

# New studies find amazing concentration of species unique to east African mountains

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New studies found an amazing concentration of over 1000 species unique to an East African area smaller than Rhode Island called the Eastern Arc Mountains--including 96 animals like this horned chameleon (*Chamaeleo tenue*), according to World Wildlife Fund. It is the highest concentration of endemic animals in Africa and increasingly endangered as growing human populations nearby need more and more land for subsistence farming. Location: Eastern Arc Mountains, Tanzania. Credit: Burgess/WWF

New studies published this month in the scientific journal *Biological Conservation* document an amazing concentration of over 1000 species unique--or endemic-- to an area slightly larger than Rhode Island in the Eastern Arc Mountains of Tanzania and Kenya. This remaining habitat in the Eastern Arcs has the highest concentration of endemic animals in Africa and is increasingly endangered by complex threats.

"The wild areas of the Eastern Arc Mountains are pockets of Eden--the last remaining safe havens for over 1000 plants and animals found nowhere else on Earth and some with ancient lineages stretching back in time over millions of years," said Dr. Neil Burgess, lead author of the two studies and Eastern Arc expert, World Wildlife Fund and University of Cambridge. "Side by side, these species and their human neighbors struggle for survival as more and more people need more and more farmland for food."

One study found that the Eastern Arc Mountains are exceptionally important for conservation because at least 96 animals, 832 plants and hundreds of invertebrates--including 43 butterflies--live only there and nowhere else on earth. Another 71 animals are found only within a limited range including these mountains and nearby areas. Of these species, seventy-one are classified as threatened by extinction by the IUCN Red List.

There are likely more species to be discovered in the mountains. One of the most exciting recent discoveries was that of a new genus of monkey--the "Highland Mangabey" (*Rungwecebus kipunji*). A further 15 new animals have recently been found that are still in the process of being described by scientists including several new chameleons. Over the next two years, surveys will continue and new discoveries are expected in remote and poorly known areas.

The studies point out another unusual characteristic of the species in the Eastern Arc Mountains: a number of them are genetically ancient. DNA analysis of forest birds indicates that some species have lineages stretching back 25 million years and some are most strongly related to birds in Southeast Asia than birds in Africa. Some plants and animals--like tiny little shrews with elephant-like trunks known as elephant shrews and nocturnal primates with large eyes known as bushbabies--are thought to have evolved early in the species lineage,

known as "primitive" or "ancient relic lineages."

The same conditions that give life to these plants and animals support a dense and growing human population in one of the poorest countries in the world, according to the second study. With most local people dependent on agriculture, inefficient farming methods and a growing need for food lead to farmland expansion, sometimes across the boundaries and into existing reserves. Effective conservation in the Eastern Arc Mountains requires finding solutions to the livelihood needs of these poor, rural populations and sufficient funds to establish and adequately manage a network of protected areas.

"Seven proposed reserves protecting an additional 153, 205 acres of wilderness in the Eastern Arcs are currently awaiting declaration by the Tanzanian government," said Dr. Burgess. "Their declaration would help establish the network urgently needed to protect the natural wealth of the Eastern Arc Mountains." The Tanzanian government is also pursuing the declaration of the area as a World Heritage Site, in recognition of its universal value for the conservation of biological diversity.

Not only do the Eastern Arc Mountains support life locally, but they provide drinking water for at least 60 percent of the urban population of Tanzania and generate over 90 percent of the nation's hydroelectricity generation capacity. World Wildlife Fund and its partners are exploring one possible solution for conserving the Eastern Arc Mountains that would attach a monetary value to these "ecosystem services" and divert funds paid by water users to the forest managers and surrounding communities.

The Eastern Arc Mountains curve through eastern Tanzania and just over the border into southeastern Kenya. Its forests are often covered in a blanket of mist during the night and help collect water for much of Tanzania and its hydroelectricity. As a crucial source of water and home

to unique and threatened wildlife, World Wildlife Fund considers the Eastern Arc Mountain range and coastal East Africa a conservation priority and works with local communities and partners to protect the natural richness of the region.

Source: World Wildlife Fund

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