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Predation on a non-native Flathead Leaf-toed Gecko, *Hemidactylus platycephalus* Peters, 1854, by the endemic Comoros Iguana, *Oplurus cuvieri comorensis* (Angel, 1942), on Grande Comore, Comoros

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The Comoros Iguana (*Burale* in Shikomori, the Comoran language), *Oplurus cuvieri comorensis* (Angel, 1942), is a subspecies of Cuvier's Madagascar Swift, *O. cuvieri* (Gray, 1831) and endemic to the island of Grande Comore (*Ngazidja* in Shikomori), Comoros, the largest of the four main volcanic islands of the Comoros Archipelago. This strictly diurnal medium-sized lizard has a highly restricted range, known only from isolated patches of volcanic coastal cliff habitat along Grande Comore's northeastern shoreline (Augros, 2019). Its most notable locality is a prominent volcanic rock formation known as the Dragon's Back (*Gualaivoini* in Shikomori), which extends into the ocean as a narrow peninsula of < 2 km² (Fig. 1A). Owing to its severely limited range, presumed small population size, and increasing anthropogenic pressures on Grande Comore, including habitat modification, invasive species, and climate change, *O. c. comorensis* is protected in the Comoros and recognised globally as a taxon of special conservation concern (Hawlitschek et al., 2011; Vences and Hawlitschek, 2011; Augros, 2019). Despite this, the natural history of *O. c. comorensis* remains poorly known, particularly with respect to diet, foraging behaviour, and interspecific interactions.

In Madagascar, the subspecies *O. c. cuvieri* is widespread, abundant, and comparatively well-studied. It is known to be a primarily insectivorous ambush (sit-and-wait) predator (Mori and Randriamahazo, 2002) that occasionally actively forages for plant material, indicating that the Malagasy subspecies can shift its foraging mode and diet as needed (Randriamahazo and Mori, 2012). There has also been a single record of *O. c. cuvieri* preying upon a small mammal (Rosa and Rakotozafy, 2013), further illustrating its opportunistic dietary flexibility. In contrast, comparable diet information for the imperilled Comoros subspecies is largely lacking, despite the potential value of such data for assessing its responses to environmental change and informing management strategies. Here, we report the first record of an apparent predation event by *O. c. comorensis* on a non-native gecko, *Hemidactylus platycephalus* Peters, 1854 (*Nkafiri* in Shikomori), considered to be the largest gecko in the archipelago (Augros, 2019).

On 19 June 2022, during a mark-recapture survey of the *O. c. comorensis* population inhabiting the Dragon's Back rock formation near the town of Ivoini on the northeastern coast of Grande Comore, Comoros, we encountered an *O. c. comorensis* holding a dead gecko in its jaws. This event occurred at 11:20 h under warm, sunny conditions on exposed volcanic rock in the central portion of the Dragon's Back Peninsula (11.3913°S, 43.4010°E; elevation 59 m), approximately equidistant from the ocean on either side (Fig. 1B). The initial interaction between the two lizards was not observed, and when we found them, the gecko was already hanging motionless by its head, which was firmly grasped between the jaws of the substantially larger *O. c. comorensis*.

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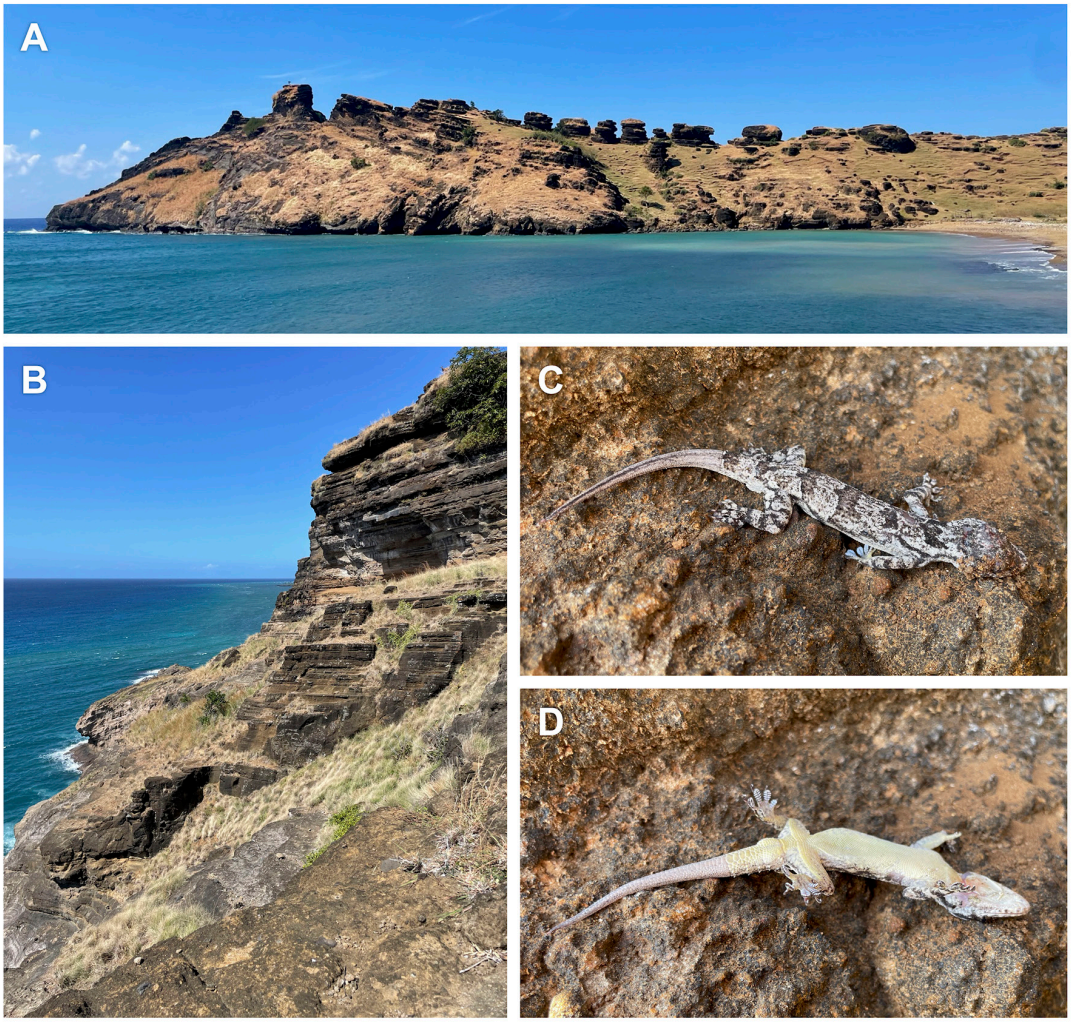


Figure 1. Photographs of the locality, habitat, and abandoned prey item from the recorded observation of apparent predation. (A) The Dragon's Back locality of *Oplurus cuvieri comorensis* on the northeastern coast of Grande Comore, Comoros. (B) Volcanic coastal cliff habitat on the Dragon's Back peninsula, where the interrupted predation event occurred. (C) Dorsal and (D) ventral views of the dead adult male *Hemidactylus platycephalus* recovered after the *O. c. comorensis* individual escaped unphotographed. Photos by Kathleen C. Webster.

Based on its large body size (estimated snout–vent length of 140 mm) and dark throat colouration, the *O. c. comorensis* was likely an adult male (Randriamahazo, 2000).

The predation event was interrupted by the arrival of our field team, which prompted the *O. c. comorensis* to drop the gecko, flee several metres, and subsequently take refuge in a rock crevice. The abandoned gecko, identified as an adult male *H. platycephalus*, was recovered dead with visible trauma to the head (Fig. 1C, D). Although *H. platycephalus* can exhibit the same dark chevron-shaped dorsal markings and is often difficult to distinguish from its congener, *H. mercatorius* Gray, 1842, which is also present on Grande Comore, we confirm the identity of the individual involved in this event as *H. platycephalus* based on the presence of approximately 50 femoral pores. This count was obtained from ventral photographs of the dead gecko (e.g., Fig. 1D) and falls within the range reported for *H. platycephalus* (41–59) but well above that of *H. mercatorius* (25–32) (Augros, 2019). A clipping from the distal portion of the tail was obtained from the *O. c. comorensis* within the rock crevice before it retreated further and became inaccessible. This tail tissue sample

(MSB:Herp:106536) was immediately preserved in 95% ethanol in the field and later deposited in the Museum of Southwestern Biology, Albuquerque, New Mexico, USA.

Geckos of the genus *Hemidactylus* Goldfuß, 1820 represent one of the most widespread groups of squamate reptiles globally (Kluge, 1969) and are well known for having colonised numerous islands across the Indian, Pacific, and Atlantic oceans through both natural dispersal and anthropogenic introductions (Carranza and Arnold, 2006). Four *Hemidactylus* species have been introduced to the Comoros Archipelago, all of which are considered non-native and are thought to have arrived through recent human-mediated dispersal (Rocha et al., 2010). With its native origins on the African mainland (Šmíd et al., 2013), *H. platycephalus* is now the most widespread and abundant *Hemidactylus* species established throughout the Comoros Archipelago (Rocha et al., 2005; Augros, 2019). Like many congeners, *H. platycephalus* is largely nocturnal and strongly associated with urban and human-modified habitats on the islands (Augros, 2019), traits that have likely contributed to its success as a human-assisted coloniser (Agarwal et al., 2021).

Hemidactylus platycephalus is just one of several non-native reptile species that have been introduced to Grande Comore in recent decades (Hawlitschek et al., 2011; Augros, 2019), raising questions about the nature and potential effects of novel interspecific trophic interactions. While introduced reptiles are frequently documented as novel predators and competitors with negative ecological consequences, non-native lizard species, including other *Hemidactylus* geckos, have also been reported as prey for a wide range of native taxa worldwide (Santos et al., 2019). Our field observation adds to this evidence and suggests that non-native reptiles on Grande Comore may also serve as prey for native predators. In addition, this observation represents, to our knowledge, the first record of apparent vertebrate predation by *O. c. comorensis*, providing important new dietary information for this understudied, imperilled endemic subspecies on Grande Comore. Although *O. cuvieri* is known to exhibit consexual territorial aggression (Randriamahazo and Mori, 1999), the *O. c. comorensis* individual's carriage of the dead gecko in its mouth is more consistent with predatory than aggressive behaviour.

Predation on a non-native vertebrate prey item suggests that *O. c. comorensis* is capable, at least occasionally, of dietary flexibility. However, the extent and ecological or conservation significance of this flexibility for such a range-restricted taxon in a rapidly changing island environment are not yet known. With the two lizards occurring in sympatry at the relatively isolated Dragon's Back locality, whether such predation occurs frequently enough to influence the local *H. platycephalus* population also remains an open question for future study. Another potential consequence of this novel trophic interaction is exposure of the endemic predator to parasites carried by introduced prey, which could provide a pathway for parasite spillover (Dunn and Hatcher, 2015). Although parasite transfer from other introduced *Hemidactylus* species to native reptiles has been documented elsewhere (e.g., Hanley et al., 1995; Barton, 2007), little is known about reptile parasite communities in the Comoros. Further study of the diet and trophic interactions of *O. c. comorensis*, using targeted behavioural observations or quantitative approaches such as faecal metabarcoding, would help clarify the endemic lizard's feeding ecology and the ecological consequences of non-native reptile introductions on Grande Comore.

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