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Monkeying around in a Mosaic: Red-tailed Monkeys in the Issa Valley, Western Tanzania

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Play wrestling in a mound of smoldering ash is not something any primatologist would normally expect from a species characterized as a 'forest guenon', best known for chirping across the tropical rainforest canopies of equatorial Africa. The Issa valley red-tailed monkeys, *Cercopithecus ascanius*, of western Tanzania, however, are atypical in more than just their wrestling locales. They have adapted to foraging, traveling, and playing in a dry, mosaic habitat that offers challenges unlike those faced by their forest-dwelling cousins.

The Issa Valley lies in the Tongwe East Forest Reserve, characterized as a mosaic habitat of miombo woodland mountain slopes, with thin strips of riparian forests that line the valley bottoms. Rivers and waterfalls fragment the woodlands like jigsaw pieces. The vast plateaus and treacherous valleys make for a challenging terrain for not just the monkeys but the devoted researchers that follow them on a daily basis. Compared to the humans, though, the monkeys (and chimpanzees, baboons, colobus monkeys, and numerous other wildlife species, including wild dogs and hyena) seem comparatively undaunted by the topographical undulations. Nonetheless, research teams from the Greater Mahale Ecosystem Research and Conservation Project (GMERC) battle the elements daily to find, follow, and ultimately work to understand how these primates, including the red-tailed monkey, negotiate and thrive in this landscape.

Whilst long-term studies of wild primates date to the early 20th century, those that center on red-tailed monkeys are not common. Previous studies have focused on rainforest-dwelling red-tails, where the majority of the species are distributed. However, to more comprehensively understand the adaptabil-



Red-tailed monkey, *Cercopithecus ascanius*. Edward McLester



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ity and behavioral diversity of these animals, GMERC focuses on the ranging, diet, sociality and overall behavioural ecology of two troops that range across an ecologically diverse landscape.

Red-tails are known to eat a variety of fruits, flowers, leaves, insects, lizards, and very occasionally meat, such as small birds. At Issa, we have also found them to consume copious amounts of mushrooms. From other studies, mushroom consumption is rare, but at Issa mushroom season provokes near feeding frenzies. Individuals race to the ground, grab a mushroom, and scamper back into the nearest tree clutching their high valued prize (often bigger than their own heads).

When mushrooms are not available, monkeys consume such a wide variety of fruits and plant parts that as researchers, we feel like we will never build an exhaustive feeding list, something that seeks to

capture everything on the red-tailed monkey menu across an annual cycle. In the six months since we dedicated ourselves to this topic, we have identified over 160 plants consumed, many with no local name (these have been collected, pressed, and sent to a botanist in Dar es Salaam for identification). Simultaneously, we monitor their activity budget (day to day behavior) to determine whether the geometry of the forest patchwork demands more travel, less socialization, and a dependence on lower quality foods to meet subsistence as we expect.

Issa red-tails compete with baboons and vervet monkeys for key food resources. But their main competitors at Issa are likely chimpanzees. Not only do they compete for food, but red-tails must also stay alert when sharing habitat with the monkey-eating chimpanzees. Although lone, bachelor males sometimes feed in the same trees as chimpanzees and even allow them to come within a few meters, large parties of chimpanzees send monkeys fleeing in the opposite direction, suggesting that chimpanzees rely on numbers for successful hunts. For nearly six years, researchers were convinced that Issa chimpanzees do not hunt red-tails (in other populations, chimpanzees show little interest in monkeys), but in



Red-tailed monkey, Cercopithecus ascanius. Christopher Lile

February 2019, we observed a lone chimpanzee feeding on red-tailed monkey remains... complicating our understanding of the relationship between these two charismatic primate species. Our studies of feeding ecology at Issa now involves both what the monkeys are consuming and what is consuming the monkeys!

The openness of the landscape at Issa can result in observations of inter-species encounters that are rare in other places. During one recent red-tail follow, researchers spotted a pair of female lions crossing a dry river bed directly under the monkeys. Long before researchers spotted the lions, monkey alarm calls rang out, warning researchers of the near-by dangers, and sending unknowing monkeys scampering into the upper canopy and away from danger. Treachery was avoided for all primates!

Finally, the lack of available closed canopy forest means that Issa red-tails must navigate a far more heterogenous landscape. At Issa, that means spending much time on the ground, both to travel between feeding trees, and also to drink during the dry season when the only available water are small, riverbed



Red-tailed monkey, Cercopithecus ascanius. Christopher Lile



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pools. Sub-adults and juveniles frequently leave the trees to play on the ground (see video www.gmerc.org/red-tails-in-the-ash-great-footage-from-christopher-lile) and monkeys of all ages leave the trees to rest, forage, and engage in long grooming sessions. Terrestrial behavior of arboreal monkeys is rare, and so a future question for us centers on the drivers and risks of terrestriality of an otherwise-described tree-dwelling monkey. This behavior likely increases vulnerability to predators (like leopards), but it also may open up ground-resources like mushrooms and herbs for consumption. These are the types of decisions that Issa's red-tails make when negotiating this mosaic landscape.

Although not endangered, red-tailed monkeys face the same perils of their primate relatives, with poaching, human encroachment and dwindling forests threatening their long-term viability. Our work is revealing not only the behavioural diversity that the species exhibits, but also its remarkable adaptability. Whether in the trees, on the ground, in the air, or in the ash, we are learning much about these marvelous, mosaic-dwelling monkeys! 🐵



Book Review

by Rick Hahn, Catoctin Wildlife Preserve

Carnivores of the World 2nd Ed.

By Luke Hunter

This is another of the Princeton Field Guides and boy, is this a doozy. Just released and for only \$30.

First published in 2011, this 2nd edition covers all the updated information on 250 species representing thirteen terrestrial carnivore families. Only the seal, sealion and walrus families are absent.

The illustrations, 93 pages in full color, are beautiful. The diversity of this well represented and beloved group is mind boggling. Each species has its own litany of facts, starting with a physical description. Then comes 185 pages with distribution maps and info about their habitats, feeding ecology, social and spatial behaviors, reproduction, demography and, lastly, status and threats. If you are into skulls and/or paw prints, there is an abundance of them as well.

This is the first 250 pages that you will go to when you upgrade your carnivore graphics information. 🐾

