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BLM Specialists Receive Unique Opportunity to Study Rare Tracksite in Tanzania

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The Laetoli Tracksite in Tanzania, a preserved path created by several individuals traveling across volcanic ash roughly 3.6 million years ago, is one of the earliest fossilized evidences of upright-walking human ancestors. Since its discovery in 1978, the site has provided important information on the origin of humans. The Laetoli is a World Heritage site and is one of the most famous paleoanthropological sites in the world.

BLM researchers Tom Noble and Neffra Matthews photo-document the footprints at the Laetoli Tracksite in Tanzania. Noble and Matthews, along with Brent Breithaupt, BLM-Wyoming regional paleontologist, shared their technical expertise on a project to expose, document, and evaluate the condition of this famous fossil site.

Last year, Bureau of Land Management employees Brent Breithaupt, BLM Wyoming regional paleontologist, and photogrammetric specialists Neffra Matthews and Tom Noble of the National Operations Center, Division of Resources Services, were asked to provide their technical expertise on a project tasked with exposing, documenting, and evaluating the condition of this famous fossil site. On invitation from the Tanzanian Ministry of Natural Resources and Tourism, Division of Antiquities, and the Ngorongoro Conservation Authority, the BLM crew joined an international multidisciplinary team of scientists led by Dr. Charles Musiba, an assistant professor at the University of Colorado at Denver.

Dr. Charles Musiba and the BLM team gather for a group photo in Denver, Colo. (From left: Musiba, assistant professor at the University of Colorado at Denver; Vanessa Stepanek, volunteer; National Operations Center; photogrammetric specialists Tom Noble and Neffra Matthews; Brent Breithaupt, regional paleontologist, BLM-Wyoming.)

BLM scientists were invited, in part, due to their expertise in ichnological (study of footprints) photogrammetry, which is used to create detailed 3-D models for paleontological resource documentation of track-bearing surfaces. Comparing such models can assist in determining changes to the surface over time, as well as behavioral patterns, which may be preserved by the footprints. For more than a decade, BLM specialists have pioneered and refined much of the photogrammetric technology used in documenting dinosaur tracksites on public land in the West; most notably, the Red Gulch Dinosaur Tracksite in Wyoming, the Moccasin Mountain Tracksite in Utah, and the Red Rock Tracksite in Nevada are three of dozens of sites that have been documented.

In an effort to preserve the fossils, the Laetoli footprints were reburied after earlier excavations of the tracks. The decision to re-open the site for scientific, educational, and tourism purposes was made by Jakaya Kikwete, president of the United Republic of Tanzania.

The team may return to Tanzania to do further documentation of the footprints after additional sections of the tracksite are unearthed. Participating in the project allows BLM staff members to assist in the awareness of the world's natural history by sharing the same unique technical skills used to manage America's public lands with nations abroad.

By: Brent Breithaupt, paleontologist, BLM-Wyoming, and Tyson Finnicum,

intern, BLM-Wyoming
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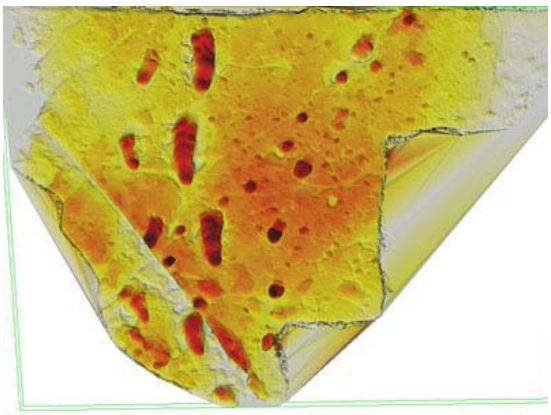
BLM specialists Brent Breithaupt and Neffra Matthews pose for a picture with Tanzanian Ambassador Mwanaidi Sinare Maajar (middle) at the University of Colorado at Denver, where they discussed their recent work on the Laetoli Footprint Site. Breithaupt and Matthews received additional opportunities to showcase BLM technological advances in the documentation of paleontological resources at geology and paleontology conferences in the U.S., and even speaking at an international dinosaur track symposium in Obernkirchen, Germany.



Models derived from photogrammetric documentation allow researchers to view tracksites in a whole new light. This color digital orthophoto of the Laetoli site clearly shows a single, small set of footprints to the left and a trackway to the right with larger depressions made by individuals stepping in the tracks of one another.