A new form of the genus *Tarentola* from north-western Africa

(Squamata: Sauria: Gekkonidae)

**PHILIPPE GÊNIEZ & JOAQUIN ESCATLLAR & PIERRE-ANDRÉ CROCHET & JOSÉ-ANTONIO MATEO & JACQUES BONS**

**KURZFASSUNG**

Eine neue Form der Gattung *Tarentola* aus Nordwestafrika

**ABSTRACT**

A new form of the genus *Tarentola* is described from north-western Africa: *Tarentola mauritanica pallida* subsp. nov. It differs from *T. mauritanica mauritanica* (LINNAEUS, 1758) and *T. mauritanica juliae* JOGER, 1984, which also occur in this region, by its pale, pinkish or yellowish general coloration; its translucent skin; its smoother, less warty, general appearance, partly due to the flat mid-dorsal tubercles; its yellow regenerated tail, sometimes with purplish marbling; its isolated dorsal tubercles lacking large secondary tubercles and not being encircled by a row of smaller tubercles; and the slightly lower number of subdigital lamellae. The new taxon differs from *T. boehmei* JOGER, 1984 by its general coloration which is less strictly pinkish; the slightly different head shape and the diagnostically lower numbers of subdigital lamellae (17 or 18 versus 21 to 23) and gular scales (33 to 45 versus 42 to 53). Its geographical range seems to be limited to the Atlantic fringe of southern Morocco and Western Sahara, between the mouth of Oued Drâa and Dchira.

**KEY WORDS**

Sauria: Squamata, Gekkonidae; *Tarentola mauritanica pallida* nov. subsp., Morocco, Western Sahara, north-western Africa; new subspecies; systematic


**GENIEZ & al.** (1991) and **GENIEZ & GENIEZ** (1993) have erroneously mentioned the presence of *T. boehmei* in the north of Western Sahara, from around the Khiifiss lagoon, at Laâyoune and at Dchira in peculiar. When we re-examined these animals recently, we realized that, although their general habitus was extremely similar to that of *T. boehmei* (general coloration translucent pink or yellowish, weak dorsal tubercles), the scale counts were typical for *T. mauritanica juliae* JOGER, 1984 (see JOGER 1984 a) in that they show reduced numbers of subdigital lamellae underneath the fifth toe (17 to 19) and gular scales (32 to 45). All these characters agree with the diagnosis of *T. mauritanica* (see JOGER 1984 a, 1984 b), especially that of *T. mauritanica juliae*. On the other hand, both the dorsal tubercles which are flat and not encircled by secondary tubercles, and the pale,
• Tarentola mauritanica mauritanica
○ Tarentola mauritanica juliae
● intermediate specimens between T. m. juliae and T. m. pallida
★ Tarentola mauritanica pallida
◆ Tarentola boehmei
■ Tarentola deserti

Fig. 1: Distribution of the forms of the subgenus Tarentola in Morocco and Western Sahara (modified from BONS and GENIEZ 1996).

translucent general coloration distinguishes these animals from other populations of *T. mauritanica*. Some populations (e.g., mouth of Oued Draâ) are morphologically intermediates between *T. mauritanica juliae* and the above mentioned new Western Sahara form. These intermediates are characterized by brown general coloration, variable transparence of the skin and rather low dorsal tubercles encircled by a row of secondary tubercles of variable distinctiveness. The homogeneity of the morphological features and the well defined geographical distribution of these Western Sahara *Tarentola* populations support our opinion to recognize them as a taxon of its own. The existence of morphologically intermediate populations probably indicates intergradation with *T. mauritanica juliae* and leads us to describe these animals as a new subspecies of *T. mauritanica*.


*Terr*atyp*ica*: Sidi Lemsid, Khnifiss lagoon (between Tantan and Tarfaya, south-western Morocco).


Derivation of* nominis*: "pallida" is proposed because of the pale and translucent general coloration of all studied specimens.

Diagnosis: A middle-sized *Tarentola* with a pinkish, yellowish or purplish-grey general coloration, more or less translucent, often with a narrow pale vertebral line. Low numbers of subdigital lamellae (17 to 19 underneath the fifth toe) and gular scales (32 to 45). Vertebral tubercles small and keeled; dorsal tubercles middle-sized, nearly flat, keeled, not encircled by a row of secondary tubercles; flank tubercles high, relatively large, keeled, each one with two small tubercles on either side and encircled by a row of secondary tubercles. Tubercles with one large central keel and several small secondary keels derived from the central keel. Rostral scale reaching nostril; general coloration (animal in alcohol) purplish-grey, more or less translucent; a narrow dark band runs from the eye to the neck, then breaks up into elongated spots forming indistinct crosses on the back.

Comparison with other members of the subgenus *Tarentola* (sensu Joger 1984) (cf. also table 1). From *T. mauritanica juliae* (cf. Joger 1984 a, 1984 b), *T. mauritanica pallida* is distinguished by its pale, pinkish or yellowish general coloration, its translucent skin which is smoother and less warty, by the colour pattern of its regenerated tail, which is yellow sometimes with purplish marbling, (grey, sometimes with blackish spots in *T. mauritanica juliae*), and its isolated dorsal tubercles, lacking secondary tubercles. From *T. mauritanica mauritanica*, in addition to the above mentioned features, it differs by the nostril not reaching the rostral scale, the multiple keels on the tubercles and the lower number of subdigital lamellae underneath the fifth toe (17 to 19 versus 19 to 21). From *T. mauritanica fascicularis* (DAUDIN, 1802), it differs by the lack of enlarged scales between the ventral and dorsal scales, the smooth general appearance and the different color-
Fig. 2: *Tarentola mauritanica pallida* nov. subsp., Khnifiss lagoon, south-western Morocco (terra typica).

(Photograph by M. GENIEZ)

Abb. 2: *Tarentola mauritanica pallida* nov. subsp., Khnifiss- Lagune, südwestliches Marokko (Terra typica)

(Photo: M. GENIEZ)

Fig. 3: *Tarentola mauritanica pallida* nov. subsp., paratype (MNHN 1998-392), Dchira, Western Sahara.

(Photograph by M. GENIEZ)


(Photo: M. GENIEZ)
Fig. 4: Specimen intermediate between *Tarentola mauritanica juliae* and *T. mauritanica pallida*, nine km beyond Tilemsoun toward Tantan, south-western Morocco. (Photograph by PH. GENIEZ)

Abb. 4: Intermediäres Exemplar zwischen *Tarentola mauritanica juliae* und *T. mauritanica pallida*, neun km von Tilemsoun in Richtung Tantan, südwestliches Marokko. (Photo: PH. GENIEZ)

Fig. 5: *Tarentola mauritanica juliae*, Ademine forest, south western Morocco. (Photograph by M. GENIEZ)

Abb. 5: *Tarentola mauritanica juliae*, Wald von Ademine, südwestliches Marokko. (Photo: M. GENIEZ)
The new taxon is different from *T. boehmei* by its general coloration which is less intensively pink, its multi-carinated tubercles, the lower number of subdigital lamellae underneath the fifth toe (17 to 19 versus 21 to 23), and the lower number of gular scales (32 to 45 versus 38 to 54) between the post-mental scale and a hypothetical line between the ear openings. It differs from the allopatric *T. deserti* by a lower number of subdigital lamellae underneath the fifth toe (17 to 19 versus 22 to 25), a lower number of gular scales (32 to 45 versus 45 to 59), smoother general appearance, smaller size, different coloration of the upper side (less yellowish and more contrasting in *T. deserti*), and iris colour (uniformly ochre in *T. deserti*). Lack of an orange iris (but see remarks at the end), general coloration and smoother appearance distinguish this new form from the Canarian species *T. angustimentalis* Stein-Dachner, 1891 (in which the coloration is grey or tawny, never translucent). Finally, it is distinguished from the recently described *T. mindiae* Baha el Din, 1997 by the different head scalation (typical *T. m. mauritanica* type), the nostril not reaching the rostral scale, pointed tail tubercles, paler coloration and a slightly higher number of subdigital lamellae underneath the fifth toe (17 to 19 versus 15 to 17).

**Ecology, distribution:** *Tarentola mauritanica pallida* nov. subsp. has been found in buildings, under bridges and on ruins and walls, inside the “Saharan with warm winters” bioclimatic zone (sensu Brignon & Sauvage 1962), always relatively close to the sea (up to 54 km beyond Tantan toward Abatteh). The new taxon is distributed from the mouth of Oued Draâ to Dchira, south of Laâyoune, which constitutes the southern limit of the known autochthonous distribution of *T. mauritanica* (cf. fig. 2). Some specimens morphologically intermediate between *T.
Table 1: Comparison between *Tarentola mauritanica mauritanica*, *T. mauritanica juliae*, *T. mauritanica pallida* nov. subsp., and *T. boehmei*. Expression of five morphological features as found in specimens of the collection of the E.P.H.E., Montpellier. SD - Standard Deviation.

Tab. 1: Vergleich von *Tarentola mauritanica mauritanica*, *T. mauritanica juliae*, *T. mauritanica pallida* nov. subsp. und *T. boehmei*. Die Ausbildung von fünf morphologischen Merkmalen an Exemplaren der Sammlung des E.P.H.E., Montpellier. SD - Standardabweichung.

<table>
<thead>
<tr>
<th>Taxon</th>
<th>Number of subdigital lamellae underneath the fifth toe [arithm. mean, (range), SD, n]</th>
<th>Number of gular scales between the post-mental scale and a hypothetic line between the ear openings [arithm. mean, (range), SD, n]</th>
<th>Dorsal tubercles / Rückentuberkelel</th>
<th>Regenerated tail / Schwanzregenerat</th>
<th>Aspect of skin / Aspekt der Haut</th>
</tr>
</thead>
<tbody>
<tr>
<td><em>T. m. mauritanica</em></td>
<td>20.00, (19-21), 0.72, 31</td>
<td>37.60, (30-45), 3.40, 30</td>
<td>grey with blackish longitudinal marblings / grau, mit schwärzlicher längsgerichteter Marmorierung</td>
<td>opaque / opak</td>
<td></td>
</tr>
<tr>
<td><em>T. m. juliae</em></td>
<td>18.71, (18-19), 0.45, 7</td>
<td>36.14, (31-39), 2.47, 7</td>
<td>grey with blackish longitudinal marblings / grau, mit schwärzlicher längsgerichteter Marmorierung</td>
<td>opaque / opak</td>
<td></td>
</tr>
<tr>
<td><em>T. m. pallida</em> nov. subsp.</td>
<td>18.00, (17-19), 0.76, 7</td>
<td>37.57, (32-45), 4.24, 7</td>
<td>yellow, sometimes with vinous marblings / gelb, manchmal mit rankenförmiger Marmorierung</td>
<td>translucent / durchscheinend</td>
<td></td>
</tr>
<tr>
<td><em>T. boehmei</em></td>
<td>22.23, (21-23), 0.80, 26</td>
<td>45.83, (38-54), 3.68, 24</td>
<td>pinkish with vinous marblings / rosafarben, mit rankenförmiger Marmorierung</td>
<td>translucent / durchscheinend</td>
<td></td>
</tr>
</tbody>
</table>
mauritanica pallida and T. mauritanica juliae have been found in an area ranging from the mouth of Oued Draâ to the Youssef Ben Tachfine dam on the Oued Massa. Some of these intermediate animals have an orange iris, like the Canarian T. angustimentalis.

Concluding remarks: Tarentola mauritanica pallida nov. subsp. is extremely similar to T. boehmei in general habitus and body scalation, which explains some of the past confusions between these two taxa in the coastal area of southwestern Morocco (cf. supra). Nevertheless, this new form is clearly conspecific with T. mauritanica, as evidenced by its intergradation with T. mauritanica juliae in southwestern Morocco. T. boehmei is largely sympatric with T. mauritanica juliae but not with T. mauritanica pallida nov. subsp. Wherever T. boehmei and T. mauritanica are sympatric they are thus easy to separate owing to the distinct general appearance of T. mauritanica juliae (nearly identical to T. mauritanica mauritanica), compared to T. boehmei.

REFERENCES


RÉSUMÉ

Une nouvelle forme du genre Tarentola est décrite du nord-ouest de l'Afrique: Tarentola mauritanica pallida subsp. nov. Par rapport à T. mauritanica mauritanica et T. mauritanica juliae, présentes également dans cette région, cette forme se différencie par sa coloration rosée ou jaunâtre pâle, par sa peau translucide, plus fine et moins verruqueuse, par la queue régénérée jaunâtre rehaussée ou non de marbrures violacées, par des tubercules dorsaux simples et peu élevés, non entourés de tubercules secondaires, et par un nombre de lamelles sous-digitales légèrement inférieur. Sa coloration rappelle celle de T. boehmei de laquelle elle se distingue par sa teinte générale moins franchement rosée, par un nombre de lamelles sous-digitales sous le cinquième orteil diagnostiquement inférieur (17 ou 18 contre 21 à 23) et par un nombre d'écaillés gulaires inférieur (33 à 45 contre 42 à 53). Sa répartition géographique semble limitée à la frange atlantique du Maroc et du Sahara Occidental comprise entre l'embouchure de l'oued Draâ et l'agglomération de Dchira.

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