



# Career of the Month

January 2011, Based on Interviews With Professionals Using Science in the Workplace

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## Herpetologist

For the last decade, herpetologist Robert Drewes has documented the biodiversity of São Tomé and Príncipe, two remote islands off the west coast of Africa. These islands are unique for the number of species that live there and only there—many exist nowhere else in the world. For over 40 years, Drewes has researched the evolutionary relationships, biogeography, behavior, and natural history of African reptiles and amphibians. In all, he has traveled to over 30 African countries, where he seeks undescribed new species and tries to discover who is related to whom, and how they got there in the first place.

### Career path.

My childhood was filled with a curiosity for all things weird. From the age of four, I was always turning over rocks, catching strange stuff, and bringing creatures home. I think this is something I was born with—so really, biology chose me, rather than the other way around.

Everyone I grew up with became physicians, lawyers, or business people, and I think this is what my parents expected of me, too. I tried to follow that path, but became frustrated and left in the middle of my undergraduate studies to join the army. After serving in the military, my wife convinced me that I should do what I love—we had an apartment full of live critters at the time—so I went back to school, changed my major from psychology to biology, and never looked back.

I have had a passion for Africa since my childhood; I first went to the continent many years before getting my doctorate. I returned from that first visit with endless questions about what I had seen. My doctoral dissertation was on the evolutionary relationships of the dominant group of tree frogs in Africa, Madagascar, and the Seychelles Islands. Herpetology is an academic specialty; I am a biologist first and a herpetologist second. Though I truly love frogs and reptiles, I probably would have been just as happy studying African beetles or orchids.

### Work overview.

A herpetologist is someone who studies reptiles or amphibians. In addition to scientists such as myself, zookeepers and animal husbandry professionals might also be referred to as herpetologists. I can only describe this career from the standpoint of a trained scientist, which requires a doctorate degree in biology.

I am both the curator of herpetology at the California Academy of Sciences and a research professor of biology at San Francisco State University. As a curator, I am in charge of a collection of nearly 300,000 preserved reptile and amphibian specimens that are studied by scientists and their students from all over the world. In this capacity, we have a staff of technicians and colleagues in the Academy's Department of Herpetology. As a professor, I mentor and advise students seeking master's degrees in biology.



Herpetologist Robert Drewes explores the Impenetrable Forest in southwestern Uganda.

Fieldwork is a big part of both jobs; funding for this comes not only from the Academy and university, but also from outside sources such as the National Science Foundation.

### Out in the field.

My career has always involved a large amount of fieldwork, usually in little-known parts of Africa. In the field, I am largely trying to learn what is there. Discovering new species plays a big part, but I am also interested in the interrelatedness of those species and how they got there (biogeography). I bring collections of unknown reptiles and amphibians back to the Academy; in the lab, I use dissection, high-resolution photography, and molecular techniques to establish relationships. I also do a lot of reading and writing; I study the work of others who do similar research and publish my own work to share findings with peers.

I am also fascinated with comparative physiology. In particular, I am interested in learning how dif-

ferent species of frogs deal with dry, hostile environments. From eggs and tadpoles to full maturation, frogs live in aquatic and terrestrial environments. Because of their exposure to both water and land resources, the current decline in frog species should be considered a warning sign for the health of our planet.

### *Advice for students.*

Here is the most important lesson I can think of—if there is something you really want to do, you can! The United

States is one of the few countries in the world where this is possible. Be ready to gamble and take risks, and do not let anyone tell you that you should be following a profession that does not make you happy and satisfied.

I have had a lifetime of wonderful adventures; in fact, I have probably had more fun per unit of time than anyone I know. These experiences are way too numerous to relate, but I will say that there is no thrill on Earth like discovering something new—not just a new species, but a new concept, thought, or relationship.

### **BONUS POINTS**

#### **Drewes's education:**

BS, PhD, Biology

#### **On the web:**



American Society of Ichthyologists and Herpetologists ([www.asih.org](http://www.asih.org))

#### **Related careers:**

Zookeeper, veterinarian, biomedical technician, ichthyologist, high school biology teacher



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