Biologists ditch traditional methods in favor of new record keeping app

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A team of ASU professors at CTI have developed a mobile application that allows their record keeping with reptiles to be more accurate and faster than traditional paper methods.

Accurate sampling methods are vital to any scientific study, but for researchers estimating wildlife populations, data errors can occur while recording measurements from live animals in the field, and again when data are entered into a database. A team of Arizona State University professors in the College of Technology and Innovation (CTI) have developed a mobile application that allows their record keeping with

reptiles to be more accurate and faster than traditional paper methods.

The idea of developing an app was suggested by assistant professor Heather Bateman, along with Timothy Lindquist, professor, and Richard Whitehouse, lecturer. Undergraduate and graduate students at CTI worked with Bateman, Lindquist and Whitehouse to develop the app.

Part of Bateman's research includes studying lizards and other reptiles by using capture-mark-recapture approaches, which involves capturing an animal in the field, recording identifiable traits of that animal and immediately releasing it back into its natural habitat. This process calls for tracking to be done on-site, usually handwritten, and then information is entered into a database upon returning to a computer.

Because each animal is given a unique code when being handled in the field, the researchers need to be certain they don't accidently give two animals the same code. Before the app was developed, the unique codes were stored on a datasheet, requiring the technician handling the animal to mark out the used code. Problems arose when technicians neglected to cross out the code on the paper and accidentally assigned two or more animals with the same code. Oftentimes these errors were not realized until entering data back at the lab – long after the animal was released.

"We realized this was a problem for us, and probably a problem for anyone who collects data in the field," Bateman said. "Not having a way to track electronically while on site meant we couldn't immediately check for errors or duplications."

The app, developed for mobile devices on iOS and Andriod platforms, is a digital method of tracking this information and automatically exports raw data to a computer where results can be analyzed. The user can record the same information on their smartphone they would in a traditional recording method. The mobile app uses pre-populated

dropdown boxes and data proofing steps to guide the user through a process to enter information about an animal's species, unique code, body length, mass and sex. Bateman says while comparing methods, student users recorded and entered data 50 percent faster and were more accurate while using the app over traditional data-entry methods.

Although there are data entry apps available, and even apps for wildlife biologists, Bateman says this app is the first developed for recording wildlife information with the capability of producing unique codes and querying a database of animal histories stored on a mobile device.

"We are so excited we have found a method that works and that reduces errors," Bateman said.

Currently, the app is unavailable for download, but Bateman and her team are hoping to collaborate with other teams who would be able to bring this app to the App Store and Google Play.

The full story of Bateman's app development and findings has been published this week in the *Wildlife Society Bulletin*.

More information: onlinelibrary.wiley.com/doi/10 … 002/wsb.322/abstract

Provided by Arizona State University

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