

LEARN AT CHESTER ZOO

GENETIC FINGERPRINTING: LIVING WITH TIGERS CASE STUDY

Follow up questions

List three key bits of information that Chester Zoo could find out about Tigers and Leopards in Nepal using modern genetic techniques:

1. Species ID - what type of animal did the poo?

Gel electrophoresis / DNA fingerprinting

2. Individual ID - which animal did the poo?

Genetic fingerprinting

3. Diet - what has the animal been eating...?

Metabarcoding

What does PCR stand for and how does it work?

PCR = Polymerase Chain Reaction.

It is a scientific process, developed in the 1980's, that makes lots of copies of a section of DNA. We call this 'amplifying' the DNA.

It involves five 'ingredients': DNA template, primers, nucleotide bases, Taq polymerase and buffer.

PCR involves three main stages: denaturing, annealing and extending.

The process is repeated 20-40 times, resulting in LOTS of target DNA sections being made.

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Are the Tigers/ Leopards in Nepal 'guilty' of a 'crime'?

Give reasons for your answer.

No!

They are carnivores behaving naturally; they don't know where national park boundaries stop and start. The people of Nepal may feel that a crime has been committed, as their livestock are very valuable to them; they cannot easily replace their goats if they lose them. There is a compensation scheme in place in Nepal to help villagers who have suffered livestock losses from wild animals.

Why might Tigers / Leopards be eating goats and coming into close contact with humans?

Tiger numbers are increasing in Nepal, thanks to a government initiative to double its tiger population by 2022.

Humans are growing in number and expanding into buffer zone areas which are closer to the big cats' natural habitat.

They are grazing livestock close to the rainforest edge, which puts their animals' lives in danger.

Goats are an easy target for big cats.

Villagers are travelling into the rainforest to collect natural resources, putting themselves in danger too.

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How could Cheser Zoo help to resolve human-wildlife conflict in Nepal?

Use what you've learned in your workshop and add your own ideas.

- **Mitigation measures -**

like predator-proof pens, to protect their livestock from
Tigers and Leopards at night.

- **Biogas plants -**

to reduce the need to travel into the rainforest to collect
fuel for their fires.

- **Differentiated livelihoods -**

like sewing, cooking or tourism guides, to reduce the
villagers' dependence on natural resources.

