

My first exposure to research came in the summer following my sophomore year of high school, and my experiences from that time contributed greatly to my ultimate decision to pursue a graduate education. That summer, I had the good fortune to be accepted to a NSF camp for students interested in science and math. The camp was hosted by the University of Wisconsin in Superior, which gave me an early introduction to the finer points of college life. The camp focused on teaching us about acid rain as an important environmental issue and using statistics to identify trends in acid rain occurrence throughout the country. We worked in small groups—with each using acid rain data from a specific locale—to develop a multimedia report that we presented to our peers and professors at the conclusion of the camp. Each member of the group was responsible for a section of this report, and I additionally served as our informal group leader. Our research involved data acquisition and extensive analysis using advanced statistical methods and tests. Although I learned an immense amount about scientific research methods at the camp, I do not think I fully appreciated its benefits and the head start it provided me until my undergraduate career.

My research experiences as an undergraduate varied widely in scope, the level of field or laboratory work, and my particular role in the projects. Perhaps the most influential experiences came from summer employment. Throughout my undergraduate career, I worked during summer field seasons for companies conducting field research on birds. I spent one summer in southern Nevada working for SWCA Environmental Consultants on a Bureau of Land Management (BLM) contract, and I spent four summers in the Black Hills working for the Rocky Mountain Bird Observatory (RMBO) on a U.S. Forest Service (USFS) contract. In Nevada, I served as Site Coordinator for a project that was designed to determine the presence of endangered Southwestern willow flycatchers along a particular stretch of the Virgin River. The purpose of the research was to evaluate habitat needs of the flycatchers and to determine if habitat on this stretch of the river needed protection to support the flycatcher population. As Site Coordinator, I coordinated and supervised the field efforts of a three-person crew to ensure efficient implementation of research protocol. I also served as the liaison between SWCA, local landowners, and BLM employees. The area had never been surveyed previously, so I helped assess habitat and develop proper survey routes. In addition to conducting presence/absence surveys in the new area, our team assisted a different crew with several other aspects of research on the flycatchers, including re-sighting color-banded birds, searching for and monitoring nests, mist-netting and banding birds, and conducting vegetation sampling. At the conclusion of the field season, I contributed to the final report submitted to the BLM concerning our findings. Although we found only two flycatchers in our survey areas, I learned a great deal about good field research design and the need for interdisciplinary cooperation in achieving optimal results.

My most extensive experience comes from the four summers researching avian species diversity and density in different habitats across the Black Hills of South Dakota and Wyoming. The purpose of the research was to develop models of habitat use for the region's breeding birds, which would help the USFS craft appropriate management plans concerning species of concern. I served as a field technician on an eight-person crew during my first two seasons, working independently in the field but not playing a role in coordination or design. Data was collected on point-count transects in a variety of habitats through rugged terrain. In my last two seasons, RMBO asked me to serve as the field crew leader for the project. As crew leader, I trained and supervised a five-person team, served as RMBO's liaison to the USFS and the National Park Service, and contributed to protocol design. I enjoyed every season spent in the Black Hills, and I learned more about ecological research every year.

Outside of the perhaps more exciting field seasons, I gained valuable research experience through work-study opportunities and a particular class at Texas A&M. Upon arrival at A&M, I immediately sought out a professor in whose lab I might be able to work. All of my previous research experience was in the field, and I looked forward to the chance to become acquainted with lab work. I quickly became a lab technician in the wildlife department for a graduate student of Dr. R. Douglas Slack, working on a small part of a broad research project concerning the winter ecology of endangered Whooping Cranes on the Texas coast. Although I found the project as a whole very inspiring, my task in the lab was not very exciting. I sifted through very large aquatic samples from Whooping Crane winter territories, looking for tiny crab megalopae among thousands of equally small brine shrimp. The purpose of this research was to determine the cranes' food source availability and use as a factor in their winter ranges. My role may not have been enviable, but I learned extremely important lessons about the importance of getting the detailed lab data correct, no matter how tedious it might be to obtain them. The following semester, I worked in the entomology department cataloging and integrating a private butterfly collection into the university's collection. I might not consider this true research experience, but I learned the value of museum collections for conducting a variety of research projects.

My field entomology course at A&M provided my only true independent research experience. Under the guidance of Dr. John Oswald, I independently designed and conducted a semester-long field research project on Brazos County butterflies. The purpose of the research was to develop a taxonomic list of species present in the county, to investigate habitat preferences among species, and to determine possible nectar plant relationships. The project ultimately resulted in a 23-page manuscript that I unfortunately did not try to publish. This experience taught me more than any other did because I was responsible for the project from start to finish, and I learned valuable lessons about manuscript preparation.

Knowing that my graduate research interests would require more lab experience, I looked for research opportunities in DNA sequencing during the summer before I began graduate work. The perfect opportunity was afforded by Dr. Shannon Hackett at The Field Museum. I was able to assist in her research at the Pritzker Lab for Molecular Systematics and Evolution, working on determining genetic relationships among all of the world's birds for the NSF's Assembling the Tree of Life initiative. The purpose of this research is to provide a clear picture of birds' earliest ancestors and how birds have evolved into the thousands of species present today. I worked as a lab technician, conducting PCRs, cycle sequencing, and editing sequence data with Sequencher. My work contributed only a small amount of data when compared to the massive dataset being assembled for this project, but I learned a wealth of information about DNA research techniques that will be integral in my graduate work.

I feel that my research experiences have prepared me very well for my graduate and future career. I hope to use this base of experience to build on current scientific knowledge with my own innovative projects.

Publications

- Block, N. L. In press. November/December photo quiz answers: Midwest birding highlights. *Birding* 39:76–78.
- . 2006. May/June photo quiz answers: species limits. *Birding* 38:360–362.
- . 2005. July/August photo quiz answers: Emberizidae. *Birding* 37:520–522.