Annotated checklist of the endemic Tetrapoda species of Iran

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ABSTRACT

During past years different studies have attempted to describe the tetrapod fauna of Iran, most of which have focused on the herpetofauna. However there is no coherent study of the endemic species of Tetrapoda in Iran. In this study, we provide a list of endemic species of Tetrapoda in Iran, mention their habitat, distribution, their conservation status (IUCN) and important biological note. Eighty endemic species of Tetrapoda occur in Iran, of which 82.50% are reptiles. Thirty-eight species (47.50% of total endemic species of Tetrapoda) have no submitted data to IUCN; of which 35 species are reptiles. Additional studies are needed to provide data about the conservation status of tetrapod fauna of Iran, especially the endemic fauna.

KEY WORDS
Fauna of Iran, endemism, Tetrapoda, IUCN, checklist.
INTRODUCTION

Endemity is one of the crucial issues in conservation biology, an idea first employed by de Candolle 200 years ago. “Endemity” may result from: 1) the organism originated in a special place and never dispersed elsewhere; or 2) the organism survived in a portion of its former broader range. Historical events and ecological processes influence endemcity (Brown & Lomolino 1998) and furthermore degree of endemcity differs among taxa.

Iran is a prominent area from the zoogeographical point of view: located on the border of the Palearctic, Ethiopian and Oriental zoogeographic regions, it ranks 20th among global hotspot (Coad & Vilenkin 2004; Hosseinzadeh et al. 2014). Hosseinzadeh et al. (2014) reported the western and southwestern areas of Iran as hotspots for Iranian endemic reptiles, designated as the Iranian-Anatolian biodiversity hotspot. The annual mean temperature was identified as the factor that has the most effect on the reptile species richness (Hosseinzadeh et al. 2014).

Numerous studies have been conducted related to Iran endemcity, most of which focused on the herpetofauna. In 2011, Gholamifard published a study of the endemic reptiles of Iran, identifying 36 endemic species. Smid et al. (2014) published a checklist of the Iranian lizards, listing 46 endemic species. However, Hosseinzadeh et al. (2014) recognized 50 endemic species of terrestrial reptiles in Iran. In the most recent study, six endemic amphibians and 55 endemic reptiles were listed for Iran (Safaei-Mahroo et al. 2015).

On the other hand, Karami et al. (2016) published the checklist of the mammals of Iran and listed 202 species (including both extirpated and introduced species). Rodents were the most diverse order (71 species) followed by Chiroptera (49 species) and Carnivora (31 species) (Karami et al. 2016).

In this study, we provide a list of the endemic Tetrapoda of Iran in addition to their distribution, conservation status (IUCN), common name and habitat. Species with known ranges restricted to the political borders of Iran are considered endemic. This is the first coherent report of the endemic species of Tetrapoda in Iran.

MATERIAL AND METHODS

This revised checklist has been prepared based on the previous works done on the tetrapod fauna of Iran (see the selected bibliography) and also by examination of material from various zoological collections as well as carrying out extensive field expeditions during recent years in the Iranian Plateau. An endemic is here defined as any species found solely in Iran. Some species are known with rare specimens only from specific locations within the political boundaries of Iranian provinces or have a restricted distribution within the Iranian Plateau. Others are recorded from Iranian provinces adjacent to neighboring countries and may eventually be found there, but as yet are known only inside the Iranian borders. The classification follows Wilson & Reeder (2005) and Wilson et al. (2017) for mammals, Frost (2018) for amphibians, and Smid et al. (2014), Wallach et al. (2014) and Uetz (2018) for reptiles.

ABBREVIATIONS

CAS California Academy of Science, San Francisco;
FMNH Field Museum Natural History, Chicago;
GNHM (GNM) Gothenburg Natural History Museum, Gothenburg;
ICSTZ Institute of Environmental Science, International Centre for Science, High Technology and Environmental Science, Kerman;
ICSTZM International Center for Science, High Technology and Environmental Sciences Zoological Museum, Kerman;
MMTT Tehran Natural History Museum, Tehran;
MNHN Muséum national d’Histoire naturelle, Paris;
MSNTO Senckenberg Naturhistorische Sammlungen, Museum für Tierkunde, Dresden;
MZUT Museo Zoologico, Universita di Torino, Torino;
NMP Museum in Prague;
NMP6V National Museum in Prague;
NMMH Museum of Natural History, Vienna;
RZUZM Razi University Zoological Museum, Kermanshah;
SMF Mertens catalogue, Natur-Museum und Forschungs-Institut Senckenberg, Frankfurt am Main;
SUHC Sabzevar University Herpetological Collection, Sabzevar;
SUHM Tehran University Zoological Museum, Tehran;
USNM United State National Museum, Washington;

RÉSUMÉ

Liste annotée des espèces endémiques d’Iran.

Ces dernières années, différentes études ont essayé de décrire la faune iranienne de Tétrapodes, la plupart en se focalisant sur l’herpétofaune. Il n’existe pas cependant d’étude cohérente sur les espèces endémiques de Tétrapodes d’Iran. Nous proposons ici une liste des espèces endémiques de Tétrapodes iraniens, et mentionnons leur habitat, leur distribution, leur statut pour la conservation (IUCN) et des remarques biologiques importantes. Quatre-vingt espèces de Tétrapodes sont endémiques d’Iran, dont 82,50 % de reptiles. Trente-huit espèces (47,50 % des espèces endémiques totales), dont 35 espèces de reptiles, ne sont pas documentées à l’IUCN. Il est nécessaire d’étudier plus avant le statut des Tétrapodes iraniens pour la conservation, en particulier pour les espèces endémiques.
RESULTS

Class AMPHIBIA Gray, 1825
Order ANURA Fischer von Waldheim, 1813
Family BUFOIDAE Gray, 1825
Genus Bufotes Rafinesque, 1815

Bufotes luristanicus (Schmidt, 1952)
(Fig. 1)

Bufo luristanicus Schmidt, 1952: 2.

COMMON NAME. — Luristanian Toad.

HOLOTYPE. — ZMUC Field No. 102.

TYPE LOCALITY. — Shah Bazan, Lorestan Province.

DISTRIBUTION. — Mostly in the Western foothills of Khuzestan, Lorestan, Kohgiluyeh and Boyer Ahmad and Fars Provinces (Schmidt 1952; Stöck et al. 2001; Safaei-Mahroo et al. 2015).

HABITAT. — The habitat is apparently similar to Bufotes surdus Boulenger, 1891; supposedly breeds in still or slow moving waters. Present in agricultural areas and also in the vicinity of human settlements (Baloutch & Kami 1995).

IUCN. — Least concern.

REFERENCES. — Schmidt (1952); Baloutch & Kami (1995); Stöck et al. (2001); Safaei-Mahroo et al. (2015).

Family RANIDAE Rafinesque, 1814
Genus Rana Linnaeus, 1758

Rana pseudodalmatina Eiselt & Schmittler, 1971
(Fig. 2)

Rana pseudodalmatina Eiselt & Schmittler, 1971: 384.

COMMON NAME. — Hircanian Wood Frog.

HOLOTYPE. — NHMW 19790.4.

TYPE LOCALITY. — Weyser (South West of Chalus), Mazandaran Province.

DISTRIBUTION. — Mazandaran, Golestan and Gilan Provinces (Najibzadeh et al. 2017).
IUCN. — Critically endangered.

REFERENCES. — Clergue-Gazeau & Thorn (1979); Baloutch & Kami (1995).

REMARKS
See the Remarks of *Iranodon persicus* (Eiselt & Steiner, 1970).

*Iranodon persicus* (Eiselt & Steiner, 1970)

*Batrachuperus persicus* Eiselt & Steiner, 1970: 78.

COMMON NAME. — Persian Mountain Salamander.

HOLOTYPE. — NHMW 19435: 4.

TYPE LOCALITY. — Talesh Moutains, Gilan Province.

DISTRIBUTION. — Known from the Talesh and Alborz Mountains of Iran, South East of Chalus, in Mazandaran Province and Delmadeh village, South East of Khalkhal, in Ardabil Province (Kami 2004; Ebrahimi et al. 2004). Ahmadzadeh et al. (2011a) collected a single specimen in Dasht-e-Daman Yeylagi, in Rezvan Shahr city of Gilan Province.

HABITAT. — Found in mountain streams (Ahmadzadeh & Kami 2009; Ahmadzadeh et al. 2011a).

IUCN. — Near threatened.

REFERENCES. — Eiselt & Steiner (1970); Ebrahimi et al. (2004); Kami (2004); Zhang et al. (2006); Ahmadzadeh & Kami (2009); Ahmadzadeh et al. (2011a).

REMARKS
Described as *Batrachuperus persicus* the species was transferred to *Paradactylon* according to molecular study (Zhang et al. 2006).

Family *SALAMANDRIDAE* Goldfuss, 1820
Subfamily *PLEURODELINAE* Tschudi, 1838
Genus *Neurergus* Cope, 1862

*Neurergus kaiseri* Schmidt, 1952 (Fig. 3)

*Neurergus crocutus kaiseri* Schmidt, 1952: 1.

COMMON NAME. — Kaiser’s Mountain Newt.

HOLOTYPE. — ZMUC 03184.

TYPE LOCALITY. — 11 km North of Shah Bazan, Lorestan Province.

DISTRIBUTION. — Loresan and Khuzestan Provinces in following streams: Shahbazan, Talezang, Shahzadeh Ahmad, Hajibarakab, and from the type locality in Tove (Sharifi et al. 2008, 2013).

HABITAT. — Outside the breeding season, the species leaves the water. Vegetation cover of its habitat ranges from thin shrubland on steep rock outcrops to dense woodlands with diverse tree species (Sharifi et al. 2008, 2013).

IUCN. — Not evaluated.

REFERENCES. — Melnikov et al. (2013).

REMARKS
According to Melnikov et al. (2014) this species is different from the other species of *Phrynocephalus arabicus* Anderson, 1894 complex both morphologically and genetically.

*Phrynocephalus ananjevae* Melnikov, Melnikova, Nazarov & Rajabizadeh, 2013

*Phrynocephalus ananjevae* Melnikov, Melnikova, Nazarov & Rajabizadeh, 2013: 38.

COMMON NAME. — Zagros Toad-headed Agama (designated here).

HOLOTYPE. — ZISP 10256.1.

TYPE LOCALITY. — Qahferokh, vicinity of Farokhshahr (approximately 32°16’N, 50°58’E), Chahar Mahal and Bakhtiari Province.

DISTRIBUTION. — Type locality and Abadeh in Fars Province.

HABITAT. — Nothing is mentioned in the original description.

IUCN. — Not evaluated.

REFERENCES. — Melnikov et al. (2013).

*Phrynocephalus lutensis* Kamali & Anderson, 2015

*Phrynocephalus lutensis* Kamali & Anderson, 2015: 250.

COMMON NAME. — Lut Desert Toad Headed Agama.

HOLOTYPE. — ZISP 28014.

TYPE LOCALITY. — Dasht-e Lut (Lut Desert), Kerman Province.

DISTRIBUTION. — Known from the type locality.
**Habitat.** — Living in wind-blown sand dunes.

**IUCN.** — Not evaluated.

**Reference.** — Kamali & Anderson (2015).

Family **Gekkonidae** Gray, 1825

Genus **Bunopus** Blanford, 1874

**Bunopus crassicauda** Nikolsky, 1907

*Bunopus crassicauda* Nikolsky, 1907: 261.

**Common name.** — Thickhead Rock Gecko.

**Lectotype.** — ZIL 10233.

**Type Locality.** — Qom, Maljat-Abad and Khara-Magommed-Abad, Esfahan Province.

**Distribution.** — Alborz, Qom, Esfahan, Semnan, Yazd, Fars, Kerman, Khorasan Razavi Provinces (Kamali & Mozaffari 2013; Smid *et al.* 2014).

**Habitat.** — Living on alluvial plains and hills with scattered vegetation, mostly bushlands or sparse shrublands (Anderson 1999).

**IUCN.** — Data deficient.

**References.** — Nikolsky (1907); Anderson (1999); Kamali & Mozaffari (2013); Smid *et al.* (2014).

Genus **Cyrtopodion** Fitzinger, 1843

**Cyrtopodion brevipes** (Blanford, 1874)

*Gymnodactylus brevipes* Blanford, 1874a: 453.

**Common name.** — Blanford’s Short-toed Gecko.

**Holotype.** — ZSI 3465.

**Type Locality.** — Aptan near Bampur, Sistan and Baluchestan Province.

**Distribution.** — According to Anderson (1999) it is known doubtlessly from the type locality. Based on Smid *et al.* (2014) with...
Eskandarzadeh N. et al.
certain record from Hormozgan and from Sistan and Baluchestan Provinces and with a doubtful record from Bushehr.

HABITAT. — Living in a sandy plain with sparse vegetation (Anderson 1999).

IUCN. — Least concern.

REFERENCES. — Blanford (1874a); Anderson (1999); Smid et al. (2014).

**Cyrtopodion gastropholis** (Werner, 1917)

*Gymnodactylus gastropholis* Werner, 1917: 194.

COMMON NAME. — Fars Spider Gecko.

HOLOTYPE. — ZFMK 27095.

TYPE LOCALITY. — Fars Province.

DISTRIBUTION. — Anderson (1999) stated that it is known only from the holotype and five paratypes from the coastal plain of the Persian Gulf in Fars Province. According to Smid et al. (2014) it is distributed in Bushehr, Hormozgan, Fars, and Kohgiluyeh and Boyer Ahmad Provinces.

HABITAT. — Anderson (1999) collected a single specimen in a mud-brick building that was constructed as a shelter over a well which was located at the margin of the coastal plain.

IUCN. — Data deficient.

REFERENCES. — Werner (1917); Anderson (1999); Ahmadzadeh et al. (2011b); Smid et al. (2014).

REMARKS
According to Ahmadzadeh et al. (2011b) a close relationship is suggested between this species and *C. kiabii* Ahmadzadeh, Flecks, Torki & Böhme, 2011.

**Cyrtopodion hormozganum**

Nazarov, Bondarenko & Radjabizadeh, 2012

*Cyrtopodion hormozganum* Nazarov, Bondarenko & Radjabizadeh, 2012: 294.

COMMON NAME. — Hormozgan Bent-toad Gecko.

HOLOTYPE. — ICSTZ M6H1290.

TYPE LOCALITY. — Hormozgan Province, 27 km North West of Minab, 27°24’N, 56°57’E.

DISTRIBUTION. — Only known from the type locality.

HABITAT. — Found on a low rocky mountains dissected by dry riverbeds and almost without vegetation.

IUCN. — Not evaluated.

REFERENCE. — Nazarov et al. (2012).

**Cyrtopodion kiabii**

Ahmadzadeh, Flecks, Torki & Böhme, 2011

*Cyrtopodion kiabii* Ahmadzadeh, Flecks, Torki & Böhme, 2011: 23.

COMMON NAME. — Nayband Bent-toad Gecko.

HOLOTYPE. — ZFMK 91834.

TYPE LOCALITY. — 4.5 km South West of Nayband village at a distance of approximately 300 m to coast of the Persian Gulf, 27°21’9.5”N, 52°37’56.5”E, 108 m above sea level, Bushehr Province.

DISTRIBUTION. — Only known from the type locality.

HABITAT. — The samples were found in two abandoned buildings, located in a clifffy area near the Persian Gulf coast.

IUCN. — Not evaluated.

REFERENCE. — Ahmadzadeh et al. (2011b).

REMARKS
Ahmadzadeh et al. (2011b) suggested a close relationship between *C. kiabii* and *C. gastropholis*.

**Cyrtopodion golubevi**

Nazarov, Ananjeva & Radjabizadeh, 2009

*Cyrtopodion golubevi* Nazarov, Ananjeva & Radjabizadeh, 2009: 312.

COMMON NAME. — Bazman Bent-toad Gecko.

HOLOTYPE. — ZMMU R-12624.

TYPE LOCALITY. — 100 km North West of Iranshahr, near Bazman, 27°52’N, 60°06’E, Sistan and Baluchestan Province.

DISTRIBUTION. — According to Nazarov et al. (2009) the distribution range of this species apparently is in Southern Iran, and it could occur in bordering regions of Pakistan as well. But until now this species has been found only in the type and paratype localities (Nazarov et al. 2009).

HABITAT. — According to Smid et al. (2014): “The type locality is a humid canyon with dense vegetation in the otherwise dry clayis foothills with a poor shrubby cover.”

IUCN. — Not evaluated.

REFERENCES. — Nazarov et al. (2009); Smid et al. (2014).

**Cyrtopodion hormozganum**

Nazarov, Bondarenko & Radjabizadeh, 2012

*Cyrtopodion hormozganum* Nazarov, Bondarenko & Radjabizadeh, 2012: 294.

COMMON NAME. — Hormozgan Bent-toad Gecko.

HOLOTYPE. — ICSTZ M6H1290.

TYPE LOCALITY. — Hormozgan Province, 27 km North West of Minab, 27°24’N, 56°57’E.

DISTRIBUTION. — Only known from the type locality.

HABITAT. — Found on a low rocky mountains dissected by dry riverbeds and almost without vegetation.

IUCN. — Not evaluated.

REFERENCE. — Nazarov et al. (2012).

REMARKS
Ahmadzadeh et al. (2011b) suggested a close relationship between *C. kiabii* and *C. gastropholis*.

**Cyrtopodion kirmanense** (Nikolsky, 1900)

*Gymnodactylus kirmanensis* Nikolsky, 1900: 381.

COMMON NAME. — Kerman Bent-toed Gecko.

LECTOTYPE — ZIL 9330.

TYPE LOCALITY. — Kuh-e Taftan, Sargad, East of Kerman, Iran.

DISTRIBUTION. — Sistan and Baluchestan and with uncertain records from Kerman and Fars Provinces (Smid et al. 2014).

HABITAT. — According to Szczerbak & Golubev (1996): “sheer rocky cliffs in the mountains, river banks and dry channels; shady terraces, crack, niches; occasionally, on loose fragments of rock boulders. It is most frequently found on granites and, less often, on conglomerates and other rocks.”
Cyrtopodion persepolense
Nazarov, Ananjeva & Radjabizadeh, 2009

Cyrtopodion persepolense Nazarov, Ananjeva & Radjabizadeh, 2009: 317.

COMMON NAME. — Persepolis Bent-toed Gecko.

HOLOTYPE. — ZMMU R-12626.

TYPE LOCALITY. — Southern Iran, Fars Province, 60 km North East of Shiraz, Takht-e-Jamshid (Persepolis), 29°55’N, 52°53’E.

DISTRIBUTION. — Only known only from the type locality and likely to be found within the Fars Province.

HABITAT. — Found in vertical surfaces with a lot of shelters.

IUCN. — Least concern.

REFERENCE. — Nazarov et al. (2009).

REMARKS
This species is closely similar to C. gastropholis.

Cyrtopodion sistanensis
Nazarov & Rajabizadeh, 2007

Cyrtopodion sistanensis Nazarov & Rajabizadeh, 2007: 138.

COMMON NAME. — Sistan Bent-toed Gecko.

HOLOTYPE. — ZMMU R-12390.

TYPE LOCALITY. — 90 km West of Zahedan, Nosratabad, 29°50’N, 59°53’E, Sistan and Baluchestan Province.

DISTRIBUTION. — Nazarov and Rajabizadeh found the species in the type locality and in 100 km North, North West of Iranshehr, near Bazman. And it is possible to be found in the central provinces of Iran and bordering regions of Pakistan.

HABITAT. — It inhabits dry low clay incline with poor bushy plants typical for Southern Iran. The habitat is different in Bazman and represented by a more humid valley with rather dense shrub cover.

IUCN. — Least concern.

REFERENCE. — Nazarov & Rajabizadeh (2007).

Genus Hemidactylus Oken, 1817

Hemidactylus romeshkanicus
Torki, Manthey & Barts, 2011

Hemidactylus romeshkanicus Torki, Manthey & Barts, 2011: 48.
Common Name. — Lorestan Gecko.

Holotype. — ZMB 75020.

Type Locality. — Western slope of the central Zagros Mountains, Romeshkan region, Lorestan Province (33°16’N, 47°35’E).

Distribution. — Only known from the type locality.

Habitat. — A mountainous area covered with sparse oak forest.

IUCN. — Not evaluated.

Reference. — Torki et al. (2011a).

Genus Mediodactylus Szczerbak & Golubev, 1977

Mediodactylus aspratilis (Anderson, 1973)

Bunopus aspratilis Anderson, 1973: 355.

Common Name. — Iranian Keel-scaled Gecko.

Holotype. — USNM 193961.

Type Locality. — In 35 km East of Gach Saran (30°20’N, 50°48’E), Kohgiluyeh and Boyer Ahmad Province.

Distribution. — Kohgiluyeh and Boyer Ahmad, Kermanshah, Hamedan, Lorestan and Fars Provinces (Anderson 1999; Kami 1999; Karamiani & Rastegar-Pouyani 2011; Smid et al. 2014).

Habitat. — The type and paratype samples were collected by Anderson (1999) under small and flat stones next to a dry stream, in an area with scattered plants (Anderson 1999). It is also found on the wall and ceiling of buildings (Karamiani & Rastegar-Pouyani 2011).

IUCN. — Data deficient.

References. — Anderson (1973; 1999); Kami (1999); Červenka et al. (2010); Karamiani & Rastegar-Pouyani (2011); Smid et al. (2014).

Remarks

It was first attributed to the genus Bunopus Blanford, 1874. Some authors accept it as Carinatogecko Golubev & Szczerbak, 1981 and some others synonymized with Mediodactylus (Červenka et al. 2010).

Mediodactylus ilamensis (Fathinia, Karamiani, Darvishnia, Heidari & Rastegar-Pouyani, 2011)

Carinatogecko ilamensis Fathinia, Karamiani, Darvishnia, Heidari & Rastegar-Pouyani, 2011: 62.

Common Name. — Ilam keel-scaled Gecko (designated here).

Holotype. — RUZM-GC120.1.

Type Locality. — Limestone sediments of Western foothills of the Zagros Mountains, Zarın-Abad region, Dehloran Township, Ilam Province, at the coordinates of 32°57’51”N, 47°03’23”E.

Distribution. — Only known from the area of the type locality.

Habitat. — According to Fathinia et al. (2011) the habitat is composed of gypsum and lime sediment in a semi-desert area. The samples were collected in the foothills about 200-500 m south of a permanent river.

IUCN. — Not evaluated.

Reference. — Fathinia et al. (2011).

Mediodactylus sagittifer (Nikolsky, 1900)

Gymnodactylus sagittifer Nikolsky, 1900: 379.

Common Name. — Jaz Murian Middle-toed Gecko.

Lectotype. — ZIL 9331, designated by Szczerbak & Golubev (1986).

Type Locality. — Bampur and Farra, in South East of Iran, Sistan and Baluchestan Province.

Distribution. — Hormozgan and Sistan and Baluchestan Provinces.

Habitat. — The species occurs on the trunks and branches of dry Acacia and on the walls of the old underground building (Anderson 1999).

IUCN. — Data deficient.

References. — Nikolsky (1900); Szczerbak & Golubev (1986); Anderson (1999); Nazarov et al. (2012).

Remarks

Nazarov et al. (2012) considered the species as a synonym of Cyrtopodion brevipes.

Mediodactylus stevenandersoni (Torki, 2011)

Carinatogecko stevenandersoni Torki, 2011: 103.

Common Name. — Lorestan Keel-scaled Gecko (designated here).

Holotype. — ZFMK 91901.

Type Locality. — Western slopes of the central Zagros Mountains, Tang-e-Gavshomar region (Ganj-Dare), Delphan City, Lorestan Province.

Distribution. — Known from the central Zagros Mountains in Lorestan and Markazi Provinces (Smid et al. 2014). It may also occur in similar habitats in Kermanshah and Ilam Provinces (Sadeghi & Torki 2011).

Habitat. — Found in a mountainous area with oak forest (Smid et al. 2014).

IUCN. — Not evaluated.

References. — Torki (2011); Sadeghi & Torki (2011); Smid et al. (2014).

Genus Microgecko Nikolsky, 1907

Microgecko chabaharenensis Gholamifard, Rastegar-Pouyani, Rastegar-Pouyani, Khsoravani, Hosseinian Yousefkhani & Oraei, 2016

Microgecko chabaharenensis Gholamifard, Rastegar-Pouyani, Rastegar-Pouyani, Khsoravani, Hosseinian Yousefkhani & Oraei, 2016: 28.
Checklist of endemic Tetrapoda of Iran

**Microgecko helenae** Nikolsky, 1907

*Microgecko helenae* Nikolsky, 1907: 265.

**COMMON NAME.** — Banded Dwarf Gecko.

**LECTOTYPE.** — ZIL 10242.

**TYPE LOCALITY.** — Alkhorshid, Esfahan, and Bid Zard; restricted to Bid Zard.

**DISTRIBUTION.** — Western foothills of the Zagros Mountains (Karamiani & Rastegar-Pouyani 2012; Smid et al. 2014; Gholamifard et al. 2015).

**HABITAT.** — Under small stones, in rolling foothills with scattered vegetation (Smid et al. 2014).

**IUCN.** — Data deficient.

**REFERENCES.** — Nikolsky (1907); Karamiani & Rastegar-Pouyani (2012); Smid et al. (2014); Gholamifard et al. (2015).

**Tropiocolotes hormozganensis** Rounaghi, Rastegar-Pouyani & Hosseinian, 2018

*Tropiocolotes hormozganensis* Rounaghi, Rastegar-Pouyani & Hosseinian, 2018: 18.

**COMMON NAME.** — Hormozgan Dwarf Gecko (designated here).

**HOLOTYPE.** — SUHC 1818.

**TYPE LOCALITY.** — Bandar-e Lengeh, Hormozgan Province.

**DISTRIBUTION.** — From the type locality.

**HABITAT.** — The samples were collected from flat, coastal regions covered by various vegetation types (shrubs and trees).

**IUCN.** — Not evaluated.

**REFERENCES.** — Rounaghi et al. (2018).

**Tropiocolotes naybandensis** Krause, Ahmadzadeh, Moazeni, Wagner & Wilms, 2013 (Fig. 4)

*Tropiocolotes naybandensis* Krause, Ahmadzadeh, Moazeni, Wagner & Wilms, 2013: 30.

**COMMON NAME.** — Nayband Dwarf Gecko.

**HOLOTYPE.** — ZFMK 92344.

**TYPE LOCALITY.** — Nayband, Asalouyeh, Bushehr Province.

**DISTRIBUTION.** — Known from Bushehr and Fars Provinces (Krause et al. 2013; Smid et al. 2014).

**HABITAT.** — Found under stones, living in semi-desert habitats (Smid et al. 2014).

**IUCN.** — Not evaluated.

**REFERENCES.** — Krause et al. (2013); Smid et al. (2014).
Family LACERTIDAE Bonaparte, 1831
Genus Acanthodactylus Fitzinger, 1834

*Acanthodactylus khamirensis* Heidari, Rastegar-Pouyani, Rastegar-Pouyani & Rajabizadeh, 2013

_Acanthodactylus khamirensis_ Heidari, Rastegar-Pouyani, Rastegar-Pouyani & Rajabizadeh, 2013: 335.

**COMMON NAME.** — Persian Gulf Fringe-toad Lizard (designated here).

**HOLOTYPE.** — RUZM 146.

**TYPE LOCALITY.** — From 26°30’47.4″N, 55°58’44.2″E in 7 km East of Khamir Port, Hormozgan Province (Heidari *et al.* 2013). 

**DISTRIBUTION.** — Type locality and Parsian Country in Hormozgan Province (Heidari *et al.* 2014).

**HABITAT.** — According to Heidari *et al.* (2014) _A.khamirensis_ lives on hard substrates with a dry climate (Heidari *et al.* 2014). 

**IUCN.** — Not evaluated.

**REFERENCES.** — Heidari *et al.* (2013, 2014).

**REMARK**
The divergence of _A. micropholis_ Blanford, 1874 from _A. khamirensis_ occurred about 2 MYA (Heidari *et al.* 2014).

*Fig. 4. — *Tropiocolotes naybandensis* Krause, Ahmadzadeh, Moazeni, Wagner & Wilms, 2013. Photo by A. Gholamifard.*

_Acanthodactylus nilsoni_ Rastegar-Pouyani, 1998

_Acanthodactylus nilsoni_ Rastegar-Pouyani, 1998: 257.

**COMMON NAME.** — Nilson’s Spiny-toed Lizard.

**HOLOTYPE.** — GNHM 5145.

**TYPE LOCALITY.** — 5 km South of Qasr-e Shirin, Kermanshah Province, about 7 km from Iran-Iraq border.

**DISTRIBUTION.** — Known from the type locality, but according to Anderson (1999) the biotope may be extended South, South East and South West in Iraq (Anderson 1999).

**HABITAT.** — Found in lowland area with soft sandy substrate and stony hills (Rastegar-Pouyani 1998).

**IUCN.** — Data deficient.

**REFERENCES.** — Rastegar-Pouyani (1998); Anderson (1999).

Genus *Apathya* Mehely, 1907

*Apathya yassujica* (Nilson, Rastegar-Pouyani, Rastegar-Pouyani & Andrén, 2003)

_Lacerta yassujica_ Nilson, Rastegar-Pouyani, Rastegar-Pouyani & Andrén, 2003: 18.

**COMMON NAME.** — Yassujian Lizard.

**HOLOTYPE.** — GNM 5612, GNHM.

**TYPE LOCALITY.** — 30 km South West of Yassuj, Kohgiluyeh and Boyer Ahmad Province (30°28’N’, 51°31’E) (Nilson *et al.* 2003).

**DISTRIBUTION.** — Western Iran from the type locality and Chaharmahal and Bakhtiari Province (Nilson *et al.* 2003; Arnold *et al.* 2007; Rajabizadeh *et al.* 2010).

**HABITAT.** — On rocky slopes with open _Quercus_ forest (Nilson *et al.* 2003). According to Rajabizadeh *et al.* (2010) it is found in mountainous area with scattered vegetation.

**IUCN.** — Least concern.

**REFERENCES.** — Nilson *et al.* (2003); Arnold *et al.* (2007); Rajabizadeh *et al.* (2010); Kapli et al. (2013).
Checklist of endemic Tetrapoda of Iran

REMARK
According to Kapli et al. (2013) “The phylogeographical scenario emerging from the genetic data suggests that the present distribution of the genus was determined by a combination of dispersal and vicariance events between Anatolia and South West of Asia dating back to the Miocene and continuing up to the Pleistocene”.

Genus *Darevskia* Arribas, 1997

*Darevskia caspica* Ahmadzadeh, Flecks, Carretero, Mozaffari, Böhme, Harris, Freitas & Rödder, 2013

*Darevskia caspica* Ahmadzadeh, Flecks, Carretero, Mozaffari, Böhme, Harris, Freitas & Rödder, 2013: 9.

COMMON NAME.— Mazandaran Lizard (designated here).

HOLOTYPE.— ZFMK 94109.

TYPE LOCALITY.— Beliroon, Amol, Mazandaran Province, 
(36°23'38"N, 52°25'1.48"E).

DISTRIBUTION.— In central part of the Hyrcanian forest, Mazandaran Province (Ahmadzadeh et al. 2013).

HABITAT.— Tree trunks and forest floor (Smid et al. 2014).

IUCN.— Not evaluated.

REFERENCES.— Ahmadzadeh et al. (2013); Smid et al. (2014).

REMARK
It is a sister taxon of *D. chlorogaster* (Boulenger, 1908) and a part of *D. chlorogaster* complex (Ahmadzadeh et al. 2013).

*Podarcis defilippi* Camerano, 1877

*Darevskia defilippii* Camerano, 1877: 90.

COMMON NAME.— Alborz Lizard.

TYPE LOCALITY.— Beliroon, Amol, Mazandaran Province, 
(36°23'38"N, 52°25'1.48"E).

DISTRIBUTION.— In central part of the Hyrcanian forest, Mazandaran Province (Ahmadzadeh et al. 2013).

HABITAT.— Small loose rocks, on rocky protrusions and shrubby vegetation (Anderson 1999).
IUCN. — Least concern.

REFERENCES. — Camerano (1877); Anderson (1999); Ahmadzadeh et al. (2013).

REMARK
The name initially proposed by Camerano (1877) revealed a complex of four species (Anderson 1999; Ahmadzadeh et al. 2013).

**Darevskia kamii** Ahmadzadeh, Flecks, Carretero, Mozaffari, Böhme, Harris, Freitas & Rödder, 2013

**Darevskia kamii** Ahmadzadeh, Flecks, Carretero, Mozaffari, Böhme, Harris, Freitas & Rödder, 2013: 11.

**COMMON NAME.** — Kami’s Rock Lizard.

**HOLOTYPE.** — ZFMK 94118.

**TYPE LOCALITY.** — Naharkhoran Forest, Gorgan, Golestan Province (36°46'33.61"N, 54°27'48.01"E).

**DISTRIBUTION.** — Western parts of the Hyrcanian forest, Golestan Province (Ahmadzadeh et al. 2013).

**HABITAT.** — According to Smid et al. (2014): “Tree trunks and forest floor”.

**IUCN.** — Not evaluated.

**REFERENCES.** — Ahmadzadeh et al. (2013); Smid et al. (2014).

**REMARK**
This species with *D. caspica* Ahmadzadeh, Flecks, Carretero, Mozaffari, Böhme, Harris, Freitas & Rödder, 2013 and *D. chlorogaster* form the *D. chlorogaster* complex (Ahmadzadeh et al. 2013).

**Darevskia schaekeli** Ahmadzadeh, Flecks, Carretero, Mozaffari, Böhme, Harris, Freitas & Rödder, 2013

**Darevskia schaekeli** Ahmadzadeh, Flecks, Carretero, Mozaffari, Böhme, Harris, Freitas & Rödder, 2013: 12.

**COMMON NAME.** — Schäkel’s Rock Lizard.

**HOLOTYPE.** — ZFMK 94200.

**TYPE LOCALITY.** — Firouzkooh (35°44'54.56"E, 52°44'48.58"N) Tehran Province.

**DISTRIBUTION.** — It occupies some Eastern parts of the Alborz Mountains in Northern Iran (Ahmadzadeh et al. 2013).

**HABITAT.** — Alpine vegetation, rocky outcrops and loose scree at elevations from 1720 m to 2198 m a.s.l. (Smid et al. 2014).

**IUCN.** — Not evaluated.

**REFERENCES.** — Ahmadzadeh et al. (2013); Smid et al. (2014).

**REMARK**
It is a part of *D. defilippii* complex, being sister taxon of *D. steineri* (Eiselt, 1995) (Ahmadzadeh et al. 2013).

**Genus Eremias** Fitzinger, 1834

**Eremias andersoni** Darevsky & Szczerbak, 1978

**Eremias andersoni** Darevsky & Szczerbak, 1978: 13.

**COMMON NAME.** — Anderson’s Racerunner.

**HOLOTYPE.** — MMTT 1671.

**TYPE LOCALITY.** — Dashte-Kavir Desert, 45 km East of Namak Lake (34°30’N, 52°40’E).

**DISTRIBUTION.** — It occupies some Eastern parts of the Alborz Mountains in Northern Iran (Ahmadzadeh et al. 2013).

**HABITAT.** — Alpine vegetation, rocky outcrops and loose scree at elevations from 1720 m to 2198 m a.s.l. (Smid et al. 2014).

**IUCN.** — Least concern.

**REFERENCES.** — Darevsky & Shcherbak (1978); Anderson (1999); Safaei-Mahroo et al. (2015).
**REMARK**
This species is known only from the holotype and two paratypes. According to morphological evaluations, it shows affinity to *Eremias fasciata* Blanford, 1874, but its subgeneric position remains unclear (Darevsky & Shcherbak 1978; Anderson 1999).

*Eremias isfahanica* Rastegar-Pouyani, Hosseinian, Rafiee, Kami, Rajabzadeh & Wink, 2016

*Eremias isfahanica* Rastegar-Pouyani, Hosseinian, Rafiee, Kami, Rajabzadeh & Wink, 2016: 212.

**COMMON NAME.** — Esfahan Racerunner (designated here).

**HOLOTYPE.** — SUHC 2012.

**TYPE LOCALITY.** — Collected 54 km North West of Esfahan city, near the Hassanije village within the Ghomishloo National Park (32°84'N, 51°10'E; 1200 m a.s.l.).

**HABITAT.** — Collected from the desert area with small scattered shrubs. Found in sub-mountainous region extending to the mountains.

**IUCN.** — Not evaluated.

**REFERENCE.** — Rastegar-Pouyani et al. (2016).

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*Eremias kavirensis* Mozaffari & Parham, 2007

*Eremias kavirensis* Mozaffari & Parham, 2007: 569.

**COMMON NAME.** — Kavir Desert Lacerta.

**HOLOTYPE.** — MMTT/AHI 1008, CAS 238636.

**TYPE LOCALITY.** — Maranjab sand dunes. 34°17'51"N, 51°50'57"E, Esfahan Province.

**DISTRIBUTION.** — Only currently known from the type locality and believed to be a restricted-range species.

**IUCN.** — Least concern.

**REFERENCE.** — Mozaffari & Parham (2007).

**HABITAT.** — This species is believed to be endemic to the Maranjab sand dune habitat. Animals are found in the sand dunes, and are not present in surrounding gravelly areas. The dune weed *Stipagrostis pennata* De Winter, 1963 dominates the vegetation at the type locality. *E. kavirensis* is presumably an egg-laying species.

**REMARK**
This species can be differentiated from *Eremias grammica* (Lichtenstein, 1883) by having enlarged tibial scales and from *E. acutirostris* (Boulenger, 1887) by having scales of the flank larger than those of the back as well as having two rows of enlarged tibial scales instead of one.

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*Eremias lalezharica* Moravec, 1994

*Eremias lalezharica* Moravec, 1994: 61.

**COMMON NAME.** — Lalehzar Racerunner.

**HOLOTYPE.** — NMP6V 34555/3.

**TYPE LOCALITY.** — Lalehzar, Kerman Province.

**DISTRIBUTION.** — In addition to the localities of the holotype and paratypes, Hosseinian Yousefkhani & Rastegar-Pouyani (2013) found a new locality for *Eremias lalezharica* on the road from Jiroft to Darb-e Behesht, in the Babgorgi region, 100 km to the South East of the terra typica along the Lalehzar Mountains, with coordinates 29°05’N, 57°32’E, and an elevation of 2890 m.

**HABITAT.** — *E. lalezharica* has been recorded from a mountain plateau with degraded steppe habitat, rural gardens and fields and wet meadows. Specimens were collected in open fields of soil and stones washed down the slopes of Mount Lalehzar. Animals were observed along the banks of an irrigation ditch and in the vicinity of irrigated gardens (Moravec 1994; Anderson 1999).

**IUCN.** — Least concern.

**REFERENCES.** — Moravec (1994); Anderson (1999); Hosseinian Yousefkhani & Rastegar-Pouyani (2013).

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*Eremias montana* Rastegar-Pouyani & Rastegar-Pouyani, 2001

*Eremias montana* Rastegar-Pouyani & Rastegar-Pouyani, 2001: 108.

**COMMON NAME.** — Mountain Racerunner.

**HOLOTYPE.** — Field number P198.

**TYPE LOCALITY.** — Upland regions of the Zagros Mountains, 60 km North East of city of Kermanshah (34°52’N, 47°5’E), Kermanshah Province.

**DISTRIBUTION.** — In addition to the localities of the holotype and paratypes, *E. montana* has been found in South regions of Hamedan Province, about 21 km South West of Hamedan city (c. 34°3’33”, 48°25’E) at 2800 m a.s.l. and in the highlands of Badr and Parishan (2466 m a.s.l.) in South of Qorveh, Kurdistan Province, Western Iran (35°04’N, 47°47’E) (Rastegar-Pouyani & Rastegar-Pouyani 2005; Bahmani et al. 2011).

**HABITAT.** — This species is associated with upland and mountainous steppes, with luxurious vegetation. The animals forage among shrubs and hide in holes when disturbed. In the Alvand Mountains, this species has been recorded from stony hills and mountainous steppes. Vegetation at the type locality is mainly *Astragalus, Euphorbia, Gondelium* as well as other species of the families Graminaceae and Compositae. The area is snow-covered during the winter, with a relatively short mild summer period. Animals may be found foraging among the shrubs, and take refuge in these shrubs when alarmed (Rastegar-Pouyani & Rastegar-Pouyani 2005).

**IUCN.** — Least concern.

**REFERENCES.** — Rastegar-Pouyani & Rastegar-Pouyani (2001, 2005); Bahmani et al. (2011).
**Eremias papenfussi**
Mozaffari, Ahmadzadeh & Parham, 2011

_Eremias papenfussi_ Mozaffari, Ahmadzadeh & Parham, 2011: 57.

**COMMON NAME.** — Papenfuss’s Racerunner.

**HOLOTYPE.** — ZFMK 91701.

**TYPE LOCALITY.** — Sooleghan Mountains (35°47'44.9"N, 51°14'20.2"E), Tehran Province in the Alborz Mountain Range.

**DISTRIBUTION.** — In addition to the localities of the holotype and paratypes, other specimens were collected from the Vard Avard region in Tehran Province (35°47'56.48"N, 51°7'34.40"E).

**HABITAT.** — Part of the Alborz Mountains consists of mild rocky slopes. The dominant vegetation is _Amygdalus, Astragalus_ and annual grasses.

**IUCN.** — Not evaluated.

**REFERENCE.** — Mozaffari et al. (2011a).

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Genus _Iranolacerta_ Arnold, Arribas & Carranza, 2007

_Iranolacerta zagrosica_ (Rastegar-Pouyani & Nilson 1998)

_Lacerta zagrosica_ Rastegar-Pouyani & Nilson, 1998: 268. 

**COMMON NAME.** — Zagros Mountain Lacerta.

**HOLOTYPE.** — GNHM Re. ex. 5149.

**TYPE LOCALITY.** — 3 km North West of FereydunShahr, at the main Zagros Range, Esfahan Province (32°58’N, 50°04’E).

**DISTRIBUTION.** — Lorestan, Chaharmahal and Bakhtiari and Esfahan Provinces.

**HABITAT.** — Found on or under rock fissure and in rocky and vertical slopes (Rastegar-Pouyani & Nilson 1998; Nilson et al. 2003).

**IUCN.** — Least concern.

**REFERENCES.** — Rastegar-Pouyani & Nilson (1998); Nilson et al. (2003).

Genus _Timon_ Tschudi, 1836

_Timon princeps_ (Blanford, 1874)

_Lacerta princeps_ Blanford, 1874b: 31.

**COMMON NAME.** — Zagrosian Lizard.

**HOLOTYPE.** — ZSI 3351.

**TYPE LOCALITY.** — Neyriz, about 60 km East of Shiraz, Fars Province.

**DISTRIBUTION.** — “From South of Kermanshah Province through a belt between the West of Zagros hillsides and the Mesopotamian Plain to Fars Province” (Smid et al. 2014).

**HABITAT.** — Dry hills with xerothermic vegetation (Smid et al. 2014).

**IUCN.** — Not evaluated.

**REFERENCES.** — Blanford (1874b); Ahmadzadeh et al. (2012); Smid et al. (2014).

**REMARK**
This is a sister clade to _T. kurdistanicus_ (Suchow, 1936) with a divergence time occurred between them about 4-5 my ago (Ahmadzadeh et al. 2012).

Family **Phylodactylidae**

Gamble, Bauer, Greenbaum & Jackman, 2008

Genus _Asaccus_ Dixon & Anderson, 1973

_Asaccus andersoni_ Torki, Fathinia, Rostami, Gharzi & Nazari-Serenheh, 2011

_Asaccus andersoni_ Torki, Fathinia, Rostami, Gharzi & Nazari-Serenheh, 2011: 52.

**COMMON NAME.** — Anderson Leaf-road Gecko.

**HOLOTYPE.** — ZMB 75015.

**TYPE LOCALITY.** — Mont Darbaste, 2 km North of Teran village, Ivan City, Ilam Province, West of Iran.

**DISTRIBUTION.** — Only recorded from the type locality.

**HABITAT.** — A mountainous area covered with scattered oak forests which is characterized by deeply carved-out gullies running from the base to the top with large rocks and boulders inside and high rocky walls at both sides.

**IUCN.** — Not evaluated.

**REFERENCE.** — Torki et al. (2011b).

**Asaccus granularis** Torki, 2010

_Asaccus granularis_ Torki 2010a: 4.

**COMMON NAME.** — Lorestan Leaf-toad Gecko.

**HOLOTYPE.** — ZMB 75010.

**TYPE LOCALITY.** — Khers-Dar village, 5 km North West of Poledokhtar town, Lorestan Province.

**DISTRIBUTION.** — Known from the type locality only.

**HABITAT.** — Mountainous regions covered with open oak forests. The species uses the spaces under rocky outcrops as shelter.

**IUCN.** — Not evaluated.

**REFERENCE.** — Torki (2010a).

**REMARK**
The species differs from all Iranian congeners by the absence of tubercular scales on the neck and upper side of the head.
**Asaccus iranicus**
Torki, Ahmazadeh, Ilgaz, Avci, & Kumluta, 2011

_Asaccus iranicus_ Torki, Ahmazadeh, Ilgaz, Avci, & Kumluta, 2011: 187.

**COMMON NAME.** — Iranian Leaf-toad Gecko.

**HOLOTYPE.** — ZFMK 91933.

**TYPE LOCALITY.** — Coastal Persian Gulf, Assaloye City, Bushehr Province.

**DISTRIBUTION.** — Only known from the type locality.

**HABITAT.** — Elevation of type locality is 100 m a.s.l. No mountain or hill is found in the region.

**IUCN.** — Not evaluated.

**REFERENCE.** — Torki et al. (2011c).

**REMARK.** — _A. iranicus_ differs from all other congeners as follows: the direction of the fingers to forelimb palm is different, scanners do not extend beyond claws, and the tubercles are present on the arms.

**Asaccus kermanshahensis** Rastegar-Pouyani, 1996

_Asaccus kermanshahensis_ Rastegar-Pouyani, 1996: 12.

**COMMON NAME.** — Kermanshah Leaf-toad Gecko.

**HOLOTYPE.** — TUZM 164R.

**TYPE LOCALITY.** — Mian-Rahan, 40 km North East of Kermanshah city, Kermanshah Province.

**DISTRIBUTION.** — Only known from the type locality.

**HABITAT.** — Rock crevices and small caves in the Zagros Mountains.

**IUCN.** — Least concern.

**REFERENCE.** — Rastegar-Pouyani (1996).

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

_Asaccus kurdistanensis_ Rastegar-Pouyani, Nilson & Faizi, 2006: 142.

**COMMON NAME.** — Kurdistan Leaf-toad Gecko.

**HOLOTYPE.** — RUZM 1999.

**TYPE LOCALITY.** — 10 km North West of Sarvabad, between Marivan and Sanandaj, Kurdistan Province.

**DISTRIBUTION.** — Kurdistan and Kermanshah Provinces, Western Iran.

**HABITAT.** — Mountainous areas with large boulders and rocks intermixed with scattered oak forest.

**IUCN.** — Least concern.

**REFERENCE.** — Rastegar-Pouyani et al. (2006).

**Asaccus nasrullahi** Werner, 2006

_Asaccus nasrullahi_ Werner, 2006: 136.

**COMMON NAME.** — Nasrullah’s Leaf-toed Gecko.

**HOLOTYPE.** — ZMUC-R 3447.

**TYPE LOCALITY.** — ShahBazan, Lorestan Province.

**DISTRIBUTION.** — Lorestan and Ilam Provinces.

**HABITAT.** — Zagros Mountains, with temperate climate, and the dominant vegetation mostly composing of oak trees. The micro-habitat of this species composed of deep valleys with large boulders and deep crevices.

**IUCN.** — Least concern.

**REFERENCE.** — Werner (2006).

**REMARK.** — The holotype has been misidentified as a _Ptyodactylus_ Goldfuss, 1820 by Schmidt (1952). The holotype resembles _A. griseonotus_ Dixon & Anderson, 1973 in many characters. Additional work is needed to reveal the taxonomic status of the two species.

**Asaccus tangestanensis** Torki, Ahmazadeh, Ilgaz, Avci & Kumluta, 2011

_Asaccus tangestanensis_ Torki, Ahmazadeh, Ilgaz, Avci & Kumluta, 2011: 190.

**COMMON NAME.** — Tangestan Leaf-toad Gecko.

**HOLOTYPE.** — ZFMK 91934.

**TYPE LOCALITY.** — The end of Southern Zagros Mountains, Khaiiz, Tangestan City, Bushehr Province.

**DISTRIBUTION.** — In addition to the type locality, the species has been found in the Jam region, Jam to Kangan road, Bushehr Province.

**HABITAT.** — Sedimentary mountainous area. It shelters in limited crevices and caves in this mountain.

**IUCN.** — Not evaluated.

**REFERENCE.** — Torki et al. (2011c).

**Asaccus zagrosicus** Torki, Ahmazadeh, Ilgaz, Avci & Kumluta, 2011

_Asaccus zagrosicus_ Torki, Ahmazadeh, Ilgaz, Avci & Kumluta, 2011: 193.

**COMMON NAME.** — Zagros Leaf-toad Gecko.

**HOLOTYPE.** — ZFMK 91935.

**TYPE LOCALITY.** — The Western slopes of central Zagros Mountains, Tang-e-Haft region, Khorraramabad City, Lorestan Province.

**DISTRIBUTION.** — Only known from the type locality.
Habitat. — Found in several tunnels in the Tang-e-Haft Region, South of Lorestan. The region has a warm climatic condition and is located between central Zagros Mountains and Khuzestan Plain.

IUCN. — Not evaluated.

Reference. — Torki et al. (2011c).

Remark
Secondary postmentals are not in contact with lower labials, scanners do not extend beyond claws, and the tubercles are present on the arm.

Family Sphaerodactylidae Underwood, 1954
Genus Teratoscincus Strauch, 1863

Teratoscincus mesriensis
Nazarov, Radjabizadeh, Poyarkov, Ananjeva, Melnikov & Rastegar Pouyani, 2017

Teratoscincus mesriensis Nazarov, Radjabizadeh, Poyarkov, Ananjeva, Melnikov & Rastegar Pouyani, 2017: 299.

Common name. — Mesr Wonder Gecko (designated here).

Holotype. — ZMMU R-15156.

Type locality. — Environs of Mesr, Esfahan Province, 34°04’N, 54°47’E, elevation 845 m a.s.l.

Distribution. — Known from the type locality (sand dunes near Mesr, Esfahan Province).

Habitat. — Found in sandy areas.

IUCN. — Not evaluated.

Reference. — Nazarov et al. (2017).

Teratoscincus sistanense
Akbarpour, Shafiei, Sehhatisabet & Damadi, 2017 (Fig. 6)

Teratoscincus sistanense Akbarpour, Shafiei, Sehhatisabet & Damadi, 2017: 297.

Common name. — Sistan Wonder Gecko (designated here).

Holotype. — ZMSBUK 704.

Type locality. — Zahak, 30°53’42"N, 61°40’34"E, 492 m, Zabol County, Sistan and Baluchestan Province.

Distribution. — Zabol County, Sistan and Baluchestan Province.

Habitat. — It occurs in sandy area with scattered vegetation.

IUCN. — Not evaluated.

Reference. — Akbarpour et al. (2017).

Family Scincidae Oppel, 1811
Genus Eumeces Wiegmann, 1834

Eumeces persicus
Faizi, Rastegar-Pouyani, Rastegar-Pouyani, Nazarov, Heidari, Zangi, Orlova & Poyarkov, 2017 (Fig. 7)

Eumeces persicus Faizi, Rastegar-Pouyani, Rastegar-Pouyani, Nazarov, Heidari, Zangi, Orlova & Poyarkov, 2017: 294.

Common name. — Persian Striped Skink.

Holotype. — RUZM-SE-07.

Type locality. — 28 km South West of Tehran Province around the Imam Khomaini Airport (IKA), at an elevation of about 1100 m.
**Genus Ophiomorus Duméril & Bibron, 1839**

*Ophiomorus maranjabensis* Kazemi, Qomi, Kami & Anderson, 2011

**Ophiomorus maranjabensis** Kazemi, Qomi, Kami & Anderson, 2011: 24.

**COMMON NAME.** — Maranjab Snake Skink.

**HOLOTYPE.** — ZMGU 2570.

**TYPE LOCALITY.** — From South of Namak Lake, Maranjab, Esfahan Province, 34°19’N, 51°53’E. (Kazemi et al. 2011).

**DISTRIBUTION.** — In addition to the localities of the holotype and paratypes (around 1 km South West of holotype), in 2011 another specimen (ZMGU.2588) was collected in a village, about 45 km far from the type locality on coordinates 33°55’N, 51°45’E (Qomi et al. 2012).

**HABITAT.** — Found under the soil loose sandy area with scattered vegetation (Kazemi et al. 2011), as well as a farmland (Qomi et al. 2012).

**IUCN.** — Not evaluated.

**REFERENCES.** — Kazemi et al. (2011); Qomi et al. (2012).

*Ophiomorus nuchalis* Nilson & Andrén, 1978

*Ophiomorus nuchalis* Nilson & Andrén, 1978: 559.

**COMMON NAME.** — Plateau Snake Skink.

**HOLOTYPE.** — GNM 4418.

**TYPE LOCALITY.** — Siah Kuh in the Kavir Protected Region (34°44’N, 52°11’E), Semnan Province (Anderson 1999).

**DISTRIBUTION.** — Until now the species is recorded from the following provinces: Alborz, Tehran, Qom, Semnan, Esfahan and Yazd (Mozaffari et al. 2011b; Qomi et al. 2011; Farhadi et al. 2015; Hosseinzadeh et al. 2016; Sami et al. 2017).

**HABITAT.** — Found under stones on the gravel ground (Anderson 1999), in loose soil layer mixed with plant detritus under bushes (Smid et al. 2014), as well as farmlands (Qomi et al. 2011).

**IUCN.** — Least concern.

**REFERENCES.** — Nilson & Andrén (1978); Anderson (1999); Mozaffari et al. (2011b); Qomi et al. (2011); Smid et al. (2014); Farhadi et al. (2015); Hosseinzadeh et al. (2016); Sami et al. (2017).
**Ophiomorus persicus** (Steindachner, 1867)

*Hemipodion persicum* Steindachner, 1867: 265.

**COMMON NAME.** — Persia Snake Skink.

**SYNTYPES.** — NMWest 10398:1, 2 and 10399:1, 2.

**TYPE LOCALITY.** — 5 km South East of Pol-i-Abgineh approximately 29°33’N, 51°46’E, Fars Province (Anderson & Leviton 1966; Anderson 1999).

**DISTRIBUTION.** — Fars, Kerman and Hormozgan Provinces (Anderson & Leviton 1966; Frynta et al. 1997; Anderson 1999; Kiabi et al. 1999; Sami et al. 2017).

**HABITAT.** — Sandy-clay soil with bushy vegetation like *Artemisia* (Smid et al. 2014).

**IUCN.** — Least concern.

**REFERENCES.** — Steindachner (1867); Anderson & Leviton (1966); Frynta et al. (1997); Anderson (1999); Kiabi et al. (1999); Smid et al. (2014); Sami et al. (2017).

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**Ophiomorus streeti** Anderson & Leviton, 1966

*Ophiomorus streeti* Anderson & Leviton, 1966: 512.

**COMMON NAME.** — Street’s Snake Skink.

**HOLOTYPE.** — FMNH 141551.

**TYPE LOCALITY.** — Eleven miles West of Iranshahr, Sistan and Baluchestan Province (Anderson 1999).

**DISTRIBUTION.** — Sistan and Baluchestan and Kerman Provinces (Sami et al. 2017).

**HABITAT.** — Living in dry sandy ground (Rathor 1969).

**IUCN.** — Least concern.

**REFERENCES.** — Anderson & Leviton (1966); Rathor (1969); Anderson (1999); Sami et al. (2017).

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The morphology of this species is similar to *E. medus* (Chernov, 1940), requiring further investigations to be done (Mahlow et al. 2013).

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**Eirenis rechingeri** Eiselt, 1971

*Eirenis rechingeri* Eiselt, 1971: 375.

**COMMON NAME.** — Rechinger’s Dwarf Racer.

**HOLOTYPE.** — NMW 19588.

**TYPE LOCALITY.** — Dashte-Arjan, West of Shiraz, Fars Province, South of Iran.

**DISTRIBUTION.** — Fars Province (Gholamhosseini et al. 2009).

**HABITAT.** — Few data are available for the habitat of this species, but the holotype was collected at dawn on the bank of a temporary dry river close to a hill of soft limestone covered with degraded bush forest steppe (Mahlow et al. 2013).

**IUCN.** — Data deficient.

**REFERENCES.** — Eiselt (1971); Gholamhosseini et al. (2009); Mahlow et al. (2013).

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**Genus Hierophis** Fitzinger, 1843

**Hierophis andreae** (Werner, 1917)

*Zamenis andreae* Werner, 1917: 207.

**COMMON NAME.** — Andreas’ Racer.

**SYNTYPE.** — ZFMK 31600.

**TYPE LOCALITY.** — Southern parts of the Zagros Mountains.

**DISTRIBUTION.** — Bushehr, Fars, Ilam, Kerman, Kermanshah, and Lorestan Provinces (Rajabizadeh & Rastegar-Pouyani 2009, Fathinia et al. 2010; Torki 2010b).

**HABITAT.** — Rocky areas and human habitations in the Zagros Mountains (Fathinia et al. 2010), to the elevation of 2000 m a.s.l. (Rajabizadeh & Rastegar-Pouyani 2009).

**IUCN.** — Least concern.

**REFERENCES.** — Werner (1917); Rajabizadeh & Rastegar-Pouyani (2009), Fathinia et al. (2010), Torki (2010b).
Genus *Lytorhynchus* Peters, 1862

*Lytorhynchus levitoni* Torki, 2017

*Lytorhynchus levitoni* Torki, 2017a: 110.

**COMMON NAME.** — Kabir Kuh Leafnose Snake (designated here).

**HOLOTYPE.** — MTD 49319.

**TYPE LOCALITY.** — Western slope of the Kabir Kuh Mountains, Abadan region, Ilam Province (33°02’N, 47°18’E).

**DISTRIBUTION.** — Only known from the type locality, Abadan, Ilam Province, Kabir Kuh, South of West Zagros Mountains, Western Iran.

**HABITAT.** — Collected from flat land covered by scattered oak woodland.

**IUCN.** — Not evaluated.

**REFERENCE.** — Torki (2017a).

Genus *Rhynchocalamus* Günther, 1864

*Rhynchocalamus ilamensis* Fathinia, Rastegar-Pouyani, Rastegar-Pouyani, Darvishnia, 2017

*Rhynchocalamus ilamensis* Fathinia, Rastegar-Pouyani, Rastegar-Pouyani, Darvishnia, 2017: 477.

**COMMON NAME.** — Ilam Black-headed Snake (designated here).

**HOLOTYPE.** — YUZM-CRh.1.

**TYPE LOCALITY.** — Bina and Bijar No-hunting Area (33°38’N, 46°2’E, 724 m a.s.l.), Ilam Province.

**DISTRIBUTION.** — It is known from Ilam Province.

**HABITAT.** — The species present in limestone Western foothills of the Zagros Mountains covering with annual to perennial plant.

**IUCN.** — Not evaluated.

**REFERENCE.** — Fathinia et al. (2017).

**REMARK.** — Further investigation is needed to reveal whether *Lytorhynchus levitoni* and *Rhynchocalamus ilamensis* are synonyms.

Genus *Spalerosophis* Jan, 1865

*Spalerosophis microlepis* Jan, 1865

*Spalerosophis microlepis* Jan, 1865: 356.

**COMMON NAME.** — Zebra Snake.

**LECTOTYPE.** — MZUT R1843

**TYPE LOCALITY.** — Laristan (Larestan), Fars Province (Gholamifard 2011).

**DISTRIBUTION.** — Ilam, Lorestan, Fars, Khuzestan, Hamadan, Markazi, Qom, Kerman, Chaharmahal and Bakhtiari, Kohgiluyeh and BoyerAhmad, and Esfahan (Safaei-Mahroo et al. 2015).

**HABITAT.** — The species occurs in mountainous areas, foothills, fields, grasslands, and semi-desert regions (Hosseinzhadeh et al. 2017).

**IUCN.** — Least concern.

**REFERENCE.** — Jan (1865); Gholamifard (2011); Safaei-Mahroo et al. (2015); Hosseinzhadeh et al. (2017).

**REMARK.** — Presence of this species in Semnan, Yazd, northern Hormozgan and Iraq need to be confirmed (Hosseinzhadeh et al. 2017).

Family **Elapidae** Boie, 1827

Genus *Bungarus* Daudin, 1803

*Bungarus persicus* Abtin, Nilson, Hosseini, Mobaraki & Dehghannejhad, 2014

*Bungarus persicus* Abtin, Nilson, Hosseini, Mobaraki & Dehghannejhad, 2014: 244.

**COMMON NAME.** — Persian Krait.

**HOLOTYPE.** — ZMGU3121.

**TYPE LOCALITY.** — Sarbaz, Sistan and Baluchestan Province.

**DISTRIBUTION.** — Sistan and Baluchestan Province.

**HABITAT.** — Flat plains with seasonal river beds and scattered vegetation comprising mainly of shrubs and some trees. The habitat lies in this arid region is characterized by having very hot summers and a bit cold winters.

**IUCN.** — Not evaluated.

**REFERENCE.** — Abtin et al. (2014).

**REMARKS.** — This krait is similar to *B. sindanus* Boulenger, 1897 in many traits, requiring additional work to reveal the taxonomic status of the two kraits.

Family **Typhlopidae** Merrem, 1820

Genus *Xerotyphlops*

*Hedges, Marion, Lipp, Marin & Vidal, 2014*

*Xerotyphlops luristanicus* Torki, 2017

*Xerotyphlops luristanicus* Torki, 2017b: 1.

**COMMON NAME.** — Lorestan Blind Snake or Laki Blind Snake.

**HOLOTYPE.** — MNHN-RA 2016.0040.

**TYPE LOCALITY.** — Badavar region, Nourabad, Lorestan Province, West of Zagros Mountains, Western Iran (34°07’N, 47°53’E).

**DISTRIBUTION.** — Only known from the type locality.

**HABITAT.** — Valley of the Badavar River.

**IUCN.** — Not evaluated.

**REFERENCE.** — Torki (2017b).
Montivipera kuhrangica Rajabzadeh, Nilson & Kami, 2011

Montivipera kuhrangica Rajabzadeh, Nilson & Kami, 2011: 235.

COMMON NAME. — Kuhrang Mountain Viper.

HOLOTYPE. — ZMGU2203.

TYPE LOCALITY. — Tulip valley (Dasht Lale) (32°36'N, 50°11'E), North East of Chelgerd village, Kuhrang region, Chaharmahal and Bakhtiari Province.

DISTRIBUTION. — Chahar Mahal and Bakhtiari Provinces.

HABITAT. — High elevated mountain valley with medium to high density of vegetation.

IUCN. — Data deficient.

REFERENCES. — Rajabzadeh et al. (2011); Rastegar-Pouyani et al. (2014); Stümpel et al. (2016).

REMARK

Rajabzadeh et al. (2011) described this species based on unique color pattern and morphological characters. A molecular study by Rastegar-Pouyani et al. (2014) suggested that the three species Montivipera kuhrangica Rajabzadeh, Nilson & Kami, 2011; M. latifii (Mertens, Darewsky & Klemmer, 1967) and M. albicornuta (Nilsen & Andren, 1985) all are belonging to M. raddei (Boettger, 1890). Another phylogenetic study conducted by Stümpel et al. (2016) suppose that M. kuhrangica and M. latifii are as valid taxa.

Montivipera latifii (Mertens, Darewsky & Klemmer, 1967)

Vipera latifii Mertens, Darewsky & Klemmer, 1967: 161-168.

COMMON NAME. — Latifi’s Mountain Viper.

HOLOTYPE. — SMF 62585.

Pseudocerastes urarachnoides Bostanchi, Anderson, Kami & Papenfuss, 2006

Pseudocerastes urarachnoides Bostanchi, Anderson, Kami & Papenfuss, 2006: 446.

COMMON NAME. — Iranian Spider-tailed Viper.

HOLOTYPE. — FMNH 170929.

TYPE LOCALITY. — 70 km South West of Ilam, probably on road to Amirabad and Mehran, Ilam Province (Bostanchi et al. 2006).

DISTRIBUTION. — Ilam, Kermanshah and Khuzestan Provinces in West and South West of Iran (Fathinia et al. 2009).

HABITAT. — Primarily in limestone sediments occurring in the Provinces with recently-known narrow penetration into rocky habitats of the Zagros Mountains (Fathinia et al. 2014).

IUCN. — Data deficient.

REFERENCES. — Bostanchi et al. (2006); Fathinia et al. (2009); Fathinia (2014).

REMARK

Based on molecular data the Iranian Spider-tailed viper is more closely related to P. persicus (Duméril, Bibron & Duméril, 1854) than to P. fieldi Schmidt, 1930 (Fathinia 2014).
COMMON NAME. — Iranian Ground-Jay.

Holonotype. — Not traced.

DISTRIBUTION. — Sehhatisabet (2007) reported this species from Semnan, Esfahan, Tehran, Yazd, Khorasan Razavi, South Khorasan, Kerman and Fars Provinces. The most observed individuals were from the Touran Biosphere Reserve in Semnan Province. Baloutch in 1977 reported this species also from Sistan and Baluchestan and Golestan Provinces (Radnezhad et al. 2011).

HABITAT. — Distributed in desert and semi-desert areas particularly on the Iranian Plateau. The nest is located at the top of and in the compact parts of plants, especially Atraphaxis spinosa L., Ephedra intermedia Schrenk & C.A.Mey and Zygophyllum eurypterum Boiss. & Buhse (Satei et al. 2010; Radnezhad et al. 2011). Sehhatisabet (2007) observed all the studied samples in steppe and sandy deserts with spread shrubs of Zygophyllum sp., Haloxylon sp. and Ephedra sp.

IUCN. — Least concern.

REFERENCES. — Zarudny (1896); Sehhatisabet (2007); Satei et al. (2010); Radnezhad et al. (2011).

REMARK
According to Sehhatisabet (2007) P. pleskei is observed within a few km of the Afghanistan border in the Namakazar Basin between Niyaz Abad and Kalateh Kabudeh in East of Khorasan. Moreover, its range extends toward the Iran-Pakistan border (Radnezhad et al. 2011). Despite the LC status of the Iranian Ground-Jay, some crucial factors such as habitat loss and the sample collection for museums affect its populations (Sehhatisabet 2007).

Class MAMMALIA Linnaeus, 1758
Order SORICOMORPHA Gregory, 1910
Family SORICIDAE G. Fischer, 1814
Genus Crocidura Wagler, 1832

Crocidura susiana Redding & Lay, 1978

Crocidura susiana Redding & Lay, 1978: 307.

COMMON NAME. — Iranian Shrew.

Holonotype. — Not traced.

TYPE LOCALITY. — Khuzestan Province, 8 km South West of Dezful (32°19'N, 48°21'E).

DISTRIBUTION. — Known only from the vicinity of Dezful, Khuzestan Province but may have a wider distribution (Redding & Lay 1978; Hutterer 2005; Ziaie 2008).

HABITAT. — This species inhabits semi-arid stepps and the edges of permanent streams with herbaceous plants and scattered shrubs (Karami et al. 2016).

IUCN. — Data deficient.

REFERENCES. — Redding & Lay (1978); Hutterer (2005); Karami et al. (2008, 2016); Ziaie (2008).

REMARK
Description postdates Lay (1967). This species is known only from a very restricted area, but may range more widely. There is no information available regarding extent of occurrence, area of occupancy and other aspects (Hutterer 2005; Karami et al. 2008).

REFERENCES. — Redding & Lay (1978); Hutterer (2005); Karami et al. (2008, 2016); Ziaie (2008).
Order RODENTIA Bowdich, 1821
Family CALOMYSCIDAE Vorontsov and Potapova, 1979
Genus Calomyscus Thomas, 1905

Calomyscus bailwardi Thomas, 1905

Calomyscus bailwardi Thomas, 1905: 525.

COMMON NAME. — Zagros Mountains Brush-tailed Mouse.

HOLOTYPE. — Not traced.

TYPE LOCALITY. — Khuzestan Province, Zagros Mountains, 120 km South East of Ahvaz, Izeh.

DISTRIBUTION. — Zagros Mountains (Kurdistan, Ilam, Lorestan, Fars, West of Esfahan, East of Khuzestan, Hormozgan, and West of Kerman Provinces (Morshed & Patton 2002; Karami et al. 2008; Ziaie 2008). Moreover, it may occur in Gavizan tep and Hakkari Provinces of Turkey (Kryštufek & Vohralík 2009) but no specimens are available for confirmation. Hence, actual range has yet to be defined.

HABITAT. — Relatively little is known about its ecology. It is commonly found in forests at intermediate altitudes under evergreens as well as on barren, dry and rocky mountainsides with little vegetation. It favors mountain steppe regions between 400 and 3500 m, and is typically absent from low valleys. Moreover, it favors crevices between stone walls and embankments in small fields and terraced cultivation. In these crevices nests made of woven grass, wool, and other various soft materials have been found (Lay 1967; Grzimek et al. 2004).

IUCN. — Least concern.

REFERENCES. — Thomas (1905); Ellerman (1961); Lay, (1967); Morshed & Patton (2002); Grzimek et al. (2004); Karami et al. (2008); Ziaie (2008); Kryštufek & Vohralík (2009).

REMARK. — All Iranian samples from Khuzestan, Fars, Khorasan, Esfahan, Tehran, and Semnan Provinces belonging to several distinct species were listed under C. bailwardi by Lay (1967) as Calomyscus was considered to be monotypic (Ellerman 1961).

Calomyscus grandis Schlitter & Setzer, 1973

Calomyscus grandis Schlitter & Setzer, 1973: 163.

COMMON NAME. — Noble Brush-tailed Mouse.

HOLOTYPE. — Not traced.

TYPE LOCALITY. — Northern Iran, Tehran Province, foothills of the Alborz Mountains, 11 km North East of Fasham (35°56’N, 51°31’E) (Schlitter & Setzer 1973).

DISTRIBUTION. — This species is known only from the Alborz Mountains in Northern Iran. There are records from the foothills of Alborz Mountains near Fasham, the Southern foothills and ridges (2590 m a.s.l.) of the Mount Demavend, Doab on the crest of the central Alborz Mountains, and on the Northern slopes of the Alborz Mountains in Mazandaran Province at Abass-Abad (36°44’N, 51°08’E) (Norriss et al. 2008; Kryštufek & Vohralík 2009).

HABITAT. — It is likely to occur in mountain forests (Norriss et al. 2008). Kilpatrick (2017) identifies habitats as rocky hillsides, along rock walls of gardens, and on vegetated rocky outcroppings along crested hills and along the flanks of higher mountains.

IUCN. — Data deficient.

REFERENCES. — Schlitter & Setzer (1973); Karami et al. (2008); Norris et al. (2008); Kryštufek & Vohralík (2009); Kilpatrick (2017).

REMARK. — Description postdates Lay (1967). The limits of its distribution remain unresolved and this species almost certainly occurs more widely than current records suggest, though it is likely to be endemic to the Alborz Mountains (Karami et al. 2008).

Microtus irani Thomas, 1921

Microtus irani Thomas, 1921: 580.

COMMON NAME. — Iranian Vole.

HOLOTYPE. — Not traced.

TYPE LOCALITY. — Bagh-i-Rezi, Shiraz, Fars Province, 5200 ft.

DISTRIBUTION. — As currently recognized, this taxon is not endemic to Iran, however it probably should be retained due to the uncertainty of its distribution (Kryštufek 2017a; Kryštufek & Kefelioğlu 2001; Kryštufek et al. 2013) and western Iran (Mahmoudi et al. 2014).

HABITAT. — Steppe in mountains, grasslands with clumps of bushes, cultivated fields, and orchards at elevations of 1000-2100 m (Kryštufek & Kefelioglu 2001; Kryštufek 2017a).

IUCN. — Least concern.

REFERENCES. — Thomas (1921); Ellerman (1948); Kock et al. (1972); Kock & Nadler (1983); Musser & Carleton (1993); Kryštufek & Kefelioğlu (2001); Kryštufek et al. (2009, 2010, 2013); Mahmoudi et al. (2014); Kryštufek (2017a).

REMARK. — Included in M. socialis (Pallas, 1773) by Lay (1967) following Ellerman (1948). Currently this taxon is proposed to contain three subspecies (irani Thomas, 1921, karamani Kryštufek, Vohralík, Zima, Koubínová & Bužan, 2010, and schidlovskii Argyropulo, 1933) with a distribution including areas of Iran, Iraq, Turkey, Lebanon, Syria, Georgia, and Armenia. However, the taxonomic scope and the distributions of these taxa are still poorly understood (Kryštufek 2017a).
Microtus qazvinensis Golenishchev, Malikov, Nazari, Vaziri, Sablina & Polyakov, 2002

Microtus qazvinensis Golenishchev, Malikov, Nazari, Vaziri, Sablina & Polyakov, 2002: 118.

COMMON NAME. — Qazvin Vole.

HOLOTYPE. — Not traced.

TYPE LOCALITY. — Buin-Zahra (35°39’N, 49°58’E), 65 km South of Qazvin City, Qazvin Province.

DISTRIBUTION. — Known with certainty only from its type locality but is likely more widespread in North West-Iran (Golenishchev et al. 2002; Shenbrot & Krasnov 2005). Reported from several other localities in North West-Iran by Mahmoudi et al. (2015) including Qeydar, Zanjan: Saghez, Kurdistan; and Gazor-dareh. It may occur in East-Turkey (Golenishchev et al. 2002).

HABITAT. — Microtus dogramacii Kefelioğlu & Kryštufek, 1999 (see notes as “Remarks”) is found in open steppic habitats at elevations of 200-800 m (Kryštufek 2017b). There is no direct information on M. qazvinensis habitat preferences, though these are likely to be similar to Microtus guentheri (Danford & Alston, 1880) and M. irani (Shenbrot & Krasnov 2005). Karami et al. (2016) reported that this rodent was first observed in an alfalfa field in 1996.

IUCN. — Data deficient.

REFERENCES. — Golenishchev et al. (2002); Shenbrot & Krasnov, (2005); Mahmoudi et al. (2015); Karami et al. (2016); Kryštufek (2017b).

REMARKS

Description postdates Lay (1967). This vole shares the same diploid number of chromosomes (2N=54) as M. guentheri Danford & Alston, 1880, but in crossbreeding experiments male offspring appeared to be sterile (Golenishchev et al. 2002; Shenbrot & Krasnov 2005). Molecular affinities are with M. dogramacii Kefelioğlu & Kryštufek, 1999 but Mahmoudi et al. (2015) concluded that M. qazvinensis was a valid species based on karyotypic and Cytb divergence. However, Kryštufek (2017b) recognized it as a subspecies of M. dogramacii and suggested that this subspecies may occur in eastern Turkey. Hence, considering this vole as an endemic rodent for Iran depends on whether it is recognized as a distinct species (M. qazvinensis) or a subspecies of Microtus dogramacii (M. d. qazvinensis) (C. William Kilpatrick comm. pers.). Additional studies are needed to support molecular data.

Family DIPODIDAE Waldheim & Fischer, 1817
Genus Scarturus Gloger, 1841

Scarturus toussi Darvish, Hajjar, Moghadam-Matin, Haddad & Akbaryrad, 2008

Scarturus toussi Darvish, Hajjar, Moghadam-Matin, Haddad & Akbaryrad, 2008: 104.

COMMON NAME. — Toussi Jerboa.

HOLOTYPE. — ZMFUM-1398.

TYPE LOCALITY. — Chesme Gilas (36°38’N, 50°19’E), Mashhad, Khorasan Razavi Province.

DISTRIBUTION. — The Toussi Jerboa has been described from the steppe regions of the North East of Iran on the basis of morphological and morphometric data (Darvish et al. 2008).

HABITAT. — Poorly known. Steppe regions of the North East of Iran (Darvish et al. 2008).

IUCN. — Not evaluated.

REFERENCES. — Darvish et al. (2008); Shenbrot et al. (2008); Michaux & Shenbrot (2017).

REMARK

This species is distinguished from its parapatric species, i.e., S. elater Lichtenstein, 1825, and other Iranian five-toed jerboas, by differences in external, cranial and molar morphological and morphometric characteristics data (Darvish et al. 2008). However, Michaux & Shenbrot (2017) considered the Toussi Jerboa as a subspecies of Scarturus vinogradovii Argyropulo, 1941 (S. v. toussi).

Scarturus cf. williamsi
(Hamidi, Darvish & M. Matin, 2016) (Fig. 9)

Paralactaga cf. williamsi Hamidi, Darvish & M. Matin, 2016: 3.

COMMON NAME. — Williams’s Jerboa.

HOLOTYPE. — ZMFUM-5028.

TYPE LOCALITY. — Kopet-Dag Mountains, North East of Iran (36°56’N, 59°31’E), Khorasan Razavi Province.

DISTRIBUTION. — Kopet-Dag Mountains, North East of Iran (Hamidi et al. 2016).

HABITAT. — The altitude of the sampling locality is approximately 2251 m above sea level and the topography is barren high plains, with mounds and rocky habitats. The vegetation of this region is mostly belonging to the following families: Caryophyllaceae, Asteraceae, Zygophyllaceae, Resedaceae, Scrophulariaceae, Asteraceae, Cupressaceae, Rosaceae and Berberidaceae.

IUCN. — Not evaluated.

REFERENCES. — Hamidi et al. (2016); Michaux & Shenbrot (2017).

REMARK

Michaux & Shenbrot (2017) indicated that the S. cf. williamsi named by K. Hamidi and colleagues in 2016 is a separate species that needs to be formally described. This taxon could also be possibly closely related to S. euphraticus caprimulgus Ellerman, 1948. Hence, it could probably be considered as an additional endemic rodent for Iran (C. William Kilpatrick comm. pers.).
Genus *Jaculus* Erxleben, 1777

*Jaculus thaleri* Darvish & Hosseinie, 2005

*Jaculus thaleri* Darvish & Hosseinie, 2005: 23.

**Common name.** — Thaler’s Jerboa.

**Holotype.** — ZMFUM-992.

**Type Locality.** — Jafarabad, 35°00’N and 58°05’E, Kavir-e-Namak, Kashmar, Khorasan Razavi Province.

**Distribution.** — Known from the type locality and Bandan in the South Khorasan Province (Darvish & Hosseinie 2005).

**Habitat.** — Poorly known. Semi-desert of the northeast of Iran (Darvish & Hosseinie 2005).

**IUCN.** — Not evaluated.

**Reference.** — Darvish & Hosseinie (2005).

**Remark.**

This species is closely related to *J. blanfordi* (Murray, 1884) by skull characteristics and the very complex structure of penis. However, the white flag is absent in the tail of *J. thaleri*, and karyotype is different from *J. blanfordi* (Darvish & Hosseinie 2005). Michaux & Shenbrot (2017) concluded that the Thaler’s Jerboa was an aberrant phenotype of *J. blanfordi* rather than an independent species. Hence, further sampling around the type locality (Kavir-e-Namak) and more integrated taxonomic studies are needed for precise inferences on this issue.

**Discussion.**

According to previous studies, the number of Tetrapoda species in Iran is as following: mammals with about 202 (including both extirpated and introduced species), birds with more than 500, reptiles with about 232 and amphibians with about 22 species (Firouz 2005; Mansoori 2008; Ziaie 2008; Gholamifard 2011; Hosseinzadeh et al. 2014; Smid et al. 2014; Safaei-Mahroo et al. 2015; Rastegar-Pouryani et al. 2015; Karami et al. 2016).
Undoubtedly these numbers are not stable, especially in a group such as reptiles. With discoveries of new species and reductions of several species into one – especially in recent years – these numbers always change. So the percentages in this paper are not so precise. Obtaining the exact number of species in each group requires a separate complete study.

Sixty six out of about 232 reptilian species are endemic in Iran (about 28.45% of total reptilian species in Iran). This rate for amphibians is about 22.73% (five out of about 22 species), for birds about 0.2% (one out of about 500 species) and for mammals about 3.96% (eight out of about 202 species).

A total of 80 endemic species of Tetrapoda inhabit Iran. The highest amount of endemicity is attributed to reptilian species with 82.50% (66 out of a total 80 endemic species) including lizards with 67.50% (54 species) and snakes with 15% (12 species). Second to fourth place belong to mammals with eight endemic species (10%), amphibians with five endemic species (6.25%), and aves with one endemic species (1.25%) respectively (Fig. 10).

The distribution ranges of reptiles are usually narrower than birds and mammals, yielding to a high species richness area. The diverse geographical conditions along with various climate may have generated herpetofaunal biodiversity in Iran. The number of endemic species in the Zagros Mountains, central Iranian Plateau, and the western foothills of the Zagros and Alborz Mountains is considerable. The Zagros Mountain acts as a barrier between the Central Plateau and the Mesopotamian lowlands, and also as a corridor for distribution of northern faunal elements southward (Rastegar-Pouyani et al. 2015). The effect of the Zagros Mountains from North West to South East of Iran is prominent in isolation of populations and cause speciation by separating the fauna of central Iranian Plateau from the Mesopotamian plain (Fig. 11). In addition to the contribution of mountain chains, in the borders of Iran, at making an effective barrier for such species, the location of Iran on the boundary of the Palearctic, Afrotropic and Indo-Malay biogeographic realms, supports a special condition for a high degree of endemicity in tetrapod species (Hosseinizadeh et al. 2014; Smid et al. 2014).

Regarding the mammals, Misonne (1959) mentioned two centers of “presumed origin” for endemic mammalian species of Iran. The first one is in northeast of Iran (including
Khorasan reaches out to Baluchestan) and the second one is northwest of Iran (including Azarbaijan, Kurdistan and Arasbaran). Of the total endemic mammalian species in Iran two (25%) are present in the first center and another two (25%) in the second center.

Dispersal ability among different taxa is variable. Because of the flying ability in birds they can extend into other parts better than other groups of Tetrapoda. This can explain the low endemicity of birds in Iran. As mentioned in the list, the only endemic bird species of Iran—Podoces pleskeri—is extending its range toward Iran-Pakistan border, so in future years we may have no endemic species of bird in Iran.

Habitat loss and over-exploitation are the main factors that influence the extinction risk. Because of having the small ranges and narrow niche requirements, reptiles are more sensitive to human activities. Habitat loss, human disturbance along with invasive species and targeted harvesting are the main threats to terrestrial threatened reptiles (Böhme et al. 2013).

Among the Iranian endemic species 38 species (47.50% of total endemic species of Tetrapoda, including 35 reptilian and three mammalian species) are not evaluated in the IUCN (Table 1). Almost all of them are recently described species. New mammalian taxa have been described from 2005 onwards (jaculus thaleri Darvish & Hosseinie, 2005; Allactaga tousi Darvish, Hajjar, Moghadam-Matin, Haddad & Akbayrad, 2008 and Scarturus cf. williamsi Hamidi, Darvish & M. Matin, 2016) and reptilian taxa from 2009 onwards (two species in 2009, one species in 2010, 11 species in 2011, two species in 2012, six species in 2013, two species in 2014, one species in 2015, three species in 2016, six species in 2017 and one species in 2018).

Among endemic Tetrapoda for Iran, 11 new species were described in 2016, 2017 and 2018 (Gholamifard et al. 2016; Hamidi et al. 2016; Rastegar-Pouyan et al. 2016; Safaei-Mahroo et al. 2016; Akbarpour et al. 2017; Faizi et al. 2017; Fathinia et al. 2017; Nazarov et al. 2017; Torki 2017a, b; Rouaghi et al. 2018).

The distribution pattern of indicator taxa, such as birds, is used for estimation of biodiversity value. So to what extent this assessment is successful, depends on the degree of congruence between the distribution pattern of these indicator taxa and other taxon. Because of this amphibian and reptiles are greatly overlooked. Reptiles are poorly-represented on the IUCN Red List of Threatened Species (Böhme et al. 2013).

Considering the high diversity of reptiles in Iran and the lack of submitted data in the IUCN in one hand and the high amount of new described species of this group in comparison to other taxa on the other hand, it will be necessary to perform a more comprehensive study about this group especially the endemic species and assessing their conservation status in the IUCN. The Zagros region involves a high number of endemics among reptiles and as Rouaghi et al. (2018) stated more attention and investigation are needed to survey the fauna in this area.

Endemic species are national resources of a country and unfortunately there is not even a simple list of endemic fauna of Iran. More attempts are required to broaden our knowledge about the endemic species in this country.

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