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gran sabor de boca y son cursos que deben de repetirse para que nos podamos integrar a compartir experiencias y conocimientos - Osiris Eguía (México)

Pienso que es muy importante este tipo de iniciativas porque permite que gente con diferentes disciplinas interactúe, se conozcan personalmente, se vean fortalezas en los diferentes campos de acción, de aquí pueden surgir trabajos muy interesantes en diferentes ramas del conocimiento y en pro de la conservación no solo de los cocodrilos, sino de la biodiversidad en general. Me pareció una gran experiencia - John Calderón (Colombia)

Me encantó, la experiencia fue muy fructífera los talleres tanto para aprender acerca del control de las poblaciones, conteo, conservación e incluso aspectos como el comercio que fue aprender sobre la calidad de las pieles. Además, la atención brindada a los asistentes, los espacios amenos y adecuados, la alimentación y el hospedaje - Andrea Rodríguez (Colombia)

Para la nueva generación, el acceso a la experiencia de los especialistas, así como la capacitación sobre los principios para el estudio, manejo y conservación de los crocodilianos, representa no solo una excelente oportunidad para construir una base sólida de conocimientos en el tema y crear redes de colaboración, sino una poderosa fuente de motivación que promueve la continuidad y la mejora de los esfuerzos de conservación. En última instancia, este tipo de plataformas demuestran que de la pasión pueden surgir no solo conocimientos, sino también un estilo de vida, oportunidades de desarrollo profesional y valiosas amistades - Felipe Hernández (Colombia)

Mi experiencia en el curso fue gratificante, aprendí diferentes perspectivas sobre temas básicos del estudio y manejo de las especies. Fue interesante conocer caimaneras del Atlántico, su gestión y procesamiento de pieles. Pero lo que más me gustó fue reunirme con amigos y colegas, al igual que conocer sobre drones y su uso potencial en el monitoreo de caimanes y cocodrilos en Latinoamérica. ¡Gracias por todo! - Catalina Pinzón (Colombia)

El curso en términos generales me gustó, desde la parte biológica aprendí muchísimas cosas, ya que no estoy familiarizado con esa parte. La parte de drones estuvo muy interesante, pero creo que faltó profundizar en el que se hace después con los datos. En general me gustó mucho, el poder ver ya a los animales, fue muy importante como también manipularlos le dio un buen plus - Nicolás Moreno (Colombia)

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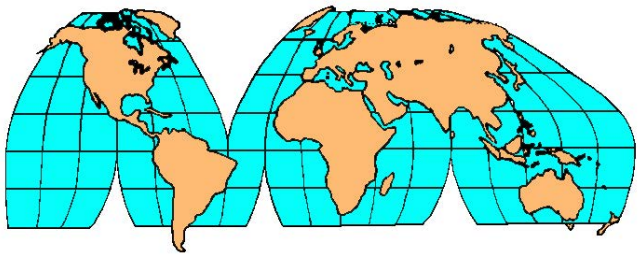
Regional Reports



East and Southern Africa

Madagascar

CROCS IN THE CLOUDS: HIGHEST ELEVATION RECORD FOR A CROCODILIAN. The Nile crocodile (*Crocodylus niloticus*) is the most widespread of the seven crocodilian species found on the African continent, and is the only crocodilian species found in Madagascar (Jablonicky 2013). Within Madagascar, an estimated population of 30,000 to 40,000 non-hatchling *C. niloticus* are widely distributed throughout the country, being most abundant in freshwater systems bordering the northwestern and western sides of the high plateau, and the northeast of the country (CITES 2016). This species is well known for its seasonal and opportunistic movements during the wet season, where individuals may follow floodwaters and move to seasonal aquatic habitats including creeks and floodplains (CITES 1997). They also inhabit agricultural landscapes and show a fragmented distribution within their range in Madagascar.

Nile Crocodiles are highly versatile in their habitat use. Most populations within Madagascar inhabit freshwater systems such as lakes, creeks, swamps and rivers, and few are found in brackish (CITES 2016) and saline habitats (Behra 2012). Individuals are known to inhabit caves in Ankarana Nature Reserve (Wilson 1987), where they use subterranean rivers as refugia during the dry season. Such versatile habitat usage is also known from other parts of the range of *C. niloticus*. However, the elevational range of this species has been seemingly limited to areas below 1000 m asl (Fig. 1), with few populations found between 1000 and 1500 m asl.

Located at c. 1600 m above sea level (asl), and with a surface area of c. 22 ha, the crater lake Matsaborimena (14°20.5'S, 48°35.4'E) is located close to the village of Bemanevika,

40 km north of Bealanana in northern Madagascar (Figs. 1 and 2). The lake has two seasonal rivers feeding into it and a narrow fringe of marsh and emergent aquatic vegetation, consisting mainly of *Cyperus papyrus* and *Cyperus prolifer* which make up the distinctive surrounding papyrus marsh, a species of *Eleocharis*, and a small patch of *Typha angustifolia* plus other sedges and ferns. Temperatures vary between 10 and 30°C, but during the coldest month (July) night-time temperatures can be closer to 0°C (Bamford *et al*. 2015). The rainy season extends from November to May, with a total annual precipitation up to 2700 mm (Bamford *et al*. 2015).

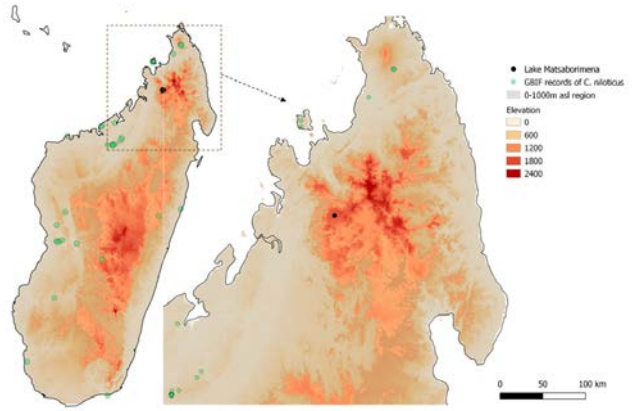


Figure 1. Location and elevation of Lake Matsaborimena in Madagascar (black dot). Records of *Crocodylus niloticus* on Global Biodiversity Information Facility (GBIF) are shown as green dots and the 0-1000 m range is hatched.

Figure 2. Lake Matsaborimena in Madagascar, showing the thick vegetation edging the lake. Photograph: Lily-Arison Rene de Roland.

Lake Matsaborimena has been the subject of many ornithological surveys as it is the site of rediscovery of one of the rarest birds in the world, the Madagascar Pochard *Aythya innotata* (Rene de Roland *et al*. 2007), as well as other endangered and local endemic species such as the Red Owl *Tyto soumagnei*, Meller's Duck *Anas melleri*, Madagascar Serpent Eagle *Eutriorchis astur*, Malagasy Little Grebe *Tachybaptus pelzelnii* and Madagascar Rail *Rallus madagascariensis* (Mills and Rogerson 2013) .

During detailed surveys of the Madagascar Pochard at Lake Matsaborimena, Bamford *et al*. (2015) stated that a small Nile crocodile was occasionally sighted in the lake. The authors also invigilate its role as a potential predator of the Madagascar Pochard. The occurrence of the crocodile was also referenced by Razafindrajao (2020), likely referring to the statements by Bamford *et al*. (2015). However no further information about this crocodile was available.

This record is substantial in a crocodilian perspective and could represent the highest elevational record of a crocodilian globally. Further investigation on the record reveals that the crocodile was first sighted in November 2006 and seen opportunistically during bird surveys until January 2018 (Rene de Roland, pers. obs.). Only the head at the water surface was observed (no observations on land) and the size was estimated at ~2 m in total length. On most occasions the crocodile was closer to the riparian vegetation at the edge. No attempts were taken to approach or photograph the crocodile. Based on the size, it is assumed that the same crocodile was being sighted between 2006 and 2018. In late January 2018, the area experienced a strong cyclone with substantial rainfall, after which the crocodile was not noted.

While Nile crocodiles have a predominantly fish-based diet as they grow (Wallace and Leslie 2008), crustaceans, amphibians and other aquatic and terrestrial animals also play a role in their diet. Lake Matsaborimena lacks any freshwater fish, therefore it is likely that the crocodile was depending on other food sources, including waterbirds. The lake is not used by humans for any purpose, therefore it is unlikely that the existence of a crocodile is problematic for any community. Given the lack of human use of the lake, potential historical occurrence of crocodiles in the lake is not known.

The origin of the individual at Lake Matsaborimena is unknown. Based on publicly available records on the Global Biodiversity Information Facility (GBIF), the closest records of Nile crocodiles are over 100 km away (Fig. 1). The lake is connected to a local river by a small canal, therefore it is possible that crocodiles naturally ascended to the crater lake. A search of records on publicly available datasets and published literature did not result in any records of crocodiles at elevations above ~1000 m asl in Madagascar. Nile crocodiles are farmed in the capital Antananarivo (~1300 m asl) (Jenkins *et al*. 2006), but the species does not naturally occur there. Attempts to farm crocodiles in other parts of Madagascar have failed, therefore it is possible that escapees from a farming/ranching attempts have reached Lake Matsaborimena. There have also been intentional releases of captive-raised Nile crocodiles, including adults, hatchlings and juveniles, in the northeast of the country, but these occurred in 2011 (CITES 2016), well after the first reported sighting in Lake Matsaborimena in 2006. The possibility of someone releasing the crocodile (perhaps when young) to the lake cannot be ruled out either.

Records of crocodilians at high elevations are rare. It is possible that movements into high elevations are limited by geographical features such as waterfalls and escarpments.

The colder temperatures at higher elevations, particularly in winter, are a key factor affecting distribution, as they impact on the ability of crocodiles to effectively thermoregulate and also nest (egg incubation). Limited food resources, such as large freshwater fish at higher elevations, may also restrict crocodile populations sustaining populations.

Other notable high elevation records for crocodilians are from rainforest stream-dwelling *Paleosuchus* species from South America. Gorzula and Paolillo (1984) reported the occurrence of Schneider's smooth-fronted caiman *Paleosuchus trigonatus* at 1340 m asl in Guyana Venezolana, although the species is principally restricted to oligotrophic forest streams from 100 to 1200 m asl (Seijas 2007). The often sympatric Cuvier's smooth-fronted caiman *P. palpebrosus* has been recorded up to 750 m asl (Medem 1981). Other unusually high records for a particular species include a population of Gharial *Gavialis gangeticus* in the Kopili Reservoir on the border of Megahalya and Assam at c. 750 m (J. Lang, pers. comm, 2023) and Siamese crocodiles *Crocodylus siamensis* in Cambodia at c. 600 m (Sam *et al*. 2015).

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Latin America & the Caribbean

Belize

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