

Study doubles species diversity of enigmatic 'flying lemurs'

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Colugos (aka flying lemurs) -- the closest living relatives of primates most notable for their ability to glide from tree to tree over considerable distances—are more diverse than had previously been believed, according to a new report published in the November 11th issue of *Current Biology*, a Cell Press publication.

Primates are most familiarly represented by monkeys and apes, the group including humans.

Scientists had recognized just two species of these enigmatic mammals, the Sunda colugo and the Philippine colugo. However, the new findings show that the Sunda colugo, found only in Indochina and Sundaland, including the large islands of Borneo, Sumatra, and Java, actually represents at least three separate species.

"We were guessing that we might find that there were different species of Sunda colugo—although we were not sure," said Jan Janecka of Texas A&M University. "But what really surprised us was how old the speciation events were. Some went back four to five million years," making the colugo species as old as other modern species groups (or genera) such as the primates known as macaques and the leopard cats.

The team's initial hunch that the Sunda colugos might be distinct species came largely from obvious differences in characteristics like body size and color. In the new study, they compared the DNA of colugos living on the mainland, Java, and Borneo, uncovering enough divergence

between the sequences to warrant their designation as three species.

Janecka said they were particularly surprised to find that each geographic region they studied harbors its own unique species of colugo. And the species tally for colugos will likely continue to rise. "It appears that within smaller geographic areas, for example Java, there are divergent colugo lineages that could prove to be separate species," he added.

That diversification might be explained by the colugos' unusual way of getting around. While they have the most developed gliding membrane of any mammal, they are nearly helpless on the ground, leaving them incapable of crossing large open spaces that lack trees. As sea levels, forest communities, and river systems fluctuated in Sundaland over the last 10 million years, Janecka speculates that isolated colugo populations would have undergone greater diversification from one another than other, more mobile mammals.

The findings have important conservation implications for the colugos, which had been largely ignored because of their apparent abundance.

"Until now, reductions in colugo numbers was considered just a range contraction, and so there were no conservation plans for restoring them or mitigating their loss," Janecka said, noting that the colugos occupy areas that are now experiencing some of the most rapid loss of forest habitat in the world. "However, this is no longer the case; we now need to re-assess the status of each of these species to determine which of them are under threat of extinction, and develop conservation plans that ensure their persistence. In addition, some of the small isolated populations that were previously described as subspecies may also represent new species, which could disappear before we even realize they exist."

Source: Cell Press

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