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DNA "barcoding" uncovers 21 new species

Teaser:

Canadian and U.S. scientists distinguish 21 new species of birds and bats from identical looking species in the Americas amid a study aimed at creating a "genetic sketch" of every animal on Earth.

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The findings from a study of birds' DNA genetic "barcodes" found that certain visually similar but genetically different species wrongly shared the same name for centuries.

"Only genetic finger-printing revealed them as previously unknown species," lead researcher, Paul Hebert of the Biodiversity Institute of Ontario at Guelph University in Canada, said.

One of the most comprehensive studies to date, the process of genetic barcoding initiated three years ago. DNA "barcoding" serves as an identity card for animal species, and also has potential conservation and bio-security benefits, scientists explain.

The study analyzed samples from 643 species of North American birds and 87 Guyanese bat species. 648 base pairs on a DNA molecule, within a gene called cytochrome c oxidase(CO1) were analyzed for birds, while, CO1 from 840 specimens, represented the bat species.

A DNA diverge by a mere 2.5 percent is enough to differentiate and define a species despite almost identical shape, character and song, researchers said.

"A one percent difference typically indicated a million years without interbreeding," they added.

A \$100 million project to compile a genetic barcode library of over 10 million DNA records of 500,000 animal species is expected to be ready by 2014.

The newly distinguished bird species were look-alikes of the Northern Fulmar, Curve Billed Thrasher, Western Scrub-Jay, Solitary Sandpiper, Common Raven, Western Screech Owl, Warbling Vireo, Mexican Jay, Mountain Chickadee, Bushtit, Winter Wren, Marsh Wren, Bewick's Wren, Hermit Thrush and Eastern Meadowlark.

Unlike traditional match-ups which typically take months of microscopic examination and bird watching, the new technique of "barcoding" species could be a huge time-saver.

The genetic library can be used as handy reference to match a new specimen found in nature with its taxonomic information in a database.

The study features in the current issue of the UK journal Molecular Ecology Notes.

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