

Catalogue of American Amphibians and Reptiles.

Powell, Robert, and Scott A. Maxey. 1990. *Hemidactylus brookii*.

Hemidactylus brookii Gray

Hemidactylus brookii Gray, 1845:153. Type-localities, "Borneo, Australia." Syntypes, British Museum of Natural History (BMNH) 1947.3.6.47-49, adult males, dates of collection unknown, "presented" by Edw. Belcher and the Earl of Derby, respectively (not examined by authors).

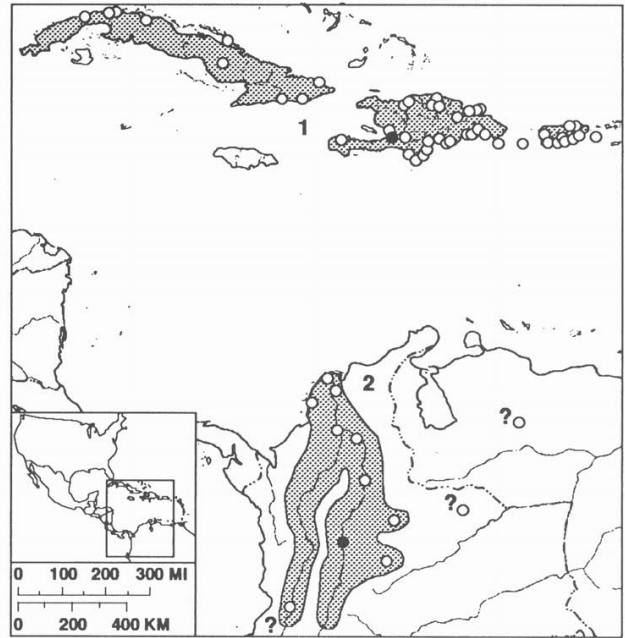
• **Content.** Six subspecies are recognized, four are extralimital. American populations are referred to *baitianus* or *leightoni*.

• **Definition.** American forms are moderately-sized geckos, SVL to 67.5 mm (*baitianus*) and 63.4 mm (*leightoni*) (Kluge, 1969), with dorsal surfaces covered by small granules and large trihedral tubercles, a hemidactyl type of digit whose enlarged subdigital lamellae reach the origins of digits, 10-18 loreal scales, 3-10 cheek tubercles, 0-4 auricular scales, 7-11 supralabials, 6-10 infralabials, 14-23 rows of body tubercles, 14-23 tubercles in paravertebral rows, 1-5 tubercles in each caudal whorl and 4-8 scales between whorls, 7-11 subdigital lamellae on the 4th toe, 21-32 preanal pores, 0-4 interpreanal pore scales, snout-eye length 9.66-12.33% and eye-ear length 7.45-10.42% of SVL.

Ground color is pale gray or tan to dark brown. The light to dark brown dorsal pattern, when present, consists of 3-6 butterfly-shaped marks, but is often broken into numerous irregular spots. The dorsal surface of the tail is covered with 9-11 irregular bands or numerous spots.

• **Diagnosis.** *Hemidactylus brookii* may be distinguished from all other American congeners by the following combination of characters (Kluge, 1969): hemidactyl type of digit with enlarged subdigital lamellae of the fourth toe reaching the origin of the digit, dorsal surfaces of the body covered with small granules and large trihedral tubercles, 21-32 preanal pores, 0-4 interpreanal pore scales, 0-4 auricular scales.

• **Descriptions.** *Hemidactylus brookii baitianus* was described by Meerwarth (1901). Grant (1932a) and Rivero (1978) described the species in Puerto Rico and Cochran (1941) described a Hispaniolan specimen. Descriptions of *H. brookii leightoni* are in-



Map 1. Distribution of *Hemidactylus brookii* in the Western Hemisphere. Solid circles mark type-localities, open circles indicate other localities. Question marks indicate uncertain records (Vanzolini, 1978).

cluded in Boulenger (1911) (as *H. leightoni*), Shreve (1936) (as *H. neotropicalis*), and Vanzolini (1978). Kluge (1969) provided detailed descriptions of both *baitianus* and *leightoni*.

• **Illustrations.** Rivero (1978) included color photographs of an adult, a juvenile, and the subdigital lamellae. Black and white photographs of specimens from Puerto Rico are included in Grant (1932a) and Kluge (1969). Cochran (1941) illustrated a Hispaniolan specimen with line drawings of the head, hind foot, and dorsal and ventral scales. Kluge (1969) provided line drawings of the cheek and a ventral view of the hind foot.

• **Distribution.** The range includes equatorial Africa (includ-

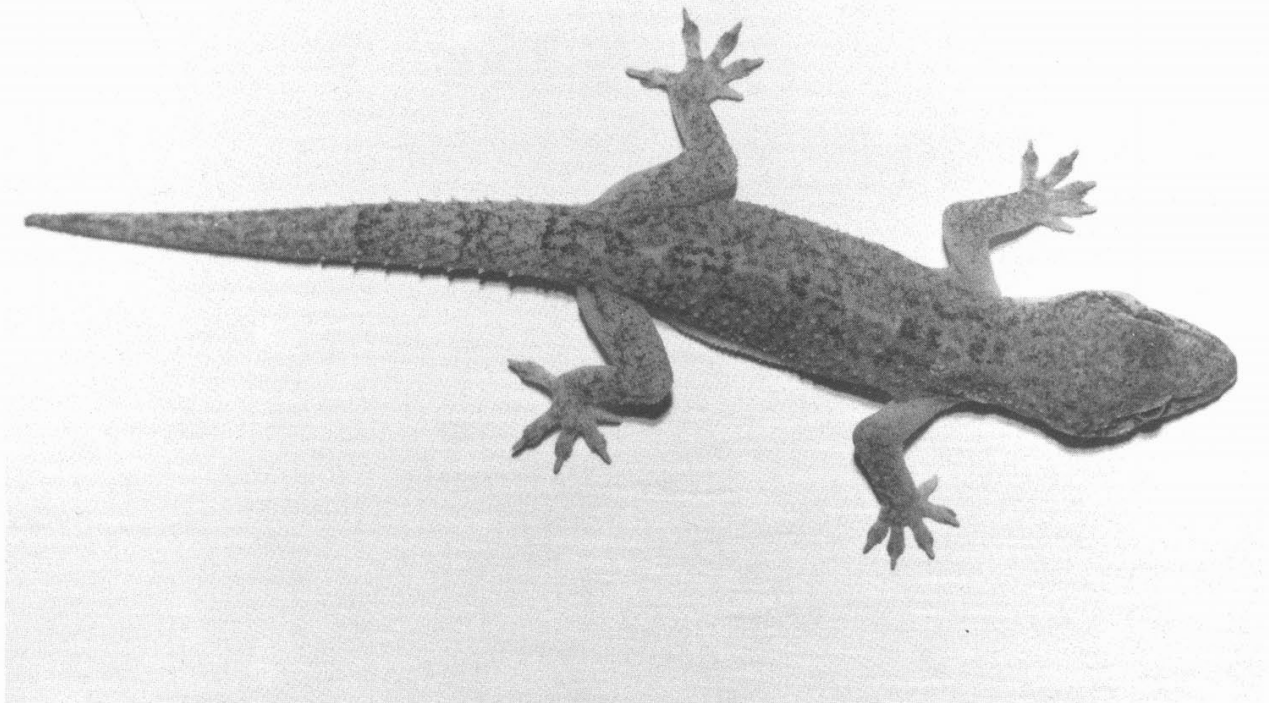
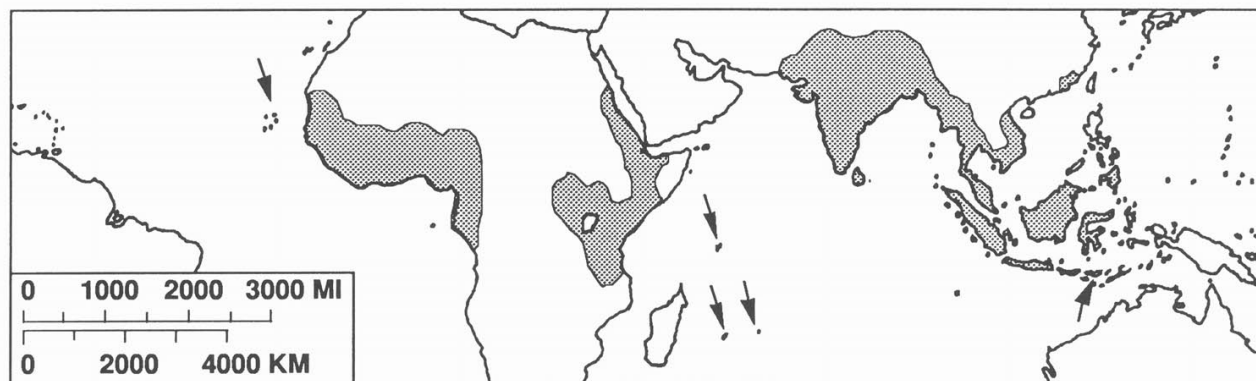


Figure. *Hemidactylus brookii baitianus* from Barahona, Provincia de Barahona, República Dominicana. Photograph by Darla K. Carr.



Map 2. Distribution of *Hemidactylus brookii* in the Eastern Hemisphere. Arrows mark insular populations.

ing the Cape Verde islands) and the Indian subcontinent through the Malay-Indonesian Archipelago. New World populations are found on Hispaniola (including Isla Saona), Cuba (including Cayo Guajaba), and Puerto Rico (including Isla Vieques), and in coastal and central Colombia, including sites east of the Andes (many of the inland localities are associated with the Río Magdalena system). Isolated localities are likely the result of the ease with which this species is transported via human activity. Kluge (1969) illustrated the range, and Vanzolini (1978) discussed distribution and provided a map of the range in Colombia.

• **Fossil Record.** None.

• **Pertinent Literature.** Grant (1932a) and Cochran (1941) described *H. brookii* and discussed relationships with other *Hemidactylus* on Puerto Rico and Hispaniola, respectively. Loveridge (1941) provided a key and summarized taxonomy and ranges of forms found in the Americas. Grant and Deuel (1944) distinguished American *brookii* from *H. turcicus*. Levins and Heatwole (1963) considered the allopatric distribution of *brookii* and *H. mabouia* an example of competitive exclusion. This was disputed by Kluge (1969), who also discussed the origin of New World *brookii*, and the probable mode of dispersal, distribution, and relationships of all New World *Hemidactylus*. Vanzolini (1978) discussed relationships of all South American *Hemidactylus*. Laurent (1979) noted the African origin of *H. brookii*. Peters and Donoso-Barros (1986) included *H. brookii leightoni* in their catalogue of neotropical squamates. Steindachner (1902), Dunn (1944), Donoso-Barros (1968), Medem ("1968" [1969]), Alarcón-Pardo (1979), and Ayala (1986) discussed the South American distribution. Colombian records cited by Berthold (1846), Ernst (1889), and Werner (1900), as *mabouia*, are uncertain (Vanzolini, 1978). Barbour (1930, 1935, 1937), Schwartz and Thomas (1975), and Schwartz and Henderson (1988) included the species in lists of Antillean reptiles and amphibians. Aloyo (1951) described the species from Santiago de Cuba. Mertens (1938, 1939) and Grant (1956) noted the species in collections from Santo Domingo (= Dominican Republic). Henderson and Sajdak (1983) noted the presence of *H. brookii haitianus* on Isla Saona, República Dominicana. Henderson and Schwartz (1984) noted the species' islandwide distribution on Hispaniola and included it in a key to geckos of the island. Grant (1932a, b) described vocalization. Reflectivity of the skin was measured by Hutchison and Larimer (1960). Powell et al. (1990b) discussed food habits, reproduction, and frequencies of tail autotomy in Hispaniolan populations. Powell et al. (1990a) noted parasitism by a nematode, *Trichospirura leixei*. Pashley (1981), Richards (1982), and Garthwaite (1987) included material on captive husbandry, although the former did not distinguish between old and new world forms.

• **Etymology.** *H. brookii* was probably named for Sir James Brooke, Rajah of Sarawak (fide A.F. Stimson, British Museum). The name *haitianus* presumably refers to the type locality, and *leightoni* honors Sir Bryan Leighton, who collected the holotype.

1. *Hemidactylus brookii haitianus* Meerwarth

Hemidactylus brookii haitianus Meerwarth, 1901:17. Type-localities, "Haiti, Port-au-Prince." Syntypes, formerly in the Zoolo-

gisches Museum, Universität Hamburg, Hamburg, Federal Republic of Germany, No. 1500, age and sex unknown, collected by Tippenhauer in 1894; No. 2250 (a-b), ages and sexes unknown, collected by Keitel in 1898. The specimens were subsequently destroyed. See remarks.

Hemidactylus mabouia: Cochran, "1924" (1926):3.

Hemidactylus brooki: Böker, 1939:16.

• **Diagnosis.** A subspecies of *H. brookii* which can be distinguished from all other New World forms by a high number of auricular scales (0-3, $\bar{x}$ = 1.8), high number of preanal pores (23-32, $\bar{x}$ = 28.0), and low number of interpreanal pores (0-4, $\bar{x}$ = 2.1).

• **Remarks.** Meerwarth (1901) listed only "Haiti" as the locality for specimen No. 1500.

2. *Hemidactylus brookii leightoni* Boulenger

Hemidactylus leightoni Boulenger, 1911:19. Type-locality, "Honda, Magdalene R., Colombia, 300-400 feet". Holotype, British Museum of Natural History (BMNH) 1946.8.25.65, an adult female, collected by Sir Bryan Leighton, date of collection unknown (not examined by authors).

Hemidactylus neotropicalis Shreve, 1936:270. Type-locality, "Curumani, northeast of Saloa, Rio Cesar, above El Banco, Magdalena river, Magdalena Department, Colombia," corrected by Shreve (1938) to "Colombia: Puerto Wilches in Santander Dept." Holotype, Museum of Comparative Zoology (MCZ) 39706, an adult female, collected by R. E. Stadelman on 9 October 1935 (not examined by authors).

Hemidactylus brookii haitianus: Mechler, 1968:361.

Hemidactylus brookii leightoni: Kluge, 1969:37. First use of combination.

• **Diagnosis.** A subspecies of *H. brookii* which can be distinguished from all other New World forms by a low number of auricular scales (0-4, $\bar{x}$ = 0.80), low number of preanal pores (21-28, $\bar{x}$ = 24.3), and high number of interpreanal pores (2-4, $\bar{x}$ = 2.9).

• **Comment.** Cochran (1941), on the assumption that *H. brookii* came to the New World via the slave trade, suggested that *haitianus* should not be recognized as a subspecies, as "the chances are negligible that a fixed subspecies could have been evolved in so short time even in the new environment." Kluge (1969), however, indicated that these geckos probably arrived in America much earlier, negating Cochran's argument.

Shreve (1938) indicated that *H. neotropicalis* was probably synonymous with *H. leightoni*, the description of which was overlooked at the time *neotropicalis* was described. Mechler (1968) accepted the synonymy of *neotropicalis* with *leightoni* and noted that *leightoni* was a form of *brookii*, but also used *haitianus* for some Colombian specimens, as did Medem ("1968" [1969]). Kluge (1969) synonymized *H. leightoni* and *H. neotropicalis* as *H. brookii leightoni*.

Kluge (1969) described *H. palaichthus* as an endemic New World species derived from *H. brookii haitianus*. Mertens (1973) considered *palaichthus* a subspecies of *H. brookii*. Schwartz and Thomas (1975), Schwartz and Henderson (1988), and Powell (1990) noted Mertens' view, but listed these populations as *palaichthus*.

Literature Cited

- Aloyo, D.P. 1951. Especies herpetológicas halladas en Santiago de Cuba. *Bol. Hist. Nat. Soc. Habana* 2(7):106-111.
- Alarcón-Pardo, H. 1979. Los reptiles depositados en la colección de herpetología del Instituto de Ciencias Naturales, Museo de Historia Natural, Universidad Nacional de Colombia. *ICN. Scientiae* 1(1):9-35.
- Ayala, Stephen C. 1986. Saurios de Colombia: lista actualizada, y distribución de ejemplares colombianos en los museos. *Caldasia* 15(71-75):555-575.
- Barbour, Thomas. 1930. A list of Antillean reptiles and amphibians. *Zoologica* 11(4):61-116.
- . 1935. A second list of Antillean reptiles and amphibians. *Zoologica* 19(3):77-141.
- . 1937. Third list of Antillean reptiles and amphibians. *Bull. Mus. Comp. Zool.* 82(2):77-166.
- Berthold, A.A. 1846. Ueber verschiedene neue oder seltene Reptilien aus Neu-Grenada und Crustaceen aus China. *Abh. K. Ges. Wiss. Goettingen* 3:1-16.
- Böker, Hans. 1939. Sobre algunos resultados de mis investigaciones en el Instituto Científico Dominicano-Alemán. *Publ. Inst. Cient. Dominicano-Alemán* 1:14-77.
- Boulenger, G. A. 1911. Descriptions of new reptiles from the Andes of South America, preserved in the British Museum. *Ann. Mag. Nat. Hist., ser. 8*, 7(37):19-25.
- Cochran, Doris M. "1924" (1926). Notes on the herpetological collections made by Dr. W. L. Abbott on the Island of Haiti. *Proc. U. S. Nat. Mus.* 66:1-15.
- . 1941. The herpetology of Hispaniola. *Bull. U. S. Natl. Mus.* (177):i-vii + 1-398.
- Donoso-Barros, R. 1968. The lizards of Venezuela (check list and key). *Carib. J. Sci.* 8(3-4):105-122.
- Dunn, E.R. 1944. Los generos de anfibios y reptiles de Colombia, II. Segunda parte: reptiles, orden de los saurios. *Caldasia* 3:73-110.
- Ernst, A. 1889. Lacertilia venezuelana, ó sea, enumeración sistemática de las especies de lagartos que hasta ahora se han encontrado en Venezuela. *Rev. Ci. Univ. Cent. Venezuela* 1:213-218.
- Garthwaite, D.G. 1987. Geckos: *Eublepharis macularis*, *Gehyra mutilata*, *Hemidactylus brooki*, and *Phelsuma dubia*, p. 38-41. In: K.R. Welch (ed.), *Handbook on the maintenance of reptiles in captivity*. Robert E. Krieger, Melbourne, Florida. v + 156 p.
- Grant, Chapman. 1932a. The hemidactyls of the Porto Rico region. *J. Dept. Agr. Puerto Rico* 16(1):51-57.
- . 1932b. Herpetological notes from the Puerto Rico area. *J. Dept. Agr. Puerto Rico* 16(2):161-165.
- . 1956. Report on a collection of Hispaniolan reptiles. *Herpetologica* 12(2):85-90.
- and James T. Deuel. 1944. Digital lamellae and notes on West Indian hemidactyls. *Herpetologica* 2(6):126-138.
- Gray, John Edward. 1845. Catalogue of the specimens of lizards in the collection of the British Museum. Edward Newman, London. 289 p.
- Henderson, Robert W. and Richard A. Sajdak. 1983. Notes on reptiles from Isla Saona, República Dominicana. *Florida Sci.* 46(1):59-61.
- and Albert Schwartz. 1984. A guide to the identification of the amphibians and reptiles of Hispaniola. *Milwaukee Publ. Mus. Spec. Publ. Biol. Geol.* (4):1-70.
- Hutchison, Victor H. and James L. Larimer. 1960. Reflectivity of the integuments of some lizards from different habitats. *Ecology* 41(1):199-209.
- Kluge, Arnold G. 1969. The evolution and geographical origin of the New World *Hemidactylus mabouia-brooki* complex (Gekkonidae, Sauria). *Misc. Publ. Mus. Zool. Univ. Michigan* (138): 1-78.
- Laurent, Raymond F. 1979. Herpetofaunal relationships between Africa and South America, p. 55-71. In: William E. Duellman, (ed.), *The South American herpetofauna: its origin, evolution, and dispersal*. Mus. Nat. Hist. Univ. Kansas Monograph No. 7. 485 p.
- Levins, Richard and Harold Heatwole. 1963. On the distribution of organisms on islands. *Carib. J. Sci.* 3(2&3):173-177.
- Loveridge, Arthur. 1941. Certain Afro-American geckos of the genus *Hemidactylus*. *Copeia* 1941(4):245-248.
- Mechler, B. 1968. Les Geckonidés de la Colombie. *Rev. Suisse Zool.* 75(2):305-371.
- Medem, F. "1968" [1969]. Desarrollo de la herpetología en Colombia. *Rev. Acad. Colomb. Ciencias Ex. Fis. Nat.* 13(50):149-199.
- Meerwarth, Hermann. 1901. Die westindischen Reptilien und Batrachier des naturhistorischen Museums in Hamburg. *Mitt. naturhist. Mus. Hamburg* 18:1-41.
- Mertens, Robert. 1938. Amphibien und Reptilien aus Santo Domingo, gesammelt von Prof. Dr. H. Böker. *Senckenbergiana* 20: 332-342.
- . 1939. Anfíbios y reptiles de Santo Domingo coleccionados por el Prof. H. Böker. *Publ. Inst. Cient. Dominicano-Alemán* 1:82-95.
- . 1973. Herpetofauna tobagana. *Stuttgarter Beitr. zur Naturkunde* (252):1-22.
- Pashley, A.I. 1981. Some observations on the care & captive breeding of Brook's gecko (*Hemidactylus brooki*). *Herpetile* 6(2):18-22.
- Peters, James A. and Roberto Donoso-Barros. 1986. Catalogue of the neotropical Squamata. Part II. Lizards and amphisbaenians. *Smithsonian Inst. Press, Washington, D.C.* viii + 293 p.
- Powell, Robert. 1990. *Hemidactylus palaichthis*. *Cat. Amer. Amphib. Rept.*: 468.1.
- , Patricia J. Hall, John H. Greve, and Donald D. Smith. 1990a. Occurrence of *Trichospirura teixeirai* (Spirurida: Rhabdionidae) in *Hemidactylus brooki haitianus* (Sauria: Gekkonidae) from Hispaniola. *J. Helminthol. Soc. Washington* 57(1): 74-75.
- , John S. Parmelee, Jr., Mark A. Rice, and Donald D. Smith. 1990b. Ecological observations of *Hemidactylus brooki haitianus* Meerwarth (Sauria: Gekkonidae) from Hispaniola. *Caribbean J. Sci.* 26:in press.
- Richards, J. 1982. An observation of unusual behavior in a gecko. *Herpetiles* 7(2):39.
- Rivero, Juan A. 1978. Los anfibios y reptiles de Puerto Rico. *Univ. Puerto Rico Ed. Univ., Mayaguez.* x + 152 p.
- Schwartz, Albert and Robert W. Henderson. 1988. West Indian amphibians and reptiles: a check-list. *Milwaukee Publ. Mus. Contr. Biol. Geol.* (74):1-264.
- and Richard Thomas. 1975. A check-list of West Indian amphibians and reptiles. *Carnegie Mus. Nat. Hist. Spec. Publ.* (1): 1-216.
- Shreve, Benjamin. 1936. A new *Atelopus* from Panama and a new *Hemidactylus* from Colombia. *Occ. Pap. Boston Soc. Nat. Hist.* 8:269-272.
- . 1938. *Hemidactylus neotropicalis*-a correction. *Herpetologica* 1(5):124.
- Steindachner, F. 1902. Herpetologische und ichthyologische Ergebnisse einer Reise nach Südamerika. *Denkschr. K. Akad. Wiss. Wien* 72:89-148.
- Vanzolini, P. E. 1978. On South American *Hemidactylus* (Sauria, Gekkonidae). *Pap. Avul. Zool.* 31(20):307-343.
- Werner, F. 1900. Ueber Reptilien und Batrachier aus Columbien und Trinidad. *II. Verh. K. K. Zool.-Bot. Ges. Wien* 50:262-272.

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