

*Planning a Career
in
Fish and Wildlife Management
and Related Fields
of
Natural Resource Conservation*



**INTERNATIONAL ASSOCIATION OF
FISH AND WILDLIFE AGENCIES**

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A CAREER BEGINS IN HIGH SCHOOL:

High school is none too soon for you to begin building a sound foundation. Career preparation often starts with personal motivation expressed in hobbies and spare time activities, such as hunting, fishing, bird watching, insect collecting, nature photography and woodcraft. Many useful skills can be developed in this way. Recognize, however, that while natural resource managers enjoy their work, it is work, not a life-long vacation with pay.

In planning a high school program, emphasize courses in biology, chemistry, physics, and mathematics. Also gain a background in such subjects as social and earth sciences, history and geography.

Fish and wildlife management is a discipline in which the scientific specialist bears much responsibility for putting recommendations and "know how" into language clearly comprehensible to fellow citizens. Almost every conservation worker is expected to address service clubs, sportsmen's groups and other civic organizations so communication skills are most important. This means knowledge of literature and composition. Extracurricular participation such as debate, school newspaper and yearbook can be helpful.

CAREER PREPARATION AT LIBERAL ARTS, STATE & JUNIOR COLLEGES:

The level of education and training required by the natural resource sciences varies. Some agencies employ bachelor degree graduates while others require master degree graduates for most of their technical work.

If you plan to attend a junior college, a state college or a liberal arts college with the idea of transferring at some point in your education to a university that offers degrees in natural resource fields, you should select that university early. Write to the university registrar and ask for their catalog. With the aid of your counselor, select courses that will be accepted later for credit at the university of your choice. Do not attempt in your first two years to take highly specialized courses even if they are offered. Concentrate rather on required and elective courses in the fields of communication skills, humanities, social sciences, mathematics and introductory physical and biological sciences.

Avoid specialization during the undergraduate years if you are looking forward to graduate study. Obtain a broad general knowledge and develop your intellectual capacities. Then qualify for at least a master's degree at the university offering such degrees. At least one year of study after obtaining the Bachelor of Science degree is regarded as essential for thorough professional training. The student planning a career in natural resources conservation should give careful consideration to the particular college and degree program desired.

Generally, the greater your depth and breadth of training, the better will be your opportunities for employment and advancement.



RECOMMENDED SUPPLEMENTARY COURSE WORK:



Elective courses should be taken to broaden your training in your major field. For example, soils--often not a required course--is valuable to a fisheries major. Similarly, electives in agriculture economics and rural sociology would be valuable to the resource manager working in farming areas. Additional courses in communications, speech and technical writing are highly recommended for all students majoring in the natural re-

PLANNING YOUR MAJOR:

As a base for your major, your first three years of undergraduate education should include the following courses: introductory courses in botany, zoology, geology, chemistry, physics, computer science, economics, statistical analysis, political science, psychology and foreign language as well as english composition and analytical geometry and calculus.

Once you have this base (and other courses from among those described earlier as "Recommended Supplementary Course Work"), you should choose a major--one of the most important decisions a student must make. Having selected your major, you will be required, as a rule, to complete advanced and more specialized course work in your chosen field or discipline. This special course work usually will require at least two semesters or three quarters of study. If the major is zoology, for example, specialty courses might include vertebrate and invertebrate zoology, physiology, anatomy, embryology, genetics, systematics and taxonomy. Make certain you include course work which will give you an understanding and an appreciation of the inter-relationships of all the natural resources.

Again, your choice of the university at which you will specialize is exceedingly important. In making your selection, you should obtain information from several professional societies. The Society of American Foresters can provide a list of accredited universities for those interested in forestry. Similarly, the Executive Directors of the American Fisheries Society and The Wildlife Society can recommend universities for those whose majors are in the fields of fisheries or wildlife biology or management.



In pursuing your major, plan to take one or more of several courses at a field or biological station. Actual field experience in the conservation field is valuable. Try to secure summer employment on a field crew making stream or wildlife surveys or at a park or fish hatchery.

HOW ABOUT GRADUATE WORK?:

Many positions in the fish and wildlife conservation field, especially the more challenging ones, require education beyond the bachelor degree level. Generally, these positions offer greater opportunities for advancement. They include positions in research, teaching, management and administration. At an early date in your training, consider the desirability of taking graduate studies to secure a master's or doctor's degree. You should discuss the matter with your advisor and school dean.

Undergraduate grades are important. Most universities require a B-grade, or 3 point average, of the undergraduate for acceptance into graduate school.

The well-trained person holds the advantages for professional opportunities of the future. The more exciting and challenging positions also are those which entail greater responsibilities. These, too, offer more opportunities for advancement and often are most available to those with more thorough and specialized training.



In-service training, job experience and formal education beyond the bachelor's degree level all help to elevate the individual's professional competence. Graduate study is particularly important in research or highly technical work. Thus, the conscientious student of natural resource conservation must give serious thought to the role of graduate study in career planning.

JOB OPPORTUNITIES IN STATE, FEDERAL AND PRIVATE ORGANIZATIONS:

The major employers of natural resource specialists are the state conservation agencies. In your home state, these would be your state Department of Natural Resources or Departments of Fish and Wildlife, Parks and Forestry.

The federal government also is a major employer of natural resource managers and scientists. For example, within the Department of the Interior, this includes the Bureau of Land Management, U.S. Fish and Wildlife Service, Bureau of Reclamation and the National Park Service. Within the Department of Agriculture, this includes the U.S. Forest Service and Natural Resources Conservation Service. The U.S. Army Corps of Engineers also employs resource specialists, as do the Departments of Health, Education and Welfare, and Commerce.

In more densely populated areas of the nation, city and county governments now employ resource specialists. A number of the more progressive private utilities and landholding corporations engaged in lumber, paper and mining operations also employ trained resource specialists.

OTHER SOURCES:

The Wildlife Society
5410 Grosvenor Lane, Suite 200
Bethesda, MD 20814-2197

American Fisheries Society
5410 Grosvenor Lane, Suite 110
Bethesda, MD 20814-2199

Bureau of Land Management
Office of Public Affairs
1849 C Street, Room 406-LS
Washington, DC 20240

Natural Resources Conservation Service
Office of Information
Director of Public Information
P.O. Box 2890
Washington, DC 20013

U.S. Fish and Wildlife Service
U.S. Department of the Interior
1849 C Street, NW
Washington, DC 20240

USDA Forest Service
P.O. Box Box 96090
Washington, DC 20090-6090



RESEARCH AND MANAGEMENT:

Merely acquiring knowledge is not enough; you must know how to apply it intelligently. Some students are attracted more strongly to research, others to management. Some natural resource agencies keep the two activities separate, others merge them. The skilled resource manager employs the methods as well as the findings of research in carrying out the management job.

TEACHING -- Those who carry their training through the master's or doctoral level may wish to find employment as college or university professors. If so, they may teach or do research or combine these functions. University professors often serve as consultants to natural resource agencies.

RESEARCH -- The scientist must be educated to conduct research that will add to existing knowledge and thereby help in the solution of problems faced by the resource manager. After completion of graduate school, the researcher is highly trained in such fields as genetics, ecology, economics, physiology, limnology and other sciences.

MANAGEMENT -- The professional resource manager is a practitioner and deals with the application of knowledge. The main responsibility is the planning and direction of a managerial operation--a wildlife management area, a refuge or a park, for example. Education must be soundly based on theory, but also it must be practical in the sense that it gives intellectual and executive ability to put science to work in an economic and social world.



INTER-RELATED SPECIALTIES:

Frequently there are combination positions that require knowledge in one or more related fields. An example would be journalism, plus fish and wildlife, for specialization in fish and wildlife information and education work. Prospective students should not overlook opportunities in combination fields, such as:

✓Wildlife-Police Administration (Conservation Officer)

For more information: <http://www.gamewarden.ab.ca/linkco.htm>

✓Wildlife-Education (Conservation Education Specialist)

For more information: <http://ecojobs.com/>

✓Fisheries or Wildlife-Public Administration (Personnel Officer, Budget Officer, Planning Officer)

✓Forestry-Recreation (Recreation Specialist)

For more information: http://www.uga.edu/wsfr/html/careers_available_in_forest_resources.html

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WORD TO PROSPECTIVE NATURAL RESOURCE MANAGERS...

This brochure will help you plan for a career in the conservation of renewable natural resources. While it is directed mainly at a career in fish or wildlife management, it also will help you plan for a career in forestry, outdoor recreation, range management and other natural resource specialties.

Whether you wish to become a fishery or wildlife biologist, forest ranger, a park naturalist, a conservation law enforcement officer or a watershed manager, your opportunities for a career in conservation will be few unless you obtain a college education.

That education should be broad enough to provide an understanding of the interrelationships of the natural resources which make up the environment; the social, political and economic forces that influence natural resource management; and the ability to analyze natural resource problems to find realistic alternative solutions.