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Apr 12th, 2:30 PM - 3:50 PM

### **Paleontological management and monitoring of fossil resources on public land: An analysis of anthropogenic impacts and public interest on dinosaur ichnofossils of the Cantwell Formation, Tattler Creek Valley, Denali National Park, Alaska.**

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Hodges, Montana S. and Capps, Denny, "Paleontological management and monitoring of fossil resources on public land: An analysis of anthropogenic impacts and public interest on dinosaur ichnofossils of the Cantwell Formation, Tattler Creek Valley, Denali National Park, Alaska." (2014). *UM Graduate Student Research Conference (GradCon)*. 2.

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**Paleontological management and monitoring of fossil resources on public land: An analysis of anthropogenic impacts and public interest on dinosaur ichnofossils of the Cantwell Formation, Tattler Creek Valley, Denali National Park, Alaska.**

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In 2005 dinosaur ichnofossils were discovered in the Cretaceous Cantwell Formation within Denali National Park. Management of the fossils for both research and public interest represents a unique case study due to the access restrictions and wilderness philosophies of the park. The “Cretaceous Dancefloor” on upper Tattler Creek, is the best known and most commonly visited fossil site in Denali National Park. The site consists of numerous convex dinosaur footprints in a shale sequence that has been uplifted at approximately 65 degrees to form a canyon wall along Tattler Creek. The prints include hadrosaurs (herbivorous duck-billed dinosaurs) and theropods (three-toed bipedal carnivores). Due to the convex nature of the prints, delicate casts may also be found loose in Tattler Creek. Although the National Park Service has not released the dancefloor location to the public, growing awareness has made the unmonitored resource a frequently visited destination. Human threats to the resource include damage by touch, vandalism, and removal of the loose casts. Natural erosion and colluviation also threatens the trace fossils, specifically freeze-thaw cracking and shatter. Denali National Park’s mission is directed toward wilderness preservation and not collection of resources which presents challenges to paleontological researchers within the park. Establishment of protocols for long-term monitoring of natural and anthropogenic impacts to the fossils is required to maximize paleontological study. Public interest and educational value is also important to the mission of Denali National Park and the greater park service system. The educational opportunities of presenting dinosaur material and disclosing locations to the public also must be evaluated when developing protection protocol.

This 2013 GeoCorps project presents analytic methods and models for the annual monitoring of conditions at the Tattler Creek site. The analysis and results of this report will provide new information useful for maintenance of current infrastructure and planning for future discoveries of fossil resources on federally protected land, particularly within the national park system. This project also presents results of public interest and educational value research and surveys. The results of this project are based on doctoral research at the University of Montana in the interdisciplinary study of paleontology and science education which was assisted by a GeoCorps paleontologist internship within Denali National Park. Results of summer 2013 GeoCorps lab and field work are presented along with an analysis of effective management plans and models for specific human-related resource issues and impacts. Emphasis is given to science-based information for use by the park staff to quantify both public interest and paleontological value and has a strong application to researchers, educators, and the general public.