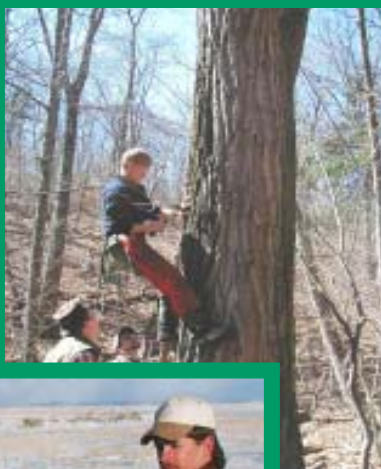


CAREERS IN WILDLIFE CONSERVATION



Can you put yourself
in these pictures?



Frostburg State University students hanging a bird house for a new wildlife area.

Wildlife conservation careers are very enticing for young people, with their diversity of exciting opportunities. However, a career in wildlife requires serious preparation and long hours of hard work to acquire knowledge and skills; there is strong competition for positions, and a dogged determination is necessary to keep your goals in sight.



Researchers in a bear den, trying not to disturb a hibernating bear.

WHAT IS WILDLIFE?

Wild animals are defined as all animals, except man, that are not domesticated or cultivated. However, from a wildlife management perspective, this definition is not always applicable – such as in the case of a domesticated pig that has escaped human control and evolved over a few generations into a wild pig. Often, legal means are necessary to define particular animals in particular situations as wildlife. In general, wildlife is considered to be wild terrestrial and partly terrestrial vertebrate animals.

Traditionally, wildlife managers focused their efforts on game animals harvested for food, sport, or other reasons. Game animals can be managed by manipulating habitats and by establishing seasons, issuing licenses, and setting bag limits to control population numbers.

As the profession has evolved, non-game species management has received increased attention. The majority of wildlife species are non-game species, including songbirds, threatened and endangered species, and small animals. These species can be managed through habitat manipulation, predator control, and protective programs and regulations. Non-consumptive uses of these species include wildlife photography and observation.

Some people include fish in the category of wildlife, but others separate fish into their own category. This brochure does not address careers in fisheries, but if you would like more information on them, you can contact the American Fisheries Society, 5410 Grosvenor Lane, Bethesda, MD 20814.

Other living organisms such as plants, insects, and crustaceans, although not included in the biologist's definition of wildlife, are equally important as they provide food, alter habitat, carry disease, or compete with other animals. For this reason, these species are of interest to wildlife managers as well.

WHAT IS WILDLIFE MANAGEMENT?

Wildlife management is the art and science of maintaining or manipulating natural resources (e.g., soil, water, plants, and animals), habitat, or human users to produce



Some wildlife can only be seen at night.

some desired result for the benefit of wildlife and the public. These benefits may be ecological, economic, social, recreational, or scientific.

Managing our wildlife resources is essential not only because of the numerous benefits we derive from wildlife, but also because human impacts have influenced wildlife populations in ways that necessitate their management.

The benefits of wildlife to people are illustrated in many ways. In the United States alone, over 80 million people participate in wildlife-associated recreational activities such as hunting and wildlife viewing. Hunting and trapping generate millions of dollars worth of income each year. Nature-based tourism supports many local economies. Many people and communities depend on wild animals to provide protein in their diets. Our natural and cultural heritage is closely tied to wildlife species and the traditions established around them. Obviously, we have to manage wild animals to conserve and protect them and the benefits they provide.

Increasing human populations and our influence on the landscape have seriously impacted wildlife populations and habitats. In many cases, habitat alteration or destruction has resulted in the decline of species to the point of scarcity or extinction. Where possible, these species and their habitats require protection and management to prevent further loss of biological diversity. Other populations, such as white-tailed deer, have increased dramatically as a result of human influence. Their overabundance can cause economic loss to farms, rangelands, forests, and other property, and make population control necessary.

WHAT IS A WILDLIFE MANAGER?

The wildlife manager's professional goal is to ensure continued, satisfactory population levels of wildlife and to promote sound stewardship and management of wildlife resources and the environment. This requires using wildlife science — the process of obtaining knowledge about and studying wildlife through research — to formulate and apply scientifically sound solutions to wildlife and habitat management problems. Wildlife managers monitor populations and habitats, conduct on-the-ground programs, enforce regulations, and administer programs or properties. Equally important are their efforts to inform others about wildlife, its ecology, and its management.

Wildlife management is strongly influenced by state and federal laws and policies, as well as international laws and treaties, governing the use and conservation of natural resources. Public values and economics often are pivotal in formulation of these policies. For this reason, wildlife managers may be caught up in political debates, and occasionally may come under public scrutiny for promoting controversial policies and regulations. Wildlife managers must be sensitive to such issues and must ensure that public input and the best objective science available are used in all wildlife-policy decisions.

WHAT IS THE WORK LIKE?

Scientific wildlife management is a relatively young profession. Nevertheless, it encompasses a wide variety of occupations that accommodate people with a diversity of interests and skills. Numerous careers are open to you, including (but not limited to) those of wildlife manager, wildlife scientist, administrator, information specialist, educator, enforcement officer, land-use planner, naturalist, land acquisition specialist, and consultant. Although these may sound highly specialized, experience has shown that a broad and diverse background will aid and strengthen performance in your chosen specialty, whatever it may be.

The list of jobs described below is by no means exhaustive. Think creatively and keep your eyes and mind open, and many wildlife-related jobs will be available to you!

You can work directly with wild animals and their environments.



Hands-on work is reward enough for some.

Wildlife Management – With a well-balanced technical background, you can work directly with wild animals and their environments, including soil, water, vegetation, and people. Within this broad area, you may prefer to concentrate on different forms or groups of wildlife — for example, game or non-game wildlife, aquatic or terrestrial wildlife, or endangered or nuisance species. You may manage a wildlife refuge or public recreation area, establish harvest regulations, develop surveys, count or “census” populations, or evaluate and improve habitat. You may work with foresters or other natural resource managers to develop integrated plans for natural resource management. With experience, this work could lead to broader activities at administrative levels.

Wildlife Science – Successful wildlife management is based on facts obtained by scientific research. Wildlife biologists perform basic or applied research to gather data on such subjects as physiology, genetics, ecology, behavior, disease, nutrition, population dynamics, land-use changes, and pollution. As a research scientist you must be inquisitive, have patience and persistence, be able to collect, analyze, and interpret facts with objectivity and proficiency, and report your findings clearly to colleagues, administrators, the public, and others. Facts gained from research form the basis for management with predictable results.

Wildlife Education – As high school and university enrollments have grown, the need for good teachers has increased. Opportunities to teach wildlife ecology and management are most abundant at the college and university level, but there is an increasing need for teachers with a wildlife

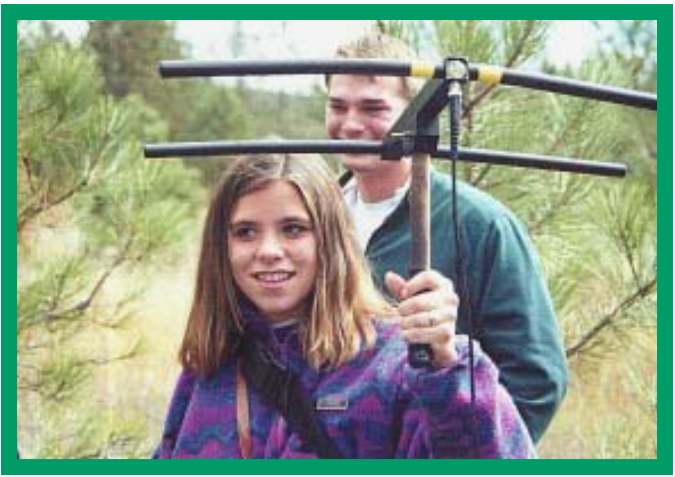
background in elementary and secondary schools, especially in science programs.

Another branch of wildlife education is extension work, through which wildlife management technical assistance is offered to individuals, landowners, industries, or citizen groups. Effective extension work requires a willingness to work with people, an understanding of farm, forest, urban, and industrial land uses and economics, plus some practical experience in wildlife management. Some wildlife extension specialists work in nature or conservation centers in metropolitan areas, interpreting nature for the urban public. Extension specialists carry the results of research to those who need the information and aid others in planning and applying management practices.

Wildlife Law Enforcement – Wildlife management also involves the enforcement of laws and regulations designed to maintain or reach desired wildlife population levels. As an enforcement or conservation officer you are more than just a “game warden” — you may count animals, control wildlife populations, recommend seasons, act as a wildlife manager, and as an educator as well. Enforcement officers work continually to enlighten the public about conservation laws, ecological principles, management practices, and proper sportsmanship.

Wildlife and Public Relations – Those in public relations interpret research and management efforts for the public, to promote understanding and acceptance. This involves writing articles, pamphlets, and news releases, photojournalism, public speaking, and work with the media. There is an increasing need for new illustrative material about wildlife for training and educational purposes. Photographic or artistic abilities could be invaluable in a wildlife public relations career. For public relations work, you need talent, imagination, and effective communication training, combined with a technical wildlife background and a genuine affinity for people.

A variety of management skills are vital to the conservation of wildlife and habitats.



Field work requires learning to use different tools and techniques, such as tracking device for radiotelemetry.

RELATED OPPORTUNITIES IN WILDLIFE MANAGEMENT

Recreation and Land-Use Planning – Outdoor and wildlife-related recreation have become an essential part of many people’s lives. Wildlife is important not only to sportsmen who hunt and trap wildlife, but also to others who simply enjoy wildlife as part of the natural scene. Land-management agencies of state, provincial, and federal governments, plus private agencies and organizations, need people who can handle the challenge of today’s recreators, who may be equipped with wheels, fishing rods, guns, cameras, or binoculars. Management efforts are directed toward well-balanced planning to achieve multiple-use goals. As a wildlife professional, you can provide leadership in environmental land-use planning. Broad training is essential in this field.

Wildlife Policy – Due to the numerous laws and regulations governing wildlife and natural resources management, there is a need for professionals with a solid background in the theory and practice of wildlife management to enter the policy arena. Wildlife policy analysts may work in administrative, congressional, private, or organizational settings. You may work on the environmental staff of a member of Congress or congressional committee; you may work as a private policy consultant hired by state, provincial, or federal governments; or you may work to advocate the policy positions of a non-governmental organization. Experience in public policy and environmental law is helpful in the pursuit of such careers.

The ability to accept defeat, the innovation to find new avenues for achieving wildlife management goals, the ability to take pride in small victories, and the perseverance to push on in the face of seemingly insurmountable odds are absolutely essential!

Consultant – The National Environmental Policy Act (NEPA), landmark legislation inspired by the environmental movement of the 1960s, established a legal system for ensuring a quality environment, by requiring federal agencies to analyze and report the environmental impacts of their proposed actions. That word “report” is the key to the field of independent wildlife professionals who make their services available as private consultants. Business, industry, and government need experienced wildlife consultants to help them evaluate and meet NEPA requirements. Passage of NEPA-like legislation in many states has increased wildlife consultant opportunities.

Administration – Administrative positions are often highly specialized and are usually open only to those who have advanced through lower-level positions. Administrators must have strong leadership abilities and a capacity for working with people. Technical knowledge and a solid grasp of public relations and business management are essential. Many administrative problems involve either people or budgets. Stakeholders in wildlife management have a diversity of values and opinions that must be reconciled to effectively manage wildlife resources. Budgets are a constant problem, since there never seems to be enough money to implement all the projects and programs necessary for effective wildlife management. In addition, most budgets are approved or allocated by legislators who have competing priorities for public funds, reflecting the desires of their competing constituents. Thus, as an administrator you must be able to effectively develop and promote sound resource management programs amid political, social, and economic controversy.

EDUCATION NEEDED

A college education is essential to prepare adequately for the occupations described above. Since most wildlife resource and conservation problems relate to people, you will find it useful to have training in such subjects as English, sociology, history, law, and economics, in



Students study a variety of wildlife species.

addition to a thorough education in physical and biological sciences. Communication skills, such as speaking, writing, and public relations, are also an integral part of your training.

You may prepare for college while still in high school by taking as much math, physics, English, chemistry and biology as possible. It also would be beneficial to acquire experience working in groups, in leading or mediating meetings, and in writing for high school publications.

Increasing competition for positions in the wildlife field has made it imperative that you earn at least a Bachelor's degree to compete successfully for a job. A graduate degree is even more desirable. Today, about a third of Bachelor-degree graduates obtain immediate positions in wildlife. Master-degree holders do better with about two-thirds being immediately successful. Those with Doctorates in wildlife are usually successful in obtaining employment. Just be sure you are the best qualified – then you will succeed.

The Wildlife Society, the organization of professional wildlife biologists and managers, has recommended minimum course requirements that should be included in your Bachelor's degree program. These recommendations, as well as a list of universities and colleges offering wildlife biology and management degrees that include the minimum requirements, may be found on The Wildlife Society's website www.wildlife.org.

Most universities and colleges offer courses in life sciences as a normal part of their curricula. Since 1935, many have added

courses in the management of wildlife resources. Most schools, even if they do not offer a specialized wildlife curriculum, offer the basic science courses for you to lay a suitable groundwork for future advanced training. At the end of no more than two years though, you should transfer to a college or university with an approved wildlife curriculum.

To benefit the most from your advanced education, it is vital that you supplement your college training with practical experience. You can get such experience by doing volunteer work or internships during the summer. In addition, many colleges offer hands-on training during, or as part of, semester course work.

Graduate work is strongly recommended and is essential if you wish to pursue a career in research, teaching, or certain of the specific phases of management and administration. Graduate work also may stimulate more rapid advancement from a starting position.

Many graduate students are financed by scholarships or teaching or research assistantships. Applications for these usually must be submitted no later than December or January to the institution of your choice. Your high school or college counselor can give you details on other sources of financial assistance.

PERSONAL REQUIREMENTS

While there are many opportunities for satisfaction in wildlife work, there are some extra demands made of wildlife professionals that are not made of professionals in other fields. Most opportunities require excellent physical and mental health. Since duties may be of an arduous nature, sometimes in remote areas under harsh conditions, certain “survival” or practical skills not learned through formal education channels may be a distinct advantage. If you intend to enter research, a high degree of academic ability, initiative, and self-discipline is essential.

You should have good “people skills,” and you should understand and appreciate people’s differing views and various prejudices. You should have the ability to shoulder responsibility and complete tasks on your own, while at the same time be able to work effectively with other people. These attributes, combined with a sincere



Deanna Wood holding a Northern saw-whet owl for a bird-banding project.

interest in science and sensitivity to the consumptive and non-consumptive values of natural resources, are also important and will be valuable assets to you. Regardless of your race, creed, or sex, work in the various wildlife management fields is open to you.

WHERE ARE THE JOBS AND WHAT ARE THEY LIKE?

Public Agencies – Most wildlife-oriented positions are with state, provincial, or federal agencies, and are usually considered civil service. Positions such as wildlife biologist, game manager, park naturalist, research biologist, and conservation officer (some states and provinces excepted) require at least a Bachelor's degree and entrance examinations.

State or provincial agencies include their own departments of conservation, natural resources, wildlife, fish and game, forestry, or parks and recreation. Federal natural resource agencies include the Fish and Wildlife Service, Forest Service, National Park Service, Bureau of Land Management, Biological Resources Division of the US Geological Survey, Council on Environmental Quality, Environmental Protection Agency, Corps of Engineers, Department of Defense, and the Public Health Service. In Canada, the provincial governments, the Canadian Wildlife Service, and Parks Canada oversee wildlife management. Some city, town, and county agencies also employ wildlife management specialists on their staff.

Colleges and Universities – Colleges and universities offering wildlife curricula employ wildlife professionals for their teaching staff and for their research programs. Professors specializing in wildlife biology usually perform research as well as teach classes, so naturally they need a broad academic background in science, humanities, and other technical subjects in the wildlife field. They should have an understanding of the theoretical as well as practical principles of ecology, management, and administration. An advanced degree is required.

Private – Opportunities for private employment have expanded rapidly since enactment of the National Environmental Policy Act of 1969. Industrial, engineering, and other consulting firms now employ wildlife specialists. If you develop sufficient background, knowledge, experience, and an excellent reputation, you may become a self-employed consultant.

Private employment with large firms dealing in timber, ranching, mining, energy production, or with firms producing paper or chemicals, also is increasing. Opportunities also exist in game farming and with sportsmen's clubs.

You might also earn a living as a writer, artist, or photographer specializing in wildlife. Each year there are increasing opportunities for such people in community nature centers and in private and public conservation-related organizations throughout the world.

COMPENSATION

Compensation for most wildlife professionals is guided by the civil service schedules of public agencies where a majority of positions occur. Salaries are competitive but not high in comparison to some other professional occupations. Initial salaries may not be commensurate with the time and money you will invest in career preparation or in your career.

Salary levels change too rapidly to be included in this pamphlet. A check with federal, state, provincial, or university wildlife offices will give you the current salary status for starting and higher-level positions. You often will find that salaries of state and provincial positions are lower than for equivalent positions in federal agencies.



Biologist placing tranquilized turkey hen in a holding box.

Perseverance and a willingness to take temporary positions or to relocate often are necessary to bypass discouragements in obtaining your first job in a field that frequently has an overabundance of qualified candidates.

For those who are truly dedicated to wildlife management, the rewards are much more than salary. Additional compensation may include personal satisfaction; the privilege of working outdoors; and the knowledge that you are playing a vital part in the wise stewardship of man's natural resource heritage.

SOURCES OF CAREER INFORMATION

Career information is available from a variety of sources for many wildlife occupations. Information can be obtained from your community or school library, your high school counselor or college advisor, and your state, provincial, or local conservation agency. Names and addresses for hundreds of local, state, regional, and national agencies and non-governmental organizations involved with natural resources management can be found in the *Conservation Directory*, available from the National Wildlife Federation, 11100 Wildlife

Center Drive, Reston, VA 20190. This directory is in most libraries, and can be found on-line at www.nwf.org/conservationdirectory/.

THE WILDLIFE SOCIETY

The Wildlife Society is a scientific and educational association with members in over 50 countries, the majority being residents of North America. Most members are employed by federal, state, or provincial government agencies, or by colleges and universities. If you choose wildlife management as your vocation, you will want to join The Wildlife Society no later than your junior year in college. A special student membership rate is available. The Society's publications are useful as educational and reference material as you work toward your final degree at the university or college of your choosing. You will benefit immensely by joining one of the many student chapters of The Wildlife Society on college and university campuses throughout North America.

The Wildlife Society believes that wildlife and other natural resources are closely interrelated and that they have a permanent place in our culture. The Society believes in responsible use of natural resources through planned programs that enhance the aesthetic, recreational, and economic values of wildlife.

The Wildlife Society's publications, projects, and natural resource policy efforts help the organization achieve its principal objectives. These objectives are:

1. To develop and promote sound stewardship of wildlife resources and environments upon which humans and wildlife depend;
2. To undertake an active role in preventing human-induced environmental degradation;
3. To increase awareness and appreciation of wildlife values; and
4. To seek the highest standards in all activities of the wildlife profession.

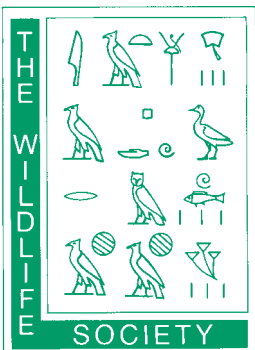
Publications of The Wildlife Society include: 2 scientific quarterlies, *The Journal of Wildlife Management* and

The Wildlife Society has student chapters at many colleges and universities.



Biologist holding a trapped wild turkey.

Wildlife Society Bulletin; Wildlife Monographs; The Wildlifer (member newsletter); and reference and textbooks such as American Pronghorn Antelope, Checklist of North American Plants for Wildlife Biologists, Readings in Wildlife Conservation, Waterfowl Ecology and Management: Selected Readings, Research and Management Techniques for Wildlife and Habitats, and Human Dimensions of Wildlife Management in North America.



The Egyptian hieroglyphics featured in The Wildlife Society's emblem can be literally translated as beasts (mammals), birds, fishes, and flowering plants, depicting the broad interests of The Wildlife Society.

THE WILDLIFE SOCIETY'S CERTIFICATION PROGRAM

The Wildlife Society is committed to the premise that its principal objectives can be achieved best by well-educated, experienced, and dedicated wildlife biologists. To promote and strengthen the professional standards for all wildlife management activities, the Society has a professional certification program designed to evaluate the education, professional experience, and ethical standards of wildlife biologists. The certification program is open to those trained in the field of wildlife, Society members and nonmembers alike, who desire professional credentials and a peer-evaluation statement.

Applicants for professional certification must demonstrate expertise in the art and science of wildlife management through their education and experience. Those who are judged to be able to represent the profession as ethical practitioners will be designated as a Certified Wildlife Biologist. There is also a preliminary certification as an Associate Wildlife Biologist, which is designed for those who have completed the educational requirements but not the experience requirements for certification. This is ideal for those who have completed their undergraduate degree but have not yet gained experience in the field.

The education requirements for certification encompass the minimum course requirements recommended by The Wildlife Society for your Bachelor's degree program. These include courses in wildlife management, wildlife biology, ecology, zoology, botany, physical sciences, quantitative sciences, social sciences, communications, policy, administration, and law. You should give serious thought to selecting a university and program of coursework that will qualify you to be certified by The Wildlife Society. The Society publishes a list of colleges and universities offering curricula in wildlife conservation that identifies those schools that require or offer as part of a wildlife degree or option all courses necessary to meet the education requirements for certification.

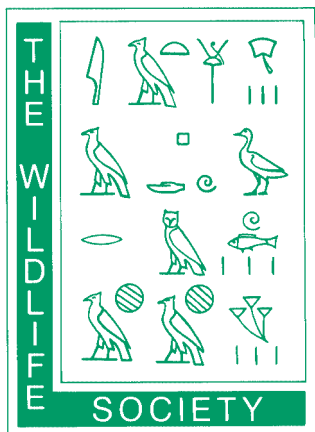
Certification constitutes recognition by The Wildlife Society that, to its best knowledge, an applicant meets the minimum educational, experience, and ethical standards adopted by the Society for professional wildlife

Certification is for those trained in the field of wildlife who desire professional credentials.



Researchers at Virginia Tech collecting data on a black bear cub.

biologists. Certification does not constitute a guarantee that the applicant meets a certain standard of competence or possesses certain knowledge. Further information about The Wildlife Society's certification program, education requirements, and a list of schools offering curricula in wildlife conservation can be found on The Society's website www.wildlife.org.



THE WILDLIFE SOCIETY

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Deanna Wood- pages 1, 12

IT'S YOUR FUTURE.

AIM HIGH!

