Field Sampling of Dunes in Badlands National Park, South Dakota

This grant supported transportation, logistic costs, and undergraduate assistance for a one-week research trip to Badlands National Park in South Dakota in the summer of 2003. During this time, two sections were sampled for sediment characteristics and luminescence age estimates of eolian sand. SAIF funds provided the minimum funding required to conduct a field expedition to the study area. Two students, Jessica Fenske and Allison Schwantes, also collected data for independent undergraduate research projects. Both students presented results of their work at the UW System Symposium for Undergraduate Research and Creative Activity and the Posters in the Rotunda, and Dr Rawling will be presenting at the Annual Geological Society of America Meeting this fall.

As of this writing the luminescence samples are still being analyzed, however external funding from the Geological Society of America has been secured to continue this research.

The Physical Geography Program has several ongoing research projects in Badlands National Park. These include work on:

1) reconstruction of paleoenvironments
2) the long-term geomorphic development of the Badlands
3) sod-table history
4) dust content of dunes and the impacts of silicate dust on climate change.

Undergraduate participation in this work includes field sampling, lab analysis of sediments in the recently upgraded Pioneer Geomorphology Lab, numerical age analysis training with the United States Geological Survey Luminescence Lab in Denver, and the
granting of radiocarbon ages from the University of Arizona NSF-AMS Laboratory. Dr Rawling and a student will be conducting another field visit this fall.

Jessica Fenske's Work (Kuderna Table Dunes)

Jessica Fenske analyzed the variability of silt and clay across one parabolic dune in the White River Badlands. Her work was also supported by a 2003 UWP-PURF award.

Alison Schwantes' Work (Kuderna Table Stream Sediments and Sod Tables)

Alison Schwantes worked on an independent study project focusing on numerical age estimates. She collected stream samples from Kuderna Table in July and sod table samples in September of 2003, and has finished analyzing them in the UWP Pioneer Geomorphology Lab. She independently secured funding for three radiocarbon age estimates from the NSF facility in Arizona. She also spent her Christmas break at the Luminescence Lab in Denver prepping samples she collected this summer.

External funding to support this research was secured from:

- 2003 Two free radiocarbon analyses from the University of Arizona’s NSF AA Radiocarbon Laboratory ($800 equivalent awarded to Schwantes)

- 2004 Geological Society of America Gladys W. Cole Memorial Research Award for Research in the Geomorphology of Semiarid and Arid Terrains in the United States and Mexico ($8,000 awarded to Rawling).

Submitted By

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