

# A GENETIC METHOD TO EMPOWER CONSERVATION

Relevant for: Environment | Topic: Biodiversity, Ecology, and Wildlife Related Issues

Scientists have been using genetics to study wild animals for several years now. However, a new genetic method developed by a team, including scientists from Bengaluru's National Centre for Biological Sciences (NCBS), hopes to make studying as well as conserving wild species quicker, easier and cost-effective by deriving information from animal sources containing extremely low-quality DNA — including faeces and cooked meat.

Their method, described in the study published in the international journal *Methods in Ecology and Evolution*, relies on identifying multiple, short portions of DNA segments in a single experiment (a 'multiplex PCR'), followed by 'next-generation sequencing', in which multiple fragments of DNA can be decoded simultaneously, and several times, in an automated process.

The team tested their method on Caribbean queen conches and tigers, two "extremely different species that had strong conservation needs," to "show how this approach could be used generally," said co-author Dr. Stephen Palumbi (Stanford University) in a press release.

The team obtained DNA from the faeces, hair and saliva of 75 wild and captive tigers to identify individuals and close relatives, and RNA from 279 queen conch samples. They then decoded between 60 to 100 single nucleotide polymorphisms or SNPs, one of the most common types of change seen in genetic material, in these samples. The team was also able to identify the geographic regions these individuals belonged to. Apart from using this for animal monitoring, it could also potentially be used to obtain intelligence on wildlife trade, co-author Dr. Uma Ramakrishnan (NCBS) said.

Testing several hundred samples simultaneously and decoding up to 1000 SNPs per sample would cost as low as \$5 (less than 350). The biggest advantage is that this would take just five days while older methods take at least a month, she added.

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