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Boffins aiming to barcode life

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by Steve Connor in London

An ambitious project to take a genetic "barcode" of every animal and plant has begun in an attempt to identify and label the 10 million species living on Earth.

Biologists said yesterday that the plan to give every species its own barcode - made from a stretch DNA unique to each lifeform - will help them to understand the bewildering diversity of life.

The DNA barcode will represent a segment of a gene that differs from one species to the next, but is almost identical to all members of the same species.

DNA barcodes look superficially like supermarket barcodes and will work in much the same way in helping field biologists to carry out an audit of life by distinguishing between closely related species.

Less than a fifth of the estimated 10 million species of plants and animals have been formally named and classified and many experts fear that thousands are at risk of becoming extinct before they are even identified.

Scientists hope to name the rest of the unknown species by 2010 as part of the international Barcoding of Life project, said Dr Richard Lane, director of science at the Natural History Museum in London.

"There is no consensus about the rate at which we are losing species. We don't actually know what's here so we can't possibly know what we are losing," he said yesterday.

The barcode for animals is based on a stretch of DNA within a key gene found in the tiny "power stations" of the cell called the mitochondria, which contain the only genetic material outside the cell's nucleus.

Analysing the sequence of genetic "letters" that make up the spelling of this mitochondrial gene gives a sequence of barcode stripes which is unique to most species.

The aim eventually is to develop hand-held instruments that field biologists will use to analyse the DNA of tissue samples to compare the resulting barcodes against a huge database of 19 million DNA records.

Robert Hanner of the Coriell Institute of Medical Research in Camden, New Jersey, said that barcoding life would help speed up the process of identifying species formally.

"Animal and plant information is kept in many different places and can be difficult to get hold of, especially in the field."

Biologists hope to barcode the 15,000 known species of marine fish and 8000 species of freshwater fish within the next five years.

Dr Paul Herbert of the University of Guelph in Ontario said DNA barcoding could be used for conservation, by using it to monitor quotas and bycatch and to provide a more detailed understanding of fish and their ecological relationships.

Lane said Barcoding of Life was separate from the Frozen Ark project, launched last year, which set up a tissue bank of stored genetic material from endangered animals.

The Frozen Ark hopes to save a "back-up" copy of many species before they are lost. Their genetic codes will be stored, which may allow clones to be made, raising the possibility of resurrecting extinct species.

- INDEPENDENT