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White-Throated Egg-Eater (Dasypeltis albigularis): Seven-Year Genetic and Breeding Study Reveals New Snake Species in Ethiopia's Harenna Forest

Environment * Climate Change * Atmospheric Physics

A seven-year taxonomic investigation combining mitochondrial and nuclear DNA sequencing , morphological tracking, and captive cross-breeding trials has formally identified a new species of harmless, toothless egg-eating snake from Ethiopia's Harenna Forest -- one of the last major natural forest tracts in the Horn of Africa. Described in the open-access journal Herpetozoa by Arthur Tiutenko (Friedrich-Alexander-Universit t Erlangen-N rnberg), Tim L. Heller (LMU Munich), and Michael F. Bates (National Museum, Bloemfontein), the new species is named Dasypeltis albigularis , or the white-throated egg-eater.

Because African egg-eating snakes of the genus Dasypeltis -- comprising roughly 20 recognized species -- frequently share dark, uniform black or gray coloration across forested highlands, cryptic species routinely escape field detection. The confirmation of Dasypeltis albigularis demonstrates how integrative taxonomy can disentangle look-alike lineages inside threatened Afromontane forest refugia.

Seven Years From Juvenile Specimen to Species Confirmation

The investigation began in 2019 when researchers acquired a juvenile female snake through a local collaborator in the Harenna Forest. At first glance, the specimen closely resembled the montane egg-eater (Dasypeltis atra), a dark-bodied congener already known from East African highlands.

However, as the snake grew to adulthood in captivity, subtle diagnostic traits emerged that did not match D. atra . To resolve whether the animal represented an unusual color variant or a distinct evolutionary lineage, the team tracked morphological development across maturity, conducted captive breeding and test cross-breeding trials, and sequenced both mitochondrial and nuclear DNA markers -- ultimately establishing reproductive and genetic isolation across a seven-year study.

| Taxonomic / Biological Trait | | Dasypeltis albigularis (White-Throated Egg-Eater) | | Comparison to Dasypeltis atra |

| Type Locality | | Harenna Forest, southern Ethiopia | | D. atra distributed across broader East African montane zones |

| Diagnostic Coloration | | White throat & anterior belly (~first 60 ventral scales); occasional bluish interscale skin | | Typically uniformly dark or melanistic |

| Body Size & Defense | | Smaller overall size; appears to have lost loud defensive scale-rasping sound | | Larger; related egg-eaters rasp keeled scales defensively |

| Feeding Biomechanics | | Toothless; cracks whole birds' eggs with modified throat

vertebrae | | Shared obligate oophagy specialization across Dasypeltis |

Specialized Anatomy of an Obligate Egg-Eater

Like other members of Dasypeltis , Dasypeltis albigularis is completely non-venomous, toothless, and feeds exclusively on birds' eggs. Lacking functional teeth, the snake stretches its kinetic jaws around an intact egg, swallows it whole, and then flexes specialized bony projections extending downward from its cervical (throat) vertebrae into the esophagus to pierce and crush the shell.

Once the liquid yolk and albumen pass into the stomach, muscular contractions compress the empty shell into a neat pellet, which the snake regurgitates -- avoiding the metabolic cost and gastrointestinal hazard of digesting bulky calcium carbonate fragments. Alongside its diagnostic white throat and anterior belly spanning roughly the first 60 ventral scales (occasionally revealing bluish skin between scales), D. albigularis is smaller than D. atra and appears to have lost the loud defensive rasping sound that related egg-eaters produce by rubbing their keeled flank scales together.

Conserving Endemic Biodiversity in the Harenna Forest

Situated on the southern slopes of Ethiopia's Bale Mountains, the Harenna Forest represents a critical biodiversity hotspot harboring endemic amphibians, reptiles, and forest-dependent birds. Recognizing Dasypeltis albigularis as a distinct species rather than a widespread population of D. atra highlights the high level of localized endemism surviving in Ethiopia's remaining montane cloud and moist evergreen forests -- underscoring why protecting intact forest corridors in the Horn of Africa remains urgent for reptile conservation.

References & Primary Sources

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