Scientists crack code on tracking zebras

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Field biologists following thousands of wild zebras in Africa used to joke about how nice it would be to have a bar code reader to help them identify and catalogue individual animals.

It's no longer a crazy dream: A team of computer scientists at the University of Illinois at Chicago has developed such a device.

The "StripeSpotter" is now being used to identify and study zebras in Kenya and soon will be used in South Africa, said Tanya Berger-Wolf, an associate professor of computer science at UIC. The method is so successful it's being adapted for possible use in identifying and tracking other wild species, including giraffes, by their distinctive spot patterns, and elephants, by the wrinkles on their trunks.

"It is going to really revolutionize the study of certain kinds of animals that people previously thought they could not be identified individually," said Princeton University evolutionary biologist Daniel Rubenstein, one of the world's leading authorities on zebras.

In the past, biologists had to catch wild animals and paint marks or numbers on them to keep track of them. Or they shot the animals with anesthetic darts in order to imbed electronic tracking devices in them. Both are expensive, labor-intensive procedures that put animals and humans at some risk.

"My husband is an ecologist," Berger-Wolf said. "I had been thinking about looking at problems in ecology computationally."

She began talking with Rubenstein seven years ago about how to adapt software to scan photographs of zebras and tell one zebra from another by the stripe patterns that are unique to each animal. It roughly follows the logic of bar code scanners that read the coded ranks of irregular lines on items in stores.

"We have always wanted a quickie way to let a computer do the identifying for us," Rubenstein said. "With this program, each photograph also gives us the GPS location of the animals when it was taken.

"This really helps us in following individuals, seeing if it is having babies, what its home ranges are, how far it moves, who it moves with, how it integrates with the landscape. And it no longer takes two or three days to do the analysis for a single day's work, just a couple of hours."