

# New software used in first global camera trap mammal study

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A novel software system developed by researchers at the San Diego Supercomputer Center (SDSC) at the University of California, San Diego, has been used in the first global camera trap study of mammals, which made international headlines last month by emphasizing the importance of protected areas to ensure the diversity and survival of a wide range of animal populations.

The study, led by Jorge Ahumada, an [ecologist](#) with the Tropical Ecology Assessment and Monitoring Network (TEAM) at Conservation International, documented 105 species in nearly 52,000 images from seven protected areas across the Americas, Africa, and [Asia](#). The images, according to a recent announcement by TEAM and Conservation International, reveal a wide variety of animals in their most candid moments – from a minute mouse to the enormous African elephant as well as gorillas, cougars, giant anteaters and, surprisingly, even tourists and poachers. A gallery of images from the study can be found [here](#).

Findings from the study – not only the first global camera trap mammal study but also the largest camera trap study of any class of animals – were published in the journal *Philosophical Transactions of the Royal Society*. Analysis of collected data has helped scientists confirm a key conclusion that until now was only understood through uncoordinated local study: that habitat loss and smaller reserves have a direct and detrimental impact on the [diversity](#) and survival of mammal populations.

"Our goal was to come up with a [software system](#) to address the fact that despite advances in digital image capture, field biologists still lack adequate software solutions to process and manage the increasing amount of digital information in a cost-efficient manner," said SDSC researcher Kai Lin, who led the software project.

Called DeskTEAM and developed in the context of the TEAM project, the system incorporates numerous software features and functions specifically designed for the broader camera trapping community, such as the ability to run the application locally on a laptop or desktop computer without requiring an Internet connection, as well as the ability to run on multiple operating systems. The software also has an intuitive navigational user interface which allows users to easily manage hundreds or even thousands of images; the ability to automatically extract customized metadata information from digital images to increase standardization; the availability of embedded taxonomic lists so images can be easily tagged with species identities; and the ability to export data packages consisting of data, metadata, and images in standardized formats so that they can be transferred to online data warehouses for easy archiving and dissemination. Complete details of the DeskTEAM software system can be found [here](#).

"We have been partners with Conservation International on the TEAM project since the early days of the project, beginning in September 2007," said Chaitan Baru, a distinguished scientist at SDSC and lead of the TEAM cyberinfrastructure effort. "A talented and dedicated group of research and development staff at SDSC helped design the comprehensive cyberinfrastructure that runs the entire global TEAM network. We developed the various cyberinfrastructure components, and the services are now hosted and run out of SDSC."

In addition to Baru and Lin, the TEAM cyberinfrastructure team at SDSC includes Sandeep Chandra, Kate Kaya, and Choonhan Youn.

"What makes this study scientifically groundbreaking is that we created for the first time consistent, comparable information for mammals on a global scale setting an effective baseline to monitor change. By using this single, standardized methodology in the years to come and comparing the data we receive, we will be able to see trends in mammal communities and take specific, targeted action to save them," said Ahumada. "We hope that these data contribute to a better management of protected areas and conservation of mammals worldwide, and a more widespread use of standardized camera trapping studies to monitor these critically important animals."

The Tropical Ecology Assessment and Monitoring Network (TEAM) is a partnership that includes Conservation International, The Missouri Botanical Garden, The Smithsonian Institution and the Wildlife Conservation Society. It is partially funded by these institutions and the Gordon and Betty Moore Foundation. Local Partners in the study are: Instituto Nacional de Pesquisas da Amazonia (INPA), Conservation International Suriname, Organization for Tropical Studies, Museo Tridentino di Scienze Naturali, and Institute of Tropical Forest Conservation.

Provided by University of California - San Diego

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