

On the specific status of *Ptyodactylus ragazzii* ANDERSON, 1898 and its occurrence in Egypt (Squamata: Sauria: Gekkonidae)

Über den Artstatus von *Ptyodactylus ragazzii* ANDERSON, 1898
und sein Vorkommen in Ägypten
(Squamata: Sauria: Gekkonidae)

SHERIF M. BAHA EL DIN

KURZFASSUNG

Die vom Autor im Gebiet des Djebel Elba gemachten Beobachtungen über syntopes Vorkommen von *P. hasselquistii* und *P. ragazzii* sind Hinweis auf den Artstatus von *P. ragazzii* und belegen sein Vorkommen in Ägypten.

ABSTRACT

Observations on the syntopic occurrence of *P. hasselquistii* and *P. ragazzii* made in the Gebel Elba area provide evidence for the specific treatment of *P. ragazzii* and for its occurrence in Egypt.

KEY WORDS

Sauria, Gekkonidae; *Ptyodactylus ragazzii*, *P. hasselquistii*, sympatry, Gebel Elba, Egypt

INTRODUCTION

The genus *Ptyodactylus* is, hitherto, known to be represented in Egypt by only two species; *P. guttatus* HEYDEN, 1827 and *P. hasselquistii* (DONNDORFF, 1798) (HEIMES 1984; WERNER & SIVAN 1994; SALEH 1997). The former is widespread through much of the country, while the latter is restricted to the Eastern Desert, the Nile Valley and Sinai.

During a field visit to Gebel Elba (approx. 22°13'N 36°22'E), a mountain range in the extreme south-east of Egypt (fig. 1), it was noted that local *Ptyodactylus* populations are in fact composed of two obvi-

ously discernible taxa. One is *P. hasselquistii*, while the other is referable to *P. ragazzii* ANDERSON, 1898, a taxon not previously recorded from Egypt. *Ptyodactylus hasselquistii* is the only member of the genus previously reported from the Gebel Elba region (SCHMIDT & MARX 1957; MARX 1968). In this paper evidence is presented for the elevation of *P. ragazzii* to full species level, and for its addition to the Egyptian herpetofauna. SCHÄTTI & GASPERETTI (1994) had previously indicated the need to investigate the *Ptyodactylus* populations in Gebel Elba and northwestern Somalia.

MATERIALS AND METHODS

Animals were observed in the field at Gebel Elba and its vicinity during various times of the day between 30 March and 3 April 1997, to collect ecological and behavioural data. Seven specimens were collected for morphological study. A total of 35 *Ptyodactylus* specimens, in the Field Museum of Natural History, Chicago (FMNH)

and the author's private collection (SMB) from Gebel Elba and adjacent areas were examined in addition to the type series of *P. ragazzii* housed in the British Museum (Natural History) in London (BMNH). Biometric data was collected from eight sympatric specimens belonging to the two species from Gebel Elba (table 1).

RESULTS

The *Ptyodactylus* populations in the Gebel Elba region are composed of two syntopic taxa, which differ from each other morphologically and ecologically. One is mostly diurnal, large, robust and dark in colour; the other is nocturnal, smaller in size, more slender and lighter in colour. The former is referable to *P. ragazzii*, while the latter is referable to *P. hasselquistii*. Following is a summary description of the diagnostic morphological characteristics of each taxon, as indicated by sympatric specimens observed and collected from Gebel Elba.

Ptyodactylus ragazzii
ANDERSON, 1898

Material: (three specimens, all from Gebel Elba): FMNH 73578, Wadi Kansisrob, March 1954; SMB 8275, Wadi Aideib, April 1997; SMB 8289, Wadi Yahameib, April 1997.

Large robust animals, with wide heads, thick limbs and broad terminal pads on digits. There are 20 subdigital lamellae under most terminal pads (see table 1 for further details). Dorsal tubercles with weak multiple keels. Colour dark grey brown with a series of darker brown blotches of varying intensity on dorsum (fig. 2). There appears to be considerable sexual dimorphism. FMNH 73578 (adult male) is larger and considerably more heavily built than SMB 8275, 8289 (adult females), with an almost uniformly coloured dorsum. The females, on the other hand, have a fairly strong dorsal pattern. This was also noted

during field observations.

These characteristics conform completely to the definition of *P. ragazzii* given by ANDERSON (1898), HEIMES (1987), and SCHLEICH & al. (1996). The three specimens are almost identical to the type series (BMNH 96.5.19.12-18) from Eritrea.

Ptyodactylus hasselquistii
(DONNDORFF, 1798)

Material: (five specimens, all from Gebel Elba): SMB 8291 Wadi Rabdeit, March 1997; SMB 8295, 8296, 8298, 8306, Wadi Yahameib, April 1997.

These are medium sized slender animals, with narrow heads, long slender limbs and small terminal pads on digits. Terminal pads have 16 subdigital lamella on average (see table 1 for further details). Dorsal tubercles have a single indistinct keel. Colour light pink grey with fairly well defined dark bands on dorsum (fig. 2). Sexual dimorphism is less notable than in the previous species.

These specimens from Gebel Elba are similar to *P. hasselquistii* material from neighboring regions to the west and north and do not differ much from Sinai animals.

Distribution

The distribution of *P. ragazzii* in Egypt appears to be restricted to the relatively mesic environment of Gebel Elba. Searches in more arid neighboring regions further north and west failed to locate this

Table 1: Some morphological characters of 3 individuals of *Ptyodactylus ragazzii* (R) and 5 individuals of *Ptyodactylus hasselquistii* (H) from Gebel Elba, Egypt. FMNH - Field Museum of Natural History, Chicago; SMB - the author's private collection.

Tab. 1: Einige morphologische Merkmale von 3 *Ptyodactylus ragazzii* (R) und 5 *Ptyodactylus hasselquistii* (H) Exemplaren aus dem Gebiet des Djebel Elba, Ägypten. FMNH - Field Museum of Natural History, Chicago; SMB - Privatsammlung des Autors.

Taxon	Specimen Exemplar	Snout-vent length (mm) Kopf-Rumpflänge (mm)	Labials (upper/lower) Labialia (obere/untere)	Lamellae underneath 3rd toe Lamellen unter der 3. Zehe
R	FMNH 73578	76	14/13	20
R	SMB 8275	62	14/13	20
R	SMB 8289	58	14/13	20
H	SMB 8291	39	13/12	14
H	SMB 8295	57	11/11	16
H	SMB 8296	53	12/12	16
H	SMB 8298	52	11/11	16
H	SMB 8306	51	13/13	16

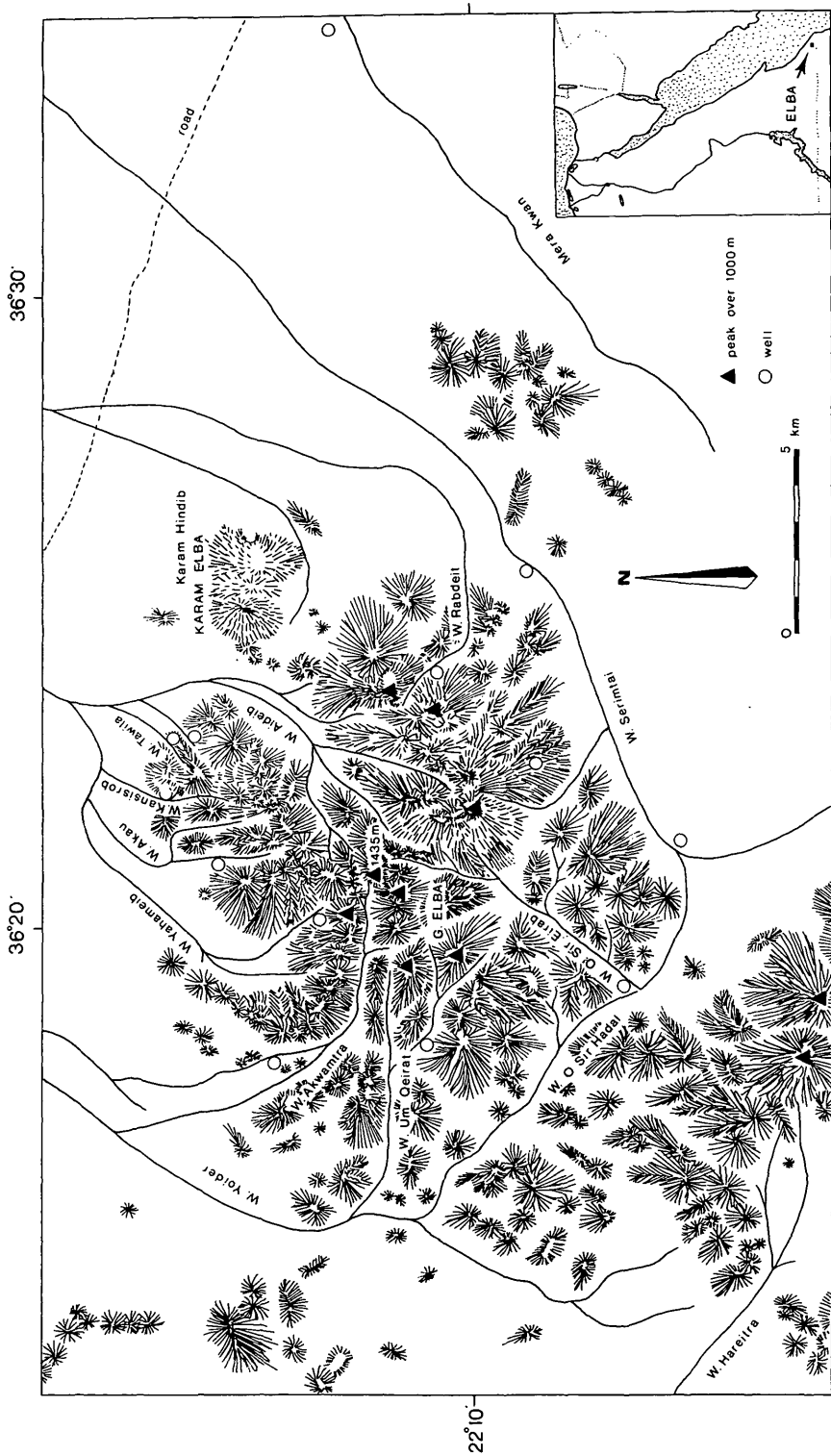


Fig. 1: Map of the Gebel Elba area, south-east Egypt.
 Abb. 1: Karte des Djebel Elba Gebietes, SE-Ägypten.



Fig. 2: SMB 8289 adult female *Ptyodactylus ragazzii* (right) and SMB 8298 adult female *P. hasselquistii* (left), both from Wadi Yahameib, Gebel Elba, south-east Egypt.

Abb. 2: SMB 8289 - adultes Weibchen von *Ptyodactylus ragazzii* (rechts) und SMB 8298 - adultes Weibchen von *P. hasselquistii* (links), beide aus dem Wadi Yahameib, Djebel Elba, SE-Ägypten.

species. Only *P. hasselquistii* was found. The reference of SMITH & al. (1998) to four *P. ragazzii* specimens from the vicinity of Wadi Halfa, Sudan is probably erroneous. All material examined by the author from this region is referable to either *P. hasselquistii* or *P. guttatus*. HEIMES (1984) and WERNER & SIVAN (1994) made similar observations.

Ecology

On Gebel Elba *P. ragazzii* was commonly seen during the day on large boulders and under rock ledges on the sides of wadis and hillsides. It occurs in fairly high densities in suitable localities. The species displays strong territorial behavior. *Ptyodactylus hasselquistii* was equally common, although it was only observed after sunset. It was seen in the same microhabitats used by *P. ragazzii*, but was also often found walking on the ground. In contrast, further north (e.g., at Bir Abraç 23°25'N

34°48'E) where *P. ragazzii* does not occur, *P. hasselquistii* is commonly found active during the day in the shade of boulders and under ledges. Generally similar temporal partitioning seems to occur where the ranges of *P. hasselquistii* and *P. guttatus* overlap. Here the former species reverts to mainly nocturnal activity.

Gebel Elba enjoys a relatively high precipitation, which supports open *Acacia* woodlands and represents a northern enclave of Afrotropical fauna and flora. There are several other species of reptiles and an amphibian of East African / Horn of Africa affinities which extend as far north into Egypt, as the Gebel Elba region. These include: *Latastia longicaudata* (REUSS, 1834), *Pseuderemias mucronata* (BLANFORD, 1870), *Tropiocolotes somalicus* PARKER, 1942, *Ophisops elbaensis* SCHMIDT & MARX, 1957, and *Bufo dodsoni* BOULENGER, 1895 (SCHMIDT & MARX 1957; BAHA EL DIN 1998).

DISCUSSION

Ptyodactylus ragazzii was described by ANDERSON (1898) as a form of *P. hasselquistii*, and largely treated as a subspecies since then (e. g., HEIMES 1984; LANZA 1988; SCHÄTTI & GASPERETTI 1994; JOGER & LAMBERT 1996), or synonymized by some with *P. hasselquistii* (e. g., PARKER 1942; LOVERIDGE 1947). However, most recently

SCHLEICH & al. (1996) and SMITH & al. (1998) referred to the taxon by a binomial name, without giving any reason or justification for their taxonomic decision. According to the biological species concept, the syntopic occurrence of the two taxa reported here establishes the specific status of *P. ragazzii*.

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Corresponding editor: Heinz Grillitsch

AUTHOR: SHERIF M. BAHA EL DIN, 3 Abdala El Katib St., Dokki, Cairo, Egypt [e-mail: baha@internetegypt.com].

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