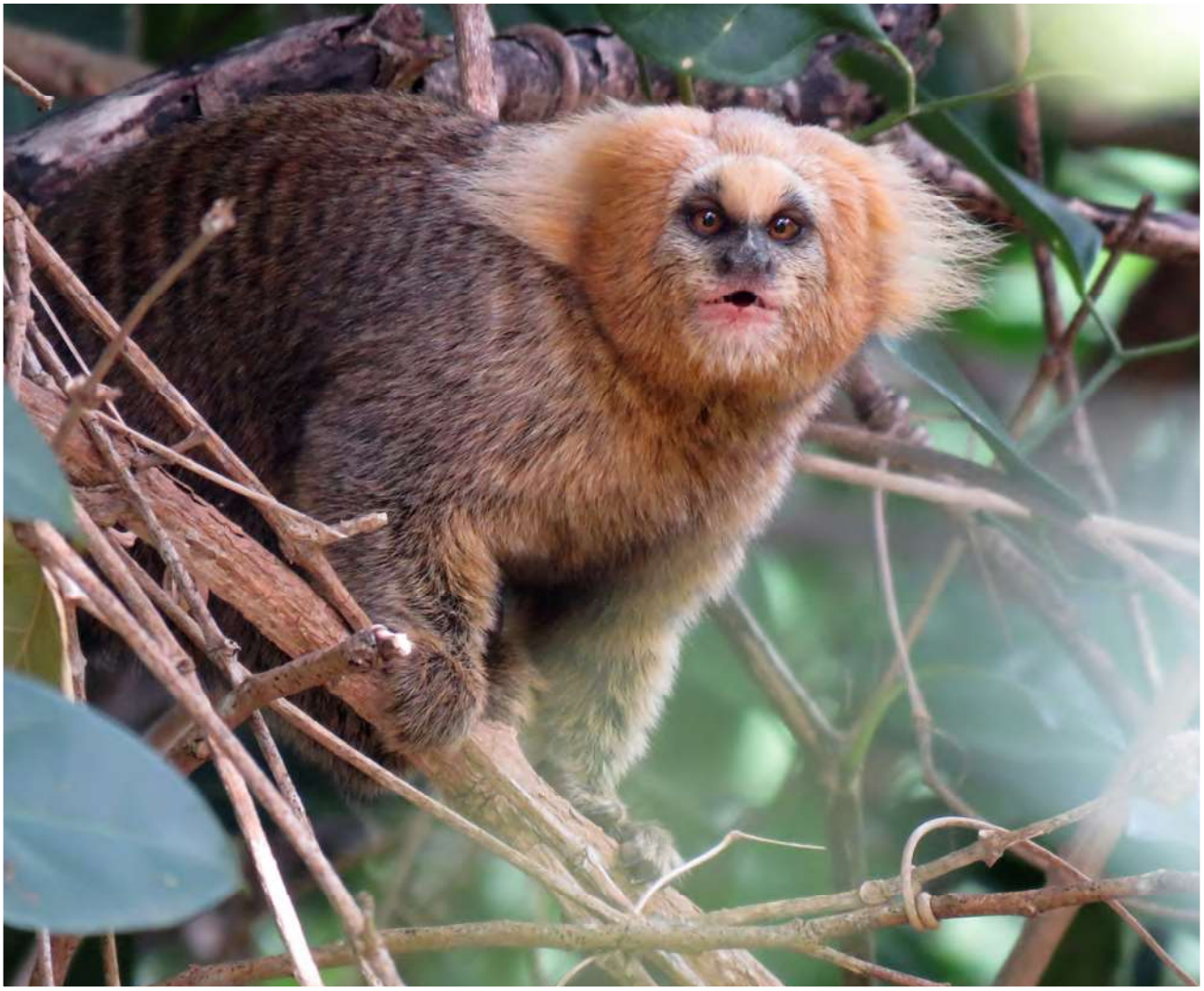
Primates in Peril

The World's 25 Most Endangered Primates 2022–2023



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Russell A. Mittermeier, Kim E. Reuter, Anthony B. Rylands, Leandro Jerusalinsky, Christoph Schwitzer, Karen B. Strier, Jonah Ratsimbazafy and Tatyana Humle

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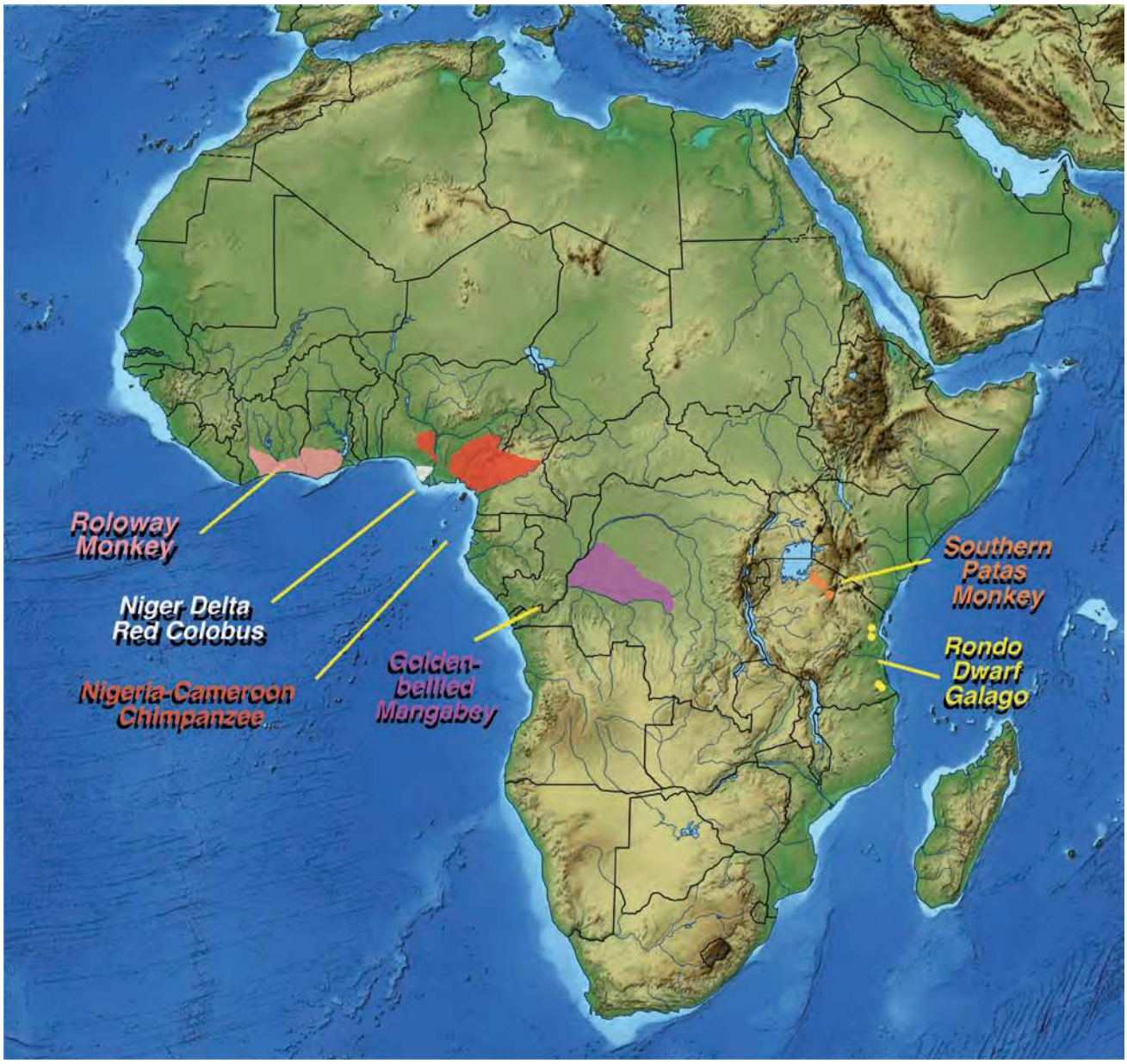
AFRICA

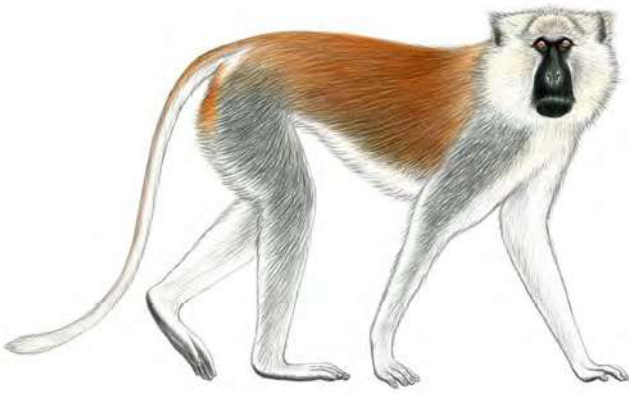

Roloway Monkey
Niger Delta Red Colobus
Nigeria-Cameroon Chimpanzee
Golden-bellied Mangabey
Southern Patas Monkey
Rondo Dwarf Galago

SOUTHERN PATAS MONKEY

***Erythrocebus baumstarki* Matschie, 1906**

Kenya (Extirpated), Tanzania
(2022)

Thomas M. Butynski and Yvonne A. de Jong



A detailed review of the taxonomic arrangement of the patas monkeys (*Erythrocebus*) is long overdue. The Southern Patas Monkey (*Erythrocebus baumstarki*) was described by Matschie in 1906 from east of Ikoma in central-northern Tanzania. Elliot (1913) appears to be the last to recognize *baumstarki* as a species. Subsequently, this taxon has been treated as either a synonym or subspecies of *Erythrocebus patas*. Only recently has *baumstarki* been reinstated as a species (Gippoliti 2017) based on its unique pelage coloration and pattern, and geographic isolation (De Jong and Butynski 2020, 2021, De Jong *et al.* 2020).

Erythrocebus baumstarki is a large, slender, long-limbed, semi-terrestrial guenon that typically lives in one-male, multi-female groups. The natural history of *E. baumstarki* is poorly known. Its geographically closest relative, the Eastern Patas Monkey (*Erythrocebus patas pyrrhonotus*), has been studied in Uganda and Kenya and, at this time, is used as a proxy for the natural history of *E. baumstarki*.

In East Africa, *E. p. pyrrhonotus* prefers open, short grass, acacia woodlands and wooded savannas, where it occurs at low densities (0.03–1.50 individuals/km²). This monkey rarely sleeps in the same area on successive nights and has long day ranges (1,380–7,500 m) and large home ranges (23–52 km²; Hall 1965, Chism and Rowell 1988, Isbell 1998, Isbell and Chism 2007, Isbell 2013). These characteristics, together with its typically shy and flighty behavior and ability to run at high speed (55 km/hour; Hall 1965), makes *Erythrocebus* especially difficult to locate and observe (Makacha and Sirolli 2005, De Jong *et al.* 2008, Loishooki *et al.* 2016). Like *E. p.*

pyrrhonotus in central Kenya, *E. baumstarki* is an ecological specialist, being highly dependent on large areas of healthy Whistling Thorn Acacia (*Acacia drepanolobium*), its primary food plant, and probably also upon the on-going mutualistic interactions between ants (*Crematogaster* spp.) and *A. drepanolobium*.

In the early 20th century, *E. baumstarki* occupied large parts of the Serengeti-Mara Ecosystem and Amboseli Ecosystem of southern Kenya and northern Tanzania (De Jong *et al.* 2008, 2009, 2020, De Jong and Butynski 2020, 2021). It seems that, at present, *E. baumstarki* remains only in the protected areas of the western Serengeti (Serengeti National Park [14,750 km²], Grumeti Game Reserve [428 km²], Ikorongo Game Reserve [567 km²], Ikona Wildlife Management Area [255 km²]), with the western Serengeti National Park being the stronghold (De Jong and Butynski 2021).

The geographic distribution of *E. baumstarki* in the early 20th century was about 66,000 km². This has declined roughly 85% to around 9,700 km² at present (post-2009). It was extirpated from Kenya in about 2015 and from the Kilimanjaro Region of Tanzania in about 2011. The present Extent of Occurrence (EOO) is roughly 2,150 km². The total number of individuals remaining in the wild is probably between 100 and 200, including between 50 and 100 mature individuals (De Jong and Butynski 2021). There is no captive population.

Erythrocebus baumstarki is listed as Critically Endangered on the IUCN Red List of Threatened Species based on its small EOO, fragmented distribution, rapid decline in distribution and abundance, small population size, and small effective population size. All of these parameters are expected to continue to worsen as the causes are ongoing and unlikely to be reversed in the foreseeable future (De Jong and Butynski 2020, 2021).

The ultimate threat to *Erythrocebus*, and to the other primates in Tanzania and Kenya, is the rapidly growing human population, which is doubling about every 25–30 years. The main proximate threats are the widespread unsustainable exploitation of natural resources by humans, primarily due to agricultural expansion and intensification (both crops and livestock), charcoal production, fire, and development activities (settlements, roads, dams, power-lines), which have resulted in widespread habitat degradation, loss, and fragmentation, and extreme declines in wildlife populations (Homewood *et al.* 2001, Makacha and Sirolli 2005, BurnSilver *et al.* 2008, Ogutu *et al.* 2014, 2016, Loishooki *et al.* 2016).

Throughout the historic range of *E. baumstarki*, *A. drepanolobium* woodlands continue to rapidly disappear due to over-use by livestock and conversion to cropland. Other major concerns are competition with people and livestock for habitat and water, particularly during droughts, hunting by poachers and domestic dogs (*Canis familiaris*), climate change, and loss of genetic variation. Although these threats apply mostly to regions outside protected areas, pastoralists now move livestock illegally into the protected areas that support *E. baumstarki* (African BioServices 2019, Veldhuis *et al.* 2019).

Poaching, primarily through the use of wire snares, is a widespread and serious problem in western Serengeti (Loibooki *et al.* 2002, Holmern *et al.* 2007, Nyahongo *et al.* 2009), the region where the remaining *E. baumstarki* population occurs, and on ranches that border the Maasai-Mara National Reserve (Ogutu *et al.* 2011, 2016). Although *E. baumstarki* is not a target species for poachers, it is likely that some individuals are captured in snares (Makacha and Sirolli 2005, Loishooki *et al.* 2016, De Jong and Butynski 2020, 2021). This monkey is probably hunted in retaliation for raiding crops. The meat is eaten and the pelt used in traditional ceremonies and witchcraft (Makacha and Sirolli 2005, Loishooki *et al.* 2016).

Patas monkeys require perennial sources of drinking water (Chism and Rowell 1988, Isbell and Chism 2007, De Jong *et al.* 2008). The all-day presence of herders and livestock at increasingly scarce sources of water appears to be a serious problem for *E. baumstarki*, particularly because of the attacks by herders and dogs.

Although data are lacking, it is likely that *E. baumstarki* experiences increased exposure to parasites and diseases at water sources as they

wait, forage, and drink in an environment that is densely populated by humans and livestock. Data are also lacking on the impacts of climate change and loss of genetic diversity. Although it seems inevitable that these impacts are negative, they pale against the more immediate threats posed by human population growth and the related degradation, loss, and fragmentation of *A. drepanolobium* woodlands and water sources.

Erythrocebus baumstarki has never been the focus of conservation activities and no conservation actions are planned to secure the long-term survival of this charismatic species. Indeed, with fewer than 200 individuals remaining in the wild, an EOO of only about 2,150 km², and the absence of focused conservation actions, it appears that *E. baumstarki* will be among the first primate extinctions for continental Africa in historic times.

De Jong and Butynski (2021) recommended the following conservation actions for *E. baumstarki*: (1) Establish a network of people who will help locate all groups and then closely monitor group size and age/sex composition, home ranges, and threats; (2) Conduct detailed surveys every two years to re-assess geographic distribution, abundance, population structure, conservation status, and threats; (3) Undertake a detailed, long-term, ecological and behavioral study; (4) Implement molecular research projects to assess the level of genomic erosion; (5) Establish dedicated, reliable, wildlife water sources where *E. baumstarki* occurs; (6) Stop poaching and illegal livestock grazing, and keep domestic dogs out of the protected areas; (7) Study and monitor the impacts of browsing on *A. drepanolobium* by livestock, Savanna Elephant (*Loxodonta africana*), Black Rhinoceros (*Diceros bicornis*), and Rothschild's Giraffe (*Giraffe camelopardalis*), and assess how this affects *E. baumstarki*; (8) Bring the plight of *E. baumstarki* to wide national and international attention; and (9) Produce an '*Erythrocebus baumstarki* Conservation Action Plan' and ensure that this plan is implemented by those authorities responsible for the conservation of Tanzania's biodiversity.

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