

## Studies on Pakistan Lizards: *Cyrtopodion stoliczkai* (Steindachner, 1867) (Gekkonidae: Gekkoninae)

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**Abstract.** - *Cyrtopodion stoliczkai* (Steindachner, 1867) is diagnosed based on the examination of 44 morphological characters in a series of 25 specimens collected near Skardu, Federally Administered Northern Areas (FANA), Pakistan. Observations on geographic distribution, habitat, and reproduction are provided. The questionable taxonomic status of *Gymnodactylus yarkandensis* Anderson, 1872 is discussed. *Alsophylax (Altiphylax) boehmei* Szczerbak, 1991 is regarded as a junior synonym of *C. stoliczkai*.

**Key words.** - *Cyrtopodion stoliczkai*, *Cyrtopodion yarkandensis*, *Alsophylax (Altiphylax) boehmei*, gecko, lizard, taxonomy, Pakistan.

### Introduction

The diverse gecko fauna of Pakistan is poorly understood. Particularly problematic are the angular-toed or thin-toed geckos variously assigned to *Cyrtodactylus*, *Cyrtopodion*, and *Tenuidactylus*. Much of the taxonomic confusion stems from a general dearth of adequate material. Large series of specimens from which to identify variation in important taxonomic characters are lacking in most cases. Examination of specimens collected during surveys by Walter Auffenberg and the Zoological Survey Department of Pakistan in the 1980s-1990s provide insights to many questions regarding some of these poorly defined taxa. One such species, *Cyrtopodion stoliczkai* (Steindachner, 1867), is discussed below. Future contributions will examine additional species.

### Materials and Methods

Herpetological collections were made in the vicinity of Skardu, Federally Administered Northern Areas (FANA), Pakistan in late August 1991. A series (n = 25) of *Cyrtopodion stoliczkai* comprised of all size classes ranging from newborns to adults was collected from under slabs of caliche broken off the edge of a dry creek bed near the Skardu Airport, ca. 10 km west of Skardu. These specimens were subsequently deposited in the Florida Museum of Natural History, University of Florida (UF 81327 - 81351).

This entire series was examined for 44 morphological characters (Tables 1 and 2). Although most of these

counts and measurements are standard, clarification on certain characters are provided. Only original (not regenerated) tails were measured. The left side is given first for scale counts taken on both sides of the specimen. Character 6 was obtained by counting the scales surrounding five randomly selected enlarged dorsal tubercles. Character 12 lists color bands in the following order: occipital region, nape, body (from forelimbs to sacrum), and original tail. Character 13 lists the left side only for the number of scales between the eye and ear. The numbers of longitudinal rows of enlarged dorsal tubercles (Character 14) and transverse rows of ventral scales (Character 15) were taken at mid-body.

Source acronyms follow Leviton et al. (1985): BMNH (British Museum of Natural History, London); MCZ (Museum of Comparative Zoology, Harvard University); NMW (Naturhistorisches Museum, Wien); UF (Florida Museum of Natural History, University of Florida); ZFMK (Zoologischen Forschungsinstitutes und Museums Alexander Koenig, Bonn); ZSI (Indian Museum, Zoological Survey of India, Calcutta); ZSMH (Zoologische Staatssammlung München).

### Results

Table 2 illustrates the variation of 44 morphological characters examined in 25 *Cyrtopodion stoliczkai* from Skardu. We found that these characters overlap with those available for *Alsophylax (Altiphylax) boehmei* Szczerbak, 1991. Therefore, we believe that *A. boehmei* should be considered a junior synonym of *C. stoliczkai* (see Discussion).



Figure 1. *Cyrtopodion stoliczkai* (Steindachner, 1867) - dorsal and ventral views of adult (UF 81349) and subadult specimen (UF 81334) similar in size to holotype of *Alsophylax (Altiphylax) boehmei* (Szczerbak, 1991); both specimens collected near Skardu Airport, ca. 10 km. west of Skardu, FANA, Pakistan.

*Cyrtopodion stoliczkai* (Steindachner, 1867)

[Fig. 1; Tables 1,2]

**Diagnosis.** - Medium-sized geckos (snout-vent length [SVL] of largest adult = 46.5 mm), tail slightly longer than body (longest tail = 53.4 mm), SVL/tail length, mean = 0.854, Standard Deviation [SD] = 0.0455 (n = 11); limbs moderate, hind limb extends to axilla, forelimb to near nostril; body and head somewhat dorso-ventrally compressed. Head moderate (head length/SVL, mean = 0.267, SD = 0.0267, head width/head length, mean = 0.696, SD = 0.0370, head height/head width, mean = 0.593, SD = 0.0546), snout equal to or slightly longer than distance between eye and ear. Eye large (eye diameter/eye - nostril, mean = 0.704, SD = 0.0665); ear rounded to ovate, small, ear diameter/eye diameter, mean = 0.148, SD = 0.0463. Nostril

bordered by rostral, first supralabial, and normally 3 postnasals, occasionally fused to form 2 postnasals or split into 4 scales, medial postnasal smaller than others; 1 - 2 medial scales between postnasals (lacking in one specimen), when 2 present, one is often much larger than the other. Dorsal head scales generally homogeneous in size and shape, slightly larger on snout; 17 - 20 interorbital scales; loreals often with small projections on posterior half of eye; rostral partially cleft; 9-11 supralabials (12 on right side of one specimen), 7 - 9 infralabials. Mental triangular, longer than broad. 3 pairs of postmentals (rarely 2), decreasing in size posteriorly, first pair in contact, with a broad suture; second pair rarely disproportionate in size; third pair often variable in size, may be substantially enlarged on one side, often separated from infralabials by a series of small scales. Dorsum of body and limbs with small roundish, beaded to flat scales intermixed with larger, roundish tubercles; tubercles surrounded by rosettes of 7 - 9 small scales, 2 - 3 times larger than granular scales, smooth, flat to rounded, sometimes indistinctly keeled, slightly conical laterally; arranged in 8 - 10 (rarely 12) longitudinal rows, lateral rows indistinct. Lateral fold indistinct, often absent. Venter with roundish, slightly imbricate scales, 25 - 31 across middle of belly; 113 - 135 from postmentals to cloaca. Preanal and femoral pores absent. Femoral spines absent. Cloacal spines present, 1 - 2 per side. Digits moderate, subdigital lamellae well-developed, nearly as broad as digit, 16 - 20 on fourth finger, 10 - 12 on first toe, 19 - 27 on fourth toe. Tail dorso-ventrally compressed on anterior two-thirds, round on posterior one-third; anterior half with dorsal medial groove; anterior half distinctly segmented, swollen and lobed laterally in adults, less so in subadults and juveniles, tapering to point; 5 whorls on anterior one-third on tail; each segment on anterior half with one enlarged dorso-lateral tubercle and 2 - 3 enlarged, bluntly conical lateral tubercles per side, medial tubercles largest; tubercles reduced in size and number (2) distally, indistinct or absent on posterior one-third; 6 - 7 rows of scales per whorl, terminal row not enlarged, squared-off posteriorly, not acuminate or keeled; 2 series of small subcaudals, cycloid, not greatly enlarged transversely, only about twice as large as adjacent scales, separated by medial groove on anterior half to two-thirds of tail; regenerated tail without segments and lobes, uniformly covered in small flattened scales.

Dorsal ground color light to medium gray with 7 - 10 irregular transverse darker gray bands, with even darker posterior margins; 1 on occipital area, 1 on nape, and 5 - 8 on body; 10 - 15 on tail; limbs with short grayish bands; grayish-brown band from nostril through eye; top of head irregularly mottled; labials with dark speckles; venter whitish.

Table 1. Morphological Characters examined for *Cyrtopodion stoliczkai* from Pakistan. See text for character descriptions.

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1. Number of post-nasals
2. Number of medial scales between post-nasals
3. Number of supralabials
4. Number of infralabials
5. Number of interorbitals
6. Number of scales surrounding dorsal tubercle (randomly counted 5 tubercles)
7. Number of scales between postmentals and cloaca
8. Number subdigital lamellae on fourth toe
9. Number of pairs of postmentals
10. Number of whorls on anterior one-third of tail
11. Number of large, lateral tubercles on each tail whorl
12. Number of color bands on head, nape, body, and tail
13. Number of scales between eye and ear (left side only)
14. Number of longitudinal rows of tubercles
15. Number of transverse rows of ventral scales at mid-body
16. Number of subdigital lamellae on first toe
17. Presence (+) and number of cloacal spines
18. Number of scale rows per tail whorl (max. 8 whorls counted)
19. Number of subdigital lamellae on fourth finger
20. First pair of postmentals in contact (+) or not in contact (-)
21. Scales on top of head homogeneous in size (+) or not homogeneous in size (-)
22. Dorsal tubercles present (+) or absent (-)
23. Mental triangular (+) or not triangular (-)
24. Tail whorls distinct (+) or indistinct (-)
25. Preanal pores present (+) or absent (-)
26. Color pattern of dorsum banded (+) or not banded (-)
27. Color band from nostril through eye to nape present (+) or absent (-)
28. Femoral spines present (+) or absent (-)
29. Femoral pores present (+) or absent (-)
30. Enlarged tubercles on limbs present (+) or absent (-)
31. Roundish dorsal tubercles present (+) or absent (-)
32. Dorsal tubercle sculpture rounded (+) or not rounded (-)
33. Medial subcaudals in series (+) or not in series (-)
34. Distal scale row of tail whorl enlarged (+) or not enlarged (-)
35. Tail dorsoventrally compressed (+) or not compressed (-)
36. Snout-vent length (SVL)
37. Tail length
38. Head length
39. Head width
40. Head height
41. Nostril-eye distance
42. Eye-ear distance
43. Eye diameter
44. Ear diameter

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**Distribution.** - *Cyrtopodion stoliczkai* has been recorded from various localities (see references cited herein) in the upper Indus River valley ranging from Leh, Kashmir to Skardu, Pakistan, a distance of almost 300 km by air (Fig. 2). This species was collected in the Kargil vicinity in Kashmir along one of the many tributaries of the upper Indus River and may occur in other associated river valleys as well. The Shyok River, a large tributary draining areas to the north of the Indus River, remains virtually unexplored. The Indus River enters a series of gorges west of Skardu, which may impede dispersal in that direction.

**Habitat.** - *Cyrtopodion stoliczkai* occurs in the Pamir-Karakorum Highlands region of northern Pakistan and adjacent Kashmir at elevations from 2300 to 3700 m. Vegetation is sparse in this region, being generally confined to human occupation sites, seeps, streams, and forested valleys. The intervening barren landscape is characterized by stark and steep mountainsides, rock and boulder fields, and large areas of clay, caliche, and sand. This species has not been collected from human habitations. Some individuals from the large series collected by Stoliczka during the Second Yarkand Expedition were found under stones (Blanford, 1878). Gruber (1981) collected most of his series in rocky habitats, although one specimen was found in a small hole in a willow tree. Our series was collected from small cracks and fissures between slabs of caliche (see above).

**Reproduction.** - In the vicinity of Skardu, hatching occurs in mid to late August. In addition to several newborns, three full-term eggs (UF 81352) were collected in a cavity between slabs of caliche on 29 August 1991. Although collected together, it is unknown if these represent a single clutch or communal oviposition site. Egg measurements range from 9.7 - 11.1 mm in length and 7.6 - 8.5 mm in width.

## Discussion

The assignment of the species epithet "*stoliczkai*" to the genus *Cyrtopodion* Fitzinger, 1843 is arbitrary. The generic assignments of the angular-toed geckos of South and Central Asia have undergone a great deal of revision over the last few decades (see Anderson, 1999 for a synopsis of the nomenclature history). In this paper we follow the simplified arrangement presented by Anderson (1999) on Iranian species of this group, as we assign all Pakistan species of angular-toed geckos to the genus *Cyrtopodion*. We also find it prudent, considering the current taxonomic confusion, not to allocate subgenera. *Cyrtopodion stoliczkai* is presently not



Table 2. Continued.

Specimen	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44
81327	+	+	-	-	+	+	-	-	+	+	+	+	-	+	23.7	25.0	6.8	4.6	2.6	1.9	1.9	1.4	0.1
81328	+	+	+	-	+	+	-	-	+	+	+	+	-	+	45.1	52.5	13.7	8.3	5.1	3.4	3.4	2.4	0.2
81329	+	+	-	-	+	+	-	-	+	+	+	+	-	+	20.1	17.5	7.5	4.4	2.7	1.6	1.6	1.3	0.1
81330	+	+	NA	-	+	+	-	-	+	+	+	+	-	+	43.6	NA	11.0	7.9	4.8	3.3	3.3	2.2	0.3
81331	+	+	-	-	+	+	-	-	+	+	+	+	-	+	34.0	41.0	9.2	6.1	3.6	2.7	2.4	1.8	0.2
81332	+	+	+	-	+	+	-	-	+	+	+	+	-	+	36.7	NA	9.5	6.9	4.2	3.0	3.0	2.1	0.3
81333	+	+	+	-	+	+	-	-	+	+	+	+	-	+	41.9	47.5	10.7	7.6	4.2	3.4	3.4	2.4	0.5
81334	+	+	+	-	+	+	-	-	+	+	+	+	-	+	33.4	41.5	8.5	6.0	3.3	2.5	2.5	1.7	0.3
81335	+	+	+	-	+	+	-	-	+	+	+	+	-	+	41.1	NA	10.6	7.6	4.5	3.3	3.3	2.2	0.3
81336	+	+	+	-	+	+	-	-	+	+	+	+	-	+	44.0	NA	11.3	8.1	4.8	3.4	3.0	2.5	0.4
81337	+	+	+	-	+	+	-	-	+	+	+	+	-	+	38.7	46.6	9.7	7.0	4.0	2.6	2.6	2.0	0.5
81338	+	+	+	-	+	+	-	-	+	+	+	+	-	+	37.9	NA	10.1	6.9	3.8	3.1	3.1	2.2	0.4
81339	+	+	+	-	+	+	-	-	+	+	+	+	-	+	22.0	NA	6.5	4.3	2.7	1.5	1.5	1.4	0.1
81340	+	+	+	-	+	+	-	-	+	+	+	+	-	+	36.3	46.3	9.8	6.6	5.2	2.9	2.5	2.0	0.3
81341	+	+	+	-	+	+	-	-	+	+	+	+	-	+	45.0	NA	11.3	8.0	4.8	3.6	3.6	2.6	0.3
81342	+	+	NA	-	+	+	-	-	+	+	+	+	-	+	34.1	NA	9.5	7.0	4.0	2.9	2.9	1.9	0.3
81343	+	+	+	-	+	+	-	-	+	+	+	+	-	+	41.5	48.8	10.9	7.6	5.4	3.6	3.6	2.4	0.4
81344	+	+	+	-	+	+	-	-	+	+	+	+	-	+	46.5	NA	11.3	8.2	4.6	3.5	3.5	2.2	0.4
81345	+	+	+	-	+	+	-	-	+	+	+	+	-	+	43.4	51.0	10.8	7.8	4.3	3.2	3.2	2.2	0.4
81346	+	+	+	-	+	+	-	-	+	+	+	+	-	+	43.5	48.1	11.1	8.1	4.6	3.5	3.5	2.3	0.4
81347	+	+	+	-	+	+	-	-	+	+	+	+	-	+	37.2	NA	9.4	6.3	3.8	2.8	2.8	2.0	0.2
81348	+	+	+	-	+	+	-	-	+	+	+	+	-	+	43.9	NA	11.1	7.8	4.2	3.5	3.5	2.2	0.4
81349	+	+	+	-	+	+	-	-	+	+	+	+	-	+	45.1	53.4	11.5	8.3	4.6	3.7	3.7	2.5	0.5
81350	+	+	NA	-	+	+	-	-	+	+	+	+	-	+	40.0	NA	10.5	7.3	4.1	3.0	3.0	2.3	0.4
81351	+	+	+	-	+	+	-	-	+	+	+	+	-	+	34.0	NA	9.1	6.5	3.7	2.8	2.8	1.7	0.2
38773*	+	+	-	-	+	+	NA	NA	NA	NA	NA	NA	NA	NA	34.6	35.7	NA	7.2	4.4	NA	NA	1.5	0.5

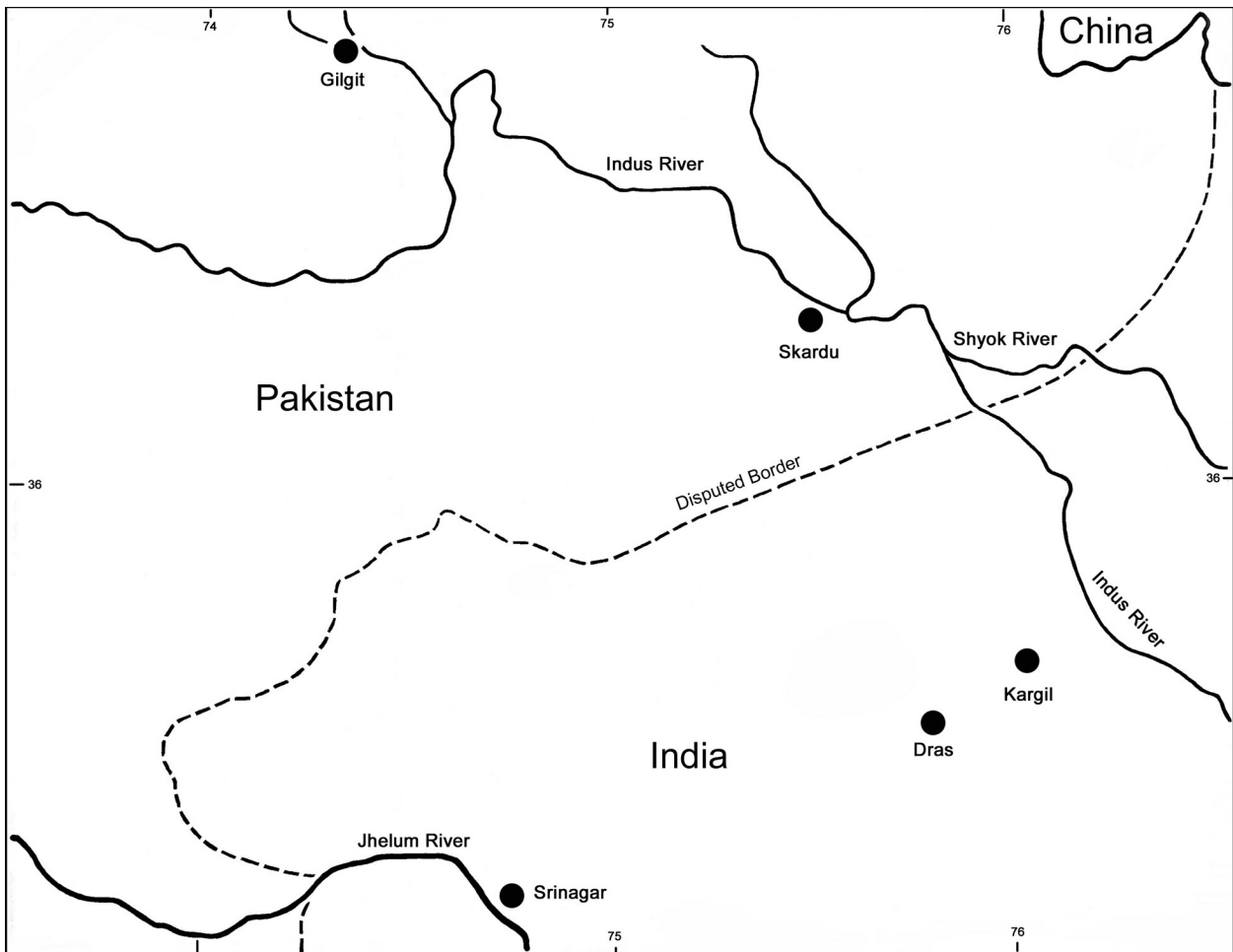


Figure 2. Map of reported localities of *Cyrtopodion stoliczkai* (Steindachner, 1867).

assigned to a subgenus, but is regarded as a member of the "Tibeto-Himalayan" group. Our somewhat cursory examination of other members of this group, including *C. baturensis* (Khan, 1992), *C. chitralensis* (Smith, 1935) (synonymized with *C. walli* (Ingoldby, 1922) by Khan, [1992]), and *C. mintoni* (Golubev and Szczerbak, 1981), clearly shows that this group is highly artificial.

Khan and Rosler (1999) did not consider *Cyrtopodion stoliczkai* as a member of the Pakistan gecko fauna, confining it to the upper Indus River valley in Kashmir. However, the morphological characters of our series from Skardu closely match those of Szczerbak and Golubev (1986, 1996) and Khan and Rosler (1999). Therefore, *C. stoliczkai* does indeed occur in Pakistan.

*Cyrtopodion stoliczkai* (Steindachner, 1867) was described from a single specimen collected by Ferdinand Stoliczka in 1865 near Karoo, north of Dras, in northern Kashmir (Blanford, 1878). Some previous authors have cited Steindachner (1869) as the original description, but this actually refers to a reprint of the earlier work (K. Adler, pers. comm.). This single specimen was subsequently transferred to the Naturhistorisches

Museum, Wien (Vienna, Austria), where Steindachner designated it as the holotype (NMW 16756) in honor of its collector. The holotype is well-illustrated by Szczerbak and Golubev (1986, 1996:Fig. 92). During the Second Yarkand Expedition (1873 - 1874), Stoliczka collected an additional 46 specimens from the type locality and a few localities eastward to Leh in the Indus River valley of central Ladakh, Kashmir. These specimens were subsequently deposited in the Indian Museum, Calcutta (Blanford, 1878). Annandale (1913) enumerated only 31 specimens in the Indian Museum collections in his treatment of Indian *Gymnodactylus*. Zugmayer (1909) and Brongersma (1935) reported this species from Lamayuru and Leh, respectively, both localities being in central Ladakh. Gruber (1981) collected 14 specimens from a few localities in the same general area as Stoliczka in 1865, which were deposited in the ZSM. Khan and Rosler (1999) presented a detailed redescription of *C. stoliczkai* based on this last series, but were unable to examine the holotype and the series in the Indian Museum. Khan and Rosler (1999) erroneously referred to a specimen of *C. stoliczkai* in the

Museum of Comparative Zoology (MCZ 7132) as both a syntype and paratype. This specimen cannot be considered either, as Steindachner mentioned only one specimen in the original description, and Constable (1949:84) did not provide any type designation for this MCZ specimen. This specimen was received by the MCZ via exchange with the Indian Museum, Calcutta, in June 1908 (Constable, 1949:61; J. Rosado, pers. comm.). Stoliczka is given as the collector (Constable, 1949:61). Stoliczka died in 1874 during the Second Yarkand Expedition's return to India, indicating that his large series from Ladakh in the Indian Museum was collected in 1873 during the outbound portion of the expedition. We must assume that the MCZ specimen originates from this large series, however, it is possible that Stoliczka made additional collections in Ladakh between 1865 and 1873. Nevertheless, it is clear that Steindachner (1867) examined only one specimen at the time *C. stoliczkai* was described and the MCZ specimen cannot be a type. Additionally, Khan and Rosler (1999) referred to MCZ 7132 as a topotype. This may or may not be correct, as Stoliczka's journal from the Second Yarkand Expedition indicated that only some of his specimens were collected at the type locality (Blanford, 1878) and others were collected elsewhere. However, since the only locality information available for the MCZ specimen is "Ladakh", it cannot be ascertained that it is actually one of the specimens collected at the type locality.

*Gymnodactylus walli* Ingoldby, 1922 and *G. yarkandensis* Anderson, 1872 were regarded as synonyms of *Cyrtopodion stoliczkai* by Smith (1935), a view followed by virtually all subsequent authors. Minton (1966) referred to a single specimen from Udigram, Swat District, Northwest Frontier Province, Pakistan as *C. stoliczkai*, which was later found to be a distinct species (Mertens, 1969:26; Khan, 1980:14; described as *Gymnodactylus mintoni* by Golubev and Szczerbak in 1981). Khan (1992) produced a compelling argument to consider *Cyrtopodion walli* distinct from *C. stoliczkai* based on an examination of the type specimens in the British Museum. We are unable to resolve the synonymy of *C. yarkandensis* (Anderson, 1872). Blanford (1878) relegated *C. yarkandensis* to the synonymy of *C. stoliczkai* (Steindachner, 1867), and subsequent authors followed this view (Annandale, 1913; Boulenger, 1890; Kluge, 1991, 1993, 2001; Mertens, 1969; Minton, 1966; Smith, 1935; Szczerbak and Golubev, 1986, 1996; Wermuth, 1965; Zhao and Adler, 1993). Khan (1994) resurrected *C. yarkandensis* based on an examination of a single specimen housed in the British Museum (BMNH 72.3.22.4). A comparison of color transparencies taken during a study of the same specimen by W. Auffenberg in the early 1990s, along with our series from Skardu, indicate that this specimen is probably best

assigned to *C. stoliczkai*. However, important morphological characters cannot be ascertained from the transparencies or Khan's (1994) description. Szczerbak and Golubev (1986, 1996) also assigned this specimen to *C. stoliczkai*. Whether *C. yarkandensis* is a distinct taxon or a synonym of *C. stoliczkai* can be determined only with a thorough examination of the types housed in the Indian Museum, Calcutta. We provide the following notes on *C. yarkandensis* at this point merely for a historical perspective.

Anderson (1872) mentioned two specimens in his description of *Cyrtodactylus yarkandensis*. These were supposedly collected in Yarkand (= Shache, Xinjiang, China; Zhao and Adler, 1993) during the First Yarkand Expedition in 1870 (Blanford, 1878). This locality was doubted by Blanford (1878:12-13), maintaining that the types of *C. yarkandensis* were identical to the *C. stoliczkai* specimens collected by Stoliczka during the Second Yarkand Expedition in Ladakh, some of which were taken from the type locality of *C. stoliczkai*. Blanford (1878:13) stated "The specimens described by Dr. Anderson as *Cyrtodactylus yarkandensis* were brought, with others, by a collector, who accompanied Dr. Henderson on the mission which was sent to Yarkand in 1870; this mission traversed precisely the same route through Kashmir and Leh as the second in 1873 - 74, and I do not think there can be any reasonable doubt that the real locality whence *Cyrtodactylus yarkandensis* was obtained must have been Ladakh, and not Yarkand." Annandale (1913:316) incorrectly attributed the collection of the types of *C. yarkandensis* to Stoliczka during the Second Yarkand Expedition. That mission embarked in 1873, about one year after Anderson's (1872) description of *C. yarkandensis*. Khan (1994) referred to this specimen (BMNH 72.3.22.4; "Yarkhand") as a syntype. The specimen catalogue at the British Museum indicates that this specimen was "Presented by [the] Indian Museum Calcutta through Dr. Anderson" and cataloged on March 22, 1872 (C. McCarthy, pers. comm.), the same year the species was described. Anderson (1872:381) mentioned only two specimens in the original description and Annandale (1913:316) referred to two specimens (ZSI 3792 - 93) as types of *C. yarkandensis* (as a synonym of *Gymnodactylus stoliczkai* Steindachner) in the Indian Museum, Calcutta. It can be assumed that these were the specimens on which Anderson based his description, thus the status of the British Museum specimen remains nebulous.

*Alsiophylax (Alsiophylax) boehmei* Szczerbak, 1991 was described from two specimens collected by G. Osella from Skardu, Pakistan in July 1976. Although we did not examine the holotype, we have no doubt that the description of this species is based on subadult

*Cyrtopodion stoliczkai*. This relationship was originally suggested by Golubev (in Szczerbak and Golubev, 1996:200, footnote). Morphological characters for *A. boehmei* provided by Szczerbak (1991) fall within the range of variation in those we recorded for *C. stoliczkai* (Table 1). The holotype (ZFMK 38773, see Fig. 3 in Szczerbak, 1991) matches the subadults in our complete growth series collected in Skardu in 1991 (Table 2). The whorls of the anterior third of the tail of *C. stoliczkai* do not become swollen and lobed until maturity, but Szczerbak (1991) lacked a sufficient series of specimens to make this determination.

Golubev (in Szczerbak and Golubev, 1996:200, footnote) also suggested that *Tenuidactylus baturensis* Khan and Baig, 1992 may also be conspecific with *Cyrtopodion stoliczkai*. Our examination of one specimen collected near the type locality of *T. baturensis* indicates that although it is similar in overall morphology, this species appears to be distinct.

Khan (2001) divided the Tibeto - Himalayan group of *Cyrtopodion* into three subgroups: Stoliczkai subgroup = *C. baturensis* (Khan and Baig, 1992), *C. stoliczkai* (Steindachner, 1867), and *C. yarkandensis* (Anderson, 1872); Tibetanus subgroup = *C. battalensis* (Khan, 1993), *C. dattanensis* (Khan, 1980), *C. himalayanus* (Duda and Sahi, 1978), *C. mintoni* (Golubev and Szczerbak, 1981), and *C. tibetinus* (Boulenger, 1905); and the Walli subgroup - *C. walli* (Ingoldby, 1922) (including *C. chitralensis* [Smith, 1935] as a synonym) and *C. kirmanense* (Nikolsky, 1900). Our preliminary examination of most of these taxa reveals that Khan's system has merit concerning overall morphological and ecological data. Further investigations into the Pakistan gecko fauna and that of adjacent areas will undoubtedly lead to further discoveries of new species and more clearly define those already described.

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