

HERPETOLOGY AS A CAREER

Herpetology as a Career was written in 1985 by a committee composed of:

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We are in the process of building a herp-careers FAQ page to supplement this popular document.

So you want to be a herpetologist? That is an admirable choice, but you should have a strong desire to study reptiles and amphibians for the road to a career in herpetology is not an easy one - but it is an interesting one.

In reality, herpetology is a sub-field of biology. Jobs in biology traditionally fall into four areas: college and university employment, government work (including state and federal), medical related work, and zoological park or museum staff. More recently, industrial and medical biotechnology have emerged as areas with new and exciting opportunities for biological research. What all of these jobs have in common is training in a biological field. The herpetological emphasis is put there by the worker! For example, a person might be trained in ecology and do environmental impact studies for the government. If that person is also a herpetologist, reptiles and amphibians might be the animals studied to evaluate changes in the environment. A medical research with training in hematology might, if interested in herpetology, study blood of reptiles and amphibians. It is rare to find a job that considers someone to be a herpetologist first!

Years ago it was possible for individuals to study amphibians and reptiles on their own, perhaps by maintaining large collections of animals or by studying them in the wild, and learn enough to get a position at a zoo or museum as a herpetologist. Today, however, techniques for conducting nearly any biological study have become so sophisticated, and competition for jobs has become so intense, that a college degree is a necessity in order to pursue a career in herpetology. Often an

advanced degree (masters or doctorate) in biology, anatomy, biochemistry, microbiology, physiology, or some related field is required for almost any specialized job. Many, if not most, herpetologists today are employed at colleges or universities and an advanced degree is usually a condition of employment at such institutions.

The specific training required for a career in herpetology varies according to one's goals. In virtually all cases a bachelor of arts or a bachelor of science degree with a major in biology is required. Courses in inorganic chemistry, organic chemistry and biochemistry, calculus, physics and/or earth science should be taken. Statistics is now a necessary tool in biological studies and courses in this area are essential. A great deal of herpetological research is conducted in other countries and facility in one or more foreign languages allows one to follow such activities in other nations. As in other branches of science, computer literacy is indispensable and students should enroll in courses that provide training in computer use.

Any college that provides a strong background in the sciences, mathematics and English also provides the basis for a career in herpetology. But if you are seriously interested in pursuing herpetology as a career you might want to attend a college that also offers a course in herpetology (or at least in natural history or vertebrate zoology) and has one or more faculty members conducting herpetological research. "Leads" to such institutions can best be obtained by studying several recent issues of herpetological journals such as *Journal of Herpetology*, *Herpetological Review*, *Copeia*, or *Herpetologica*, and noting where some particularly interesting research (to you) is being conducted. You can then write to the institutions or authors and ask for further information about their programs. Another reason to look at herpetological journals, which may be found in college or natural history museum libraries, is to give you some idea of the broad scope of herpetological research and to help you narrow down your interest.

Following graduation from college with a bachelor's degree in biology, you may want to seek employment immediately. However, opportunities for employment with only a bachelor's degree are limited, both in terms of available positions and level of advancement. Nevertheless, many graduates obtain jobs in museums or zoos working with exhibits and live animals and dealing with the public. Others work in research laboratories assisting investigators with their projects; such positions exist at larger colleges and in certain government agencies. Students with a broad interest in natural history may find jobs in local, state, or national parks (as park naturalists) or certain large companies as environmental specialists; a knowledge of herpetology can be particularly useful in these positions. In addition, there are many fields -- veterinary assistant, biomedical salesperson, biology teacher -- where positions less herpetologically related are also available.

Students who continue their education through to the masters or doctorate degree usually find employment where they have greater freedom to pursue their own interests, the salary is higher, and the responsibilities are greater. Most individuals with a Ph.D. work at a college or university where they teach and conduct research in their own area of interest. Herpetological research is often conducted in the field, which involves the collection, marking or observation of organisms, or the analysis of environmental conditions associated with particular populations. However, other herpetologists have a strong interest in laboratory research and spend little time in the field. Studies in physiology, immunology, embryology, genetics, anatomy, and biochemistry are usually conducted in a laboratory, while research in ecology, behavior, population biology, systematics, reproductive biology, and biogeography involve significant amounts of field work.

In all cases, however, data have to be analyzed, summarized, and eventually published in a scientific journal. The goal of herpetological research, as with other branches of biology, is to learn as much as possible about our special interest and to communicate this knowledge to others. Publication of this research in journals is how scientific knowledge is communicated and most employers look for people who have shown an ability to do research and also to publish it. Developing writing skills should therefore be considered a must in college.

The main thing is -- if you want to be a herpetologist, try it! The study of animal biology can be a continuing interest and challenge for the rest of your life, and it will serve you well no matter what career you ultimately choose.

Herpetology Careers Frequently-Asked Questions (modified for general use)

This page was initiated on 13 April 1998 in the hope that it will be a useful supplement to our Herpetology as a Career brochure. Of course, we do not expect that it will answer all your questions, or that it will answer your questions completely. But it should provide many answers, and as always you are encouraged to contact us with additional questions.

Where can I find out more about the biology job-areas mentioned in the second paragraph of the brochure?

The following general resources should be useful starting points for you.

COLLEGE AND UNIVERSITY EMPLOYMENT; BIOLOGICAL RESEARCH

See job listings in scientific journals or on university websites that list jobs.

ZOOLOGICAL PARK EMPLOYMENT:

The American Zoo and Aquarium Association maintains a Zoo & Aquarium Careers page. A monthly Positions page also is maintained by AZA.

MUSEUM EMPLOYMENT:

Many requisites for museum employment overlap with those of colleges and universities. The Society for the Preservation of Natural History Collections is a professional group of museum collection managers. It is active internationally, and has links from its home page to related resources.

GOVERNMENT EMPLOYMENT:

Many, many online resources in this area exist. Employment opportunities include local, state, and federal levels, and several areas (e.g. , sea turtle conservation) may offer jobs with a specific herpetological orientation. Some good starting points are:

US Fish and Wildlife Service

US National Park Service Careers page.

National Wildlife Health Center

National Biological Information service.

Federal Jobs Digest. A private source of Federal Job information.

A clickable map for locating state environmental conservation agencies. Or, if you are using a TEXT browser, check this list from the National Association of State Conservation Agencies. State and Local Government on the Net

VETERINARY MEDICINE:

An increasing number of veterinary medicine programs offer training in dealing with what are called "exotics." Reptiles and amphibians are included in this, and may be owned by zoos or hobbyists. The Association of Reptilian and Amphibian Veterinarians is a non-profit international organization of veterinarians and herpetologists founded in 1991. Its goal is to improve reptilian and amphibian veterinary care and husbandry through education, exchange of ideas and research.

Do I absolutely need a graduate degree (Masters or PhD) to do research in herpetology? To do herpetological research as a university faculty member or museum curator presently requires a PhD and usually a history of successful grant-writing. However, there are a fair number of persons doing high-quality, accepted research in herpetology who have no higher degree. They are scholars in every sense of the word who are self-taught, and who went out and collected animals, made careful observations, read a lot, and talked to others at professional meetings. Note that the emphasis of this section is jobs in herpetology; doing good research does not guarantee a salary for it!

What kind of benefits does a herpetologist get? Do you get medical and dental benefits, and retirement?

These things depend upon your employer and are very variable.

What's the best way for a high school (or younger) student to begin to prepare to investigate herpetology as a career?

It is important to begin to cultivate contacts through joining any State herpetological society or similar groups. Many have Web sites. Membership typically is a broad cross-section of society -- persons with jobs in diverse fields, who share an interest in herpetology. Some members almost surely will be university faculty; others may work in State non-game wildlife programs; some will be students; others will be interested hobbyists with no job-link to herpetology at all.

Also, you should, in high school, take a well-rounded set of courses (emphasizing sciences) that will qualify you for admittance to a good, 4-year college, in which you should major in what generally is called "organismic biology" or some synonym for that which distinguishes it from "cell and molecular." Your GPA will be important; competition can be fierce! No undergraduate program offers herpetology as a sole concentration; it simply is too narrow a field, though at many schools a herpetology COURSE or two will be offered. A Bachelor's of Science degree would be appropriate.

How can a person, who because of young age or lack of formal schooling, learn about reptile and amphibian behavior other than by reading books?

Don't ignore reading as a source of knowledge! Books and scientific journals contain a wealth of information unavailable on the Web. Keeping herps as pets is an enjoyable way to observe habits and get to know species, but it has its own drawbacks in that care is constantly required, even when on vacation or off to college (some species live a LONG time!). It can be as useful (maybe more), if there is a nearby good-quality zoo, to volunteer some summer time to help do cleaning or be a "gofer" in the reptile department. Do not expect to be allowed to work with live animals at once; zoo policy or insurance regulations may in fact prohibit non-employees from so doing. But, one can learn a great deal this way, as well as expand one's contacts. And, sometimes good-quality volunteer work can lead to a paying job. Volunteer work should be planned as a regular

part of the week, so supervisors know they can depend upon a volunteer showing up, even if for a couple of hours MWF (or whatever all agree is useful). Volunteering to help a college faculty member with research interests can be a similarly good experience that allows a lot of learning as a benefit.