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Systematics and Distribution of the Iranian Plateau Leaf-toed Geckos of the Genus *Asaccus* (Sauria: Gekkonidae)

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A review of the known Iranian species of the genus *Asaccus* is presented. The genus *Asaccus* is divided into two distinct geographical lineages. The nominotypical group is endemic to the Mesopotamian region (western Iran, eastern Iraq, Turkey and Syria), and includes *Asaccus elisae*, *A. griseonatus, A. kermanshahensis*, *A. kurdistanensis, A. nasrullahi* and *A. saffinae*, all restricted to the Zagros Mountains and neighboring regions. The second group, occurring in the northern Oman Mountains as well as some areas in the United Arab Emirates, includes *A. caudivolvulus, A. gallagheri, A. montanus* and *A. platyrhynchus.* Historical and biogeographical events in the Middle East have had a major impact on the distribution and subsequent evolution of *Asaccus.* A key to all species of *Asaccus* is provided.

Key words: *Asaccus*, Gekkonidae, Phyllodactylidae, Iranian Plateau

INTRODUCTION

The gekkonid genus *Asaccus* Dixon and Anderson, 1973 is a vicariate group, distributed in the mountains of northern Oman and United Arab Emirates (UAE), south of the Persian Gulf and Oman Sea (*Asaccus caudivolvulus* Arnold and Gardner, 1994; *A. gallagheri* Arnold, 1972; *A. montanus* Gardner, 1994 and *A. platyrhynchus* Arnold and Gardner, 1994), and in western and southwestern Iran and eastern Iraq, southern Anatolia, and Syria (*A. elisae* Werner, 1895, *A. griseonotus* Dixon and Anderson, 1973; *A. kermanshahensis* Rastegar-Pouyani, 1996; *A. kurdistanensis* Rastegar-Pouyani, Nilson and Faizi, 2006; *A. nasrullahi* Werner, 2006; and *A. saffinae* Afrasiab and Mohamad, 2009). *Asaccus* belongs to one of the least known families within the Gekkota (Gamble et al., 2008), and the first described forms were placed in the genus *Phyllodactylus* Gray, 1828. In 1973, Dixon and Anderson described a new species and genus of gecko from an unidentified locality near Islamabad (Shahabad), Kermanshah Province, western Iran. They proposed the name *Asaccus* and named their new taxon *Asaccus griseonotus,* based on the absence of cloacal sacs and postanal bones, loss of one phalanx in the fourth digits, loss of the second epibranchial arch of the hyoid, and a cartilaginous rod-shaped hypoischium (Eiselt, 1973), characteristics distinguishing *Asaccus* from the western hemisphere genus *Phyllodactylus.* , Eiselt (1973) described a new species, *Phyllodactylus ingae*, based on a single specimen from 110 km southwest of Khorram- Abad city, Lorestan Province, southwestern Iran (Gardner, 1994). Eiselt's new species was later made a junior synonym of *Asaccus griseonotus* (Anderson, 1999). Before the description of *Asaccus*, all gekkonid lizards with similar generic characteristics were regarded as belonging to the genus *Phyllodactylus*, with a single described species in Iran, *Phyllodactylus elisae* Werner, 1895 from western and southwestern regions of the Iranian

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Plateau (Kluge, 1993, 2001; Leviton et al., 1992; Bauer et al., 1997). Since then, several new species of *Asaccus* have been described based on their distinctive characteristics: *A. montanus* Gardner, 1994 from the mountainous regions of UAE; *A. platyrhynchus* Arnold and Gardner, 1994 from Tanuf, Oman; *A. caudivolvulus* Arnold and Gardner, 1994 from Jebel Ras, UAE; *A. kermanshahensis* Rastegar-Pouyani, 1996 from 45 km northeast of Kermanshah city, Kermanshah Province, western Iran; *A. kurdistanensis* Rastegar-Pouyani, Nilson and Faizi, 2006 from 10 km northwest of Sarvabad, between Marivan and Sanandaj, Kurdistan Province, Western Iran, and finally *A. nasrullahi* Werner, 2006 based on a single specimen deposited in the Copenhagen Museum, Denmark and previously identified as *Ptyodactylus hasselquistii*. Among the species of *Asaccus*, *A. elisae* is the most widespread, being distributed in Iran, Iraq, Turkey, and Syria (Dixon and Anderson, 1973; Martens and Kock, 1991; Leviton et al., 1992; Arnold and Gardner, 1994; Rastegar-Pouyani, 1996; Varol et al., 1997, 2002; Rastegar-Pouyani et al., 2006, 2007).
In this study the systematics and distribution of the Iranian Plateau species of *Asaccus* are discussed.

Asaccus Dixon & Anderson, 1973

Diagnostic features**:** No femoral pores; left oviduct absent, lays a single egg; reduction of phalangeal formula of manus to 2.3.4.4.3; digits with paired terminal scansors lacking lamellae; no transverse processes on autotomic caudal vertebrae (infrequently present on the first) (Arnold and Gardner, 1994); no cloacal sacs and postanal bones; second epibrachial arch of hyoid present; stapes perforate (stapedial foramen present); 28 amphicoelous precaudal vertebrae; parietals and nasals are paired, with long projection of premaxillary between nasals; anterior tip of mesoscapula lacking osseous or cartilaginous connection with precoracoid process; interclavicles shield-like; three pairs of sternal ribs, two pairs of mesosternal ribs; one large fenestra in clavicle; supratemporal and angular absent; frontal single; 9-10 premaxillary teeth, 50-60 total dentary teeth and 48-52 total maxillary teeth; 14 scleral ossicles; hypoischium cartilaginous, rod-like (Dixon and Anderson, 1973)

KEY TO THE SPECIES OF ASSACUS

(Modified from Arnold and Gardner, 1994; Anderson, 1999; Rastegar-Pouyani, 1996, 2006; Rastegar-Pouyani et al., 2006a; Afrasiab and Mohamad, 2009).

1a. Tail tip uncompressed; narrow dark transverse dorsal bars visible in preserved material; dorsal tubercles small or absent (northern Oman only) *Asaccus* (Sauria: Gekkonidae)…… ……2
1b. Tail tip laterally flattened and often expanded vertically; no narrow dark transverse dorsal bars in preserved material; dorsal tubercles relatively large (Musandam, east Syria, Iraq, Iran) …….….3
2a. Small (≤40 mm from snout to vent); scansors on toe tips do not project beyond claws; no dorsal tubercles …….....*A. gallagheri* (Arnold, 1972)
2b. Large (adult ≤63 mm from snout to vent); scansors on toe tips extend well beyond claws; small dorsal tubercles present in about 12 longitudinal rows at midbody ……*A. platyrhynchus* Arnold and Gardner, 1994
3a. Scansors on toe tips extending well beyond claws; dorsal tubercles moderate or small; series of expanded subcaudal scales extending forwards to vent area ……..……...4
3b. Scansors on toe tips not extending clearly beyond claws; dorsal tubercles distinctly large; series of expanded subcaudal scales not extending forwards to vent area ……..……8
4a. Dorsal tubercles moderate, some present on occiput, five phalanges in the fourth digit of the pes; tail with a light tip preceded by one or more broad dark bars extending to the ventral surface

(Musandam and eastern United Arab Emirate ……
…….....*A. caudivolvulus* Arnold and Gardner, 1994
4b. Dorsal tubercles relatively small to moderate; four phalanges in the fourth digit of the pes ……..……5
5a.Tubercles almost absent on occiput; tail without conspicuous light tip preceded by dark bars extending to ventral surface (Iran and Iraq) ……. 6
5b. Tubercles present on occiput; tail with conspicuous light tip preceded by dark bars extending to ventral surface ……..7
6a. Dorsal tubercles moderate, circular, conical, not keeled, in 10-13 longitudinal rows at mid body…….*A. griseonotus* Dixon and Anderson, 1973
6b. Dorsal tubercles distinctly small, circular or oval, not keeled, in 7-8 longitudinal rows at mid body ……..……*A. nasrullahi* Werner, 2006
6c. Dorsal tubercles small, blunt conical, smooth, oval in 13 longitudinal rows at mid body, postmentals separated behind the mental …….....*A. saffinae* Afrasiab and Mohamad, 2009
7a. Four pairs of postmentals bordered by 21–24 granules ……
…….*A. kermanshahensis* Rastegar-Pouyani, 1996
7b. Three pairs of postmentals bordered by 16–20 granules ……..……
…….……..*A. kurdistanensis* Rastegar-Pouyani, Nilson and Faizi, 2006
8a. Relatively robust, tubercles present on upper arm…….…….
……..……*A. caudivolvulus* (Jebel Ras population) Arnold and Gardner, 1994
8b. Relatively slender, no tubercles on upper arm …….…….....
……..……...*A. caudivovulus* (Khasab population) Arnold and Gardner, 1994
9a. Small (<40 mm from snout to vent); extremely tuberculate; scaling coarse; scales from postnasal to orbit 9–11; scales across snout at level of third upper labials 12–14; tail tip flattened and strongly expanded vertically (Jebel Akhdar) ……..……*A. montanus* Gardner, 1994
9b. Larger (≤ 57 mm from snout to vent); less tuberculate; scaling coarse; scales from postnasal to orbit 11–16; scales across snout at level of third upper labials 14–19; tail tip somewhat flattened and not strongly expanded vertically (Turkey, east Syria, Iraq and Iran) ……....*A. elisae* (Werner, 1895)

SYSTEMATIC ACCOUNT

Asaccus elisae (Werner, 1895)

Phyllodactylus elisae Werner, 1859:14, pl.3, Figs. 1a-e. Type locality: Ruins of Niniveh, near Mosul, Iraq; Syntypes;NMW (4spec.); Holotype: BMNH 95.3.2.3 (1946.8.24.39).
Phyllodactylus eugeniae Nikolsky, 1907a:268, pl.1, Fig. 1. Type locality: Dizful and Abu-Garia, affluent to Karun River, Iran.
Asaccus elisae Dixon and Anderson, 1973:157-158, Figs. 1, 2 left.
Diagnosis: Relatively large (57 mm from snout to vent); two pairs of postmentals bordered by 18-20 granules; scales on supraorbital region coarse, as are those of snout (11-16 between postnasal scales and orbit, 14-19 across snout at level of third upper labial);tubercles of dorsum, limbs and tail large, length of individual tubercle more than 64% of ear diameter; 8-14 longitudinal rows of enlarged dorsal tubercles; 10-12 large tubercles across rear of head between ears; 2-12 enlarged tubercles on upper forelimb above elbow; tail tubercles arranged in whorls, each whorl separated from other such tubercles by 2-3 granules; subtibial scales coarse; digital scansors not extending well beyond claws; phalanges in fourth toe reduced to four; cloacal tubercle small; tail tip laterally compressed; subcaudal series of expanded scales not reaching vent area anteriorly; tail color not sexually dimorphic, with a series of dark transverse bars that extend ventrally (Dixon and Anderson, 1973; Arnold and Gardner, 1994; Anderson, 1999; Rastegar-Pouyani et al., 2007)

Distribution and Habitat: *Asaccus elisae* has the widest geographic range of distribution among *Asaccus* species and is known from the Mesopotamian plain and bordering foothills in southeast Anatolia, eastern Syria, Iraq, west and southwestern Iran (Fig. 1).
Weber (1960) reported it as a house gecko in Iraq on the Mesopotamian Plain. Varol et al. (2002) recorded its occurrence in the vicinity of Nusaybin, Mardin, a locality almost 290 km east of Birecik where the first record of *A. elisae* was reported (Böhme, 1973). Rastegar-Pouyani et al. (2007) reported it as a house gecko in the western Kermanshah region (especially in Ghasre- Shirin and Sarpole Zahab). Anderson (1999) found it in a cave in Fars Province and in Lorestan Province under a large flake of exfoliated sandstone on a cliff face above a stream. We found it in a cave 40 km southeast of Masjed-Soleiman, Khuzestan Province and on the rocks around the cave. It was also collected as a house gecko in Kohdasht 90 km west of Khoram-Abad, Lorestan Province, western Iran. *A. elisae* is sympatric with *Cyrtopodion scabrum*, *Hemidactylus persicus*, and *H. flaviviridis* in western and southwestern regions of Iran.

***Asaccus griseonotus* Dixon & Anderson, 1973**
Asaccus griseonotus Dixon &Anderson, 1973:158-160, Fig. 3 right. Type locality: 62 km from Shahabad, Kermanshah province, Iran; Holotype: FMNH 170824.
Phyllodactylus ingae Eiselt, 1973:173-179. Type locality: 110 km SW of Khoram-abad by road, just NW of the turning Malavi, about 1000 m above sea level.
Diagnosis: Large (≤71 mm from snout to vent); scales across supra orbital region coarse; small dorsal tubercles present on back (10-13 longitudinal rows at mid-body) but absent on occiput and upper forelimb; each tubercle of dorsum separated from its adjacent tubercle by 4-5 granules; Two pairs of postmentals bordered by 15-18 granules; subtibial scales moderate size; digital scansors extending well beyond claws; phalanges in fourth toe reduced to four; cloacal tubercle small; tail tip laterally compressed; a single transverse row of enlarged dorsal tubercles at the posterior edge of each segment; subcaudal series of expanded scales reaching vent area anteriorly; dorsum without a pattern of narrow dark transverse bars in alcohol; tail color not sexually dimorphic; dorsal dark bars on the tail do not extend ventrally (Arnold and Gardner, 1994; Anderson, 1999; Rastegar-Pouyani et al., 2007).

Distribution and Habitat: *Asaccus griseonotus* occurs in Western Iran (110 km southwest Khoram-Abad; 62 km from Shahabad and adjoining northeast Iraq [Palegawra cave, halfway between Kirkuk and Sulimanyah (Dixon and Anderson, 1973; Gardner, 1994; Anderson, 1999; Arnold and Rastegar-Pouyani et al., 2007)]. We found it at a new locality 15 km southwest of Guilan-Gharb on the road to Sarmast, Kermanshah Province, western Iran, at 1000-1200 m elevation in dense oak forest. Other reptile species found in this region are *Testudo graeca*, *Ablepharus pannonicus*, and *Asacuss elisae* (Fig. 2).

***Asaccus kermanshahensis* Rastegar-Pouyani, 1996**
Asaccus kermanshahensis Rastegar-Pouyani, 1996:11-17, Figs. 1-9. Type locality: Mianrahan, 40 km northeast of Kermanshah city, inside a small cave, Kermanshah province, Western Iran, elevation 1450m. Holotype : TUZM 164R.
Diagnosis: A medium sized gecko (≤55.7 mm from snout to vent), with four pairs of postmentals bordered by 21-24 granules; mental scale large and bell-shaped and wider than long; rostral scale more than twice as wide as high, entire, without median depression; two large internasals in broad contact behind the rostral, with a convex profile and shallow depression between them; gular scales smooth and granular, 57-58 gulars in a longitudinal row between postmental and gular line; dorsal tubercles round, oval and mainly smooth with tubercles weakly pointed and keeled separated by 4-6

scales; ventral scales cycloid-hexagonal, smooth, larger than dorsal granules; tail tubercles arranged in whorls, each whorl consisting of six large, trihedral and keeled tubercles (Rastegar-Pouyani, 1996; Anderson, 1999; Rastegar-Pouyani et al., 2007).

Distribution and Habitat: *Asaccus kermanshahensis* is known only from the type locality (Fig. 3), which is a small cave located in northern Kermanshah Province. At this region the Zagros Mountains chain is interrupted and several deep faults have been formed. Other lizards existing in this region include *Laudakia nupta nupta, Trapelus lessonae, Apathya cappadocica urmiana, Ophisops elegans*, and *Trachylepis aurata septemtaeniata* (Rastegar-Pouyani, 1996; Anderson, 1999; Rastegar-Pouyani et al., 2007).

***Asaccus kurdistanensis* Rastegar-Pouyani, Nilson and Faizi, 2006**

Asaccus kurdistanensis Rastegar-Pouyani, Nilson and Faizi, 2006. Type locality: Sarvabad region, between Sanandaj and Marivan, Kurdestan Province, Western Iran, elevation 1850 m, Holotype: RUZM 1999.

Diagnosis: A relatively large-sized gecko (≤63.5 mm from snout to vent) with three pairs of postmentals, mental larger than the first of postmental; rostral shield broad, in contact with first supra labial and intranasal; intranasal shield large, swollen (about twice as large as postmental scales); gulars granular, smooth and in single longitudinal row from the level of second part of postmental to gular, 56-57 scales; scattered roundish tubercles on nape and head; dorsal scales granular, among them long, roundish, smooth tubercles (3 times size of granules), separated from others by 3-5 granules; ventral scales smooth, rounded, subimbricate, and larger than gulars; large scales on the side of tail pointed and keeled (unlike the shield on dorsal side of tail); cloacal tubercles relatively small (Rastegar-Pouyani et al., 2006).

Distribution and Habitat: *Asaccus kurdistanensis* is known from Sarvabad, between Sanandaj and Marivan (46°17´E 35°08´N), Kurdestan Province, Western Iran, elevation 1850 m. This area is a part of the northern Zagrosian oak forest as dominant plant species (Fig.4).

The type locality of this species is the Zagros Mountains which have a temperate climate and vegetation characterized as primarily Zagrosian oak forest with *Quercus brandti* and *Q. persica* as dominant species. In addition, various species of the families Rosaceae and Graminaceae are found in this area. The holotype was collected at about 1200 h (midday air temperature of ca. 20°C) outside a small cave. All paratypes were collected during the night near the mouth of two small caves. It was observed that at least one male and one female occur in each small cave in this locality. *Asaccus kurdistanensis* is sympatric with *Trachylepis aurata transcaucasica*, *Laudakia nupta nupta*, and *Apathya cappadocica urmiana* (Rastegar-Pouyani et al., 2007).

***Asaccus nasrullahi* Werner, 2006**

Asaccus nasrullahi (Werner, 2006). Type locality: Shah Bazan, near the small affluent Ab-I-Khornos, 600 m, Lorestan Province, southwestern Iran, 30 April 1937. The female apparently collected by E. Kaiser of the Danish Scientific Investigation in Iran (Schmidt, 1955); Holotype: ZUMC-R 3447.

Diagnosis: *Asaccus nasrullahi* is a relatively large gecko (70 mm from snout to vent), scales across the preorbital and supraorbital region coarse; tubercles on the dorsum small, circular, conical, in 7-8 longitudinal rows, no tubercle on the head, occiput and upper forelimb regions; subtibial scales enlarged, keeled; digital scansors extend beyond claws; dorsum with pattern of irregular, broad, dark cross-bands; rostral scale 2.5 time as wide as high, entire, slightly biconcave above to accommodate the two internasals, broadly meeting behind the rostral (Werner, 2006).

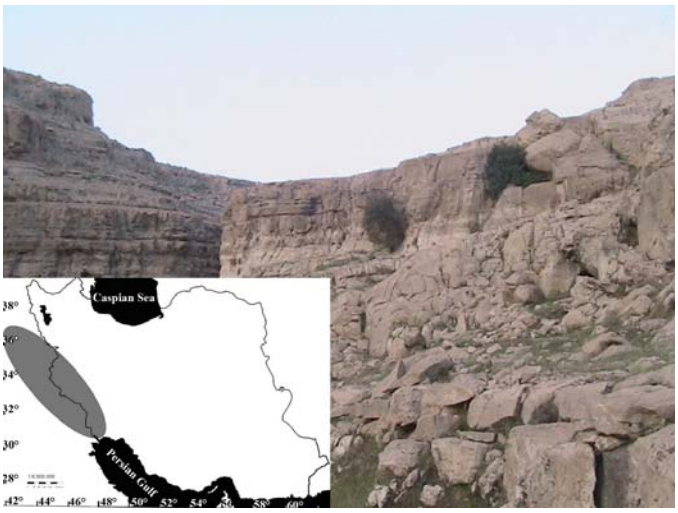

FIG. 1. Distribution map and typical habitat of *A. elisae* in Masjed-Soleiman, Khuzistan Province, southwestern Iran.

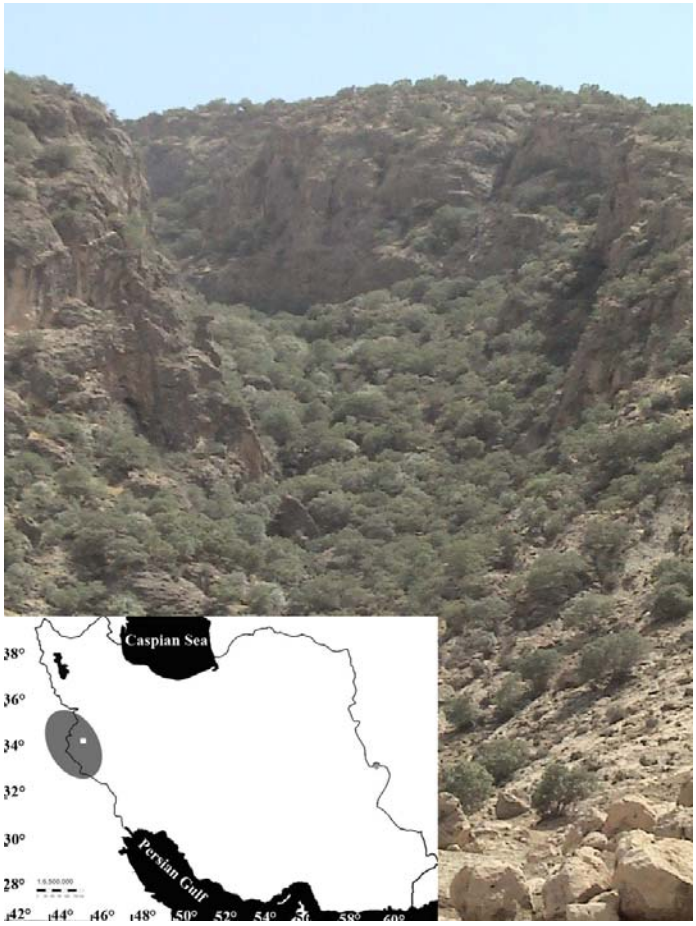

FIG 2. Distribution map and typical habitat of *Asaccus griseonotus* in 10 km southwest of Guilane-Gharb, Kermanshah Province, western Iran.

FIG. 3. Distribution map, habitat and type locality of *Asaccus kermanshahensis* in 40 km northeast of Kermanshah city, Kermanshah Province, western Iran.

FIG. 4. Distribution map, habitat and type locality of *Asaccus kurdistanensis* in high altitude mountains of Marivan region, Kurdistan Province, western Iran.

FIG. 5. Distribution map and typical habitat of *Asaccus nasrullahi* in the Zagrous Mountains with dense oak forest, Lorestan Province, western Iran.

Distribution and Habitat: *Asaccus nasrullahi* is found in Shah Bazan, near the small affluent Ab-I-Khornos (Fig. 5). The area of origin of this specimen is the Zagros Mountains with temperate climate and dominant vegetation Zagrosian oak forest, described as xerophilous deciduous steppe-forest of *Quercus brandti* by Zohary (1973). From this locality the following additional reptile species have been recorded: *Laudakia nupta*, *Cyrtopodion scabrum*, *Hemidactylus turcicus*, *Asaccus elisae*, *Ophisops elegans,* and *Natrix tesellata* (Werner, 2006).

DISCUSSION

MORPHOLOGICAL COMPARISON

The number of postmental scales is one of the main characteristics that separate the Iranian *Asaccus* species from one another. *A. kermanshahensis* has four postmental scales, *A. kurdestanensis* has three, and the other species have two postmental scales (Fig. 6). Although the number of postmentals is not a constant characteristic in many gekkonid lizards, there is no published information about its

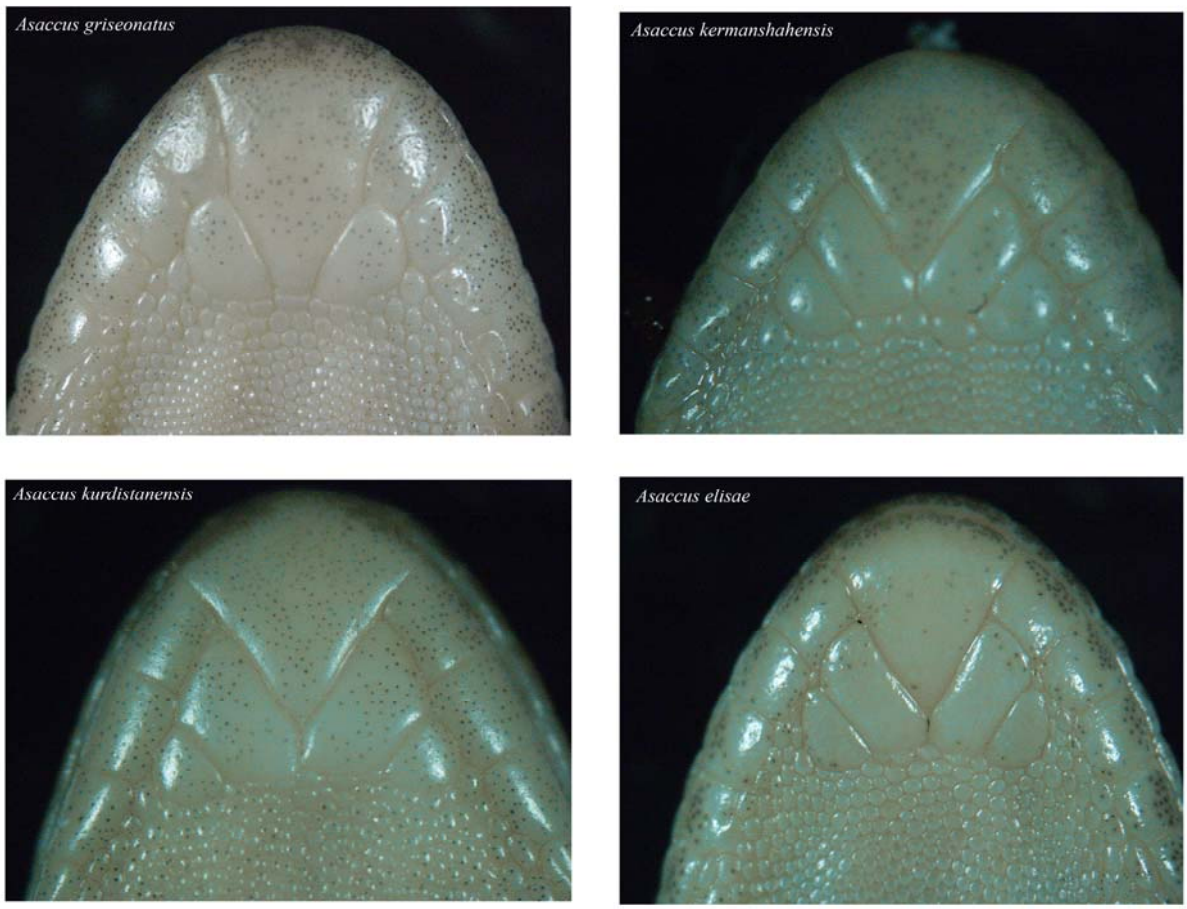

FIG. 6. Difference in the number of postmental scales in Iranian *Asaccus* species. (A): *Asaccus griseonotus,* (B): *Asaccus kermanshahensis,* (C): *Asaccus kurdistanensis,* (D): *A. elisae.*

variability in *Asaccus* species. The other important characteristic is the form and pattern of the dorsal tubercles (Fig. 7). For instance, *A. elisae* has large keeled tubercles on the dorsal region, and *A. nasrullahi* is less tuberculate than *A. griseonotus*. The major differences in morphological characteristics among Iranian leaf-toed geckos of the genus *Asaccus* are presented in Table 1.

HISTORICAL BIOGEOGRAPHY

The distribution pattern of the Iranian Plateau lizards (including the genus *Asaccus*) has, to a great extent, been affected by dramatic vicariant events, especially the uplifting and evolution of the Zagros and Elburz Mountains in the Late Tertiary Period, about 15–9 million years before present (MYBP) (Macey et al., 1998, 2000; Rastegar-Pouyani 1999a, b, c; Rastegar-Pouyani and Nilson, 2002; Rastegar-Pouyani, 2006). These two mountain systems have played the most important role in shaping the past and present distribution patterns of various taxa (Rastegar-Pouyani, 2006).

With regard to the historical biogeography of the vicariant and disjunctly distributed lizards of the genus *Asaccus*, few hypotheses have been proposed regarding the origin and diversification of this mainly petricolous genus (Anderson, 1968; Rastegar-Pouyani, 2003). Rastegar-Pouyani (2003) suggested that either the Zagros Mountains or the mountains of Oman and UAE can be regarded as

TABLE 1. The comparison of main morphological characters among different *Asaccus* species of Iran.

Characters	*A.elisae*	*A.griseonotus*	*A.kermanshahensis*	*A.kurdistanensis*	*A.nasrullahi*
Postmentals	Two pairs	Two pairs	Four pairs	Three pairs	Two pairs
Tubercles on head	Present	Absent	Present	Present	Absent
Dorsal tubercles	Strongly keeled	Weakly keeled	Smooth	Weakly pointed	Circular, conical
Dark rings on tail	Present	Present	Absent	present	Absent
Diameter of individual back tubercle	>2/3 of ear diameter	<half of ear diameter	>3/4 of ear diameter	>half of ear diameter	<half of ear diameter
Ear diameter	>1/3 of eye diameter	>1/2 of eye diameter	<1/3 of eye diameter	<1/2 of eye diameter	<1/2 of eye diameter
Granules bordering postmentals	18-20	15-18	21-24	16-20	
Upper labials	9-11	9-10	9-12	9-10	12-12
Lower labials	9-10	7-9	8-10	8-9	7-7
Dorsal tubercles in a transverse row	9-13	10-12	8-10	8-11	7-8
Maximum SVL (mm)	57.9	70.5	55.7	63.5	70.0
Scales across midorbital region (in a single row)	23-28	20-25	22-26	18-20	21

the centre of origin and diversification for *Asaccus*. The genus *Asaccus*, as a vicariant taxon, has now been divided into two distinct geographical groups. 1) A northern geographical group, encompassing at least five known species, which are mainly distributed on the Zagros Mountains and its neighboring regions (see above); 2) A southern geographical group, consisting of four described species which are distributed in the eastern and southeastern regions of Arabian Peninsula, mostly in the mountains of northern Oman and UAE.

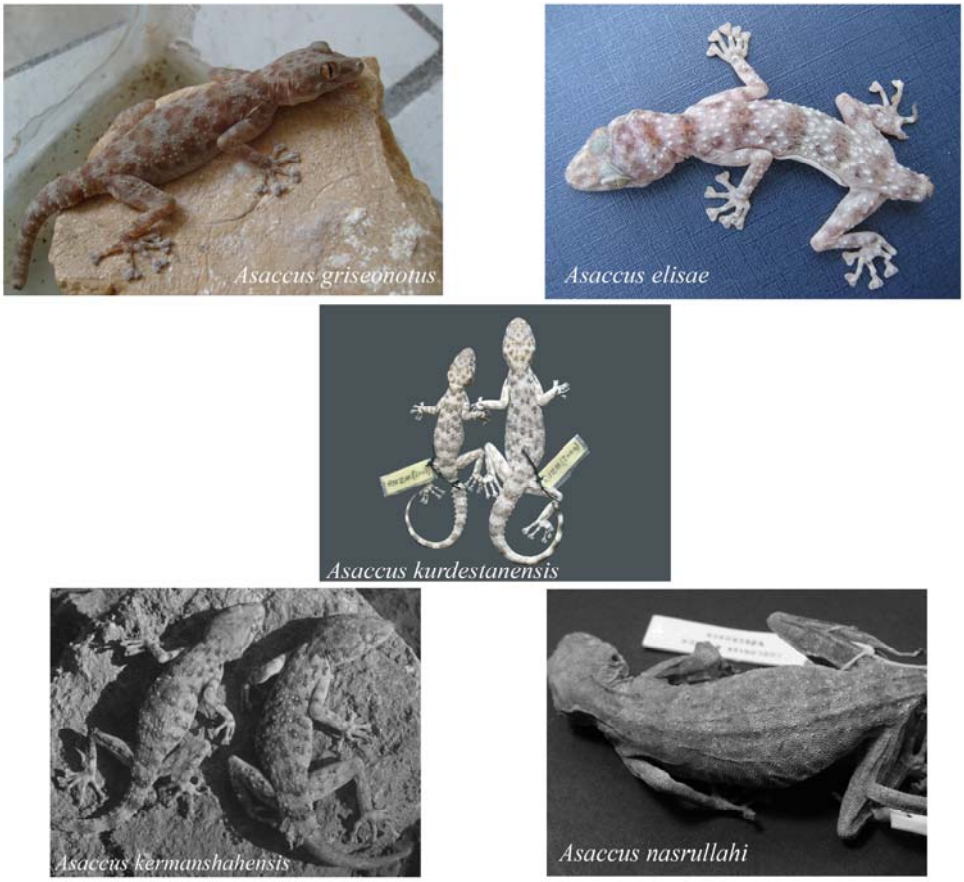

FIG. 7. Differences in dorsal pattern of different Iranian *Asaccus* species (note the differences in dorsal tubercles).

Since most described species of *Asaccus* now occur in the Zagros Mountains and neighboring areas, we are inclined to consider the Zagros Mountains as the centre of origin and diversification for this taxon.

The ancestor of this taxon was probably distributed in the mountains and small caves. Through one or more dispersal paths, this ancestral taxon expanded its range towards the high mountains of the south. Geomorphic events and climatic fluctuations led to increasing progression of the Persian Gulf and the Oman Sea, resulting in the previously contiguous ancestral populations becoming separated and isolated, with one branch restricted to the southern mountains, south of the Persian Gulf and Oman Sea, and the other confined to the Zagros Mountains and its western foothills.

The present distribution pattern of *Asaccus*, as a disjunct genus, is the result of dispersal from the centre of origin in the northern parts of the range (e.g., the Zagros Mountains) towards the south (e.g., Oman and UEA mountains), as well as vicariant events (e.g., plate tectonics, evolution, and increasing progression of the Persian Gulf and Oman Sea), in the Late Tertiary (about 15–9 MYBP).

Based on available evidence, the separation of the high mountain ranges of the Iranian Plateau and the mountains of the eastern and southeastern Arabian Peninsula, through evolution and progression of the Persian Gulf and Oman Sea, have had major effects on the isolation, speciation, and subsequent evolution of *Asaccus*. Further field work, as well as morphological and molecular analysis of relationships among taxa of *Asaccus* may help shed light on the evolutionary history of this southern Palearctic gekkonid genus.

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Museum Abbreviations: RUZM= Razi University Zoological Museum; ZUMC= Kobenhavns Universitet Zoologisk Museum,Kobenhavn (Copenhagen, Denmark); TUZM=Tehran University Zoological Museum.

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