

More evidence for new species hidden in plain sight

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Two articles published today in the online open access journals *BMC Evolutionary Biology* and *BMC Biology* provide further evidence that we have hugely underestimated the number of species with which we share our planet. Today sophisticated genetic techniques mean that superficially identical animals previously classed as members of a single species, including the frogs and giraffes in these studies, could in fact come from several distinct 'cryptic' species.

In the Upper Amazon, Kathryn Elmer and Stephen Loughheed working at Queen's University, Kingston, Canada teamed up with José Dávila from Instituto de Investigación en Recursos Cinegéticos, Ciudad Real, Spain to investigate the terrestrial leaf litter frog (*Eleutherodactylus ockendeni*) at 13 locations across Ecuador.

Looking at the frogs' mitochondrial and nuclear DNA, the researchers found three distinct species, which look very much alike. These species have distinct geographic distributions, but these don't correspond to modern landscape barriers. Coupled with phylogenetic analyses, this suggests they diverged before the Ecuadorean Andes arose, in the Miocene period over 5.3 million years ago.

"Our research coupled with other studies suggests that species richness in the upper Amazon is drastically underestimated by current inventories based on morphospecies," say the authors.

And in Africa, an interdisciplinary team from the University of

California, Los Angeles, Omaha's Henry Doorly Zoo, and the Mpala Research Centre in Kenya has found that there may be more to the giraffe than meets the eye, too.

Their analysis of nuclear and mitochondrial DNA shows at least six genealogically distinct lineages of giraffe in Africa, with little evidence of interbreeding between them. Further divisions within these groups mean that in total the researchers have spotted 11 genetically distinct populations.

“Such extreme genetic subdivision within a large vertebrate with high dispersal capabilities is unprecedented and exceeds that of any other large African mammal,” says graduate student David Brown, first author of the study. The researchers estimate that the giraffe populations they surveyed have been genetically distinct for between 0.13 and 1.62 million years. The findings have serious implications for giraffe conservation because some among these subgroups have as few as 100 members, making them highly endangered – if not yet officially recognised – species.

Source: BioMed Central

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