Robert Edgar, Jr.  
 Harvey, Ernest Bartlett, Jr.  
 Hescock, Jonathan Clemmons  
 Marin, Roger Arthur  
 Moroney, John Francis  
 Phillips, Clifford Laurent, Jr.  
 Pinkey, George Albert  
 Richards, Bruce William  
 Sherman, Hamilton Cary  
 Small, Asa Martin  
 Spear, Charles Edwin  
 Van Valkenburg, James Pardee  
 Wiersma, George Bruce  
 Wiley, Joseph Edward III







# ARTICLES



# Recreation Study

*By* BRUCE E. STEWART

The problem under investigation is in the field of forest recreation on private timber land.

In view of the fact that literature on this subject is limited, I am attempting to determine through personal interviews the desires of the recreational users in regard to the roads and other facilities made available to them by the private landowners on a portion of the State of Maine. By employing a questionnaire in conjunction with personal interviews I hope to obtain the views and opinions of recreational users in regard to existing facilities, improved facilities depending on cost, and landowner and operator management policies. In addition to this I intend to obtain the views of those most intimately associated with recreationists namely game wardens, public and private foresters, landowners and operators, and fish and game biologists.

The area chosen for this study extends north and east of Bangor, Maine, and is

enclosed by Routes 2 north to Lincoln, 6 east to Topsfield, 1 south to Woodland, and 9 west to Bangor. The area is unpopulated woodland that has been logged over several times during the last 140 years and contains several hundred miles of logging roads, the conditions of which vary from overgrown to newly constructed. There are many lakes, large and small, thousands of trails and streams, and a number of small mountains from the tops of which magnificent scenic views are offered.

It is my intention through examination of past operations, work done by public agencies, company road construction, maintenance, and planning policies, and interpretation of information received from interviews, to resolve the problem of recreational use of private roads and land into a clear and as closely knit unit as possible for presentation in thesis form, and on the basis of this information to make appropriate recommendations for future consideration.



# Forest Management—A Tale of Indian Township

By ARTHUR G. RANDALL

Indian Township is well known to Maine foresters, and many a song and story has told of life at Camp Robert Ashman. Less often told is the fact that this township is peculiarly suited for use as a laboratory in forest management. All activities at camp are directly tied in to the management of this specific property. Foresters, this closely held secret has been leaked by the faculty.

When songs are sung of Indian Township, they should always be true ones and never should do less than justice to the number and size of the mosquitoes, the depth and extent of the swamps, and the density of the fir thickets. But, say! when the sun is shining on the green spruce trees, isn't that a beautiful sight, And, after a shivery dip in Lewey Lake, was that your fourth or fifth helping at supper last night?

The songs may remember that this land has belonged to the Passamaquoddy Indians since the days of Madockawando, their ownership of Township 2, Range 1 of Titcomb's Survey having been recognized by Massachusetts in 1795 and by Maine since 1820. The Forest Commissioner is responsible by law for the timberland, and the University has been helping to manage it since the camp was built in 1931. The St. Croix Paper Company has undertaken to purchase and harvest pulpwood. This three-way cooperation makes possible a planned annual harvest of timber. No poetic license is involved if the songs say that this is an unique arrangement.

At camp the student learns the objectives of management on the township. Economic objectives include annual sustained yield so that twelve to fourteen weeks of employment is provided each year to the sons of Madockawando, while stumpage is paid by St. Croix to the Indian Trust Fund; also supplying raw material to industries and contributing to employment opportunities in the St. Croix Valley. Silvicultural objectives include building up the growing stock, obtaining satisfactory growth, maintaining the ratio of spruce in the stands, and reducing

damage from insects, disease, wind and fire.

A long line of foresters, some of the early figures bedimmed in the mists of time, have contributed to the management of Indian Township. The first task, after retracing the exterior boundaries established by William Dana and others, was to subdivide the township into units for management. These make it possible to keep cruise data in more detail, to locate improvements and sample plots, and to plan the harvest. Since stands are poorly defined and constantly changing, artificial compartments are used for this. Straight lines were run with a transit, except where roads or water boundaries could be used. A portion of these lines is cleared and painted each year. The work is partly mechanized, a brush cutter saw being used in 1960. At one point this machine was taken over by hornets and had to call the mist blower to the rescue.

Each year a new crew of foresters cruise more than half of the compartments. Two partners make a 2½% cruise of a compartment, using ⅓ acre circular plots. Cruise figures indicate 16,534 acres of forest land. Of this, 946 acres is reserved in two experimental compartments. Of the remaining 15,588 acres, 10,845 acres is softwood type. Timber volumes include 113,437 peeled cords of spruce and fir, 31,338 cords of hemlock, 17,400,000 board feet of pine, and lesser amounts of cedar and hardwood. If the later foresters compare their figures with earlier ones, they will find that this is the growin'est town. For example, 0.3 peeled cords per acre of spruce and fir in all types, or 0.65 rough cords per acre per year of spruce, fir and hemlock in softwood alone. But then foresters remember that growing conditions for spruce and hemlock have been unusually favorable in the last twenty years and that large in-growth results from stands regenerated after the 1920 budworm outbreak.

The student sees that recreation and wildlife are also important uses of Indian Township and must be considered in the management plan. Lake shores are to be kept in their natural condition ex-

cept for the public campground on Long Lake. No commercial cutting will be done, other than on a salvage basis, within 150 feet of lake shores, the campground, and of hard-surfaced roads. Regular annual cuttings encourage deer, while the present intensity of management of both timber and deer is insufficient to warrant further measures.

The student learns that for partial cutting the total amount cut or the cut per acre is affected by the length of the cutting cycle. It is planned to cover all compartments in 20 years. The songs relate that this is about the shortest cycle justified by logging costs at present and about the longest that will permit satisfactory growth.

The annual cut has been fixed for the period 1958-67 at 1,500 cords per year of spruce, fir and hemlock pulpwood and 100,000 board feet of pine. This cut is conservative in relation to growth. There are several reasons for this. Rough hemlock is not desired by the company. A new plan for meeting this problem in 1960 is to treat the hemlock with sodium arsenite immediately after marking and delay the cutting of all pulpwood from December to April. Other reasons include heavy cutting during World War II and unusually favorable conditions for softwood growth in the past 20 years.

The forester learns that he must assign the compartments to be operated in a 10 year plan period and arrange them in con-

venient order for logging. At present on Indian Township it is desired to keep each year's operation within a compartment or equivalent area, to keep it within reasonable horse travel from the hovel, and to move only a short distance from year to year. In 1949 operations began west of Huntly Brook in the northern portion of the town and have moved west to the boundary of Grand Lake Stream Plantation, then southward and are now moving east in the southern portion of the town.

The annual cut of pulpwood is marked by students. In 1960, back-pack paint guns were used, and outsiders must have wondered at the orange men in the crew. Marking rules call for a combination of tree and group selection removing 50% of the volume of spruce, fir and hemlock 6" d.b.h. and larger. The cut is heavier when the stand consists largely of fir or of tall, spindly spruce or of large hemlock and in the vicinity of pine seed trees. The results of marking have been the subject of work for the M. S. degree by W. H. Drisko in 1955 and A. T. Bowen in 1960.

And so the time passes at Camp Robert Ashman until the last day with its great remembered deeds in contest with other cabins, the prizes given by St. Croix Paper Company, and the last big supper. After the exodus next morning, the quiet of the forest settles over Camp Ashman for another year.

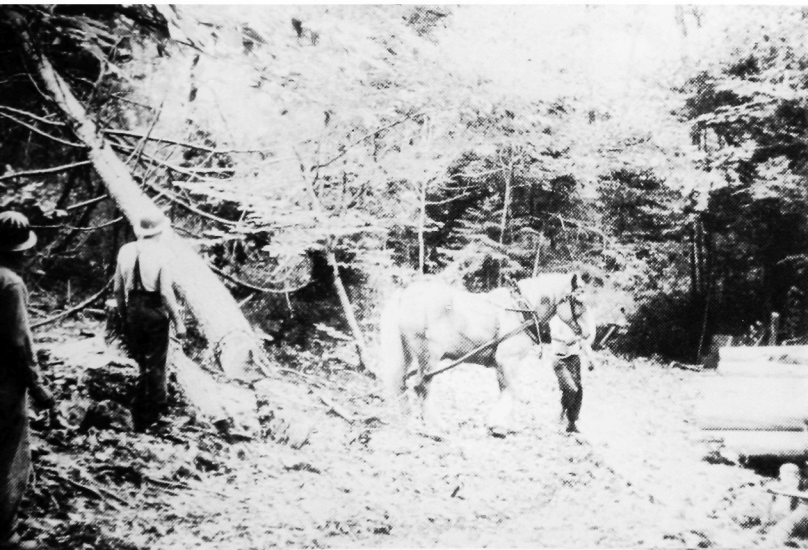


Wood to  $\infty$





ABATTRE, EBRANCHER, TWITCHEE'



CORDEE'





# Deer Research In Maine

By CHESTER BANASIAK

Collecting factual information pertaining to deer as a basis for biologically sound management of our most valuable forest game species has been a prominent part of Maine's wildlife program for the past ten years. Although most of Maine's interested citizens know that deer investigations are being carried out, few are familiar with what is being done, the personnel doing the work, and the role of the various agencies involved in getting the job done. Therefore, this article is aimed at "breaking the ice" toward a better acquaintance with the deer research set-up in Maine, and the highlights of our findings.

Essentially there are four agencies directly or indirectly involved in deer research conducted in Maine:

- (1) Game Division of the Maine Inland Fisheries and Game Department
- (2) U. S. Fish and Wildlife Service
- (3) Maine Cooperative Wildlife Research Unit
- (4) School of Forestry, University of Maine.

In no sense are the agencies competitive; rather, the State Game Division is served with financial aid by the federal organization and relies on technical services of the Unit and Forestry School personnel for contracted work. Over-all planning of the deer research program to fit State requirements is a function of the Game Division and carries with it the privilege of paying the bills from license fees. In turn the U. S. Fish and Wildlife Service through their Federal aid program (commonly known as the Pittman-Robertson Act) reimburses the State for three-fourths of monies spent on approved research and management projects. Funds for reimbursement are derived from an 11 percent federal excise tax on sporting arms and ammunition. These "earmarked" funds are apportioned to the states on the basis of land area and number of licensed hunters. With that background of hierarchy and financing out of the way, we can take a closer look at the State's deer research program.

There is neither time nor space to unravel the complete history of white-tail investigations in Maine for this account. Nevertheless, it should be acknowledged that formal studies of behavior, food habits and other facets of deer ecology

were initiated by the Maine Cooperative Wildlife Research Unit in the 1930's. The Game Division's P-R investigations began about 1947 with localized winter deer range inventories and have gradually expanded in scope since that time. And present responsibilities for the deer research program date back to 1954.

Under the direction of W. R. DeGarmo, Chief of the Game Division, two fairly distinct, but complementary, lines of white-tail research have been followed. These involve habitat management studies, headed by John Gill, and investigations aimed at providing facts for regulatory management under my responsibility. Regional game biologists assist in planning and carry out most of the field work involved. In addition, segments of our studies suitable for thesis presentation have been contracted with graduate wildlife students of the Cooperative Wildlife Research Unit.

Both phases of our research activities are directed toward providing answers for long-range management of Maine's deer population. In brief, management is based on the principle that any given unit of habitat for any fixed time is capable of supporting a definite number of animals. Thereby regulatory management has as its goals (1) the harvesting of deer surpluses where they exist and (2) allowing continued increases in deer populations levels where habitat conditions and land-use practices warrant it. Where higher population levels are desirable and assured of proper harvest, improvement of food and/or cover conditions is a necessity. Regulatory management has received the greater share of attention in the past. However, the search for practical methods of deer habitat manipulation to supply more deer for anticipated increased hunting pressure is not premature.

Compared to most other states, the Maine deer herd and range are in excellent condition. Consequently we have an enviable "laboratory" for studying and testing habitat management procedures. Also, we are ahead of the game in that time is available to prepare for expected increases in hunting pressure and changes in range condition.

Deer habitat management studies have been planned around two vital facts of deer life. First, winter is the toughest time of year. Travel by deer is restricted so they must live on food available near acceptable shelter. Second, food and shelter conditions are largely determined by commercial forestry operations. Deer can be considered a by-product of woods operations.

Most types of operations do benefit deer. However, some may be harmful, notably large-scale clearcuts. Others might be better for deer if modified slightly. These observations have led to studies of the effects of various cutting practices on food and shelter conditions. Object is to refine suggestions for improving or stabilizing deer habitat without much cost to the landowner or operator.

More is known about deer food relationships than about shelter preferences. Effects of shelter deficiency have been tested and detailed observations of the cover actually preferred by deer are underway. These and related studies, plus field tests of their findings, should contribute to improvement of deer hunting in Maine.

The facts for regulatory management have evolved gradually from masses of data collected statewide. Information gathered, compiled, and analyzed group conveniently into the following categories:

- (1) Statistics pertaining to the legal deer kill distribution and non-season mortalities
- (2) Regional measures of hunter numbers, effort, and success
- (3) Indices of deer productivity and physical development obtained from samples of the fall harvest
- (4) Winter deer range inventories and behavior studies
- (5) Available information on Maine's climate, forests, agriculture, and human population distribution.

Findings of these investigations have been published in annual progress reports, Game Division publications, and other media. In brief, we have found major differences in winter deer range quality between our farm-woodlands and commercial forests regions. Further, a corresponding difference in productivity and physical development among deer from these regions is also evident. Dissimilar habitat, winter climate, hunting pressure and kill densities contribute to those differences. In other words, the region producing our best physically developed and most productive deer is characterized by the following:

- (1) Relatively mild winters
- (2) Interspersed farm and woodlands
- (3) Densest human population
- (4) Heavy hunting pressure
- (5) Excellent access
- (6) High deer kill per square mile
- (7) A deer population generally in balance with winter food supplies

In contrast, our regions of poorest deer development consists of forested land with characteristics directly opposite to those above.

Recommendations for deer season adjustments which evolved from these findings were enacted by the 1959 legislature. Season lengths and zones are now more closely aligned with boundaries separating major areas differing in land-use, deer condition, winter range quality, winter climate, and hunting pressure.

Although a major job has been completed, deer investigations are by no means at an end. There will be a constant need for periodic reappraisal of the many factors affecting deer populations. Likewise, the information compiled to date contains many glaring gaps which need filling. This can only be accomplished through new approaches and more efficient techniques. We still have a lot to learn.



# THE KELSH PLOTTER

*By* DR. HAROLD E. YOUNG

The James W. Sewall Company, consulting foresters and engineers, of Old Town, Maine have made available to the School of Forestry of the University of Maine a Kelsh Plotter. This second order stereoscopic plotting instrument is a welcome addition which will be utilized in the existing forest photogrammetry course, in special problems and research, by other departments of the University and may even be the basis, in the future, for an advanced photogrammetry course.

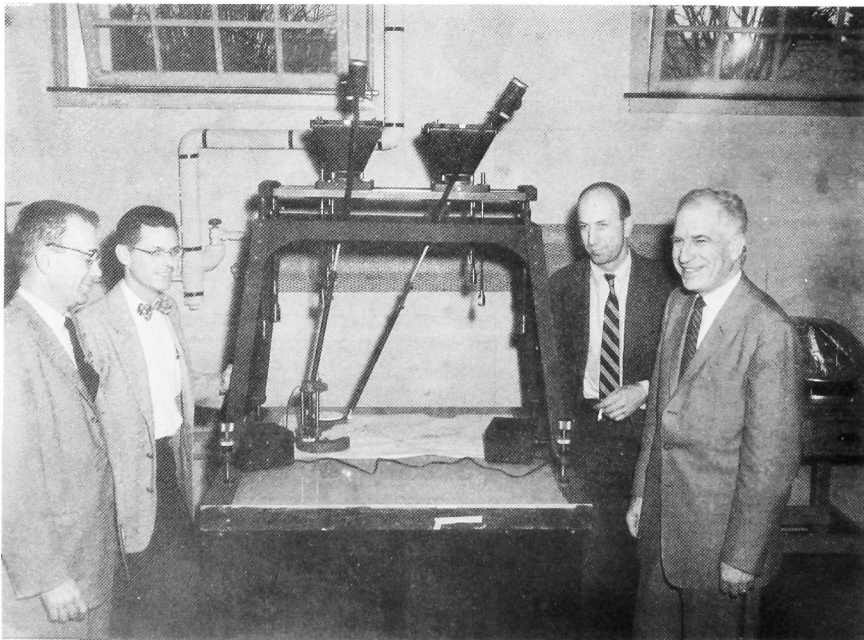
The Kelsh plotter is similar in general principle to the multiplex which has been used extensively for map compilation by the United States Geological Survey and the Army Map Service for over twenty years. It has three main distinguishing features: the use of contact-size diapositives; a moving illumination system that concentrates light on the portion of the diapositive image that is being projected to the tracing table platen; a model scale about twice as large as the multiplex scale for the same photography.

In the past eight years the Kelsh plotter has been used for special studies such as determination of the volume of huge piles of pulpwood and the area of pulpwood in water storage. Now it will be possible to explore on a research basis other possible practical uses of this precise plotting instrument. One that comes to mind immediately is the relative accuracy of con-

tours of forested areas prepared by this instrument as a base for location of gravel and bulldozed roads that will be constructed in a large scale harvesting operation.

For the past 15 years photogrammetric equipment commonly used in forestry work has been accumulating in the Forest Mensuration Laboratory. Space requirements of the Kelsh plotter have necessitated converting Room 10, Deering Hall into a Forest Photogrammetry Laboratory to house it as well as the Multiscope and the Kail plotter. This laboratory will be for students and staff using this equipment as well as for demonstration purposes. For the time being, preparation of lay-downs, use of the vertical sketchmasters, and photo interpretation work will continue in the Forest Mensuration Laboratory. Plans for a new forestry building include provisions for a Forest Photogrammetry Laboratory which will adequately house all existing equipment as well as that contemplated for some years to come.

It is doubtful if any other forestry school has photogrammetric equipment comparable to the Kelsh plotter made available to our School by the James W. Sewall Company. Thus our School has an opportunity and a challenge to increase its efforts in the field of Forest Photogrammetry in order to benefit the entire forestry profession.



H. A. Young, K. W. Cox, J. Sewell, and A. D. Nutting

# Factors Influencing the Growth of Red Spruce in Partially Cut Stands

By A. TEMPLE BOWEN, JR.

In recent years increased emphasis has been placed on the single tree selection system as a method of marking spruce-fir stands for harvest. This system has been practiced continuously since 1949 on Indian Township, a 20,000 acre tract of forest land in Washington County managed by the School of Forestry.

It was on this area that the writer, a graduate student at the Univ. of Maine, School of Forestry, undertook a research study concerned with the basal area growth of residual trees on partially cut stands. The objectives of this study were (1) to determine the correlation of certain tree and stand characteristics to the basal area growth of residual red spruce trees and (2) to evaluate the effectiveness of the harvest in increasing residual tree growth.

The experimental design and a set of unique tally sheets were developed in the spring of 1960. The field work was done during the ensuing summer. Considerable help was given by the students in the class of '61 who were attending the Annual Summer Forestry Camp. The field procedure consisted of selectively sampling 216 trees and their adjoining plots on seven partially cut areas that had been harvested from one to seven years before.

Multiple regression techniques were used to analyze the data. In this manner the fifteen tree and stand characteristics (examples: dbh, age, height, live crown

length, crown position, number of trees per acre and basal area per acre) were tested to determine their correlation with the dependent variable (tree basal area growth). Comparisons were made between the growth on each area before and after the cut to establish effects incurred by the cut.

The results of this study indicate that the most important single variable that may be used to assess the potential growth of a given tree is the basal area growth of that tree five years prior to the cut. Characteristics more useful to the timber marker that might also be used are live crown length and dbh. Stand basal area was significant only on the areas that had grown four, six and seven years since the harvest.

At this time it is possible to draw only a few tentative conclusions. It is evident that the larger trees are growing faster in terms of basal area. It is apparent that the harvest had no adverse effect on the basal area growth of individual trees during the seven growing periods covered by this study. No favorable effect was apparent until the fourth growing period at which time an inverse relationship between stand basal area and tree basal area growth was demonstrated.

Further analysis of the data will result in additional information that will be applicable in that phase of timber management concerned with the problems of marking timber.

