

UNIVERSITY OF MAINE AT ORONO

**Forest Resources
Research Advisory .
Committee
ANNUAL REPORT
1976**



FOREST RESOURCES
RESEARCH ADVISORY COMMITTEE
1976 ANNUAL REPORT

George W. We Hand, *Chairman*

Morris R. Wing, *Vice Chairman*

Keith E. Miller, *Secretary*

School of Forest Resources College of
Life Sciences and Agriculture University
of Maine at Orono Orono, Maine

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FOREST RESOURCES RESEARCH
ADVISORY COMMITTEE
1976 ANNUAL REPORT

F.R.R.A.C.'s third year was one of accomplishment of the major objective of the mandate set forth by President Howard Neville. The research unit has been funded, the staff has been selected and work is well underway.

The first part of the year moved along rapidly with the excellent response from cooperators in funding the proposed program. The funds were donated on the basis of a voluntary assessment of acreages owned by the individual and company contributors. With this financial support the University was able to advertise for candidates to fill the positions of Silviculture, Utilization and Marketing, and Protection. The University will provide logistical support, administration and supervision. Response to the notice was the applying of 38 candidates.

The selection committee not only had an adequate number of candidates, they also had a group of highly qualified individuals.

The final selection process has been completed and the new members of the Cooperative Forestry Research Unit are:

Maxwell McCormack, Jr. - Research Professor of Forest
Resources - Silviculture

Mark W. Houseweart - Assistant Research Professor of
Forest Resources - Forest Protection

David B. Field - Associate Research Professor of
Forest Resources - Utilization and Marketing

James C. Rea - Assistant Research Technologist

The second charge set forth by President Neville was to have the Committee influence the priorities to assure that research efforts will truly meet the needs of the state.

This was accomplished to some degree through the three original areas of research direction which were selected. Beyond this the Cooperative Unit Sub-Committee working in conjunction with Director Knight and the Cooperative Unit staff developed some program areas to add specific direction to the research project in the initial efforts.

The sub-committee was also expanded during this year from the present membership of: Robert Bartlett, Barton Blum, Fred Knight, John Sinclair, George Weiland, Morris Wing, with the addition of Jim Robbins and Hal Klaiber.

Other accomplishments included input of the committee into the method of review and analysis of the projects as they proceed over the coming year. There will be both committee review and peer review of these research projects. The committee also strongly solicits the suggestions and comments of the cooperators. The program will only be effective if it does provide research information which is not only usable but timely.

Dr. Knight is involved in the Regional and National Research Planning system which is a permanent, on-going mechanism, for coordinated planning of agricultural and forestry research. This is jointly sponsored by the U. S. Department of Agriculture and the National Association of State Universities and Land-Grant Colleges through the Agricultural Research Policies Committee. The committee is working to develop priorities which will be of help to Dr. Knight in providing Maine's input needs into the planning program.

The committee was pleased to have the opportunity to attend a luncheon with Dr. Neville and many of the contributors to the program on October 22, 1976. This was gratifying to the committee to recognize that there is such support and interest in what F.R.R.A.C. is attempting to accomplish.

The membership of the committee will be changed in June 1977 with the loss of ex-officio member, Ed Giddings. Ed has been a contributing member of the organization and in addition, has ably assisted in the preparation of our annual reports. Our best to him and we wish him success in his new career - retirement.

We were also notified that Arthur Randall will be retiring on June 30, 1977.

The terms of four members of the committee expired on December 31, 1976. All four were renominated: Barton Blum, Donaldson Koons, Henry Saunders, and Morris Wing. These nominees will be recommended to President Neville for appointment for a three year term. A member can be appointed only for two successive terms. A member can be reappointed at the end of a year's lapse.

COOPERATIVE FORESTRY RESEARCH UNIT

ANNUAL REPORT - 1976

The first six months were the recruitment months for the Unit. This was a long and difficult process but our efforts paid off in the employment of three fine scientists, a technologist and a secretary. The second six-month-period has been dedicated to development of the priorities for the research effort. The scientists have traveled to all sections of the state and have talked priorities with many of you. These efforts were a very necessary part of the operation to assure that work would start in the field in early 1977 on the highest priority needs. Work has continued on five projects partially supported by the Unit; a status report on these projects will be included in the Annual Report for 1976.

This excerpt from Director Knight's fourth quarterly report for 1976 capsulizes the significant activity of the unit during the year. We are fortunate to have attracted several top candidates to fill the three scientist positions:

Dr. Maxwell L. McCormack, Jr. was appointed as Research Professor of Forest Resources and started with the Unit on August 1, 1976. Dr. McCormack has a B.S. from the University of Maine and a Masters and Doctorate from Duke University where he specialized in silviculture. He comes to us from the faculty of the University of Vermont where he was a full Professor.

Dr. David Field was appointed as Associate Research Professor of Forest Resources with a reporting date of July 1, 1976. Dr. Field has a B.S. and M.S. from the University of Maine and a Ph.D. from Purdue University. He comes to us from Iale University. His specialization is in the marketing and economics area.

Dr. Mark Houseweart has been appointed as Assistant Research Professor of Forest Resources and also reported for work on July 1, 1976. Dr. Houseweart has a B.S. degree from Kansas State University, a Masters from Colorado State and a Doctorate from the University of Minnesota. He is a recent graduate but gained considerable experience as a forest entomologist with the Texas Forest Service. Dr. Houseweart fills our needs in the Forest Protection area.

A familiarization survey of forestry conditions in Maine, conducted through assistance from cooperating landowners, has been completed. Discussions and participation in meetings also have been utilized to assemble background information. Each scientist is now evaluating and compiling the information and observations to form a problem analysis for each respective subject matter

area (protection, economics-marketing-utilization, and silviculture). These analyses will indicate the scope and priorities of research needed for development of more intensive forest management in Maine. These reports will be submitted to the FRRAC Subcommittee for discussion at our meeting in February.

The Cooperative Forestry Research Unit assumed, upon formation, several on-going research projects which had been independently funded by members of the Unit. We have included with this report a progress report on each of these as well as on the spruce budworm growth impact survey being carried out by the Unit.

We are pleased to welcome Mr. Harold M. Klaiber of Scott Paper Company and Mr. James L. Robbins of Robbins Lumber Company who were appointed to the FRRAC subcommittee in 1976. This fills out the membership at a total of eight.

A number of additional cooperators have joined the Unit during 1976, bringing annual pledged funding to an encouraging total of \$232,000. Efforts are continuing to increase this base to the original goal of \$264,000 and beyond.

With the necessary funding substantially assured and scientists putting the finishing touches on a problem analysis in each subject area, we can look back at 1976 as a year of substantial accomplishment. The formative stages of the Unit are essentially complete and as we go forward into 1977, the challenge turns now in the direction of delivering usable results.

Robert F. Bartlett
Chairman

FRRAC SUBCOMMITTEE ON THE COOPERATIVE FORESTRY RESEARCH UNIT

MEMBERSHIP AS OF DECEMBER 31, 1976

The members of the subcommittee appointed to set priorities and review proposals for the Cooperative Forestry Research Unit are as follows:

Mr. Robert F. Bartlett, Woodlands Manager, Great Northern Paper Co.
Dr. Barton Blum, Project Leader, U. S. Forest Service
Mr. Harold M. Klaiber, Chief Forester, Scott Paper Co.
Dr. Fred B. Knight, Director, School of Forest Resources
Mr. James L. Robbins, Robbins Lumber Co.
Mr. John G. Sinclair, President, Seven Islands Land Co.
Mr. Morris Wing, Regional Manager, International Paper Co.
Mr. George W. Weiland, Vice President, Dead River Co.

COOPERATORS OF THE FORESTRY RESEARCH UNIT ON
DECEMBER 31, 1976

Baskahegan Co. J. H.
Beardsley Earl Bessey
Charles Blood Boise-
Cascade P. H.
Chadbourne Ralph
Clifford Dead River Co.
Dunn Timberlands
Georgia-Pacific Co.
Great Northern Paper Co.
Hall, Inc. Louis Hilton
Huber Corp.
International Paper Co.
Irving Pulp & Paper Co.
Perry Lamb

Ray McDonald Dwight E.
Newman Henry Plummer
Prentiss & Carlisle Co,
A. Redmond Robbins
Lumber Co. St. Regis
Paper Co. Saunders
Brothers Scott Paper
Co. Seven Islands Land
Co. James W. Sewall
Co. Smith Timberlands
Sprowl Brothers, Inc.
Clayton Totman Ted
Tryon Leon Williams

MEMBERSHIP IN THE COOPERATIVE UNIT

Any individual or organizations interested in promoting and supporting research in forestry in Maine -is welcome to membership, A sample form of agreement is shown immediately below. The usual contribution of landowners is at the rate of three cents (3¢) per acre per year with a minimum of \$25.00 per year per member. Interested persons should contact Fred B. Knight, Director, School of Forest Resources, University of Maine, Orono.

AGREEMENT

This agreement is entered into this day of 197 , by and between and the University of Maine at Orono, School of Forest Resources through the Cooperative Forestry Research Unit for the purpose of promoting useful knowledge on Forest Resources.

The University of Maine at Orono, School of Forest Resources and agree to the following:

1. agrees to pay () per year to the Treasurer of the University of Maine beginning January 1, 197 to provide the base funds for the Cooperative Forestry Research Unit. Progress of the Unit will be reassessed in 1980 to establish a new minimum level of funding for renewal of the agreement in 1981.
 2. All research proposals funded through the Cooperative Forestry Research Unit will be reviewed by a committee of individuals approved by the contributing Cooperators. This committee will act as a sub-committee of the University of Maine at Orono, Forest Resources Research Advisory Committee (FRRAC).
 3. Administration of the Cooperative Unit will be the responsibility of the Director of the School of Forest Resources, and will conform with the administrative policies and procedures of the College of Life Sciences and Agriculture Experiment Station and the University of Maine at Orono.
- The Unit Administrator will assure that the restricted funds of the Unit are spent only on the approved projects of the Unit and that the priority needs are coordinated with other work in the School, University, State and Region.
4. Funds may be used to hire personnel, purchase equipment, and to meet all other obligations related to the planned projects as expressed in the proposal entitled, "Proposal for Research on the Intensive Management of Forest Resources in Maine" dated August 15, 1975.
 5. Progress reports will be prepared for all cooperators on a quarterly basis. An annual report of the Unit will be prepared for a wider audience. Each cooperator will designate a specific office or employee to receive the reports and proposals and to generally keep up to date the progress of the research.

6. It is understood and agreed that the publication of any results of the research conducted on the securing and holding of patents for any inventions shall be a responsibility of the University of Maine at Orono. Credit will be given to the Cooperative Unit and the individual contributors for support and cooperation.

7. The annual sum of () shall be paid to the University of Maine as follows:

January 1, 197 , () and () shall be due every _____ * months thereafter for the duration of this agreement (Dec. 30, 1980).

*Insert six or twelve, some cooperators prefer to pay half in January and half in July.

In witness whereof, the respective parties have executed this agreement, or caused it to be executed by their duly authorized officers on the date indicated opposite their respective signature.

DATE

COOPERATOR

Witness

DATE

UNIVERSITY OF MAINE AT ORONO

Frederick E. Hutchinson, Ph.D.
Vice President for Research &
Public Services

Witness

PROGRESS ON THE APPROVED COOPERATIVE UNIT PROJECT

SPRUCE BUDWORM GROWTH IMPACT SURVEY

The growth impact survey project, originally proposed by Marshall Ashley, has been transferred to the Forest Protection Area of the Cooperative Forestry Research Unit. James Rea, Research Technologist, has been directing the project during this transition period, and has supplied information for the following summary:

A training session was conducted in 1976 to familiarize cooperator crews with the type of data to be collected. During the training session, Henry Trial, Eastern Regional Entomologist for the State of Maine, gave a few pointers on estimating defoliation due to spruce budworm. In addition, cooperator crews were accompanied on their first plot data collection in order to insure consistency of collected information. Later in the season, a recheck of ten percent of the 415 plots revealed data to be consistent and accurate.

Tally sheets sent from the cooperators have been transcribed onto 7480 computer cards for processing using the U. S. Forest Service "Finsys" program. Data analysis is not complete at this time, but several observations are worth comment. Mortality estimations will be much lower this year than 1975 due to tallying of only 1 year's mortality when in 1975 the base information included mortality of trees which may have occurred during the several preceding years. Growth estimates seem to be the most variable parameter measured in the study and will have to be looked at with scrutiny. Therefore, in the future, increment cores may be taken to better quantify growth estimates, in addition to utilizing leader growth, instead of total tree height.

Mark W. Houseweart

PROGRESS ON PROJECTS PARTIALLY SUPPORTED BY FUNDS
FROM THE COOPERATIVE UNIT

A. TREE IMPROVEMENT - *Professor David Canavera*

Work commenced early in 1976 and much was accomplished within the greenhouse and in the field. Eight experimental plantations were established:

White birch	-	51	-	origin provenance test
White spruce	-	"Superior"	-	seedlings from eight nurseries
Black spruce	-	two 100	-	origin provenance tests
Balsam fir	-	two half	-	sib progeny tests
Jack pine	-	27	-	origin provenance test
White ash	-	36	-	origin provenance test

Additional tests will be set out in 1977. Seeds have been collected from white birch trees selected phenotypically from various locations in Maine and will be utilized in greenhouse and field experiments.

B. FOREST FERTILIZATION - *Professor Robert Shepard*

Eight new areas were selected in 1976 for experimental testing of fertilizers. These are scheduled for fertilizer application in the spring; plots have been surveyed and basic stand data and soil samples were collected. Two of the areas fertilized in 1970 were cut during the fall and stem analysis work is progressing. Final reports on the 1970 experiments will be completed following the removal of the trees from the third area.

C. BIOMASS - *Professor Harold Young*

During the 1976 field season two 2-man crews collected biomass data on (a) 18 shrub and tree species in the 1-4 foot height classes, (b) 22 shrub and tree species in the 0.0-0.9 inch dbh classes and (c) 18 tree species in the 1.0-26.0 inch classes. The data were added to previously collected information to prepare new sets of weight tables. Samples of leaves, branches, stems and roots were collected and analysis is proceeding to provide nutrient information on the 18 species not previously studied.

D. REMOTE SENSING - *Professor Marshall Ashley*

Work was completed on the use of color and color infrared films to identify forests having current spruce budworm feeding evidence, stands in need of control to prevent excessive mortality, and areas with dead trees. Current activity was evaluated most efficiently on color photography at a scale of 1320 feet/inch or larger. Stand conditions were evaluated better using color infrared fall photos at a scale of 1320 feet/inch and larger.

FOREST RESOURCES RESEARCH ADVISORY COMMITTEE

1976-77 MEMBERSHIP

Richard Anderson, Director (1977)*
Maine Audubon Society Old Route
One Falmouth, Maine, 04105

Richard Barringer, Commissioner
Department of Conservation (1978)
State Office Building Augusta,
Maine 04333

Barton M. Blum, Project Leader
U.S. Forest Service (1976)
Northeastern Forest Experiment
Station
U.S.D.A. Building
University of Maine
Orono, Maine 04473

George Carlisle, President (1978)
Prentiss & Carlisle, Inc. 107
Court Street Bangor, Maine 04401

(1977)

Fred E. Holt
34 Blaisdell Street
Augusta, Maine 04330

Donaldson Koons, Professor (1979)
Colby College Waterville, Maine
04901

Maynard Marsh, Commissioner (1978)
Department of Inland Fisheries &
Game
State Office Building
Augusta, Maine 04330

Keith E. Miller (1977) S
uperintendent
Acadia
National Park Bar
Harbor, Maine 04609

Henry W. Saunders, Vice President
Saunders Brothers (1979)
180 Forest Street Westbrook,
Maine 04092

John G. Sinclair, President (1978)
Seven Islands Land Company 15
Columbia Street Bangor, Maine 04401

George W. Weiland (1977)
(Chairman of Committee)
Vice President
Dead River Company
55 Broadway
Bangor, Maine 04401

Morris R. Wing, Regional Manager (1979)
Northern Division
Dept. of Woodlands, Maine Region
International Paper Company
Jay, Maine 04239

Ex Officio:

Malcolm W. Coulter, Associate Director
School of Forest Resources Nutting
Hall, University of Maine Orono, Maine
04473

Edwin L. Giddings Assistant to the
Director School of Forest Resources
Nutting Hall, University of Maine
Orono, Maine 04473

Fred B. Knight, Director
School of Forest Resources
Nutting Hall
University of Maine at Orono
Orono, Maine 04473

Albert D. Nutting Director
Emeritus School of Forest
Resources Oxford, Maine
04270

Frederick E. Hutchinson, Vice-President
Research and Public Services Coburn
Hall, University of Maine Orono, Maine
04473

*Appointment through December 31 of year indicated.

SCHOOL OF FOREST RESOURCES

STUDENT PROFILE

Year	Four-Year Undergraduates			Two-Year Forestry	Graduate	Others	Totals
	Freshmen	Soph.	Jr. Sr.				
		Forestry	Wildlife				
1964	71	108	42	0	9	5	235
1969	104	95	92	63	25	2	381
1973	150	160	130	81	37	36	594
1974	134	225	151	95	44	68	717
1975	147	247	196	111	53	114	868
1976	140	289	186	87	52	121	875

FACULTY AND STAFF OF THE SCHOOL

' (DECEMBER 31, 1976)

Fred B. Knight, Director and Dwight B. Demeritt Professor of Forest Resources
 Malcolm W. Coulter, Associate Director for Wildlife and Professor of Wildlife
 Resources Edwin L. Giddings, Assistant to the Director and Associate
 Professor of Forest
 Resources
 Thomas J. Corcoran, Professor of Forest Resources
 Ralph H. Griffin, Professor of Forest Resources
 Maxwell L. McCormack Jr., Research Professor of Forest Resources Howard L.
 Mendall, Professor of Wildlife Resources and Leader of Cooperative
 Wildlife Research Unit James E. Shottafer, Professor of Wood Technology and
 Head, Forest Products
 Laboratory Harold E. Young, Professor of Forest Resources and Head,
 Complete Tree
 Institute Marshall D. Ashley, Associate Professor of Forest Resources and
 Director,
 Summer Camp Programs
 David B. Field, Associate Research Professor of Forest Resources
 Richard A. Hale, Associate Professor of Wood Technology

FACULTY AND STAFF OF THE SCHOOL (Continued)

Norman P. Kutscha, Associate Professor of Wood Technology
 Floyd L. Newby, Associate Professor of Forest Resources
 Ray B. Owen, Jr., Associate Professor of Wildlife Resources
 Arthur G. Randall, Associate Professor of Forest Resources and Director,
 Associate Degree Program
 Voit B. Richens, Associate Professor of
 Wildlife Resources, and Assistant
 Leader, Cooperative Wildlife Research Unit
 Wallace C. Robbins, Associate Professor of Forest Technology
 Craig E. Shuler, Associate Professor of Wood Technology
 Chester F. Banasiak, Assistant Professor of Wildlife Resources
 Thomas B. Brann, Assistant Professor of Forest Resources
 David S. Canavera, Assistant Professor of Forest Resources
 James R. Gilbert, Assistant Professor of Wildlife Resources
 Mark W. Houseweart, Assistant Research Professor of Forest Resources
 Carl E. Korschgen, Assistant Research Professor of Wildlife Resources
 Terry A. May, Assistant Professor of Wildlife Resources
 Robert K. Shepard, Jr., Assistant Professor of Forest Resources
 William D. Lilley, Instructor in Forest Resources
 Timothy O'Keefe, Extension Forester
 Andrew S. Clauson, Research Associate in Wildlife Resources
 Roger F. Taylor, Superintendent of University Forest
 James Rea, Assistant Forest Technologist

Cooperating Faculty with Joint Appointments

Richard J. Campana, Professor of Forest Pathology (Botany & Plant Pathology Dept)
 John B. Dimond, Professor of Forest Entomology (Department of Entomology)
 Harold C. Gibbs, Professor of Wildlife Resources (Department of Animal &
 Veterinary Sciences)
 Roland A. Struchtemeyer, Professor of Forest Soils (Dept. of Plant & Soil Sciences)

Faculty Associates

Barton M. Blum, Project Leader, U.S. Forest Service
 Hewlette S. Crawford, Research Wildlife Biologist, U.S. Forest Service
 Robert M. Frank, Research Forester, U.S. Forest Service
 Jerry R. Longcore, Biologist, U.S. Fish & Wildlife Service
 Howard E. Spencer, Jr., Leader, Migratory Bird Project, Maine Department of
 Inland Fisheries and Game

Professor^ Emeritus

Robert I. Ashman, Professor Emeritus of Forestry
 Gregory Baker, Professor Emeritus of Forestry
 Frank K. Beyer, Associate Professor Emeritus of Forestry
 Albert D. Nutting, Director Emeritus
 Henry A. Plummer, Associate Professor Emeritus of Forestry