

First record of the common house gecko (*Hemidactylus frenatus*) in Ecuador

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Key data

Hemidactylus frenatus; Gekkonidae; Common House Gecko; Ecuador; Provincias Esmeraldas and Manabí; population; San Lorenzo & Pedernales. UTA R-55986–88 & DHMECN 04606; verified by Carl J. Franklin, Amphibian and Reptile Diversity Research Center, University of Texas at Arlington, and Cecilia Tobar, División de Herpetología, Museo Ecuatoriano de Ciencias Naturales, Quito, Ecuador.

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The Common House Gecko, *Hemidactylus frenatus* Dumeril and Bibron, is native to south and southeast Asia and the Indo-Australian archipelago, but has since been widely introduced throughout many tropical and subtropical regions (Bauer and Henle, 1994). Its range currently includes countries in Eastern Africa, Madagascar, many of the islands of the South Pacific, Hawaii, Mexico, Central America, and the United States (De Rooij, 1915; Bauer and Henle, 1994; Case et al., 1994; Vences et al., 2004). Within South America, this species has only recently been reported from western Venezuela near the Colombian border (Rivas et al., 2005) and has not been documented in Ecuador (Peters, 1967; Torres, 2001). Here we document the first record of the Common House Gecko from two provinces of Ecuador.

Three individuals were hand captured on 16–17 March 2008 from a wall at the Hotel El Pedregal in San Lorenzo (WGS 84; 1.275°N; 78.812°W, 36 m elev.), Provincia Esmeraldas, approximately 15 km south of the Colombian border. On 21 March 2008, an additional specimen (UTA R-55988) was hand-captured on a wall at the Hotel John in Pedernales, Provincia Manabí (see fig. 1 for locations). In addition to the collected specimens, several additional individuals were observed, suggesting that both localities support established *H. frenatus* populations. We are

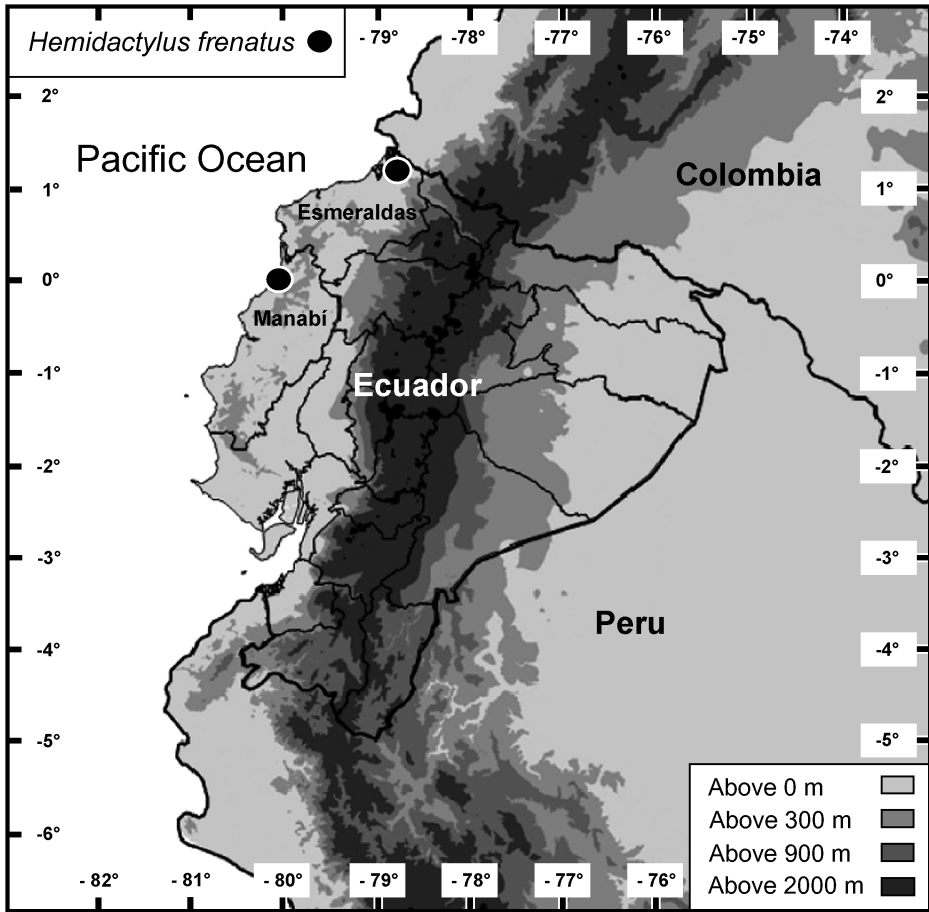


Figure 1. Localities of *Hemidactylus frenatus* in Ecuador.

uncertain whether the presence of this species in Ecuador is the result of a single or multiple introductions. Both San Lorenzo and Pedernales are port cities on the coast and it is likely that this species has been introduced through the ship yards. However, it is difficult to estimate an approximate date of introduction or the country of origin. Molecular studies could be useful in determining the pattern of colonization in Ecuador.

Hemidactylus frenatus is a successful colonizer. For example, it was one of the first colonizing species reported from islands of the Krakatau group after the eruption of Anak Krakatau, and it is now found on all islands of the Krakatau archipelago (Rawlinson et al., 1990). The invasion of *H. frenatus* to mainland Ecuador, and potentially the Galápagos, should be monitored while population structures of native and introduced geckos are studied pre- and post-invasion, with a goal of minimizing impacts and preventing invasion of the ecologically sensitive Galápagos. Human activity has already resulted in the introduction of three species

of gecko to the Galápagos islands: *Phyllodactylus reissii* (Santa Cruz), *Lepidodactylus lugubris* (Santa Cruz, San Cristobal, Isabela), and *Gonatodes caudiscutatus* (San Cristobal) (Schauenberg, 1968; Wright, 1983; Hoogmoed, 1989). The native species *Phyllodactylus galapagoensis* is currently displaced from urban areas by the introduced *P. reissii* (Altamirano, 2002) and we believe the presence of *H. frenatus*, which is often a superior competitor to other geckos (e.g., Case et al., 1994), would likely have graver implications for the conservation of the endemic geckos.

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References

- Altamirano, M.A. (2002): Interactions of native and exotic geckos in the Galapagos Islands: temporal patterns and competitive experiments. PhD Dissertation. Department of Biology, The University of New Mexico, Albuquerque-USA.
- Bauer, A.M., Henle, K. (1994): Das Tierreich 109, Gekkonidae (Reptilia: Sauria). Part I. Australia and Oceania. Berlin, Walter De Gruyter Publishers.
- Case, T.J., Bolger, D.T., Petren, K. (1994): Invasions and competitive displacement among House Geckos in the Tropical Pacific. *Ecology* **75**: 464-477.
- De Rooij, N. (1915): Reptiles of the Indo-Australian Archipelago I: Lacertilia, Chelonia, Emydosauria. Leyden, E.J. Brill.
- Hoogmoed, M.S. (1989): Introduced geckos in Puerto Ayora, Santa Cruz, with remarks on other areas. *Not. de Galápagos* **47**: 12-16.
- Peters, J.A. (1967): Lizards of Ecuador a Check List and Key. *Proc. US Nat. Mus.* 119 (3545). Washington, DC.
- Rawlinson, P.A., Widjaya, A.H.T., Hutchinson, M.N., Brown, G.W. (1990): The vertebrate fauna of the Krakatau Islands, Sunda Strait, 1883-1986. *Phil. Trans. R. Soc. Lond. B* **328**: 3-28.
- Rivas-Fuenmayor, G., Ugueto, G.N., Bauer, A.M., Barros, T., Manzanilla, J. (2005): Expansion and natural history of a successful colonizing gecko in Venezuela (Reptilia: Gekkonidae: *Hemidactylus mabouia*) and the discovery of *H. frenatus* in Venezuela. *Herpetol. Rev.* **36**: 121-125.
- Schauenberg, P. (1968): Sur la présence de *Lepidodactylus lugubris* (Duméril et Bibron, 1836) (Reptilia, Gekkonidae) en Equateur. *Rev. Suisse Zool.* **75**: 415-417.
- Torres-Carvajal, O. (2001): Lizards of Ecuador: Checklist, Distribution, and Systematic References. Smithsonian Herpetological Information Service No. 131: 1-35.
- Vences, M., Wanke, S., Vietes, D.R., Branch, W.R., Glaw, F., Meyer, A. (2004): Natural colonization or introduction? Phylogeographical relationships and morphological differentiation of house geckos (*Hemidactylus*) from Madagascar. *Biol. J. Linn. Soc.* **83**: 115-130.
- Wright, J.W. (1983): The distribution and status of *Gonatodes collaris* in the Galapagos archipelago. *Herpetol. Rev.* **14**: 32.