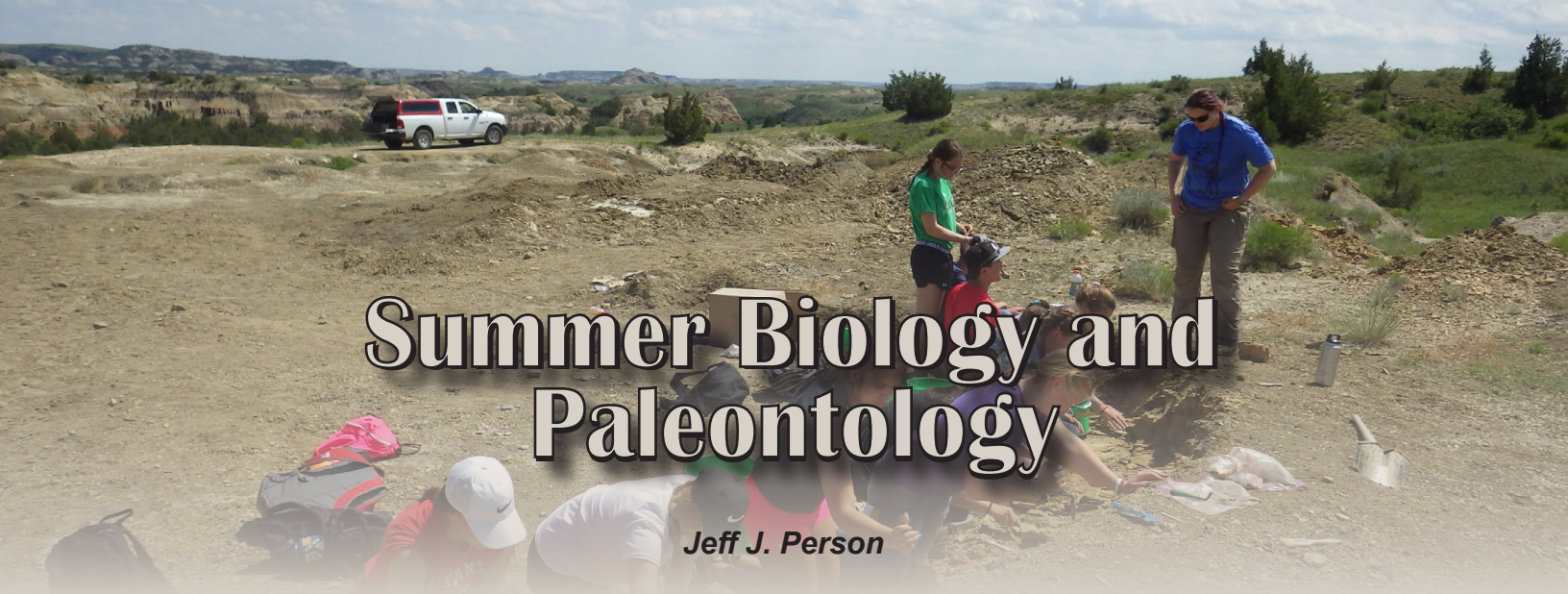

Summer Biology and Paleontology

Jeff J. Person

Paleontology is the study of prehistoric life and is the elegant merging of two scientific fields, Biology (the study of life) and Geology (the study of rocks and Earth). One must have a thorough understanding of both fields to be an accomplished paleontologist. In paleontology, if you have only an understanding of geology you can put together an accurate picture of environment (void of all life) (fig. 1a), and if you have only an understanding of biology you can put together an accurate picture of life (void of any context of the environment) (fig. 1b). It isn't until you have a comprehensive understanding of both the animals and the rocks they are found in, that you can put together an accurate picture of what lived in any particular environment at any one time (fig. 1c). For this reason, it makes sense to reach out to geology and biology students to give them glimpses into possible careers in paleontology. Since summer geology classes are non-existent in high school, our focus in recent years has been on summer biology classes in North Dakota.

Starting in 2014, the NDGS began working with Bismarck High Schools, inviting summer biology students to an active NDGS fossil dig. This program has grown since its initial inception, and in June of 2019, for the first time, we were able to include all four Bismarck-Mandan high schools with active summer biology programs (Bismarck High School, Century High School, Legacy High School, and Mandan High School). In total, 96 students and teachers traveled to our public fossil dig site near Medora for a glimpse into how a fossil dig functions. The students were exposed to all aspects of participating in a fossil dig including prospecting, quarrying, and removal of the overburden (Figs. 2-6).

Since 2014, 24 North Dakota high schools, across 19 cities, have offered summer biology, with 1,320 students attending (Source: North Dakota Department of Public Instruction). The NDGS continues to reach out to high schools offering summer biology classes with the hopes of reaching as many students as possible with our public fossil dig program. In addition to the public digs, we are involved in numerous outreach programs for both junior and senior high schools including Science Olympiad and Earth Day. We are also involved in local Girl and Boy Scouts programs as well as local school groups that are located near our public dig sites. Both Edmore and Drayton public schools have participated in our public dig in the Pembina Gorge near Walhalla. NDGS geologists help judge local science fairs and give talks to schools and teacher groups such as the North Dakota Petroleum Council Teacher Education Seminar. We are constantly reaching out to schools and teachers trying to increase our impact on North Dakota students. If you are a summer biology instructor and would like to bring your students to one of our public fossil digs, or explore any other educational outreach opportunities, please email us at NDGSPaleo@nd.gov.

Figure 1a

Figure 1b

Figure 1c

Figure 2

Figure 3

Figure 4

Figure 5

"The NDGS public fossil dig is an amazing experience. Thanks to Jeff Person, a paleontologist with the Geological Survey, our summer biology classes got a wonderful opportunity. On our usual field trip to the Heritage Center, Jeff gives a presentation on the early life of North Dakota. Then our classes are invited to a fossil dig near Medora. The students go on a nature hike and have an opportunity to be present at an actual dig. They are treated like paleontologists and are allowed to participate in all aspects of the dig, removing top layers with shovels, using brushes to expose fossils and even discovering fossils. One of our students found a rare, tiny mammal's jaw that made Jeff come running! We have found many shark teeth, crocodile plates, clam shells, etc… The students will never experience something quite like this."

Robin Jossart, the summer biology instructor
at Century High School, Bismarck.

Figure 6