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UCSB Scientists Help Devise Information Tools for Monitoring African Wildlife

Scientists based at the University of California, Santa Barbara are developing information tools to help manage and protect the Cape Buffalo and other wildlife in South Africa. Judith Kruger, scientist and information manager from Kruger National Park in South Africa, the oldest park in Africa, is in Santa Barbara this week to continue working with information technologists at UCSB's National Center for Ecological Analysis and Synthesis. Scientists from the center recently returned from a research trip to Kruger National Park as part of this ongoing collaboration.

With a grant from the Mellon Foundation, the NCEAS researchers worked with Kruger scientists to develop information tools that will enable park administrators in South Africa to make more informed decisions about managing the priceless plant and animal diversity contained within their reserves. The project is part of an emerging field of scientific activity called "ecoinformatics." The computational tools enable managers to track early warning signs when a species is in jeopardy. The initial analyses concern the status of the Cape Buffalo, but will eventually be expanded to track a variety of ecological trends for other animals and plants.

"I like to compare these tools to an income tax program," said James Reichman, director of NCEAS. "You don't have to know the tax code or how a computer functions in order to get your taxes done with one of these programs. Likewise, our

tools allow park officials to input information into the computer and produce a report that is based on potentially complex analyses derived from a number of data sources."

A respiratory disease called bovine tuberculosis is a major threat to the Cape Buffalo in Kruger National Park, and its incidence is linked to climatic parameters such as the number of sequential wet seasons.

By monitoring animal populations along with key environmental factors, park officials will be better prepared to cope with outbreaks of the disease before it reaches epidemic levels. The new system provides tools to track trends in the data and determine if the buffaloes are in jeopardy. Eventually the computing tools will be adapted for broad use by many parks.

A key problem in ecoinformatics is that, unlike weather data, for example, data are not traditionally gathered in a standardized form. This makes monitoring and predicting ecological problems very difficult since analyses typically require multiple data sources and involve integration over various scales in space and time.

At NCEAS, scientists from around the world have been working for over a decade to develop these information tools, which are now being tested. One application, called Kepler, is being used in the collaboration with Kruger National Park. Kepler is a work-flow model that allows users to find data and integrate it into an analysis that includes compelling scientific visualizations.

Judith Kruger, who coincidentally has a name in common with the park, has been with the South African National Parks (SANParks) since 1997. For many years she has focused on the wealth of data sets that Kruger National Park has collected, and how to successfully organize and store these for future use.

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Kruger National Park

National Center for Ecological Analysis & Synthesis

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