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ABSTRACT

This publication contains an annotated directory of ecological personnel, primarily those associated with biology departments, an annotated catalog of ecology and related courses for each college and university, and a description of the various formal field stations currently used in ecological teaching or research. For each name entered in the personnel directory the following information is provided: current college department, name of college, city, and zip code; telephone number; highest degree earned, year received, and institution granting degree; area(s) of specialization; and a list of the ecological and related organizations of which the individual is a member. The list of college personnel is supplemented by an additional list of names drawn from the 1970 Directory of Members of the Ecological Society of America, including only those with New York addresses and excluding those in the preceding list. Each course description includes the name of the instructor, a review of the subject content, the number of undergraduates and the number of graduates in the course, and the text(s) used for the course. The university or college field sites described in this report include only those field stations with fairly extensive facilities for teaching and research. (PR)

ecological resources in new york state's colleges and universities

REPORT OST-8

THE UNIVERSITY OF THE STATE OF NEW YORK
THE STATE EDUCATION DEPARTMENT
OFFICE OF SCIENCE AND TECHNOLOGY
ALBANY, NEW YORK
APRIL 1971

ECOLOGICAL RESOURCES IN NEW YORK STATE'S COLLEGES AND UNIVERSITIES

by

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and

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The University of the State of New York
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Troy, New York

Report OST-8

This survey is primarily concerned with bioscience departments.

FOREWORD

The New York State Education Department's Office of Science and Technology sponsors surveys of the State's educational resources devoted to science, technology, and related areas.

The general objectives of the series* are to contribute: (1) a review of current facilities, personnel, and programs in higher education for teaching and research in science and technology; (2) a clarification of desirable and feasible long-range statewide objectives; and (3) steps in planning to reach these objectives in the near future. The form, content, depth, and emphasis of each report varies with the author, who is encouraged to use personal discretion and judgment in conducting his survey.

Any recommendations for State action included in these reports are suggestions of their authors to provide stimulus for discussion and for consideration by the appropriate planning groups. Distribution of the report does not imply any endorsement by the Department or the Board of Regents.

As a part of this program of reports, the Office contracted with the Rensselaer Research Corporation, Troy, New York to undertake a survey of the resources for teaching and research in ecology in the State's academic institutions.

Frank R. Kille

Associate Commissioner and
Director, Office of Science and Technology

* (OST-1) Oceanography in New York--A Prospectus, by John H. Ryther; (OST-2) A Study of the Engineering Educational Resources in the State of New York by Kenneth E. Mortenson; (OST-3) A Directory of Bioscience Departments in New York State; (OST-4) The Role of the New York State Education Department in Science and Technology, by Vernon Ozarow; (OST-5) Neurophysiology in New York State, by Charles Edwards; (OST-6) Chemistry and Physics Doctorate Production in New York State, by Vernon Ozarow; (OST-7) Astronomy in New York State--Competence and Challenge, by H. John Wood; (OST-100) Science Policy and the Universities of the Empire State, by W. Henry Lambright; (OST-101) The Environment and the Law in New York Law Colleges, by Michael B. McIntire; (OST-102) Science/Technology-Related Activities in the Government of New York State, by James E. Underwood; (OST-103) Science-Technology Advice in Local Governments, by A. Lee Fritschler and James E. Underwood.

PREFACE

The fact that the world faces very serious environmental problems is now recognized by all. In view of the innumerable descriptions and discussions of these crises which have appeared in both the popular and professional press, it certainly is not necessary to again recount them.

In developing a series of reports on the educational resources of the State's colleges and universities in areas related to environmental problems, the field of ecology should receive early attention. The nature of ecology and closely related subjects made it almost inevitable that members of those disciplines would be among the first to note environmental depredations and warn of their implications of danger to society. Subsequently, just about everyone has "gotten into the environment business". The wide range of activities generated reflects the necessity to include such diverse fields as engineering, political science, economics, law, the natural sciences, and community planning. The multidisciplinary nature of the effort to deal with environmental problems is evident at all levels of education from kindergarten through graduate schools, and also is evident in general society as new relationships develop in law, politics, industry, and government.

One of the uses this survey report may provide is to make known the resources and programs in ecology and identify individual ecologists. This type of information should not only be of general interest to workers in ecology but should also be useful in facilitating the interdisciplinary communication and cooperation so necessary to cope with environmental problems.

This report deals primarily with college and university bioscience departments. Consequently, many relevant programs and workers in other institutions (e.g. government agencies, museums, botantical gardens, and parks) and in other disciplines (e.g. geology, atmospheric sciences, and engineering) are omitted. This is regrettable but was made necessary by time and fund limits. As noted, an attempt was made to complement the Directory section of the report by including members of the Ecological Society of America not cited in the survey. Also, other survey reports of environmental activities in the State's educational institutions are in the offing in the fields of engineering, management, architecture, and medicine.

Finally, we wish to express our appreciation to Professors John H. Vandermeer and Lawrence B. Slobodkin for undertaking this survey. Many thanks are also due Professor William Rockwood of Russell Sage College who undertook a follow-up solicitation for information from institutions not provided in time for inclusion in the first draft of the report and integrated it into the present edition.

Vernon Czapar
Associate Director
Office of Science and Technology

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ECOLOGICAL RESOURCES IN NEW YORK STATE'S COLLEGES AND UNIVERSITIES*

INTRODUCTION

Ecology has existed as a discipline within biology for at least 50 years. It has, until the recent past, been singularly free of the glamour attached to much of modern science. The number of people involved has been relatively small and the student interest has been considerably less than that in such areas as biochemistry or nuclear physics. The total number of ecologists who belonged to the American Ecological Society as of 1964 was 2,800 as compared to more than 50,000 members in the American Chemical Society.

During the past 5 years, the importance of ecological problems has become increasingly apparent to academicians in other disciplines, and away from the campus, to government officials, and the public at large. This has resulted in an increase in student interest and in a strong tendency for academic administrators to increase the number and quality of ecologists in their departments. Public debate of environmental issues and publication of a number of very good popular descriptions of the consequences of human activity for the planet as a whole contributed to the increasing awareness. As yet, however, it has not resulted in any financial expenditures of a sort comparable to those involved in the early days of cancer research, nuclear physics, or engineering.

The ecological community has responded as well as possible to this increased interest. Unfortunately, if a scientific area has been relatively ignored for 50 years and has received inadequate support during all that time, the fact that the public is suddenly interested in the results coming out of that area does not guarantee they are immediately available. Ecology, therefore, is in a state of acceleration, re-tooling, and reconsideration of its own objectives, goals, and techniques.

* This survey is primarily concerned with bioscience departments

Ecological Diversity in New York State

The State of New York is in a curiously important position in this entire development. It is as highly industrialized, as heavily populated, and as wealthy as any corresponding political unit in the world. There are parts of the State which are elegant, sparsely populated wilderness areas not industrialized at all. Others, the southern and most of the western portion of the State, are among the most highly developed areas on the globe. In that sense, New York may be thought to represent the future condition of the world (to the degree that major catastrophies like atomic war can be averted). Thus, if the world continues to develop as it has been, very soon much of its landscape will be similar to that of Long Island and southern New York.

It is imperative that the world solve its ecological problems and those of man-environment relationships. An ideal location for working them out is New York. Not only does it have the problems, but fortunately it has what much of the world will not have, the intellectual and financial resources, and we hope the concern, to actually deal with these problems in some effective way. Therefore, while Alaska or Northern Canada may be more obviously objects for ecological study in the sense of their being wild and natural, the critical problems of man in ecology must be solved in New York State rather than Northern Canada.

New York's Academic and Field Resources in Ecology

As a practical first step to permit New York to deal with its own ecological problems, it is necessary to assess the State's problem solving ability with respect to ecological problems. For example, where can a civic agency or governmental or engineering concern look to acquire ecological expertise? In certain fields as, say, medicine or engineering there are professional accrediting organizations which would develop rosters of qualified personnel. Ecology is in the position of not having this form of professional accreditation available. This is a particularly serious problem now since, due to the popular interest and need, many persons are setting up shop as ecologists without necessarily having very much in the way of professional qualification. Action by the community of ecologists could conceivably succeed in some way in establishing professional standards leading to accreditation and a list of "qualified" ecologists. In the absence of this, however, it would still be possible to list people who

have been active in ecological research and teaching over the past several years so that such a roster would be available to citizens and agencies concerned and responsible for dealing with ecological problems. Such a list has been compiled in this report from faculties of biology departments in the State's colleges and universities, and from the membership list of the Ecological Society of America.

It will be apparent from the length of the list of ecologists and from consideration of the size, population, and industrialization of New York that there are not now enough ecologists to go around. It is, therefore, of critical importance to know what resources exist for the training of ecologists. We have undertaken to prepare an inventory of ecological educational activities in the State on the college and university level. These are programs designed to be part of the professional training of a student interested in ecology as a career and may serve as a guide for such students in choice of institution.

Ecological research occurs on many levels. Some of it is concerned with immediate practical problems of water purity, air purity, soil quality, and conservation. At the opposite extreme are studies of the mathematical properties of complex evolving systems. In order to test the statements that emerge from all these studies, it is necessary to have a series of different types of environmental situations available, ranging from highly man-influenced environments like the waters of the Harlem River to essentially primeval environments like some of the areas of the Adirondacks in northern New York. One of the greatest practical dangers, and one of the primary reasons for the intense concern with ecology, is that in the transition from an essentially primeval situation to a highly man-influenced situation, undesirable side effects occasionally occur, some of which are correctable or reversible, while others are not. It is, therefore, of intense practical importance to have available a series of different areas which are relatively undisturbed by human activities to permit the development of the ecological theories which will act as guides in the development of all areas.

Partly by luck, partly by design, there are now available a rich diversity and relatively large number of more or less natural areas in the State which have been in the past designated for purposes of study. These were acquired in many ways. Often they were large estates willed to government or educational institutions by owners who typically loved the landscape and hated the idea of seeing it covered with asphalt or split into small housing units. Some of the areas are portions of the State which for

economic or political reasons did not develop as rapidly as the others and now have more esthetic, recreational, or intellectual value as preserve areas than any value they might have had as poor rural housing areas. The location, number, characteristics, and quality of these natural areas is by and large not known even to the ecological community within the State. Professors of ecology in government and university service tend to be familiar with a few of them, but the full richness of available resources that we do have in New York State was a great surprise even to us. The resources and potential for very high quality ecological field research are available if we properly utilize the extant reserve areas.

It must, however, be noted that there are other areas in a relatively natural state, increasingly scientifically and estheticly important for the future, which are being threatened by development schemes. Some of the schemes are so intimately related to economic and political considerations that they will not be halted although they could quite often be diverted or modified so as to avoid doing damage to the environmental resources. Unfortunately, many of the development schemes are essentially profit-making enterprises of dubious intrinsic social or humanitarian value. It is of major interest to be aware of areas of this type which are not now protected so that they be watched over and not permitted to disappear by default. Ecologists in the State are aware of certain of these areas and attempts are quietly proceeding to make sure that they are not too badly hurt.

Object of Survey

The survey which was undertaken in light of the foregoing considerations was devised to compile the following information about personnel, facilities, and programs in the State's universities and colleges: (1) An annotated directory of ecological personnel, primarily those associated with biology departments; (2) annotated catalog of ecology and related courses available, and (3) a list of the various formal field stations currently used in ecological teaching or research, including a detailed description of their facilities and resources.

Acknowledgments

Those persons who have helped in the preparation of this report in one way or another are too numerous to mention individually. We wish to thank Jerry Downhower and Jack Kingsberry, both of Cornell University, Maurice Alexander of the State University College of Forestry at Syracuse, and Robert Smolker of the State University of New York at Stony Brook. We wish to thank especially the directors of all of the field stations visited for their hospitality and cooperation with our effort to gather the information required for the reports on their facilities. We are grateful to Miss Diana Cubow who typed the final report submitted to the Education Department and did most of the clerical work throughout the survey. Vernon Ozarow of the State Education Department's Office of Science and Technology provided invaluable advice and encouragement throughout the course of this survey.

I DIRECTORY OF NEW YORK STATE ECOLOGISTS

Any directory is bound to be obsolete by the time it is published. A directory of academics is especially vulnerable to such a fate. Academics tend to be less sessile than average citizens, and academic institutions grow, sometimes very rapidly. Thus, we fully expect that by the time the following directory becomes generally available numerous additions and deletions would be necessary if total coverage of the field were expected. Naturally, with conventional modes of information retrieval an effort of this sort will always be at least partially incomplete. It is with the above apologies that we offer the following directory of academic ecologists in New York State.

Various sources were used in compiling this directory, but the primary one was through biology departments. A covering letter and questionnaire requesting identification of ecologists were sent to all biology department chairmen in colleges and universities of New York including community colleges and other 2 year institutions in the State. Initial returns were high, 68 percent and coupled with other sources, a provisional list of ecological personnel was obtained. Each individual entered in this provisional list was sent a questionnaire requesting detailed information concerning the institution's activities and background. The initial return from these questionnaires was 60 percent.[1] (See appendix at the end of the report for the letters and forms used in these solicitations.)

The next and very difficult step was to eliminate from this provisional compilation entries not falling within the domain of this survey. The notion of what qualities make an individual an ecologist varies widly among those

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[1] A second solicitation for returns went out to all biology department heads as part of a request by the Education Department's Office of Science and Technology to review a first draft copy of this report. The net return of Questionnaires following this second solicitation and subsequent follow-up was over 80 percent and included all the larger institutions in the State.

institutions surveyed. Large institutions tended to be very conservative in their definition of ecologist, whereas smaller institutions tended to be liberal. Therefore, the information gathered from the personnel questionnaire was used to screen entries, eliminating numerous individuals whose professional credentials did not include ecology, even if their avocational interests were highly ecological. Complementing this method of selection were visits to and interviews of individuals at a number of institutions.

Finally, another source of names used was the 1970 Directory of Members of the Ecological Society of America.[2] These individuals are included in the appendix following the Directory. No annotation of their background is provided; only their affiliation and address as given in the Ecological Society Publication. Those New York State members of the Society not cited in the main section were added to make the total listing of ecologists that much more inclusive.

We hope that the above procedures have worked to produce an at least temporarily useful directory of ecological personnel in academic biology departments in New York State in addition to the others included as just described. We must, however, emphasize that there is no intention of acting as an accrediting agency; the list presented here undoubtedly does not include all ecologists in the State and conversely there are some included in the list who probably would not have thought of themselves as ecologists. We hope that any possible errors in judgment on our part will not be offensive to anyone.

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2 With the permission of the publishers

DIRECTORY OF PERSONNEL
Additional Personnel Are Listed
In Appendix Following This Section

AAAS - American Association for the Advancement of Science; AAUP - American Association of University Professors; AFS - American Fisheries Society; AIBS - American Institute of Biological Sciences; AOU - American Ornithologists Union; ASIH - American Society of Ichyologists and Herpetologists; ASLO - American Society of Limnology and Oceanography; ASM - American Society of Mammalogists; ASN - American Society of Naturalists; ASZ - American Society of Zoologists; BSA - Botanical Society of America; COS - Cooper Ornithology Society; ESA - Ecological Society of America; NABT - National Association of Biology Teachers; NYES - New York Entomological Society; NYSTA - New York State Teacher's Association; SAF - Society of American Foresters; SSE - Society for the Study of Evolution; SSZ - Society of Systematic Zoology; WOS - Wilson Ornithology Society; WS - Wildlife Society;

Alexander, J.E.: Fordham University; Dept. of Biological Sciences, Fordham University, Bronx, N.Y.

Alexander, Maurice M.: Dept. of Forest Zoology, SUNY College of Forestry, Syracuse, N.Y.; 315-476-3151 ext. 200; Ph.D. SUNY College of Forestry, 1950; Population and Community Ecology, and Wildlife Management; Mammals and Birds; ESA, ASM, AIBS, AAAS, WS, Sigma Xi; NYS Conservation Council, N.Y. Fish and Wildlife Management Advisory Board

Alexander, M.: 708 Bradfield Hall, Cornell University, Ithaca, N.Y.; 607-256-3267; Ph.D. University of Wisconsin, 1955; Physiological Ecology; Fungi, Bacteria, Algae; American Society for Microbiology, Academy of Microbiology, Soil Science Society of America, AAAS: no conservation organizations

Allen, Douglas C.: Department of Forest Entomology; SUNY College of Forestry, Syracuse, N.Y.; 315-476-3151 ext. 225; Ph.D. University of Michigan, 1968; Population and Community Ecology; Forest Lepidoptera; Society of American Foresters, Entomological Society of America, Entomological Society of Canada; National Wildlife Federation

Ambrose, Harrison William III: Neurobiology and Behavior, 103 Langmuir Laboratory, Cornell University, Ithaca, N.Y.; 607-256-3007 or 2031; Ph.D Cornell University, 1966; Population and Community Ecology; Mammals and Birds; AAAS, Sigma Xi, ASM: no conservation organizations

Anderson, David G.: SUNY College of Forestry, Syracuse, N.Y.; 315-476-3151 ext. 264; M.S. University of Utah, 1958; Population and Community Ecology; Society of American Foresters, Sigma Xi, AAAS

Ayala, Francisco: Rockefeller University, New York, N.Y.; 212-360-1484; Ph.D. Columbia University, 1964; Population and Community Ecology, and Evolution; Drosophila; ESA, SSE, ASN: no conservation organizations

Baker, Douglas: Dept. of Biological Science, SUNY at New Paltz, New Paltz, N.Y.

Barlow, John P.: Ecology and Systematics, Cornell University, Ithaca, N.Y.; no phone listed; Ph.D. Harvard University, 1953; Limnology and Oceanography, and Population and Community Ecology; Diatoms, Dinoflagellates; ASLO, ESA, AAAS: no conservation organizations

Barnett, Richard: Dept. of Biological Sciences, Dutchess Community College, Pendell Road, Poughkeepsie, N.Y.

Battin, William: Biology Dept., SUNY at Binghamton, Binghamton, New York 13901; 607-798-2423; Ph.D. University of Minnesota, 1956; Population and Community Ecology; Evolution Human; ASZ, AIBS, AAUP, AAAS: Friends of the Earth, Conservation Council

Baylor, Edward: Dept. of Biological Sciences, SUNY at Stony Brook, Stony Brook, N.Y.; 516-246-7710

Be Alan, W.H.: The City College of CUNY, New York, New York 10031; 914-359-2908; ext. 229; Ph.D. Columbia University, 1958; Marine Ecology, Foraminifera, Pteropoda; American Society of Limnology and Oceanography, Society of Systematic Zoology, Sigma Xi, Geological Society of America

Behrend, Donald: Dept. of Forest Zoology, SUNY College of Forestry, Huntington Wildlife Forest Station, Newcomb, N.Y.; 518-582-3298; Ph.D. SUNY College of Forestry, 1966; Wildlife Management; Mammals, Birds, and Arthropods; WS, AIBS, Sigma Xi; Association for the Protection of the Adirondacks

Benton, Allen H.: Dept. of Biology, SUNY College at Fredonia, Fredonia, N.Y.; Ph.D. Cornell University, 1952; Siphonaptera, Mammalia, Aves; AAAS, AIBS, ASM, AOU, WOS, WS, Southwestern Association of Naturalists, NYES, West Virginia Academy of Science; Nature Conservancy, Wildlife Society, Conservation Forum of NYS

Berg, C.O.: Entomology and Limnology, Cornell University, Ithaca, N.Y.

Berglund, John V.: Dept. of Silviculture, SUNY College of Forestry, Syracuse, N.Y.; 315-476-3151 ext. 337; Ph.D. SUNY College of Forestry, 1968; Population and Community Ecology; Angiosperms,and Gymnosperms; SAF, ESA, Sigma Xi; National Wildlife Federation

Biermann, Carol: Kingsborough Community College, 1200 Oriental Blvd., Brooklyn, N.Y.; 212-769-9200; M.A. June 1965; Aquatic Ecology and Marine Ecology; Pagurus and Hydra; AAAS: no conservation organizations

Bleeker, Allen L.: Dept. of Biology, The King's College, Briarcliff Manor, N.Y.: 201-728-3798; Aquatic Ecology; Phytoplankton, Pelecypods; International Ocean Foundation, Torrey Botanical Club, American Museum of Natural History, AAAS, ASLO, AIBS, American Scientific Affiliation, Massachusetts Horticulture Society, ESA, AFS, Natural Ocean Association; National Audubon Society, National Wildlife Federation

Bloom, A.L.: Geological Sciences, Cornell University, Ithaca, N.Y.

Bogin, Clifford: N.Y. Institute of Technology, Old Westbury, N.Y.; 516-626-3400 ext. 273; Ph.D. Columbia University, 1953; Taxonomy and Systematic, and Population and Community Ecology; Plants; Torrey Botanical Club, MACUB: no conservation organizations

Bothner, Richard C.: Dept, of Biology, St. Bonaventure University, St. Bonaventure N.Y.; 716-372-0300 ext. 443; Ph.D. Fordham University, 1959; Population and Community Ecology; Reptilia, Amphibia; Sigma Xi, Herpetologists League, Society for the Study of Reptiles and Amphibians, ASIA, ESA: no conservation organizations

Bradbury, J.: Neurobiology and Behavior, Cornell University, N.Y.

Braun, Ludwig: Dept. of Biology, Polytechnic Institute, Brooklyn, N.Y.

Brennan, John: Dept. of Biology, Corning Community College, Corning, N.Y.

Brenowitz, Harry: Dept. of Biology, Adelphi University, Garden City, N.Y.

Brezner, Jerome: Dept. of Forest Entomology, SUNY College of Forestry, Syracuse, N.Y.; 315-476-3151 ext. 225; Ph.D. University of Montana, 1959; Physiological Aquatic Ecology; Insects; Entomological Society of America, AAAS, Society of Zoologists, Sigma Xi: no conservation organizations

Britten, Bryan T.: Dept. of Biology, Niagara University, Niagara Falls, N.Y.

Brocke, Rainer Hans: Dept. of Forest Zoology; SUNY College of Forestry; Huntington Wildlife Forest Station, Newcomb, N.Y.; 518-582-3298; Ph.D. Michigan State University, 1970; Population and Community Ecology, Wildlife Management, and Physiological Ecology; Mammals and Birds; Association of Interpretive Naturalists, AIBS, AAAS, ASM, ESA, Wildlife Society, Michigan Association of Conservation Ecologists; Miles Association Council of Ecology, Wildlife Society

Brockelman, Warren T.: Dept. of Biology, New York University, University Heights, Bronx, New York 10453; 212-584-0700 ext. 560; Ph.D. University of Michigan, 1968; Population and Community Ecology; Anura, Trematoda; ESA, American Society of Nature, Evolution Society of America, Association of Tropical Biology; Sierra Club

Broecker, Wallace S.: Columbia University; Lamont-Doherty Geological Observatory, Palisades, N.Y. 10964; 194-EL9-2900 ext. 300; Ph.D. Columbia University, 1958; Limnology and Oceanography

Brown, Jerram L.: Dept. of Biology, University of Rochester, Rochester, N.Y.; 716-275-3856; Ph.D. University of California at Berkeley, 1960; Evolution; Birds; Various organizations; National Audubon Society; N.Y.S. Federation, Wilderness Society

Brown, Robert Z.: Dept. of Biology, Dowling College, Oakdale, Long Island, N.Y. 11769; 516-589-6100 ext. 280; Sc. D. John Hopkins University, 1952; Population and Community Ecology, Vertebrate Ecology; Rodentia; AAAS (Fellow), AIBS, AAUP, ASM, ESA; National Parks Association

Brown, Stephen C.: Dept. of Biological Sciences, SUNY at Albany, Albany N.Y.; 518-457-3235; Ph.D. University of Michigan, 1966; Physiological Ecology and Marine Ecology; Mollusca, Arthropoda, Annelida; ASZ, AAAS, AIBS: no conservation organizations

Brown, William L. Jr.: Dept. of Entomology, Cornell University, Ithaca, N.Y.; 607-256-4564; Ph.D. Harvard University, 1950; Taxonomy or Systematics and Evolution; ants; Several organizations; Nature Conservancy

Brussard, Peter F.: Section of Ecology and Systematics, Langmuir Laboratory, Cornell University, Ithaca, N.Y.; 607-256-3709; Ph.D. Stanford, 1969; Population and Community Ecology; Mammals, Insects; AAAS, ASM, Cooper Ornithologists Society, Lepodopterists Society, SSE, ESA: no conservation organizations

Cade, Thomas J.: Ecology and Systematics, Laboratory of Ornithology, Cornell University, Ithaca, N.Y.; 607-256-5056 or 3077; Ph.D. UCLA, 1958; Population and Community Ecology, Physiological Ecology; Birds, Mammals; AAAS, AOU, AIBS, AAUP, ASM, ESA: Wilderness Society

Capranica, Robert R.: Dept. of Neurobiology and Behavior, 109 Langmuir Laboratory, Cornell University, Ithaca, N.Y.; 607-256-3594; Sc.D. - M.I.T., 1964; Physiological Ecology; Amphibia; AAAS, ASZ, Animal Behavior, ASIH: no conservation organizations

Carlson, Clarence A.: Dept. of Conservation, 120 Fernow Hall, Cornell University, Ithaca, N.Y.; 607-256-2151; Ph.D. Iowa State University, 1963; Fisheries Biology, Aquatic Ecology; Insects, Fish; AFS, AIBS, Sigma Xi, Citizens Committee to Save Cayuga Lake

Cassin, Joseph Mathews: Dept. of Biology, Adelphi University, Garden City; 516-747-2200; Ph.D. Fordham University; Taxonomy or Systematics; Bacillarophyceae, Dinoflagellates, Chlorophytes; AIBS, AAAS, Physiological Society of America, British Physiology Society, American Society of Protozoologists, ESA, ASLO: National Parks Association, Long Island Environmental Council, National Geographic Society

Cerwonka, Robert H.: Dept. of Biology, SUNY College at Potsdam, Potsdam, New York; 315-268-2987; Ph.D. University of Connecticut, 1968; Marine Ecology; Bivalue mollusks; ASLO, Marine Biological Association of U.K., ESA, Sigma Xi, AOU, AIBS

Chamberlain, David H.: Dept. of Biology, Mohawk Valley Community College, 1101 Sherman Dr., Utica, N.Y.; 305-735-7511 ext. 355; M.S. Cornell University, 1965; Aquatic Ecology; Protozoa, Ascomycetes; NABT, AAAS: no conservation organizations

Chamberlain, J.: Utica College, Utica, N.Y. 13502; 315-732-1111 ext. 271; Ph.D. University of Tennessee, 1957; Population and Community Ecology, Evolution, Wildlife Management; Mammals, Amphibians, Birds; American Association for the Advancement of Science, American Institute of Biological Sciences, American Society of Ichyologists and Herpetologists; American Society of Naturalists

Chambers, Robert E.: Dept. of Forest Zoology, SUNY College of Forestry, Syracuse, N.Y.; 315-476-3151 ext. 270; Ph.D. Ohio State University, 1971; Wildlife Management; Mammals and Birds; WS

Christian, John J.: Dept. of Biology, SUNY at Binghamton, Binghamton, N.Y. 13901; 607-798-2445; Sc.D. John Hopkins University; Population and Community Ecology, Physiological Ecology; Mammals, Society Experimental Biology and Medicine; N.Y. Academy of Science, American Society Exptl. Pathology, Endocrine Society; ASM, AAAS, AIBS, Ecological Society of America, Animal Behavior Society, ASZ, Comparative Endocrinology, Fed. Soc. Exp. Biol., Wildlife Society, Wildlife Disease Association

Christianson, Dean J.: Dept. of Biology, Wagner College, Staten Island, N.Y.; 212-390-3200; Ph.D. Rutgers University, 1969; Population and Community Ecology, Wildlife Management; Higher plants; AAAS, AIBS, Torrey Botanical Society, Sigma Xi: no conservation organizations

Churchill, A.: Dept. of Biology, Adelphi University, Garden City, N.Y.

Clausen, R. I.: Dept. of Botany, Cornell University, Ithaca, N.Y.

Cole, L. C.: Section of Ecology and Systematics, 462 Mann Library, Cornell University, Ithaca, N.Y.

Cook, Arthur H.: Dept. of Biology, SUNY College at Cortland, Cortland, N.Y.; 607-753-2715; Ph.D. Cornell, 1952; Limnology and Oceanography, Aquatic Ecology; Fishes, Amphibians, Mammals; ASM, Society of the Great Lakes Research, ASLO, AAAS, Sigma Xi, WS: no conservation organizations

Cooper, David C.: Dept. of Biological Sciences, SUNY at Binghamton, Binghamton, N.Y. 13901; 607-798-2456 or 798-2791; Ph.D. University of Texas, 1970; Aquatic Ecology, Limnology and Oceanography; Fish, Zooplankton, Bluegreen Algal; AIBS, ESA, ASLO: Ducks Unlimited

Costa, Robert R.: Dept. of Biology, SUNY College at Brockport, Brockport, N.Y.; 716-395-2185; Ph.D. University of Pittsburgh, 1967; Population and Community Ecology; Cladocera and Copepoda; AIBS, AAAS, ESA, National Science Teachers Association, Ohio Academy of Science, ASLO, International Section of Limnology and Oceanography, British Fresh Water Society, Rochester Academy of Science, N.Y. Academy of Science; American Museum of Natural History, The Population Reference Board

Cox, Donald: Dept. of Biology, SUNY College at Oswego, Oswego, N.Y.

Craul, Philip: Dept. of Silviculture, SUNY College of Forestry, Syracuse, N.Y.; 315-476-3151 ext. 324; Ph.D. Penn State, 1964; Population and Community Ecology; Trees; Society of American Foresters, Soil Science Society of America, American Society of Agronomy; American Forestry Association, Soil Conservation Society of America

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Sokal, Robert R.: Dept. of Biological Sciences, SUNY at Stony Brook, Stony Brook, N.Y.; 516-246-6162; Ph.D. University of Chicago, 1952; Taxonomy or Systematics, and Evolution; Insects; American Society of Naturalists, SSE, Genetics Society of America, The Biometric Society, The American Statistical Association, ESA, Japanese Society for Population Ecology, The Entomological Society of America, SSZ, The Classification Society, AIBS, Sigma Xi

Spence, Alexander: Dept. of Biological Science, SUNY College at Cortland, Cortland, N.Y.

Spencer, Selden J.: Dept. of Biology, SUNY at New Paltz, New Paltz, N.Y.; 914-257-2514; D.Ed. Penn State, 1962; Aquatic Ecology; Birds; AAAS, Eastern Bird-Banding Association, Museum of Natural History; John Burroughs Natural History Society, Hawk Mountain Association, Audubon Society

Squicciarini, P.: Dept. of Biological Sciences, Kingsborough Community College, Bronx, N.Y.

Squires, Donald F.: Marine Science Research Center, SUNY at Stony Brook, Stony Brook, N.Y.; 516-246-6543; Ph.D. Cornell University, 1955; Taxonomy and Systematics, and Marine Ecology; Coelenterata (Stony Corals); AAAS, AIBS, ASLO, SSZ, IUCN, Conservation Foundation

Steward, Kenton: Dept. of Biological Sciences, SUNY at Buffalo, Buffalo, N.Y.

Stewart, Margaret: Dept. of Biology, SUNY at Albany, Albany, N.Y.; 518-457-8271; Ph.D. Cornell University, 1956; Population and Community Ecology; Amphibians; ASIH, The Herpetologists League, Society for the Study of Amphibians and Reptiles, Herpetological Society of Africa, ESA, WS, ASM, SSE, SSZ, AAAS, AIBS, Sigma Xi; Nature Conservancy, World Wildlife Fund, National Wildlife Federation

Stone, E. L.: Dept. of Agronomy, Cornell University, Ithaca, N.Y.; 607-256-2287; Ph.D. Cornell University, 1948; Physiological Ecology; Trees; ESA, Soc. of Amer. Foresters, Int. Union Forest Preservation, Amer. Soc. of Agronomy, Soil Sci. Soc., Pine International Soc., Soil Society, AAAS; N.Y.S. Forest Advisors Association

Storr, John F.: Dept. of Biology, SUNY at Buffalo, Buffalo, N.Y.; 716-833-2621; Ph.D. Cornell University, 1955; Aquatic Ecology and Marine Ecology; Invertebrates; AAUP, ESA, American Fisheries Society, Sigma Xi, ASLO, Great Lakes Foundation; Littoral Society

Stross, Raymond: Dept. of Biology, SUNY at Albany, Albany, N.Y.; Ph.D. Wisconsin, 1958; Physiological Ecology and Aquatic Ecology; Cladocera, Algae; AAAS, Sigma Xi, N.Y. Academy of Science, AIBS, ASZ, ESA

Stotsky, Guenther: Biology Dept., New York University, Washington Square, New York, N.Y. 10003; 212-598-3305; Ph.D. Ohio State University, 1956; Physiological Ecology; Bacteria and Fungi; Am. Soc. For Microbiology, BSA, AIBS, AAAS, Soil Sci. Soc. of America

Sullivan, Daniel J.: Dept. of Biological Sciences, Fordham University, Bronx, N.Y.; 212-933-2233; Ph.D. University of California at Berkeley, 1969; Population and Community Ecology, and Evolution; Hymenopterous parasites of aphids; Entomological Society of America, ESA, Sigma Xi, Animal Behavior Society, AIBS

Sweeney, Robert A.: Dept. of Biology, SUNY College at Buffalo, Buffalo, N.Y.: Great Lakes Lab; 716-862-5422 or 4920; Ph.D. The Ohio State University, 1966; Limnology and Oceanography; Algae; AAAS, AIBS, ASLO, BSA, Great Lakes Association, International Association for Great Lakes Research, Midwest Benthological Society, Ohio Academy of Science, Phycological Society of America, NABT, Sigma Xi; Environmental Defense Fund, ABATES, Technical Advisor to Sierra Club, Conservation Forum, Lake Erie Basin Committee, CAUSE

Tallman, Clinton John: Genesee Community College, 3837 Main St., Batavia, N.Y. 14020; 716-343-0055 ext. 19; M.S. SUNY at Brockport, 1965; Population and Community Ecology; Parasites, Herps, Protozoans; AAUP, NEA, ESA, AAAS, Rochester Comm. Sci. Information

Tauber, M.: Entomology and Limnology, Cornell University, Ithaca, N.Y.

Thompson, Daniel Q.: Cooperative Wildlife Research Unit, Fernow Hall; Cornell University, Ithaca, N.Y.; 607-256-2014; Ph.D. University of Missouri, 1955; Wildlife Management; no taxonomic groups; WS, ASM, ESA, Wilson Club, The Wildlife Society

Tierson, William C.: Dept. of Forest Zoology, SUNY College of Forestry, Huntington Wildlife Forest Station, Newcomb, N.Y.; 518-582-3298; SUNY College of Forestry, 1967; Population and Community Ecology; Plants; Society of American Foresters, WS, N.Y. Forest Owners Association, The Association for the Protection of the Adirondacks

Tietjen, John H.: The City College of CUNY, New York, N.Y. 10031; 212-621-2549; Ph.D. University of Rhode Island, 1966; Limnology and Oceanography; Nematodes, Polychaetes; American Society of Limnology and Oceanography, American Society of Zoologists, American Association for the Advancement of Science, Marine Biological Association of United Kingdom

Tobiessen, Peter: Biology Dept., Union College, Schenectady, N.Y. 12308; 518-346-8751 ext. 355; Ph.D. Duke University, 1970; Physiological Ecology; Vascular Plants; ESA, American Society of Plant physiologists.

Tracey, Kathleen: Institute of Aquatic Biology, Mount St. Vincent College, Bronx, N.Y.

Travis, B. V.: Dept. of Entomology and Limnology, Cornell University, Ithaca, N.Y.

Trebatoski, Alice: Dept. of Biology, Pace College, Pace College Plaza, N.Y.

Uhl, C. H.: Dept. of Genetics and Development, Cornell University, Ithaca, N.Y.

Uhler, Lowell: Roberts Hall, Cornell University, Ithaca, N.Y.; 607-256-2031; Ph.D. Cornell University, 1948; Population and Community Ecology; Mammals, Insects; AAAS, ESA, Entomological Society of America, N.Y. State Conservationist

VanDruff, Larry W.: Department of Forest Zoology, SUNY College of Forestry, Syracuse, N.Y.; 315-476-3151 ext. 310; Ph.D. Cornell University, 1971; Wildlife Biology, Vertebrate Zoology, Mammals, Population Ecology; ASM, WS, Amer. Nature Study

Vestal, J. Robie: Dept. of Biology, Syracuse University, 130 College Pl., Syracuse, N.Y. 13210; 315-476-5541 ext. 3574; Ph.D. North Carolina State University, 1969; Aquatic Ecology; Thiobacillus, Ferro-oxidans; AAAS, ASM, Sigma Xi; Nature Conservatory, National Wildlife Audubon Society

Waldbauer, Eugene C.: Dept. of Biology, SUNY College at Cortland, Cortland, N.Y.; 607-753-2715; Ph.D. Cornell University, 1966; Community Ecology and Taxonomy, Vascular Floral, Sigma Xi, AIBS, AAAS, Wildlife Society, NABT; National Wildlife Federation, Wilderness Society, Hawk Mt. Sanctuary, American Nature Study Society

Walker, Philip C.: Dept. of Biology, SUNY at Plattsburgh, Plattsburgh, N.Y.; 518-564-3007; Ph.D. University of Pittsburgh, 1958; Palynology, Taxonomy and Systematics; Plants; Sigma Xi, ESA, BSA; Audubon Society, Lake Champlain Committee

Warburton, F. E.: Dept. of Biology, Columbia University, New York, N.Y.

Wasserman, Aaron O.: The City College of the City University of New York, N.Y. 10031; 212-621-2198; Ph.D. University of Texas, 1956; Population and Community Ecology, Evolution; Hylids, Spadefoot Toads; Society for the Study of Evolution, American Society of Zoologists, American Society of Ichthyologists and Herpetologists; Southwestern Naturalists

Webb, William: Department of Forest Zoology, SUNY College of Forestry, Syracuse, N.Y.; 315-476-3151 ext. 214; Ph.D. Syracuse University, 1950; Wildlife Management; Mammals, Birds; ESA, WS, Animal Behavior Society, Society of American Foresters, AAAS, Nature Conservancy

Weber, Peter G.: Dept. of Biology, SUNY College at Oswego, Oswego, N.Y.; 315-341-4249; Ph.D. Michigan State University, 1968; Population and Community Ecology, and Evolution; Fish, Mammals; ESA, Animal Behavior Society, American Zoologists, Sigma Xi, AAAS

Webster, D. A.: Dept. of Conservation, Cornell University, Ithaca, N.Y.

Wecker, Stanley C.: The City College of CUNY, New York, N.Y. 10031; 212-621-2198; Ph.D. University of Michigan, 1962; Population and Community Ecology; Rodentia; American Association for the Advancement of Science (Fellow), American Institute for Biological Sciences, Ecological Society of America, American Society of Mammalogists, Sigma Xi, Animal Behavior Society, American Society of Zoologists

Weisbrot, David: Dept. of Biological Sciences, SUNY at Binghamton, Binghamton, N.Y. 13901; 607-798-2456; Ph.D. Columbia University 1963; Population and Community Ecology, Evolution; Drosophila; AAAS, AIBS, Sigma Xi, Genetics Society of America, American Genetics Association

Wells, J. W.: Dept. of Geological Sciences, Cornell University, Ithaca, N.Y.

Werner, Robert: Department of Forest Zoology, SUNY College of Forestry, Syracuse, N.Y.; 315-476-3151 ext. 304; Ph.D. Indiana University, 1966; Fisheries Biology, Fish; ASLO, ESA, American Fisheries Society; Sigma Xi

White, James E.: Dept. of Biology, Keuka College, Keuka Park, N.Y.; 315-536-4411 ext. 268; Ph.D. Rutgers University, 1961; Population and Community Ecology; Mammals, Aquatic Invertebrates, Amphibians; AAAS, AIBS, ESA, ASM, Sigma Xi; Aubudon, National Wildlife Soc., American Museum of Natural History, National Geographic Society

Whiting, Anne M.: Dept. of Biology, Houghton College, Houghton, N.Y.

Whittaker, R. H.: Ecology and Systematics Section, Langmuir Laboratory, Cornell University, Ithaca, N.Y.; 607-256-4747; Ph.D. University of Illinois, 1948; Population and Community Ecology; Vascular Plants, Insects; ESA, ASLO, British Ecological Society, Japanese Ecological Society, International Society of Phytosociology, International Society of Tropical Ecology, American Society of Zoology, Torrey Botanical Club, AAAS, AIBS, Nature Conservancy, National Wildlife Federation, Sierra Club

Wilkins, Bruce T.: Dept. of Biology, Cornell University, Ithaca, N.Y.

Williams, Donald: Dept. of Biology, Vassar College, Poughkeepsie, N.Y. 12601; 914-452-7000 ext. 104; Ph.D. Emory University, 1959; Microbial Ecology; Sigma Xi, AAAS, AIBS, Assoc. Southeastern Biologists, ESA, Genetics Soc., N.Y. Academy of Sciences

Williams, George: Marine Science Research Center, SUNY at Stony Brook, Stony Brook, N.Y.; 516-246-7713; Ph.D. University of California at Los Angeles, 1955; Marine Ecology; Fishes; New York Academy of Sciences, AIBS, ASIH, American Fisheries Society, ASLO, SSE

Williams, James P.: Dept. of Biology, Community College of the Finger Lakes, Canandaigua, N.Y.

Wilson, Charles: Dept. of Biology, SUNY at Cortland, Cortland, N.Y.

Wohnsiedler, Theodore: Dept. of Biology, Ulster County Community College, Stone Ridge, N.Y.

Wolf, Larry: Dept. of Biology, Syracuse University, Syracuse, N.Y. 13210; 315-476-5541 ext. 3956; Ph.D. University of California (Berkeley), 1966; Population and Community Ecology, Evolution; Birds; AAAS, Soc. Study Evolution, Ecological Society of America, COS

Wood, Kenneth G.: Dept. of Biology, SUNY at Fredonia, Fredonia, N.Y.; 716-673-3191; Ph.D. Ohio State University, 1953; Limnology and Oceanography; Mollusca, Algae; ASLO, Sigma Xi, ESA, International Society of Technical and Applied Limnology

Worley, Elizabeth: Dept. of Biology, Brooklyn College, Bedford Ave. and Avenue H, Brooklyn, N.Y.; Ph.D. Columbia University, 1940; Population and Community Ecology; Birds; Sigma Xi; National Wildlife, Wilderness Society

Wright, Margaret R.: Dept. of Biology, Vassar College, Poughkeepsie, N.Y.; 914-452-7000 ext. 104; Ph.D. Yale University, 1946; Aquatic Ecology; Amphibia and Cladocera; AIBS, AAAS, ASZ, Sigma Xi, N.Y. Academy of Science; National Wildlife Federation

Wurster, Charles: Dept. of Biological Sciences, SUNY at Stony Brook, Stony Brook, N.Y.; 516-246-5038; Ph.D. Stanford University, 1957; Birds, AAAS, ESA, Environmental Defense Fund, National Audubon Society, Sierra Club

Youngs, William D.: Dept. of Conservation, Cornell University, Ithaca, N.Y.; 607-256-2162; M.S. Cornell University, 1957; Fisheries Biology; Fishes and Invertebrates; American Institute of Science, AAAS, American Fisheries Society, ASIH

Zorach, Timothy: Dept. of Biology, Wells College, Aurora, N.Y. 315-346-9611; Ph.D. Cornell, 1967; Taxonomy and Systematics; Fish; AAAS, AOU, ASIH, AIBS, SSZ

APPENDIX A
DIRECTORY OF PERSONNEL

As stated in the introduction to this section, the following names were drawn from the 1970 Directory of Members of the Ecological Society of America. Only those members with New York State addresses were included and individuals on the preceding list were excluded from this one. As noted, this appendix is added to make the list of ecologists somewhat more inclusive and, hopefully, more useful.

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Anderson, William S., Jr., Allen Meadows Apts., No. C-5, 5562 Bear Rd., North Syracuse, New York 13212

Armstrong, Neal, 610 Lefrank Tower, 97-45 Queens Blvd., Forest Hills, New York 11375

Aronson, Lester R., Department of Animal Behavior, American Museum of Natural History, Central Park at 79th St., New York, New York 10024

Atz, James, 106 Bayview, Port Washington, New York 11050

Avolizi, Robert J., Lyman Hall, Zoology Department, Syracuse University, Syracuse, New York 13210

Bard, Mrs. Gily E., 82 Bella Vista St., Tuckahoe, New York 10707

Barton, J. D., Jr., Alfred University, Box 1106, Alfred, New York 14802

Bast, Thomas F., New York State Health Department, Bureau of Epidemiology, 855 Central Ave., Albany, New York 12206

Bath, Dale, R.D. #1, Dennis Dr., New Hampton, New York 10958

Belt, Charles B., 233 Bdwy., New York, New York 10007

Bernard, John Milford, Department of Biology, Ithaca College, Ithaca, New York 14850

Bobrowsky, Kenneth, 143 Esplanade, Mt. Vernon, New York 10553

Burky, Albert J., French Rd., R.D. #3, Remsen, New York 13438

Burton, John J.S., Entomology Department, Cornell University, Ithaca, New York 14850

Busch, Phyllis S., Conklin Rd., Stanfordville, New York 12581

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Chabora, P. C., Department of Biology, Queens College, Flushing, New York 11367

Chapple, Eliot D., Research Facility, Rockland State Hospital, Orangeburg, New York 10962

Clesceri, Nicholas L., Rensselaer Polytechnic Institute, Division of Environmental Engineering, Troy, New York 12181

Coleman, Babette B., 3699 Lake Ave., Rochester, New York 14612

Cook, David B., 12 McPherson Ter., Albany, New York 12206

Cooper, Donald M., 2431 Webb Ave., New York, New York 10468

Cooper, Stephen V., IV, Department of Biological Science, State University of New York at Albany, Albany, New York 12203

Cracraft, Joel, Department of Ornithology, American Museum of Natural History, Central Park West at 79th St., New York, New York 10024

Crockett, Lawrence J., Department of Biology, City College of New York, New York, New York 10031

Cronquist, Arthur, New York Botanical Garden, Bronx Park, Bronx, New York 10458

Curtis, Norman J., R. D. #2, Worcester, New York 12197

Davis, Jeffrey A., National Audubon Society, P.O. Box 231, Millbrook, New York 12545

DeLaubenfels, David J., Department of Geography, Syracuse University, Syracuse, New York 13210

Desmond, Thomas C., Box 670, Newburg, New York 12550

Duhon, Marvant M., 55 Residential Club, Cornell University, Ithaca, New York 14850

Eckblad, James W., 7-B Pleasant Grove Apts., Ithaca, New York 14850

Emerson, Alfred E., Hulett's Landing, New York 12841

Engelhard, Lucy V., 115 Cook St., Ithaca, New York 14850

Eversole, Arnold G., B-15 New Slocum Hts., Apt. #2, Syracuse, New York 13210

Farb, Peter, 310 Riverside Dr., New York, New York 10025

Fast, Stephen J., 1740 Slaterville Rd., Ithaca, New York 14850

Faust, Joan Lee, The New York Times, 229 West 43rd St., New York, New York 10036

Faust, Mildred E., 1216 Westcott St., Syracuse, New York 13210

Feranchuk, John A., Box 266, Midhampton Ave., Quoque, New York 11959

Ford, W. N., Jr., Hudson Ter., Marlboro, New York 12542

Futuyma, Douglas J., Department of Biological Sciences, State University of New York at Stony Brook, Stony Brook, New York 11790

Gans, Carl, Department of Biology, State University of New York at Buffalo, Buffalo, New York 14214

Geis, James W., Department of Forest Botany & Pathology, State University of New York, College of Forestry, Syracuse University, Syracuse, N.Y. 13210

Gerlach, John L., Rockefeller University, York & 66th St., New York, N. Y. 10021

Gold, Kenneth, Osborn Laboratories of Marine Science, Broadwalk & West 8th St., Brooklyn, New York 11224

Gosz, James R., 237 Langmuir Laboratory, Cornell University, Ithaca, N. Y. 14850

Gourley, Robert S., Vertebrate Zoology, Fernow Hall, Cornell University, Ithaca, New York 14850

Graham, William J., Biology Department, The City College, 138th St. and Convent Ave., New York, New York 10031

Griffin, Donald R., The Rockefeller University, New York, New York 10021

Grove, Thurman Lee, Division of Biological Sciences, Langmuir Laboratory, Cornell University, Ithaca, New York 14850

Haag, Ralph L., Apt. 3-C, 230 West 107th St., New York, New York 10025

Hall, Kennth R., Department of Neurobiology & Behavior, Langmuir Laboratory, Cornell University, Ithaca, New York 14850

Hamilton, Wm. John, Jr., 615 Highland Rd., Ithaca, New York 14850

Heise, David E., 2523 Sweden-Walker Rd., Brockport, New York 14420

Hinckley, Alden D., Biology Department, Brookhaven National Laboratory, Upton, L.I., New York 11973

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Holt, Buford R., Brookhaven National Laboratory, Upton, Long Island, New York 11973

Houseman, William, The Environment Monthly, 420 Lexington Ave., New York New York 10017

Howard, Ronald A., Jr., R.D. #2 (Kirk Rd.), Freeville, New York 13068

Hudecki, Michael S., 96 Doncaster Rd., Kenmore, New York 14217

Jackson, Daniel F., 1200 Comstock Ave., Syracuse, New York 13210

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Kelly Mahlon G., Department of Biology, New York University, University Heights, Bronx, New York 10453

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Lauer, Gerald J., New York University, Istitute of Environmental Medicine, 550 First Ave., New York, New York 10016

Levandowsky, Michael, Zoology Department, Columbia University, New York, N.Y. 10027

Levine, Louis, Department of Biology, The City College, 139th St. & Convent Ave., New York, New York 10031

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Long, Sharon W., 5552 Netherland Ave., Apt. 56, Bronx, New York 10471

Magorian, Thomas R., Systems Division, Cornell Aeronautical Laboratory, Inc., Buffalo, New York 14221

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Mills, Laura, 2314 Bouck Ave., Bronx, New York 10469

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Penney, Richard L., Institute for Research in Animal Behavior, New York Zoological Park, Bronx Park, Bronx, New York 10460

Perlmutter, Alfred, Biology Department, New York University, Washington Square College, New York, New York 10003

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Phillips, Arthur M., Jr., Fish and Wildlife Service, Cortland, New York 13045

Podoliak, Henry A., National Fish Hatchery, Cortland, New York 13045

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Price, Peter W., 66 Quarry Rd., R.D. #2, Ithaca, New York 14850

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Reisman, Howard M., Division of Natural Sciences, Southampton College, Long Island University, Southampton, New York 11968

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Reuss, Donald, Apt. G13, Georgetown Bldg., Fairhaven Dr. West, Nesconset, N.Y. 11767

Richardson, W. John, Field of Neurobiology & Behavior, Langmuir Laboratory, Cornell University, Ithaca, N.Y. 14850

Rosenblum, Edwin E., 1844 East 14th St., Brooklyn, New York 11229

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Ross, James B., 18 Lake Dr., Manhasset Hills, New York 11040

Schaefer, Vincent J., Route No. 3, Box 36, Schenectady, New York 12306

Schaffner, William R., Langmuir Laboratory, Cornell University, Ithaca, N.Y. 14850

Schwengber, Janet B., Biology Department, State University of New York Agricultural and Technical College of Delhi, Delhi, New York 13753

Serchuk, Fredric M., 220-14 138 Rd., Laurelton, New York 11413

Sheridan, Vincent George, 305 Main St., Catskill, New York 12414

Shirley, H. L., State University College of Forestry at Syracuse University, Syracuse, New York 13210

Sibley, Thomas H., Department of Biology, University of Rochester, Rochester, New York 14627

Simpson, Robert L., Department of Entomology and Limnology, Cornell University, Ithaca, New York 14850

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Snapp, Barbara, Langmuir Laboratory, Cornell University, Ithaca, New York 14850

Sparrow, Arnold H., Department of Biology, Brookhaven National Laboratory, Upton, Long Island, New York 11973

Squires, E. Richard, 14 Devendorf St., Mohawk, New York 13407

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Westman, Walter E., Ecology and Systematics, 224 Langmuir Laboratory, Cornell University, Ithaca, New York 14850

Wheeler, Alfred G., 116 Oak Ave., Ithaca, New York 14850

Wiley, R. Haven, Jr., Rockefeller University, New York, New York 10021

Wilson, Richard E., Room 124 Langmuir Laboratory, Bldg. #6, Cornell University, Ithaca, New York 14850

Wolff, Emily T., Hobart College, Geneva, New York 14456

Wright, A. H., 113 East Upland Rd., Ithaca, New York 14850

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II COURSE OFFERINGS IN ECOLOGY

Included with the personnel questionnaires were several course questionnaires (appendix at the end of the report) that provided the information for annotating the course descriptions in terms of their categorical structure as described later in this introduction. The return of questionnaires was not complete and in order to assemble a comprehensive list of courses, catalogs for all colleges and universities were examined and courses relevant to ecology and their catalog descriptions were included.

Thus, the inventory of course offerings was compiled from two sources, responses to the course questionnaire and entries appearing in the catalogs of the institutions. Since catalogs are frequently out of date by the time they are published, the entries in the present inventory derived from college catalogs may be in error. We have a good deal more information about those courses for which questionnaires were received than those described only in catalogs.

In a listing of courses, a most desirable item would be some estimate of course quality. Short of interviewing a number of students having taken the various courses-- a practical impossibility-- we were unable to invent a method of securing such information. We, therefore, sought to estimate, in an objective and comparative way, the contents of each course. To this end we decided to characterize each course by its proportional content of subtopics.

If the subject of ecology could be divided into several subtopics, an assessment could be made of how each contributed proportionately to a given course and would provide a basis for comparing courses as to their content. Unfortunately, there are as many ways of subdividing ecology as there are ecologists and probably any given mode of subdivision will be used by only a small proportion of ecologists. Nevertheless, we have made an arbitrary division into subtopics for use here.

We chose to establish four general divisions: natural history and conservation, population and community ecology, ecological energetics, and physiological ecology. For each subdivision we selected seven indicator subjects, and arranged them in a random order on the questionnaire. These indicator topics are:

A. NATURAL HISTORY AND CONSERVATION

Life histories of local animals
Biomes (or life zones or biotic provinces)
Field sampling techniques
Standing crop
Maximization of yield from fishery (or similar operation)
Mark and recapture methods
Terrestrial (aquatic) habitat types

B. POPULATION AND COMMUNITY ECOLOGY

Logistic equation
Lotka Volterra competition equations
MacArthurs's broken stick model
Life tables
Intrinsic rate of natural increase
Gause's competition experiments

C. ENERGETICS

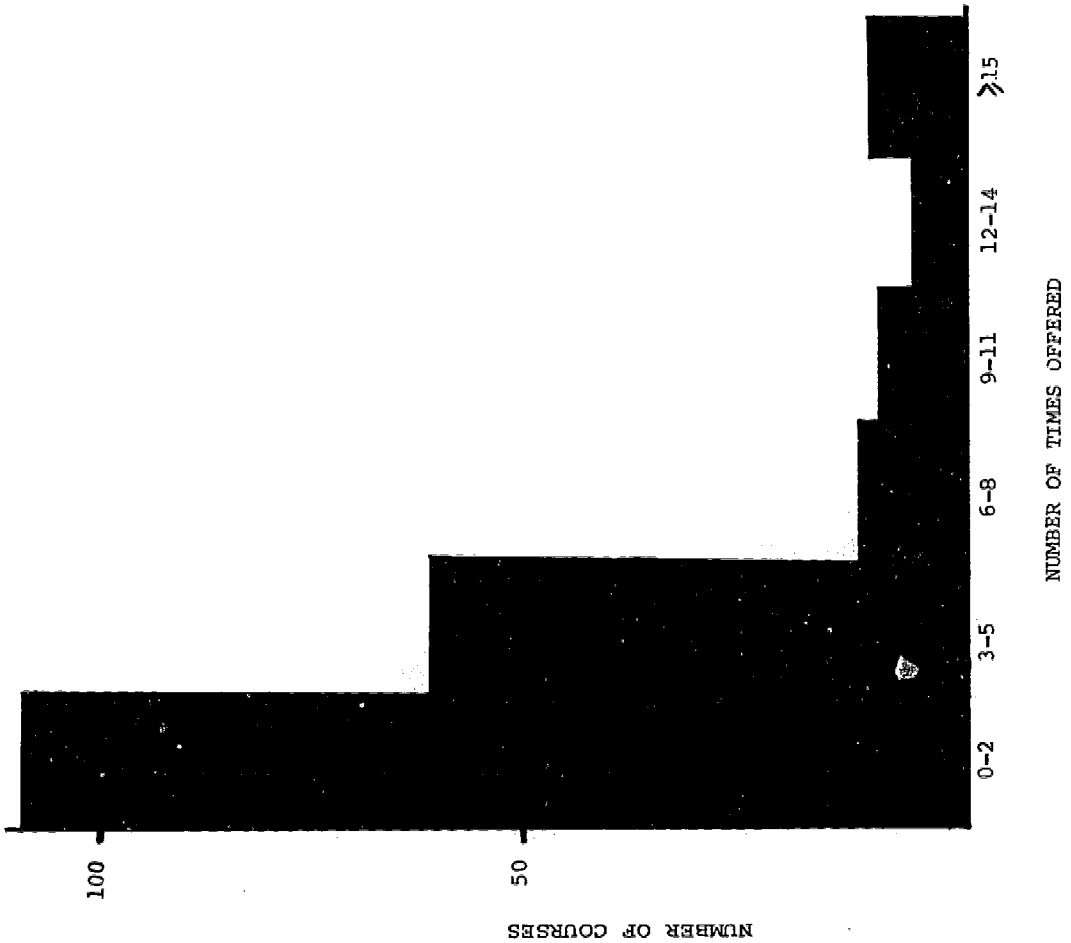
Primary productivity
Energy loss between trophic levels
Ecological efficiency
Use of radio isotopes in ecology
Food web complexity
Eltonian pyramid
Community metabolism

D. PHYSIOLOGICAL ECOLOGY

Adaptation to severe temperature regimes
Ion balance in marine organisms
Physiological changes during hibernation
Fat storage and its relation to environmental stresses
Physiological tolerance to environmental gradients
Activity cycles
Diurnal rhythms

Part of the course annotation is the relative proportion of the four categories in each course. For example, the entry A = 20 percent, B = 10 percent, C = 40 percent, D = 30 percent would read "20 percent of items checked are relevant to the subdivision natural history and conservation, 10 percent to population and community ecology, 40 percent to energetics, and 30 percent to physiological ecology." That all of ecology has not been included within this list is obvious. We were constrained by the need to provide a short list to encourage a large return of the questionnaires and the need to have a relatively large number of topics under each subdivision to gain accuracy in statements of percentage compositions.

To gain an intuitive notion of how rapidly this inventory may become incomplete, we prepared a histogram of the number of courses as a function of how often they have been offered. This graph reveals that a majority of courses have been offered two times or fewer, illustrating the rapid recent growth rate of ecology courses and their rapid turnover. This rate of change would not be expected to remain at such a high level, but the present state of flux is well illustrated.



FREQUENCY OF COURSE OFFERINGS AS A FUNCTION OF NUMBER OF COURSES

The recent expansion of course offerings in ecology is well illustrated here.

DESCRIPTION OF COURSES *

ADELPHI UNIVERSITY

Marine Biology; Malcolm Hair; A field course to a tropical environment, primarily coral reef areas. Course given during spring recess with lectures before and after trip. Past trips have been to the University of Puerto Rico Marine Station, Nassau; G-10, U-10; annually; terrestrial and marine field trips; no text: A-55%, B-18%, C-27%.

Principles of Ecology; Malcolm Hair; An introduction to the basic principles of ecology using the local environment to illustrate the complex interactions of ecosystems. Extensive field work is used to reinforce theoretical aspects given in lecture; U-20; biannually; terrestrial, fresh water, and marine field trips; Text: Odum, Fundamentals of Ecology; A-25%, B-6%, C-44%, D-25%.

SUNY AT ALBANY

Biology of Plankton; R. G. Stross and D. C. McNaught; Physiological ecology, production ecology, and appropriate methodologies as applied to that phenomenon called plankton; alternate years; fresh water and marine field trips; Text: Paymont

Ecology; R. G. Stross; Introduction to the study of organisms in relation to their environments; G-3, U-75; annually; terrestrial and fresh water field trips; Text: Smith and Cox; A-6%, B-35%, C-35%, D-24%.

Field Biology; Margaret Stewart; An introduction of those aspects of biology which are based on field studies - introduction to flora and fauna of the area; U-10-15; annually; terrestrial, fresh water, and marine field trips; Text: Smith, R. L., Ecology and Field Biology: A-43%, C-43%, D-14%.

Natural Communities; Michael Rosenzweig; Literature of the central problems of the ecology and evolution of communities, population interactions, social organization, diversity, and specialization; G-5, U-7; annually; terrestrial and fresh water field trips; no text: A-29%, B-43%, C-29%.

* The meanings of G,U,A,B,C, and D used in this section are given in the foregoing introduction.

Population Ecology; Michael Rosenzweig; Population dynamics, rate of growth in density per individual and the environmental variables that affect it (competition, mutualism, predation, resources), stability of population, modes of coexistence, and the causes of the diversity of living forms: G-5 U-90; biannually; terrestrial field trips; text: Slobodkin, Growth and Regulation of Animal Populations, Boughey, A.; A-25%, B-50%, C-25%.

Vertebrate Ecology; Margaret Stewart; Primarily field studies of vertebrates common at Cranberry Lake Biological Station. Feeding niches of fishes, local movements of terrestrial anurans, territoriality and daily activity patterns in bird, habitat preferences community composition of small mammals, beaver behavior, deer biology; G-4, U-2; annually; terrestrial and fresh water field trips; no text: A-49%, B-19%, C-27%, D-20%.

ALFRED UNIVERSITY

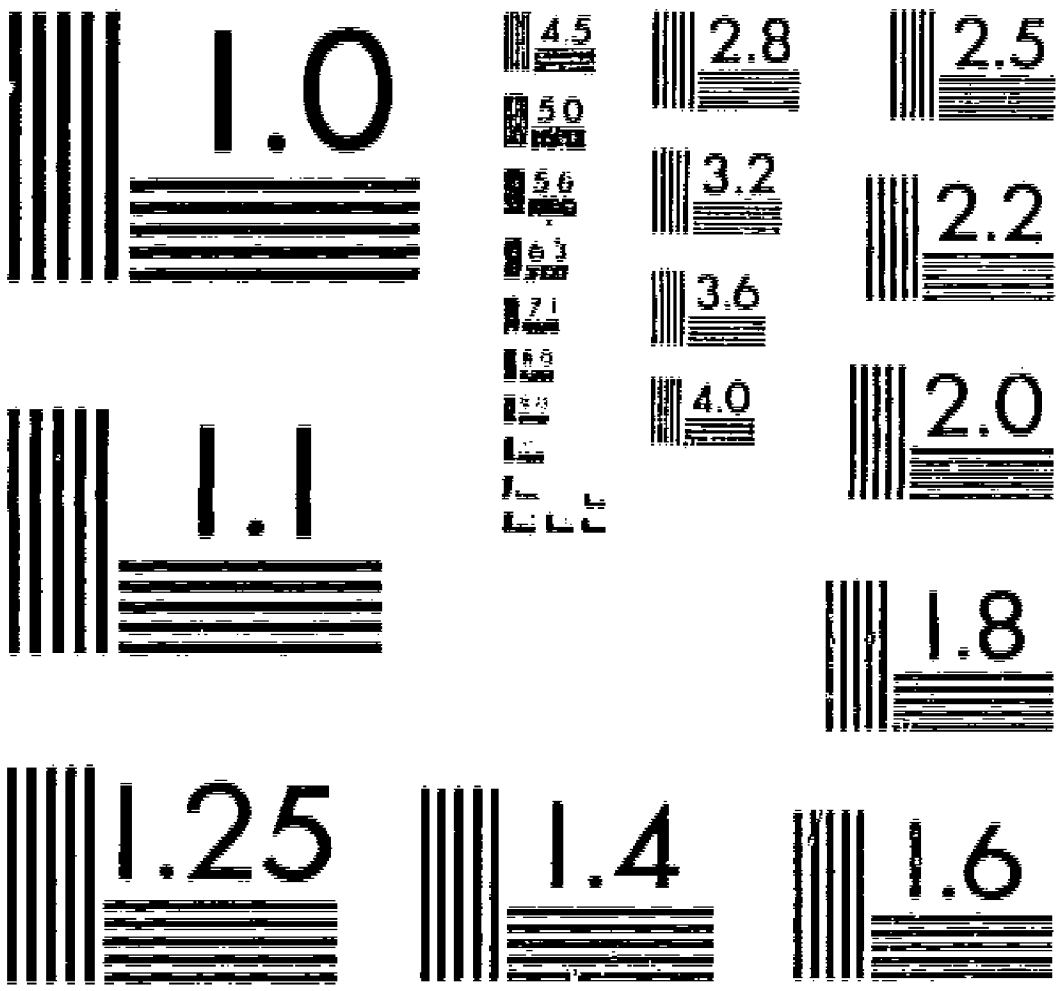
General Ecology; Gaylord E. Rough; A consideration of the interrelationships of organisms and their environment; G-2, U-12; annually; terrestrial and fresh water field trips; Text: Smith, Ecology and Field Biology, Kormondy; Elements of Ecology, Odum, Fundamentals of Ecology; A-27%, B-2%, C-32%, D-27%.

Introductory Oceanography; Daniel B. Sass; An introduction to the history of exploration, the geological, chemical, physical, and biological aspects of the oceans: U-12-24; annually; fresh water field trips; Text: Cocker, R. E., This Great and Wide Sea, Menard, H. W., Anatomy of an Expedition, Scientific American (book), The Ocean; A-40%, C-40%, D-20%.

Limnological Techniques; Daniel B. Sass; The application of data collecting techniques in research oriented projects: U-12-15; annually; fresh water field trips; Text: Welch, P. S., Limnology, U.S. Naval Ocean. Office Publication No. 607, Instruction Manual for Obtaining Oceanographic Data: A-100%.

AUBURN COMMUNITY COLLEGE

Conservation of Natural Resources; Harry Greer, Jr., U-45; annually; terrestrial and fresh water field trips; Text: Dassmann, Environmental Conservation; A-50%, C-37%, D-13%.



MICROCOPY RESOLUTION TEST CHART

NATIONAL BUREAU OF STANDARDS-1963-A

BARD COLLEGE

Limnology; The ecology of lakes and other bodies of water. Emphasis on field studies of flora and fauna of local waters.

Population Biology; Topics in ecology and the theory of evolution. Field studies of natural populations. Laboratory observations of social and other interactions.

BARNARD COLLEGE: COLUMBIA UNIVERSITY

Biology of the Plankton; Patricia L. Dudley; G-4-6, U-2; annually, no field trips; Text: Hardy, The Open Sea, World of the Plankton, Paymont, Plankton and Productivity in the Oceans; A-33%, C-33%, D-33%.

Conservation Theory and Environmental Management; Leonard Zobler; Theory of natural resource use and allocation, Multipurpose uses and area-wide management and planning; mixed; annually; terrestrial and fresh water field trips; no text: A-100%.

Ecology; Patricia L. Dudley; U-35-50; annually; terrestrial and marine field trips; Text: Hoar, Comparative Phynology, Odum, Ecology, Phillipson, Ecological Energetics; A-21%, B-21%, C-29%, D-29%.

SUNY AT BINGHAMTON

Advanced Ecology; Analysis of population systems. Speciation mechanisms and adaptations. Inter-and intra-population interactions.

Ecology; Relation of animals and plants to environment. Biological communities and physical factors acting on them will be studied through lectures, readings, field, and laboratory exercises.

Ecology and Physiology of Reproduction; An introduction to the study of reproduction of mammals and birds. The following subjects are among those which will be discussed; Anatomy, Endocrinology, and physiological mechanisms of mating pregnancy, estrus and menstrual cycles; the role of the environment in reproduction; natural and physiological controls of fertility, including the relationships of population density to reproduction. Three 1-hour lectures per week. Prerequisites; Biology III or permission of the instructor. Undergraduate, offered every year. A-10%, B-25%, C-20%, D-45%.

Human Ecology; A course designed to acquaint the student with concepts of reproduction, anxiety, recourses, and population. Primarily a non-major offering. Undergraduate, offered every year. A-20%, B-45%, C-5%, D-30%.

Limnology; Jacob H. Fischthal; Introduction to the biological, chemical, and physical features of fresh water lakes and streams with special emphasis on ecology; G-4; alternate years; fresh water field trips; Text: Reid, Ecology of Inland Waters and Estuaries. A-31%, B-7%, C-31%, D-31%.

The Lotic Environment; A course dealing with the special ecological problem encountered in the lotic environment. Graduate, offered alternate years. A-30%, B-30%, C-10%, D-30%.

Mammalian Populations; A course dealing with integrative relationships of animals and environment. A-40%, B-35%, C-5%, D-20%. Graduate, offered every year.

Physiological Ecology; Analysis of animals in terms of their physiological adaptive capacity with consideration of the mechanisms involved.

SUNY AT BROCKPORT

Animal Ecology; John Ivan Mosher; Emphasis on vertebrate populations, identification, and behavior; G-18; annually; terrestrial field trips; no text: A-26%, B-17%, C-21%, D-26%.

Aquatic Biology; Robert Costa; A field course dealing with the collection, identification, and ecology of plants and animals associated with various aquatic habitats; G-5, U-15; annually; fresh water and marine field trips; no text: A-33%, B-7%, C-27%, D-33%.

Evolution; David H. Hammond; G-8; alternate years; no field trips; Text: Merrel, Evolution and Genetics; A-20%, C-20%, D-60%.

Human Ecology and Conservation; Robert A. Hellman; U-25; annually; terrestrial field trips; Text: Udall, The Quiet Crisis, Bresler, Environments of Man; A-25%, B-15%, C-45%, D-15%.

Limnology; Robert Costa; The Physical, chemical, and biological characteristics of fresh water. The organization (structure) of aquatic habitats, their inhabitants, their physical - chemical properties, field and laboratory techniques of limnology; G-12; annually; fresh water field trips; Text: Reid, Ecology of Inland Waters and Estuaries, Needham and Needham, Guide to Study of Fresh Water Biology; A-17%, B-17%, C-39%, D-28%.

Management of Biotic Resources; Robert A. Hellman; G-5; annually; terrestrial and fresh water field trips; Text: Cox, Readings in Conservation Ecology; A-47%, B-7%, C-33%, D-13%.

Plant Ecology; Clarence Gehris; Analysis and comparison of plant communities, emphasis on energy flow. Computer programing for analysis; U-15; annually; terrestrial field trips; no text: A-22%, B-33%, C-39%, D-6%.

BROOKLYN COLLEGE CUNY

Ecology; Elizabeth Worley; Habitat approach to ecological principles; G-18-25; annually; terrestrial, fresh water, and marine field trips; Text: Odum, Fundamentals in Ecology, Boughey, Contemporary Readings in Ecology; A-27%, B-14%, C-32%, D-27%.

Experimental Ecology of Microorganisms; Developmental and physiological studies of protozoans, algae, and fungi. Special emphasis on lower phycomycetes as experimental organisms. Examination of growth requirements in relation to their ecological roles and habitat.

Field Studies of Animal Ecology; Elizabeth Worley; Survey of basic ecological principles - plants and animals characteristic of the New York region; U-25; annually; terrestrial, fresh water, and marine field trips; Text: Odum. Fundamentals of Ecology, Hazen, Readings in Population and Community Ecology; A-35%, B-12%, C-35%, D-18%.

Population and Community Ecology; Elizabeth Worley, Basic concepts of population ecology and community ecology; U-17-35; annually; terrestrial, fresh water, and marine field trips; Text: Smith, R., Ecology and Field Biology, Boughey, P. S., Contemporary Readings in Ecology; A-27%, B-27%, C-40%, D-6%.

SUNY COLLEGE AT BUFFALO

Ecology; Theodore E. Eckert; Based primarily on Odum's book, Fundamentals of Ecology; U-18; biannually; terrestrial and fresh water field trips; Text: Odum, Fundamentals of Ecology; A-28%, B-17%, C-39%, D-17%.

Economic Biology and Conservation; George Laug; Organisms of economic importance to man, basic concepts of modern argriculture, plant and animal diseases, including their life cycle and control, principles of biological conservation including forests, soil, water, and wildlife; G-12, U-10; annually; terrestrial and fresh water; Text: Dasmann, Environmental Conservation; A-55%, B-11%, C-33%.

Field Biology; George Laug; Includes considerable taxonomic treatment of plants and animals native to the area, ecological relationships, sampling techniques, life histories, and a considerable amount of field techniques such as collection, preserving, etc.; G-12, U-10; annually; terrestrial and fresh water field trips; Text: William Hillcourt, Field Book of Nature Activities and Conservation, William Harlow, Trees of the Eastern United States and Canada, Jaques, How to Know the Insects; A-63%, B-37%.

Field Studies in the Conservation of Biological Resources; George Laug; Problems of the renewable resources, treated as applied ecology in connection with soil, water, forest, and wildlife, field instruction and lectures by experts from the State Conservation Department, Federal Bureaus, and local community organizations, techniques in conservation education; G-40; annually; terrestrial and fresh water field trips; Text: Conservation - Eckert and Laug, Road to Survival; A-40%, B-6%, C-40%, D-13%.

Limnology; Robert A. Sweeney; G-6, U-6; annually; fresh water field trips; Text: Reid, Ecology of Inland Waters and Estuaries, Welch, Limnological Methods; A-37%, C-32%, D-32%.

Limnology of a River; Robert A. Sweeney; G-3, U-1; Offered upon petition by students; fresh water field trips; Text: Reid, Ecology of Inland Waters and Estuaries, Eddy, Fresh Water Plankton Communities; A-37%, C-37%, D-26%.

Plant Ecology; Theodore Eckert; The plant community, vegetation, and community analysis, environmental factors controlling plant communities, dynamics of community change; G-10; alternate years; terrestrial and fresh water field trips; Text: Oosting, H. J., The Study of Plant Communities, Kershaw, K. A., Quantitative and Dynamic Ecology; A-40%, C-30%, D-30%.

SUNY UNIVERSITY AT BUFFALO

Aquatic Ecology; John Storr; This is a field-based course in which a number of aquatic environments are visited and the interrelationship studied of the physical to the biological environments; G-10, U-9; annually; fresh water field trips; Texts: Reid, Ecology of Inland Waters, Fassett, A Manual of Aquatic Plants; A-38%, B-8%, C-38%, D-15%.

CANISUS COLLEGE

General Ecology; Robert T. Blasdell; U-15; biannually; terrestrial and fresh water field trips; Text: Odum, Fundamentals of Ecology; A-27%, C-46%, D-27%.

THE CITY COLLEGE

Biological Oceanography; A study of the biological aspects of the sea including biology of marine and estuarine organisms; trophic dynamics; fishery resources; pollution; and the interrelation of these with the physical and chemical environment; U-18; each semester; marine and estuarine environment field trips; Texts: Choices vary from the following: Strickland, Practical Handbook of Seawater Analysis; Moore, Marine Ecology; Raymont, Plankton and Productivity of the Oceans; Turekian, The Ocean; Johnson & Fleming, The Oceans; Weiss, Marine Biology.

Climatology; Statistical methods and classification of climates. Climate change. The climates of the continents; undergraduate.

Community Ecology; The study of biotic communities; their development, energetics, material cycling, species diversity, current environmental problems and future prospects; G-20; annually; terrestrial fresh water and marine environment field trips; Text: Kormondy, Concepts of Ecology.

Ecology Laboratory; Includes the following: Tropic structure of a meadow, palynology, aquatic ecosystems, vegetation analysis, population studies, soil analysis, pollen analysis; U-17; annually; field trips; Text: Cox, Laboratory of General Ecology.

Field Botany; Study of basis ecology of N.Y. area including exposure to approximately 400 plant species; U-20; annually; terrestrial fresh water and marine environment field trips; no text.

Field Zoology; An ecological approach to study of local faunal communities with the emphasis on natural history. Field trips attempt to stress disturbed nature of communities, changes that have occurred and the species that are native and introduced. Students learn to identify both species and characteristics of specific communities; U-16; annually; terrestrial fresh water and marine environment field trips; Text; Benton and Werner, Field Biology and Ecology.

Fishes and Fisheries Biology; Special topics in the biology of fishes and fish populations; G-10; biennially; marine environment field trips; no text.

Limnology; Analysis of fresh water aquatic ecosystems; New course; graduate; every 2 years; fresh water environment field trips; no text.

Marine Benthos; Study of the distribution community relationships and productivity of marine bottom organisms; G-8; annually; marine environment field trips; Text: Krumbein & Pettijohn, Manual of Sedimentary Petrography.

Marine Geology; Physiography of the ocean floors. Composition and structure of the ocean crust. Field and laboratory methods in marine geology. Mar[illegible] sedimentation and hydrodynamic, chemical, and biochemical processes involved. Orgin and Evolution of the oceans and the ocean basins.

Marine Microbiology; G-15; alternate years; marine environment field trips; no text.

Marine Plankton Dynamics; Biology, productivity, and trophic dynamics of marine plankton; G-6; biennially; marine environment field trips; Text: Raymont, Plankton and Productivity in the Oceans.

Microbial Ecology; Interrelationships of microorganisms with other organisms; U-16; alternate semesters; fresh water and marine environment field trips; Text: Brock, Microbial Ecology.

Physiological Ecology; The adoptive physiological specializations of organisms in relation to the physico-chemical attributes of terrestrial, aquatic, and tidal environments; U-15; each fall; no field trips.

The Population Crisis; The phynomenon of man's increase in numbers on this planet - impact on ecosystem; problems of technological wastes and poisons; problems in human population stabilization and control; U-70; alternate semesters; no field trips; Text: Ehrlich, Ehrlich, Population, Resources, Environment; Issues in Human Ecology.

Population Ecology; Structural attributes, growth and regulation of plant and animal populations; Graduate; once every 2 years; terrestrial, fresh water environment field trips; Texts: Andrewartha, H. G., Introduction to the Study of Animal Population; Hazen, W. E., Readings in Population and Community Ecology; Slobodkin, L. B., Growth and Regulation of Animal Populations; Tinkle, D. W., The Life and Demography of the Side-Blotched Lizard.

Principles of Ecology; The study of the structure and function of ecological systems and the effects of human activity on their biotic and abiotic components; U-150; every semester; no field trips; Texts: Kormondy, Concepts of Ecology, Cox, Readings in Conservation Ecology.

Seminar in Behavioral Aspects of Ecology; G-10; New course; no field trips; Texts: Bates, Field Studies in Natural History; Klopfer, Behavioral Ecology; Johnson, Contemporary Readings in Behavior.

Seminar in Biological Oceanography; Special topics are discussed and reviewed; G-8; no field trips; annually; no text.

Seminar in Environmental Biology; Selected topics illustrating the scope of modern ecological theory; G-12; once every 2 years; no field trips; Text: Hazen, W. E., Readings in Population and Community Ecology - plus original literature.

SUNY AT COBLESKILL

General Ecology; Robert C. MacWatters; The course is intended to examine the basic interrelationships in living systems and the forces and factors which govern the struggle for existence among living creatures. The applied aspects of ecology will be included with emphasis being placed on such present problems as air and water pollution. Many area field trips are planned to allow the students the opportunity of examining ecosystems as they occur naturally or as a result of a man's influence; U-35; annually; terrestrial and fresh water field trips; no text; A-32%, B-14%, C-32%, D-22%.

Natural History of the Vertebrates; Robert C. MacWatters; Primarily life histories of local animals, field techniques, ecological relationships; U-100; biannually; terrestrial and fresh water field trips; Texts: Orr, Vertebrate Biology, Ardrey, Territorial Imperative; A-25%, B-13%, C-25%, D-37%.

COLGATE UNIVERSITY

Ecology; Robert E. Goodwin; G-3, U-15; A general approach to the interrelationships between plants and animals and the physical factors in the environments. One or two field trips each week are required as well as the completion of a field study by each student; annually; terrestrial and fresh water field trips; Texts: Smith R. L., Ecology and Field Biology, Kormondy, E. J., Readings in Ecology; A-28%, B-16%, C-28%, D-28%.

COLUMBIA UNIVERSITY

Introduction to Theoretical Population Biology; U and G; alternate years; no field trips; no text; readings mostly in mathematical models and methods; topics to be covered will include: models of population growth; the logistic equation; life tables; birth and death processes; models of species competition; the Volterra equation; Mendelian populations; elements of finite difference equations and Markov Chains and their application to population genetics. Illustrative material will be chosen from populations of bacteria, higher organisms and man.

Man's Physical Environment; U-54; annually; fresh water environments; processes taking place in the earth's lithosphere, hydrosphere, and atmosphere which bear on man's attempt to cope with his environment. Topics such as pollution control, weather modification, and earthquake prediction are considered. An attempt is made to integrate the economic, political and sociological implications. Texts: Watson, D. H., The Double Helix, Weyl, P. K., Oceanography, Neuberger, Hans, and Cahir, John; Climatology.

Structure and Interactions of Communities; U-15; alternate years; no field trips; topics to be covered will include; The Ecosystem; Ecoenergetics; Ecocycling; Limiting Environmental Facts; Ecoregulation; World Ecosystems Texts: Kormondy, E. J., Concepts of Ecology, Kormondy, E. J., Readings in Ecology, Odum, E. P., Ecology, Daubenimire, R., Plant Communities.

Urban Ecology; Messrs. Broecker, Levinthal, and Sewall; undergraduate; annually; terrestrial, fresh water and marine environment field trips; investigation of the physical and biological problems related to the urban environment. Consideration will be given to some of the technical aspects of the problems which produce detrimental environmental effects in major cities, as well as the difficulties and costs related to eliminating these problems.

CORNELL UNIVERSITY

Advanced Plant Ecology; Lee N. Miller; Seminar format. Topics change each year; G-14, U-14; annually; no field trips; no text: A-14%, B-36%, C-29%, D-12%.

Advanced Topics in Vertebrate Biology; Thomas Cade; Subjects vary from year to year, seminar type course; G-10-15, U-2-3; annually; no field trips; no text.

Advanced Wildlife Science; Douglas Gilbert; General management methods and principles; G-10, U-30; annually; terrestrial and fresh water field trips; Texts: Dassmann, Wildlife Biology, Leopold, Game Management, Allen, Our Wildlife Legacy; A-43%, B-7%, C-36%, D-14%.

Chemical Ecology; Paul P. Feeny; G-30, U-30; annually; terrestrial field trips; no text.

Communities (Graduate Core Course III); R. H. Whittaker; Graduate level treatment of community analysis and theory, lecture and discussion, third semester of core course (fourth is on ecosystem function and human ecology); G-35; alternate years; no field trips; no text: A-28%, B-28%, C-39%, D-5%.

Conservation of Natural Resources; Richard McNeil; G-10, U-300; annually; no field trips; Text: Dassmann, Environmental Conservation; A-50%, B-10%, C-40%.

Conservation of Wildlife; Richard McNeil; G-10, U-300; annually; no field trips; Texts: Dassmann, Wildlife Biology, Durward Allen, Our Wildlife Legacy; A-37%, B-5%, C-26%, D-32%.

Cornell Zoologists Society (Jordani); Howard E. Evans; Meet every other Friday with field trips once a month; G-3, U-20; offered throughout the year; terrestrial and fresh water field trips; Texts: Jordan, Manual of Vertebrates, Blair, et al., Vertebrates of the United States; A-100%.

The Ecological Aspects of Animal Behavior; Stephen Emlen; G-30, U-30; annually; no field trips; no text: A-21%, B-32%, C-21%, D-26%.

Ecology and Management of Wildlife Habitats; Daniel Q. Thompson; a graduate course to explore the role of habitat manipulation in wildlife management; G-10; alternate years; terrestrial field trips; no text: A-38%, C-62%.

Ecosystem Ecology; Gene Likens; G-30; alternate years; terrestrial, fresh water, and marine field trips; no text.

Environmental Biology and Pest Management; David Pimentel; G-35; annually; terrestrial field trips; no text: A-40%, B-20%, C-40%.

Field Methods in Population Biology; Peter F. Brussard; Introduction to field methods, sampling techniques, and data analysis for dealing with aggregations of organisms; U-24; annually; terrestrial and fresh water field trips; Text: Cox, Laboratory Manual of General Ecology; A-35%, B-30%, C-30%, D-5%.

Fishery Resource Management; Alfred Eipper; Principles and problems in the management of fresh water and marine fishery resources. Considered in relation to problems of human population and management of other natural resources; G-4, U-12; annually; fresh water field trips; Texts: Rounsefell and Everhart, Fishery Science, It's Methods and Applications; A-42%, C-42%, D-16%.

Limnology; Gene Likens; G-20, U-25; annually; fresh water field trips; Text: Ruttner, Fundamentals of Limnology; A-35%, B-12%, C-35%, D-18%.

Marine Ecology; John P. Barlow; Contents variable, depending on interests of students. Lectures describe unique features of environment, consider oceans as a dynamic system, i.e. relation between circulation, etc., and biological environment; G-12; alternate years; marine field trips; no text: A-27%, B-18%, C-27%, D-27%.

Microbial Ecology; Martin Alexander; Based upon a forthcoming book entitled, "Microbial Ecology" by M. Alexander, alternate years; no field trips; Text: M. Alexander, Microbial Ecology; A-20%, B-20%, C-20%, D-40%.

Oceanography; John P. Barlow; Description of oceans, largely as background for biological and geological studies; G-15, U-20; annually; no field trips; no text: no percents.

Plant Ecology; Lee N. Miller and R. H. Whittaker; Environment, autecology, population, and species; G-16, U-20; annually; terrestrial field trips; Texts: Billings, Gates, Doubenmire; A-29%, B-24%, C-29%, D-18%.

Population Ecology; Peter F. Brussard; Level II of a core graduate student curriculum covering physiological ecology, ecology of population, community ecology, ecosystem ecology, and biogeochemical cycling; alternate years; no field trips; Texts: Slobodkin, Growth and Regulation of Animal Populations, Lewontin, Population Biology and Evolution; A-25%, B-38%, C-31%, D-6%.

Seminar in the Ecological Aspects of Animal Behavior; Harrison William Ambrose III; Individual research projects; G-6, U-6; annually; terrestrial, fresh water, and marine field trips, no text.

CORNING COMMUNITY COLLEGE

Ecology; This course is designed to introduce the student to the organism and its relationship with the environment. Special attention will be given to principles and concepts of the ecosystem and biogeochemical cycles. Fresh water habitats, such as ponds and streams, and terrestrial habitats in and around the Spencer Hill area will be studied.

SUNY COLLEGE AT CORTLAND

Ecology; Arthur Cook; Influence of climatic, physiographic, and biological factors on organisms, plant and animal associations, population ecology; annually; terrestrial and fresh water field trips; Text: Kormondy, Concepts of Ecology; A-25%, B-6%, C-31%, D-38%.

Field Biology; Eugene C. Waldbauer; Sampling of the numerous subdivisions in biology, such as vascular plant taxonomy, limnology, ornithology, etc., which you might not otherwise have the opportunity to receive during the regular 4 year curriculum; U-20; annually; terrestrial and fresh water field trips; Text: Smith, R. L., Ecology and Field Biology; A-44%, C-44% D-11%.

Field Natural History; Eugene C. Waldbauer; U-20; biannually, terrestrial and fresh water field trips; Text: Palmer, E. L., Field Book of Natural History; A-100%

Limnology; Arthur Cook; Physical, chemical, and thermal characteristics of an aquatic ecosystem; U-25; annually; fresh water field trips; Texts: Ruttner, Fundamentals of Limnology, Hutchinson, A Treatise on Limnology; A-38%, C-50%, D-12%.

DOWLING COLLEGE

Ecology; Mervyn Kamran; Course content will include "Structure and function of nature, distribution and abundance of organisms, methods of population sampling, collection of data." U-12; annually; it will include terrestrial fresh water and marine environments. Texts: Andrewartha, H. G., Introduction to the Study of Animal Populations, Oosting, H. J. The Study of Plant Communities, Kormondy, E. J., Concepts of Ecology, Cox, G. W., (ed), Readings in Conservation Ecology.

Man and the Ecological Crisis; Robert Z. Brown; Course content will include six major categories; An overview of the current attitudes and problems. The concept of the ecosystem, man's current interactions with his environment. Problems in environmental management. Tools for decision making and toward a new human view of nature and self. U-approx. 30; annually; it will include terrestrial, fresh water, and marine environments. Texts: Dasmann, Environmental Conservation, Leopold, A Sand County Almanac, Helfrich, The Environmental Crisis.

Marine Biology; U-10-15; annually; Biology of marine organisms in the sea and estuarine environment of Long Island. The classification, life history, behavior, productivity, and ecology of a limited number of local plants and animals. Texts: Barnes, Invertebrate Zoology, Breder, Manual of Fishes, Woods Hale, Marine Biological Laboratory - Key to Invertebrates.

Marine Botany; U-10-15; annually; The classification morphology, physiology, evolution, and economic use of the principle taxa of algae and fungi presented for an elementary understanding of aquatic plants. Text: Bold, Morphology of Plants

DUTCHESS COMMUNITY COLLEGE

Man and His Environment I; An introductory course stressing man and his internal environment. Topics studied include the various human systems and their functions in addition to elements of embryology and heredity. The course is designed primarily for elements of students in medically-oriented technologies and nonscience majors seeking an overview of man and his physiological function.

Man and His Environment II; An introductory course stressing man and his relationships to the external environment. The subject matter is treated in the context of geology, climatology, ecology, taxonomy, and human behavior patterns. Topics of current interest such as pollution, radiation damage, and economics, uses of natural areas are discussed.

The Natural History of an Estuary; Interdisciplinary study of an estuary to demonstrate the interaction of the biological, chemical, geological, and meteorological influences on productivity, using the tidal reach of the Hudson River as a model.

Principles of Field Biology; Albert Edward Feldman; A field oriented course including concepts in environmental analysis, taxonomy, population, and behavior. A study of the flora and fauna of the Mid-Hudson area; U-15; annually; terrestrial and fresh water field trips; Text: Benton and Werner, Principles of Field Biology; A-39%, C-46%, D-15%.

EISENHOWER COLLEGE

Ecology; (Interdisciplinary) - Gary Miller, A. McAuley, P. C. Curtis, R. C. Polma; U-6; study the adaptions, composition, and relationships of organisms to their environment as observed on populations, communities, and ecosystems; once every other year; terrestrial and fresh water environment field trips; Text: Smith, Ecology of Field Biology.

FINCH COLLEGE

Plant Physiology and Ecology; An examination of modern concepts of cellular function and control, plant hormone production and their relation to growth, differentiation, flowering, and reproduction, analysis of the photosynthetic and products, the plant as a member of a biologic community, the concepts of plant types and climac communities and their ecologic interrelations.

COMMUNITY COLLEGE OF THE FINGER LAKES

Conservation of Biological Resources; An introduction to the development of conservation in the United States, with special emphasis upon the ecology of biological resources.

Field Biology and Ecology; The study of organisms in and from the natural habitat and their interrelationships with the environment.

FORDHAM UNIVERSITY

Insect Behavior and Ecology; Daniel J. Sullivan; Course emphasizes insect behavior and ecology in relation to the larger disciplines of animal

behavior and ecology. The primary consumer aspect of insect bionomics (plant feeders) and secondary consumers (predators) are studied; G-24, U-9; annually; terrestrial field trips; no text: A-23%, B-18%, C-41%, D-18%.

Introduction to Marine and Fresh Water Ecology; Alexander McLaughlin; basic ecological principles and concepts.

SUNY AT FREDONIA

Ecological Physiology of Aquatic Animals; Moti L. Sharma; This course is organized to help the understanding of the restriction of animals to particular habitats by studying the relationship between the organism as a whole and the various components of the environments. Special emphasis is laid on the adaptive mechanism to these environmental factors. The variation in function is interpreted in terms of structural variation, ecology, and evolution in order to understand something about the fundamental properties of life and how they have been modified. The distribution of organisms and interspecific relationship are also covered; G-8-10; alternate years; no field trips; Text: Prosser and Brown, Comparative Physiology; D-100%.

Insect Ecology; Allen H. Benton; Largely a "case-history" approach to the study of the numerous ways of life of insects, ectoparasitism, gall-makers, leaf-miners, fungus insects, wood-borers, leaf-eaters, bark beetles, etc., G-10, U-5; alternate years; terrestrial and fresh water field trips; no text: A-44%, C-33%, D-22%.

Introduction to Oceanography; John A. Jones; Geology, physics, atmospheric physics, chemistry, and biology of the ocean environment; G-5, U-7; only offered once so far; no field trips; Text: Gross, Oceanography; A-27%, C-36%, D-36%.

Limnology; K. G. Wood; Application of chemistry and physics to principles of aquatic biology; U-20; annually; fresh water; Text: Rutter, Fundamentals of Limnology; A-30%, C-60%, D-10%.

FULTON-MONTGOMERY COMMUNITY COLLEGE

Ecology and Field Biology (PROPOSED); Donald S. Emmeluth; U-50-80; annually; terrestrial, fresh water, and marine field trips; Text: Smith, Ecology and Field Biology; A-26%, B-11%, C-37%, D-26%.

SUNY COLLEGE AT GENESEO

Biology of Man's Environment; Herman S. Forest and Archibald Reid; An ecology course designed primarily for the non-science major. Emphasis is placed on the fundamental concepts of ecological systems, the relationships of man to his environment, and current ecological problems; biannually; no field trips; no text.

Conservation of Natural Resources; Robert Roecker; Survey of natural resources by means of lecture, texts, field trips, and films - emphasis on renewable, but also treated minerals, transportation, urban development and planning, recreational resources, etc.; U-24; once or twice a year; terrestrial, fresh water, and marine field trips; Text: Smith, et al., Conservation of Natural Resources; A-80%, C-20%.

Limnology; Howard Huddle; A study of the physical, chemical, and biological features of inland waters and the relationship of environmental factors to biological productivity. Field studies of local lakes and streams, using limnological methods, instruments will be emphasized. Text: Reid, Ecology of Inland Waters and Estuaries.

The Organisms and Environment; Archibald Reid and Herman S. Forest; Fundamentals of the ecosystem, structure of communities, community processes, environmental analysis, environmental physiology, and historical biogeography; U-50-100; biannually; terrestrial and fresh water field trips; Text: Smith, R. L., Ecology and Field Biology.

Plant Ecology; Archibald Reid; An examination of the distribution, composition, and dominant features of the major vegetation types. The nature of plant succession and climax theory will be considered. Aspects of man's influence on vegetation, both historical and current will be discussed; G-2, U-8; annually; terrestrial and fresh water field trips; no text.

Wildlife Conservation; Robert Roecker; A course treating the principles and practices of wildlife conservation. Emphasis is placed upon the principles of fishery and game management as they apply to economically significant fish, bird, and mammal species; annually; terrestrial and fresh water field trips; no text.

GENESEE COMMUNITY COLLEGE

Ecology; Barnard A. Marcus; Introduction to field biology and dynamic and physical nature of ecosystems at the community level, plus population study,

conservation of natural resources, and evolution; annually; terrestrial and fresh water field trips; Text: Odum, Fundamentals of Ecology; A-46%, C-31%, D-23%.

Principles of Conservation (Proposed); This course will be opened to non-science students as an elective.

GOOD COUNSEL COLLEGE

Biology Seminar; Ten Lectures on Ecology; James Mullen; Attempting to cultivate an interest for further study in biology, especially ecology; U-14; annually; no field trips; Text: Odum, Fundamentals of Ecology; A-20%, C-60%, D-20%.

HAMILTON COLLEGE

General Ecology; Lawrence R. McManus; Lecture 2/wk half on ocean, half on terrestrial environment approached via biomes. Ecology concepts and principles introduced as applicable; U-20; annually; terrestrial and fresh water field trips; Texts: Odum, Fundamentals of Ecology, Allee and Schmidt, Ecological Animals Geography; A-30%, B-10%, C-30%, D-30%.

HARTWICK COLLEGE

Field Biology; Forest Miller, Concepts of populations, community structure and dynamics, energy levels, use and conservation of natural resources. Field observations of both plant and animal communities; U-50; annually; terrestrial and fresh water field trips; Text: Odum, Ecology; A-38%, B-8%, C-38%, D-24%.

Marine Biology; Forest Miller; Field and laboratory study of marine and estuarine communities emphasizing abiotic and biotic factors that influence populations including methods of sampling, species identification, and treatment of data; U-15; annually; marine field trips; A-36%, C-36%, D-28%.

HERKIMER COUNTY COMMUNITY COLLEGE

Ecology; Frank Menapace; Emphasis will include the ecosystem, biogeochemical cycles, energy flow, populations and communities, habitats and applied ecology; U-10; annually; terrestrial and fresh water field trips; A-43%, C-36%. D-21%.

HOBART AND WILLIAM SMITH COLLEGES

Principles of Ecology; David A. Sleeper; U-20; alternate years; terrestrial and fresh water field trips; Texts: Smith, Ecology and Field Biology, Kormondy, Readings in Ecology; A-27%, C-36%, D-9%.

HOFSTRA UNIVERSITY

Conservation; Robert Johnson; U-35; annually; terrestrial and marine field trips; Text: Cox, Readings in Conservation Ecology; A-39%, B-17%, C-27%, D-17%.

Ecology; Robert Johnson; Principles approach - grad course is aimed at demonstrating over simplification of Odum; G-20; annually; terrestrial, fresh water and marine field trips; Texts: Odum, Ecology, Hazen, Readings in Population and Community Ecology.

Hydrobiology (limnology); Robert Johnson; Ecology of fresh water; G-20, annually; will be changed to alternate years; fresh water field trips; Text: Ruttner, Fundamentals of Limnology; A-18%, B-9%, C-46%, D-27%.

HOUGHTON COLLEGE

General Ecology; Study of the interactions of living things with their biological and physical environment. Laboratory includes field observations and introduction to ecological techniques.

INSTITUTE OF AQUATIC BIOLOGY (COLLEGES OF MT. ST. VINCENT AND MANHATTAN COLLEGE)

Aquatic Biology I and II; Janis A. Roze; U-20-40; annually; fresh water and marine field trips; Text: Reid, Ecology of Inland Waters and Estuaries; A-35%, B-15%, C-30%, D-20%.

Marine Biology; Janis A. Roze; G-2, U-24; annually; terrestrial and marine field trips; Text: Croker, The Great and Wide Sea; A-38%, B-6%, C-31%, D-25%.

JEFFERSON COMMUNITY COLLEGE

Conservation of Natural Resources; This course will consider the major problems involved in the conservation, management, and utilization of natural resources throughout the Western Hemisphere. Renewable and nonrenewable resources will be studied with emphasis on the atmosphere, soil, water, vegetation,and animal populations. There also will be a consideration for local conservation problems. The increasing need of the application of ecological principles to man's use of the environment will be stressed.

KEUKA COLLEGE

Field Biology; James E. White; U-8-18; alternate years; terrestrial, fresh water, and marine field trips; Text: Odum, Fundamentals of Ecology; A-25%, B-20%, C-35%, D-20%.

KINGSBOROUGH COMMUNITY COLLEGE

Marine Ecology; Carol Biermann; U-16; Principles of marine biology, basic taxonomy, and collection procedures; annually; marine field trips; no text: A-30%, B-10%, C-40%, D-20%.

Terrestrial Biology; Representative terrestrial invertebrates and vertebrates in relation to their respective habitats. Emphasis is placed on development of the concept of the ecological niche.

THE KINGS COLLEGE

Ecology; A comprehensive study of interrelationships among plants and animals and their nonliving environments.

MANHATTAN COLLEGE

Aquatic Biology; The study of the river ecosystem, pond, stream, and bay ecosystem.

Marine Biology; Principles of marine ecology in a semitropical environment.

MANHATTANVILLE COLLEGE

Seminar in Ecology; Elizabeth H. Briggs; This course is to be given for the first time in the spring of 1971; annually; terrestrial, fresh water, and marine field trips; Text: undecided.

MARIST COLLEGE

Applied Topics in Chemistry; A new, full-semester course (9 credits) with classwork and in-the-community projects. It will deal with environmental problems.

Ecology; General ecology with local field trips to study population interactions at various types of communities.

Environmental Science; A new "major" field offering. Additional courses will be added as this new major in science develops.

The Natural History of an Estuary; Interdisciplinary study of an estuary to demonstrate the interaction of the biological, chemical, geological, and meteorological influences on productivity, using the tidal reach of the Hudson River as a model.

MARYMOUNT MANHATTAN COLLEGE

Ecology; Introductory study of the distribution of plants and animals, their interrelationships, and adaptations to a variety of environment.

MERCY COLLEGE

Environmental Biology; U-26; once per year; terrestrial fresh water and estuarine environment field trips; Text: Odum: Fundamentals of Ecology. The course includes the ecosystem - its structure, function, habitats, biotic components, terrestrial environments, population ecology, community ecology, man's role in the ecosystem.

Life Science; The Environment; U-60; twice per year; terrestrial fresh water and estuarine environment field trips; Text: Kormondy; Concepts of Ecology.

Topics in Aquatic Ecology; U-26; once per year; fresh water and estuarine environment field trips; Text: Reid; Ecology of Inland Waters and Estuaries. Course introduces students to the ecological parameters existing in aquatic environments and the importance of these ecosystems as an integral part of man's surroundings.

MOHAWK VALLEY COMMUNITY COLLEGE

Ecology; Eleanor Saboski; U-170; annually; terrestrial and fresh water field trips; Text: Shepard, The Subversive Science; A-30%, B-15%. C-30%, D-25%.

Group and Environmental Biology; David H. Chamberlain, Core Biology II deals with the organism and its relationship to its environment. It is concerned with the central theme of how various environmental forces affect the activities, distribution, and survival of organisms. Subject matter to demostrate these relationships will be drawn from the domains of ecology. Population and environmental biology and animal behavior. Special emphasis will be placed on the interaction of man with his environment and the social dilemmas of the population explosion, pollution, and the impact of science and technology on human behavior; U-150; annually; A-38%, B-12%, C-38%, D-12%.

SUNY COLLEGE AT MORRISVILLE

Fisheries Management; Louis G. Olney; Principles of limnology, brief exposure to Ichthyology, and a great deal of limnological methods; U-65; annually; fresh water field trips; Texts: Welch, Limnology Methods, Needhan, A Guide to Fresh Water Biology; A-50%, B-14%, C-25%, D-14%.

Soil and Water Conservation; Louis G. Olney; Methods of conservation of soil and water, tools and systems; U-120; annually; terrestrial and fresh water field trips; no text: A-40%, B-20%, C-20%, D-20%.

Wildlife Management; Kingsley L. Greene; Basic ecological concepts as applied to wildlife management, problems, and practices; U-60; annually; terrestrial and fresh water field trips; Text: Trippensee, Volumes I & II; A-43%, B-7%, C-36%, D-15%.

MOUNT ST. MARY COLLEGE

Field Biology and Ecology; Richard S. Peckham; A study of ecological principles involved in terrestrial and aquatic environments; U-10; annually; terrestrial and fresh water field trips; Text: Knight, Basic Concept of Ecology; A-37%, B-16%, C-43%, D-14%.

NASSAU COMMUNITY COLLEGE

Field Biology; Vincent A. Puglisi; Population studies, community analysis and interactions. Concept of ecological niche, species identification; terrestrial, fresh water and marine field trips; field-oriented summer program uses local and reginal habitats as specific models; annually; no text: U-28; A-50%, B-20%, C-10%, D-20%.

SUNY COLLEGE AT NEW PALTZ

Ecology; Robert W. Pyle, Germain La Roche, and Selden J. Spencer; Interrelationships of organisms in nature. Effect of light, temperature, moisture, nutrition, and other environmental factors upon the organism. The interrelationships of organisms within the community, as well as the relationships of various plant and animal communities. The applications of these ecological principles in the proper management of our natural resources; G-20, U-10; semiannually; terrestrial and fresh water field trips; Text: Smith, R. L., Ecology and Field Biology; A-36%, C-43%, D-21%.

Field Biology; Heinz Meng; Ecology of plants and animals, identification of species; U-25; Triannually; terrestrial and fresh water field trips; Text: Palmer, Field Book of Natural History; A-38%, B-6%, C-25%, D-31%.

COLLEGE OF NEW ROCHELLE

Environmental Biology; Sister Estelle Ghidoni; The basic principles needed to study individual environments are emphasized. The dynamic interplay of the forces in the living community will be illustrated by field and laboratory work; U-20; annually, fresh water and marine field trips; Text: George L. Clark, Elements of Ecology; A-22%, C-44%, D-33%.

NEW YORK UNIVERSITY

Field Biology and Ecology; Perlmutter; U-25; twice yearly; fresh water and marine field trips.

Fishery Science; Perlmutter; G-25; alternate years; fresh water and marine field trips.

Ichthyology; Perlmutter; G-20; alternate years; fresh water and marine environment field trips.

Introduction to Ecology; Brockelman; G-5, U-70; once per year; terrestrial and fresh water and marine environment; Syllabus includes Biochemical Cycles, Ecological Energetics, Population and Community Structure, Man's Effects on the Ecosystem.

Microbial Ecology; Stotsky; G-16; two-semester course offered yearly; no field trips. The physicochemical and biological factors influencing the activity, ecology, and population dynamics of microorganisms in natural habitats such as soil, water, air, plants, rumen, skin.

Plant Ecology; Heusser; G-8, U-15; each year; terrestrial and fresh water environment field trips; Texts: Billings, W. D., Plants and Ecosystems, Oostin, H. J., Study of Plant Communities. Composition, character, and analysis of plant communities of terrestrial and aquatic habitats; nature of the environmental factors and how they operate; patterns of plant succession and climax theory; ecosystems, biogeochemical cycling and energy flow; paleoecology and reconstruction of past environments using palynological and dendrochronological approaches; problems of conservation.

Protozoology & Invertebrate Zoology; Hirshfield; G-20, U-20; alternate years; terrestrial fresh water and marine environments; no field trips.

SUNY COLLEGE AT ONEONTA

Animals and Human Welfare; John G. New; The economic importance of each major animal phylum studied in laboratory sessions including pests, parasites, food forms, predators, and esthetically valuable organisms; methods and principles of pest control, wildlife and fisheries management, major problems such as world population growth, pesticides, biological control, and increasing world food supplies are considered in addition to a general evaluation of the economic importance of each major phylum; U-10 annually; no field trips; Texts: Wasford, Living Resources of the Sea; Allen, Our Wildlife Legacy; A-33%, B-17%, C-33%, D-17%.

Aquatic Biology; Willard N. Harman; G-3, U-12; annually; fresh water field trips; Text: Pennak, R. W., Fresh Water Invertebrates of the United States; A-31%, C-31%, D-38%.

Environmental Pollution; Leonard P. Sohacki; G-1, U-2; alternate years; terrestrial and fresh water field trips; A-50%, D-50%.

General Ecology; Bruce R. Dayton; Interrelations between organisms and their environment at the population, community, and ecosystem levels, laboratory and field exercises cover environmental analysis, population dynamics, productivity, community structure, and succession in aquatic and terrestrial environments; U-24-68; annually; terrestrial and fresh water field trips; Text: Smith, R. L., Ecology and Field Biology; A-29%, B-19%, C-33%, D-19%.

Human Ecology; James Gary Holway; History of man and the development of his ecological problems; U-14; alternate years; no field trips; Texts: Bates, Man in Nature, Fabum, Dynamics of Change, Dubos, So Human and Animal, Ehrlich, The Population Bomb, Commoner, Science and Survival, Taylor, The Biological Time Bomb; A-25%, C-37%, D-37%.

Limnology; Leonard P. Sohacki; annually; fresh water field trips; A-50%, C-25%, D-25%.

Natural History of Vertebrates; John G. New; The biology of vertebrate animals including discussion of evolution, classification, and the general behavior of all major classes except birds; field trips emphasize ecology, behavior, and identification of local forms. Laboratory stress on structural features of vertebrates leading to skill in use of keys; U-15; annually; terrestrial and fresh water field trips; Texts: Orr, Vertebrate Biology, Hubbs and Lagler, Fishes of the Great Lakes Region; A-45%, C-9%, D-45%.

Plant Ecology; Bruce R. Dayton; The interaction of plants with their environments, emphasizing the structure and function of terrestrial plant communities, literature and research techniques will be emphasized as students conduct independent projects; will be offered for first time coming fall; Text: undecided.

ORANGE COUNTY COMMUNITY COLLEGE

Field Natural History; Martin Borko; Study of the flora and fauna of the lower Mid-Hudson area, with emphasis on ecological relationships of the observed organisms and their significance for man; U-24; semi-annually; terrestrial and fresh water field trips; Texts: Palmer, Field Natural History, Zim, Golden Series; A-43%, B-43%, C-14%.

SUNY COLLEGE AT OSWEGO

Animal Ecology; Peter G. Weber; Animal - environment interrelationships including laboratory and field studies of communities, population dynamics, and energy relationships; G-5, U-10; once every other year; no field trips; no text; A-18%, B-29%, C-35%, D-18%.

Ecology; George R. Maxwell II; Interrelationships of plants and animals in their physical and biotic environments; U-24; semiannually; terrestrial and fresh water field trips; Text: Odum, Fundamentals of Ecology; A-33%, B-7%, C-33%, D-27%.

Field Biology; Carlita L. Snygg; Survey of local communities with field studies in field, climax, forest, stream, lake, bog, and dune and study of microcommunities. Population studies on local vertebrates and brief consideration of behavior study; G-2-3, U-up to 15; annually; terrestrial, fresh water and marine field trips; Text: Benton and Werner, Field Biology and Ecology; A-50%, C-42%, D-8%.

Plant Ecology; Physical and biotic relationships of plants influenced by their environment.

PACE COLLEGE

Ecology; The interrelationship of organisms to the environment.

Field Biology; Introduction to study of the living organism in relation to its environment.

Tropical Marine Biology; William E. Fennel; U-12; annually; terrestrial, fresh water, and marine field trips; Text: Kormondy, Concepts of Ecology; A-40%, B-60%.

Urban Ecology; William Fennel; To study biologically significant aspects of the urban environment. Participants will learn to identify the common organisms that are found in the city and will investigate their interrelationships and adaptations to the urban ecosystem. In this way, local sources for organisms and the demostration of ecological principles will be shown to be readily available; annually; terrestrial, fresh water, and marine field trips; A-30%, B-10%, C-60%

SUNY COLLEGE AT PLATTSBURGH

Ecology of Trees and Shrubs; Philip Walker; Trees and shrubs in the Adirondack and Lake Champlain drainage ecosystems with emphasis upon field studies by the line intercept method and the collection and preservation of herbarium specimens; G-10; alternative years; terrestrial and fresh water field trips; Texts: Lucy, B. E., Deciduous Forests in Eastern North America, Oosting, H. J., The Study of Plant Communities; A-37%, B-9%, C-18%, D-37%.

Field Biology; Philip Walker; U-24; biannually; terrestrial and fresh water field trips; Text: Smith, R. L., Field Biology and Ecology; A-34%, B-17, C-34%, D-22%.

Fresh Water Ecology; Gerhard K. Gruendling; A study of the biological, chemical, and physical features of lakes and other inland waters. An analysis of the interactions between biological communities and their aquatic environment. Laboratory involves examination of fresh water biota and habitats, survey of limnological methods, and analysis of data; G-2, U-12-15; annually; fresh water and marine field trips; Text: Reid, G. K., Ecology of Inland Waters and Estuaries; A-26%, B-22%, C-30%, D-22%.

General Ecology; Gerhard K. Gruendling; The course covers principles of the ecosystem, energy flow, nutrient cycle population dynamics, and major biomes and habitats. The laboratory is devoted to student presentations of material related to the degredation of the environment. Personal research by student possible; G-2, U-25; annually; field trips very limited; Texts: Odum, Fundamentals of Ecology, Kormondy, Readings in Ecology, and Cox, Readings in Conservation Ecology; A-22%, B-28%, C-39%, D-11%.

Plant Ecology; Staff; to be offered in fall of 1971 using the synecological approach to plant ecosystem; G-6, U-10 expected; annually; field trips and individual research problems. Text: Daubenmire, Plant Communities.

C. W. POST COLLEGE

Conservation Ecology; Jon S. Greenlaw; Consideration of population and environmental quality problems (management, control, pollution, etc.) in terms of ecosystem structure and function; annually; terrestrial, fresh water, and marine field trips; Text: Cox, Readings in Conservation Ecology; A-43%, B-7%, C-50%.

Populations Biology; Jon S. Greenlaw; Consideration of population structure, growth, regulation, and interactions between populations; annually; terrestrial, fresh water, and marine field trips; A-17%, B-50%, C-33%.

SUNY COLLEGE AT POTSDAM

Animal Ecology; Robert H. Cerwonka; To introduce students to experimental methods in the study of ecology. To discuss selected concepts and terminology of ecology; G-1, U-4; annually; terrestrial and fresh water field trips; Texts: Kendeigh, Animal Ecology, Cox, Laboratory Manual of General Ecology; A-40%, B-13%, C-27%, D-20%.

Field Biology and Ecology I; Paul Egan Hafer; Introduction to basic ecological principles and field techniques, the ecosystem, energy flow and material cycling, succession, aquatic and terrestrial habitats, brief introduction to population ecology. Trips to local habitats; some practice in identification and field techniques; U-15-20 annually; terrestrial and fresh water field trips; Text: Smith, Ecology and Field Biology; A-26%, B-17%, C-31%, D-26%.

Field Biology and Ecology II; Paul Egan Hafer; A continuation of population ecology, relations within a population, relationships between populations, natural selection and speciation behavior, environmental measurements, some experience with field techniques. Trips to local habitats and group or individual field problems. U-8-12; annually; terrestrial and fresh water field trips; Texts: Smith, Ecology and Field Biology, Odum, Fundamentals of Ecology; A-26%, B-21%, C-32%, D-21%.

Human Ecology; William W. Chmurny; A study of the interrelationship of man and his environment. Emphasis is placed on the principles and form of human biological and cultural adjustments to environment. An examination will be made of current problems of human ecology; G-15, U-45; annually; no field trips; Texts: Vayda, Environment and Cultural Behavior, Bates, Man in Nature; A-23%, B-18%, C-38%, D-37%.

RICHMOND COLLEGE

Ecology; Arthur M. Shapiro; G-8, U-23; twice yearly; basic principles of biological organization at the population community and ecosystem levels. Growth and regulation of population. Evolution of ecological interactions; terrestrial environment field trips. Texts: Smith, Ecology and Field Biology, Hazen, Readings in Population and Community Ecology.

Experimental Methods in Ecology; Arthur M. Shapiro; U-22; annually; Quantitative methods in terrestrial ecology, with introduction to statistical treatment of data and theory of sampling; field trips; Texts: Andrewartha, H. G., Introduction to the Study of Animal Populations, Oosting, H. J. The Study of Plant Communities.

UNIVERSITY OF ROCHESTER

Population and Community Ecology; Conrad A. Istock; Theory of population analysis of laboratory and natural population, species diversity, energetics, ecological aspects of evolutionary processes; new courses; no field trips; A-12%, B-75%, C-12%.

ROBERTS WESLEYAN COLLEGE

Field Biology; Intensive study of selected ecological types. Collection, identification, preservation of plant and animal specimens exclusive of insects.

Population and Communities; Philip H. Harden; Environmental actions and internal reactions; energy flow; U-20; annually; terrestrial and fresh water field trips. A-33%, B-11%, C-55%.

RUSSELL SAGE COLLEGE

Principles of Ecology; Edward G. Horn; will be taught for the first time in the fall of 1970 and the spring of 1971; U-20-30 expected; annually; terrestrial and fresh water field trips; A-29%, B-29%, C-29%, D-13%.

SIENA COLLEGE

Biology of Vertebrates; Ted D. Murphy; The study of the ecology, behavior systematics, adoptive physiology with emphasis on local (N.Y.) species; Undergraduate; enrollment expected to be 10-15; annually; to cover terrestrial, fresh water environments. Text: Orr, Robert T., Vertebrate Biology.

Ecology; Edward J. LaRow; A study of the interrelations of organisms with each other and their environment. Lectures will cover basic ecological principle including: energy flow through the ecosystem, factors determining distribution of animal and plant populations, population dynamics, and the impact of man on homeostasis in nature. The laboratory will include field trips to varying local habitats, as well as experiments dealing with population dynamics and animal behavior. Field techniques, sampling methods, and biostatistics will be emphasized. U-15; annually; fresh water, terrestrial, and marine environments will be covered. Text: Kormondy, Concepts of Ecology, and 20 selected papers from the literature.

ST. BONAVENTURE UNIVERSITY

Ecology; Richard Bothner; G-6, U-20; annually for undergrads, once every other year for grads; terrestrial and fresh water field trips; Texts: Odum, Kendeigh, Allee, et al.; A-30%, B-15%, C-30%, D-25%.

ST. JOHN'S UNIVERSITY

Ecology; Classification and distribution of major plant and animal communities, their structure and dynamics, relationships to environmental factors of soil, light, water, temperature, atmosphere, fire, and organisms, plant and animal succession.

Marine Biology; Anthony D'Agostino; Physical and chemical factors affecting physiology and distribution of marine organisms considered are the role of macro- and micro- nutrients, trophic relationships, communities of environmental zones; U-15; annually; marine field trips; Text: The Seas; A-38%, C-38%, D-23%.

ST. LAWRENCE UNIVERSITY

Ecology; John Green; General outline (following) Odum text or Smith text; U-24; annually; terrestrial and fresh water field trips; Texts: Smith Odum; A-32%, B-18%, C-27%, D-23%.

Field Biology; John Green; Mostly ecology and some taxonomy; G-2, U-7; alternate years; terrestrial and fresh water field trips; Text: Smith, Ecology and Field Biology; A-39%, B-6%, C-33%, D-22%.

SKIDMORE COLLEGE

Ecology; H. H. Howard; A field, laboratory, and lecture course in which the interactions among organisms and between organisms and their physical-chemical environment are explored. Plants and lakes are stressed; U-15; annually; terrestrial, fresh water and marine field trips; Texts: Odum, Fundamentals of Ecology; Smith, Field and Ecological Biology; A-23%, B-23%, C-41%, D-12%.

SUFFOLK COMMUNITY COLLEGE

Human Ecology; F. W. Drewes; U. This course designed to build the student's appreciation of the delicate balance existing within the earth's biosphere and man's place and effect in this balance. Lectures and laboratory sessions are aimed to explain the application of biological principles in our environment. These applications are intended to extend the student's scientific literacy of contemporary biological topics. Texts: undecided.

SUNY AT STONY BROOK

Advanced Ecology; Staff; A seminar course dealing with current topics in general and applied ecology; G-25; annually; no field trips.

Control of Insect Populations; Charles Wurster; A lecture course designed to outline the concepts of modern integrated control of insects populations, with emphasis given to the impact of chemical insecticides on ecosystem; U-72; annually; no field trips; A-38%, C-38%, D-25%.

Elementary Ecology; L. B. Slobodkin; U-250; annually; no field trips; A-28%, B-24%, C-38%, D-20%.

Field Ecology; Douglas Futuyma; Application of ecological theory to field situations; annually; terrestrial, fresh water, and marine field trips; A-23%, B-38%, C-38%, D-8%.

Field and Theoretical Ecology; John Emlen and George Fogg; Evolutionary mechanism, adaptations of plant and animals, population, community ecology; U-30; annually; terrestrial field trips; no text: A-15%, B-31%, C-46%, D-8%.

Introduction to Ecology and Evolution; John Emlen; annually; no field trips; A-10%, B-50%, C-40%.

Marine Biology Laboratory; George William; Field techniques and associated laboratory operations, temperature and salinity and light measurement, seining, trawling plankton techniques. Quantitative bottom sampling; annually; marine field trips; A-66%, C-33%.

Population and Community Ecology; Staff; A seminar course dealing with current topics in population and community ecology; G-25%; annually; no field trips.

SULLIVAN COUNTY COMMUNITY COLLEGE

Field Biology; Valerie M. Freer; A field-oriented course. The study of the flora and fauna of local aquatic and terrestrial habitats. Laboratory work includes techniques of observation, collection, preservation, field identification, and environmental analysis. Classroom topics include introductory ecological principles, taxonomy, and conservation; U-20; annually; terrestrial and fresh water field trips; Text: Benton and Werner, Manual of Field Biology and Ecology; A-83%, C-17%.

SUNY COLLEGE OF FORESTRY AT SYRACUSE UNIVERSITY

Application of Ecology; Norman Richards; To develop the relevance and utility of basic ecological concepts for practices modifying terrestrial ecosystems for human benefit; G-5, U-30; annually; terrestrial and fresh water field trips; Text: Kormandy - Concepts of Ecology; A-20%, B-10%, C-40%, D-30%.

Behavioral Ecology; Edward O. Price; A summer course given in the field on the basic principles of animal behavior as they relate to the ecological adaptations of animals to their environment. Includes the use of field techniques and the gathering of data; G-10, U-15; every third year; Text: Stokes, Animal Behavior in Laboratory and Field; A-15%, B-10%, C-25%, D-50%.

Bryoecology; E. H. Ketchledge; The course in an upper-division and graduate-level elective designed to give field experience in the taxonony and ecology of bryophytes. Approximately one-half to two-thirds time will be spent in diverse environments of the Cranberry Lake area examining the floristic diversity of the bryoflora characteristic of each habitat type, the remaining time will be devoted to laboratory examination of field collections. The course is built upon a prior understanding of the elements of taxonomy and ecology and is intended to be a terminal course for most students. Stress will be placed upon groupings of bryophytes and their relationships to major environmental variables. The course is only taught at Cranberry Lake where the necessary variety of vegetational types and environmental conditions are available; annually; terrestrial field trips; several texts: A-100.

Ecology of Forest Communities; E. H. Ketchledge; The course is an upper-division and graduate-level elective concentrating on the major structural and functional characteristics of terrestrial ecosystems in the Adirondack Mountains. Greatest emphasis will be placed on forest vegetational types. The course is built upon prior understanding of the principles of general ecology and related biological topics at the college senior level. Equal stress will be given to environmental analysis of the abiotic habitat and to community dynamics of the vegetation. Ecosystem relationships will constitute the central interest in all communities examined; G-10, U-10; annually; terrestrial field trips; Text: Spurr, Forest Ecology; A-100%.

Forest Insect Ecology; Douglas Allen; Interacting environmental factors which influence the relative abundance and distribution of forest insects, ecological principles as applied to problems in forest entomology and pest management. Introduction to theories of population regulation and the study of the dynamics of forest; insect population; G-8-10; annually; terrestrial field trips; Text: The Ecology of Insect Populations in Theory and Practice; A-50%, B-50%.

General Ecology; Maurice E. Alexander; Introduction to ecosystem ecology stressing the dynamic interrelationship of plant and animal communities with their environments, ecological factors, energy flow, and trophic levels in natural communities; plant responses and animal behavior, population dynamics, biogeography, and representative ecosystem; G-5, U-135; annually; terrestrial and fresh water field trips; Text: Smith, A-31%, B-13%, C-37%, D-19%.

Human Ecology; Robert E. Chambers; Human evolution, human population, human genetics, races, agriculture domestication, human pathogens, economics of natural resources, pollution of air, water, and soil, science vs. humanism, basic concepts of ecology; U-100; annually; terrestrial and fresh water field trips; Texts: M. Bates, Man in Nature, Wallace and Srb, Adaptation, Bresler, Human Ecology.

Invertebrate Ecology; Daniel L. Dindal; A summer field course in the terrestrial invertebrate microcommunities and their ecology; G-10, U-10; every third year; Texts: Burgess and Row, Soil Biology, Kevan, Soil Animals; A-50%, B-20%, C-20%, D-10%.

Invertebrate Symbiosis; Daniel L. Dindal; To introduce the student to diversity of intraspecific relationships involving invertebrates. To present the ecological and evolutionary characteristics common to all types of symbiotic relationships; G-6, U-4; alternate years; no field trips; Text: Chang, Biology of Animal Parasites; A-20%, B-30%, C-30%, D-20%.

Lake, Pond, and Stream Management; Robert G. Werner; A study of principles of aquatic ecology as applied to fishery biology and management. An introduction to common management techniques and related equipment; G-5, U-15; annually; Text: Lagler, Fresh Water Fishery Biology; A-50%, B-25%, C-25%.

Limnology; Robert G. Werner; An introduction to the biology and ecology of fresh water areas. The demonstration of the functioning of aquatic ecosystems. The use of techniques in gathering data from aquatic environments. The relationships of aquatic ecology to problems of water quality and environmental degradation; G-7, U-40; annually; field trips to aquatic areas; Text: Rutter, Fundamentals of Limnology; A-65%, B-20%, C-10%, D-5%.

Principles of Animal Behavior; Edward O. Price; A study of the basic principles of animal behavior by examining methods of control. A discussion of the role of behavior in the adaptation of organisms to their environment; G-5, U-75; annually; no field trips. A-35%, B-10%, C-10%, D-45%.

Principles of Silviculture; John Berglund; A study of the fundamentals of silvics, the influence of individual environmental variables on forest ecosystems. Also the dynamics of forest communities and the principles of their manipulation; G-5, U-60; annually; Text: none; several field trips; A-50%, B-10%, C-30%, D-10%.

Principles of Wildlife Management; Robert E. Chambers; A study of the basic principles of animal population dynamics which make it possible to manage wildlife by environmental manipulations. A study of the ecological elements of wildlife environments, the determination of limiting factors, and the relationship of wildlife to land use; G-5, U-50; annually; terrestrial field trips; Texts: Leopold, Game Management, Allen, Our Wildlife Legacy.

Methods of Wildlife Management; Robert E. Chambers; Introduction to various methods utilized in analyzing populations and environments (primarily vegetation), also emphasis on methods of manipulating populations and environments; G-2-3, U-30; annually; terrestrial field trips; Text: Wildlife Management Techniques; A-100%.

Topics in Soil Invertebrate Ecology; Daniel L. Dindal; An advanced course in the ecology of soil invertebrates, including distribution, sampling, populations, energy flow, and community relations; G-10, U-5; alternate years; Texts: Burgess and Row, Soil Biology, Kuhnelt, Soil Biology; A-30%, B-30%, C-30%, D-10%.

Terrestrial Animal Ecology; Daniel L. Dindal; To become familiar with the taxonomy and identification of soil invertebrates to at least the family level. To collect, culture, and study soil invertebrates microcommunities from in the field. To introduce the student to the role of invertebrate microcommunities in the terrestrial ecosystem; G-5, U-10; alternate years; terrestrial field trips; Texts: Burgess and Row, Soil Biology, Kuhnelt, Soil Biology, Krantz, A Manual of Acarology; A-23%, B-5%, C-48%, D-23%.

Vertebrate Behavior; Edward O. Price; An indepth study of major concepts of animal behavior; G-7, U-10; annually; Text: Marler and Hamilton, Readings in Animal Behavior.

Vertebrate Population Ecology; Robert E. Chambers; Study of population growth and dynamics with reference to vertebrate groups. Influence of intrinsic and extrinsic factors as they effect population parameters. Theories of population regulation; G-5, U-5; annually; assigned readings, individual student problem; A-15%, B-40%, C-5%, D-40%.

Wildlife Conservation; Harrison Payne; U-30; annually; terrestrial field trips; Texts: Matthaessen, Wildlife in America, Parsons, Conserving American Resources, Gabrielson, Wildlife Conservation; A-33%, B-17%, C-33%, D-17%.

Zoogeography; William L. Webb; A study of the patterns of vertebrate animal distribution and how they were formed. A discussion of the principles of distribution and their relationship to current ecological problems and practices; G-10, U-2; alternate years; Text: Dallington, Zoogeography; A-50%, B-15%, C-25%, D-10%.

SYRACUSE UNIVERSITY

Advanced Ecology; Wolf; G-7; annually; no field trips; lectures on current topics of interest. Text: Levins, Richard, Evolution in Changing Environments, MacArthur, R. H. Wilson, E. O., The Theory of Island Biogeography.

Advanced Topics in Ecology; S. J. McNaughton; G-10; alternate years. Topics vary from year to year.

Aquatic Productivity; Russell-Hunter; G-8, U-2; annually; Seminar on current studies in fundamental aspects of organic productivity drawn from both oceanography and limnology; no text, will utilize original papers.

Aspects of Animal Population Dynamics; Russell-Hunter; G-6, U-2; annually; Seminar on current field (and laboratory-to a lesser extent) studies on natural populations of invertebrates; no text: mostly original papers.

General Ecology; S. J. McNaughton, L. L. Wolf; G-15, U-50; annually; terrestrial and fresh water environment field trips; Texts: Kormondy - Concepts of Ecology, Cox - Readings in Conservation Ecology.

Physiological Plant Ecology; S. J. McNaughton; G-12; alternate years; no field trips.

Topics in Ecology and Behavior; L. L. Wolf; G-15; annually; Seminar on current topics; no text, will utilize literature.

Vertebrate Review; DeBenedictus; graduate; annually (anticipated); Mathematical population ecology; no field trips; no text.

ULSTER COUNTY COMMUNITY COLLEGE

Environmental Biology; Environment biology is designed to introduce the student to the history, scope, and theory of ecology, the basic principles of the ecosystem, biogeochemical cycles, thermodynamics, population dynamics and habitat, and applied ecology. A brief review of radiation ecology, its potential significance, and future problems will be discussed. The laboratory will consist of an ecological study of a selected site.

UNION COLLEGE

Ecology; Carl J. W. George; The dynamics of the environment accenting the description of the physical, chemical and biological properties of local ecosystems giving special attention to integrative and homeostatic processes, energy flow, nutrient cycles, and disruptive phenomena; U-12; annually; terrestrial and fresh water field trips; Texts: Kormondy, Concepts of Ecology; Readings in Ecology; A-30%, B-10%, C-35%, D-25%.

Marine Biology; A field course involving study of marine organisms and their habitats.

UTICA COLLEGE

Environmental Degradation; A Scientific Perspective; Edward B. Cutler; U-40; annually; a consideration of the scientific basis of the various types of environmental pollution, their causes, and consequences. A combination of lectures, discussion, laboratory work, and field trips will be employed. Terrestrial and fresh water environments will be used. Text: Bernards, M., Our Precarious Habitat, plus current literature.

Plant Ecology; David S. May; U-15; terrestrial and fresh water environment; an advanced study of the ecological relationships of plants, emphasizing environmental physiology, population dynamics, and adaptive mechanisms.

Population Biology; Forest B. Gochnour; U-30; annually; no field trips; a course intended for non-majors and majors with no prior training in ecology. Primary consideration is given to factors regulating numbers in animal populations. An attempt will be made to relate human population problems to information gained from the study of animal populations. Texts: Boughey, A. S. Ecology of Populations, Boughey, A. S., Population and Environmental Biology.

Principles of Ecology; David S. May; U-20; annually; terrestrial and fresh water environment field trips; a study of the basic environmental relationships of plants and animals. Knowledge of these relationships will be used in an analysis of human ecological problems; Texts: Kormondy, Concepts of Ecology and Readings in Ecology, Ehrenfeld, Biological Conservation, Ehrlich, The Population Bomb, Morris, The Naked Ape.

Vertebrate Biology (Ectotherms); J. L. Chamberlain; U-15; alternate years; terrestrial and fresh water environment; no text: systematic coverage of fishes, amphibians, and reptiles, Classification, identification, and natural history are considered.

Vetebrate Biology (Endotherms); J. L. Chamberlain; U-15; alternate years; terrestrial environments considered; no text; systematic coverage of birds and mammals, including classification, identification and natural history.

VASSAR COLLEGE

Biology of Animal Populations; Margaret R. Wright; Study of the physical, geological, and biological factors that interact in the regulation of the composition, size, and distribution of animal populations, including man. Class and laboratory; alternate years beginning 1971-72 - open to both G and U.

Conservation of Natural Resources; Margaret R. Wright; The ecological basis for modern conservation practices related to the maintenance, development, and responsible use of natural resources; annually; few or no field trips; U-15-20 (expected).

The Natural History of an Estuary; Interdisciplinary study of an estuary to demonstrate the interaction of the biological, chemical, geological, and meteorological influences on productivity, using the tidal reach of the Hudson River as a model.

Principles of Ecology; Margaret R. Wright; A study of the structure and functional relationships of animal and plant communities in various environments; terrestrial and aquatic, both fresh water and marine. Readings, discussion, laboratory, and field work; both G and U; annually; Texts: Smith, Ecology and Field Biology; Kormondy, Concepts of Ecology. A-40%, B-15%, C-30%, D-15%.

Studies in Biology; Offerings in subjects of current interest. Choice of subjects varies from year to year. Freshman level courses with laboratory.

WAGNER COLLEGE

Ecology; J. Dean Christianson; U-15; annually; terrestrial, fresh water and marine field trips; Texts: Odum, Fundamentals of Ecology, Kormondy, Concepts of Ecology; A-32%, B-16%, C-26%, D-26%.

Field Biology; J. Dean Christianson; annually; terrestrial, fresh

water, and marine field trips; Texts: Odum, Fundamentals of Ecology, Kormondy, Concepts of Ecology; A-32%, B-16%, C-26%, D-26%.

WELLS COLLEGE

Ecology; Timothy Zorach; The principles involved in the dynamic interrelationships between organisms and their environment, with emphasis on adaptations, community dynamics, and biotic communities; U-10; annually; terrestrial and fresh water field trips; Texts: Kendeigh (1968), Knight (1969); A-25%, B-6%, C-31%, D-38%.

Introduction to Tropical Biology; Henry W. Radloff; Biological studies in the tropical environment with the emphasis on ecological and taxonomic studies. Two weeks of concentrated study in Jamaica; U-10; offered twice out of every 3 years; terrestrial, fresh water, and marine field trips; A-100%.

Tropical Ecology; Henry W. Radloff; Survey of selected terrestrial and aquatic habitats with emphasis on individual investigation. For upperclass students with a general ecology background. Two weeks in field in Jamaica; U-5; offered as demanded; terrestrial, fresh water, and marine field trips; A-50%, B-50%.

III FIELD SITES FOR ECOLOGICAL STUDY

The facilities at field stations vary from a card table and a camp stool at one extreme to well equipped laboratory buildings at the other, with associated living facilities and occasionally boats and vehicles. The purposes of field stations vary from highly sophisticated long term experiments requiring very delicate instrumentation and very highly trained personnel to centers for nature study training of Boy Scout troops. Almost every college in New York has some area of wild or semi-wild nature preserve which is used at least occasionally by classes.

We have included in this survey only those field stations with fairly extensive facilities for teaching and research. Field stations and nature preserve areas which have not been listed are of considerable practical importance since any investigator concerned with a survey of any sort of relatively wild areas in New York State has available a greater number than would be indicated by the field stations described here. The omission of the remaining multitude of stations was necessary on practical grounds, and only those stations visited are included[3] many of the unlisted field stations probably will develop adequate facilities in the near future so that it would be advisable to check at colleges in areas where one might have an interest in doing ecological work.

Many of the field stations in the state are highly productive in teaching, research, or both, and are very well organized. Others with apparently equivalent or better facilities are not at the moment contributing very heavily to the development of ecology. The distinction is to a large extent related to the professional competence and interest of the directors. Many field stations, not only in New York but throughout the country, are looked upon by the faculty in charge as their summer homes, in a sense as a prerequisite of their employment rather than as an intellectual responsibility or center for intellectual activity. This is related to the history of ecological teaching. There always have been, at least for the last 100 years, centers of high quality intellectual research and teaching but in

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[3] Field sites marked by this number were not visited. Descriptions of them were received subsequent to completion of the original survey or were taken from "Biological Field Stations of North America 1970" by D. Hunsaker II and R. Dalgleish, MSS Educational Publishing Co., Inc., New York, New York. The latter are in the stylized form exemplified by the description of the Stephan C. Clark Biological Field Station. They are listed here with permission of the Authors and to make the list more inclusive.

many institutions the word "ecology" or its predecessors was used as a cover for rather low level and archaic natural history activities. Presumably, this will change as institutions come to recognize that ecology has grown into a rigorous discipline comparable in difficulty to biophysics and other fields.

It seems clear that we will need many well equipped field stations in New York State than are listed here. It will, however, be difficult to convince other scientific bodies or legislatures of the validity of this need so long as field stations which do have adequate facilities are not being used to their full capacity. A good field station is a busy place and time spent there is taken up with demanding tasks. A field station employed as a rest home or a summer resort for students or faculty is a wasted valuable resource.

The following inventory includes field stations operated within the State by colleges or universities. Each station was visited by one of us or one of our representatives.[3]

ADELPHI UNIVERSITY
Institute of Marine Science

The Adelphi University Institute of Marine Sciences was established in 1966. In 1963, work was started on Great South Bay by two members of the Biology Department in what were the former National Dairy Research and Development buildings on the Vanderbilt Estate at Oakdale, L.I., N.Y., and which were purchased by the University. Office and laboratory spaces were reserved for the University Biology Department and the major portion of the building was used by Adelphi-Suffolk College, a branch college of the University. After the establishment of the institute, additional staff became associated with the original two workers. Five biologists and two earth scientists are currently associated with the institute. All staff members teach in either the Biology Department or the Earth Science Department. The biologists spend one-quarter to one-half of their time during the academic year and all their time during the summer months at the institute. The earth scientists have recently become associate members of the institute.

Adelphi-Suffolk College separated from the University in the early fall of 1968 and was named Dowling College. A rental agreement was drawn between the University and Dowling College for the occupation of laboratory space, cold rooms, and offices.

The institute is located at Dowling College, Oakdale, L.I., approximately 1 mile from Great South Bay. The physical facilities include seven laboratories (2,463 square feet), two walk-in cold rooms, a main office, a shop equipped with the basic power tools, and instrument storage rooms (1,097 square feet). Four boats, including two inboard cruisers (30 and 40 feet), a Boston Whaler, and an aluminum skiff are available, and a full-time boatman is employed for maintenance and operation.

The institute is used for a combination of research and teaching activities. Teaching activities have in the past included graduate and undergraduate courses out of Adelphi University in the summer months. Non-Adelphi students are welcomed and frequently make up a large percentage of the student body. Research activities are mainly those of the permanent staff members of the institute. Exemplary of the current investigations are studies on the biology of the sea nettle, nutrient cycling in Great South Bay, biology of Codium, and Phytoplankton physiology.

Living facilities are not generally available through the institute and must be obtained on a private basis. The number of visiting scientists in the past has been small, although collaboration with outside researchers is encouraged. The institute is currently a member of the New York Consortium of Marine Science Institutes.

A wide variety of ecological habitats are available. Current research is restricted to the inshore waters of the Great South Bay, and access is available to the open ocean. The Connetquot River also flows into the Great South Bay at Oakdale and studies in the river are possible.

In addition to the many opportunities for marine research, a wide variety of terrestrial habitat types are to be found in the immediate vicinity. The Fire Island National Seashore, located on the barrier beach which delimits the Great South Bay from the open ocean, is available for either class work or research work with permission of the proper authorities. Typical Long Island pine barrens, as well as wet marsh land, are available in the immediate vicinity.

Questions regarding the use of this facility should be directed to:

Dr. H. Brenowitz, Director
Adelphi University Marine Science Laboratory
Oakdale, N.Y.

COLLEGE CENTER OF THE FINGER LAKES
The Finger Lakes Institution

The Finger Lakes Institution was established in 1965 as a limnology research station and is operated by the College Center of the Finger Lakes, a consortium of 10 colleges in the Finger Lakes region. The primary emphasis of the institute is education, but its facilities are available to groups outside the institute on a contractual basis.

The Institute operates two research vessels on Lake Seneca; one is 65 feet in length, the other 25 feet. The boats are equipped with materials

for standard limnological measurement. The pier site for the institute is located at Watkins Glen, New York. There, the institute maintains two buildings for office space and teaching. No other accommodations are available for students or visiting staff.

The institute operates on a year-round basis. However, the only formal class, Basic Limnology, is given during a 4-week summer period. Access through the barge canals makes the Great Lakes and the Atlantic Seaboard possible future study areas for the institute. For the remainder of the year, the facilities of the institute are available to other groups on a contractual basis.

Current research projects include studies of the bottom sediments and bottom configuration of Seneca Lake and testing of underwater sonar systems for the U.S. Navy, through the Underwater Sound Laboratory.

A current description of projects, associated institutions, research vessels, equipment, publications, and course offerings may be obtained through:

Mr. Donald Gerace, Coordinator
Finger Lakes Institution
Box 851
Alfred, N.Y. 14802

CORNELL UNIVERSITY
(a) The Arnot Forest

The Arnot Forest began as a 1,700-acre plot of land purchased by Cornell University in 1926. It was used for instructional purposes by the Department of Forestry until the undergraduate Department of Forestry ended at Cornell in 1946. At that time it was used for graduate work and research in what was left of the Department of Forestry at Cornell University. It was used as a civilian conservation camp until 1938 and then became vacant and was used as a prisoner of war camp in World War II. In 1944, the war camp was abandoned and all the buildings torn down. In 1947, it was first used as a residential instructional area. Recent acquisitions have built the existing property up to approximately 4,000 acres ranging in elevation from 1,000 to 2,000 feet. The property is owned by the University and managed by the Department of Conservation. Alfred Fontana is the resident manager.

The various physical facilities that exist on the property were built entirely out of private contributions from conservation clubs, rotary clubs, sportsmen councils, and similar organizations. Such independence seems common for this remarkable self-supported institution. Apparently the sale of lumber from the forest management program, maple syrup (manufactured on the spot), and a "pay-pond" type of fisheries management program all contribute to the maintenance of this well used facility.

Physical facilities include a permanent dwelling for the resident manager, 12 eight-person cabins, a cook's house, toilet and shower facilities, a swimming pool, a kitchen and lodge of approximately 3,000 square feet, pump house, three teaching pavillions, the storage buildings, and a saw mill. Though maximum capacity is from 100 to 110 persons, and 96 can be slept comfortably, approximately 75 people is the ideal number.

The camp has a very rustic appearance and is beautifully designed for education in conservation and related topics. The concept of an open air teaching pavillion is excellent from several standpoints, among which are economy, cheapness and the general feeling of being in an outdoor lab.

The habitats available are primarily managed hardwood forests with some hemlock in the lower area. Numerous kinds of conifer plantations exist as well as open and grazed areas. There are numerous temporary streams, one permanent stream, several marshes, and a large number of ponds, some of which are stocked with fish. In the highland forests there are mainly stands of maple with small sections of dry oak. A self-teaching nature trail serves the general public to whom the forest is open.

Usage of the Arnot facility in the past has been primarily for outside community groups such as conservation clubs, for vocational conservation teachers' instruction, camp counselors' training sessions, sportsmen's workshops, and other such operations. For the last 22 years, it has been a 4-H Training School and also has conducted consecutive annual sessions of the Teachers Conservation Workshop. Recently, a field course in ecology was organized in conjunction with Cornell University, to be taught half at Arnot Forest and half at the Oneida Lake Field Station described elsewhere in this report. Students from a broad geographic spectrum will participate in that course.

A large number of long term research projects have been in operation in the forest since its acquistion. Work in forestry, wildlife management, fisheries, and other disciplines is being actively carried out. Outside research workers have not been numerous in the past, but those capable of carrying out research without interfering with normal activities are welcome. It should be pointed out that the Arnot Forest is open to

the public and hunting is permitted. The total aim for the Arnot Forest is a natural resources training area for Cornell students and others.

Questions pertaining to the usage of this facility should be directed to:

Dr. F. Winch
Arnot Forest
Newfield, N.Y.
(607) 256-2114

BIOLOGICAL FIELD STATION AT ONEIDA LAKE
(b) Bridgeport, N.Y.

Approximately 400 acres of land on the shoreline of Oneida Lake were donated as a field station to Cornell University in 1952 by Charles Brown. In 1956, the Conservation Department of Cornell University was put in charge of those facilities. Since that time, the major activity on the station, financed for the most part by the State Conservation Department, has been an assessment of the dynamics of the major sport fish components of the lake, namely the walleyed pike, yellow perch predator-prey complex. A few related studies have been done, including some studies on zooplankton. Occasionally, minor research projects are undertaken on other parts of the stations. In addition to the ongoing research, each summer the Conservation Department at Cornell University offers course work at the station. Until now, only one course per summer has been offered, but beginning in 1970 a course in field ecology will be taught half at Oneida Lake and half at Arnot Forest (described elsewhere in this report). Occasionally, conferences on various topics are held at the station.

Physical facilities are impressive and include a dormitory housing 30 students but could house at least twice that many, a cafeteria for approximately 60 persons, and an adjoining conference room for about 15. In addition to the three permanently occupied dwellings, there are three houses for staff members and/or graduate students. A very large classroom, capable of handling 30 to 50 students comfortably, is adjacent to a rather large wet laboratory of approximately 1,500 square feet. In the same building a small chemistry lab is

available. There are two small buildings and the normal storage garage and paint shop facilities. The station operates at least five different boats, including a 22 foot inboard, 18 foot outboard, and a large pontoon boat.

Terrestrial habitats are not at all impressive. An artificial marsh and a large area of well manicured lawn cover much of the 400 acres of the station. The other half is evenly divided between rather young, second growth, hardwood forest and somewhat more mature second growth. Oneida Lake is quite different from a normal Finger Lake: it is shallower and therefore heated to a much higher temperature during the summer months. Consequently, no trout exist in the lake; the major sport fishing components are walleyed pike, yellow perch, and smallmouth bass.

The facilities of the Cornell Biological Field Station have been used mainly by Cornell personnel. It is claimed that the ongoing research and teaching activities of the station tax the physical facilities almost to their limit at the present time, that any additional work to be done on the station must be supported by the one proposing the research or teaching, and must not interfere with the present operations.

Questions regarding the use of the facility should be directed to:

Dr. John L. Forney, Director
Cornell University Biological Field Station
R. D. # 1
Bridgeport, N.Y.

FORDHAM UNIVERSITY
Louis Calder Nature Study Center

The center started as a result of efforts of James McLaughlin, who in 1967, acquired for Fordham University the old Louis Calder estates, 114 acres with numerous buildings and a 10-acre lake. The transaction was fairly restrictive, limiting further development of this area with both good and bad effects. It is locally zoned for 2 acre estates, limiting construction of dormitories and other such facilities which might be useful for field work. The original contract between the Calder Foundation and Fordham University provides that the director must be a resident. James McLaughlin is currently filling the director's position.

The physical facilities are impressive. Five permanent residences, each housing 15 to 20 students, are on the area. There is a magnificant resident director's house, the former Calder residence, including swimming pool, several acres of beautiful lawn, and spectacular flower gardens. An old hunting lodge has been converted into a classroom and wet lab with a boathouse in the basement. A new dry laboratory facility is being built which will be approximately 3,400 square feet. A garage for housing vehicles, old kennels which could be used for housing small mammals, and a very large greenhouse complete the physical facilities on the area.

Habitats available include numerous acres of hardwood forest which seem to have been heavily logged in the past, and very little in the way of conifer stands. Currently, censuses of birds and insects are under way, and botanically work is done on the area. The lake itself (McLaughlin or Calder Lake) is 10 acres with a maximum depth of 27 feet. A large diversity of wild fowl come to the lake, and it contains smallmouth. bass, sunfish, and the common fauna normally associated with a eutrophic lake. There is one permanent stream on the area and a large bog. Elevation is from 600 to 675 feet.

Classes are conducted each summer and the facility is occasionally used by some community groups. Use of the limited facilities is impressive. Due to the restrictive covenants of the original land acquistion, as well as local zoning ordinances, further development of the area would be very difficult. The presumably maximal use the station gets now generates severe limitations on the use of the facility by outside groups. However, classes and researchers from institutions other than Fordham have used the facilities in the past and are encouraged to do so on a contractual basis, provided the program with which they are concerned fits the current major objectives of the field station. Questions concerning the utilization of this facility should be directed to:

Dr. James McLaughlin
Dept. of Biology
Fordham University
New York, N.Y.

HOFSTRA UNIVERSITY
Town of Hempstead
Department of Conservation and Waterways

In response to the growing public concern over the conservation of

marshlands, the Hempstead Department of Conservation and Waterways was created in 1964. The purpose of the department was to coordinate and control all activities associated with the waterways of the town of Hempstead. In approximately 1966, a cooperative agreement was made with Hofstra University whereby graduate students and faculty would make use of the facilities for research on the ecology of the surrounding waterways. The research of the department itself is primarily concerned with the productivity of the waters, especially as they relate to the nutrient inputs from highly populated areas.

Laboratory and related facilities are housed in a large building containing at least 40 students, a well-equipped wet lab, and numerous offices. An old garage (approximately 1,500 square feet) is soon to be converted to more laboratory space. Field facilities include a 34-foot work boat with a hoist and hydraulic trawl as well as an assortment of outboard boats and an ocean-going vessel available on a limited contractual basis.

Habitats available include 13,000 acres of all sorts of wet-land, salt marshes, salt islands, shallow water flats, tidal channels, and the like. There is also access to the open ocean on a limited basis if the stations facilities are to be used. No terrestrial habitats are available within the vicinity of the field station. A nature trail, complete with boardwalks and self-teaching devices, exists several miles from the station proper.

This station is very young and still growing with large scale plans for further development. It is currently a member of the New York Consortium of Marine Sciences Institutes. Outside researchers have been frequent and are welcome in the future, though the emphasis is placed on those researchers who fit most closely into the research currently going on at the station. The station also has been used and is available for community groups, classroom activities and as a conference center. Though usage at the present time is notmaximal, the station is young and it is anticipated that, in the future, overcrowded conditions could exist both in laboratory and classroom situations. Until now, only one course has been offered at the station, although it is obvious to a casual observer that this facility will be used much more extensively for teaching purposes.

Questions regarding the use of this station should be directed to:

Dr. Harold F. Udell
Director of the Department of Conservation and Waterways, Town of Hempstead
1 Parkside Dr.
Point Lookout, N.Y.

MANHATTEN COLLEGE[3]
Laboratory of Plant Morphogenesis

Director: Professor Robert E. Beardsley

Mailing Address: Laboratory of Plant Morphogenesis
Manhattan College
Bronx, New York 10471

Telephone: (212) 548-1400

Location: New York City, Roverdale section, Borough of the Bronx

Permanent Staff: Technical

Facilities: Research laboratories; controlled environment plant growth facilities; research library

Research in Progress: Mechanisms of antheridium induction in ferns; mechanisms regulating auxin levels in tissues; mechanisms of tumor induction in crown gall

Research Projects That Would Be Encouraged: Basic mechanisms concerned with normal and abnormal plant growth

MERCY COLLEGE[3]
The Lower Hudson Ecology Center

Director: James F. Melville, Jr.

Mailing Address: 154 Martling Ave., Tarrytown, New York 10591

Telephone: Unknown

Location: Mercy College Campus, Dobbs Ferry, New York

Permanent Staff: Judson McClure, Melvyn Keiner, Joanne M. Neillis

Mercy College campus is located on the Hudson River. In order to make use of the site (river, stream, beach area, trees, and grassy areas), James Melville has been instrumental in attempting to set up an environmental center called "The Lower Hudson Ecology Center." Although the center is still in its initial stages, it must not be considered just a thought-on-paper. The College has given several rooms to the center for laboratory space and offices. Laboratory furniture is being installed as are additional plumbing and electrical facilities. Attempts have been made to encourage several colleges in the area to join this center and some of the institutions seem interested in sharing and using the facilities. The campus site is used as a laboratory area for the environmental courses.

NEW YORK CONSORTIUM OF MARINE SCIENCE INSTITUTES
Montauk, N. Y.

In response to a growing interest in marine sciences, in July 1968, New York University, Fordham, Adelphi, Hofstra, New York Institute of Technology, St. John's, Long Island University, and SUNY at Stony Brook formed a consortium of marine science institutes. In June 1964 a lease was signed with the Farmingdale Corporation for the occupation of approximately 36 acres of a fenced area of a former U.S. Navy training base. In October 1969 the rehabilitation of the former buildings, some 300,000 square feet of floor space, was begun, and presently over 12,000 square feet of floor space has been done.

These facilities are impressive in their size. Three large buildings are currently undergoing renovation: one is an administrative center and the resident director's home. A second building of about 6,200 square feet includes several chemistry laboratories, physiology laboratories, microbiology laboratories, laboratories for physical oceanography, and a large lecture room. In a third building, there are about 6,000 square feet of floor space, currently in the form of a large garage which is to be converted into a machine shop and rooms to house a library, offices, laboratories, a running sea-water room, and a research museum. One other large building of approximately 4,500 square feet is to be developed later.

There is a solid pier approximately 40 feet long with numerous finger piers, in fairly bad shape at the present time. There are three cottages of approximately 480 square feet for visiting investigators. At the present time, boating facilities are extremely limited with only three Boston Whalers available. Plans for expansion of this facility are impressive and only await funds. Several other very large buildings are available to be converted into laboratories or similar facilities and currently the greatest need for physical facilities is a dormitory for visiting classes. The availability

of ecological habitats is restricted for the moment to the inshore waters around the end of Long Island. This is, of course, due to the fact that no large ocean-going craft are yet available. There are essentially no terrestrial habitats within the 35-acre area.

The specific goal of the Montauk Station for the present is a complete analysis and understanding of the ecology of the waters surrounding the eastern end of Long Island Sound. The members of the consortium have their own specific goals and, to the extent they make use of this facility, will impose their aims on the total aims of the station.

Individual outside workers must apply for use of the facilities and are to be judged on the individual merits of their proposals as well as the extent to which their proposal fits within the total framework of the goals of the station. Classes are welcome to use the facilities on a contractual basis. It should be pointed out, however, that the possibility of living quarters for large classes in the near future is remote and living expenses in nearby Montauk are prohibitive. Questions regarding the use of the facitlty should be directed to:

Dr. J. Alexander
N. Y. Consortium of Marine Science Institutes
Montauk, N. Y.

NEW YORK UNIVERSITY[3]
Indian Point Field Station

New York University, principally through the Institute of Environmental Medicine located in Sterling Forest, Tuxedo, New York, has been conducting an ongoing study of the middle reaches of the Hudson River since 1964. This study is headed by Merrill Eisenbud and includes the following: (1) Radionuclides and trace metals (Theodore Kneip, Edward Wren) (2) Pesticides and organics (Theodore Kneip) (3) Fish inventory (Alfred Perlmutter, Wash. Square Biol. Dept.) (4) Biota other than fish (Henry Hirshfield, Wash. Sq. Biol. Dept.) (5) Sediments (Alistair Mc Crone, Gerald Lauer). Transects

were established at the following locations: (1) Spuyten Duyvil Boat Channel To Alpine Boat Basin (1967 only), (2) Nyack to Yonkers (1964 inc.), (3) Consolidated Edison Pier to Trap Rock Beach (1964 inc.), (4) Cornwall Yacht Club to Island (1967 only), (5) Newburgh across River(1968 inc.), (6) Hyde Park across River (1967 only), (7) Kingston across River (1967 only), (8) Saugerties across River (1967 only), (9) Coeyman's across River (1967 only).

Each consisted of two shore stations and three channel stations. Plankton tows were made using #2 and #20 mesh, 1/2 meter net. The vessel used was the Marberlee, which is no longer in use. Ancillary studies of coliforms, studies of entrainment in coolent condensers at Consolidated Edison reactor, thermal studies and heavy metal studies are presently being conducted in Dr. Hirshfield's laboratory at Washington Square and in the laboratory at Sterling Forest. A temporary field station on the Consolidated Edison pier is also in use.

Information about this facility or its programs should be sought from Dr. Merrill Eisenbud.

STATE UNIVERSITY COLLEGE AT BROCKPORT
Francher Campus Biological Station

The Francher Campus is an all-purpose site 9 miles west of the college. It is extensively and intensively used by students, faculty, and public groups for a wide variety of recreational and educational endeavors. It was originally purchased by the Faculty-Student Association of the College at Brockport.

About 12 acres of very mature farm woodlot, probably uncut for 80 years or more, is the least disturbed area. Most of the remaining area is or has recently been in pasture, fields, orchards, and harvested woodlots. The major cover over much of the area is crataegus (hawthorn), probably of several types, many growing to tree-size. Fifty acres in and around the major buildings are under development into an arboretum which will contain a variety of plant associations native to western New York. Robert A. Hellmann, Department of Biological Sciences, State University at Brockport, is in charge of development of the arboretum. A small stream and an 8 acre dystrophic lake, Lake McCargo, a 3 acre typha marsh and an artificial farm pond are the major aquatic environments. The lake is the subject of a year-round experimental study of the effects of aeration, and includes three faculty and about 10 graduate students. The potential human population density of the immediate drainage is a factor requiring careful consideration.

The facilities are concentrated in and around Lake McCargo. The Conference Center has sleeping accommodations for 120 people. A campground with accommodation for 10 trailers and 18 tent sites overlooks the lake. An outdoor swimming pool serves the campus and the community. Picnic grounds, playing fields, and a lodge for indoor recreation are also available. A 100-bed dormitory addition is contemplated for a Resident Program in Environmental Sciences.

The Francher Campus is used for a variety of graduate and undergraduate courses including: biological productivity, saprobial microbiology, aquatic biology, biological oceanography, biology of pollution, limnology, ichthyology, ornithology, plant ecology, plant taxonomy, entomology, mammalogy, human ecology and conservation as well as various courses in physical education and recreation.

Further information is available from:

Mr. Eugene Pessetto, Director
Francher Campus
State University College at Brockport
Lynch Road
Holley, N. Y. 14470

STATE UNIVERSITY COLLEGE AT BUFFALO
College Camp Franklinville

The camp comprises approximately 415 acres of former farmland and forest. It is owned and operated by the College Student Association and funded by the Student Activity Tax. It is governed by a board of 16 students and two faculty members.

The area is one of economically marginal farmland and former farms with land ownership moving increasingly towards recreational users. Successful dairy farming is practiced in the valley of the Ischua River. The campsite is on higher ground, up to about 2,100 feet. About 200 acres

are former sugar-bush and woodlot and appear to approach a birch-beech-maple climax. South facing slopes lack birch but have oak, hickory, and elm which are generally absent on the north-facing slope. Approximately 5 acres are in reforestation under a program started in 1954. The plantings - 1,000 per acre- are white and Norway spruce, larch, and red pine. About 3 miles of planted hedgerow are present. Much of the surrounding area is State-owned and in reforestations.

Virtually undisturbed wilderness areas are available in Alleghany State Park, about a 30-minute drive from the camp. There are three streams and eight ponds. The ponds are managed, old, artificial impoundments without surface connection to the streams. Although there are no bogs on the site, several are nearby. The purple salamander, Gyrinophilus porphyriticus, is present. Some of the ponds are managed for recreational fishing.

In addition to an older lodge, complete residence facilities for about 60 people are afforded by a new all-weather lodge. In addition, there are dormitories for faculty, students, and staff. Two classrooms and three laboratory spaces are available. The camp is readily accessible by road.

The camp is extensively used for recreational purposes and for all aspects of outdoor education including college courses in ecology, soil biology, field biology, plant ecology, economic biology and conservation, botany, ornithology, mammalogy, taxonomy of vascular plants, and a 1½-day field trip in introductory biology. In addition, summer courses in ornithology, plant taxonomy, mycology, conservation education, and independent studies are given at the camp. There is a caretaker who works full-time in the summer and part-time in the winter. Although extensively used for teaching, there are few background studies on the fauna and flora.

Questions concerning any aspect of the camp should be directed to:

Dr. George M. Laug
Department of Biology
State University College at Buffalo
1300 Elmwood Ave.
Buffalo, N. Y. 14222

STATE UNIVERSITY COLLEGE AT CORTLAND
Raquette Lake Outdoor Education Center

Raquette Lake Outdoor Education Center is operated by the State University College at Cortland. Located in the central Adirondacks, the station includes two subdivisions, Huntington Camp, a 500-area tract accessible only by boat, and the Antlers, a former summer resort, used mainly as a supporting facility for Huntington Camp. A large area including Huntington Camp was originally developed by William West Durant in the late 1870's as a retreat for the wealthy. The rest of the history of Huntington Camp is quoted from a mimeographed information sheet furnished by the College.

"The expense of high living took its toll on William Durant, however, and in 1895 he found it necessary to sell Camp Pine Knot to another friend and frequent guest, Collis P. Huntington.

"Huntington, one of the builders of the Southern Pacific Railroad, continued the development of the camp until his untimely death in 1900. He added a large steel water tower, and completed a water supply system throughout the camp. Huntington's workmen had just completed the building now know as the Staff House, when his death occurred. Shocked, and deeply attached to the camp, the family was reluctant to return to Camp Pine Knot. The "Staff House" was never occupied by the Huntington's and the camp remained dormant and unused for nearly half a century.

"In 1948, Archer Milton Huntington and his wife, Anna Hyatt Huntington, presented the camp and an adjoining 200 acres of land to the college. This gift was officially accepted in that year by a special act of the State Legislature naming the facility Huntington Memorial Camp, in honor of the family's father. Since acquisition, the college has converted the camp into an outdoor-oriented, instructional center, supplementing and enhancing the educational pursuit of the Cortland College Community."

Use of this facility has been highly variable, from teaching and research to conference centers. State University College at Cortland offers several courses on a regular basis at the center.

Since the camp itself is the center of a wide variety of activities, the availability of natural areas in the immediate vicinity of the camp's buildings is restricted. However, the rest of the 500 acres of Huntington Camp, along with the adjoining areas of the Adirondack Forest Preserve, afford a cross section of vegetation typical of the area, primarily old hardwood forests with conifers in the valleys and on hilltops. An open field approximately 70 years old occupies about 16 acres of the station. The station ranges in elevation from 1,700 to 2,000 feet.

Raquette Lake, on which the station is situated, is an impressively large lake with a shoreline of 99 miles, an average depth of 15 feet with its deepest point at 96 feet. The fish population consistes of whitefish, and trout (brook, rainbow, and lake trout), as well as the introduced smallmouth black bass. Several studies on the limnology of the lake are currently underway, and a fair amount of background information is available. A sphagnum bog is located on the site, but no streams are actually found within the 500 acres of Huntington Camp. Numerous small rivers and streams can be found on nearby State-owned land.

Residences are variable, from individual dwellings to dormitory facilities, accommodating up to 85 people in Huntington Camp alone. Another 40 persons can be accommodated at Antlers. There are also staff house in which the resident director lives, a recreation hall, an infirmary, a central kitchen and dining facilities for 85 people, and numerous maintenance buildings. Accommodations appear to be extremely comfortable and sufficiently diverse to be useable for a variety of purposes.

Access to Huntington Camp is either by boat or a 2 mile hiking trail. Once at the camp, one is isolated and dependent on the stations boating facilities.

Questions concerning the use of the center should be directed to:

Mr. George Fuge
Director of Outdoor Education
Raquette Lake Outdoor Education Center
Raquette Lake, N. Y.

STATE UNIVERSITY COLLEGE AT FREDONIA[3]
Lakeside Laboratory

The laboratory site is a strip of land approximately 400 feet long between the Lake Erie shore and the parallel paved road. It is within 10 minutes driving time of the campus of State University College at Fredonia. The total area is less than 10 acres. The surroundings are mostly farmlands and the site itself is a former farm. Picnic tables and fireplaces occupy part of the area. The lakefront is an eroding bluff about 30 feet high. Most of the area is in rough lawn and mowed field. There is no permanent docking facility; the shore is exposed to the full sweep of winter storms. Docking facilities are available a few miles away in Dunkirk.

The laboratory is a concrete building of about 1,800 square feet subdivided into laboratories, offices, and an aquarium room with flowing lake water. The laboratory is well equipped for rough and intermediate handling of aquatic field samples. There are excellent facilities a few miles away at the Fredonia campus for very high-level water quality analysis. A small outboard boat is available. A larger vessel with approximately 30 mile range is on loan from the National Science Foundation, but is not docked at the site.

Long term weather data are available. The laboratory is a primary observation station for the Lake Effect Storm Modification Study of the Environmental Sciences Services Administration. The laboratory is regularly in use by students and faculty of the Biology, Earth Sciences, and Chemistry Departments of the College. A summer program for high school students, funded by the National Science Foundation, offering training in techniques of water quality study, was offered in 1970.

Direction of the laboratory and its programs is now under:

Dr. Roy Keller, Chairman
Dept. of Chemistry
State University College at Fredonia
Fredonia, N. Y.
(716) 673-3281

STATE UNIVERSITY COLLEGE AT NEW PALTZ
The New Paltz Outdoor Education Center

In 1957, this property was sold to the New Paltz College Association, now the Faculty-Student Association. The camp operated for the sole use of the College under the part-time directorship of Merril Archard from 1953 to 1956. The Ashokan field camp now has a full time director and operates year round, offering outdoor education programs for non college groups as well as providing facilities for college functions. The entire center is 372 acres.

Physical facilities include dorms, capable of handling 72 individuals, dining hall, kitchen building, recreation meeting hall, multipurpose building, conference building, farm buildings, stable, blacksmith shop, one room school printing office, bath house with showers.

Habitats include ponds, large wooded areas, a lake, a field with storage shed, a miniature golf course, picnic area, and some overnight tenting areas. A brief walk along a nature trail revealed some very spectacular forest of mixed hardwood and conifers, as well as some marsh areas and a lovely stream flowing into a rather large lake. The facility is used almost exclusively as an outdoor education center with local school groups in residence. Apparently some college classes have come and used the facilities in the past. Officially, no research is done on the area. Since our request for an interview with the director was not granted, very little about the actual operation of the facility can be presented here. Questions dealing with the use of the facility should be directed to:

Mr. Kent Reeves
Ashokan Campus
College Camp
Ashokan, N. Y.

STATE UNIVERSITY COLLEGE AT ONEONTA[3]
Stephen C. Clark Biological Field Station

Director:	John G. New
Mailing Address:	Science Department State University College Oneonta, New York 13820
Location:	On Otsego Lake just north of Cooperstown, N.Y., and 360 acres of terrestrial area west of Cooperstown
Permanent Staff:	Leonard Sohacki - Limnology Willard Harman - Aquatic Biology

Facilities:	No housing at this time; Cooperstown is within walking distance of the station; Classroom, library, specimen storage, photography, multipurpose laboratory, aquarium room, instrumentation lab, analytical lab, radiation biology lab, and commons area.
Research in Progress:	Physical and chemical descriptions of Otsego Lake, terrestrial surveys of plants, arthropods, and vertebrates
Research Projects That Would Be Encouraged:	Virtually anything with ecosystems approach

STATE UNIVERSITY COLLEGE AT OSWEGO
Rice Creek Biological Field Station

The field station was initiated by John Weeks who was concerned with the preservation and conservation of marsh lands. A dam was built converting Rice Creek into a pond with surrounding marsh lands. The land formerlly belonged to the University's Faculty-Student Association and consists of 75 acres, 26 of which are occupied by the pond. The teaching program conducted by the Faculty from the State College of Oswego, was started in the summer of 1966 and runs the entire summer, 5 days a week about 8 hours a day. Courses are also taught at the station during the regular school session. The station is primarily devoted to teaching courses in ecology and related subjects. Students generally come from Oswego but 50 percent of the course recently has been made up of non-Oswego students.

The physical facilities include a new laboratory building constructed of glass and red cedar. Within the main building, there are two laboratories (approximately 1,500 square feet), a large classroom, lecture room, seminar room, and an office housing the two permanent personnel. There are no living accommodations on the station. Also included are six rowboats for class use.

Habitats on the station include open old farmlands, a couple of pine plantations, and some hardwood stands, in addition to Rice Creek, Rice pond, and surrounding marshland.

Outside research workers are infrequent users of this facility. Local community groups have made use of the station in the recent past.

Information concerning this facility should be directed to:

Dr. George Maxwell, Director
Rice Creek Biological Station
State University College at Oswego
Oswego, N.Y.
(315) 341-2343

STATE UNIVERSITY COLLEGE AT PLATTSBURGH
The Inland Lakes Research Laboratory

This is a relatively new institution just beginning to develop a structure and purpose. It had its inception about 5 years ago, when Ronald Stewart generated local interest to study the water systems in the areas surrounding Plattsburgh. A small amount of seed money was obtained from the State for establishing a laboratory to study the waters of the area. Interest dwindled until last year when several faculty members from the State University College at Plattsburgh formed an informal group and generated new research and educational interests in the laboratory.

For the first 4 years, several studies on specific taxonomic groups were carried out and a close association with the Water Resources Research Center in Vermont was begun. Since 1965, a summer synoptic survey of Lake Champlain has been conducted in cooperation with the center. In the last year, interest has increased at an accelerated rate. Currently, there are four faculty members in biology, one in geology, two in chemistry, and two graduate students and about 20 undergraduates involved with studies in the laboratory.

Objectives of the laboratory are to encourage and coordinate scientific research activities at the State University College at Plattsburgh, to provide supplies, equipment, and financial support for educational and research activities, to encourage interdisciplinary efforts into the study of the waters of the area and to aim at the development of a lakeside educational facility on the shores of Lake Champlain.

At the current time, the facilities are those of the faculty of science and mathematics at the College. There are regular teaching and research laboratories as well as classrooms. Two research vessels, one 22 feet long and one 28 feet long, as well as a 16 foot outboard, are equipped with sampling gear, sonar, and other limnological devices. Docking facilities are obtained locally from commercial establishments. Meteorological facilities and many of the facilities of the Water Resources Research Center in Vermont are available on a cooperative basis.

Outside workers are welcomed and have been in residence frequently during summer sessions. Outside classes are welcomed, and there is a possibility of dormitory facilities at the University.

Questions regarding use of these facilities should be directed to:

Dr. R. Bobka
Inland Lakes and Rivers Research Laboratories
SUNY College at Plattsburgh
Plattsburgh, N. Y.

STATE UNIVERSITY COLLEGE OF FORESTRY at SYRACUSE UNIVERSITY

(a) Cranberry Lake Biological Station

Description of this station given under State University of New York at Albany.

(b) HEIBERG MEMORIAL FOREST

An original acquisition by the State of New York in 1931, 1,650 acres of old farmland was donated to the Syracuse College of Forestry in 1946. Since that time more surrounding land has been acquired in small pockets making the total acreage of the Heiberg Forest approximately 3,650 acres. The forest is used as an outdoor laboratory for the State University College of Forestry at Syracuse. Ongoing research is conducted, mainly concerned with various aspects of forestry. There is no central theme in the research work. In addition to the ongoing research, field trips from the College of Forestry at Syracuse are sponsored.

Physical facilities are virtually nonexistent due to the close proximity of the College. There are no laboratory buildings. There are two permanent residences, one small office building, a work shop, and several storage sheds. A small field laboratory may be built in the near future.

Habitats include mixed hardwood forests varying in age from extremely young to 70 to 80 years. Numerous plantings of conifers occur all over the area and a great deal of open field is still unplanted. There are three small ponds of 11, 6, and 4 acres constructed in 1953. Since that time an ongoing fishery project has been pursued on the three ponds. Trout are stocked each year, and permits are issued to the public for fishing. Elevation ranges from 1,000 to 2,020 feet.

Until now, the area has been used almost exclusively by members or persons connected with the State University College of Forestry. Outside workers are welcomed with the obvious restriction imposed by the limited physical facilities.

Questions regarding the operation and maintenance of the field station should be directed to:

Dr. John Engleton, Manager
452 Lafayette Rd.
Jamesville, N. Y. 13078

(c) THE ARCHER AND ANNA HUNTINGTON WILDLIFE FOREST STATION

The Archer and Anna Huntington Wildlife Forest Station is located almost at the geographical center of the Adirondack mountains. It is located in the town of Newcomb, New York, on highway 28N. A brief history and description of the station is quoted from a mimeographed document prepared by station officials.

"The Archer and Anna Huntington Wildlife Forest Station is a research station operated by the State University College of Forestry at Syracuse University, and administered through its Department of Forest Zoology.

"The Huntington Wildlife Forest Station was donated in the 1930's for research on fish and wildlife. Its 15,000 acres are almost entirely forested, with elevations ranging from 1,590 to 2,693 feet above sea level. Five lakes, four ponds, and several miles of streams are included on the area. Over 1,000 acres have been reserved as a natural area.

"Since 1937, research has been conducted by the Department of Forest Zoology resulting in over 85 graduate theses and publications. Additional research has been carried on by other departments, principally forest botany and pathology and silviculture. Syracuse-based faculty participate in their own personal research and in supervision of graduate students. The resident staff includes a Director, a Forest Manager, Wildlife Research Biologists, a Forester, Wildlife Technicians, and maintenance personnel. Physical facilities include office space, a maintenance garage, a dormitory, residences, and over 20 miles of forest roads."

The terrestrial habitats are primarily hardwood forests (primarily beech, sugar maple, and yellow birch) with scatterings of conifers especially along lakes and on the peaks of the higher mountains. Almost all of the forest is managed, the exception being a 1,026-acre tract set aside as a natural area, which has not been disturbed since the 1800's with the exception of some small mammal trapping. Numerous areas within the managed area have been subjected to specific experimental procedures not systematically cataloged in any available document. However, the history of almost any particular site within the station can be obtained from the station's director. Most of the station is gridded so that precise pinpointing of locations is a simple matter.

Low nonforested second growth vegetation is virtually nonexistent except for short stretches of typical roadside vegetation.

The fauna of the station is somewhat depauperate. Comparison of the vertebrate fauna of the station with areas of similar forest types at lower elevations reveals striking differences. Road censuses of mammals are conducted by the residents of the station and much background information on numbers and activity is available.

Little work has been done on the insects of the station, and virtually no information is available on any sort of trends.

Adjacent to Huntington Station are large tracts of State-owned land, available for research under the usual restriction of the Adirondack Forest Preserve.

Of the five lakes on the station, only one has an undisturbed fish fauna (salmonids, sunfish, suckers, bullheads, and some minnows); yellow perch have invaded the others. Only one lake is open to public fishing. The lakes have received little research attention, although some basic limnological information has been collected. Some shorelines provide marsh and bog conditions.

There are no large rivers on the station but numerous small streams run year round. The upper reaches of Catlin Lake (largest of Huntington's Lakes) are among the northwest headwaters of the Hudson River.

Two dwellings are available for use in the summer. Currently the year-round facilities are operating at full capacity but construction plans provide for further part-time residences and expanded office-laboratory facilities. There is also a dormitory capable of housing up to 35 persons during the spring-fall period. Also available is one trailer; camping on the station is prohibited.

Permission for research and/or teaching on the station is to be obtained from the director of research:

Dr. Donald Behrend
Huntington Wildlife Forest Station
Newcomb, N. Y. 12852

Proposals are judged on an individual basis in relation to the existing program.

(d) THE CHARLES LATHROP PACK DEMONSTRATION FOREST

Charles Lathrop Pack was an early advocate of the importance of demonstration forests. Recognizing the need for such forests, the New York State College of Forestry readily concurred with Mr. Pack's proposal to establish a demonstration forest within the Adirondack Park where timber and multiple use forestry might be contrasted with the wilderness or single use policy in their effect upon the forest-preserve land. Demonstration rather than research was the motive. General considerations led to the selection of Warren County as the site of the forest. A fine old growth stand of white pine and hemlock, located near the State highway, formed the nucleus of the forest. Surrounding land contained second growth that was typical of much of the Adirondack area. Later acquisitions increased the forest to 2,211 acres. Insofar as the New York State Constitution forbade timber cutting on State lands, it was decided to procure title to the property to be held in perpetual trust for the New York State College of Forestry.

The acquisition of 2,170 acres was completed in 1926; the title was obtained by the University on October 19, 1926. Development began in the spring of 1927; and during the winter of 1927-28, the forest was mapped and conditions were studied. The forest was subdivided into compartments of convenient size and compactness containing timber similar as to forest type, age, class, and condition. The location of compartments was plotted on a map and the areas computed. Complete classification of the Pack Forest is available directly from the station. In addition to the managed forest areas, it was decided to set aside a sizable portion of the best old growth timber as an ecological preserve area on which no cutting would be done. The total area of the ecological preserve area is 47 acres, 17 acres of it swamp with some timber. The age of the oldest trees is more than 400 years.

The facility has remained a demonstration forest. Research and teaching are done primarily out of the State University College of Forestry, and the public enjoys virtually unrestricted use of the Pack Forest for hunting and fishing. An excellent network of roads makes most parts of the forest accessible and also leads to intensive use by the general public. Use of the forest by community groups, such as the 4-H clubs and Farm Foresters, has been intense in the past. Over the 20-year period of its operation, more than 600 forestry students of the College of Forestry have received training in the forest for 4-to 5-week periods. Students from the Yale School of

Forestry have made annual visits there for many years past, and students from other forest schools including the New York State Ranger School have come from time to time.

The present work force of the forest averages about 10 laborers and two supervisory and professional personnel. Physical facilities include office buildings, saw mills, residences, and storage facilities.

A wide variety of forest types are available; however, only the ecological preserve area previously mentioned has been maintained in a relatively natural state. Outside research interests or class activities must be cleared through the resident director:

Mr. Schelly Potter
Charles Lathrop Pack Forest
Warrensburg, N. Y.

STATE UNIVERSITY OF NEW YORK
GREAT LAKES LABORATORY
Buffalo, N.Y.

The Great Lakes Laboratory, dedicated in 1966, is a recently renovated, all-weather building situated on a 10 acre site within the city of Buffalo on the Black Rock Canal. A long term study of lakeside plant succession is under way on a fenced-off 1 acre plot. Otherwise, the site is occupied by the utilities associated with the laboratory and its vessels.

The laboratory is devoted to applied research and teaching at the undergraduate and graduate levels. Ten units of the State University, as well as some private schools, the Buffalo Museum of Science, and a number of agencies and civic groups make use of the laboratory, its vessels, and its programs.

The eastern third of Lake Erie and the western third of Lake Ontario are within the range of available vessels, including two amphibious "ducks" and a 32 foot cruiser capable of accommodating up to 20 students on a day trip, with overnight accommodations for six. A 66 foot research vessel, equipped by the Federal Water Pollution Control Administration, will soon be available. A portable aluminum boat and a carry-all are also available.

There is an extensive onsite library comprised principally of recent materials on the Great Lakes but also including more general references on pollution, hydrology, meteorology, water quality, and related topics. The laboratory and its vessels are extensively used in connection with laboratory courses in ecology, field biology, invertebrate zoology, limnology, oceanography, marine geology, meteorology, and parasitology. A long term sampling program in water quality analysis is maintained on a biweekly basis.

The laboratory also offers in inservice courses in sewage and water treatment under a contract with the New York Department of Public Health, and a similar program for the training of inner-city residents. The laboratory is also the focus of an exchange lecturer program.

About dozen technical reports and substantial parts of two dissertations have originated here in the past 3 years. The 13th Conference of the International Association for Great Lakes research was cohosted by the Great Lakes Laboratory in 1970. Directories of personnel in western New York in the field of air pollution and water resources are maintained.

The laboratory maintains only a small nuclear staff but has the facilities to accommodate up to 20 projects, in whole or part, depending on requirements. The onsite buildings, about 2,200 square feet, include three laboratory-classrooms, two offices, and a sho[illegible].

Inquiries for further information should be directed to:

Dr. Robert A. Sweeney, Director
The Great Lakes Laboratory
5 Porter Ave.
Buffalo, N. Y. 14201

STATE UNIVERSITY OF NEW YORK at ALBANY
STATE UNIVERSITY COLLEGE OF FORESTRY
at SYRACUSE UNIVERSITY
Cranberry Lake Biological Station

The Demonstration Forest on which the Cranberry Lake Biological Station is located originated in 1915 when the College of Forestry of Syracuse University arranged to use one of the several J J. Barber tracts in the region as a summer field station. Shortly thereafter, in 1924, Charles L. Pack bought the Barber Point property and gave it to Syracuse University to hold in trust for the College of Forestry. It was called the Sophomore Summer Camp from 1915 to 1965 and was used as a field training ground in practical aspects of forestry for undergraduate students. In the course of major curriculum changes in 1965, the Sophomore Summer Camp Program was moved to the College's other Pack Forest near Warrensburg. At this time, instructional use of the Pack Demonstration Forest at Cranberry Lake was temporarily discontinued. In 1967, the State University of New York at Albany became interested in the facility, and in conjunction with Syracuse University College of Forestry established a summer biological station on a trial basis. In the summer of 1968, a second session was offered and currently a revised 5 year program is operational.

At present, the primary purpose of the new program is to give students experience in field biology. Both formal courses and individual research programs are offered. Courses are given at two levels, senior undergraduate and graduate, with a mimium amount of overlap. Enrollment for the program has been largely from SUNY at Albany and the College of Forestry at Syracuse, although applications are accepted from any institution. Although the forest property over the years has been used almost exclusively for teaching, some background studies are available on the fauna and flora.

There are a very few small packets of uncut virgin forest on the station proper, but all types of Adirondack forests are accessible on adjacent State land within easy hiking or boating distance. Three forest types predominate on the station itself: (1) burned areas characterized by paper birch, aspen, and other pioneer species; (2) mixed wood dominated by sugar maple, American beech, and yellow birch, and (3) spruce swamp.

The general pattern of the forest types is conifers on the lower, poorly drained areas and hardwoods on the slopes. The station ranges in elevation from 1,500 to 1,800 feet, with no peaks rising high enough for

typical Adirondack high elevation conifer forest. A great array of wildlife inhabit the forest communities.

Cranberry Lake, the largest body of water in the Adirondacks, provides ample facility for limnological investigation. The lake was dammed in 1867, and the natural fish fauna has been virtually replaced by the introduced smallmouth bass and ubiquitous yellow perch. Since most of the 134-square-mile watershed surrounding Cranberry Lake is State-owned and few access roads penetrate the hinterland, the future of the lake is not severely threatened by development of adjacent lands. There is, however, considerable tourism on the north end of the lake near the village and State campsite. Several smaller lakes, ponds, and bogs occur in the forest. Sucker Brook, a small stream system that runs into the lake from the east, passes through its center.

Living facilities on the station are impressively comfortable but not designed for year-round use. There are 12 student cabins, each of which comfortably houses 8 students. A central partitioned washhouse is designed for student use. A single lodge building houses a maximum of 16 faculty members, and three large cabins accommodate other administrative-teaching personnel. A central kitchen and dining facility accommodates up to 120 people. A headquarters building serves four faculty members, a permanent director's office, an equipment room, and a central reception room. There are three laboratory-equipped teaching buildings and one classroom building. The recreation hall includes a large lounge, several small staff rooms, and a camp store. Surporting buildings include a paint shop, two small general shops, two boathouses, a power house, a warehouse, and a year-round caretaker's house.

Since the station is accessible only by water (about a 5 mile trip from the village of Cranberry Lake), two boats capable of carrying from 40-60 persons provide transportation to and from the station. Several runabouts, numerous canoes, and rowboats are also available for small group use.

Questions concerning the 8-week teaching and research program of the Cranberry Lake Biological Station should be directed to:

Dr. Donald McNaught, Director C.L.B.S.
Department of Biological Sciences
SUNY at Albany
1400 Washington Ave.
Albany, N. Y. 12203

Questions concerning the other aspects of the Pack Demonstration Forest at Cranberry Lake should be directed to:

Dr. E. H. Ketchledge
Forest Manager and Associate Director, C.L.B.S.
SUNY College of Forestry at Syracuse University
Syracuse, N.Y. 13210

STATE UNIVERSITY OF NEW YORK at STONY BROOK
FLAX POND

Flax Pond is a 170-acre site on the north shore of Long Island, approximately 4 miles from the State University at Stony Brook. The major environments are 80 acres of salt marsh mostly Spartina alterniflora and Spartina patens; 30 acres of mud-flats, tidal creeks, pannes; 20 acres of open beach, mostly coarse glacial gravel; 40 acres of uplands including dunes, red cedar, brush, open field. The history of human intervention which has been extensive in the area is rather well known. Major past changes have involved closing, opening, and relocating of connections to Long Island Sound. The present entrance channel is partly protected by stone jetties but is navigable in only part of the tide cycle. The Bureau of Marine Fisheries of the New York State Department of Conservation operates a 4,800 square foot research laboratory, dedicated in June 1970, which is engaged in work on commercially significant marine organisms.

Dry storage space, running water, and electricity are available at a partially renovated house which has a single apartment occupied by a resident caretaker.

The area is regularly used in graduate and undergraduate teaching in connection with courses in invertebrate zoology, field ecology, paleogeology, ornithology, and marine botany. Marine organisms are collected on a limited basis for other educational and research purposes. The identification and distribution of the marine invertebrates are described in a technical publication of the Marine Sciences Research Center, State University at Stony Brook. Unpublished accounts of the plants and birds of the area are available. The surface substrate has been mapped and is part of the publication mentioned above.

Further information is available from:

Mr. Fred Roberts
Marine Sciences Research Center
State University at Stony Brook
Stony Brook, New York 11790

APPENDIX B

LETTERS AND QUESTIONNAIRES USED IN SURVEY

STATE UNIVERSITY OF NEW YORK
AT STONY BROOK
(516) 246-5000

DIVISION OF BIOLOGICAL SCIENCES

STONY BROOK, NEW YORK, 11790

Dear

Under the auspices of the Provosts' Committee on Biology and the State Department of Education, we are currently engaged in a survey of the ecological potential of New York State, the results of which will be made available to ecologists and ecological institutions throughout the state. One phase of this study involves a questionnaire survey of all, or as near to all as possible, of the ecologists in the state. To this end we would appreciate your listing those members in your department who are engaged in ecological research and/or teaching. Fields like Limnology, Field biology, Population biology, and others are definitely considered as part of ecology for this survey. A standardized form and stamped return envelope are enclosed for your convenience.

Another phase of the survey is the compilation of a directory of field sites available for teaching and for research in ecology. If your department is involved in running any field laboratories, would you please list those on the enclosed form along with the director.

If you have any questions concerning this survey, please do not hesitate to contact us.

Sincerely yours,

Dr. John H. Vandermeer
Chairman: Ecological Survey
Dept. of Biology
SUNY at Stony Brook

JHV/drc
Enc.

SURVEY COVERING LETTER SENT TO DEPARTMENTAL CHAIRMEN

A. Institution:

B. List of personnel active in Ecology

Name:

Department (if other than Biology):

Name:

Department (if other than Biology):

Name:

Department (if other than Biolgoy):

Name:

Department (if other than Biolgoy):

C. Field Sites:

Name:
Location:
Director:
Address:

Name:
Location:
Director:
Address:

QUESTIONNAIRE SENT TO DEPARTMENTAL CHAIRMEN TO OBTAIN PROVISIONAL LIST OF ECOLOGICAL PERSONNEL AND INFORMATION ABOUT FIELD SITES

PERSONNEL QUESTIONNAIRE

1. Name:

2. Birthdate:

3. Institutional Affiliation:

4. Address

5. Business Telephone (include area code and extention):

6. How long have you lived in N.Y. State?

7. List your highest degree, the institution from which you obtained it, and the date:

8. Which one of the following specialties describes most accurately your major interest in ecology?

Population and Community Ecology	Aquatic Ecology
Physiological Ecology	Marine Ecology
Limnology and Oceanography	Wildlife Management
Fisheries Biology	Evolution
Taxonomy or Systematics	

9. With which taxonomic groups have you worked most frequently. (Please list no more than three).

10. List professional societies of which you are a member:

11. List conservation organizations of which you are a member:

12. Are you currently engaged in research of an ecological nature? If so, briefly describe your research. (use additional sheets if necessary).

QUESTIONNAIRE SENT TO THOSE ON PROVISIONAL LIST OF ECOLOGICAL PERSONNEL

COURSE QUESTIONNAIRE

(Please complete one questionnaire per regularly taught course)

Name of course:

Graduate or undergraduate?

Brief description of course contents (attach old syllabus if possible):

Approximate enrollment per time offered: Grad Undergrad

How frequently offered (once per year, once every other year, etc.):

Total number of times the course has been offered:

Are there field trips associated with the course?

If so, which kind of environments? Terrestrial, Fresh water, Marine
(circle 1, 2, or 3 items)

Which, if any, texts are used in the course?

Put a check in front of the subjects in the following list that are covered at least briefly in this course:

Life histories of local animals
Logistic equation
Primary productivity
Adaptions to severe temperature regimes
Ion balance in marine organisms
Energy loss between trophic levels
Biomes (or Life zones or Biotic Provinces)
Lotka Volterra competition equations
Field sampling techniques
Preston's lognormal distribution
Physiological changes during hibernation
Ecological efficiency
Use of radioisotopes in ecology
Fat storage and its relation to environmental stresses
Standing crop
MacArthur's broken stick model
Maximization of yield from fishery (or deer herd etc.)
Physiological tolerence to environmental gradients
Food web complexity
Intrinsic rate of natural increase
Gause's competition experiments
Mark and recapture methods
Activity cycles
Eltonian pyramid
Community metabolism
Diurnal rhythms
Terrestrial (aquatic) habitat types

QUESTIONNAIRE SENT TO THOSE ON PROVISIONAL LIST OF ECOLOGICAL PERSONNEL