How the Tree of Life informs biodiversity conservation efforts

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Although considerable efforts are underway to catalogue the Earth's biodiversity, a detailed description of global species diversity, distribution, and phylogeny is far from complete. Indeed, in the twelve years between the latest two publications of *Mammal Species of the World*, the number of mammalian species increased from 4998 to 5339 (~7%). This number is expected to increase substantially, especially with the advent and application of molecular genetic surveys of species diversity. These studies suggest there is an urgent need to document and classify living biodiversity so that it can be identified and protected before it disappears. A recent comprehensive assessment of the world's mammalian biodiversity indicated that many of the most threatened or endangered mammals are concentrated in Southeast Asia, an area of well-known species richness that faces an onslaught of human-induced habitat loss. In fact, the two most recently described families of mammals, Craseonycteridae and Diatomydidae, are both endemic to Southeast Asia and threatened with extinction by disturbance and deforestation—a simultaneous indication of the remarkable potential for continuing discovery of deeply divergent lineages of living mammals and the threats faced within this region. With many populations faced with extirpation by anthropogenic factors it is probable that some of these events may not represent simple reductions of a species range, but instead species-level extinctions. From a conservation standpoint, it is critical to appropriately revise the phylogeny, taxonomy, distribution and status of currently described species within threatened regions of our planet, particularly species/lineages that are poorly known. In many cases this will require the use of museum specimens to adequately investigate genetic distinctiveness and subdivision. This information will be necessary for developing conservation initiatives that ensure the persistence of species diversity within Mammalia, and throughout the tree of life.