



Dr. Wilfred Foster Denetclaw – Zoologist

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As a zoologist, I have chosen a career path where I am likely to be the only Navajo doing science research at any university I am employed by. However, I am a scientist because I enjoy it and my contributions are appreciated. I remember what a medicine man once told me about being the only American Indian doing research in biology at Berkeley. He said that I was like a "scout." I should learn as much as possible about science and research. If I felt it was good, I should tell our people about it. I truly believe that any dedicated student can prosper in a science and research career.

My life has been shaped by the fairly traditional Navajo lifestyle I was raised in. It taught me to be respectful, and to be responsible for activities that were important to me. I attended schools in Shiprock, New Mexico from kindergarten to twelfth grade. In the seventh grade, I first learned about the cell being the structural unit of organic life. I was fascinated to learn that each person is made up of trillions of these tiny cells that could only be seen through a microscope. Unfortunately, my middle and high schools had no microscopes. I could only see cells by looking at 2"x 2" slides the teacher showed my class. In high school, I would go to the library, look at pictures of different types of cells, and draw them out. After graduating from Shiprock High School in 1977, I knew that I wanted to study biology, but I did not know how to use it to get a job. I saw medicine as one possible application, but I felt it was not exactly right for me.

I did not do well my first time in college. I had been at the top of my class in high school, but I was not prepared for coursework at a major university. I had not learned how to write well and I did not have an understanding of mathematics or science that other students possessed. I did not know how to apply my time well for studying, and I did not know how to use the educational resources at the university. I overcame these problems, first, by keeping my desire for a college education alive, second, by having my parents support my interest in college, and third, by getting serious about learning. I "re-booted" and started over at Navajo Community College (NCC) (crystal.ncc.cc.nm.us) in Shiprock. This was probably the best move I could have made because people cared about me, and were dedicated to helping me get the education I needed to compete successfully in the university system. At NCC, I applied for and was able to participate in the Minority Biomedical Research Support Program (MBRS) (www.uscolo.edu/mbrs/), a Federal government research training program. This was where I first experienced scientific research, and learned of a way to specifically link my interest in biology with a profession. Through MBRS, I worked as a student researcher in the laboratory of Dr. Lora M. Shields. She was a great educator and mentor. She gave me the opportunity to work with microscopes, grow bacteria, stain cells, and much more. I helped Dr. Shields investigate a disease affecting the Navajo Nation. I am grateful for this opportunity because it showed me the relevance of research to medicine, and Dr. Shields taught me that research was not just an esoteric activity. In one year's time, I was able to move on to Fort Lewis College (www.fortlewis.edu) where I received my Bachelor of Science degree in biology. I chose to attend graduate school at the University of California at Berkeley (www.berkeley.edu) where I earned a doctorate in zoology in 1991.

I have been involved in many different and interesting research projects covering both biomedical and basic science research areas. For example, I have been looking at the earliest stages of skeletal muscle development using the chicken embryo as a model for understanding muscle formation in humans. I want

to know how the first skeletal muscle cells of the body are formed in transitory embryonic tissues known as somites. Somites appear as ball-like structures, forming along both sides of the neural tube (future spinal chord). Each somite will give rise to tissues that will form the backbone and ribs (sclerotome), the skin of the back (derotome), and all the skeletal muscles in the body, arms, and legs (myotome). My co-workers and I have done research and have proposed a new model that more accurately explains myotome formation. If our model is correct, then we have furthered our understanding of how nature works in the development of the skeletal muscles in the embryo, a major organ system in our body. I am a researcher, but I would like to become university professor in the life sciences. Besides teaching, I would also like to have a research laboratory and train future scientists in the biological sciences.