

Vietnam War Technology Could Aid Elephant Conservation

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Seismic sensors developed to track enemy troop movements during the Vietnam war could help ecologists monitor and conserve elephant populations, according to new research published in the British Ecological Society's Journal of Applied Ecology.

Dr Jason Wood and colleagues from Stanford University recorded the vibrations from the footfalls of elephants and other large mammals, including giraffes, lions and humans, using a geophone buried near a path leading to a watering hole in Namibia's Etosha National Park.

Because of the differences in the size and frequency of animals' footfalls, the researchers could tell with 82% accuracy when elephants were passing the geophone and estimate the number of elephants passing the sensor.

This is the first time geophones have been used successfully to detect and estimate elephant numbers. Another team tried to use a US Army surplus miniature seismic system to detect crop raiding Asian elephants in Sri Lanka, but the work was abandoned after the elephants began digging up the geophones and destroying them.

Making accurate estimates of elephant populations is essential for their conservation. Until now, ecologists have had to rely on counting elephant dung balls - a very time consuming and error-prone technique - or aerial census techniques, which although they are useful to estimate elephant numbers in open savanna cannot be used to spot elephants in dense forest.

As a result, the new technique could provide crucial data for reserve planning and management. "Conservation management would be improved by more accurate methods for monitoring and estimating the size of elephant populations or other large mammals in central Africa, as these populations are relatively small and threatened by

poaching," Wood says.

The team will now work on improving the system by using an array of geophones which will allow them to use beam forming techniques.

According to Wood: "Using a geophone array has additional advantages. Seismic equipment is designed for rugged field use and independent arrays can be buried and left in the ground to collect the data for as long as a month."

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