

## Predation on Southern Turnip-tailed geckos (*Thecadactylus solimoensis*) by a Spectacled Owl (*Pulsatrix perspicillata*)

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### ABSTRACT

We report on the predation of *Thecadactylus solimoensis* (Squamata, Phyllodactylidae) by an owl, *Pulsatrix perspicillata* (Aves, Strigiformes). Examination of pellets collected from a *P. perspicillata* roost contained a partial left maxilla of a gecko. The maxilla contained the following traits, which confirmed the identification of *T. solimoensis*: the large size of the maxilla, at least 27 tooth loci, a thickened medial side of the maxillary palatal shelf, a horizontal shelf at the base of the facial process, and blade like posterior process that does not taper abruptly. This is the first report of a gecko in the genus *Thecadactylus* being preyed upon by an owl.

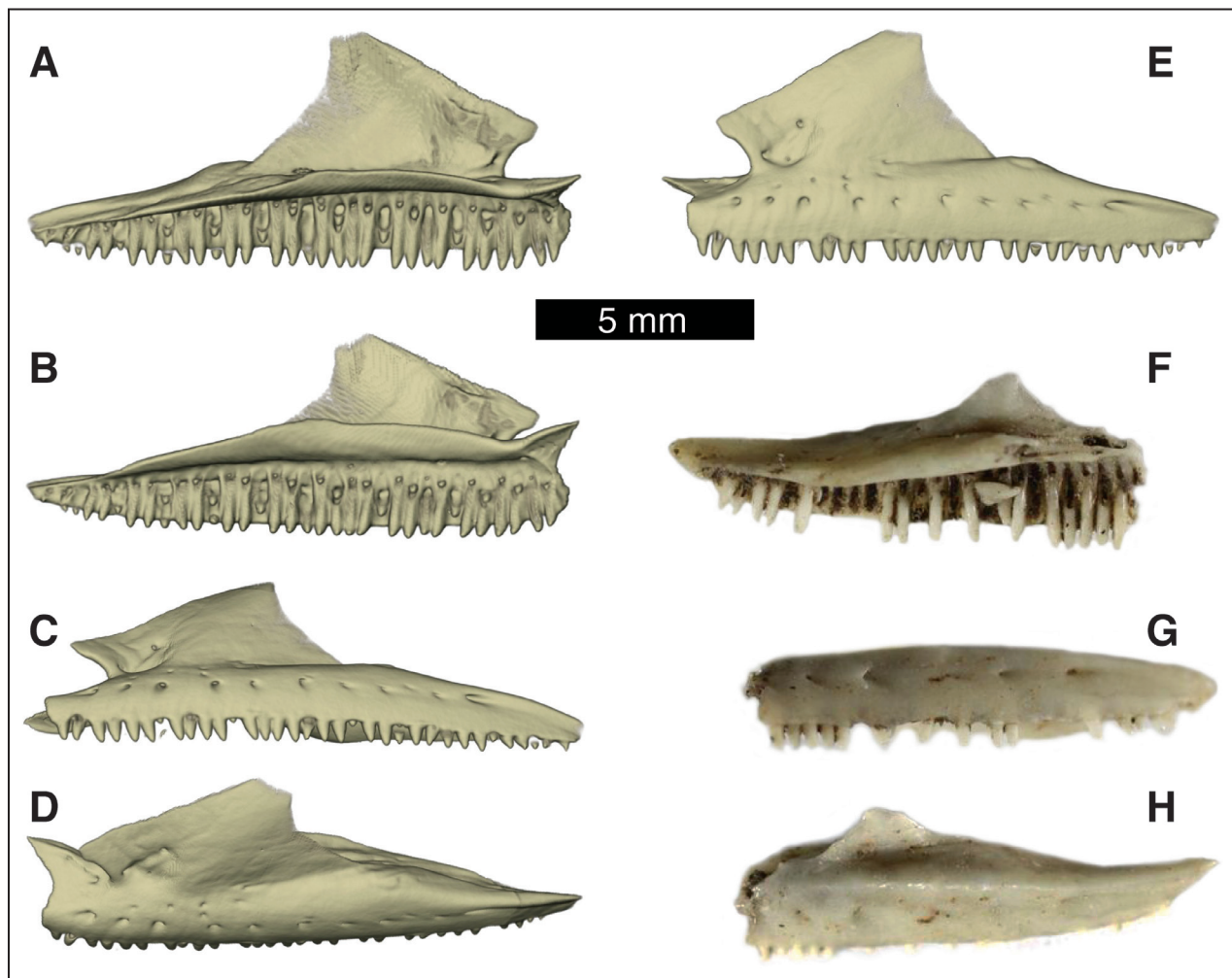
Key Words: Diet; osteology; CT scans; Phyllodactylidae; Strigiformes.

Geckos of the genus *Thecadactylus* are widely distributed across the New World, and range from the Yucatán Peninsula in Mexico to northern Bolivia as well as across the Lesser Antilles (Russell and Bauer, 2002). Known predators of *Thecadactylus* geckos include a number of snake species (*Leptophis ahaetulla* [Hero and Magnusson, 1987], *Siphlophis cervinus* [da Cunha and Nascimento, 1994; dos Santos-Costa *et al.*, 2015], *Leptophis mexicanus* [Campbell, 1998], *Erythrolamprus cobella* [Mole and Urich, 1894; Boos, 2001], *Corallus caninus* [Henderson, 1993], and *Bothriechis schlegelii* [Lindey and Sorrell, 2004]), Double-toothed Kites (*Harpagus bidentatus* [Haverschmidt, 1962]), bats (Goodwin and Greenhall, 1961; Tuttle, 1967; Greene 1988; Ferrer *et al.*, 1998), and centipedes (Olson, 1993).

Birds are important predators of reptiles as their metabolic demands may impose strong selection on the evolution of defensive strategies (Greene, 1988; Pianka and Vitt, 2003). Owls are important consumers of small vertebrates and their regurgitated pellets contain the undigestible bones and hair of vertebrate prey, which facilitates the accumula-

tion and fossilization of small vertebrate remains (Dodson and Wexlar, 1979). The analysis of these remains provides direct evidence about their trophic ecology and predator-prey interactions (Yom-Tov and Wool, 1997).

Here we report a partial left maxilla (Fig. 1) found in an owl pellet, recovered from Cuyabeno Wildlife Reserve, Ecuador (0° 23' 43.00" S; 75° 54' 47.05" W) along the margin of the Zabalo River. The pellet was regurgitated by a Spectacled Owl (*Pulsatrix perspicillata*). The maxilla belongs to a gecko according to diagnostic features of this group such as a single posterior process, and conical teeth with rounded crowns (Evans, 2008; Daza *et al.*, 2015). There are four species of geckos in the Cuyabeno Wildlife Reserve area: O'Shaughnessy's Gecko (*Gonatodes concinnatus*; Sphaerodactylidae), Trinidad Gecko (*Gonatodes humeralis*; Sphaerodactylidae), Amazon Pigmy Gecko (*Pseudogonatodes guianensis*; Sphaerodactylidae), and Southern Turnip-Tailed Gecko (*Thecadactylus solimoensis*; Phyllodactylidae) (Miyata, 1982; Vitt and de la Torre, 1996). Based on the length of the maxilla, the length of the skull of



**Figure 1.** Right maxilla of *Thecadactylus solimoensis*. (A–E) High Resolution Computer Tomography of specimen CAS 95146 (housed at the California Academy of Sciences) from Colonia Calleria in the city of Pucallpa, region Ucayali, Peru. (F–H) material recovered from the owl pellets (material housed at The Field Museum, uncatalogued).

the animal consumed by the owl is estimated to be about 20 mm long. Size alone serves to eliminate the three species of sphaerodactylids, which have miniaturized skulls which do not exceed 15 mm in length (Rieppel, 1984; Daza *et al.*, 2008). Additional features support the identification as *T. solimoensis*, including tooth count (at least 27 tooth loci preserved and possibly more than 30 loci in total), a thickened medial side of the maxillary palatal shelf (where the bone contacts the ectopterygoid), a horizontal shelf at the base of the facial process, and a blade like posterior process that does not taper abruptly. This combination of traits are found on the lateral side of the bone in phyllodactylid geckos (Daza and Bauer, unpublished data).

This report is the first to document an owl as a predator of geckos in the genus *Thecadactylus*. Because of their nocturnal habits, *Thecadactylus*

geckos are vulnerable to predation by owls and other nocturnal predators. In this region, both species of *Gonatodes* and *P. guianensis* are diurnal (Vitt and de la Torre, 1996; Gamble *et al.*, 2015), and are not likely to be prey of *P. perspicillata*.

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