# Camera-trap surveys in the southeastern Arizona national parks

## Parks
Chiricahua National Monument, Fort Bowie National Historic Site, and Coronado National Memorial

## Time frame
Fort Bowie camera-trap bioblitz: fall 2013
Long-term camera-trap water source monitoring (all three parks): 2009 to present

## Focus
Bioblitz: Small to medium-sized mammals
Monitoring: Medium-sized to large mammals, birds, human activity

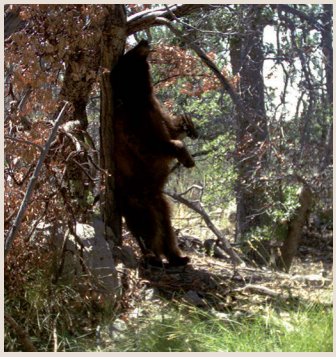
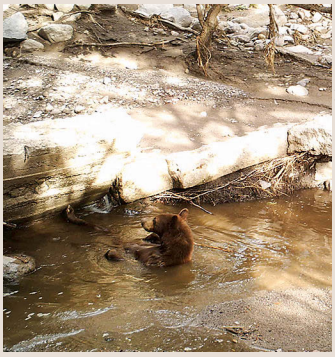
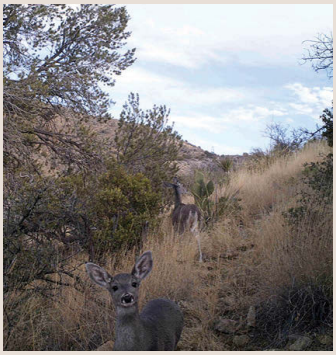
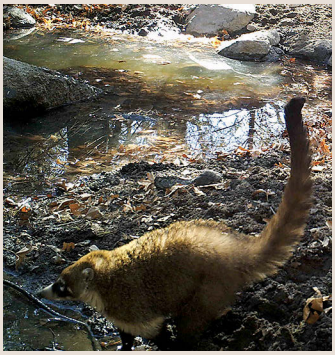
## Key partners
Saguaro National Park, Sonoran Desert I&M Program, U.S. Fish and Wildlife Service

## Participation
Bioblitz: Eight full-time park employees and five Student Conservation Association interns, totaling 142 hours

## Methods
Bioblitz: We conducted a six-week-long mammal census involving 44 remotely triggered, randomly and non-randomly placed cameras. Using a protocol developed by Saguaro National Park's Nic Perkins and Don Swann, staff analyzed photos for presence and activity of wildlife, and identified animals to species level. Photo Mechanic software was used to edit metadata, including recording information on species, location, identification, and camera setup.

Monitoring: We also operate 14 camera traps year-round at water sources and two trailheads in the parks to monitor for the effects of human traffic on wildlife corridors. Software is used to analyze photos for species, revealing behavior and use patterns related to time of year.

## Results
Approximately 13,000 of 345,000 photos from the six-week Fort Bowie bioblitz were of wildlife, which helped inform development of a species list for the park. Randomly placed cameras were not as successful at capturing wildlife images as those placed by biologists. An additional 300,000 photos were from the longer-term water source monitoring project, which confirmed hibernation of black bears, nocturnal activity of skunks, diurnal patterns of coatimundi, the size of javelina litters, and the time of year when white-tailed deer bucks lose their antlers and fawns lose their spots.

NPS PHOTOS (4)

**(Clockwise from top left) The automated cameras captured activities of a black bear scratching a tree at Garfield Spring in Chiricahua, a bear using a stream to cool off during summer at Stafford Dam in Chiricahua, daytime spring use by coatimundi, and white-tailed deer at Fort Bowie.**

## Number of species
30 species identified

## Applications
In addition to improving our understanding of park wildlife, the findings from the two camera projects are being used to help assess impacts on wildlife resulting from human activity along the U.S.-Mexico border. The information is also useful for monitoring ecological recovery following wildfires, signaled in part by the return of wildlife to burned areas. Photos and time-lapse videos are also very popular for educational programs and public outreach. The randomly placed cameras also help managers assess wildlife distribution across the parks.

## Publications
Two reports are in production and will be published in the Natural Resource Data Series. A methods summary and project briefing brochure also will be published.

## Parks contact
Jason Mateljak (jason_mateljak@nps.gov)

PS