

GK-12 Graduate Fellows Program

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I am an **Invertebrate Paleontologist** (someone who studies animals without backbones). My specialty is fossil mollusks (clams and snails) ranging in age from 80 million years ago (during the time of the dinosaurs) to the present day. I study carnivorous snails (like the modern moonsnail) that drill holes in the shells of their victims in order to eat them. The victims include clams, other species of snails, and even members of their own species (they are cannibals). I am interested in how evolution takes place, and especially how the evolution of the predator affects its prey and vice versa. In other words, I study clam and snail arms races. One of my projects involves middle school students in a research collaboration with me and my coauthor, Thor Hansen of Western Washington University. The students are collecting data on modern moonsnail drilling to help us understand the fossil data. The project website is www.moonsnailproject.org.

Fossils can help geologists compare the ages of rocks in different areas and also help them figure out what type of environment the rocks formed in (for example, dry land, lake, shallow sea, deep ocean). All this information helps geologists know where to find natural resources like oil. Organisms also affect the environment (for instance, oxygen levels, ocean chemistry) so it is important to understand fossils to know how life has changed the earth. And the history of the earth is not complete without knowledge of the history of life, which comes through paleontology.



www.elkhornslough.org/newsletter/news0304.htm

I think it's important to understand that the world's rocks record the history of life in the form of fossils, and that this history goes back almost four billion years. Fossils show that life has changed and diversified from the simplest of single-celled organisms to the amazing variety of life forms that exist today. The best scientific explanation for this change is evolution. Fossils provide detailed evidence for evolution. Some people reject the idea of evolution because they think it contradicts their religion, but I am a devout Christian married to a Presbyterian minister, and I do not find a conflict between my faith and science. Fossils also show that life suffered episodes of huge ("mass") extinctions many times in the past, and they help us understand the causes and consequences of these extinctions. This is important because the changes that humans have caused on this planet may lead to another mass extinction in the future.

I became interested in dinosaurs when I was seven years old, and I guess I never really grew up! I find it fascinating that the history of life is laid out for us in the rock record. Being a paleontologist is like being a detective, using evidence from fossils to figure out how ancient organisms lived and died.



photo2.si.edu/dino/dino.html



My research enables me to travel a lot. This past summer, for instance, I attended conferences and field trips in Argentina, Plymouth (England), and Prague (Czech Republic). In February I will be traveling to Barcelona, Spain, to work with Spanish colleagues and do field work. I enjoy going to new places and meeting people from different cultures, collecting fossils and bringing them back to the laboratory to study with my students.

