

Bonn. zool. Beitr.	Bd. 40	H. 3/4	S. 265—272	Bonn, Dezember 1989
--------------------	--------	--------	------------	---------------------

A new Canarian lizard subspecies from Hierro Island (Canarian archipelago)

Luis F. López-Jurado

Abstract. *Gallotia simonyi machadoi* subsp. nov. is described from the mainland of Hierro, where a surviving population was discovered in 1975. The new lizard differs markedly in size and pholidotic characters from the typical subspecies, which lived on the Rock of Salmor until its extinction.

Key words. Reptilia, Lacertidae, *Gallotia simonyi*, new subspecies, Canary Islands.

Introduction

The first in-depth study of a relict population of large-sized lizards on Hierro (Canary Islands) was done by Antonio Machado in 1985. The presence of this animal in Hierro was first revealed by Böhme & Bings (1975, 1977) and a preliminary study "in situ" (Martinez-Rica 1982) was carried out in September 1975. Later discoveries of fossil remains at other places on the island demonstrated the former existence of this lizard on virtually all the island surface (Böhme et al., 1981; Bings 1985; and our own unpublished data).

The results obtained by Machado (1985) show differences of taxonomic value between this lizard and the specimens of *Gallotia simonyi simonyi* originating from the "Roque Chico de Salmor" (Hierro Island) kept in different zoological collections. Machado (1985) classified the taxon as *Gallotia affinis simonyi*. The aim of this work, thus, is to scientifically name this large-sized lizard which is today found in the "Fuga de Gorreta" on the Island of Hierro, one of the western islands in the Canarian archipelago.

Material and methods

In the locality of Frontera on Hierro Island the regional Canarian Government keeps several lizards of this species in captivity. Four were studied there on April 6, 1986: one male, two females and one juvenile. The results presented in this paper are based on the data obtained in the study of these four specimens, plus those already published by Machado (1985) and on other unpublished data that this author kindly passed on to us, and finally on our own data regarding fossil lizard remains from Hierro Island, and on several specimens of *Gallotia stehlini* from Gran Canaria Island.

Results

The name *Gallotia affinis simonyi* applied by Machado (1985) is not taxonomically valid when trying to include the species in conservation projects and on the international lists of threatened vertebrates. For this reason, and thanks to the morphological differences elaborated by Machado (1985), we may describe a new subspecies of the giant lizard of Hierro.

Gallotia simonyi machadoi, subsp. nov.

Holotype and locus typicus. — Live adult male (Fig. 1), presently (January 1989) in the custody of the "Dirección General del Medio Ambiente" (Head Office of the Environment) of the regional Government of the Canary Islands. Captured in the "Fuga de Gorreta" (Hiero Island) in November 1985 by Mr. Carlos Naeslund and kept in captivity in the field station of Frontera (Hiero Island). The holotype will be deposited in the Museo Insular de Ciencias Naturales, Santa Cruz de Tenerife, after its death.

Diagnosis. A subspecies of *Gallotia simonyi* characterized by smaller body size, a more rounded head, and larger masseteric and tympanic scales. Adult coloration black or dark brown with lemon yellow lateral spots.

Description of the holotype. — An adult male weighing 243 grams, snout-vent length 182 mm and tail length 238 mm (Fig. 1). Back dark brown, blacker in the center. One row of lateral spots from the scapular to the pelvic area (over fore and hind-limb joints respectively). This row consists of six spots. The first two (scapulars) are a very conspicuous lemon yellow color and round. The next four are smaller, also yellow but quite a bit paler, and they become progressively less prominent. The two rows of spots below are generally similar in color to this one. The first of these is situated at the level where the last dorsal scales border the ventral scales and consists of four spots similar in size to those in the previously described row but having more irregular shapes. The last two spots are very light yellow. The bottom row of spots, identical in color to the second row, is distributed clearly along the line formed by the lateralmost ventral scales, and their shape is even less defined and more mottled. Dorsal part of the head and temporal area are black. Yellowish-orange iris. Supralabials, infralabials and submaxillars are predominantly black with dark rose-colored stippling. Fore and hind limbs same color as back. Dark gray throat with collar and gular fold present. Pale gray belly and grayer in the anterior half; tail is a dark color similar to back. The temporal region is formed by many small scales and one masseteric scale much larger and differentiated from the rest. Collaria 13, gularia 31, longitudinal series of ventral scales 18, transverse series of ventral scales 35, dorsalia 91, femoral pores 27/24, scales in one ring of tail 47, supraciliar lamellae 6/6, supraciliar granula 13/11. Tricuspid teeth. More biometrical and pholidotic data in table 1 (see also Machado 1985).

Paratypes. — Two adult females and one juvenile, same data as for the holotype; also included is a series of bones from the "Casario de Guinea", an archaeological complex from prehispanic times situated at the foot of the Fuga de Gorreta; the series (Figs. 3–5) is deposited in the herpetological collection of the Animal Biology Laboratory of the Veterinarian Faculty of Las Palmas University (H- 1 to H-14).

Description of female 1. Dark brown ground color, blacker in the center of the back. This brown color is largely due to the shedded skin which is still attached. Head black dorsally and temporal region also black. The collar is slightly jagged and gular fold distinct. Laterally similar in color to the back as is the tail. Ventrally pale beige in color, grayer in the anterior half; tail also pale beige on the underside. Laterally the first row of spots (scapular-pelvic) is just one ocellus lemon yellow in color, situated just over the forelimb joints, and is not visible when the animal is at rest due to a cutaneous fold that completely hides it. A small yellow spot in this row is also seen at the point where the third ocellus should be. The second row only has the three anteriormost yellow spots. Four yellow spots constitute the third row (the

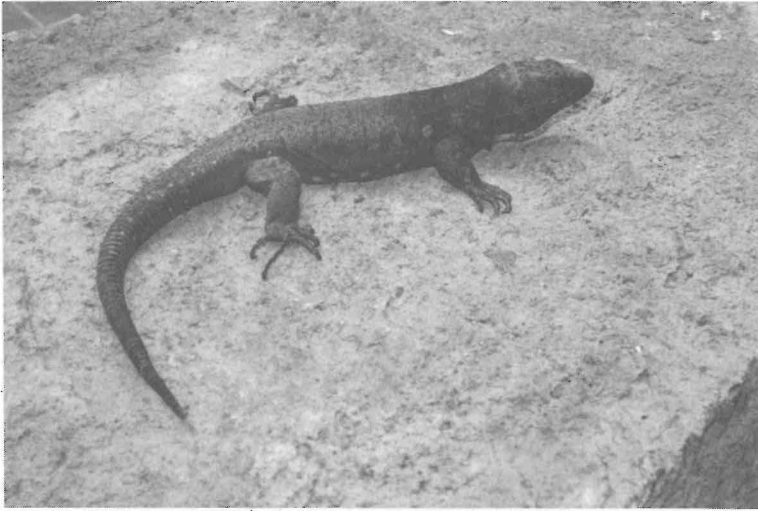


Fig. 1. *Gallotia simonyi machadoi* subsp. nov., adult male, holotype.



Fig. 2. *Gallotia simonyi machadoi* subsp. nov., juvenile, paratype.

anterior two, more prominent), larger than those in the second row and distributed on the lateralmost ventral scales on each side. The anterior surfaces of the thighs show some groups of scales that give this area a pinky shade. The lower surfaces of the hands and feet are black. Large nostrils and yellowish-orange iris; very dark submaxillars, almost black. Gulars also very dark, becoming grayer towards the collar. This gray turns into beige towards the middle of the belly. Tricuspid teeth.

Description of female 2. — Dorsal ground color dark brown, almost black. Head black. Darker ventrally than the first female. The rosy shade of the anterior surfaces of the

thighs is also fainter though still evident. Rest of body coloration the same as for the female previously described. Only the scapular ocellus appears in the first row of spots, clearly visible and lemon yellow in color and a small spot in place of the second ocellus. Only the fourth ocellus appears in the second row, together with small remnants of the second and third. The third row presents five yellow spots each divided into two parts, the upper part is situated where the dorsal and ventral scales meet and the lower part across the lateralmost ventral scales.

Description of the juvenile (Fig. 2). — It presents a general pattern of spots which run from two beige lateral bands, starting at the fourth supraocular scale level and reaching the dorsal proximal part on the tail. At regular intervals of approximately 1 cm each band

Table 1: Pholidotic (up) and biometrical (bottom) data obtained from the type series. Symbols as follows: M = male, F = female, YNG = young, C = Collaria, G = Gularia, LV = longitudinal series of ventral scales, TV = transversal series of ventral scales, D = dorsalia, FP = femoral pores, L4°T = lamellae under fourth toe, ST = scales in one ring of the tail, SS = supraciliaria scales, SG = supraciliaria granula, W = weight in grams; and in millimeters, SVL = snout vent length, TL = tail length, PL = pileus length, PW = pileus width, HWE = head width at the level of the eyes, HH = head height, DAL = distance arm—leg, AL = arm length, LL = leg length and 4°TL = 4° toe length.

Sex	C	G	TV	LV	D	FP	L4°T	ST	SS	SG	
M	13	31	35	18	91	27/24	31/32	47	6/6	13/11	
F-1	15	26	35	20	93	26/24	30/29	44	5/5	10/10	
F-2	13	32	34	19	90	18/21	30/29	—	6/6	11/11	
YNG	14	32	36	18	92	25/24	—	43	5/6	11/11	
Sex	W	SVL	TL	PL	PW	HWE	HH	DAL	AL	LL	4°TL
M	243,3	182,2	238,2	46,3	19,3	7,3	21,7	95,5	69,9	95,6	26,1
F-1	239,9	172	252,2	38,3	17,6	6	18,7	95,2	58,4	82,6	25
F-2	157	162,2	—	36	16,6	5,5	17,8	77,1	56,4	81	21,9
YNG	21	81	178	20,7	10	2,7	10,7	41,7	31,3	49,1	16,7

Table 2: Biometrical and pholidotic data for the three taxa mentioned in the text. Data taken from Machado (1985 and unpubl.), Bischoff (1985) and the author's files. Symbols as follows: SVL = snout vent length, and PL = pileus length, in millimeters; LV = longitudinal series of ventral scales, and TV = transverse series of ventral scales.

	<i>simonyi</i>	<i>machadoi</i>	<i>stehlini</i>
Max. SVL	255	187	280
Max. PL	60	46.3	75
LV	18—23	17—21	14—20
TV	31—36	34—35	32—36
Femor. Por.	27—33	18—30	25—28
Gularia	28—36	26—34	35—49
Collaria	9—13	13—17	10—18

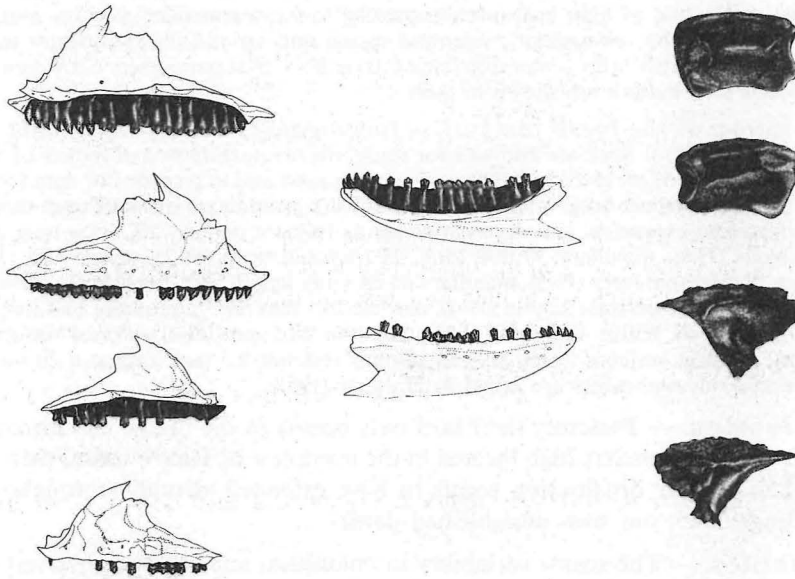


Fig. 3. Maxillary, dentary, quadrate and nasal of *Gallotia simonyi machadoi* subsp. nov. from the archaeological site of Guinea, Hierro. See text for measurements. Drawn by Antonio Sánchez.

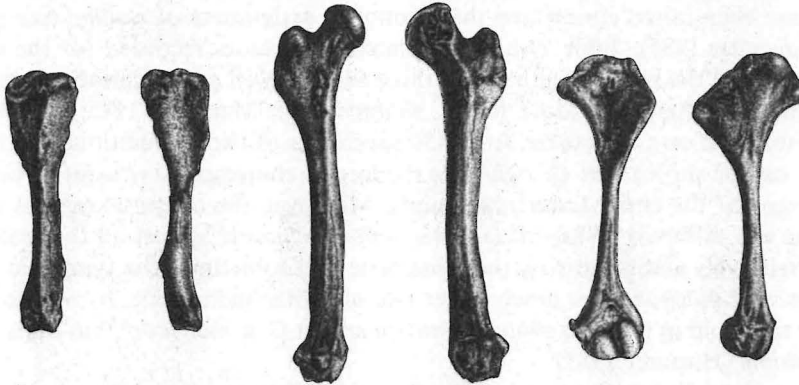


Fig. 4. Tibia, femur and humerus of *Gallotia simonyi machadoi* subsp. nov.

widens out laterally into two extensions of the same color. The rest of the back is a very dark brown ground color, almost black, with irregular areas of brown stippling. Dark brown limbs, almost black, with brownish circular small spots. Laterally it shows three rows of yellow spots. The uppermost one has nine ocelli running from the scapular to the pelvic region. Next there is a distinctly beige-colored band similar to the dorsolaterals all along the body. Below there is a new row of four yellow spots across the lateralmost dorsal scales, and finally another four yellow spots across the lateralmost ventral scales. The lizard has a pinkish-beige belly with many brown spots. The lower surfaces of the hands and feet are brown, with black fingers.

Gray gulars with rows of light brown scales parallel to the submaxillars coming together at the chinshield. On the submaxillars, temporal region and around the tympanum there are small groups of pinkish-beige scales distributed irregularly. The parameters corresponding to the pholidosis and pattern are shown in table 1.

Description of the fossil remains. — Unfortunately no bone remains of the typical subspecies from Salmor Rock are available for study; the measurements and figures of the new subspecies (Figs. 3–5) are given mainly as a documentation and to provide raw data for future work on fossil and recent bone materials. The numbers given in parentheses refer to the Las Palmas collection; characters and dimensions are as follows: dentary 25.2 mm long with 21 tricuspid teeth (H-1), maxillary 30 mm long, 21 tricuspid teeth (H-2), dentary of 13.1 mm length with 18 tricuspid teeth (H-3), maxillary of 19.3 mm length with 19 tricuspid teeth (H-4), nasal 13.9 mm (H-5), sternum 22 mm (H-6), clavicle 16.1 mm (H-7), quadrate 12.4 mm (H-8), tibia 27.4 mm (H-9), femur 40.3 mm (H-10), humerus 32.5 mm (H-11), dorsal vertebra 10.7 mm (H-12), cervical vertebra 7 mm (H-13), lumbar vertebra 9.3 mm long and 20 mm wide (H-14). Further measurements are found in Hutterer (1985).

Distribution. — Presently the lizard only occurs in the “Fuga de Gorreta”, an area with cliffs 1100 meters high located in the northeast of Hierro island (Machado, 1985). Their former distribution seems to have extended virtually throughout the island (Bings 1985; our own unpublished data).

Variability. — The scarce variability in coloration and pattern observed in the few animals studied is also reported by Machado (1985).

Comparisons. — Within the context we are dealing with, it is necessary to point out the chief characters which differentiate *Gallotia simonyi simonyi* and *Gallotia stehlini* from the taxon described in this article; in order to solve the questions which have been raised concerning the taxonomic assignment of *stehlini* (see for example Salvador 1985). Table 2 shows the maximum values recorded for the snout-vent length and the pileus length in the three taxa, as well as the variation observed in 5 pholidotic characters (data for *G. simonyi* from Machado 1985; data for *G. stehlini* from our own data taken from 430 specimens of two populations). From the results it can be shown that *G. stehlini* is the largest contemporary taxon of *Gallotia* and perhaps of the entire Lacertidae family. Moreover, the temporal regions of the three taxa are different. While in *Gallotia simonyi simonyi* almost all the scales are big and relatively similar in size, the masseteric and sometimes the tympanic scales in *stehlini* and *machadoi* are much larger (see also Machado 1985). In addition, the teeth are tricuspid in *Gallotia simonyi simonyi* and in *G. s. machadoi*, but tetracuspid in *G. stehlini* (Hutterer 1985).

In short, the relationship between the lizard that inhabited the “Roque Chico de Salmor” (*Gallotia simonyi simonyi*) and the one which presently is found in the “Fuga de Gorreta” on the mainland of Hierro seems clear, the former originating through evolution of the latter in an extremely restricted insular environment. The relationship between *simonyi* and *stehlini* must have been established far back in time, within the general context of monophyletism of the genus *Gallotia* (López-Jurado et al., 1986), and perhaps the morphological and chromatic similarities we observe today are either the result of morphological convergence or else reminiscent of a clear, though very old kinship.

Etymology. — This subspecies is named in honor of my friend Antonio Machado Carrillo, whose data constituted the basis for this description.

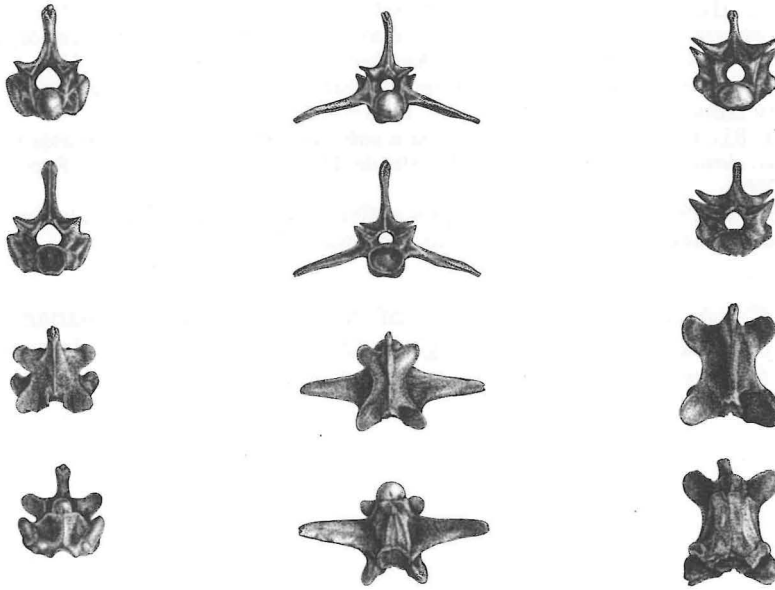


Fig. 5. Dorsal, cervical and lumbar vertebrae of *Gallotia simonyi machadoi* subsp. nov.

Acknowledgements

To Mr. Antonio Sánchez for the drawings of the bones and to Dr. Rainer Hutterer for his help with the manuscript edition.

Zusammenfassung

Von der Kanareninsel Hierro wird eine neue Unterart der Rieseneidechse, *Gallotia simonyi machadoi*, beschrieben. Die Population wurde 1975 entdeckt und unterscheidet sich von der ausgestorbenen Nominatform des Salmorfelsens durch Größe, Form des Kopfes und Pholidosemerkmale.

Bibliography

- Bings, W. (1985): Zur früheren Verbreitung von *Gallotia simonyi* auf Hierro, mit Vorschlägen zur Wiederansiedlung. — *Bonn. zool. Beitr.* 36 (3–4): 417–428.
- Bischoff, W. (1985): Die Herpetofauna der Kanarischen Inseln V. — *herpetofauna* 7 (38): 11–21.
- Böhme, W. & W. Bings (1975): Zur Frage des Überlebens von *Lacerta s. simonyi* Steindachner (Sauria: Lacertidae). — *Salamandra* 11 (1): 39–46.
- & W. Bings (1977): Nachträge zur Kenntnis der kanarischen Rieseneidechsen (*Lacerta simonyi*-Gruppe) (Reptilia, Sauria, Lacertidae). — *Salamandra* 13 (2): 105–111.
- , W. Bischoff, H. K. Nettman, S. Rykena & J. Freundlich (1981): Nachweis von *Gallotia simonyi* (Steindachner, 1889) (Reptilia: Lacertidae) aus einer frühmittelalterlichen Fundschicht auf Hierro, Kanarische Inseln. — *Bonn. zool. Beitr.* 32 (1–2): 157–166.
- Hutterer, R. (1985): Neue Funde von Rieseneidechsen (Lacertidae) auf der Insel Gomera. — *Bonn. zool. Beitr.* 36 (3–4): 365–394.

- López-Jurado, L. F., J. Cano, M. Baez & G. Ortega (1986): Estudios sobre la herpetofauna canaria. I. El cariotipo de *Gallotia simonyi stehlini* y de *Gallotia atlantica* en poblaciones de la isla de Gran Canaria. — *Amphibia & Reptilia* 7 (2): 259–270.
- Machado, A. (1985): New data concerning the hierro Giant Lizard and the lizard of Salmor (Canary Islands). — *Bonn. zool. Beitr.* 36 (3–4): 429–470.
- Martinez-Rica, J. P. (1982): Primeros datos sobre la población de lagarto negro (*Gallotia simonyi simonyi* Steindachner) de la isla de Hierro. — *Amphibia & Reptilia* 2 (4): 369–380.
- Salvador, A. (1985): Guía de campo de los anfibios y reptiles de la Península Ibérica, Islas Baleares y Canarias. — A. Salvador ed., Madrid; 212 pp.

Dr. Luis F. López-Jurado, Department of Animal Biology, Veterinarian Faculty, University of Las Palmas, C/Fco. Inglott Artiles 12, 35016 Las Palmas de Gran Canaria, Canary Islands (Spain).