





***Pristurus guweirensis* Haas, 1943 (Gekkota: Sphaerodactylidae):
the most abundant and widely distributed species of *Pristurus* previously
referred to as *Pristurus* sp. 1**



BERNAT BURRIEL-CARRANZA¹, TOMÁŠ MAZUCH², MARIA ESTARELLAS¹, ADRIÁN TALAVERA¹,
GABRIEL RIAÑO¹, THORE KOPPETSCH³, KARIN TAMAR¹, HÉCTOR TEJERO-CICUÉNDEZ^{1,4},
SALEH AL SAADI⁵, SALEM BUSAIS⁶, LUKÁŠ KRATOCHVÍL⁷, MOHAMMED SHOBRAK⁸,
JIRÍ ŠMÍD^{9,10} & SALVADOR CARRANZA^{1,*}

¹Institute of Evolutionary Biology (CSIC-Universitat Pompeu Fabra), Passeig Marítim de la Barceloneta 37-49, 08003, Barcelona, Spain

 bernat.burriel@ibe.upf-csic.es;  <https://orcid.org/0000-0001-9832-1782>



 maria.estarellas01@estudiant.upf.edu;  <https://orcid.org/0000-0001-7360-6458>

 adrian.talavera@csic.es;  <https://orcid.org/0000-0002-4007-0965>

 gabriel.mochales@csic.es;  <https://orcid.org/0000-0002-9130-2308>

 karintmr@gmail.com;  <https://orcid.org/0000-0003-2375-4529>

²Department of Forest Ecology, Mendel University, 61300 Brno, Czech Republic

 somalia@seznam.cz;  <https://orcid.org/0000-0001-9352-4927>

³Natural History Museum, University of Oslo, P.O. Box 1172 Blindern, 0138 Oslo, Norway

 thore.koppetsch@nhm.uio.no;  <https://orcid.org/0000-0001-8565-4350>



⁴Department of Biodiversity, Ecology and Evolution, Faculty of Biology, Universidad Complutense de Madrid, 28040, Madrid, Spain

 hector.tejero@ibe.upf-csic.es;  <https://orcid.org/0000-0001-8151-465X>



⁵Environment Authority, Muscat, Oman

 saleh.alsaadi@ea.gov.om;  <https://orcid.org/0009-0001-3855-0775>



⁶Department of Biology, Faculty of Education, Aden University, Aden, Yemen

 s.busais@gmail.com;  <https://orcid.org/0000-0001-5785-9850>



⁷Department of Ecology, Faculty of Science, Charles University in Prague, Viničná 7, Prague, Czech Republic

 kratoch1@natur.cuni.cz;  <https://orcid.org/0000-0002-3515-729X>



⁸National Center for Wildlife, Prince Saud Al Faisal Research Center, PO Box 1086, Taif 21944, Saudi Arabia

 shobrak@saudibirds.org;  <https://orcid.org/0000-0002-8494-9533>

⁹Department of Zoology, National Museum, Cirkusová 1740, Prague, Czech Republic

 jiri.smd@gmail.com;  <https://orcid.org/0000-0002-0309-209X>

¹⁰Department of Zoology, Faculty of Science, Charles University, Prague, Czech Republic

*Corresponding author:  salvador.carranza@ibe.upf-csic.es;  <https://orcid.org/0000-0002-5378-3008>

The genus *Pristurus* Rüppell, 1835 currently consists of 26 described species, distributed mainly across Arabia, the Socotra Archipelago and north-east Africa, with one isolated species in Mauritania and another which extends from south-east Arabia to the southern coast of Iran (Arnold 2009; Sindaco & Jeremčenko 2008; Tamar *et al.* 2019; Uetz *et al.* 2022).

The study on the systematics and evolution of the genus *Pristurus* by Badiane *et al.* (2014) including partial sequences of one mitochondrial (12S rRNA) and four nuclear (ACM4, C-MOS, RAG1 and RAG2) genes, indicated that what was considered as *P. rupestris* Blanford, 1874 at that time was polyphyletic. According to the results, “*Pristurus rupestris*” comprised two phylogenetically unrelated clades: the eastern clade and the western clade, referring to their geographic distribution within Arabia (Fig. 1B).

On the one hand, the eastern clade included *P. rupestris iranicus* Schmidt, 1952, distributed across the southern coast of Iran and *P. r. rupestris*, distributed throughout the Hajar Mountain range in northern Oman and eastern UAE, with scattered populations outside the Hajar Mountains on the northern UAE coast, from Sharjah to Abu Dhabi, and also in Qatar, Bahrain, and the eastern coast of Saudi Arabia. A later study by Garcia-Porta *et al.* (2017) revealed that the subspecies *P. r. rupestris* was a species complex composed of 14 putative species divided into five deep lineages that started diverging approximately 15 million years ago. More recently, Saberi-Pirooz *et al.* (2019) analyzed specimens across the distribution range of *P. r. iranicus* and showed that the Iranian subspecies branched within the deep lineage

composed of specimens from the type locality of *P. r. rupestris* (Muscat, Oman), making *P. r. rupestris* paraphyletic. Considering these molecular results and the lack of morphological evidence, *P. r. iranicus* was synonymized with *P. rupestris* (Sabeti-Pirooz *et al.* 2019). Still unpublished genomic data indicate that each one of the five deep lineages of Garcia-Porta *et al.* (2017) represents a species: *P. rupestris* (including the synonymized *P. r. iranicus*) plus four new species that are in the process of being described (work in progress).

On the other hand, the western clade of “*P. rupestris*” (Badiane *et al.* 2014; Fig. 1) was distributed from central coastal Oman, through Yemen, Saudi Arabia and north to southern Jordan, from where the subspecies *P. r. guweirensis* Haas, 1943 (*vide* Kluge 2001), initially described as *P. flavipunctatus guweirensis* Haas, 1943 and then assigned to *P. rupestris* *sensu lato* by Leviton *et al.* (1992), was described from the sandstone desert of Guweira (=Quweira), 10 km south of the city of Quweira, Jordan (Haas 1943). Haas (1943) referred in his description to two male and two female type specimens all deposited in the herpetological collections of the Natural History Museum, Vienna, though only a single syntype, NMW 17468, is present and inventoried based on the collection’s recent type catalogue (Gemel *et al.* 2019). Apart from *P. r. guweirensis* and several specimens of the western clade from Arabia that could be included in the molecular analyses (Fig. 1), Badiane *et al.* (2014) suggested that one female of *Pristurus* from “Bender Cassim” (=Bosaso), described as *Pristurus migiurtinicus* Scortecci, 1933 and later synonymized with *P. rupestris* by Parker (1942), might also be part of the western clade of “*P. rupestris*” and therefore it could take precedence over *P. r. guweirensis* to name the western clade. Unfortunately, the holotype of *Pristurus migiurtinicus* housed at the Museo Civico di Storia Naturale di Milano under reference MSNM Re97 (formerly 1323) had been sent on loan to the Natural History Museum, London back in 1980 and the type was apparently lost. As a result of the impossibility of studying the holotype of *P. migiurtinicus*, it was not possible to know which of the two names, *P. guweirensis* (= *P. r. guweirensis* elevated to species) or *P. migiurtinicus*, should be applied to the western clade of “*P. rupestris*”. Therefore, until new material of *P. migiurtinicus* from the type locality in Somalia or the holotype was found, Badiane *et al.* (2014) suggested to refer to the western clade temporarily as *Pristurus* sp. 1 (Garcia-Porta *et al.* 2017; Carranza *et al.* 2018, 2021; Tejero-Cicuéndez *et al.* 2021a, 2022). Aloufi *et al.* (2021) recently indicated that the species name *guweirensis* might be available for this group, but still referred to *Pristurus* sp. 1 awaiting further clarification of its taxonomic status.

After almost a decade, new data has become available making it possible to revise the taxonomy of *Pristurus* sp. 1 with the objective of clarifying the name of one of the most abundant reptile species in Arabia. The holotype of *P. migiurtinicus* on loan from the Museo Civico di Storia Naturale di Milano (MSNM Re97), was finally located in the reptile collection of the Natural History Museum, London and could be studied morphologically. A total of 1,135 high quality photographs from 291 specimens of *Pristurus*, including 19 photographs of the holotype of *P. migiurtinicus*, were taken and deposited at MorphoBank project number P4514 (<http://morphobank.org/permalink/?P4514>). Despite 10 expeditions (140 fieldwork days) to Somaliland carried out by one of the authors (T.M.), no specimens that could be assigned to *P. migiurtinicus* or specimens morphologically similar to “*P. rupestris*” (Scortecci 1933, 1935; Parker 1942) were found. In fact, all the specimens found in the areas where *P. migiurtinicus* and “*P. rupestris*” supposedly occurred corresponded to the *P. flavipunctatus* Rüppell, 1835 species complex. Interestingly, in these areas *P. flavipunctatus* was seen not only on the trees, but also on the ground and on rocks like “*P. rupestris*” (T.M. pers. observ.). As for the single male “*P. rupestris*” specimen reported by Scortecci (1935) collected in 1931 at Bio Culul (Bender Cassim), Somalia, it most probably belongs to the *P. flavipunctatus* species complex, which at the moment includes at least four undescribed species (*P.* sp. 6, *P.* sp. 8, *P.* sp. 10, and *P.* sp. 11 in Tejero-Cicuéndez *et al.* 2021a, 2022).

The close morphological examination of the single available female specimen of *P. migiurtinicus*, i.e. the holotype (MSNM Re97), indicated that it does not belong to *Pristurus* sp. 1 (western clade of Badiane *et al.* 2014; Fig. 1) or to the *Pristurus rupestris* species complex. The main differences between the single female of *P. migiurtinicus* and *Pristurus* sp. 1 and *P. rupestris* include: 1.- a larger snout-vent length (SVL) of *P. migiurtinicus* (28 mm) *versus* an average of 24.3 mm ($\sigma = 2.5$), with only one female out of the total of 50 *Pristurus* sp. 1 females analyzed having an SVL larger than 28 mm (28.03 mm), and an average of 23.7 mm ($\sigma = 1.77$), in *P. rupestris*, with all the 81 specimens analyzed having an SVL smaller than 28 mm (Supp. Table 1; SVL data from Tejero-Cicuéndez *et al.* 2021b); 2.- a round tail in *P. migiurtinicus* without any enlarged scales (crest) on the dorsal or ventral sides *versus* a laterally compressed tail sometimes with a few enlarged scales on the dorsal and/or the ventral side in *Pristurus* sp. 1 females (very clear dorsal and ventral crests in males) and usually with enlarged scales (crest) on the dorsal and ventral sides of the tail in *P. rupestris* females (very clear dorsal and ventral crests in males) (Fig. 1; Supp. Table 1); 3.- presence of two enlarged postmental scales in *P. migiurtinicus* *versus* 3–6 not enlarged, or slightly enlarged, postmental scales in both *Pristurus* sp. 1 and *P. rupestris* (Fig. 1; Supp. Table 1).

The comparison of *P. migiurtinicus* with females of *P. flavipunctatus* showed that it is not a wrongly identified *P. flavipunctatus*. Although the dorsal pattern of *P. migiurtinicus* matches that of some female *P. flavipunctatus*, with a light continuous mid-dorsal stripe with blotches extending from the occiput to the tail base (or well onto the tail in some specimens of *P. flavipunctatus*), and the SVL of *P. migiurtinicus* falls within the observed SVL range of *P. flavipunctatus* females (29.1 mm; $\sigma = 4.2$), there are the following differences: 1.—a round tail in *P. migiurtinicus* without any enlarged scales (crest) on the dorsal or the ventral sides *versus* a laterally compressed tail always with enlarged scales (crest) on the dorsal and ventral sides of the tail in *P. flavipunctatus* females (very conspicuous dorsal and ventral crests in males) (Supp. Table 1; Baha El Din 2006; Arnold 1986); 2.—absence of enlarged scales (crest) on the body in *P. migiurtinicus* *versus* presence of a mid-dorsal line of enlarged scales (an obvious crest in males) that extends anteriorly from the tail into the sacrum region in *P. flavipunctatus* females (or well into the body in some males) (Supp. Table 1; Baha El Din 2006; Arnold 1986); 3.—presence of enlarged postmental scales in *P. migiurtinicus* *versus* absence of enlarged postmental scales or presence of slightly enlarged postmental scales in *P. flavipunctatus* (Supp. Table 1).

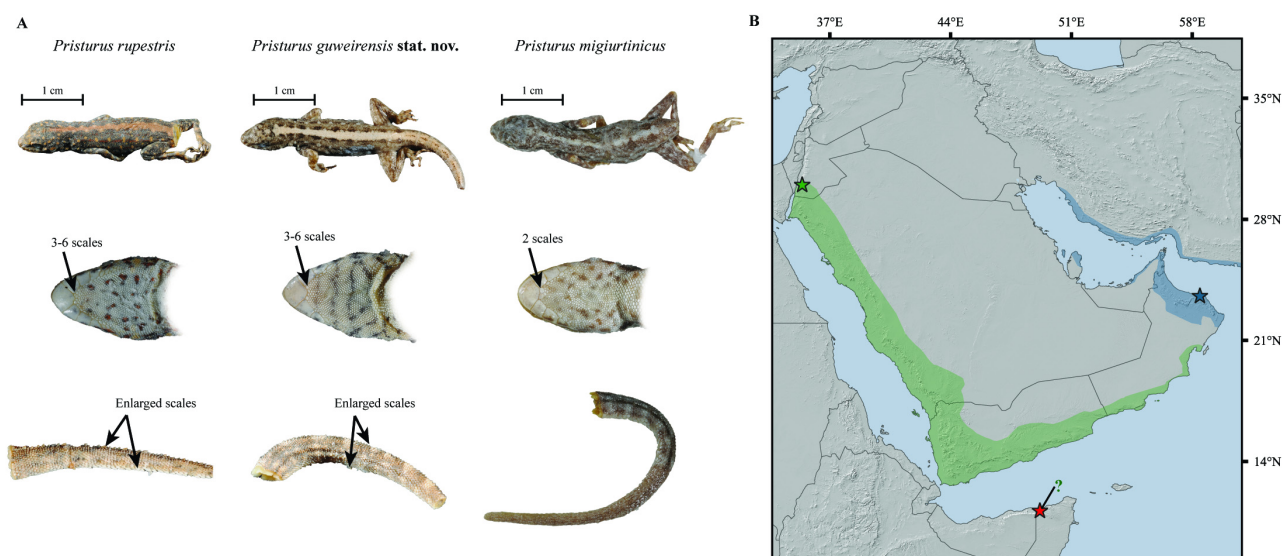


FIGURE 1. A) Dorsal view, gular region and tail section of *Pristurus rupestris*, *P. guweirensis* **stat. nov.** and *P. migiurtinicus* (MSNM Re97) females, respectively. As can be seen from all the photographs deposited in MorphoBank (Supp. Table 1), the dorsal pattern in *P. guweirensis* **stat. nov.** and *P. rupestris* is quite variable. B) Distribution range of *P. rupestris* (blue), *P. guweirensis* **stat. nov.** (green), and *P. migiurtinicus* (red; known only from a single locality). Stars show the type locality for each species. The question mark shows the locality of an unconfirmed *P. flavipunctatus* species complex specimen (assigned to “*P. rupestris*” by Scortecci, 1935).

Based on the morphological evidence, we conclude that *P. migiurtinicus* is clearly not a “*P. rupestris*” as suggested by Parker (1942) and following authors, and it is also not a *P. flavipunctatus*. Therefore, we suggest to resurrect this taxon from the synonymy of *P. rupestris* and to consider it as a valid *Pristurus* species. With respect to the valid name that should apply to the western clade of “*P. rupestris*” of Badiane *et al.* (2014) provisionally referred to as *Pristurus*. sp. 1 (Garcia-Porta *et al.* 2017; Carranza *et al.* 2018, 2021; Tejero-Cicuéndez *et al.* 2021a,b, 2022; Šmíd *et al.* 2021; Burriel-Carranza *et al.* 2023), we conclude that the name *Pristurus guweirensis* **stat. nov.** Haas, 1943 should be used from now on. Its redefinition, preceded by a short synonymy/chresonymy list, is given below:

Pristurus guweirensis **stat. nov.** Haas, 1943

Pristurus flavipunctatus guweirensis Haas, 1943 (‘Guweira, between Ma’an and Guweira Police Station’, Jordan)

Pristurus rupestris guweirensis—Hoofien 1960

Pristurus flavipunctatus guweirensis—Fritz & Schütte 1987

Pristurus flavipunctatus guweirensis—Werner 1987

Pristurus rupestris guweirensis—Disi 1991

Pristurus rupestris guweirensis—Leviton *et al.* 1992

Pristurus rupestris guweirensis—Kluge 2001
Pristurus rupestris guweirensis—Rösler *et al.* 2008
Pristurus rupestris guweirensis—Sindaco & Jeremčenko 2008
Pristurus rupestris guweirensis—Sindaco *et al.* 2014
Pristurus rupestris guweirensis—Yousofi *et al.* 2015
Pristurus sp. 1—Badiane *et al.* 2014; Garcia-Porta *et al.* 2017; Carranza *et al.* 2018, 2021; Tejero-Cicuéndez *et al.* 2021a, 2022; Aloufi *et al.* 2021; Šmid *et al.* 2021; Burriel-Carranza *et al.* 2023

As shown by Badiane *et al.* (2014) and Carranza *et al.* (2018, 2021), the species now known as *P. guweirensis* is the most widely distributed species of *Pristurus*, extending across Oman, Yemen, Saudi Arabia and southern Jordan. It is also the most abundant species of *Pristurus* and most probably one of the most abundant reptile species in Arabia (S.C. pers. observ.). It is a mainly diurnal species, although it can also be seen active after sunset. It is very abundant on rocks, boulders, tree trunks, and human-made structures such as walls, houses, and gardens. It performs complex signaling including push-ups, inflating and laterally compressing the body and throat, and curling and waving the tail up over the back. It preys on ants and other arthropods. Females lay single hard-shelled eggs throughout the year. It plays an important ecological role and it is the most sighted species in biodiversity surveys carried out within its distribution range (S.C. pers. observ.). In view of the complex taxonomic situation within the *P. rupestris* complex in general, it is of high importance to have finally solved the taxonomic status of *P. guweirensis*.

Acknowledgments

This work was supported by grants PGC2018-098290-B-I00 (MCIU/AEI/FEDER, UE), Spain, PID2021-128901NB-I00 (MCIN/AEI/10.13039/501100011033 and by ERDF, A way of making Europe), Spain to SC. BB-C was funded by FPU grant from Ministerio de Ciencia, Innovación y Universidades, Spain (FPU18/04742). AT is supported by “la Caixa” doctoral fellowship programme (LCF/BQ/DR20/11790007). GR was funded by an FPI grant from the Ministerio de Ciencia, Innovación y Universidades, Spain (PRE2019-088729). HT-C is supported by a “Juan de la Cierva - Formación” postdoctoral fellowship (FJC2021-046832-I) funded by MCIN/AEI/10.13039/501100011033 and by the European Union NextGenerationEU/PRTR. JŠ was supported by the Charles University Research Centre program No. 204069, by the Czech Science Foundation (GACR, project number 22-12757S), and by the Ministry of Culture of the Czech Republic (DKRVO 2019–2023/6. VII.e, 00023272).

References

- Aloufi, A.A., Amr, Z.S. & Abu Baker, M.A. (2021) Reptiles and Amphibians of Al Madinah Al Munawwarah Province, Saudi Arabia. *Russian Journal of Herpetology*, 28, 123–137.
<https://doi.org/10.30906/1026-2296-2021-28-3-123-137>
- Arnold, E.N. (1980) The scientific results of the Oman flora and fauna survey 1977 (Dhofar). The reptiles and amphibians of Dhofar, southern Arabia. *Journal of Oman Studies Special Report*, 2, 273–332.
- Arnold, E.N. (1986) New species of semaphore gecko from Arabia and Socotra. *Fauna of Saudi Arabia*, 8, 352–377.
- Arnold, E.N. (2009) Relationships, evolution and biogeography of Semaphore geckos, *Pristurus* (Squamata, Sphaerodactylidae) based on morphology. *Zootaxa*, 2060 (1), 1–21.
<https://doi.org/10.11646/zootaxa.2060.1.1>
- Badiane, A., Garcia-Porta J., Červenka, J., Kratochvíl, L., Sindaco, R., Robinson, M.D., Morales, H., Mazuch, T., Price, T., Amat, F., Shobrak, M.Y., Wilms, T., Simó-Riudalbas, M., Ahmadzadeh, F., Papenfuss T.J., Cluchier, A., Viglione, J. & Carranza, S. (2014) Phylogenetic relationships of Semaphore geckos (Squamata: Sphaerodactylidae: *Pristurus*) with an assessment of the taxonomy of *Pristurus rupestris*. *Zootaxa*, 3835 (1), 033–058.
<https://doi.org/10.11646/zootaxa.3835.1.2>
- Baha El Din, S (2006) *A Guide to the Reptiles and Amphibians of Egypt*. The American University in Cairo Press, Cairo, 359 pp. [ISBN: 977-424-979-8]
- Burriel-Carranza, B., Tejero-Cicuéndez, H., Carné, A., Riaño, G., Talavera, A., Al Saadi, S., Els, J., Šmid, J., Tamar, K., Tarroso, P. & Carranza, S. (2023) The origin of a mountain biota: hyper-aridity shaped reptile diversity in an Arabian biodiversity hotspot. *bioRxiv* 2023.04.07.536010
<https://doi.org/10.1101/2023.04.07.536010>
- Carranza, S., Xipell, M., Tarroso, P., Gardner, A., Arnold, E.N., Robinson, M.D., Simó-Riudalbas, M., Vasconcelos, R., de Pous, P., Amat, F., Šmid, J., Sindaco, R., Metallinou, M., Els, J., Pleguezuelos, J.M., Machado, L., Donaire, D., Martínez, G., Garcia-Porta, J., Mazuch, T., Wilms, T., Gebhart, J., Aznar, J., Gallego, J., Zwanzig, B-M., Fernández-Guiberteau, D.,

- Papenfuss, T., Al Saadi, S., Alghafri, A., Khalifa, S., Al Farqani, H., Bilal, S.B., Alzari, I.S., Al Adhoobi, A.S., Al Omairi, Z.S., Al Shariani, M., Al Kiyumi, A., Al Sariri, T., Al Shukaili, A.S. & Al Akhzami, S.N. (2018) Diversity, distribution and conservation of the terrestrial reptiles of Oman (Sauropsida, Squamata). *PLoS One*, 13 (2), e0190389. <https://doi.org/10.1371/journal.pone.0190389>
- Carranza, S., Els, J. & Burriel-Carranza, B. (2021) *A Field Guide to the Reptiles of Oman*. Editorial CSIC, Madrid, 226 pp. [ISBN: 978-84-00-10876-2]
- Disi, A.M. (1991) A contribution to the herpetofauna of Jordan 4. Lizards of Jordan. *Zoology in the Middle East*, 5 (1), 25–36.
- Fritz, J.P. & Schütte, F. (1987) Geckos der Gattung *Pristurus* Rüppel, 1835 aus der Arabischen Republik Jemen. *Bonner Zoologische Beiträge*, 38, 47–57.
- Garcia-Porta, J., Simó-Riudalbas, M., Robinson, M. & Carranza, S. (2017) Diversification in arid mountains: biogeography and cryptic diversity of *Pristurus rupestris rupestris* in Arabia. *Journal of Biogeography*, 44 (8), 1694–1704. <https://doi.org/10.1111/jbi.12929>
- Gemel, R., Gassner, G. & Schweiger, S. (2019) Katalog der Typen der Herpetologischen Sammlung des Naturhistorischen Museums Wien—2018. *Annalen des Naturhistorischen Museums in Wien. Serie B für Botanik und Zoologie*, 121, 33–248.
- Haas, G. (1943) On a collection of reptiles from Palestine, Transjordan, and Sinai. *Copeia*, 1943 (1), 10–15. <https://doi.org/10.2307/1437872>
- Hoofien, J.C. (1960) A collection of Gekkonid lizards from French Somaliland, *Annals and Magazine of Natural History*, Series 13, 3 (32), 493–495. <https://doi.org/10.1080/00222936008651047>
- Kluge, A.G. (2001) Gekkotan lizard taxonomy. *Hamadryad*, 26, 1–209.
- Leviton, A.E., Anderson, S.C., Adler, K. & Minton, S.A. (1992) *Handbook to Middle East Amphibians and Reptiles. Contributions to Herpetology* 8. Society for the Study of Amphibians and Reptiles, Oxford, Ohio, 252 pp. [ISBN: 9780916984236]
- Parker, H.W. (1942) The lizards of British Somaliland. *Bulletin of the Museum of Comparative Zoology at Harvard College*, 91, 1–101.
- Rösler, H., Böhme, W. & Köhler, J. (2008) A new species of the diurnal gekkonid genus *Pristurus* Rüppel, 1835 from the Red Sea island Hanish al-Kabir, Yemen. *Amphibia-Reptilia*, 29 (2), 217–227. <https://doi.org/10.1163/156853808784124983>
- Rüppell, E. (1835) *Neue Wirbelthiere zu der Fauna von Abyssinien gehörig, entdeckt und beschrieben von Dr. Eduard Rüppell. Amphibien*. S. Schmerber, Frankfurt, 116 pp. <https://doi.org/10.5962/bhl.title.53778>
- Saber-Pirooz, R., Shahriari, A., Ahmadzadeh, F., Javidkar, M., Oladi, M. & Aghbolaghi, M.A. (2019) Dispersal beyond geographic barriers: a contribution to the phylogeny and demographic history of *Pristurus rupestris* Blanford, 1874 (Squamata: Sphaerodactylidae) from southern Iran. *Zoology*, 134, 8–15. <https://doi.org/10.1016/j.zool.2019.04.001>
- Schmidt, K.P. (1952) Diagnoses of new amphibians and reptiles from Iran. *Natural History Miscellanea*, 93, 1–2.
- Scortecci, G. (1933) Descrizione preliminare di nuove specie e sottospecie de genere *Pristurus* della Somalia Italiana. *Atti della Società Italiana di Scienze Naturali e del Museo Civico di Storia Naturale in Milano*, 72 (3–4), 242–244.
- Scortecci, G. (1935) Il genere *Pristurus* nella Somalia Italiana. *Atti della Società Italiana di Scienze Naturali e del Museo Civico di Storia Naturale in Milano*, 74, 118–156.
- Sindaco, R. & Jeremchenko, V.K. (2008) *The reptiles of the Western Palearctic*. Edizioni Belvedere, Latina, 579 pp. [ISBN: 9788889504345]
- Sindaco, R., Nincheri, R. & Lanza, B. (2014) Catalogue of Arabian reptiles in the collections of the “La Specola” Museum, Florence. *Scripta Herpetologica, Studies on Amphibians and Reptiles in honour of Benedetto Lanza*, 2014, pp. 137–164.
- Šmíd, J., Sindaco, R., Shobrak, M., Busais, S., Tamar, K., Aghová, T., Simó-Riudalbas, M., Tarroso, P., Geniez, P., Crochet, P.-A., Els, J., Burriel-Carranza, B., Tejero-Cicuéndez, H. & Carranza, S. (2021) Diversity patterns and evolutionary history of Arabian squamates. *Journal of Biogeography*, 48, 1183–1199. <https://doi.org/10.1111/jbi.14070>
- Tamar, K., Mitsi, P., Simó-Riudalbas, M., Tejero-Cicuéndez, H., Al-Sariri, T. & Carranza, S. (2019) Systematics, biogeography, and evolution of *Pristurus minimus* (Squamata, Sphaerodactylidae) with the discovery of the smallest Arabian vertebrate. *Systematics and Biodiversity*, 17 (4), 349–366. <https://doi.org/10.1080/14772000.2019.1614694>
- Tejero-Cicuéndez, H., Simó-Riudalbas, M., Menéndez, I. & Carranza, S. (2021a) Ecological specialization, rather than the island effect, explains morphological diversification in an ancient radiation of geckos. *Proceedings of the Royal Society B: Biological Sciences*, 288 (1965), 20211821. <https://doi.org/10.1098/rspb.2021.1821>
- Tejero-Cicuéndez, H., Simó-Riudalbas, M., Menéndez, I. & Carranza, S. (2021b) Data from: Ecological specialization, rather than the island effect, explains morphological diversification in an ancient radiation of geckos. *Zenodo*. [published online] <https://doi.org/10.5281/zenodo.5573999>
- Tejero-Cicuéndez, H., Patton, A.H., Caetano, D.S., Šmíd, J., Harmon, L.J. & Carranza, S. (2022) Reconstructing squamate biogeography in Afro-Arabia reveals the influence of a complex and dynamic geologic past. *Systematic Biology*, 71 (2),

261–272.

<https://doi.org/10.1093/SYSBIO/SYAB025>

Uetz, P., Freed, P., Aguilar, R., Reyes, F. & Hošek, J. (Eds.) (2022) The Reptile Database. Available from: <http://www.reptile-database.org> (accessed 17 January 2023)

Werner, Y.L. (1987) Gekkonid lizards from five quarters meet in Israel. *Bulletin of the Philadelphia Herpetological Society*, 31, 20–33.

Yousofi, S., Pouyani, E.R. & Hojati, V. (2015) Phylogenetic relationships among populations of *Pristurus rupestris* Blanford, 1874 (Sauria: Sphaerodactylidae) in southern Iran. *Turkish Journal of Zoology*, 39 (3), 447–451.

<https://doi.org/10.3906/zoo-1403-6>