

## Biometric system to monitor endangered species

Biologists will now be able to identify and monitor endangered animals without capturing or trapping them.

University of Bristol scientists have devised an intelligent, non-intrusive surveillance system that can be integrated with wildlife habitats and provide detailed and reliable data on endangered species.

The research develops computer vision and human biometrics in order to better understand and conserve endangered species, especially the African penguin (*Spheniscus demersus*).

Called the 'Penguin Recognition Project' (PRP), it is supported by Earthwatch, Environmental Charity and Leverhulme Trust. They are focussing on African penguin because their numbers have declined to 170,000 today.

The penguin population on Robben Island, South Africa, is nearly 20,000 strong. Conventional tagging techniques can only monitor a small percent of the population.

The aim of the PRP is to develop a system capable of doing automatic monitoring and which, more generally, could be the solution to a real-world problem facing many ecologists.

African penguins carry a pattern of black spots on their chests that remains unchanged during their adult life. No two penguins are known to have the same pattern.

Researchers have developed a real-time system that can locate African penguins whose chests are visible within video sequences or still images.

An extraction of the chest spot pattern allows the generation of a unique biometrical identifier for each penguin. These biometric data can then be used to identify individual, African penguins from video or photographic images by comparison with a population database.

Tilo Burghardt of Bristol University said 'we believe the new technology developed will enable biologists to identify and monitor large numbers of diverse species cheaply, quickly and automatically.'

Peter Barham, also of Bristol and penguin fanatic, who initiated the project added: 'Once achieved, these systems will revolutionise the precision, quantity and quality of population data available to ecologists and conservationists.'

'There will also be an animal welfare benefit since there is no need to expose the animals to the stress of capture, or side-effects of being marked.'

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