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continued on the back inside cover

Cover: Indian Grey Wolf *Canis lupus pallipes* and Smooth-coated Otter *Lutrogale perspicillata* sharing the territory in Chambal basin. Digital art on Procreate by Aakanksha Komanduri.



Toil in the soil: putative nest excavation by an adult female Panther Chameleon *Furcifer pardalis* (Cuvier, 1829) in moist, clayey soil on Nosy Komba, Madagascar

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The Panther Chameleon *Furcifer pardalis* (Cuvier, 1829), is common across various parts of Madagascar, especially in the central-northeastern and northwestern regions (Ferguson et al. 2004). It inhabits a variety of environments, including humid, semi-humid, and transitional areas (Andreone et al. 2005; Glaw & Vences 2007; Deso et al. 2022). These chameleons are primarily edge dwellers (Ries et al. 2017), found in undisturbed canopy forests and capable of adapting well to anthropogenic habitats. They have also been introduced to disparate regions around the world (e.g., Florida, USA, and Réunion Island; Cheke 1987; Rabearivony et al. 2007; Rochford et al. 2013; Deso et al. 2022). Despite being actively collected and traded internationally as pets (Andreone et al. 2005; Carpenter et al. 2005), there is limited knowledge about the natural history

and reproductive behaviour of *F. pardalis* in the wild (Rabearivony et al. 2007; Eppley 2019), but all records we were able to find either attest exclusively to the use of sandy soils as the site for oviposition (Rabearivony et al. 2007; Negro & Negro 2017; Eppley 2019; Laube et al. 2021) or are silent on the matter (e.g., McGeough 2016). We here present the first observation of an adult female *F. pardalis* digging in moist non-sandy soil under circumstances consistent with nest excavation, thereby expanding our understanding of the species' reproductive ecology.

The observation was made on 03 February 2020 at 1153 h on Nosy Komba (also known as Nosy Ambariovato), a small island (13.4506° S, 48.3421° E; area 27.9 km²) located off the coast of northwestern Madagascar between the main island and Nosy Bé. The

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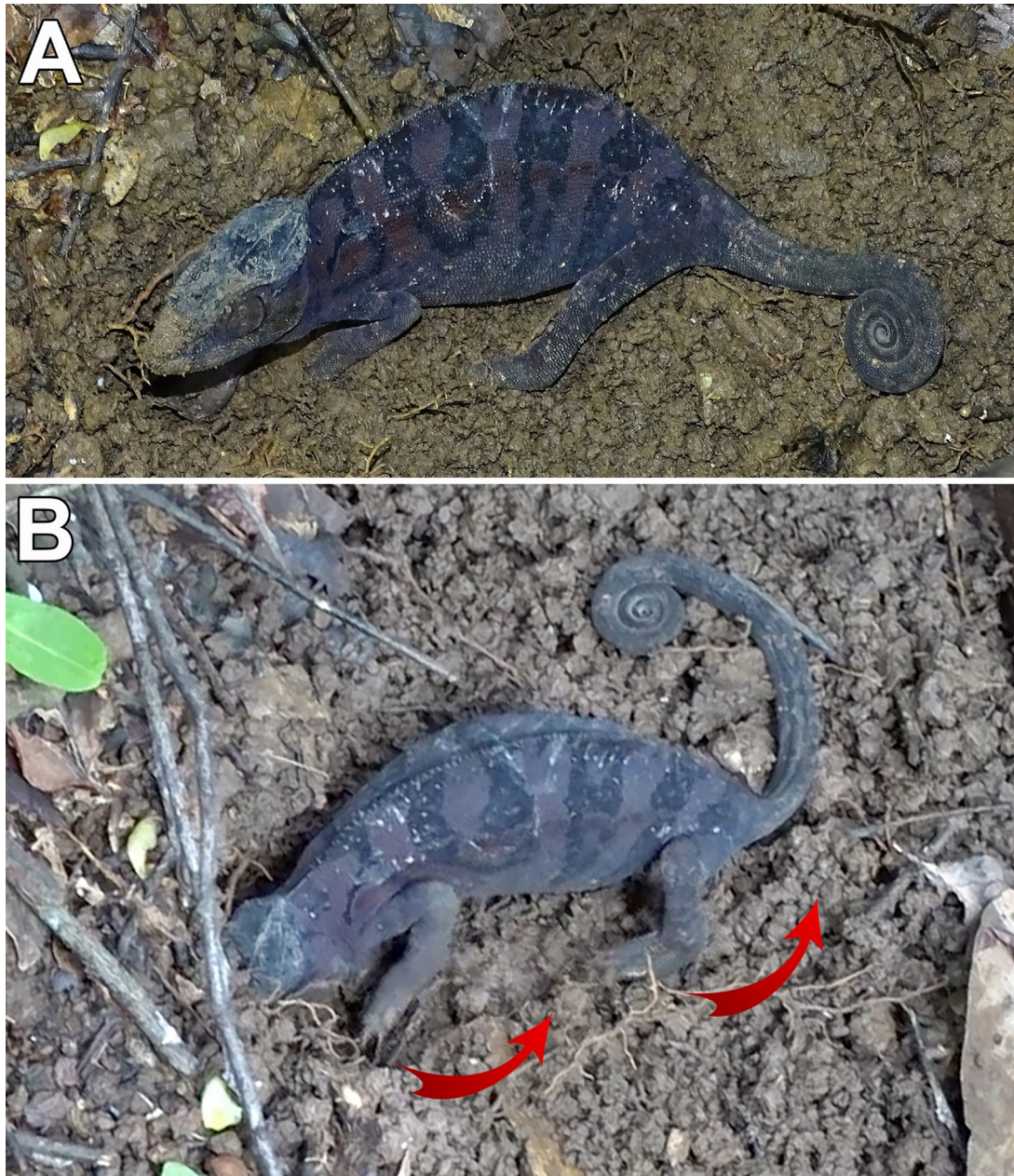


Image 1. An adult female *Furcifer pardalis* observed digging a burrow in moist, clayey soil on Nosy Komba, Madagascar: **A**—During a brief pause in the digging process, she was photographed with her snout covered in mud, showing that the head is involved in the excavation by pushing into the soil | **B**—Digging of the heavy soil was accomplished by using her left limbs alternately. As the forelimb moved soil out of the hole, the hind limb would be used to push it behind the body. © Hinrich Kaiser.

observation occurred in a typical secondary tropical forest (Hyde Roberts & Daly 2014) at an elevation of ca. 300 m, which was classified as a “closed canopy forest” of native non-cultivated species that may include mango and jackfruit by Blumgart et al. (2017). A deep blue-violet *F. pardalis* (snout–vent length ca. 12 cm) was observed actively excavating a burrow (Image 1A). The approximate size of the lizard, indicative of its maturity level, and its colouration are associated with gravid adult

females approaching oviposition (Eppley 2019). The observer’s attention was drawn to the moist, compacted soil (“clayey soil”; Firoozi et al. 2016), in which the female dug using her left limbs in concert, the front limb to excavate and the rear limb to move the soil further behind her (Image 1B). While no soil samples were taken for further analysis, qualitative evaluation showed that this type of dark soil had relatively high moisture content and felt very sticky (hence our use of the term “clayey”),

very unlike the type of sandy soil depicted by Laube et al. (2021). The temperature at the time of observation was 29°C with > 80% humidity, no wind, and clear skies above the canopy cover. To avoid disturbing the animal, the observation lasted only 5 min, during which several photos and videos were taken from a suitable distance. Because these obligatorily arboreal lizards rarely descend to the ground and do not dig for foraging or escape, the observed digging is most parsimoniously interpreted as oviposition behaviour. The combination of size and colouration associated with the pre-oviposition condition by an adult female and directed burrow excavation is consistent with previously described nest-digging behaviour in *F. pardalis*.

Data on the reproduction of *F. pardalis* in the wild remain limited, and available published observations have associated oviposition with sandy soils (e.g., Rabearivony et al. 2007; Eppley 2019; Strand 2023). To the best of our knowledge, our observation is the first documented instance of a *F. pardalis* female digging in moist, clayey soil under circumstances consistent with nest construction. Egg deposition was not observed, and we therefore cannot confirm that the excavation ultimately resulted in a completed nest or oviposition. Nevertheless, the female's size, colouration and directed excavation behaviour are consistent with previously described pre-oviposition behaviour in *F. pardalis* (e.g., Rabearivony et al. 2007; Eppley 2019). The observation therefore demonstrates that *F. pardalis* can excavate a moist, cohesive, non-sandy substrate during probable nest construction. Whether such substrates are regularly used for completed oviposition will require additional field observations.

Females of this species may have a limited home range or microhabitat preferences (Gehring et al. 2008), which could indicate that this individual might return to this location or has already used it, but this is speculative. *Furcifer pardalis* females rarely survive longer than a year in the wild; they exhibit high fecundity, with clutch sizes ranging from 10–40 eggs, and reproductive activity begins at around 6 mo old, followed by additional clutches every 3 mo thereafter (Müller et al. 2004; Andreone et al. 2005). Nest construction usually takes several hours, and females lay their eggs within an hour or two (Bolton & Abate 2002), which, to some extent, explains the choice of a loose substrate in terms of energy cost. Eppley (2019) showed the first evidence of spatiotemporal oviposition planning by this species. Observations such as these, even as single events, can broaden the scope of information about the natural history and ecology of *F. pardalis* and their reproductive behaviour.

References

- Andreone, F. et al. (2005). Life history traits, age profile, and conservation of the panther chameleon, *Furcifer pardalis* (Cuvier 1829), at Nosy Be, NW Madagascar. *Tropical Zoology* 18: 209–225. <https://doi.org/10.1080/03946975.2005.10531221>
- Blumgart, D. et al. (2017). Herpetological diversity across intact and modified habitats of Nosy Komba Island, Madagascar. *Journal of Natural History* 51: 625–642. <https://doi.org/10.1080/00222933.2017.1287312>
- Bolton, J. & A. Abate (2002). Multigenerational captive reproduction of *Furcifer pardalis* and *Furcifer oustaleti*. *Chameleon Information Network Journal* 44: 5–10.
- Carpenter, A.I. et al. (2005). The impacts of international and national governance changes on a traded resource: a case study of Madagascar and its chameleon trade. *Biological Conservation* 123: 279–287. <https://doi.org/10.1016/j.biocon.2004.11.015>
- Cheke, A. (1987). Species accounts: the native fauna – reptiles (tortoises, marine turtles, lizards, snakes), pp. 51–59. In: Diamond A.W. (ed.). *Studies of Mascarene Island Birds*. University Press, Cambridge, UK, 458 pp. <https://doi.org/10.1126/science.240.4855.1076>
- Deso, G. et al. (2022). Panther chameleons *Furcifer pardalis* using aerial cables in urban habitats. *Herpetological Bulletin* 162: 43–44. <https://doi.org/10.33256/hb162.4344>
- Eppley, T.M. (2019). Evidence of spatiotemporal planning in a panther chameleon (*Furcifer pardalis*) on the Masoala Peninsula, Madagascar. *Herpetology Notes* 12: 909–911.
- Ferguson, G.W. et al. (2004). *The Panther Chameleon: Color Variation, Natural History, Conservation, and Captive Management*. Krieger Publishing Company, Malabar, Florida, USA.
- Firoozi, A.A. et al. (2016). A review of clayey soils. *Asian Journal of Applied Sciences* 4: 1319–1330.
- Gehring, P.-S., et al. (2008). Habitat preferences and activity patterns of *Furcifer pardalis* (Cuvier, 1829) in the Masoala Rain Forest Hall of the Zurich Zoo. *Salamandra* 44: 129–140.
- Glaw, F. & M. Vences (2007). *Field Guide to the Amphibians and Reptiles of Madagascar*. 3rd edition. Vences & Glaw Verlag, Cologne, Germany.
- Hyde-Roberts S. & C. Daly (2014). A rapid herpetofaunal assessment of Nosy Komba Island, northwestern Madagascar, with new locality records for seventeen species. *Salamandra* 50: 18–26.
- Laube, A. et al. (2021). Annual cycle of soil temperatures in the dry forest of Ankarafantsika, Ambato-Boeny region, West Madagascar. *Chamaeleo* 32(1): 89–100.
- McGeough, R. (2016). *Furcifer pardalis* (Panther Chameleon) – a brief species description and details on captive husbandry. *Biology, Engineering, Medicine and Science Reports* 2(2): 27–38.
- Müller, R. et al. (2004). *Furcifer pardalis*. *Das Panther Chamäleon*. Natur und Tier-Verlag, Münster, Germany.
- Negro, T. & A. Negro (2017). Gravidity and egg deposition. <https://www.madcham.de/en/traechtigkeit-und-eiablage>. Accessed on 20.vii.2026.
- Rabearivony, J. et al. (2007). Habitat use and abundance of a low-altitude chameleon assemblage in eastern Madagascar. *The Herpetological Journal* 17: 247–254.
- Ries, L. et al. (2017). Closing persistent gaps in knowledge about edge ecology. *Current Landscape Ecology Reports* 2: 30–41. <https://doi.org/10.1007/s40823-017-0022-4>
- Rochford, M.R. et al. (2013). The Panther Chameleon, *Furcifer pardalis* (Cuvier 1829) (Chamaeleonidae), another introduced chameleon species in Florida. *Reptiles and Amphibians* 20: 205–207. <https://doi.org/10.17161/randa.v20i4.13974>
- Strand, B. (2023). Chameleon Academy, Chameleon lays eggs in Madagascar! https://youtu.be/OIV_Eim-ylk. Accessed on 20.vii.2026.

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Articles

Knowledge and attitude towards wild carnivores among university students: a study from Kargil Trans-Himalaya, India
– Iftikar Ali & Robert John Young, Pp. 29559–29570

Avian community structure in a human-impacted forest landscape: insights from Amargarh Tiger Reserve, Uttar Pradesh, India
– Vijay Pratap Singh, Sajid Reza, Sharad Kumar, Meraj Anwar & Afifullah Khan, Pp. 29571–29582

Long-term dynamics of breeding waterbirds in relation to habitat structures in a tropical irrigation wetland: evidence from Vettangudi Bird Sanctuary, Tamil Nadu, India
– H. Maitreyi, N. Raveendran, Reshmi Vijayan & H. Byju, Pp. 29583–29595

Avifaunal diversity with reference to their feeding guilds of Mahadare Conservation Reserve, Maharashtra, India
– Riya Patil, Gayatri Pawar, Neha Bendre, Aruna Shelar & Sunil Bhoite, Pp. 29596–29605

Nesting colonies and breeding ecology of the Cattle Egret *Bubulcus ibis* (Linnaeus, 1758) in northern and northeastern Bangladesh
– Allama Shibli Sadik, M. Monirul H. Khan, M. Kamrul Hasan, Fahad Hossain Haider & M. Sher-E-Afgan, Pp. 29606–29616

An annotated checklist of the avifauna of Pichavaram Mangrove Forest, southern India: a Ramsar wetland with conservation significance
– I. Jamil Hussain & K. Jahir Hussain, Pp. 29617–29629

Snake diversity based on rescue records in urban Jaipur, Rajasthan, India
– Aadya Kalra, Dharampal Singh & Joy Gardner, Pp. 29630–29638

Assessment of ichthyofaunal diversity of the suborder Cyprinoidei Fitzinger, 1832 (Actinopterygii: Cypriniformes) of western Indian Himalayan Region: present status and conservation - a systematic review
– Nisha Chauhan, Dhyal Singh & Shefalee Singh, Pp. 29639–29652

Post-impoundment changes in fish diversity and community structure of the Dikrong River, Arunachal Pradesh: a comparative assessment between 2000–2001 and 2025–2026
– Minam Siram, Tonya Miroh, Rafia Farooquee & Debangshu Narayan Das, Pp. 29653–29666

An annotated district-wise account of Odonata (Dragonflies and Damselflies) from Uttarakhand, India
– Manoj Kumar Arya & Mayank Mahara, Pp. 29667–29683

Study of Odonata in the coastal-influenced area of Purba Medinipur District with a note on seasonal fluctuations and species composition
– Suvabrata Khatua, Sriparna Jana, Sourav Bar & Sudipta Kumar Ghorai, Pp. 29684–29699

Species richness and distribution of Hymenophyllaceae in Mindanao Island, Philippines
– Aurfeli D. Nietes, Rachel C. Sotto, Analinda C. Manila-Fajardo, Lerma S.J. Maldia, Fulgent P. Coritico, Victor B. Amoroso & Inocencio E. Buot Jr., Pp. 29700–29715

Communications

Assessment of genetic variation for conservation implications in the Critically Endangered Bawean Deer *Axis kuhlii* Temminck, 1836 (Mammalia: Artiodactyla: Cervidae)
– Frank Drygala, Alain C. Frantz, Gono Semiadi, Jörg Mehnert, Agus Ariyanto, Yul Ianto & Wirda Teti, Pp. 29716–29720

First record of interspecific allopreening among *Gyps* vultures in the Aravalli Range, India
– Hemsingh Gehlot, Anil Kumar Sharma & Narayan Lal Choudhary, Pp. 29721–29728

DNA Barcode based species delineation within Freshwater Garfish *Xenentodon cancila* (Hamilton, 1822) (Belontiiformes: Belontiidae) reveals the existence of multiple lineages under single nominal taxon
– Ranjit More, Jiwan Sarwade, A. Shabnam & K.P. Dinesh, Pp. 29729–29735

Characterization of *Aphelenchoides confusus* Thorne & Malek, 1968 (Nematoda: Rhabditida: Aphelenchoididae) occurring in a marine habitat of eastern India
– Sujit Das & Sudipta K. Ghorai, Pp. 29736–29742

Geo-ecological dynamics of Bhairabkunda Grasslands: flood origins, florican dependence, and conservation need
– Jonmani Kalita, Karishma Sharma Chamlagain, Koushik Rajbongshi & Dhritiman Das, Pp. 29743–29750

Viewpoint

Schedule III of the Wild Life (Protection) Amendment Act, 2022: a new legal shield for India's threatened plant species
– Monalisa Dey & Avishek Bhattacharjee, Pp. 29751–29758

Short Communications

A century-long hiatus: rediscovery of Cadorna's Pipistrelle *Hypsugo cadornae* (Chiroptera: Vespertilionidae) from India
– Uttam Saikia & Gabor Csorba, Pp. 29759–29763

Photographic record of the Painted Bat (Chiroptera: Vespertilionidae: *Kerivoula picta* (Pallas, 1767)) from the Terai Region of Uttar Pradesh, India
– Deval Kadam, Ravi Rohit, Vipin Kapoor Sainy, H. Rajamohan, R. Jagdeesh, Mudit Gupta & Manish Singh, Pp. 29764–29768

New record of the Indian Roofed Turtle *Pangshura tecta* (Gray, 1831) (Reptilia: Testudines: Geoemydidae) from Jaisamand Lake, Rajasthan, India
– Vijay Kumar Koli, Nirbhay Singh Chouhan, Kamal Vaishnav & Rakesh Kumar, Pp. 29769–29771

Observations on the dental morphology of the North African Sandfish *Scincus scincus* (Squamata: Scincidae)
– Shreya Bhattacharya & Indraneil Das, Pp. 29772–29775

New distribution records of two *Lithurgus* bee species (Hymenoptera: Megachilidae) from Jammu & Kashmir, India
– P.M. Osman Javid & Sajad H. Parey, Pp. 29776–29780

Notes

Striped Hyena *Hyaena hyaena* (Linnaeus, 1758) carrying a carcass of a Rusty-spotted Cat *Prionailurus rubiginosus* (I. Geoffroy Saint-Hilaire, 1831) in Rajasthan, India
– Akshay Jain, Debashish Panda, Rajasekar Rajaraman, Sanjeev Sharma, Sugna Ram Jat & Kamlesh K. Maurya, Pp. 29781–29783

Toil in the soil: putative nest excavation by an adult female Panther Chameleon *Furcifer pardalis* (Cuvier, 1829) in moist, clayey soil on Nosy Komba, Madagascar
– Hinrich Kaiser & Przemysław Zdunek, Pp. 29784–29786

***Amomum pauciflorum* Baker (Zingiberaceae), an addition to the flora of Manipur, India**
– Lolia Hepuni, Adani Lokho & A.A. Mao, Pp. 29787–29790

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