

## Ectrodactyly of the exotic lizard *Hemidactylus mabouia* (Squamata: Gekkonidae) in an urban area of northern Brazil, eastern Amazon

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**RESUMEN:** Presentamos el primer caso conocido de ectrodactilia (pérdida de dedos) en el gecónido *Hemidactylus mabouia*, en el municipio de Macapá, estado de Amapá (Brasil). El espécimen presentaba pérdida de un dedo en un miembro posterior. El registro incrementa el conocimiento de las anormalidades en lagartos.

Malformations are structural abnormalities that are often related to the abnormal development of the limbs (e.g., extra limbs, malformed eyes) (Reaser & Johnson, 1997; Lannoo, 2009). Examples of malformed individuals among lizards are uncommon, such cases are much more common among amphibians than reptiles (Gatti & Sannolo, 2014). Ectrodactyly is a type of abnormality characterized by the complete absence of digit and metatarsal bone (Lannoo, 2009). Herein, we report a case of ectrodactyly in a species of the gekkonid lizard *Hemidactylus mabouia* in Eastern Amazon (Brazil).

*Hemidactylus mabouia* (Moreau de Jonnès, 1818) is an exotic medium-sized lizard widely distributed in the tropics of South America, Central America and the Caribbean (Carranza & Arnold, 2006). This nocturnal lizard is commonly found in anthropic or perianthropic environments (Anjos & Rocha, 2008). The abundant occurrence of *H. mabouia* in natural habitats from Brazilian states changed the status of the species from an exotic species condition to an exotic invasive species in Brazil, being usually associated to anthropic environments (Rocha *et al.*, 2011).

During a herpetofaunal survey, at 20:30 hours on July 25, 2017, in an urban area in the municipality of Macapá ( $0^{\circ}0'30''S$ ,  $51^{\circ}5'43''W$ ; 12 masl), Amapá state, an adult male *H. mabouia* (SVL= 53.2 mm) was observed showing ectrodactyly (Figure 1). The specimen presented missing toe on the posterior limb. This individual was not collected.

Records of malformation have been reported for the genus *Hemidactylus*, such as polydactyly on *Hemidactylus agrius* (De Andrade *et al.*, 2015), and

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**Figure 1:** Male *H. mabouia* with ectrodactyly of the right foot.

**Figura 1:** Macho de *H. mabouia* con ectrodactilia en el pie derecho.

tail bifurcation on *H. frenatus* (Chang *et al.*, 1984) and *H. flaviviridis* (Kumbar *et al.*, 2011). Studies of malformation in lizards mostly register cases of polydactyly or tail bifurcation, the cases of ectrodactyly being an unusual anomaly among lizards.

The possible causes of abnormalities in vertebrates include environmental pollu-

tants, parasites, UV radiation and genetic mutations (Alford & Richards, 1999; Ankley *et al.*, 2002; Lunde & Johnson, 2012). In this note, it is not possible to establish the factors that caused the anomaly, so future studies related to ecotoxicology and genetics are necessary.

## REFERENCES

- Alford, R.A. & Richards, S.J. 1999. Global amphibian declines: A problem in applied ecology. *Annual Review of Ecology and Systematics*, 30: 133-165.
- Anjos, L.A. & Rocha, C.F.D. 2008. The *Hemidactylus mabouia* Moreau de Jonnes, 1818 (Gekkonidae) lizard: an invasive alien species broadly distributed in Brazil. *Natureza & Conservação*, 6: 96-207.
- Ankley, G.T., Diamond, S.A., Tietge, J.E., Holcombe, G.W., Jensen, K.M., Defoe, D.L. & Peterson, R. 2002. Assessment of the risk of solar ultraviolet radiation to amphibians. I. Dose dependent induction of hindlimb malformations in the northern leopard frog (*Rana pipiens*). *Environmental Science & Technology*, 36: 2853-2858.
- Carranza, S. & Arnold, E.N. 2006. Systematics, biogeography, and evolution of *Hemidactylus* geckos (Reptilia: Gekkonidae) elucidated using mitochondrial DNA sequences. *Molecular Phylogenetics and Evolution*, 38: 531-545.
- Chang, P.R.K., Shero, C.M. & Watts, C. 1984. Morphological anomalies of two geckos, *Hemidactylus frenatus* and *Lepidodactylus lugubris*, and the toad, *Bufo marinus*, on the island of Hawaii. *Proceedings of the Fifth Conference in Natural Sciences*, Hawaii Volcanoes National Park, 5-7 June: 41-50.
- De Andrade, M.J.M., Lopes, J.R.I., De Sales, R.F.D. & Freire, E.M.X. 2015. *Hemidactylus agrius* (Country leaf-toed gecko): Polydactyly and tail bifurcation. *The Herpetological Bulletin*, 131: 28-29.
- Gatti, F. & Sannolo, M. 2014. Two cases of polydactyly in the Italian crested newt, *Triturus carnifex*. *Herpetology Notes*, 7: 477-478.
- Kumbar, S.M., Ghadage, A.B. & Shendage, V.M. 2011. *Hemidactylus flaviviridis* (House Gecko). Bifurcation. *Herpetological Review*, 42: 94.
- Lannoo, M.J. 2009. *Malformed frogs: the collapse of aquatic ecosystems*. University of California Press. Berkeley and Los Angeles.
- Lunde, K.B. & Johnson, P.T.J. 2012. A Practical Guide for the Study of Malformed Amphibians and Their Causes. *Journal of Herpetology*, 46: 429-441.
- Reaser, J.K. & Johnson, P.T.J. 1997. Amphibians abnormalities: a review. *Froglog*, 24: 2-3.
- Rocha, C.F.D., Anjos, L.A. & Bergallo, H.G. 2011. Conquering Brazil: the invasion by the exotic gekkonid lizard *Hemidactylus mabouia* (Squamata) in Brazilian natural environments. *Zoologia*, 28: 747-754.

## Actividad nocturna de *Malpolon monspessulanus* en la meseta norte

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**Key words:** Montpellier snake, Spain, north plateau, night activity, weather conditions.

La culebra bastarda (*Malpolon monspessulanus*) es una especie típicamente mediterránea que utiliza principalmente zonas de matorral, con cobertura media y baja, espacios abiertos de diversos biotopos y es

frecuente en los medios de origen antrópico. En la península ibérica solo está ausente de la mayor parte de las dos provincias gallegas más septentrionales, Asturias, Cantabria y País Vasco; en el resto está am-