Study suggests there are only two tiger subspecies

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Siberian tiger (P. t. altaica), also known as the Amur tiger. Credit: Wikipedia.

(Phys.org)—A team of researchers with affiliations to institutions in Germany, Denmark and the U.K. has concluded after extensive research, that there are really only two subspecies of tigers, as opposed to the nine

that have been widely accepted for many years. In their paper published in *Science Advances*, the team describes their analysis of tiger similarities and differences and why they believe there are only two subspecies and why changing the classification could help save some of them.

Big cats are disappearing from the wild, with one of the most prominent being the tiger—they live on islands in and around Indonesia and on the Asian continent, from parts of Russia to Southeast Asia, and there is a big effort to save them. Up till now, there have been nine "official" tiger subspecies: Bengal, South China, Siberian, Sumatran, Malayan, Indochinese, Caspian, Bali and Javan. But these new researchers suggest that there are really only two subspecies: continental and sunda. The former would include all tigers living on the Asian continent, while the latter would include all those living on islands.

The researchers came to this conclusion after conducting a study both of existing literature and of examples of tiger bones and other tiger parts in museums—more specifically they looked at bone structure, fur patterns and genetic makeup. They note that despite some genetic differences, there was just not enough evidence to separate continental tigers into different subspecies—the same held true for island tigers, though they do note that there was more than enough evidence to separate continental and sunda tigers.

The team suggests that if others would accept their results, it might mean helping some of the more endangered tigers survive. South China tiger numbers are so low now, for example, that unless something big is done to save them, they will join Caspian, Bali and Javan tigers on the extinct list. They suggest introducing other continental tigers into the area, as was done in the U.S. to save the Florida panther—if they were considered to be the same subspecies than no dilution would occur.

And added bonus of re-categorizing the tiger subspecies' might be a

reexamination of the entire system used to categorize animals and perhaps an overhaul resulting in a system that clearly defines where subspecies lines should be drawn.

More information: Planning tiger recovery: Understanding intraspecific variation for effective conservation, *Science Advances* 26 Jun 2015: Vol. 1, no. 5, e1400175. DOI: 10.1126/sciadv.1400175

Abstract

Although significantly more money is spent on the conservation of tigers than on any other threatened species, today only 3200 to 3600 tigers roam the forests of Asia, occupying only 7% of their historical range. Despite the global significance of and interest in tiger conservation, global approaches to plan tiger recovery are partly impeded by the lack of a consensus on the number of tiger subspecies or management units, because a comprehensive analysis of tiger variation is lacking. We analyzed variation among all nine putative tiger subspecies, using extensive data sets of several traits [morphological (craniodental and pelage), ecological, molecular]. Our analyses revealed little variation and large overlaps in each trait among putative subspecies, and molecular data showed extremely low diversity because of a severe Late Pleistocene population decline. Our results support recognition of only two subspecies: the Sunda tiger, Panthera tigris sondaica, and the continental tiger, Panthera tigris tigris, which consists of two (northern and southern) management units. Conservation management programs, such as captive breeding, reintroduction initiatives, or trans-boundary projects, rely on a durable, consistent characterization of subspecies as taxonomic units, defined by robust multiple lines of scientific evidence rather than single traits or ad hoc descriptions of one or few specimens. Our multiple-trait data set supports a fundamental rethinking of the conventional tiger taxonomy paradigm, which will have profound implications for the management of in situ and ex situ tiger populations and boost conservation efforts by facilitating a pragmatic approach to

tiger conservation management worldwide.