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An annotated checklist, description and key to the dwarf snakes of the genus *Eirenis* Jan, 1863 (Reptilia: Squamata: Colubridae), with special emphasis on the dentition

Kristin Mahlow[1,*], Frank Tillack[1,*], Josef Friedrich Schmidtler[2] & Johannes Müller[1]

[1] Museum für Naturkunde, Leibniz Institute for Research on Evolution and Biodiversity Berlin, Invalidenstraße 43, 10115 Berlin, Germany — [2] Oberföhringer Straße 35, 81925 München, Germany — [*] corresponding authors; Email: frank.tillack(at)mfn-berlin.de; kristin.mahlow(at)mfn-berlin.de

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Abstract

For the first time a comprehensive checklist and description of all species of the dwarf snake genus *Eirenis* is presented using both external morphological characters and osteological information derived from micro-computed tomography, and by considering more than 300 specimens from the entire distribution range. Our study recognizes 18 valid species, but also emphasizes that *Eirenis modestus* and *E. persicus* each represent a complex of several taxa which urgently need a revision. Regarding the latter complex, the validity of the taxon *"Eirenis mcmahoni"* is not accepted due to the current lack of understanding of the *persicus*-group. Also, further studies should be carried out to fully understand the species status of the newly described *Eirenis kermanensis*, which seems closely related to *E. medus*. At the same time, *E. hakkariensis* is resurrected to full species status given the dramatic morphological differences to *E. thospitis*, casting doubt on the apparent genetic identity as revealed by a previous investigation. In addition, our study presents the first record of *E. eiselti* for Syria. On the basis of our results it is for the first time possible to compile a key to all currently recognized species of *Eirenis*, which should be helpful for future systematic studies and faunal surveys.

Key words

Reptilia, Serpentes, Colubroidea, Colubrinae, *Eirenis*, Morphology, Computed Tomography.

Introduction

The dwarf snakes of the colubrine genus *Eirenis* comprise 18 currently recognized species which are primarily distributed in the Middle East, but also extend into southeastern Europe, the Caucasus Mountains, Pakistan, and northeastern Africa. As their trivial name suggests, the members of the genus are comparatively small and slender, with the maximum length only rarely exceeding 600 mm. They are characterized morphologically by the presence of 15–19 unkeeled dorsal scales, a subocular lacking, one anterior temporal touching the postoculars, divided subcaudal scales, a divided anal shield, a head only marginally offset from the trunk, and an aglyphous dentition.

The genus *Eirenis* was originally erected by Jan in 1863, where he included a number of species with 13–17 dorsal scales. Among those, he designated "1. *E. colla-*

ris (Ménétr.)" as type species, whereas the biogeographic origin of most of the type material, as well as its morphology (17 dorsal scales) indicate that the type species is composed of what is currently known as *Eirenis modestus* (MARTIN, 1838) (Art. 70.3.2 ICZN hoc loco) (see SCHMIDTLER & SCHMIDTLER 1978: 390 and NAGY *et al*. 2003: 149 who did not yet reach this formal decision). BOULENGER (1894) considered *Eirenis* to be a synonym of *Contia* GIRARD in BAIRD & GIRARD, 1853, a view that was followed by CHERNOV (1948), whereas STICKEL (1951) resurrected *Eirenis* for all species in question. While the genus subsequently experienced a remarkable increase in species number (EISELT 1970; SCHMIDTLER 1988, 1993, 1997; SCHMIDTLER & SCHMIDTLER 1978; SCHMIDTLER & LANZA 1990; SCHMIDTLER & EISELT 1991), the ingroup relationships and affinities to other colubrines long remained obscure. NAGY *et al.* (2003) performed the only molecular study known so far, revealing a sistergroup relationship between *Eirenis* and the genus *Hierophis*, and including the formerly separate *Pseudocyclophis persicus* in *Eirenis*. In addition, NAGY *et al*. (2003) proposed the presence of four ingroup clades, which they assigned to the subgenera *Eirenis, Pseudocyclophis, Eoseirenis*, and *Pediophis*. In the present study this classification is followed, even though several species such as *E. coronella, E. rechingeri* and *E. africanus* were not considered by NAGY *et al*. (2003) due to a lack of available tissues.

The genus *Eirenis* is of significant evolutionary interest given its obviously secondary reduction in size, as inferred from the fact that both its sister taxon *Hierophis* and the outgroup taxa *Dolichophis* and *Platyceps* grow much larger. Several authors addressed the issue of dwarfism in *Eirenis* from an evolutionary perspective (e.g. SCHMIDTLER 1993; NAGY *et al*. 2003), focusing primarily on the relative reduction in scale number and the observation that some species of *Eirenis* resemble juvenile specimens of *Hierophis* in colouration. Particularly NAGY *et al*. (2003) proposed several evolutionarily independent reductions in size within the genus, probably as a result of parallel adaptations towards a more secretive lifestyle. However, many species of *Eirenis* are only poorly known morphologically, and thus any evolutionary interpretation is currently rendered difficult.

In order to provide a better foundation for the study of size reduction in *Eirenis* (MAHLOW *et al*. in prep.), a reinvestigation of all species of the genus was performed, in which next to their external morphology also the internal morphology was examined using X-ray computed tomography. The present contribution builds on these results and presents a morphological characterization and key to all currently recognized species of the genus *Eirenis*.

Material and methods

The present contribution is based on the study of 347 preserved specimens of *Eirenis* from the entire geographic range of the genus (see Appendix 1 for a list of examined specimens), including all currently recognized species. Specimens of the ZMB collection with the locality 'Central Mesopotamien' come from Max von OPPENHEIM's expedition and were collected between 1911 and 1913 during the archaeological excavations in the area of 'Tell Halaf' (Ra's al-'Ayn District, Al-Hasakah Governorate, Northeast Syria).

Descriptions of each species are based on personal observations as well as information from the literature. Dorsal scale rows were counted at three points along the trunk, i.e. at one head length posterior to the end of the head, at midbody, and at one head length anterior to the anal scute. Head length is defined by the length from the tip of the snout to the end of the parietalia. The midbody scale count was taken at half of the total number of ventral scales. Ventrals were counted according to DOWLING (1951). The terminal scale is not included in the subcaudal count. The term 'percra' sensu WERNER (1971) defines the ratio of tail length/total length.

The heads of 336 studied snake specimens were subjected to micro-tomographic analysis at the Museum für Naturkunde Berlin using a Phoenix nanotom X-ray|s tube at 70–90kV and 120µA, generating 800–1000 projections per scan. The different kV- and projection-settings depended on the respective specimen size. Effective voxel size ranged between 6–10µm. The cone beam reconstruction was performed using the datos|x-reconstruction software (GE Sensing & Inspection Technologies GMBH phoenix|x-ray) and the data were visualized in VG Studio Max 2.0.

Dental data of 331 specimens were analyzed and results are given in the respective species descriptions for a single tooth-bearing bone. At the plates all bones of the right side head were depicted, with the exception of *Eirenis* (*P.*) *rechingeri*. For better visualization and comparison the tooth-bearing bones are adjusted to a comparative size and were provided with the respective scale.

Abbreviations

a.s.l.	above sea level
DSR	dorsal scale rows
VEN	ventralia
SC	subcaudalia; Loreal scale present "+", absent "–"
LC	loreal scale in contact with specified supralabialia
PrO	preocularia
PoO	postocularia
T	temporalia, given in first, second and third row
SL	supralabialia
SLC	supralabialia in contact with the orbit
IL	infralabialia, lower labial scales bordering the mouth
ILC	infralabialia in contact with anterior inframaxillaria
GC	gular scales in contact with the anterior pair of inframaxillaria
SuL	sublabialia, longitudinal row of scales below beginning at the posterior inframaxillaria and extending to the last IL
n.d.	no data available.

Institutional abbreviations

BMNH	The Natural History Museum, London, U. K.

BNHS	Bombay Natural History Society, Mumbai, India
CAS	California Academy of Science, San Francisco, USA
FMNH	The Field Museum, Chicago, USA
HUJ-R	Hebrew University of Jerusalem, Israel
MHNG	Muséum d'Histoire naturelle, Genève, Switzerland
MNHN	Muséum National d'Histoire Naturelle, Paris, France
MTD	Senckenberg Naturhistorische Sammlungen Dresden, Museum für Tierkunde, Dresden, Germany
MVZ	Museum of Vertebrate Zoology, University of California, Berkeley, USA
MZUF	Museo Zoologico dell'Università di Firenze, Italy
NMW	Naturhistorisches Museum Wien, Vienna, Austria
RAN	Private collection Roman A. Nazarov, Moscow, Russia
SMF	Forschungsinstitut und Naturmuseum Senckenberg, Frankfurt M., Germany
ZDEU	Ege University, Izmir, Turkey
ZFMK	Zoologisches Institut und Forschungsmuseum Alexander König, Bonn, Germany
ZISP	Zoological Institute, Russian Academy of Science, Sankt Petersburg, Russia
ZMB	Museum für Naturkunde Berlin, Germany
ZMH	Zoologisches Museum der Universität Hamburg, Germany
ZMMU	Zoological Museum of Moscow Lomonosov University, Moscow, Russia
ZSI	Zoological Society of India, Kolkata, India
ZSM	Zoologische Staatssammlung München, Munich, Germany

Results

Checklist

Eirenis Jan, 1863

Jan, G. (1863): Enumerazione sistematica degli ofidi appartenenti al gruppo Coronellidae. – Archivio per la Zoologia, l'Anatomia e la Fisiologia, Genova, **2**(2): 213–330 [256].

Type species: *Coronella modesta* Martin, 1838 now fixed in accordance with Art. 70.3 of the 'Code' (ICZN 1999), misidentified as "*E. collaris* (Ménétr.)" in the original designation by Jan (1863) (see comments in Introduction).

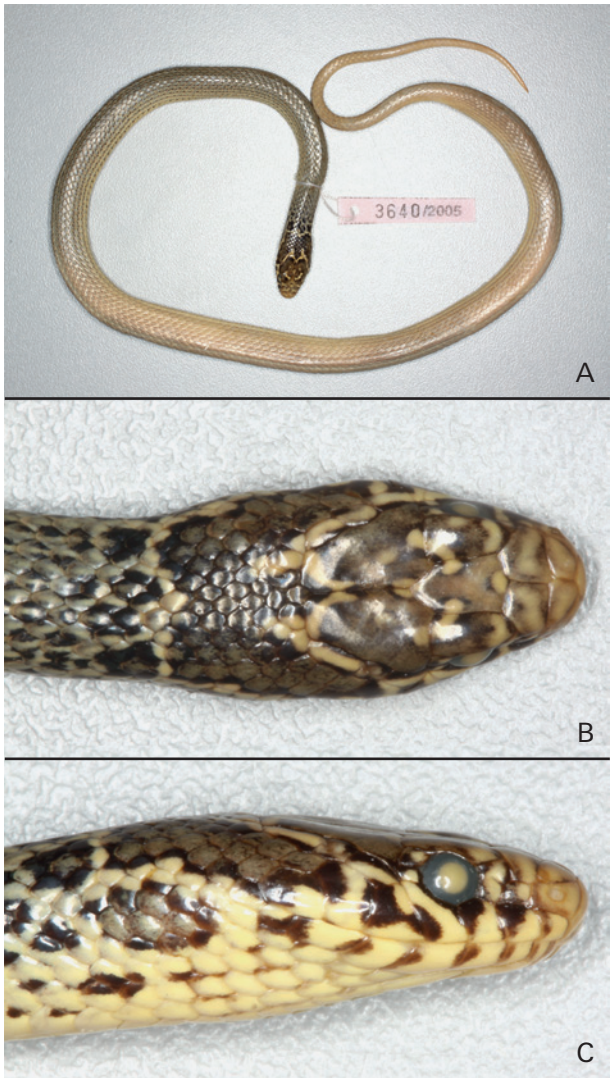
Subgenus *Eirenis* Jan, 1863

Type species: as for the genus.

***Eirenis* (*Eirenis*) *aurolineatus* (Venzmer, 1919)**

Contia collaris var. *aurolineata* Venzmer, G. (1919): Zur Schlangenfauna Süd-Kleinasiens, speziell des cilicischen Taurus. – Archiv für Naturgeschichte, Berlin, Abt. A, **83** (11): 95–122 [103].

Type locality. In his introduction Venzmer (1919) refers to his preceding paper (Venzmer 1918) with the exact locality descriptions of his "Bulghar Dagh" collection. According to Venzmer (1918), the type locality of *Contia collaris* var. *aurolineata* is "[…] mitten im Bulghar Dagh, in etwa 1000 M Höhe, beim Kilometer 32 der alten, 75 km langen Taurusstraße von Bozanti nach Tarsus, bereits jenseits der Paßhöhe (von Bonzanti aus gerechnet)." [in the middle of the Bulghar Dagh, up to nearly 1000 m, at kilometer 32 of the old, 75 km long street of the Taurus from Bozanti to Tarsus, on the other side of the pass (seen from Bonzanti [= Pozantı])].



Figs 1A–C. *Eirenis* (*Eirenis*) *aurolineatus*, ZSM 3640/2005, 5 km North of Karaisali, Turkey. **A**. Full body view. **B**. Dorsal view of the head. **C**. Lateral view of the head.

Type material. Two syntypes, not located.

Description

Measurements and colouration. Total length of adulti max. 480 mm; snout-vent length 181–327 mm (♂♂ 282–327 mm, ♀♀ 181–312 mm); tail length 63–122 mm (♂♂ 78–122 mm, ♀♀ 63–103 mm).

Dorsum yellowish to sand brown; variable dark head pattern with light yellowish interspaces; thin collar bordered posteriorly by a narrow light band followed by a transverse series of small dark spots of variable number; big oval spot behind each ventrolateral end of the collar; dark blotch on the posterior edges of the parietalia, often forming a fusing bridge with the collar; pattern often faded in older individuals; ventralia and subcaudalia whitish or yellowish grey (Fig. 1 A–C).

Lepidosis. Dorsal scale rows 17/17/15–17; apical pits present throughout body and tail, less numerous in the collar region and posterior to the anterior third of the body, usually a single pit positioned in the center of the apical tip of the scale, but the lateral scales may possess two pits arranged along the apical border, 2–3 pits on the scales of the caudal region exactly at the point of scale reduction arranged along the apical edge of the respective scale; ventralia 149–175 (♂♂ 149–162, ♀♀ 158–175); subcaudalia 60–84 (♂♂ 68–84, ♀♀ 60–77); preocularia 1, rarely 2; postocularia 2, rarely 1; loreal scale 1, in contact with 2nd, rarely the 2nd and 3rd or the 1st and 2nd supralabial; supralabialia 7, 3rd and 4th in contact with the orbit; infralabialia 8, rarely 9, 1st–4th in contact with the anterior inframaxillare; temporalia 1|2–3|2–4; 1–2, rarely 0 gularia in contact with the anterior inframaxillaria.

Dentition (Pl. I, Fig. 1). 16–21 maxillary teeth, which increase posteriorly in size, the anterior two more closely spaced than the rest; 9–12 palatine teeth, the anterior ones a little smaller than the rest; 16–19 pterygoid teeth, the anterior half more closely spaced than the posterior one, the teeth slightly increase posteriorly in size, the posterior 20% of the bone slightly bent towards the skull roof and bearing no teeth; 18–22 mandibular teeth, which decrease in size posteriorly, the anteriormost two more closely spaced than the rest.

Distribution. Turkey (southern mountain range of the Bolkar-mountains, southern Anatolia), ?Lebanon.

Natural history. *Eirenis aurolineatus* lives in open, dry or semidesert sites with soft stony, semi-sandy soils, at elevations up to 1800 m a.s.l. The species feeds on scorpions, centipedes, terrestrial insects as well as spiders and small lizards.

References. VENZMER (1918, 1919); SCHMIDTLER (1993, 1997); GRUBER (2009).

Eirenis (*Eirenis*) *modestus* (MARTIN, 1838)

Coronella modesta MARTIN, [W.] (1838): [A collection of snakes procured by the Euphrates Expedition]. – Proceedings of the Zoological Society of London, [**1838],** (6): 81–84 [82].

Type locality. In his original description of *Coronella modesta*, MARTIN (1838) did not mention the exact number and locality of the [type] specimens. Some were collected demonstrably during the 'Euphrates Expedition 1835–1837'. According to AINSWORTH (1850) the main part of the natural history objects of the 'Euphrates Expedition' was collected by Dr. Johann Wilhelm HELFER during his stay at "Port William" [a small settlement on the west bank of the river Euphrates, just south of Birecik, Şanlıurfa Province, SE Turkey, approx. 37° 2′ N, 37° 59′ E; become dilapidated in 1838]. However, additional material has been collected by other members of the expedition along the route from "Alexandrette" [Iskenderun] to "Port William", and during short trips to other locations, such as the lower reaches of the Orontes river, at Antiochia [Antakya], Bir [Birecik], Aleppo, Balis, Jilwan and Seroug. At the moment, an exact geographic assignment is impossible for most of these zoological samples due to missing or inaccurate original documentation. Beside the material collected during the 'Euphrates Expedition' MARTIN (l.c.) mentioned an additional specimen from "Trebizond" [Trabzon, NE Turkey, 40° 46′ 50″ N, 39° 48′ 44″ E]. The statement of subsequent authors considering Trabzon as type locality alone is therefore erroneous (for further remarks see Comments).

Type material. The original type series consists of at least four syntypes: three collected at the 'Euphrates Expedition', listed by BOULENGER (1894, p. 261) who regarded *modestus* as a synonym of *collaris*, and one from "Trebizond procured by K.[eith] ABBOTT". Patrick CAMPBELL kindly informed us (pers. com. September 2012) that at least two of the putative syntypes mentioned by BOULENGER (1894) are still deposited at The Natural History Museum, London (BMNH 1850.10.21.21–22).

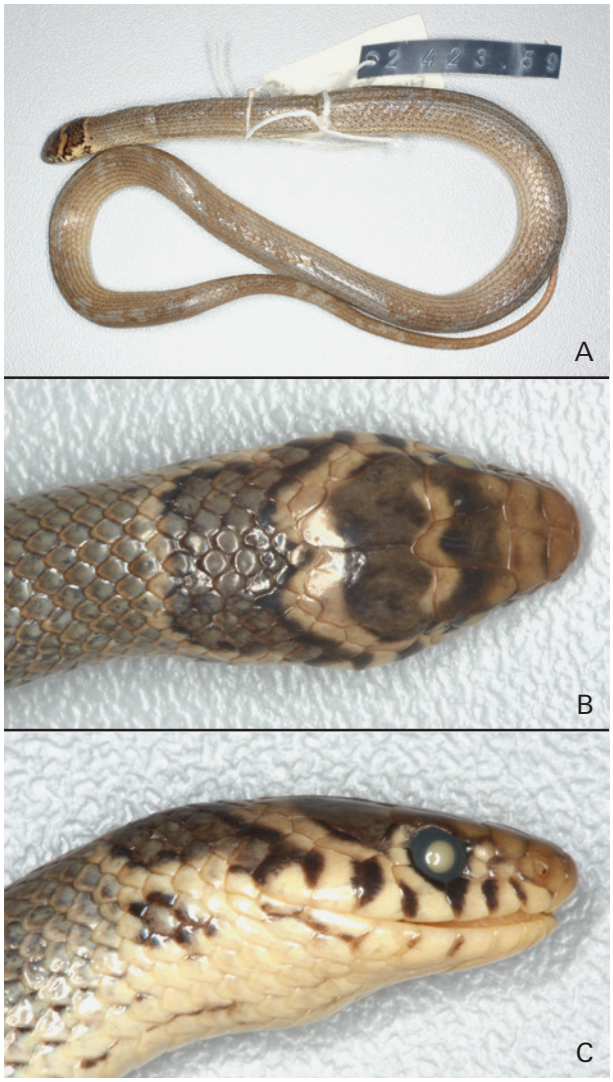
The disposition of the "Trebizond" specimen mentioned by MARTIN (1838) is unknown. It is not listed in the catalogues of snakes either by GÜNTHER (1854) or BOULENGER (1894).

Description

Measurements and colouration. Total length of adulti max. 669 mm; snout-vent length 144–485 mm (♂♂ 144–442 mm, ♀♀ 210–442 mm); tail length 50–149[+] mm (♂♂ 50–149[+] mm, ♀♀ 55–135 mm).

Dorsum unicoloured light brown-greyish, sometimes a few dark spots at the beginning of the back, except in the subspecies *E. m. semimaculatus* in which little dark spots can be found along the entire back; pileus with distinct interocular and parietal bands, both often fused posterior to the eyes; collar distinct and bent anteroventrally in lateral view, extending over 5 or more dorsal scale rows; sometimes a transverse row of spots posterior to the collar; venter mostly light brown; head colouration fading in older individuals; (Fig. 2 A–C). Melanistic specimens are known from province Muğla as well as Yassica and Sariot island (Turkey). Spotted and unspotted specimens of *E. m. semimaculatus* (auct.) are reported for Symi island (Greece).

Lepidosis. Dorsal scale rows 17–20/17–18 (exceptionally 19)/15–17; weakly developed single apical pits present



Figs 2A – C. *Eirenis* (*Eirenis*) *modestus*, MHNG 2423.059 from Iskenderun, Turkey. **A**. Full body view. **B**. Dorsal view of the head. **C**. Lateral view of the head.

throughout body and tail, less numerous in the collar region and the anterior third of the body, increasing in number along the rest of the body and tail, positioned in the center of the apical tip of the scale, 2 – 3 pits on the scales of the caudal region exactly at the point of scale reduction and arranged along the apical edge of the respective scale; when following from the paravertebral scale row at the posterior edge of the collar in a strictly diagonal, anterolaterally trending line of scales up to the level of the posterior tip of the mouth, there is a horizontal, posteriorly running scale row consisting of 1 – 2 scales from the anterior beginning of the row to the posterior border of the collar; ventralia 140 – 192 (♂♂ 140 – 183, ♀♀ 151 – 192); subcaudalia 51 – 86 (♂♂ 57 – 86, ♀♀ 51 – 74); preocularia 1, rarely 2; postocularia 1 – 2; 1 loreal scale, touching the 2nd or the 1st and 2nd, rarely the 2nd and 3rd supralabial; supralabialia 7, 3rd and 4th in contact with the orbit; infralabialia 8, rarely 9, 1st – 4th in contact with the anterior inframaxillare; temporalia 1, rarely 2|1 – 3|2 – 4; 1 – 2, rarely 0 gularia in contact with the anterior inframaxillaria.

Dentition (Pl. I, Fig. 2). 14 – 20 maxillary teeth which increase in size posteriorly; 8 – 13 palatine teeth of nearly equal size; 14 – 21 pterygoid teeth of nearly equal size, the posterior 13% of the bone slightly bent towards the skull roof and bearing no teeth; 14 – 21 mandibular teeth which decrease in size posteriorly.

Distribution. Armenia, South Azerbaijan, East Georgia, Greece (Thrace and at the islands of Alazonisi, Chios, Fournoi, Kalymnos, Kastellorizo, Leros, Lesbos, Mytilini, Samos, Symi), northwestern to North-Central Iran, southern Russia (Daghestan), Turkey, ?Iraq.

Natural history. The species is found active from April to November under flat, comparatively small stones in badlands, steppes or areas with extensive agricultural use from 1260 – 2000 m a.s.l. Active during dawn, sometimes found at day in bushes. As active hunter it feeds on scorpions, Aranei, Acri, Chilopoda, Matodea, Orthoptera, Neuroptera, Hymenoptera, Lepidoptera larvae, scolopenders, other insects, small lizards, rarely worms and snails and small fish (Schweiger 1995).

Clutches consist of 3 – 8, relatively large eggs (16.5 – 38 mm long, 5 mm wide) in comparison to the body, laid in June or July. Hatchlings have a total length of 80 – 120 mm.

Comments. *Eirenis modestus* is a complex of taxa, which badly needs a revision. Taking into consideration that the type series of *modestus* Martin probably consists of more than one taxon (see above) and from at least two distant localities and different ecozones, the present classification within this complex seems to be disputable. Further studies are required, including a lectotype designation and a restriction of the type locality, which most likely should be the region visited by the collectors of the 'Euphrates Expedition'; this is also because Schmidtler & Baran (1993b) state that no additional specimen of *E. modestus* was collected at "Trabzon" again, and the single specimen from that locality mentioned as comparative material by Martin (1838) is probably lost (see comments above). Additionally, according to Martin (1838), K. Abbott sent several specimens of "*Coluber Cliffordii*" [= *Spalerosophis diadema cliffordii* (Schlegel, 1837)] from "Trabzon" to the Zoological Society London. However, the northern distribution limit of *S. d. cliffordii* is in southern Turkey (Adıyaman, Kilis and Şanlıurfa Provinces) (Göçmen *et al.* 2009), providing another example of the questionable nature of the locality data communicated by Abbott. On the other hand, four specimens with the locality stated as "Trapezunt" send by Dr. Türke in 1843 to the Zoologische Museum Berlin. But whether this is the actual collecting site and referable to the city of Trabzon, can not yet be clarified with certainty.

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Here, we provisionally follow the actual classification proposed by Schmidtler (1993, 1997) who recognized

3 subspecies: *E. modestus modestus* (MARTIN, 1883), *Eirenis modestus semimaculatus* (BOETTGER, 1876) and *Eirenis modestus cilicius* SCHMIDTLER, 1993.

According to BOETTGER (1876) and personal observations *E. m. semimaculatus* is characterized by 8 longitudinal dorsal rows of irregular dark spots extending almost up to the tail. These spots are very distinct in the anterior portion of the body and sometimes fused into narrow lines. In older, preserved specimens the pattern fades out in the posterior part of the body. The outer edges of the ventralia possess dark margins.

Specimens from southern Turkey referable to *E. m. cilicius* can currently be defined by a reduction from 17 to 15 DSR between 59% and 76% of the total number of ventralia.

On the basis of the features known at this stage some of the specimens examined in this study could not be referred to one of the currently recognized subspecies. As pointed out by SCHMIDTLER (1993, 1997) and FRANZEN *et al*. (2008) further studies of the *Eirenis modestus*-complex are highly necessary.

References. MARTIN (1838); AINSWORTH (1850); GÜNTHER (1854); BOETTGER (1876); BOETTGER (1880); BOULENGER (1894); WERNER (1938); BODENHEIMER (1944); MUSKHELISHVILI (1970); PETACK (1975); ALEKPEROV (1978); SCHMIDTLER & SCHMIDTLER (1978); BAŞOĞLU & BARAN (1980); BARAN (1986); CHONDROPOULOS (1989); DOTSENKO (1986, 1989); LATIFI (1991); SCHMIDTLER (1993, 1997); SCHMIDTLER & BARAN (1993b); SCHWEIGER (1995); SZCZERBAK (2003); KUMULTAS *et al.* (2004); ÇIÇEK & MERMER (2007); KREINER (2007); FRANZEN *et al*. (2008); VALAKOS *et al.* (2008); GÖÇMEN *et al.* (2009); GRUBER (2009); SEUFER (2009); WILSON & GRILLITSCH (2009); ARAKELYAN *et al*. (2011).

Subgenus *Eoseirenis* NAGY, SCHMIDTLER, JOGER & WINK, 2003

NAGY Z.T., SCHMIDTLER, J.F., JOGER, U. & WINK M. (2003): Systematik der Zwergnattern (Reptilia: Colubridae: *Eirenis*) und verwandter Gruppen anhand von DNA-Sequenzen und morphologischer Daten. – Salamandra, Rheinbach, **39** (3/4): 149–168 [160].

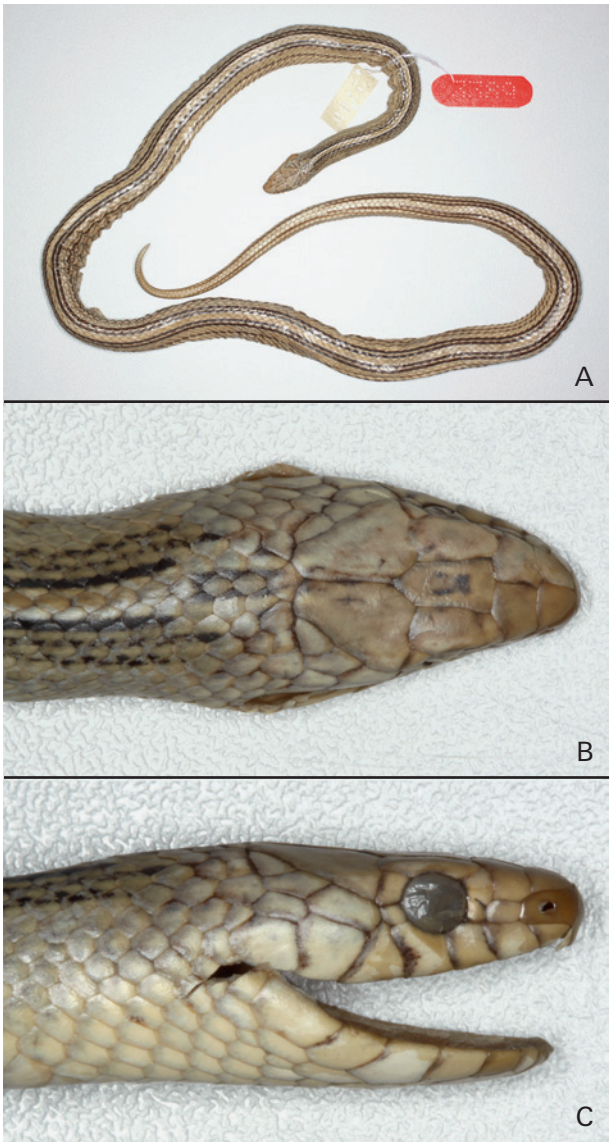
Type species: *Ablabes decemlineatus* DUMÉRIL, BIBRON & DUMÉRIL, 1854.

Eirenis (*Eoseirenis*) *decemlineatus* (DUMÉRIL, BIBRON & DUMÉRIL, 1854)

Ablabes decem-lineatus DUMÉRIL, A.M.C., BIBRON, G. & DUMÉRIL, A.H.A. (1854): Erpétologie générale ou Histoire Naturelle complète des Reptiles. Tome septième. Première partie. – Roret, Paris, xvi, 780 pp. [327].

Type locality. Not given in the original description.

Type material. MNHN 3389 [skull removed].



Figs 3A–C. *Eirenis* (*Eoseirenis*) *decemlineatus*, MNHN 3389, holotype of *Ablabes decemlineatus* from unknown locality **A**. Full body view. **B**. Dorsal view of the head. **C**. Lateral view of the head.

Description

Measurements and colouration. Total length of adulti max. 900 mm; snout-vent length 160–540 mm (♂♂ 275–540 mm, ♀♀ 160–484 mm); tail length 50–195 mm (♂♂ 113–195 mm, ♀♀ 50–165 mm).

Dorsum grey olive or pale brown with 10 dark brown longitudinal stripes of different intensity starting at the neck and extending along the entire trunk: 2 pairs of distinct paravertebral stripes, the inner extending onto the beginning of the tail, the outer terminating at near the level of the midtail, 1 distinct stripe covering half of the 4th and 5th DSR, extending to the posterior quarter of the tail, a pair of ventrolateral stripes is indistinct and sometimes interrupted, covering half of the 2nd and 3rd, and the half of the 1st and 2nd ventrolateral DSR, respectively, with both extending to nearly the tip of the tail; dorsal scales with relatively light center; in preserved

specimens the ventrolateral stripes usually fades; the 1st and 2nd DSR distinctly wider than the rest; head with indistinct and scattered irregularly shaped spots; no collar present; venter creamish (Fig. 3 A–C). Also unicoloured, patternless specimens are known.

Lepidosis. Dorsal scale rows 17–19/17–18/15; weakly developed single apical pits present throughout body and less numerous along the tail, positioned in the center of the apical tip of the scale or shifted towards the posterodorsal edge of the scale relative to the afore mentioned condition, 2–3 pits on the scales of the caudal region exactly at the point of scale reduction and arranged along the apical edge of the respective scale; ventralia 156–183 (♂♂ 156–176, ♀♀ 162–183); subcaudalia 55–86 (♂♂ 56–86, ♀♀ 55–79); preocularia 1, rarely 2; postocularia 2, rarely 1; loreal scale 1, touches the 2nd, rarely the 1st and 2nd or the 2nd and 3rd supralabial; supralabialia 7–8, 3rd and 4th in contact with the orbit; infralabialia 8, rarely 9 or 10, 1st–4th in contact with the anterior inframaxillare; temporalia 1|1–3|2–4; 0, rarely 1 gularia in contact with the anterior inframaxillaria.

Dentition (Pl. II, Fig. 1). 19–26 maxillary teeth which increase posteriorly in size; 10–14 palatine teeth which decrease posteriorly in size; 18–24 pterygoid teeth of nearly equal size, the posterior 20% of the bone slightly bent towards the skull roof and bearing no teeth; 19–24 mandibular teeth which decrease in size posteriorly.

Distribution. Iraq, Israel, Jordan, Lebanon, Syria, Turkey, ?Cyprus, ?Iran.

Natural history. The largest species of the genus, recorded from an altitudinal range of 330–1100 m. Found under stones or low stone walls in habitats with light, gravelly to heavy soil, stones and bushy vegetation, in pine oak forests, hillsides or rocky outcrops and also seen in cultivated areas. Mostly diurnal, feeding on invertebrates such as orthopterans, other insects, spiders, scorpions and centipedes, and occassionally small lizards (e.g. *Ophisops elegans*). Reproduction oviparous.

Comments. Two morphs are known, a striped and a patternless one. According to Disi *et al.* (2001), in Jordan the patternless form is found together with striped populations. According to personal observations and Schmidtler & Eiselt (1991) significant geographical differences for northern (Turkey, Northeast Syria) and southwestern populations (Israel, Lebanon) of *decemlineatus* exist with respect to the subcaudalia values (♂♂ 56–68 vs. 75–81; ♀♀ 51–64 vs. 68–78).

Gholamhosseini *et al*. (2009) assume that *E. decemlineatus* probably does not occur in Iran and was possibly confused in the previous liturature with *E. punctatolineatus* or *E. rechingeri,* respectively. If true, this might be the reason why Latifi (1991) and Firouz (2005) did not list this species for the Iranian herpetofauna.

References. Jan & Sordelli (1866); Davynova (1898); Corkill (1932); Schmidt (1939); Bodenheimer (1944); Khalaf (1959); Eiselt (1971); Schmidtler & Schmidtler (1978); Başoğlu & Baran (1980); Dotsenko (1989); Latifi (1991); Schmidtler & Eiselt (1991); Disi *et al.* (2001); Gholamhosseini *et al.* (2009); Gruber (2009); Schmidtler *et al.* (2009); Amr & Disi (2011); Bar & Haimovitch (2011).

Subgenus *Pediophis* Fitzinger, 1843

Fitzinger, L. [J.] (1843): Systema reptilium. Amblyglossae. – Braumüller & Seidel, Vindobona [Vienna], 106, VI, (3) pp. [25].

Type species: *Calamaria coronella* Schlegel, 1837.

Eirenis (?*Pediophis*) *africanus* (Boulenger, 1914)

Contia africana Boulenger, G. A. (1914): Descriptions of new species of snakes in the collection of the British Museum. – The Annals and Magazine of Natural History, including Zoology, Botany, and Geology, London, Ser. 8, **14**, (84): 482–485 [483].

Type locality. "Erkowit, Red Sea Province of the Soudan" [State of Al Bahr al Ahmar, Sudan].

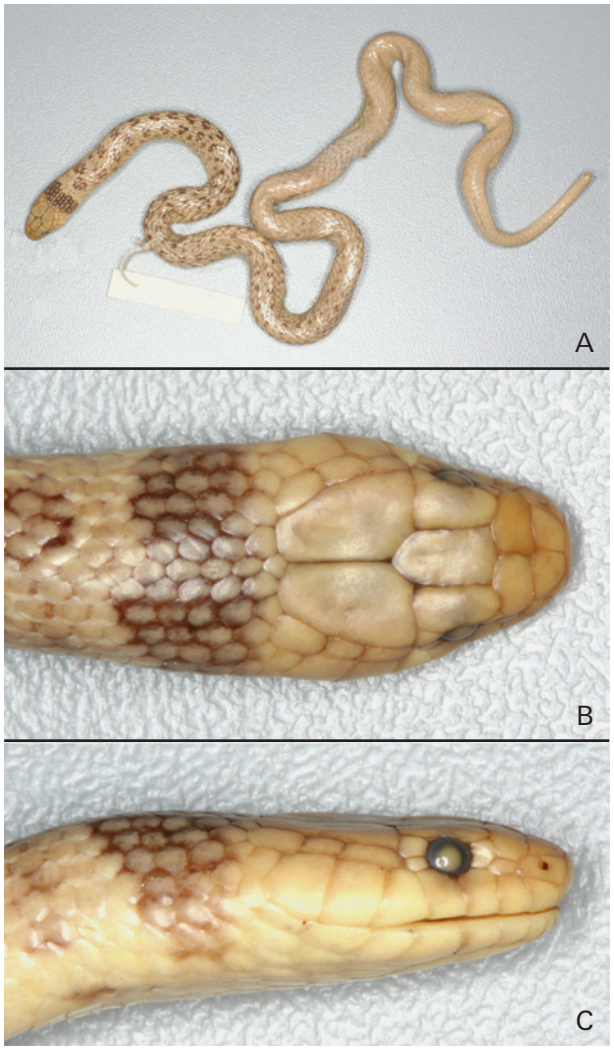
Type material. Holotype BMNH 1914.5.14.21.

Description

Measurements and colouration. Total length of adulti max. 450 mm; snout-vent length 225–331 mm (♂ 331 mm, ♀♀ 225–307 mm); tail length 95–119 mm (♂ 119 mm, ♀♀ 95–100[+] mm).

Dorsum greyish brown or yellowish grey; head with irregular dark markings, faded in preserved specimens, scales of the pileus narrowly dark edged, upper edges of lateral head scalation dark edged; dark brown semicircular blotch on the 3rd and 4th supralabial, touching the lower border of the eye; broad dark brown collar, narrowly interrupted vertebral in the holotype; 4 longitudinal rows of dark brown spots from the neck to midbody, decreasing in size posteriorly; ventralia and subcaudalia cream or yellowish grey (Fig. 4 A–C).

Lepidosis. Dorsal scale rows 15–16/15/13; distinct single apical pits present throughout body and tail, positioned in the center of the apical tip of each scale; 2 apical pits on the upper 3–6 enlarged scales of the caudal region posterior to the point of the 1st and 2nd scale reduction; between the 3rd and 4th caudal scale reduction the number of pits varies from 2–1 and the pits are arranged along the apical edge of the respective scale; 2 pits present from the level of the 4th caudal scale reduction to the tip of tail (all these features are extremly weakly developed in the holotype because the Oberhäutchen [supra epidermis] is very softened and the apical pits can often be rarely seen); ventralia 146–162 (♂ 146, ♀♀ 160–162); sub-



Figs 4A–C. *Eirenis* (?*Pediophis*) *africanus*, BMNH 1941.5.14.21, holotype of *Contia africana* from Erkowit, Red Sea Province, Sudan. **A**. Full body view. **B**. Dorsal view of the head. **C**. Lateral view of the head.

caudalia 69[+]–78 (♂ 78, ♀♀ 69[+]–72); preocularia 1; postocularia 2; loreal scale 1, touches the 2nd or the 2nd and 3rd supralabialia; supralabialia 7, 3rd and 4th in contact with the orbit; infralabialia 8, 1st–4th or 1st–5th in contact with the anterior inframaxillare; temporalia 1|1|1–2; no gularia in contact with the anterior inframaxillaria.

Dentition (Pl. II, Fig. 2). 16–18 maxillary teeth, which increase posteriorly in size; 9–12 palatine teeth, a short part (equal to the width of the first tooth) at the anterior tip of the palatine untoothed; 15–19 pterygoid teeth, which slightly increase posteriorly in size, the posterior 20% of the bone slightly bent towards the skull roof and bearing no teeth; 18–22 mandibular teeth, which decrease in size posteriorly, the anteriormost two more closely spaced than the rest.

Distribution. Eritrea, Djibouti and Sudan.

Natural history. *Eirenis africanus* is a diurnal terrestrial species found in dry habitats of semi-evergreen bushland scattered with trees and bushes at elevations from 1000–1200 m a.s.l. (up to 2300 m according to LARGEN & SPAWLS (2010)).

Comments. This species was not included in the phylogeny of NAGY *et al.* (2003). Until new results are available we follow the latter authors in their assessment and place *E. africanus* provisionally into the subgenus *Pediophis*. BOULENGER (1914) mentioned an incomplete tail with 69 subcaudalia. The new examination of the holotype revealed only 29 subcaudalia, as another prominent part of the tail is now missing.

References. BOULENGER (1914); SCORTECCI (1930); PARKER (1949); INEICH (1999); LARGEN & SPAWLS (2010).

Eirenis (*Pediophis*) *barani* SCHMIDTLER, 1988

Eirenis barani SCHMIDTLER, J. F. (1988): *Eirenis barani* n. sp. aus dem mediterranen Süden der Türkei. – Salamandra, Bonn, **24** (4): 203–214 [204].

Type locality. "Akdam, 35 km W Kozan (Prov. Adana), ca. 650m ü. M." [Turkey].

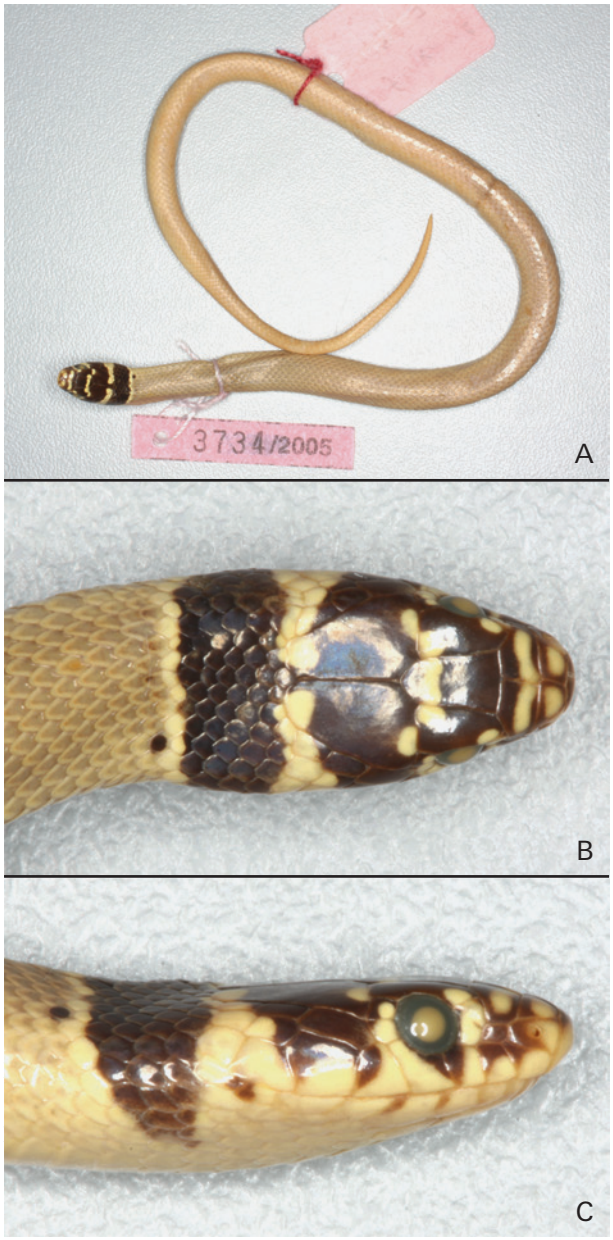
Type material. Holotype: ZSM 293/88.

Description

Measurements and colouration. Total length of adulti max. 492[+] mm; snout-vent length 181–329 mm (♂♂ 185–329 mm, ♀♀ 181–318 mm); tail length 50–110 mm (♂♂ 60–110 mm, ♀♀ 50–80 mm).

Dorsum yellowish or brown greyish; dorsal scales plain coloured, if spots are present, then in ssp. *bischoffforum*; each single scale of the anterior third is brighter at its margin than in its center; head with 3 distinct bands (nasal band, interocular band and parietal band); interspaces between the head bands and the posterior border of the collar light yellowish; dark collar with straight ends; parietal band reaching the 6th, rarely the 7th supralabial; peak of the black triangular subocular spot terminates at the border of the 3rd and 4th supralabial; pattern often fading in older individuals; ventralia and subcaudalia yellowish-white; (Fig. 5 A–C).

Lepidosis. Dorsal scale rows 17–19/17/15; weakly developed single apical pits present throughout body and tail, less numerous in the collar region, positioned in the center of the apical tip of the scale, 2–4 pits on the scales of the caudal region exactly at the point of scale reduction and arranged along the apical edge of the respective scale; ventralia 138–172 (♂♂ 138–157, ♀♀ 153–172); subcaudalia 54–69 (♂♂ 59–69, ♀♀ 54–65); preocularia 1; postocularia 2, exceptionally 1; loreal scale 1, touching the 2nd, rarely the 1st and 2nd or the 2nd and 3rd supralabialia; supralabialia 7–8, 3rd and 4th in contact with the orbit; infralabialia 7–9, 1st–4th in contact with



Figs 5A–C. *Eirenis* (*Pediophis*) *barani barani*, ZSM 3734/2005, from 35 km North of Ceyhan, Turkey. **A**. Fully body view. **B**. Dorsal view of the head. **C**. Lateral view of the head.

the anterior inframaxillare; temporalia 1|1–3|2–3; 0–1 gularia in contact with the anterior inframaxillaria.
Dentition (Pl. III, Fig. 1). 16–20 maxillary teeth, which increase posteriorly in size; 8–12 palatine teeth of nearly equal size; 14–20 pterygoid teeth of nearly equal size, the posterior 17% of the bone slightly bent towards the skull roof and bearing no teeth; 17–21 mandibular teeth which decrease in size posteriorly.

Distribution. North-western Syria, Turkey (southern Anatolia).

Natural history. The species is found under stones on dry rocky slopes with loose bushes and herbaceous vegetation, rocky stream valleys, meadows in sparse forests up to 1450 m a.s.l. The food consists of insects, scolopenders, scorpions and small lizards. Oviparous reproduction is reported with cluches of 3–4 soft-shelled elongated eggs (size 8x25 mm) in captivity.

Comments. The species is divided into 2 subspecies: *Eirenis barani barani* Schmidtler, 1988 and *Eirenis barani bischofforum* Schmidtler, 1997. According to Schmidtler (1988, 1997) *bischofforum* differs from *barani* in its higher reduction index (*bischofforum*: 37.1 vs. *barani*: 31.5), the stable number of palatine teeth (*bischofforum*: 10 vs. *barani*: 8–12), and in the frequent occurrence of dorsally spotted specimens. Furthermore *bischofforum* differs from the nominate subspecies in the arrangement of the apical pits, viz. on the lateral scales the single pits are shifted anteroventrally relative to the condition of the nominate subspecies.

References. Schmidtler (1988, 1993, 1997); Gruber (2009); Seufer (2009).

Eirenis (*Pediophis*) *collaris* (Ménétriés, 1832)

Coluber collaris Ménétriés, E. (1832): Catalogue raisonné des objets de zoologie recueillis dans un voyage au Caucase et jusqu'aux frontières actuelles de la Perse. – Imprimerie de l'Académie Impériale des Sciences, St.- Pétersbourg, (4), 271, XXXIII, V pp. [67].

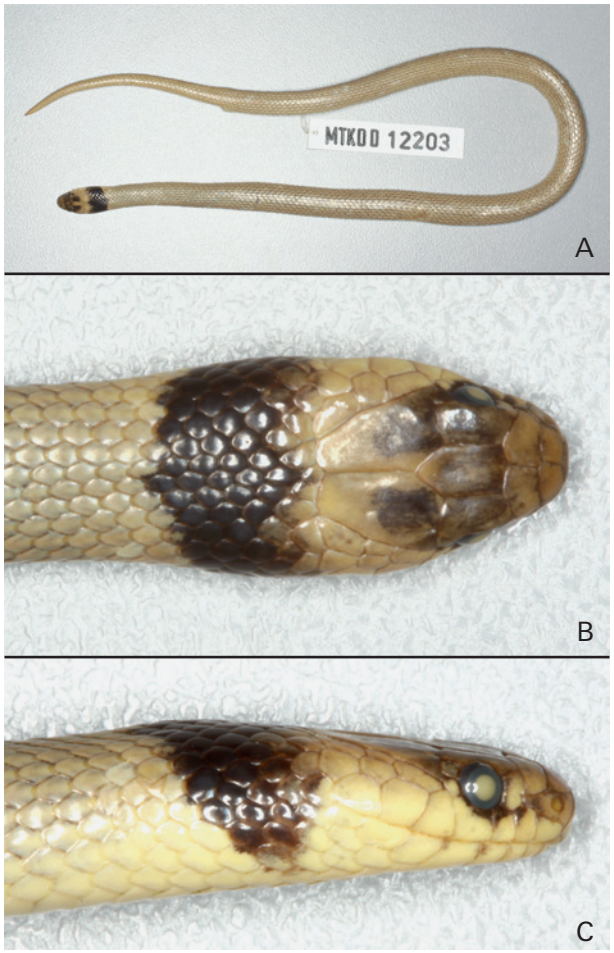
Type locality. "près du Bèchebermak, non loin de la mer Caspienne" [= near Beschbermak or Beshbarmak Mountain, north Caucasian region, near the Caspian Sea, Azerbaijan].

Type material. Lectotype ZISP 1546 (fide Tuniev *et al.* 2009).

Description

Measurements and colouration. Total length of adulti max. 403 mm; snout-vent length 200–279 mm (♂♂ 200–265 mm, ♀♀ 232–254 mm); tail length 54–77 mm (♂♂ 59–77 mm, ♀♀ 54–68 mm).

Dorsum olive or light brown; each dorsal scale with a light elongate spot in its center and with dark edges; head with an indistinct interocular band and two parietal spots, often merged together; black collar, tapering towards its ventral ends, the latter separated by 3–6 gular scales; ventralia and subcaudalia yellowish-white; (Fig. 6 A–C).
Lepidosis. Dorsal scale rows 15–17/15/15; weakly developed single apical pits infrequently present throughout body and tail, more frequently in the anterior half of the body, positioned in the center of the apical tip of the scale, on the lateral caudal scales rarely 2 apical pits may be arranged along the apical border; ventralia 141–184 (♂♂ 141–174, ♀♀ 154–184); subcaudalia 42–76 (♂♂ 50–76, ♀♀ 42–61); preocularia 1–2; postocularia 1–2; loreal scale 1 (exceptionally missing), touching the 2nd



Figs 6A–C. *Eirenis* (*Pediophis*) *collaris*, MTD 12203, from Jerewan, Armenia. **A**. Full body view. **B**. Dorsal view of the head. **C**. Lateral view of the head.

rarely the 1st and the 2nd or 2nd and 3rd supralabial; supralabialia 7–8, 3rd and 4th in contact with the orbit; infralabialia 7–9, 1st–4th, rarely 1st and 5th in contact with the anterior inframaxillare; temporalia 1|1–3|2–3; 0, rarely 1 or 2 gularia in contact with the anterior inframaxillaria. **Dentition** (Pl. III, Fig. 2). 17–20 maxillary teeth which increase posteriorly in size, the anterior two spaced closer together than the rest; 8–11 palatine teeth, which are nearly equal in size; 17–21 pterygoid teeth of nearly equal size, the posterior 10% of the bone slightly bent towards the skull roof and bearing no teeth; 16–20 mandibular teeth which decrease in size posteriorly.

Distribution. Armenia, Azerbaijan, Georgia, West Iran, Iraq, South Russia (Daghestan), Syria, Turkey (Easternmost Anatolia).

Natural history. *Eirenis collaris* lives in open, dry or semidesert sites with soft stony, semi-sandy soils, or grassy hillsides in oak forests, at elevations up to 1700 m a.s.l. Often found together with *Typhlops vermicularis* under clumps of earth in plantations or fields. Hibernates in groups with numerous individuals in hollows at about 50 cm underground. The species is feeding on scorpions, centipedes, worms, beetles and other insects (Orthoptera, Hymenoptera, Diptera, Lepidoptera larvae), as well as on spiders and small lizards. Reproduction is oviparous with 4–8 elongated eggs (size approx. 19x17 mm), which are laid in summer. Juveniles hatch from August to September with a maximum lengh of 100–133 mm. The mating behavior is described by WEBER-SÉMÉNOFF (1977).

Comments. WERNER (1903) described a new subspecies, "*Contia collaris* Mén. var. *macrospilota*" [present name *Eirenis collaris macrospilotus*] from "Russisch-Armenien" [subsequent restriction of the terra typica to "Mount Takjaltu in the vicinity of Kasikoporan, a village 20 km WSW of Tuzluca, Vilayet, Kars, Turkey" by EISELT (1982)]. According to DAREVSKY & BAKRADZE (1982) and the original description WERNER's subspecies differs from the nominate subspecies in having a longitudinal row of approximately 25–34 dark black-brownish dorsal spots, which are indistinct in the posterior body, and furthermore an indistinct longitudinal lateral row of black spots. The posterior most part of the body is patternless.

References. STRAUCH (1873); WERNER (1903); NIKOLSKY (1905, 1916); BOULENGER (1920b); MERTENS (1924); KHALAF (1959); REED & MARX (1959); MUSKHELISHVILI (1970); WEBER-SÉMÉNOFF (1977); SCHMIDTLER & SCHMIDTLER (1978); DAREVSKY & BAKRADZE (1982); EISELT (1982); DOTSENKO (1986, 1989); LATIFI (1991); LEVITON *et al.* (1992); SCHMIDTLER & BARAN (1993a); SZCZERBAK (2003); BARAN *et al.* (2004); ANANJEVA *et al.* (2006); GRUBER (2009); TUNIEV *et al.* (2009); ARAKELYAN *et al.* (2011).

Eirenis (*Pediophis*) *coronella* (SCHLEGEL, 1837)

Calamaria coronella SCHLEGEL, H. (1837): Essai sur la physionomie des serpens; Vol. 1. – Kips & Stockum, La Haye, (7), 27, II–XXVIII, 251, (1) pp. [48].

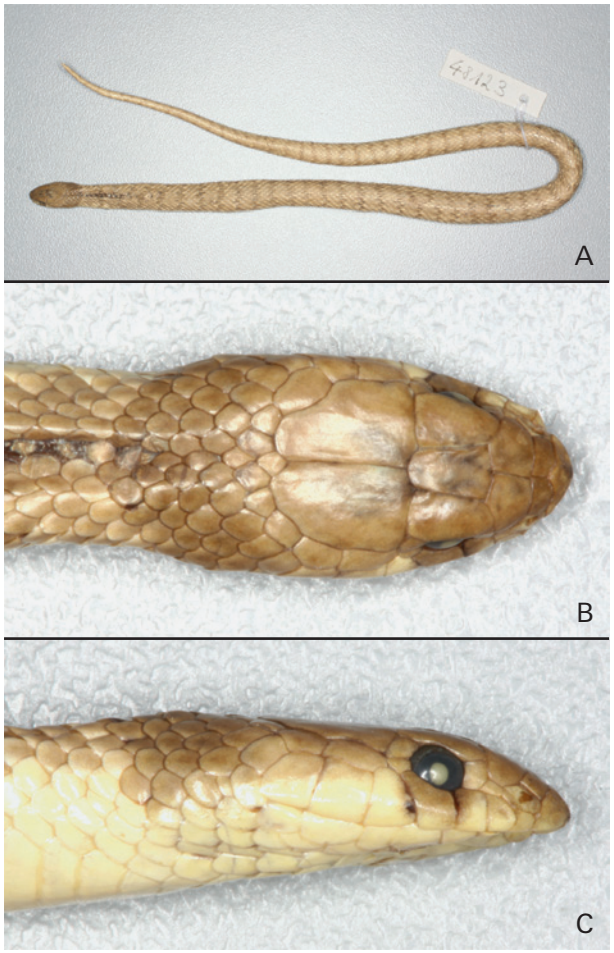
Type locality. "near Negev crossroads (Zomet Hanegev), Israeli Grid 13500525, Negev, Israel", by neotype designation (SIVAN & WERNER 2003).

Type material. Neotype HUJ–R 8410 designated by SIVAN & WERNER (2003).

Description

Measurements and colouration. Total length of adulti max. 371 mm; snout-vent length 165–281 mm (♂♂ 169–277 mm, ♀♀ 165–281 mm); tail length 23–94 mm (♂♂ 51–94 mm, ♀♀ 23–75 mm).

Dorsal scales with a greyish or beige ground colour and narrow dark transverse bands (1–2 scales long), gap between bands 1–3 scales long, collar 4–6 vertebral



Figs 7A–C. *Eirenis* (*Pediophis*) *coronella coronella*, SMF 48123, from Jerocham, Israel. **A**. Full body view. **B**. Dorsal view of the head. **C**. Lateral view of the head.

scales long, with thin connection to the interocular band; rest of pileus unicolour or with irregular dark spots, venter pale greyish or beige, sometimes light brown in the anterior part (Fig. 7 A–C).

Lepidosis. Dorsal scale rows 15–18/15/13–15; weakly developed single apical pits present throughout body and tail, less numerous in the collar region and the anterior third of the body, positioned in the center of the apical tip of each scale, 2–3 pits on the scales of the caudal region exactly at the point of scale reduction and arranged along the apical edge of the respective scale; ventralia 125–174 (♂♂ 125–146, ♀♀ 139–174); subcaudalia 32–67 (♂♂ 36–67, ♀♀ 32–63); preocularia 1, rarely 2; postocularia 2; loreal scale 1, rarely absend, touches the 2nd or the 2nd and 3rd supralabial; supralabialia 7–8, 3rd and 4th in contact with the orbit; infralabialia 7–9, exceptionally 6, rarely 7, 1st–4th in contact with the anterior inframaxillare; temporalia 1|1–2|1–3; 0–1gularia in contact with the anterior inframaxillaria.

Dentition (Pl. IV, Fig. 1). 12–13 maxillary teeth which increase posteriorly in size; 7–9 palatine teeth of nearly equal size, a short part (equal to the width of the first tooth) at the tip of the palatine untoothed; 13–15 pterygoid teeth which increase posteriorly in size, the posterior 10% of the bone slightly bent towards the skull roof and bearing no teeth; 12–15 mandibular teeth which decrease in size posteriorly.

Distribution. Egypt (Sinai), Southwest Iran, Iraq, Israel, Jordan, Lebanon, south-western and eastern Saudi Arabia, Syria.

Natural history. Frequently found under stones in semidesert habitats or xeric steppe in lowlands and hilly regions up to 2000 m a.s.l., with rocks and scattered bushy vegetation. A diurnal species, active early in the morning and before sunset. Feeding on insects and other arthropods, e.g. spiders and particularly scorpions. Reproduction oviparous with up to 5 eggs (22x6 mm).

Comments. This species is divided into 3 subspecies: *Eirenis coronella coronella* (Schlegel, 1837), *Eirenis coronella fennelli* Arnold, 1982, and *Eirenis coronella ibrahimi* Sivan & Werner, 2003. These subspecies can be distinguished with the following key, modified from Sivan & Werner (2003):

1 A Dorsum with 4 rows of alternating dark squarish spots, posteriorly the spots of the middle rows converge; tail in males usually 30–33 percra, in females 25–27 percra; endemic for south-west Arabian Peninsula ..... ***fennelli***
B Dorsum with thin transverse bands, tail in males usually ≤ 26 percra or ≥ 33 percra, in females ≤ 33 or ≥ 25 ..... **2**
2 A Tail relatively long, in males usually ≥ 33 percra; in females usually ≥ 25 percra, ≥ 54 subcaudalia. Colouration dorsally sandy or greyish, with 32–65 dark crossbars; endemic for Sinai ..... ***ibrahimi***
B Tail shorter, in males usually < 26 percra; in females usually ≤ 33 percra, 32–55 subcaudalia. Colouration dorsally with dark cross bands ..... ***coronella***

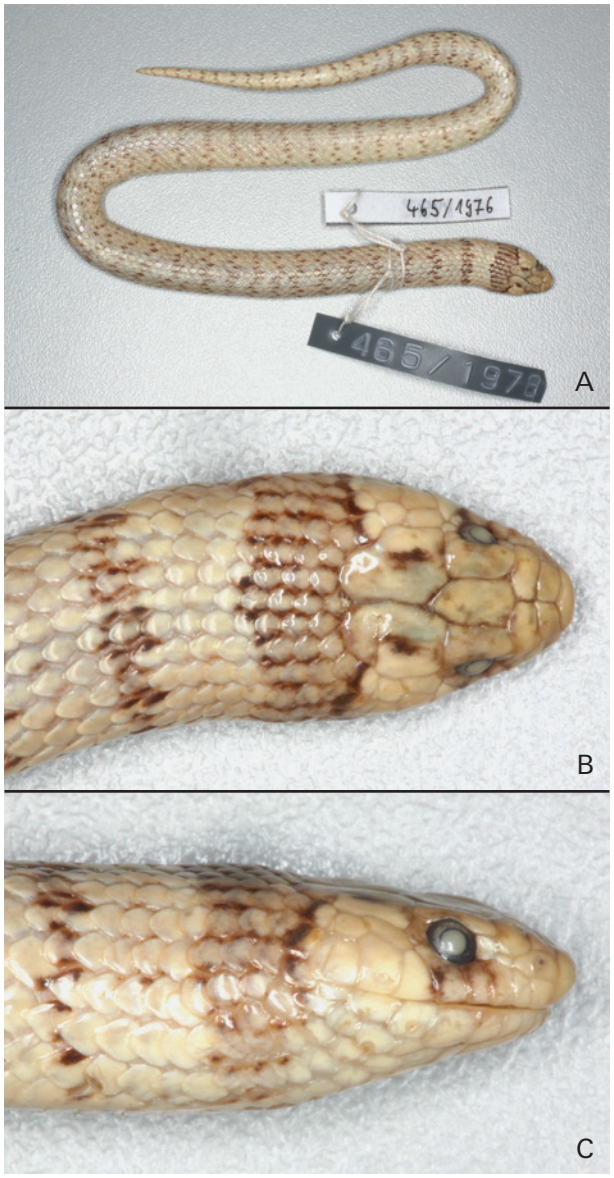
References. Barbour (1914); Boulenger (1920b); Flower (1933); Corkill (1932); Schmidt (1939); Schmidt & Marx (1956); Khalaf (1959); Reed & Marx (1959); Haas (1961); Arnold (1982); Gasperetti (1988); Latifi (1991); Schätti & Gasperetti (1994); Disi *et al.* (2001); Sivan & Werner (2003); El Din (2006); Egan (2007); Gruber (2009).

Eirenis (*Pediophis*) *coronelloides* (Jan, 1862)

H.[*omalosoma*] *coronelloides* Jan, G. (1862): Enumerazione sistematico delle specie d'ofidi del gruppo Calamaridae. – Archivio per la Zoologia, l'Anatomia e la Fisiologia, Genova, **2**(1): 1–76 [33].

Type locality. "Birecik (Urfa prov.), Turkey" by neotype designation by Sivan & Werner (2003).

Type material. Neotype HUJ–R 21223 (formerly ZDEU 122/1975/2) designated by Sivan & Werner (2003).



Figs 8A–C. *Eirenis* (*Pediophis*) *coronelloides*, ZSM 465/1976, from Urfa, Turkey. **A**. Full body view. **B**. Dorsal view of the head. **C**. Lateral view of the head.

Description

Measurements and colouration. Total length of adulti max. 285 mm; snout-vent length 141–240 mm (♂♂ 141–214 mm, ♀♀ 148–240 mm); tail length 21–50 mm (♂♂ 21–50 mm, ♀♀ 27–45 mm).

Dorsum beige or greyish with distinct dark bands; head with distinct blotch that never extends beyond the edges of the parietalia, usually referred to as 'crown' (e.g. SIVAN & WERNER 2003), but which might touch collar and interocular band; belly with a broad dark stripe, which is coposed of oblong bars on the ventralia, most prominent in the anterior part of the venter; (Fig. 8 A–C).

Lepidosis. Dorsal scale rows 15–17/15/13–15; weakly developed single apical pits infrequently present from the posterior edge of the collar region to the end of the tail, increasing in number posterior to the central third of the body, positioned in the center of the apical tip of the scale, 2 pits on the scales of the caudal region exactly at the point of scale reduction and arranged along the apical edge of the respective scale, on the lateral caudal scales the single apical pits are shifted anterodorsally relative to the condition of the dorsal scales of the tail; ventralia 123–155 (♂♂ 123–138, ♀♀ 134–155); subcaudalia 30–48 (♂♂ 36–48, ♀♀ 30–40); preocularia 1; postocularia 2–3, rarely 1; loreal scale 1, touches the 2nd and 3rd or the 2nd supralabial, rarely absent; supralabialia 7–8, 3rd and 4th, rarely 4th and 5th in contact with the orbit; infralabialia 7–8, rarely 9, 1st–4th in contact with the anterior inframaxillare; temporalia 1|1–2|2; 0–2 gularia in contact with the anterior inframaxillaria.

Dentition (Pl. IV, Fig. 2). 11–14 maxillary teeth which increase posteriorly in size; 7–9 palatine teeth of nearly equal size, short part (equal to the basal size of the first tooth) at the tip of the palatine untoothed; 12–17 pterygoid teeth which increase posteriorly in size, the posterior 17% of the bone bent towards the skull roof and bearing no teeth; 10–15 mandibular teeth, which decrease in size posteriorly.

Distribution. Iraq, Jordan, Syria, Turkey.

Natural history. A diurnal snake, living under small stones in loose soil and in areas with sparse vegetation, between 568–740 m a.s.l. Feeds on insects and other arthropods like scolopenders, and takes also small lizards.

Comments. EL-ORAN *et al.* (1994) list 5 specimens from Jordan under the name *Eirenis coronella coronella,* which probably can be assigned to *E. coronelloides* because of the specimens' ventral scale counts (117–127).

References. EL-ORAN *et al.* (1994); SIVAN & WERNER (2003); AVCI & OLGUN (2011).

Eirenis (*Pediophis*) *eiselti* SCHMIDTLER & SCHMIDTLER, 1978

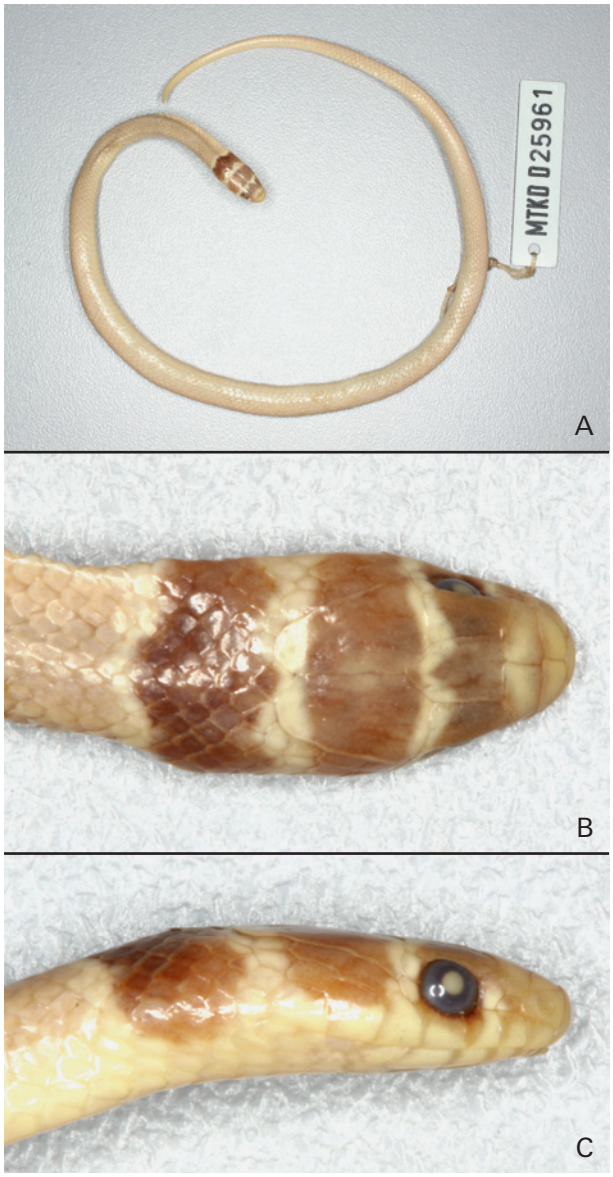
Eirenis eiselti SCHMIDTLER, J. J. & SCHMIDTLER, J. F. (1978): Eine neue Zwergnatter aus der Türkei; mit einer Übersicht über die Gattung *Eirenis* (Colubridae, Reptilia). – Annalen des Naturhistorischen Museums in Wien, **81**: 383–400 [384].

Type locality. "25 km W Virançehir (Prov. Urfa/Türkei), ca. 700 m ü. NN".

Type material. Holotype CAS 105438.

Description

Measurements and colouration. Total length of adulti max. 400 mm; snout-vent length 197–280 mm (♂♂ 197–244 mm, ♀♀ 226–280 mm); tail length 55–75 mm (♂♂ 63–75 mm, ♀♀ 55–75 mm).



Figs 9A–C. *Eirenis* (*Pediophis*) *eiselti*, MTD 25961, from Diyarbakir, Turkey. **A**. Full body view. **B**. Dorsal view of the head. **C**. Lateral view of the head.

Dorsum unicoloured, yellowish brown to dark brownish, rarely anteriorly spotted; sometimes with a light spot in the center of the dorsal scales; internasal, interocular, and parietal bands dark brown; interspaces between the head bands and the posterior border of the collar light yellowish; thickness of collar extending over more than 6 dorsal scale rows, anteriorly not extending beyond the posterior end of the mouth; head colouration might fade in older individuals; venter light yellowish to light brownish; (Fig. 9 A–C).

Lepidosis. Dorsal scale rows 15–17/15/15; weakly developed single apical pits present throughout body and tail, less numerous in the collar region and the anterior third of the body, positioned in the center of the apical tip of the scale, 2–3 pits on the scales of the caudal region exactly at the point of scale reduction and arranged along the apical edge of the respective scale; ventralia 152–186 (♂♂ 152–168, ♀♀ 163–186); subcaudalia 51–71 (♂♂ 58–71, ♀♀ 51–66); preocularia 1; postocularia 2; loreal scale 1, touching the 2nd, rarely the 2nd and 3rd supralabial, rarely missing; supralabialia 7, rarely 8, 3rd and 4th in contact with the orbit; infralabialia 8, 1st–4th in contact with the anterior inframaxillare; temporalia 1|1–3|2–3; 0–2 gularia in contact with the anterior inframaxillaria.

Dentition (Pl. V, Fig. 1). 15–18 maxillary teeth which increase posteriorly in size, the anterior two more closely spaced than the rest; 8–10 palatine teeth of nearly equal size; 17–21 pterygoid teeth of nearly the same size, the posterior 17% of the bone slightly bent towards the skull roof and bearing no teeth; 17–20 mandibular teeth which decrease posteriorly in size, the anterior two more closely spaced than the rest.

Distribution. Northeastern Syria, Turkey (Southeast Anatolia).

Natural history. Found under stones in lowlands and hilly areas up to 1300 m a.s.l., in dry landscapes with bushes and scattered trees, occasionally observed in open oak forests. Feeds mainly on insects, occasionally small lizards.

Comments. The first record of *Eirenis* (*P.*) *eiselti* from Syria is presented in this work by a specimen collected in March 1913 by Ludwig Kohl during the M. von Oppenhein Expedition in 'Central Mesopotamien' more specifically near 'Tell Halaf' (ZMB 23809).

References. Schmidtler & Schmidtler (1978); Dotsenko (1989); Schmidtler (1997); Gruber (2009); Tayhan *et al.* (2011).

Eirenis (*Pediophis*) *hakkariensis* Schmidtler & Eiselt, 1991

Eirenis hakkariensis Schmidtler, J. F. & Eiselt, J. (1991): Zur Verbreitung und Systematik ostanatolischer Zwergnattern; mit Beschreibung von *Eirenis hakkariensis* n. sp. – Salamandra, Rheinbach, **27** (3): 225–237 [230].

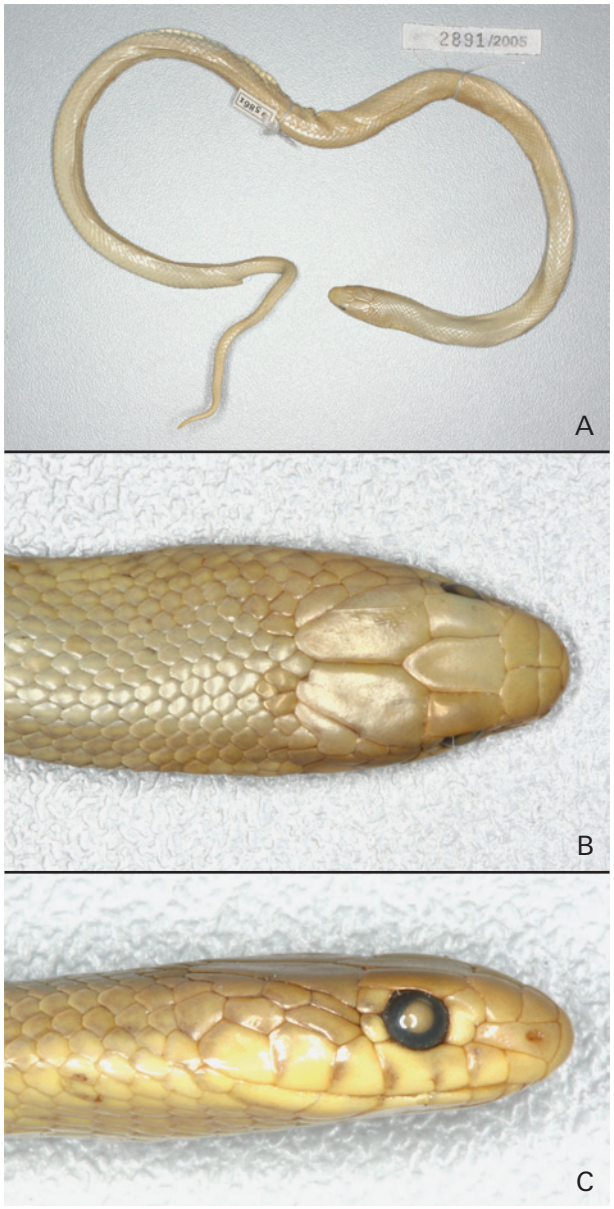
Type locality. "oberhalb Hakkâri-Stadt, 1900 m ü. M.".

Type material. ZSM 3/1991 according to Franzen & Glaw (2007).

Description

Measurements and colouration. Total length of adulti max. 560 mm; snout-vent length 290–354 mm (♂ 354 mm, ♀♀ 290–330 mm); tail length 68–83 mm (♂ 83 mm, ♀♀ 68–74 mm).

Dorsum uniform light brownish grey; dorsal scales lighter in the center than at the margin, sometimes there are little dark spots below the apical pits; pileus without pattern; supralabialia yellowish-white, upper and rear edge grey; ventralia and subcaudalia yellowish-white; (Fig. 10 A–C).



Figs 10A–C. *Eirenis* (*Pediophis*) *hakkariensis*, 2891/2005, paratype from above Hakkari-City, Turkey. **A**. Full body view. **B**. Dorsal view of the head. **C**. Lateral view of the head.

Juveniles sometimes with indistinct parietal spots and a dark occipital line between two irregular spots on the neck, posteriorly followed by dorsal markings.

Lepidosis. Dorsal scale rows 17/17/15–17; weakly developed single apical pits infrequently present throughout body and tail, less numerous in the neck region in comparison to the remaining body, positioned in the center of the apical tip of the scale, occasionally 2 pits arranged along the apical border of the scale, 2 pits on the scales of the caudal region exactly at the point of scale reduction and arranged along the apical edge of the respective scale; ventralia 168–186 (♂♂ 168–178, ♀♀ 177–186); subcaudalia 52–68 (♂♂ 58–68, ♀♀ 52–60); preocularia 1; postocularia 2; loreal scale 1, touching the 2nd, rarely fused with the nasalia; supralabialia 7, 3rd and 4th in contact with the orbit; infralabialia 8–9, 1st–4th in contact with the anterior inframaxillare; temporalia 1|2–3|2–3; 1–2 gularia in contact with the anterior inframaxillaria.

Dentition (Pl. V, Fig. 2). 16–20 maxillary teeth which increase in size posteriorly; 9–12 palatine teeth which increase in size posteriorly; 18–23 pterygoid teeth nearly equal in size, the posterior 25% of the bone slightly bent towards the skull roof and bearing no teeth; 17–21 mandibular teeth which decrease in size posteriorly.

Distribution. Turkey (eastern Taurus: South of Lake Van, Anatolia).

Natural history. The species has been observed in mountain areas with primary oak forest and on slopes at the transition zone between moraine debris hill and dry steppe highland between 1500 and 1900 m a.s.l. In captivity it feeds on locusts and occasionally also on congeners (*E. eiselti*).

Comments. The results of NAGY *et al.* (2003) suggest that *Eirenis thospitis* and *Eirenis hakkariensis* are completely identical in 3 of their mitochondrial and nuclear genes. The aforementioned authors, however, regard *E. hakkariensis* as subspecies of *E. thospitis*, also because of their different distribution.

In our opinion, the striking differences in external morphology (position of DSR reductions, higher absolute values of DSR, infralabialia, temporalia as well as subcaudalia) (see table 1), a higher number of teeth (especially on the maxilla and the pterygoid) and the differences in body pattern make it very likely that the species status of *Eirenis hakkariensis* is justified. The genetic analysis should be repeated to confirm the astonishing sequence similarities obtained by NAGY *et al.* (2003).

References. SCHMIDTLER & SCHMIDTLER (1978); SCHMIDTLER & EISELT (1991); NAGY *et al.* (2003); FRANZEN & GLAW (2007).

Eirenis (*Pediophis*) *levantinus* SCHMIDTLER, 1993

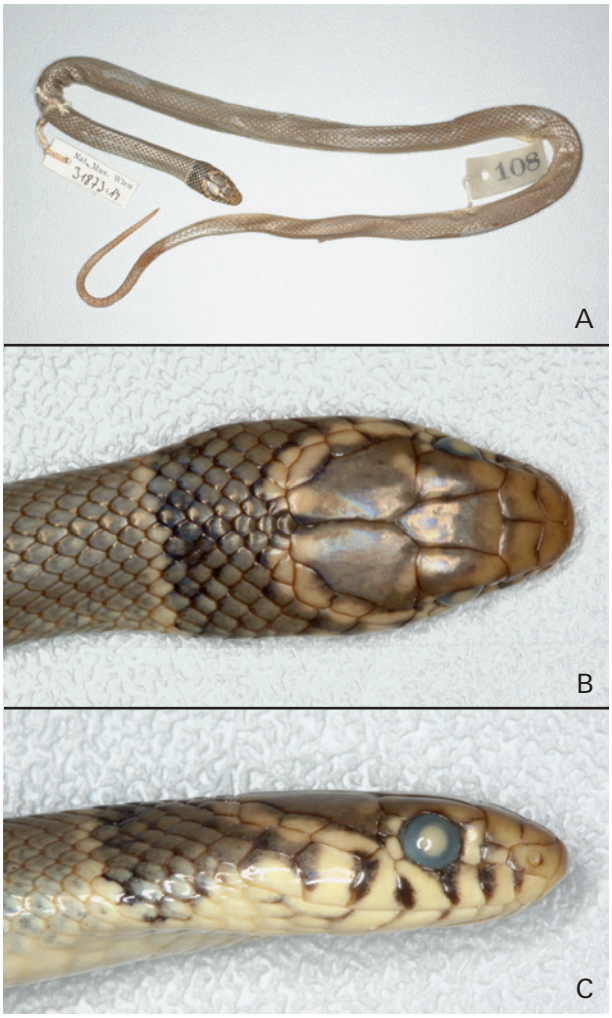
Eirenis levantinus SCHMIDTLER, J. F. (1993): Zur Systematik und Phylogenie des *Eirenis modestus*-Komplexes in Süd-Anatolien. – Spixiana, München, **16** (1): 79–96 [87].

Type locality. "6 km SW Karaisalt (Prov. Adana […])", Turkey.

Type material. Holotype ZSM 14/91.

Description

Measurements and colouration. Total length of adulti max. 480 mm; snout-vent length 192–357 mm (♂♂ 192–304 mm, ♀♀ 201–357 mm); tail length 59–113 mm (♂♂ 59–113 mm, ♀♀ 60–99 mm).



Figs 11A–C. *Eirenis* (*Pediophis*) *levantinus*, NMW 31873:14, paratype from Belem-Pass, Province Antakya, Turkey. **A**. Full body view. **B**. Dorsal view of the head. **C**. Lateral view of the head.

Dorsum unicoloured, brown-greyish; head with 2 dark transverse bands: parietal band scarcely exceeding the lateral edges of the parietalia, directed anteriorly and merging with the interocular band; a thin, sometimes broken transverse line on the edges of the nasalia and prefrontalia, fading in older individuals; peak of the black triangular subocular spot terminating at the border of the 3rd and 4th supralabial; interspaces between head bands and posterior border of collar light yellowish; collar sometimes with a narrow extension reaching onto the upper part of the posterior supralabialia; posterior to the light posterior border of the collar there is sometimes a series of small irregular spots; the whole head colouration might fade in older individuals (Fig. 11 A–C).

Lepidosis. Dorsal scale rows 17–19/17/15–17; weakly developed single apical pits present throughout body and tail, less numerous posterior to the central third of the body, positioned in the center of the apical tip of the scale, 2–3 pits on the scales of the caudal region exactly at the point of scale reduction and arranged along the apical edge of the respective scale; when following from the paravertebral scale row at the posterior edge of the collar in a strictly diagonal, anterolaterally trending line of scales up to the level of the posterior tip of the mouth, there is a horizontal, posteriorly running scale row consisting of 3–5 scales from the anterior beginning of the row to the posterior border of the collar; ventralia 139–186 (♂♂ 139–173, ♀♀ 149–186); subcaudalia 54–76 (♂♂ 59–76, ♀♀ 54–72); preocularia 1, rarely 2; postocularia 2, rarely 1; loreal scale 1, touching the 2nd, rarely the 1st and 2nd supralabial; supralabialia 7–8, 3rd and 4th in contact with the orbit; infralabialia 7–8, rarely 9, 1st–4th in contact with the anterior inframaxillare; temporalia 1|2–4|2–4; 0–2 gularia in contact with the anterior inframaxillaria.

Dentition (Pl. VI, Fig. 1). 16–22 maxillary teeth which increase posteriorly in size; 9–13 palatine teeth of nearly equal size; 15–22 pterygoid teeth of nearly equal size, the posterior 17% of the bone bent towards the skull roof and bearing no teeth; 14–22 mandibular teeth which decrease in size posteriorly.

Distribution. Cyprus, northern Israel, Lebanon, Syria, southern Turkey.

Natural history. This species prefers dry stony slopes with open bush and herb vegetation on hilly country from 400 to 1600 m a.s.l.

In Cyprus this species is observed in forested mountainous areas with mediterranean vegetation, between 440 and 938 m a.s.l. If disturbed, it tries to hide under limestones on loose substrate. According to Seufer (2009) in captivity the food of *E. levantinus* consists of crickets, locusts and spiders. The same author provides information on the reproduction of the species and reports the deposition of 4–5 eggs (size 10–12x24–31 mm) after 44 days of gestation. Landsman & Werner (2011) studied the species under captive conditions and report clutches of 3–5 eggs (egg size: 19.4–30.0 mm length, 4.9–11.0 mm width, 1.24–3.07 g weight) laid after a gestation time of 63–65 days. The juveniles hatched after 49–50 days of incubation, having a length of 120–145 mm and a weight of 0.96–1.25g.

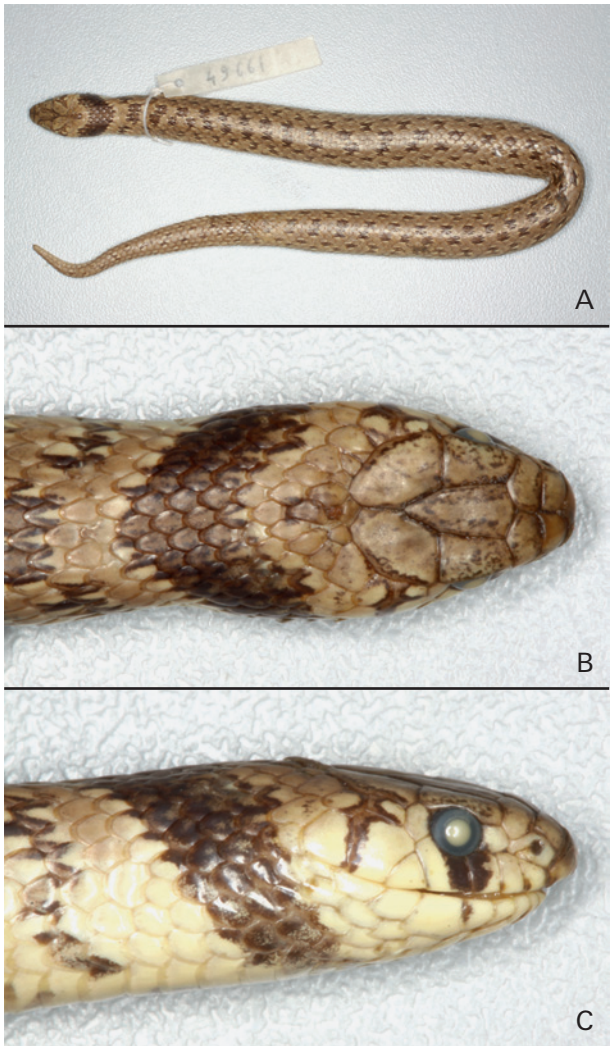
References. Schmidtler & Schmidtler (1978); Schmidtler (1993, 1997); Atatür & Göçmen (2001); Göçmen *et al*. (2008); Gruber (2009); Schmidtler *et al.* (2009); Seufer (2009); Landsman & Werner (2011).

Eirenis (*Pediophis*) *lineomaculatus* Schmidt, 1939

Eirenis lineomaculata Schmidt, K. P. (1939): Reptiles and amphibians from southwestern Asia. – Publication of the Field Museum of Natural History, Zoological Series, Chicago., 24: 49–92 [80].

Type locality. "Jordan Valley, Palestine".

Type material. Holotype FMNH 21909 fide Marx (1958).



Figs 12A–C. *Eirenis* (*Pediophis*) *lineomaculatus*, SMF 49661, from Ramat, Israel. **A**. Full body view. **B**. Dorsal view of the head. **C**. Lateral view of the head.

Description

Measurements and colouration. Total length of adulti max. 320 mm; snout–vent length 152–250 mm (♂♂ 152–225 mm, ♀♀ 92–250 mm); tail length 19–56 mm (♂♂ 32–56 mm, ♀♀ 19–50 mm).

Dorsal colour greyish to yellowish-reddish brown; body with 4 longitudinal series of alternating irregularly shaped reddish-brown blotches with black margins; 2 long spots on the frontal scale, posterior edges of parietal scales often dark; wide collar of the same colour as the dorsal blotches, lateral ends obliquely curved anteriorly; venter creamish-whitish, often with light-brown spots; (Fig. 12 A–C).

Lepidosis. Dorsal scale rows 17/17/15, rarely 14; weakly developed single apical pits present throughout body and tail, less numerous in the collar region, positioned in the center of the apical tip of the scale, 2–3 pits on the scales of the caudal region exactly at the point of scale reduction and arranged along the apical edge of the scale; ventralia 101–145 (♂♂ 101–123, ♀♀ 106–145); subcaudalia 21–47 (♂♂ 22–47, ♀♀ 21–47); preocularia 1, rarely 2; postocularia 1–2; loreal scale mostly missing, if present, small and touching the 2nd, 1st and 2nd or the 2nd and 3rd supralabial; supralabialia 7, rarely 8, 3rd and 4th in contact with the orbit; infralabialia 7–8, rarely 9, 1st–3rd or 1st–4th, rarely 1st–5th in contact with the anterior inframaxillare; temporalia 1|1–3|0–3; 1, rarely 2 gularia in contact with the anterior inframaxillaria.

Dentition (Pl. VI, Fig. 2). 9–14 maxillary teeth, increasing in size posteriorly, a remarkable portion of the anterior part of the maxilla without teeth, the toothless part distinctly longer than in *E. coronella* and *coronelloides*; 6–10 palatine teeth of nearly equal size, a remarkable portion of the anterior part of the palatine without teeth, the toothless part being again clearly longer than in *E. coronella* and *coronelloides*, roughly half as long as the dentigerous portion of the bone; 11–17 pterygoid teeth of nearly equal size, the posterior 10% of the bone slightly bent towards the skull roof and bearing no teeth; 11–17 mandibular teeth, a short portion of the anterior part of the dentary toothless, the teeth decrease in size posteriorly.

Distribution. Iraq, Israel, Jordan, Lebanon, Syria, Southeast Turkey.

Natural history. This species is found in lowlands and hilly landscapes of the mediterranean ecozone at elevations from 330–1180 m a.s.l. Found under stones in drier habitats with light soil and bushy vegetation, but also in densely forested areas. Apparently very common in southern Jordan. Found under stones at night, feeding on orthopterans, centipedes, spiders and scorpions. Reproduction is oviparous with a cluch size of 3–8 eggs which are laid under stones or in burrows.

References. MERTENS (1924); MARX (1958); BAŞOĞLU (1970); SCHMIDTLER & SCHMIDTLER (1978); BAŞOĞLU & BARAN (1980); ESTERBAUER (1985); DISI *et al.* (2001); AL-QURAN (2009); GRUBER (2009); SHWAYAT *et al.* (2009); AMR & DISI (2011); LANDSMAN & WERNER (2011).

Eirenis (*Pediophis*) *medus* (CHERNOV, 1940)

Contia meda CHERNOV, S. A. in: TERENTYEV, P. V. & CHERNOV, S. A. (1940): Opredelitel presmykayuszczikhsja i zemnovodnykh SSSR [Determination guide to reptiles and amphibians of USSR]. – Gosudarstvennoe ucheno-pedagogicheskoe izdatelstvo narkomprosa RSFSR, Leningrad, 183, (1) pp. [151].

Type locality. "Iran i yushn. Turkmenia" [Iran and southern Turkmenia]. Subsequent restrictions of the type locality to "Turkmenija" by CHERNOV (1948) or to "okrestnosti [neighbourhood of] Ashkhabad" by BANNIKOV *et al.* (1977) are unjustified.

Type material. Not defined in the original description. A few years after the initial description CHERNOV (1948) refers to a number of



Figs 13A–C. *Eirenis* (*Pediophis*) *medus*, MTD 2707, from Gaudan, Kopet-Dagh, Turkmenistan. **A**. Full body view. **B**. Dorsal view of the head. **C**. Lateral view of the head.

specimens mentioned as *Cyclophis fasciatus* or *Contia fasciata* by Blanford (1876), Boettger (1888), Boulenger (1894) and Nikolsky (1916), which he regards as synonymous with *Contia meda*. Chernov (1940) has certainly examined only the specimens listed by Nikolsky (1916), which can be regarded as possible syntypes of *Contia meda* on the basis of scalation data, corresponding to the diagnosis given by Chernov in his original description. These are 5 specimens from Turkmenistan, viz. ZISP 8458–8461 "Kopet-Dagh" and ZISP 8490 "Asilun [Azilun]-Dagh" as well as 5 specimens from Iran, ZISP 9270 (2 spec.) "Kalender-Abad in Chorosano orient.", and ZISP 9271 (3 spec.) "Boz-Chous-Pain in Chorosano".

Description

Measurements and colouration. Total length of adulti max. 430 mm; snout-vent length 152–268 mm (♂♂ 152–268 mm, ♀♀ 244–262 mm); tail length 36–70 mm (♂♂ 36–70 mm, ♀♀ 45–48 mm).

Dorsal colouration light brown-greyish, with numerous narrow, slightly undulating, sometimes interrupted dark crossbars; pileus irregularly and indistinctly spotted; no collar; venter salmon coloured in life, fading to cream colour in preserved specimens; (Fig. 13 A–C).

Lepidosis. Dorsal scale rows 15–17/15/15; weakly developed single apical pits present throughout body and tail, less numerous in the neck region and sometimes also in the anterior third of the body, positioned in the center of the apical tip of the scale, 2–3 pits on the scales of the caudal region exactly at the point of scale reduction and arranged along the apical edge of the scale; ventralia 144–175 (♂♂ 144–159, ♀♀ 163–175); subcaudalia 42–63 (♂♂ 47–63, ♀♀ 42–56), exceptionally the anterior ones undivided; preocularia 1; postocularia 2, rarely 1; loreal scale 1, touching the 2nd and 3rd, rarely the only 2nd supralabial; supralabialia 7, rarely 6, 3rd and 4th in contact with the orbit; infralabialia 8, rarely 7, 1st–4th in contact with the anterior inframaxillare; temporalia 1|1–2|2–3; 0–1 gularia in contact with the anterior inframaxillaria.

Dentition (Pl. VII, Fig. 1). 14–16 maxillary teeth which increase posteriorly in size; 8–11 palatine teeth which increase in size posteriorly; 17–20 pterygoid teeth of nearly the same size, the posterior 17% of the bone slightly bent towards the skull roof and bearing no teeth; 17–20 mandibular teeth which decrease in size posteriorly.

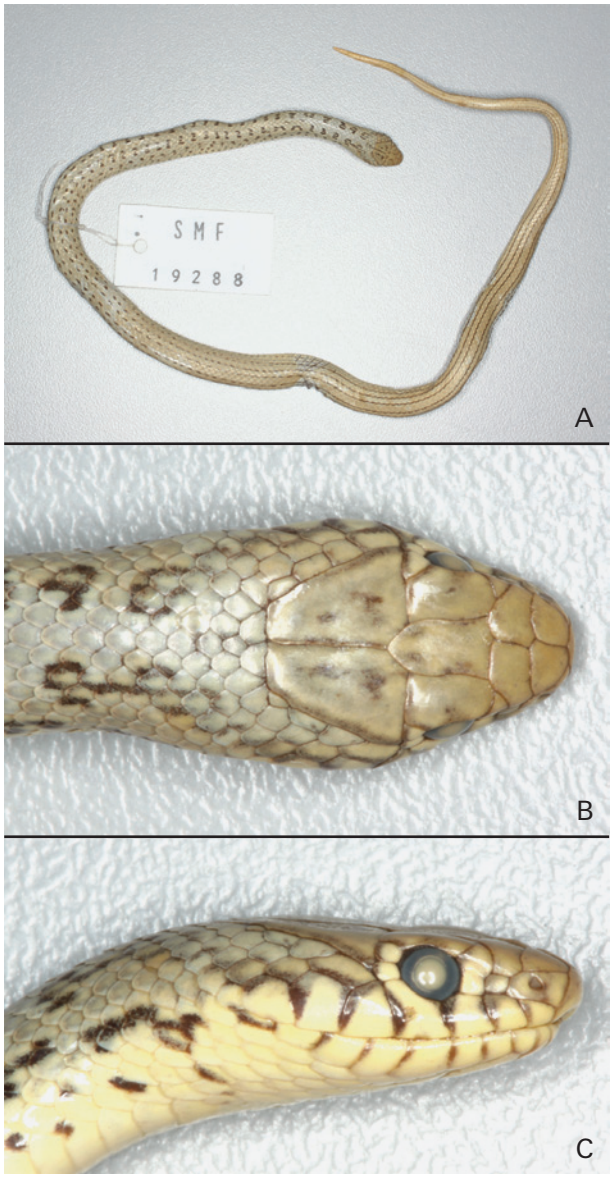
Distribution. Iran, South Turkmenistan.

Natural history. Found active from April to October (except in midsummer) under rocks in montane semidesert rocky areas and canyons up to 1100–2440 m a.s.l. They are reported as abundant (up to 133 specimens per hectar) and strictly nocturnal at the Kopet-Dagh (Turkmenistan). Prey consists of spiders, myriapods, insects, orthopterans (mainly locusts) and small lizards. Oviparous, clutches with 2–3 eggs of 18 mm max. length.

Comments. The specific epithet *meda* was introduced by Chernov in Terentyev & Chernov (1940) as a new name for populations of dwarf snakes from southern Turkmenistan and northern Iran, formerly allocated by different authors to *Eirenis fasciatus* Jan, 1863 (see Type material).

After submission of this paper Rajabizadeh *et al.* (2012b) described *Eirenis kermanensis* as a new species from Kerman Province, Iran. Our own data (not shown) and the information published by Rajabizadeh *et al.* (2012b) show that the new species is morphologically very similar to *E. medus*. For a better understanding of the problematic specific status of *E. kermanensis* further investigations on the genetics, dentition, apical pits, and hemipenis morphology, based upon more material, should be carried out.

References. Blanford (1876); Boettger (1888); Sclater (1891); Zaroudny (1891); Nikolsky (1905, 1916); Chernov (1940, 1948); Terentyev & Chernov (1940); Bogdanov (1962); Bannikov *et al.*



Figs 14A–C. *Eirenis* (*Pediophis*) *punctatolineatus punctatolineatus*, SMF 19288, holotype of *Cyclophis modestus* var. *punctatolineata* from Karabagh, Armenia. **A**. Full body view. **B**. Dorsal view of the head. **C**. Lateral view of the head.

(1977); SCHMIDTLER & SCHMIDTLER (1978); ATAEV (1985); DOTSENKO (1989, 2000, 2003); DOTSENKO & SZCZERBAK (1985); LATIFI (1991); ATAEV *et al.* (1994); TUNIYEV *et al*. (1999); SZCZERBAK (2003); RAJABIZADEH *et al*. (2012b).

Eirenis (*Pediophis*) *punctatolineatus* (BOETTGER, 1892)

Cyclophis modestus var. *punctatolineata* BOETTGER, O. (1892): Wissenschaftliche Ergebnisse der Reise Dr. VALENTINS im Sommer 1890; I. Kriechthiere der Kaukasusländer, gesammelt durch die RADDE-VALENTIN'sche Expedition nach dem Karabagh und durch die Herren Dr. J. VALENTIN und P. REIBISCH. – Bericht über die Senckenbergische Naturforschenden Gesellschaft in Frankfurt a. M., **1892**: 131–150 [147].

Type locality. „Russisch-Armenien", subsequently resticted to „Karabagh" [= Karabakh or Gharabagh in eastern Armenia] by BOETTGER (1898).

Type material. Holotype SMF 19288 according to MERTENS (1967).

Description

Measurements and colouration. Total length of adulti max. 600 mm; snout-vent length 228–466 mm (♂♂ 228–466 mm, ♀♀ 264–364 mm); tail length 63–147 mm (♂♂63–147 mm, ♀♀ 82–116 mm).

According to RAJABIZADEH *et al*. (2012a) and personal observations, there are two different forms, a nothern and a southern one, which can be allocated to the currently recognized subspecies *Eirenis p. punctatolineatus* (BOETTGER, 1892) and *Eirenis p. condoni* (BOULENGER, 1920a), respectively. Both forms share the greyish to reddish greybrown ground colour, occasionally with little dark spots below each apical pit, the patternless head and the presence of a collar, and the cream-grey colour of the ventralia and subcaudalia.

The northern subspecies *punctatolineatus* differs from the southern one in showing 8 longitudinal rows of black blotches, which are of rectangular shape in the anterior third of the body and become increasingly reduced in size to irregularly shaped small spots at the level of the midbody. These spots merge caudally into 10 narrow, longitudinal lines, reducing their number in the posterior-most third from 8 to 6. The ratio tail length to total length is 21.86–26.40% in males and 20.77–23.42% in females (Fig. 14 A–C). In contrast, the southern subspecies condoni is characterized by 6 longitudinal rows of narrow, irregularly shaped alternating bars that are somtimes fused on the back. These bars decrease continuously in size posteriorly and eventually become indistinct from the beginning of the tail. The ratio tail length to total length is 26.65–30.95% in males and 23.53–27.73% in females.

Hybrid forms displaying intermediate states of the patterns of the different subspecies may occur in the center of the species' distribution together with clearly identifiable members of each subspecies. Adult patternless specimens are known from the whole distribution range of this species too.

Lepidosis. Dorsal scale rows 17–20/17/15; weakly developed single apical pits present throughout body and tail, less numerous at the collar region, positioned in the center of the apical tip of the scale, 2–3 pits on the scales of the caudal region exactly at the point of scale reduction and arranged along the apical edge of the scale; ventralia 149–181 (♂♂ 149–176, ♀♀ 155–181); subcaudalia 55–93 (♂♂ 63–93, ♀♀ 55–79); preocularia 1, rarely 2; postocularia 1–2; 1 loreal scale, touching the 2nd, rarely the 2nd and 3rd or 1st and 2nd supralabial, exceptionally fused with the nasal scale; 7, rarely 8 supralabialia, 3rd and 4th, exceptionally 4th and 5th in contact with the orbit; 9, rarely 10, exceptionally 8, infralabialia, 1st–4th, rarely

1st–5th or 1st–6th in contact with the anterior inframaxillare; 1|2–3|2–3 temporalia; 0–1 gularia in contact with the anterior inframaxillaria.

Rajabizadeh *et al*. (2012a) mention different maximum numbers of subcaudals for females of *E. p. condoni*, 88 (p. 74, table 2) and 78 (p. 79).

In addition to the other distinctive features mentioned above, *E. p. condoni* differs from the nominate subspecies in the arrangement of the apical pits, viz. on the lateral scales in the posterior part of the body the single pits are shifted anteroventrally relative to the condition of the nominate subspecies.

Dentition (Pl. VII, Fig. 2). 17–21 maxillary teeth which increase posteriorly in size; 10–12 palatine teeth which increase posteriorly in size; 16–22 pterygoid teeth which are equal in size, the posterior 17% of the bone slightly bent towards the skull roof and bearing no teeth; 17–22 mandibular teeth which decrease posteriorly in size.

Distribution. South Armenia, Southeast Azerbaijan, Iran, Northeast Iraq, Central-East Turkey.

Natural history. This species has been found from April to mid October on rocky slopes and in semidesert areas at elevations from 200–2000 m a.s.l., and can also be seen in gardens and vineyards in open rocky areas. It is an active hunter and feeds on scorpions, Aranei, Chilopoda, Mantodea, Orthoptera, Lepidoptera larvae, and occasionally small lizards. Clutch size ranges from 1–8 eggs (5–11x23–31 mm) laid in July; juveniles hatch in September with a total length of about 115 mm.

Comments. *Eirenis punctatolineatus kumerloevei* Eiselt, 1970 from Akdamar Island, Lake Van (Turkey) was synonymized with *Eirenis punctatolineatus* by Franzen & Sigg (1989). Rajabizadeh *et al*. (2012a) revalidated the taxon *Contia condoni* Boulenger, 1920a and regarded it as subspecies of *E. punctolineatus*, viz. *Eirenis* (*Pediophis*) *punctolineatus condoni.*

Wall (1908b, 1923b) listed a series of 10 specimens of "*Contia decemlineata*" from southern Iran. His data and descriptions clearly indicate that these can be referred to *E. punctatolineatus condoni*, supporting the opinion of Gholamhosseini *et al*. (2009; see our species account for *E. decemlineatus*).

The separation of the northern and southern populations by Rajabizadeh *et al*. (2012a) is supported by our own results, with one important exception. Suprisingly the holotype of *Cyclophis modestus* var. *punctatolineata* Boettger, 1892 from Armenia does not fall within the characteristic range of 20.77–23.17% for the females from the northern populations, but with 26.32% into the ratio of female *E. punctatolineatus condoni* (see above).

References. Boettger (1898); Wall (1908b); Werner (1917); Boulenger (1920a); Wall (1923b); Mertens (1967); Eiselt (1976); Alekperov (1978); Schmidtler & Schmidtler (1978); Başoğlu & Baran (1980); Baran (1982); Dotsenko (1986, 1989); Franzen & Sigg (1989); Latifi (1991); Schmidtler & Eiselt (1991); Ananjeva et al. (1998); Szczerbak (2003); Baran *et al*. (2004); Gholamhosseini *et al*. (2009); Gruber (2009); Tuniyev *et al*. (2009); Fathinia *et al*. (2010); Arakelyan *et al*. (2011); Rajabizadeh *et al*. (2012a).

Eirenis (?*Pediophis*) *rechingeri* Eiselt, 1971

Eirenis rechingeri Eiselt, J. (1971): *Eirenis rechingeri* n. sp. (Colubridae, Serpentes) aus dem Iran. – Annalen des Naturhistorischen Museums in Wien, **75**: 375–381 [375].

Type locality. „57 km W Schiras (= 8 km E Dashtarjan, an der alten Straße nach Schiras), ca. 2100 m ü. d. M" [Iran].

Type material. Holotype NMW 19588 according to the original description and Tiedemann *et al*. (1994).

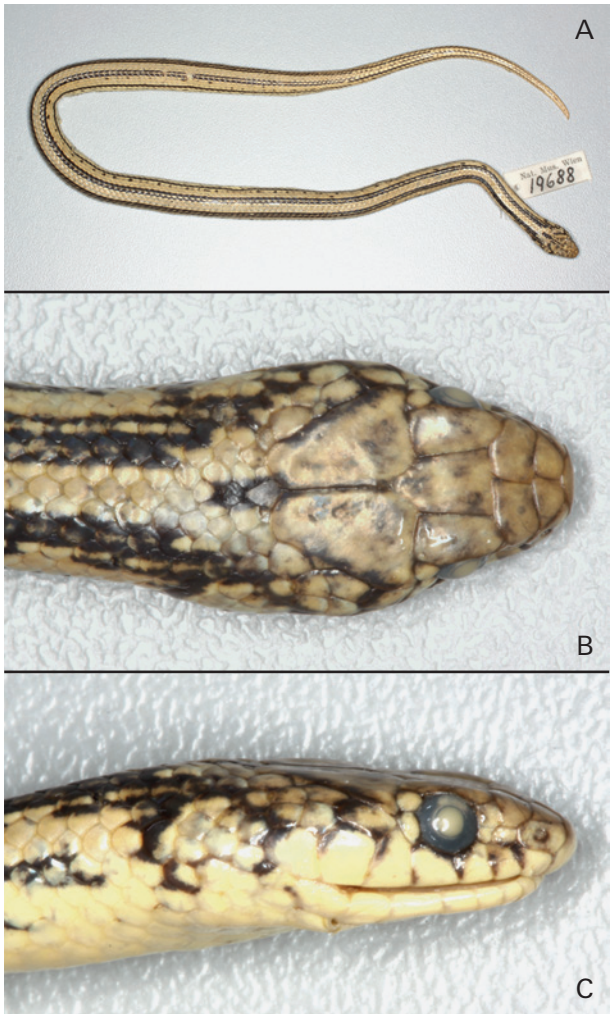
Description

Measurements and colouration. Total length of adulti 344 mm; snout-vent length 215–267 mm (♂ 267 mm, ♀ 215 mm); tail length 60–77 mm (♂ 77 mm, ♀ 60 mm).

Dorsal ground colour light brown, with 4 distinct dark brown stripes: two paravertebral stripes extending from the neck to the beginning of the tail and there becoming reduced to half of its initial width; center of paravertebral scales covered by the stripes lighter than their margins; the two lateral stripes smaller than the paravertebral stripes and without a light center, both extending from the neck to the tip of the tail; above and below the lateral stripes there is a row of small dark spots extending from the posterior end of the neck to the base of the tail; tail bearing a narrow dark brown vertebral stripe; pileus irregular and indistinctly spotted; no collar; ventralia and subcaudalia beige and with black edges in the region posterior to the neck, forming a dark line extending up to the tip of the tail (Fig. 15 A–C).

Lepidosis. Dorsal scale rows 17/15/15; weakly developed single apical pits present throughout body and tail, very distinct at the neck and less numerous from midbody onto tail, positioned in the center of the apical tip of the scale, 2 pits on the scales of the caudal region exactly at the point of scale reduction and arranged along the apical edge of the scale; ventralia 157–167 (♂ 157, ♀ 167); subcaudalia 51–58 (♂ 58, ♀ 51); preocularia 1; postocularia 2; loreal scale 1, touching the 1st or the 1st and 2nd supralabial; supralabialia 7, 3rd and 4th in contact with the orbit; infralabialia 8, 1st–3rd or 1st–4th in contact with the anterior inframaxillaria; temporalia 1|2|2–3; no gularia in contact with the anterior inframaxillaria.

Dentition (Pl. VIII, Fig. 1). 17 maxillary teeth which increase in size posteriorly; 11 palatine teeth which are nearly equal in size; 25 pterygoid teeth of equal size, the posterior 10% of the bone slightly bent towards the skull roof and bearing no teeth; 18–19 mandibular teeth which decrease in size posteriorly.



Figs 15A–C. *Eirenis* (?*Pediophis*) *rechingeri*, NMW 19588, holotype from Schiraz, Iran. **A**. Full body view. **B**. Dorsal view of the head. **C**. Lateral view of the head.

Distribution. South-west Iran.

Natural history. 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.

Comments. Known from two specimens from the Zagros Mountains in the Iranian Fars province.

This species was not included in the phylogeny of NAGY *et al*. (2003). Until new results are available we follow the latter authors in their assessment and place *E. rechingeri* provisionally into the subgenus *Pediophis*.

References. EISELT (1971); SCHMIDTLER & SCHMIDTLER (1978); TIEDEMANN *et al*. (1994); GHOLAMHOSSEINI *et al*. (2009).

Eirenis (*Pediophis*) *rothii* JAN, 1863

E.[*irenis*] *Rothii* JAN, G. (1863). Enumerazione sistematica degli ofidi appartenenti al gruppo Coronellidae. – Archivio per la Zoologia, l'Anatomia e la Fisiologia, Genova, **2**(2): 213–330 [256].

Type locality. "dintorni di Gerusalemme" [environments of Jerusalem, Israel].

Type material. Holotype ZSM 75/0 fide FRANZEN & GLAW (2007).

Description

Measurements and colouration. Total length of adulti max. 350 mm; snout-vent length 122–300 mm (♂♂ 145–300 mm, ♀♀ 122–275 mm); tail length 18–81 mm (♂♂ 27–81 mm, ♀♀ 18–65 mm).

Dorsal ground colour pale brown; head and neck ground colour yellowish or amber, lighter than remaining dorsal body colour; head with distinct dark nasal, interocular and parietal band; interocular band extending lateral onto the supralabialia, parts of the head and neck bands may be fused to a variable degree; usually a dark spot on the rostral; comparatively long and dark collar, the posterior margins irregularly jagged; venter lighter than dorsum (Fig. 16 A–C).

Lepidosis. Dorsal scale rows 15–17/15/15; distinct single apical pits present throughout body and tail, sometimes less numerous at the collar region, positioned in the center of the apical tip of the scale; ventralia 155–200 (♂♂ 155–190, ♀♀ 169–200); subcaudalia 35–72 (♂♂ 38–72, ♀♀ 35–62); preocularia 1; postocularia 2; 1 loreal scale, touching the 2nd and 3rd supralabial; supralabialia 7–8, 3rd and 4th in contact with the orbit; infralabialia 7–8, 1st–4th in contact with the anterior inframaxillare; temporalia 1|1–2|2; 0, rarely 1 gularia touching the anterior inframaxillaria.

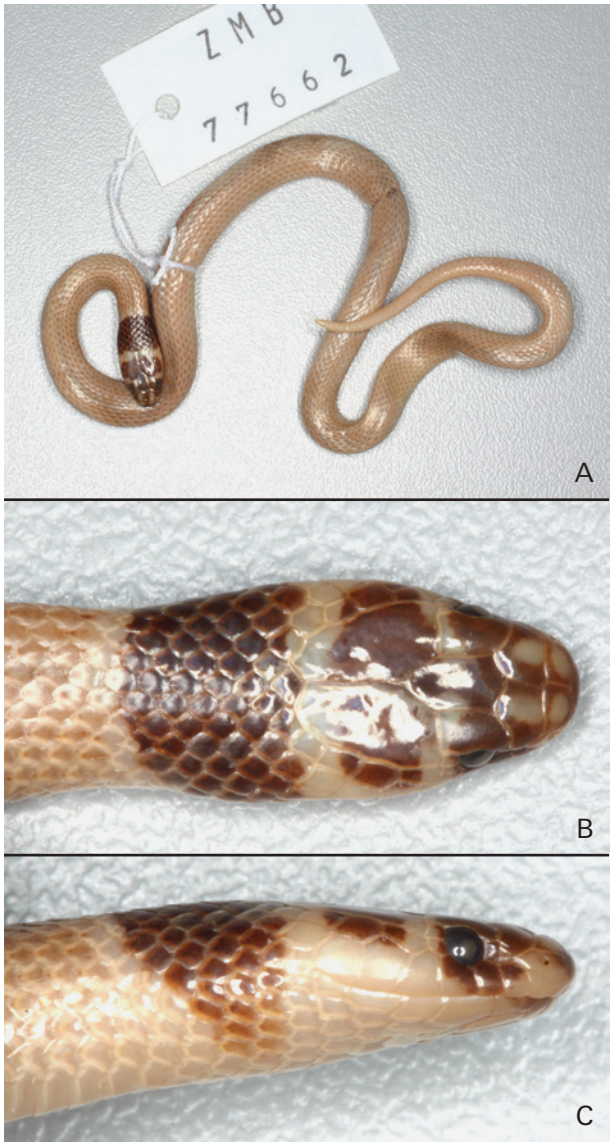
Dentition (Pl. VIII, Fig. 2). 14–15 maxillary teeth which size increase posteriorly; 9–11 palatine teeth which increase posteriorly in size; 13–18 pterygoid teeth of nearly equal size, the posterior 20% of the bone slightly bent towards the skull roof and bearing no teeth; 13–17 mandibular teeth which decrease in size posteriorly.

Distribution. Israel, Jordan, Lebanon, Syria, Turkey.

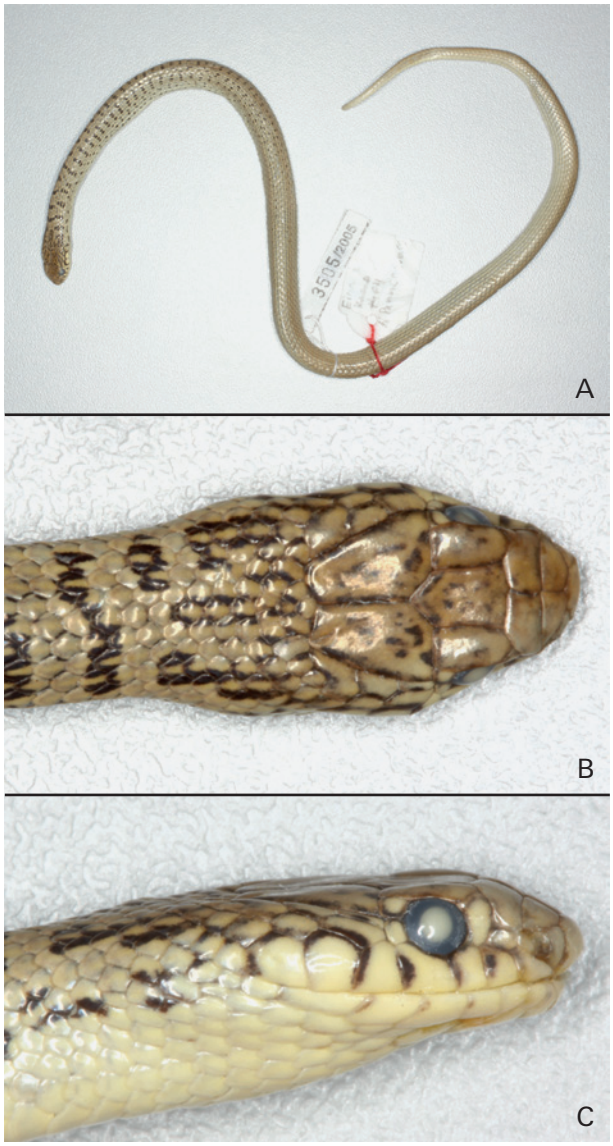
Natural history. This species is observed in humid regions or near water on rocky hillsides with scattered or bushy vegetation and in open forests at altitudes from 330–2000 m a.s.l. Locally very common. A probably nocturnal species feeding on insects and other arthropods and centipedes. Reproduction oviparous with clutches of 2 elongate eggs (ca. 25 mm lenght, 5–6 mm width) in July.

Comments. Populations from Jordan are relatively larger in size and show a remarkably higher number of ventralia and subcaudalia than populations from the rest of the distribution range (see AMR & DISI 2011).

References. BAŞOĞLU & BARAN (1980); WERNER & AVITAL (1980); EL-ORAN *et al*. (1994) ; DISI *et al*. (2001); FRANZEN & GLAW (2007); SHWAYAT *et al.* (2009); AMR & DISI (2011); LANDSMAN & WERNER (2011).



Figs 16A–C. *Eirenis* (*Pediophis*) *rothii*, ZMB 77662, from Sendschirli [Zincirli], Turkey. **A**. Full body view. **B**. Dorsal view of the head. **C**. Lateral view of the head.



Figs 17A–C. *Eirenis* (*Pediophis*) *thospitis*, ZSM 3505/2005, from Erek-Mountains, East of Lake Van, Turkey. **A**. Full body view. **B**. Dorsal view of the head. **C**. Lateral view of the head.

Eirenis (*Pediophis*) *thospitis* Schmidtler & Lanza, 1990

Eirenis thospitis Schmidtler, J. F. & Lanza, B. (1990): A new dwarf-snake (*Eirenis*) from Lake Van in eastern Turkey. – Amphibia-Reptilia, Leiden, **11**(4): 363–371 [363].

Type locality. "2–3 km N–NE of Van, about 2000 m a.s.l. (E Turkey)".

Type material. Holotype MZUF 33663 according to the original description and Franzen & Glaw (2007).

Description

Measurements and colouration. Total length of adulti max. 540 mm; snout-vent length 310–437 mm (♂♂ 310–437 mm, ♀ 332 mm); tail length 59–101 mm (♂♂ 59–101 mm, ♀ 62 mm).

Dorsum pale olive-grey; dorsal scales with darker edges forming pale thin lines along the body; the anterior fourth of the back with small dark spots, decreasing in size and intensity posteriorly; in the neck region the spots may be fused into narrow bars; pileus with pale irregular spots of different shape and size; lateral and posterior margins of the parietalia blackish; supralabialia with dark rear edge; instead of a collar there are three short longitudinal paired stripes; ventralia and subcaudalia yellowish white to creamy; (Fig. 17 A–C).

Lepidosis. Dorsal scale rows 17/15/15; weakly developed single apical pits infrequently present throughout body and tail, positioned in the center of the apical tip of the scale, 2–3 pits on the sacles of the caudal region exactly at the point of scale reduction and arranged along the apical edge of the scale; ventralia 169–190 (♂♂

169–178, ♀ 190); subcaudalia 48–58 (♂♂ 51–58, ♀ 48); preocularia 1; postocularia 2; 1 loreal scale, touching the 2nd or the 1st and 2nd supralabial; supralabialia 7, 3rd and 4th in contact with the orbit; infralabialia 8, 1st–4th in contact with the anterior inframaxillare; temporalia 1|2|2–3; 1–2 gularia in contact with the anterior inframaxillaria.

Dentition (Pl. IX, Fig. 1). 16–17 maxillary teeth which size increase posteriorly; 9–11 palatine teeth which increase in size posteriorly; 18–19 pterygoid teeth of equal size, the posterior 25% of the bone slightly bent towards the skull roof and bearing no teeth; 18–20 mandibular teeth which decrease in size posteriorly.

Distribution. Turkey (eastern Taurus: East of Lake Van, Anatolia).

Natural history. This species is found in rocky habitats either scattered with small bushes and stones or covered with low grassy vegetation at elevations between 1950–2000 m a.s.l.

Comments. See species account of *E. hakkariensis*.

References. SCHMIDTLER & LANZA (1990); SCHMIDTLER & EISELT (1991); SCHMIDTLER (1993); FRANZEN & GLAW (2007).

Subgenus *Pseudocyclophis* BOETTGER, 1888a

BOETTGER, O. (1888a): Über die Reptilien und Batrachier Transcaspiens (Vorläufige Mittheilung). – Zoologischer Anzeiger, Leipzig, **11**(279): 259–263 [262].

Type species: *Pseudocyclophis walteri* BOETTGER, 1888a.

Eirenis (*Pseudocyclophis*) *persicus* (ANDERSON, 1872)

Cyclophis persicus ANDERSON, J. (1872): On some Persian, Himalayan, and other reptiles. – Proceedings of the Zoological Society of London, [**1872**]: 371–404 [392].

Type locality. "Bushire, Persia" [Bushehr, South Iran, ca. 28° 55′ N, 50° 50′ E, approx. 20 m a.s.l.].

Type material. Holotype ZSI 4828 fide SCLATER (1891) and DAS *et al*. (1998).

Description
(*persicus*-complex summarized)

Measurements and colouration. Total length of adulti max. 526 mm; snout-vent length 134–421 mm (♂♂ 138–270 mm, ♀♀ 134–421 mm); tail length 18–112 mm (♂♂ 22–96[+] mm, ♀♀ 18–112 mm).

Specimens with various colours and patterns on head and body are summarized at present under the name *persicus* (auct.). *Eirenis* (*P.*) *persicus* (sensu stricto) is characterized by a buff pale olive brownish dorsal body colouration without pattern; venter greenish yellow, patternless; head with a large oval black marking covering the posterior part of internasalia, prefrontalia, frontale, supraocularia and the anterior two thirds of parietalia; this black marking is followed by a pale light interspace and a broad black collar (covering 6–7 vertebral scales), its dark lateral branches running anterolateral narrowing ventrally but not in contact with each other on the throat.

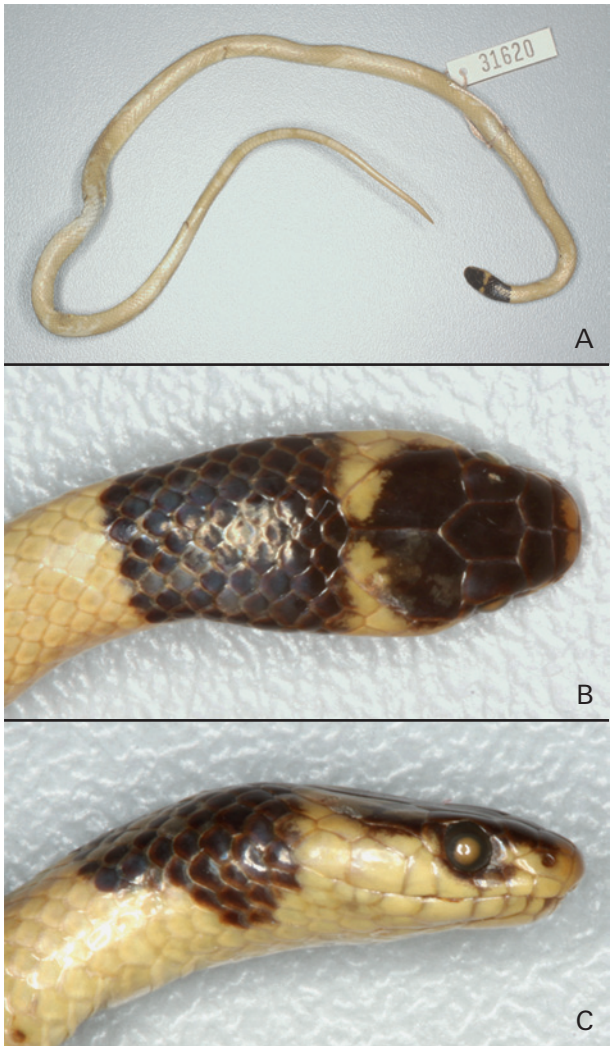
Other specimens of the *persicus*-complex show a variable dorsal ground colouration from pale olive to whitish yellowish, pinkish or pale grey-brown, with or without pattern. The dorsal pattern may consist of black transverse bars or bands on whole body and tail, or on body or on anterior part of body only. Specimens with transverse series of dark spots or broken alternating bars are also known. Ventral colouration can be dirty whitish to cream, yellowish white, yellowish olive, pale olive or dark grey. A ventral pattern is not known (Fig. 18 A–C).

Head pattern can differ as follows: (1) an entire dark brown or black dorsal head surface fused with the collar, snout with or without bright tip, (2) a dark grey or black coloured pileus (temporalia can be included) separated from the collar by a light interspace, (3) a separate interocular band and a parietal band fused with the collar, (4) a separate interocular band, parietal band and collar, (5) a small dark oval parietal spot, collar missing, (6) a W-shaped mark on the parietalia, without any other pattern, (7) a patternless head followed by an indistinctly marked collar. Rostrale, supralabialia, edges of infralabialia, inframaxillaria and gular region may exhibit a dark brown mottling or brown spots.

Lepidosis. Dorsal scale rows 13–17/15 (exceptionally 17)/13–15; weakly developed single apical pits frequently present on body and tail, missing in the collar region, positioned in the center of the apical tip of the scale, 2–3 pits on the scales of the caudal region exactly at the point of scale reduction and arranged along the apical edge of the respective scale; ventralia 182–238 (♂♂ 182–224, ♀♀ 196–238); subcaudalia 35–105+ (♂♂ 51–105+, ♀♀ 35–99); preocularia 1; postocularia 1; usually no loreal scale, if present very small, touching the 2nd supralabial; supralabialia 7, rarely 6 or 8, 3rd and 4th in contact with the orbit; infralabialia 7–8, 1st–3rd or 1st–4th or 1st–5th in contact with the anterior inframaxillaria; temporalia 1|1,rarely 2|1–2, rarely 3; 0–2 gularia in contact with the anterior inframaxillaria.

Dentition (Pl. IX, Fig. 2). 13–17 maxillary teeth which increase in size posteriorly; 8–11 palatine teeth, their size increasing posteriorly; 12–17 pterygoid teeth of equal size, the posterior 33% of the bone slightly bent towards the skull roof and bearing no teeth; 14–17 mandibular teeth which decrease in size posteriorly.

Distribution. Afghanistan (Kandahar Province), southern Armenia (Syunik Province), Iran (Bakhtaran, Fars, Ilam,



Figs 18A–C. *Eirenis* (*Pseudocyclophis*) *persicus* (sensu stricto), ZFMK 31620, from Schiraz, Iran. **A**. Full body view. **B**. Dorsal view of the head. **C**. Lateral view of the head.

Kerman, Kermanshah, Khuzistan, Markazi, Mazandaran and Razavi Khorasan Province), Iraq (Arbil, Diyala, Dohuk, Kirkuk, Nineveh and Sulaimaniya Province), Pakistan (Balochistan, North West Frontier Province, Punjab, western Sind, Waziristan), South Turkey (Adiyaman, Hakkâri, Mardin, Şanlıurfa and Şırnak Province), southern and southeastern Turkmenistan (Ahal, Balkan and Mary Province).

Records for "*persicus*" from Northwest India mentioned by some authors (e.g. Smith 1943, Chernov 1948) and recently uncritically adopted (e.g. Leviton *et al*. 1992; Sindaco *et al*. 2000) refer almost certainly to localities in former 'British India' and therefore to what is today Pakistan.

Natural history. Snakes of the *persicus*-complex are found in semi-arid lowlands, on rocky slopes in mountainous semidesert areas and limestone terrain, with stony sparse grassland or xeric shrub vegetation to open mesic oak forest from near sea level (Bushere, Iran) up to an elevation of 2600 m a.s.l. in Pakistan with less than 260 mm annual precipitation and significant temperature variation between summer and winter (+42 to –18°C). Nocturnal, hiding under stones, boulders or in crevices during daytime and feeding on insects, spiders and occasionally lizards. Reproduction oviparous with cluches of 3–8 elongate eggs (ca. 14–15 mm length, 5–6 mm width) laid in April–June.

Comments. A complex of taxa, which urgently needs a revision. At the moment only *E. persicus* (Anderson) is considered as valid species and the status of several taxa currently regarded as synonyms remains unresolved. According to our own observation and other authors (Minton 1966; Eiselt 1970) the barred pattern is not restricted to any particular geographic area, and it is not a juvenile characteristic as indicated by Smith (1943) or Reed & Marx (1959). Also the possibility of occurrence of different pattern phases within a population has not been adequately studied (see also comments by Haas & Werner 1969). Pending a revision of the complex we do not follow here the assessment of Das *et al*. (1998) who considered *Contia mcmahoni* Wall as valid species nor the appraisal of Venchi & Sindaco (2006) who regard the taxon *nigrofasciata* Nikolsky as subspecies of *persicus*. Further investigations of the *E. persicus*-complex should take the following available names and taxa into consideration:

Pseudocyclophis walteri Boettger, 1888a

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Described on the basis of the holotype, originally deposited in the „Caucasian Museum Tiblissi", collected at „Neu Seraks" [= Saragt, Shurukhs, Serukhs or Serakhs, in the valley of Tedshen (= Tejen) river, Turkmenistan, ca. 36° 32′ N, 61° 11′ E, approx. 280 m a.s.l.]. The holotype is characterized by a total length of 394 mm; tail length 84 mm; Dorsum light reddish-grey; dorsal scales with dark central bar, forming numerous (33) narrow transverse bands, each of the length of one scale, in the anterior fourth of the body; in the remaining body the transverse bands form obscurely longitudinal lines which are interrupted by the lighter scale edges; head pale grey with a W-shaped mark on frontal and parietalia; venter unicoloured yellowish-white. Dorsal scale rows 15 at midbody; dorsalia without apical pits; ventralia 231; subcaudalia 82; preocularia 1; postocularia 1; loreal scale absent on right side, very small and elongate on left side; nasal scale entire; supralabialia 7, 3rd and 4th in contact with the orbit; 7/8 infralabialia; anterior pair of inframaxillaria considerably wider and longer than posterior; posterior pair separated by a small gular scale; temporalia 1|1|n.d.

Contia angusticeps Boulenger, 1894

—

Described on the basis of the holotype originally deposited in the collection of the ZSI Calcutta, which is considered lost by McMahon (1902) and Smith (1943), collected at "Cherat, Baluchistan" [Nowshera District

of Khyber-Pakhtunkhwa in North Western Forntier Province, Pakistan, ca. 33° 49′ N, 71° 53′ E, approx. 1370 m a.s.l.].

According to the original description the holotype shows the following traits: total length 340 mm; tail length 85 mm; dorsum pale greyish brown, dorsal scales with dark center; a dark interocular band, a parietal band and a dark collar present; ventral and subcaudal uniform white. Dorsal scale rows 15 at midbody; ventralia 186; subcaudalia 86; preocularia 1; postocularia 1; a very small elongate loreal; nasal scale entire; supralabialia 7, 3rd and 4th in contact with the orbit; 1st–5th infralabiale in contact with the anterior inframaxillaria; temporalia 1|1|n.d.

Contia persica var. *nigrofasciata* Nikolsky, 1907

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Described on the basis of the juvenile holotype (ZISP 10323), collected at "Urbs Dizful (Arabistan) "[= Desful = Dezful, Khuzestan Prov., Central-West Iran on the Dez river, ca. 32° 22′ 57″ N, 48° 24′ 07″ E, approx. 130 m a.s.l.]. The holotype is characterized by a total length of 196 mm [189 mm according to our measurement]; 98 narrow transverse black bands on body and tail, length of the bands is 2.5 times less than the light interspace between them; head with wide black interocular band and a black parietal mark; black collar, extending in length across 7 dorsal scales. Dorsal scale rows 15 at midbody; ventralia 212; subcaudalia 62; preoculare 1; postoculare 1; supralabialia 7.

Contia mcmahoni Wall, 1911

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Described from 4 syntypes (3 adults, 1 juvenile) collected at "Quetta, Loralai, Mach and Spintangi", originally deposited in the Quetta Museum (Pakistan). Smith (1943, p. 189 footnote) state that the type series was destroyed during the Quetta earthquake in 1935. But according to Sanyal & Talwar (1975) one of the syntypes was transferred to the collection of the ZSI, Calcutta, in July 1916. The latter authors designated this specimen, catalogued under ZSI 16624, as lectotype. Sanyal & Talwar (l. c.) conclude that the lectotype should come from "Mach" [Machh, Bolan District, Balochistan Province, Pakistan, ca. 29° 52′ 0″ N, 67° 19′ 60″ E, approx. 1000 m a.s.l.]. However, there is reasonable doubt on the allocation of the specimen to the locality, because the scalation values (VEN 209, SC 94) given by Sanyal & Talwar (l. c.) for the lectotype are not consistent with the values published by Wall (1923b). The lectotype shows only coincidences to a specimen of the original syntype series originating from "Loralai" [Loralai District, South Balochistan Province, Pakistan, ca. 30° 22′ 0″ N, 68° 36′ 0″ E, approx. 1430 m a.s.l.].

Wall (1911, 1923a, 1923b) and Sanyal & Talwar (1975) characterized the taxon as follows: Total length of adulti 311–374 mm (♂ 312 mm); tail length 84–105 mm (♂ 85 mm). Dorsum pale brown, darker in the anterior part of the body; margins of dorsal scales yellowish brown; sometimes a few obscure blackish spots on the neck; head colouration blackish or dark, extending up to 4 rows of dorsal scales behind the parietals onto the neck, laterally to the temporalia and the upper parts of the 5th to 7th or 6th and 7th supralabialia; ventralia and subcaudalia unspotted whitish. Dorsal scale rows 13/15/13; apical pits single; ventralia 204–212 (♂ 209); subcaudalia 91–96 (♂ 94); preocularia 1; postocularia 1; loreal scale absent; nasal scale entire; supralabialia 7, 3rd and 4th in contact with the orbit; 1st–4th infralabiale in contact with the anterior inframaxillaria; temporalia 1|1|n.d..

Contia zebrina Wall, 1923b

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Described from the holotype (BNHS 171–1) collected at "Bazdad, South Persia" [= Bazdad, Arawan District, Balochistan Province, Pakistan, ca. 26° 20′ 59″ N, 65° 3′ 2″ E, approx. 530 m a.s.l.].

The type is characterized by a total length of 475 mm; tail length 125 mm. Dorsum yellowish-brown, center of the scales pale grey-brown; no collar; dorsally with closely set linear blackish cross bars (68 in the anterior half of body) extending onto the lateral edges of the ventrals and gradually fading posteriorly; posterior part of body uniform buff; head uniform with exception of blackish marks on the upper parts of the 3rd and 4th supralabial; venter unspotted; dorsal scale rows 15/15/13; apical pits single; ventralia 225; subcaudalia 110; preocularia 1; postocularia 1; loreal scale absent; nasal scale entire; supralabialia 7, 3rd and 4th in contact with the orbit; temporalia 1|2|n.d..

References. Anderson (1872); Blanford (1876); Boettger (1888a, b); Boulenger (1890, 1891, 1894); Sclater (1891); McMahon (1902); Annandale (1904); Nikolsky (1907, 1916); Wall (1908a, b, 1911, 1923a, b); Werner (1917); Procter (1921); Ingoldby & Procter (1923); Corkill (1932); D'Abreu (1934); Terentyev & Chernov (1940); Smith (1943); Chernov (1948); Forcart (1950); Khalaf (1959); Reed & Marx (1959); Bogdanov (1962, 1965); Anderson (1963); Raï (1965); Minton (1966); Haas & Werner (1969); Mertens (1969); Eiselt (1970); Sanyal & Talwar (1975); Bannikov *et al*. (1977); Baran (1978); Schmidtler & Schmidtler (1978); Başoğlu & Baran (1980); Khan (1980); Baran (1982); Ataev (1985); Dotsenko (1985); Dotsenko & Szczerbak (1985); Agasyan (1987); Zinchenko & Ritskov (1990); Latifi (1991); Leviton *et al*. (1992); Ataev *et al*. (1994); Frynta *et al*. (1997); Das *et al*. (1998); Sindaco *et al*. (2000); Khan (2002, 2006); Dotsenko (2003); Baran *et al*. (2004); Firouz (2005); Fathinia *et al*. (2010); Arakelyan *et al.* (2011).

Key to the species of the genus *Eirenis*

1 A) Midbody DSR 19 ..... ***modestus***.
B) Midbody DSR 17 or 18 ..... **2**
C) Midbody DSR 15 ..... **7**

2 A) Dorsum with stripes ..... ***decemlineatus***
B) Dorsum in the anterior $^{2}/_{3}$ with spots in rows, caudad merged into stripes ..... ***punctatolineatus***
C) Dorsum with dark bands ..... ***persicus*-complex**
D) Dorsum with dark spots or blotches **3**
E) Dorsum monochrome, dorsal scales sometimes darkened at the tip, the base or the edges **4**

3 A) SC 21–47 ..... ***lineomaculatus***
B) SC 51–86, anterior edge of collar concave ..... ***modestus***
C) SC 54–69, anterior edge of collar straight ..... ***barani***

4 A) Collar missing, parietalia with irregular and indistinct spots ..... ***thospitis***
B) Maximum length of collar 3 dorsal scales, oval spot below ventrolateral edges of collar ..... ***aurolineatus***
C) Collar missing, parietalia without pattern **5**
D) Minimum length of collar 4 dorsal scales **6**

5 A) Posterior inframaxillaria of same length or longer than anterior ones, max. 3.5 sublabialia (SuL) up to the end of the posteriormost infralabialia ..... ***decemlineatus***
B) Posterior inframaxillaria shorter than anterior ones; min. 4.5 sublabialia to the end of the infralabialia; percent ratio of tail length to total length 17.39–19.17 ..... ***hakkariensis***
C) Posterior inframaxillaria shorter than anterior ones; min. 4.5 sublabialia to the end of the infralabialia; percent ratio of tail length to total length 20.77–30.70 ..... ***punctatolineatus***

6 A) Anterior edge of collar straight; VEN ≤ 172 ..... ***barani***
B) Anterior edge of collar straight; VEN ≥ 182 ..... ***persicus*-complex**
C) Anterior edge of collar concave; when following from the paravertebral scale row at the posterior edge of the collar in a strictly diagonal, anterolaterally trending line of scales up to the level of the posterior tip of the mouth, there is a horizontal, posteriorly running scale row consisting of 3–5 scales from the anterior beginning of the row to the posterior border of the collar ..... ***levantinus***
D) Anterior edge of collar concave; when following from the paravertebral scale row at the posterior edge of the collar in a strictly diagonal, anterolaterally trending line of scales up to the level of the posterior tip of the mouth, there is a horizontal, posteriorly running scale row consisting of 1–2 scales from the anterior beginning of the row to the posterior border of the collar ..... ***modestus***

7 A) Dorsum with stripes ..... ***rechingeri***
B) Dorsum monochrome **8**
C) Dorsum with transverse dark bands **11**
D) Dorsum with spots **14**

8 A) Lateral ends of the collar reaches down to the level of the oral fissure ..... ***eiselti***
B) Lateral ends of the collar extending below the level of the oral fissure **9**

9 A) PoO 1 ..... ***persicus*-complex**
B) PoO 2 ..... **10**

10 A) Parietal band missing, only indistinct spots ..... ***collaris***
B) Parietal band distinct present ..... ***rothii***

11 A) VEN ≥ 182 ..... ***persicus*-complex**
B) VEN ≤ 175 ..... **12**

12 A) Parietal band and interocular band missing ..... ***medus***
B) Parietal band and interocular band present **13**

13 A) Parietal band only on the parietalia; tail in males ≤ 27 percra, ≤ 48 SC; tail in females ≤ 20 percra, ≤ 40 subcaudals (modified from Sivan & Werner 2003) ..... ***coronelloides***
B) Parietal band reaches the supralabialia; tail in males ≥ 26 percra, ≥ 36 SC; tail in females ≥ 20 percra, ≥ 32 SC (modified from Sivan & Werner 2003) ..... ***coronella***

14 A) Collare missing, interocular band missing ..... ***thospitis***
B) Collare present, interocular band missing ..... ***africanus***
C) Collare present, interocular band present ..... ***eiselti***

Table 1. Comparsion of pholidotic traits of *Eirenis* ssp. summarized from personal and literature data (in brackets). For abbreviations we refer to "Material and methods".

References used: [1] AMR & DISI (2011); [2] ANANJEVA *et al.* (2006); [3] ARAKELYAN *et al.* (2011); [4] ARNOLD (1982); [5] AVCI & OLGUN (2011) ; [6] BANNIKOV *et al.* (1977); [7] BARAN (1982); [8] BARAN *et al.* (2004); [9] BARBOUR (1914); [10] BLANFORD (1876); [11] BAŞOĞLU (1970); [12] BAŞOĞLU & BARAN (1980); [13] BODENHEIMER (1944); [14] BOETTGER (1888a); [15] BOETTGER (1888b); [16] BOULENGER (1914); [17] BOULENGER (1920a); [18] DAREVSKY & BAKRADZE (1982); [19] DISI *et al.* (2001); [20] DOTSENKO (1985); [21] DOTSENKO (1986); [22] DOTSENKO (1989); [23] EGAN (2007); [24] EISELT (1970); [25] EISELT (1971); [26] EISELT (1982); [27] EL DIN (2006); [28] FATHINIA *et al.* (2010); [29] GASPERETTI (1988); [30] GHOLAMHOSSEINI *et al.* (2009); [31] GRUBER (2009); [32] KHALAF (1959); [33] KHAN (2002);

Taxon	DSR	VEN	SC	PrO	PoO	T
***Eirenis* (*Eirenis*)**						
aurolineatus	17/17/15–17 (n.d./17/15)	♂♂ 151–157 ♀♀ 165–175 (♂♂ 149–162 ♀♀ 158–168)	♂♂ 68–81 ♀♀ 69–77 (♂♂ 71–84 ♀♀ 60–70)	1 (1, rarely 2)	2 (2, rarely 1)	1|2–3|2–3 (1|2|2–4)
modestus-complex (incl. nominate subspecies sensu Schmidtler (1993, 1997)	17–20/17–18/15–17 (n.d./17–19/15)	♂♂ 145–177 ♀♀ 155–188 (♂♂ 140–183 ♀♀ 151–192)	♂♂ 59–75 ♀♀ 57–72 (♂♂ 57–86 ♀♀ 51–74)	1 (1–2)	1–2 (1–2)	1|1–3|2–4 (1(rarely 2) |2|2–3)
modestus cilicius	17–19/17/15–17 (n.d./17–19/15)	♂♂ 152–172 ♀♀ 173–183 (♂ 163 ♀ n.d.)	♂♂ 63–79[+] ♀♀ 66–74 (♂ 71 ♀ n.d.)	1; rarely 2 (1)	2 (2)	1|1–3|2–4 (n.d.)
modestus semimaculatus	17–20/17–18/15–17 (n.d./17–19/15)	♂♂ 165–167 ♀♀ 165–180 (♂♂ 140–181 ♀♀ 151–192)	♂♂ 68–75 ♀♀ 55–67 (♂♂ 57–83 ♀♀ 51–74)	1 (1–2)	2 (1–2)	1|2–3|3–4 (1(rarely 2) |2|2–3)
***Eirenis* (*Eoseirenis*)**						
decemlineatus	17–19/17–18/15 (17/17/15)	♂♂ 160–172 ♀♀ 164–176 (♂♂ 156–176 ,max. 183 according to Amr & Disi (2011) ♀♀ 162–183, min. 136 according to Disi et al. (2001))	♂♂ 56–80 ♀♀ 55–69 (♂♂ 63–86 ♀♀ 55–79, min. 40 , max. 87 according to Disi et al. (2001) and Dotsenko (1989))	1 (1, rarely 2)	2, rarely 1 (2)	1|1–3|2–4 (1|2–3|3)
***Eirenis* (*Pediophis*)**						
africanus	15–16/15/13 (n.d./15/n.d.)	♂ 146 ♀ 161 (♂ 147 ♀♀ 160–162)	♂ 78 ♀ 29[+] (♂ 78 ♀♀ 69[+]–72)	1 (1)	2 (2)	1|1|1–2 (1|1|2)
barani barani	17–19/17/15 (n.d./17/n.d.)	♂♂ 140–155 ♀♀ 153–170 (♂♂ 138–156 ♀♀ 156–165)	♂♂ 59–67 ♀♀ 55–60 (♂♂ 60–68 ♀♀ 54–62)	1 (1)	2 (2)	1|2–3|2–3 (1|1–2|2–3)
barani bischofforum	17–19/17/15 (n.d./17/n.d.)	♂♂ 146–152 ♀♀ 159–172 (♂♂ 147–157 ♀♀ 157–168)	♂♂ 59–67 ♀♀ 54–65 (♂♂ 59–69 ♀♀ 56–64)	1 (1)	2 (1–2)	1|2|3 (1|2|3)
collaris collaris	15–17/15/15 (n.d./15/15)	♂♂ 147–174 ♀♀ 164–175 (♂♂ 141–173 ♀♀ 154–184)	♂♂ 53–60 ♀♀ 45–57 (♂♂ 50–76 ♀♀ 42–61)	1, rarely 2 (1–2)	2 (1–2)	1|1–2|2–3 (1|1–3|2–3)
collaris macrospilotus	(n.d./15/n.d.)	(♂ 150 ♀ n.d.)	(♂ 56 ♀ n.d.	(n.d.)	(n.d.)	(1|2|n.d.)
coronella coronella	15–17/15/13–15 (n.d./15/n.d.)	♂♂ 130–143 ♀♀ 139–157 (♂♂ 125–146 ♀♀ 143–168)	♂♂ 47–56 ♀♀ 37–50 (♂♂ 38–62 ♀♀ 32–55)	1 (1)	2 (2)	1|1–2|2–3 (1|1–2|1–2)
coronella ibrahimi	(n.d./15/n.d.)	(♂♂ 140–145 ♀♀ 156–162)	(♂♂ 36–67 ♀♀ 54–63)	(1)	(2)	(1|1|n.d.)

Table 1 continued.

[34] Largen & Spawls (2010); [35] Latifi (1991); [36] Leviton *et al.* (1992); [37] Mertens (1924); [38] Minton (1966); [39] Nikolsky (1905); [40] Nikolsky (1916); [41] Rajabizadeh *et al.* (2012a); [42] Rajabizadeh *et al.* (2012b); [43] Reed & Marx (1959); [44] Schätti & Gasperetti (1994); [45] Schmidt (1939); [46] Schmidt & Marx (1956); [47] Schmidtler (1988); [48] Schmidtler (1993); [49] Schmidtler (1997); [50] Schmidtler & Baran (1993a); [51] Schmidtler & Baran (1993b); [52] Schmidtler & Eiselt (1991); [53] Schmidtler *et al.* (2009); [54] Schmidtler & Lanza (1990); [55] Schmidtler & Schmidtler (1978); [56] Scortecci (1930); [57] Shwayat *et al.* (2009); [58] Sivan & Werner (2003); [59] Strauch (1873); [60] Szczerbak (2003); [61] Tuniev *et al.* (2009); [62] Wall (1908a); [63] Wall (1908b); [64] Wall (1923a); [65] Wall (1923b); [66] Weber-Séménoff (1977); [67] Werner (1917).

SL	SLC	IL	ILC	GC	L	LC	References
7 (n.d.)	3.+4. (n.d.)	8, rarely 9 (n.d.)	1.–4. (n.d.)	1–2, rarely 0 (n.d.)	+ (n.d.)	2., rarely 2.+3. or 1.+2. (n.d.)	[31], [48]
7 (7)	3.+4. (n.d.)	8, rarely 9 (8–9)	1.–4. (n.d.)	1–2, rarely 0 (1–2)	+ (+)	2., rarely 1+2, 2+3 (1.+2. or 2., rarely 2. and 3.)	[22], [31], [35], [51], [55]
7 (7)	3.+4. (n.d.)	8–9 (8–9)	1.–4. (n.d.)	1–2, rarely 0 (2)	+ (n.d.)	1.+2. or 2. or 2.+3 (n.d.)	[48]
7 (7)	3.+4. (n.d.)	8 (8–9)	1.–4. (n.d.)	1–2, (1–2)	+ (+)	2., rarely 1+2 (1.+2. or 2., rarely 2. and 3.)	[48]
7 (7–8)	3.+4. (3.+4.)	8, rarely 9 or 10 (8–9)	1.–4. (1.–4.)	0, rarely 1 (0)	+ (+)	2., rarely 1.+2. or 2.+3. (2. rarely 1.+2.)	[1], [12], [13], [19], [22], [31], [32], [45], [55]
7 (7)	3.+4. (3.+4.)	8 (8)	1.–4. (1.–4. or 1.–5.)	0 (0)	+ (+)	2. or 2+3. (2.)	[16], [34], [56]
7, rarely 8 (7)	3.+4. (n.d.)	8, rarely 9 (7–9)	1.–4. (n.d.)	0–1 (n.d.)	+ (+)	2., rarely 1.+2.or 2.+3. (2. rarely 1.+2.or 2.+3.)	[31], [47], [49], [55]
7–8 (7–8)	3.+4. (n.d.)	8, rarely 9 (7–8, rarely 9)	1.–4. (n.d.)	1 (n.d.)	+ (+)	2. or 2.+3. (2.)	[49]
7–8 (7)	3.+4. (n.d.)	8, rarely 7 or 9 (7–8)	1.–4., rarely 1.–5. (n.d.)	0, rarely 1 or 2 (0, rarely 1)	+, rarely – (+)	2., rarely 2.+3. or 1.–2. (2.)	[2], [3], [8], [21], [26], [31], [32], [35], [36], [39], [40], [43], [50], [55], [59], [60], [61], [66]
(n.d.)	(n.d.)	(n.d.)	(n.d.)	(n.d.)	(n.d.)	(n.d.)	[18]
7 (7)	3.+4. (n.d.)	8, rarely 7 or 9 (7–9, exceptionally 6)	1.–4. (1.–4.)	0–1 (1)	+ (+)	2.+3., rarely 2. (2.+3.)	[22], [31], [43], [55], [58]
(7–8)	(3.–4.)	(8)	(n.d.)	(n.d.)	(1, rarely –)	(n.d.)	[9], [27], [46], [58]

Table 1 continued.

Taxon	DSR	VEN	SC	PrO	PoO	T
***Eirenis* (*Pediophis*)**						
coronella fennelli	17–18/15/13 (17/15/13–15)	♂ 138 ♀ 174 (♂♂ 131–138 ♀♀ 149–154)	♂ 57 ♀ 58 (♂♂ 54–59 ♀♀ 47–55)	1–2 (1)	2 (2)	1–2–2 (1|1–2|2)
coronelloides	15–17/15/13–15 (n.d./15/n.d.)	♂♂ 130–138 ♀♀ 134–151 (♂♂ 123–134 ♀♀ 140–155)	♂♂ 39–41 ♀♀ 30–37 (♂♂ 36–48 ♀♀ 33–40)	1 (1)	2, rarely 1 (2–3)	1|1–2|2 (n.d.)
eiselti	15–17/15/15 (n.d./15/15)	♂♂ 154–160 ♀♀ 170–186 (♂♂ 152–168 ♀♀ 163–178)	♂♂ 60–67 ♀♀ 51–60 (♂♂ 58–71 ♀♀ 55–66)	1 (1)	2 (2)	1|1–3|2–3 (1|2|2–3)
hakkariensis	17/17/15–17 (17/17/15–16)	♂♂ 174–175 ♀♀ 183–186 (♂♂ 168–178 ♀♀ 177–184)	♂♂ 58–64 ♀♀ 54–56 (♂♂ 60–68 ♀♀ 52–60)	1 (1)	2 (2)	1|2|2–3 (1|2–3|3)
levantinus	17–19/17/15–17 (n.d./17/15)	♂♂ 142–173 ♀♀ 149–186 (♂♂ 139–165 ♀♀ 151–166)	♂♂ 59–74 ♀♀ 55–71 (♂♂ 59–76 ♀♀ 54–72)	1, rarely 2 (1)	2, rarely 1 (1–2)	1|2–4|2–4 (1|2|2–3)
lineomaculatus	17/17/15, exceptionally 14 (17/17/15)	♂♂ 101–119 ♀♀ 120–124 (♂♂ 103–123 ♀♀ 106–145)	♂♂ 22–39 ♀♀ 24–32 (♂♂ 23–47 ♀♀ 21–47)	1 (1, rarely 2)	1–2 (1–2)	1|1–3|2–3 (1|1–3|0–1)
medus	15–17/15/15 (n.d./15/15)	♂♂ 149–157 ♀♀ 168–170 (♂♂ 144–159 ♀♀ 163–175)	♂♂ 47–58 ♀♀ 44–47 (♂♂ 48–63 ♀♀ 42–56)	1 (1)	2 (1–2)	1|1–2|2–3 (1|2|2)
punctatolineatus punctatolineatus	17–19/17/15 (n.d./17/15)	♂♂ 154–161 ♀♀ 162–175 (♂♂ 155–168 ♀♀ 155–181)	♂♂ 69–75 ♀♀ 59–68 (♂♂ 63–80 ♀♀ 55–76)	1 (1–2)	2, rarely 1 (1–2)	1|2|2–3 (1|2–3|2–3)
punctatolineatus condoni	17–20/17/15 (17/17/15)	♂♂ 154–163 ♀♀ 169–175 (♂♂ 149–176 ♀♀ 159–176)	♂♂ 75–90 ♀♀ 71–83 (♂♂ 71–93 ♀♀ 68–78)	1 (1)	2 (2, rarely 1)	1|2|2–3 (1|2|n.d.)
rechingeri	17/15/15 (17/15/15)	♂157 ♀ n.d. (♂157 ♀167)	♂ 58 ♀ n.d. (♂59 ♀51)	1 (1)	2 (2)	1|2|2–3 (1|2|2–3)
rothii	15–17/15/15 (n.d./15/15)	♂♂ 156–181 ♀♀ 169–189 (♂♂ 155–190, min. 133 according to Disi et al. (2001) and Shwayat et al. (2009) ♀♀ 171–200)	♂♂ 38–50 ♀♀ 35–41 (♂♂ 39–72 ♀♀ 35–62)	1 (1)	2 (2)	1|1(rarely2)|2 (1|1–2|2)
thospitis	17/15/15 (n.d./15/n.d.)	♂♂169–175 ♀ n.d. (♂♂ 169–178 ♀ 190)	♂♂ 51–57 ♀ n.d. (♂♂ 54–58 ♀ 48)	1 (1)	2 (2)	1|2|2 (1|2|2–3)
***Eirenis* (*Pseudocyclophis*)**						
persicus-complex	15–17/15/13–15 (13/15,rarely 17/13–15)	♂♂ 189–215 ♀♀ 203–227 (♂♂ 182–224 ♀♀ 196–238)	♂♂ 53–96 ♀♀ 35–83 (♂♂ 51–96 ♀♀ 44–99)	1 (1)	1 (1)	1|1(rarely2)|2 (rarely3) (1|1–2|1–2)

Table 1 continued.

SL	SLC	IL	ILC	GC	L	LC	References
7 (7)	3.+4. (3.+4.)	7–8 8	1.–4. (1.–4.)	0 (0)	+ (+)	2 or 2+3 (2.+3.)	[4], [23], [29], [44], [58]
7–8 (7)	3.+4., rarely 4.+5. (n.d.)	7–8 (8, rarely 9)	1.–4. (n.d.)	0–1 (0–2)	+ (+, rarely –)	2.+3., rarely 2. (n.d.)	[5], [58]
7, rarely 8 (7)	3.+4. (n.d.)	8 (8)	1.–4. (n.d.)	0–1 (0–2)	+, rarely – (+)	2. or 2.+3 (2., rarely 2.+3.)	[22], [31], [55]
7 (7)	3.+4. (3.+4.)	8–9 (8–9)	1.–4. (1.–4.)	2, rarely 1 (1–2)	+ (+)	2., exceptionally fused with the nasal scale (2., exceptionally fused with the nasal scale)	[52]
7 (7–8)	3.+4. (n.d.)	8, rarely 9, exceptionally 7 (7–8)	1.–4. (n.d.)	1–2, rarely 0 (0–2)	+ (+)	2., rarely 1.+2. (2.)	[31], [53], [55]
7, rarely 8 (7–8)	3.+4. (3.+4.)	7–8, rarely 9 (7–8)	1.–3. (1.–4., rarely 1.–5.)	1, rarely 2 (1)	–, rarely + (–, rarely +)	1.+2. or 2 or 2+3 (n.d.)	11], [19], [31], [37], [45], [55], [57]
7, rarely 6 (7)	3.+4. (3.+4.)	8 (7–8)	1.–4. (1.–4.)	0–1 (0–1)	+ (+)	2.+3., rarely only 2. (2.)	[10], [22], [35], [42], [55], [60]
7, rarely 8 (7)	3.+4. (3.+4.)	9, rarely 10 (9, rarely 10, exceptionally 8)	1.–4. (1.–4.–, rarely 1.–5. or 1.–6.)	0–1 (0–1)	+ (+)	2. (2., rarely 1.+2.)	[7], [22], [31], [35], [41], [52], [55]
7, rarely 8 (7)	3.+4. (3.+4., exceptionally 4.+5.)	9 (9)	1.–4. (1.–4.)	0–1 (n.d.)	+ (+)	2., rarely 2.+3. or 1.+2. (2., rarely 1.+2.; exceptionally fused with the nasal scale)	[17], [41], [63], [65], [67]
7 (7)	3.+4. (3.+4.)	8 (8)	1.–4. (1.–3., or 1.–4.)	0 (0)	+ (+)	1.+2. (1, or 1.+2.)	[25], [30], [55]
7, rarely 8 (7–8)	3.+4. (3.+4.)	7, rarely 8 (7–8)	1.–4. (1.–4.)	0 (0–1)	+ (+)	2.+3. (2.+3.)	[1], [19], [31], [55], [57]
7 (7)	3.+4. (n.d.)	8 (8)	1.–4. (n.d.)	1–2 (1–2)	+ (+)	2. or 1.+2. (2.)	[54]
7, rarely 6 or 8 (7, rarely 6 or 8)	3.+4. (3.+4.)	7–8 (7–8)	1.–4. (1.–3. or 1.–4. or 1.–5.)	0–2 (0–1)	–, rarely + (–, rarely +)	2. (2.)	[6], [8], [14], [15], [20], [24], [28], [33], [35], [38], [43], [55], [62], [64], [65]

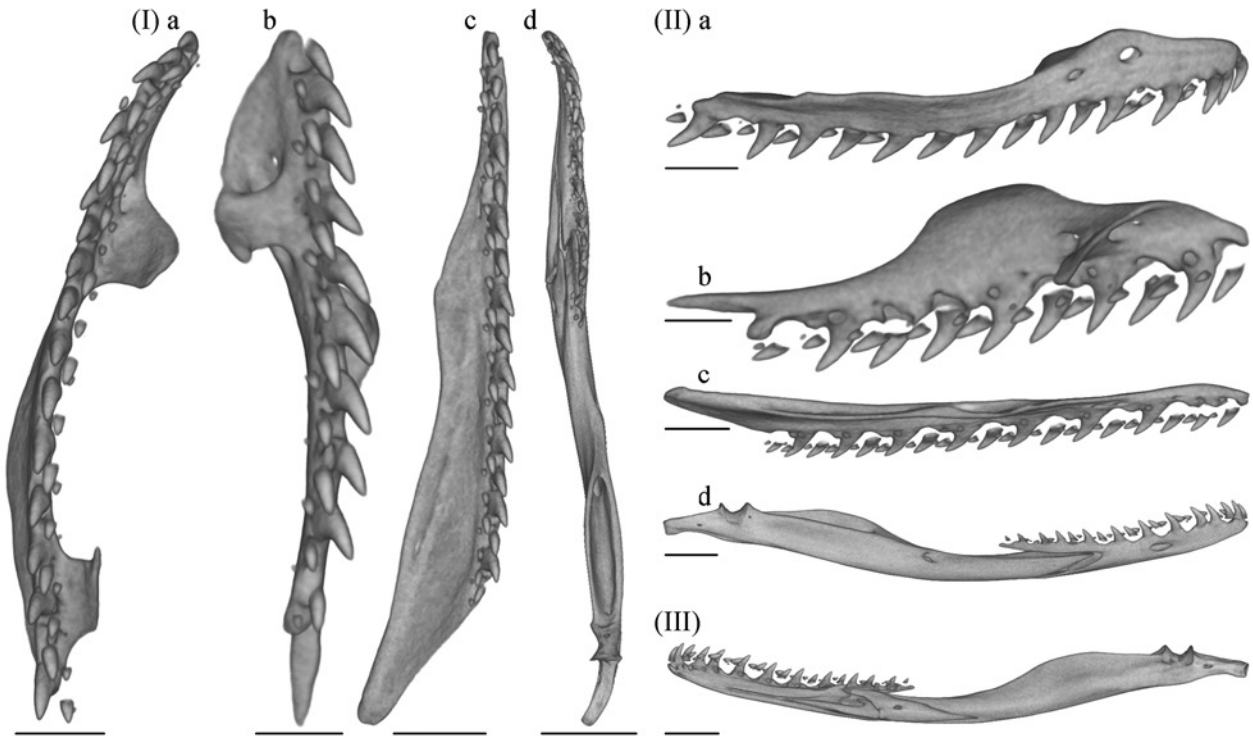


Plate I, Fig. 1: *Eirenis (Eirenis) aurolineatus*, ZSM 3639/2005; tooth-bearing bone of the right side of head. **I**. Ventral view of a: maxilla, scale bar = 0.65 mm; b: palatine, scale bar = 0.45 mm; c: pterygoid, scale bar = 0.9 mm. Dorsal view of d: mandible, scale bar = 1,5 mm. **II**. Outer lateral view of a: maxilla, scale bar = 0.65 mm; b: palatine, scale bar = 0.4 mm; c: pterygoid, scale bar = 0.75 mm; d: mandible, scale bar = 1 mm. **III**. Inner lateral view of mandible, scale bar = 1 mm.

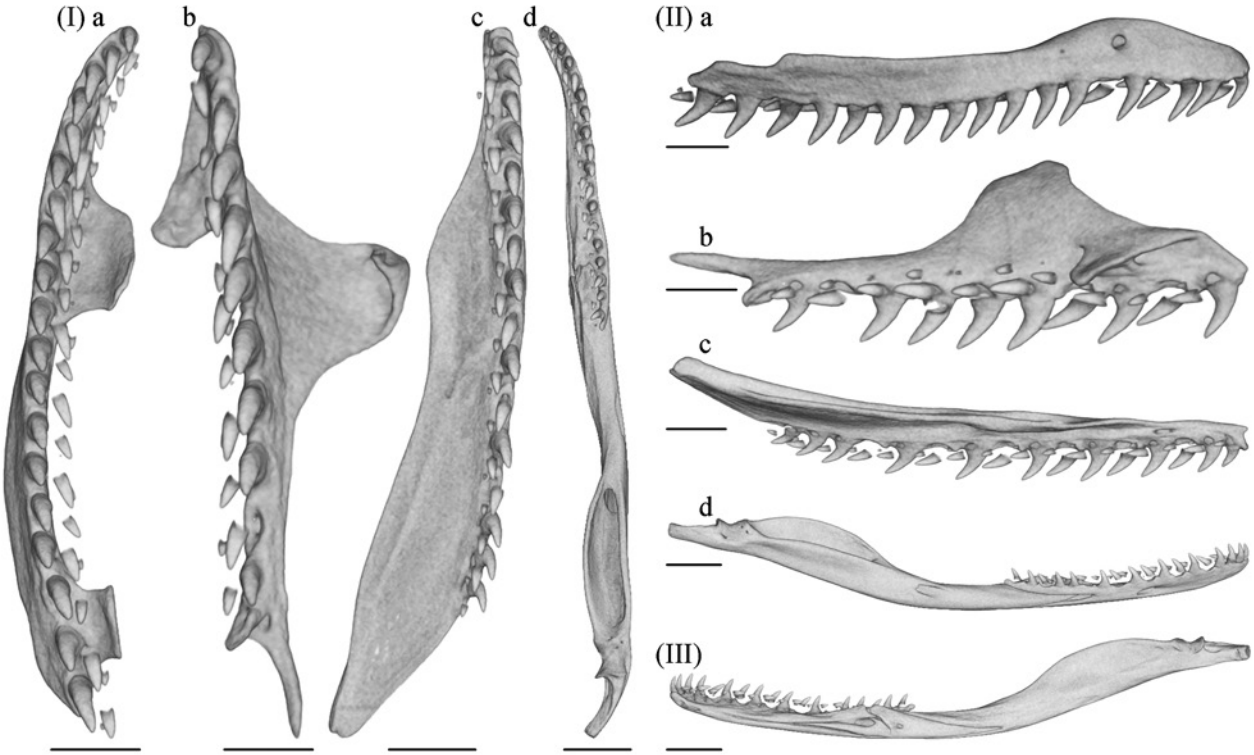
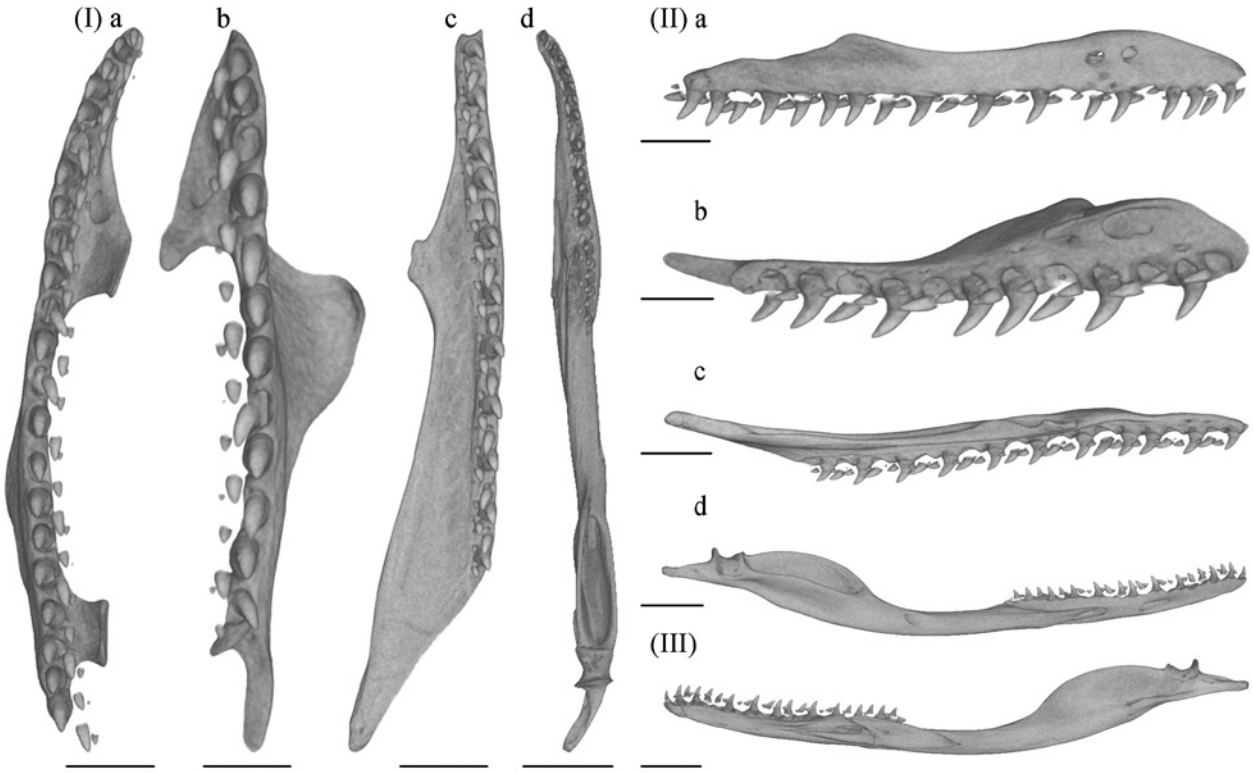


Plate I, Fig. 2: *Eirenis (Eirenis) modestus modestus*, MTD 25053; tooth-bearing bone of the right side of head. **I**. Ventral view of a: maxilla, scale bar = 0.65 mm; b: palatine, scale bar = 0.45 mm; c: pterygoid, scale bar = 0.75 mm. Dorsal view of d: mandible, scale bar = 1 mm. **II**. Outer lateral view of a: maxilla, scale bar = 0.55 mm; b: palatine, scale bar = 0.45 mm; c: pterygoid, scale bar = 0.65 mm; d: mandible, scale bar = 1 mm. **III**. Inner lateral view of mandible, scale bar = 1 mm.



Pl. II, Fig. 1: *Eirenis (Eoseirenis) decemlineatus,* ZMB 26677a; tooth-bearing bone of the right side of head. **I**. Ventral view of a: maxilla, scale bar = 1 mm; b: palatine, scale bar = 0.65 mm; c: pterygoid, scale bar = 1 mm. Dorsal view of d: mandible, scale bar = 2 mm. **II**. Outer lateral view of a: maxilla, scale bar = 0.9 mm; b: palatine, scale bar = 0.65 mm; c: pterygoid, scale bar = 1 mm; d: mandible, scale bar = 2 mm. **III**. Inner lateral view of mandible, scale bar = 2 mm.

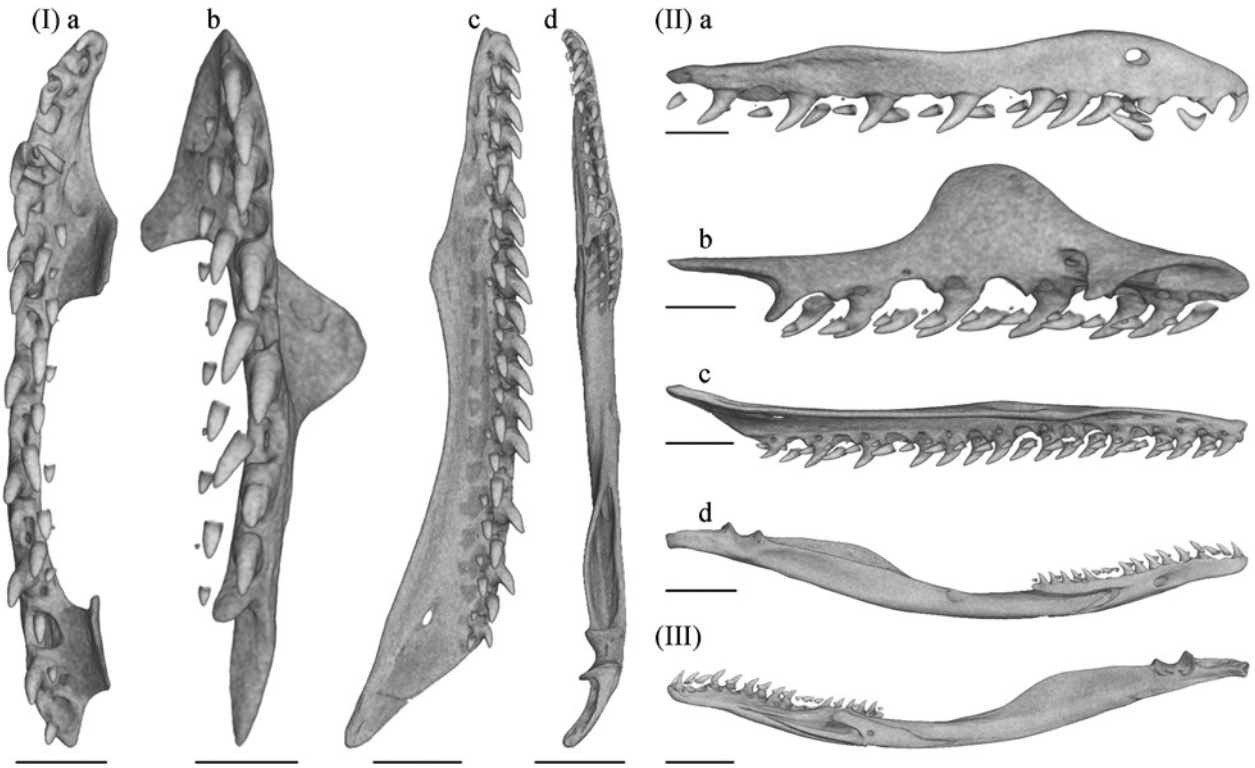


Plate II, Fig. 2: *Eirenis (?Pediophis) africanus*, BMNH1946.1.5.33, holotype of *Contia africana*; tooth-bearing bone of the right side of head. **I**. Ventral view of a: maxilla, scale bar = 0.65 mm; b: palatine, scale bar = 0.55 mm; c: pterygoid, scale bar = 0.9 mm. Dorsal view of d: mandible, scale bar = 1.5 mm. **II**. Outer lateral view of a: maxilla, scale bar = 0.55 mm; b: palatine, scale bar = 0.45 mm; c: pterygoid, scale bar = 0.9 mm; d: mandible, scale bar = 1.5 mm. **III**. Inner lateral view of mandible, scale bar = 1 mm.

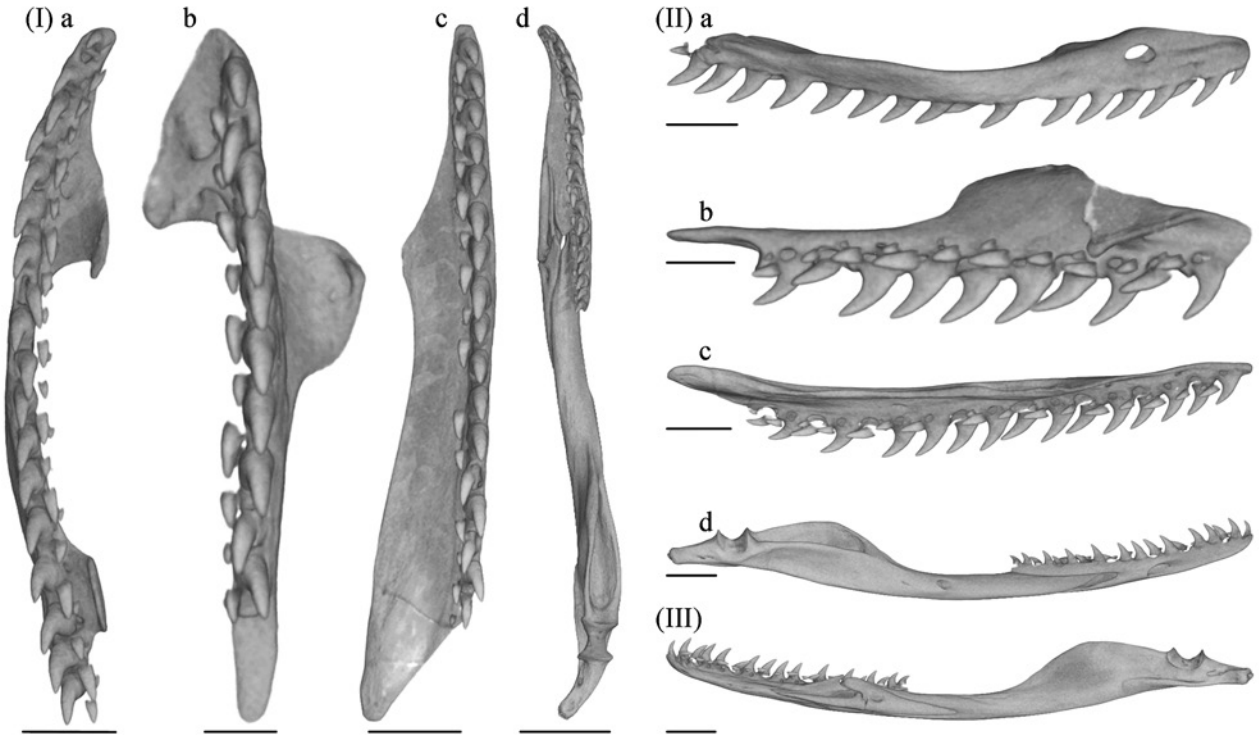


Plate III, Fig. 1: *Eirenis (Pediophis) barani barani*, ZSM 3715/2005; tooth-bearing bone of the right side of head. **I**. Ventral view of a: maxilla, scale bar = 0.75 mm; b: palatine, scale bar = 0.55 mm; c: pterygoid, scale bar = 0.9 mm. Dorsal view of d: mandible, scale bar = 1 mm. **II**. Outer lateral view of a: maxilla, scale bar = 0.65 mm; b: palatine, scale bar = 0.45 mm; c: pterygoid, scale bar = 0.75 mm; d: mandible, scale bar = 1 mm. **III**. Inner lateral view of mandible, scale bar = 1 mm.

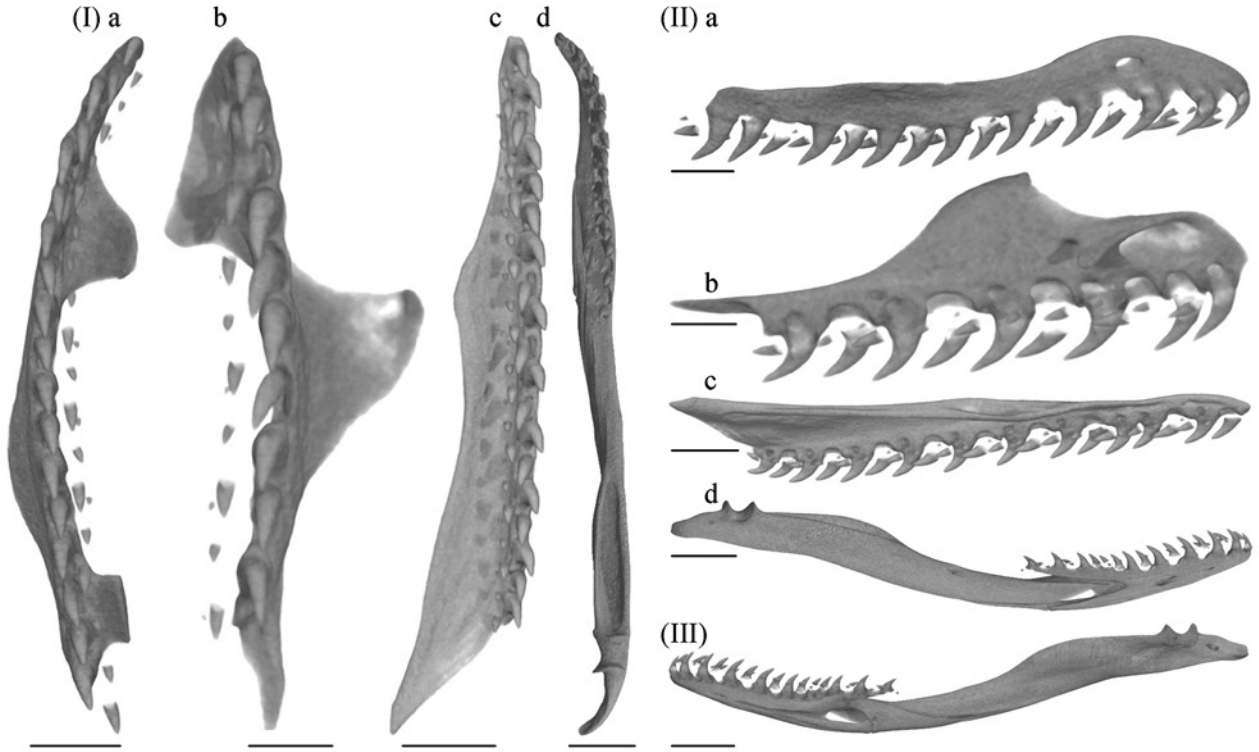


Plate III, Fig. 2: *Eirenis (Pediophis) collaris*, MTD 12203; tooth-bearing bone of the right side of head. **I**. Ventral view of a: maxilla, scale bar = 0.55 mm; b: palatine, scale bar = 0.3 mm; c: pterygoid, scale bar = 0.75 mm. Dorsal view of d: mandible, scale bar = 1 mm. **II**. Outer lateral view of a: maxilla, scale bar = 0.45 mm; b: palatine, scale bar = 0.3 mm; c: pterygoid, scale bar = 0.65 mm; d: mandible, scale bar = 1 mm. **III**. Inner lateral view of mandible, scale bar = 1 mm.

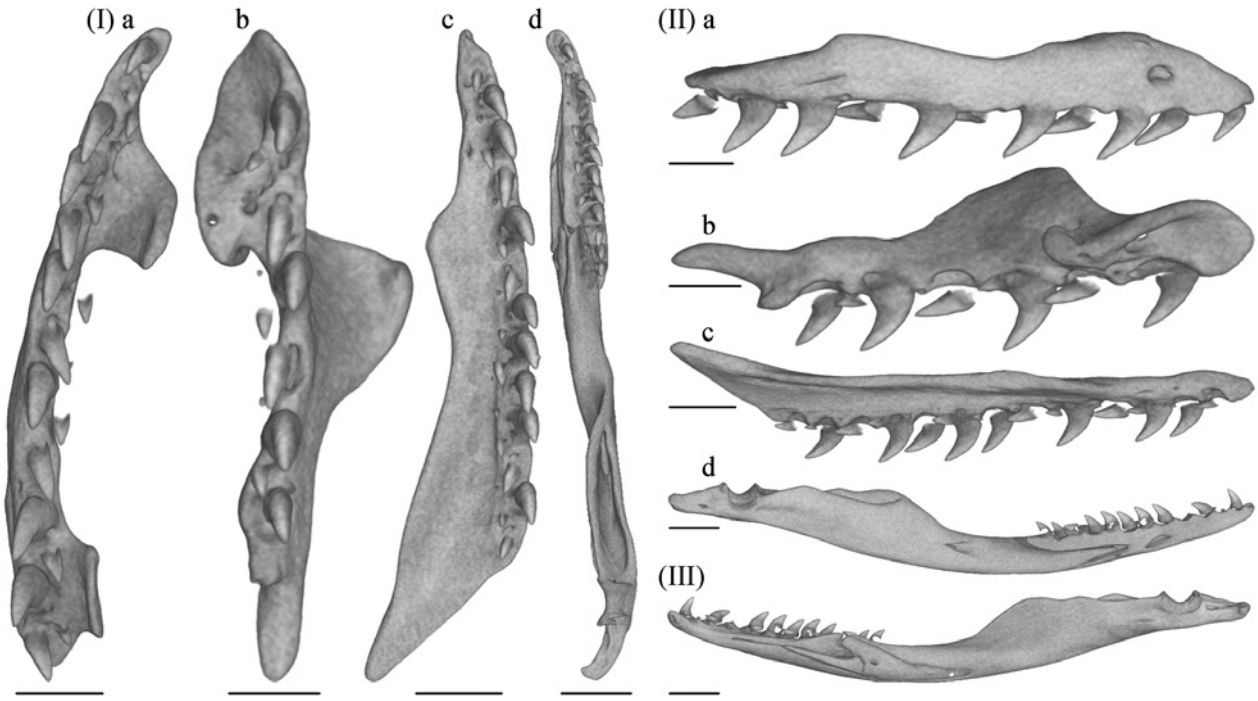


Plate IV, Fig. 1: *Eirenis (Pediophis) coronella coronella*, SMF 48123; tooth-bearing bone of the right side of head. **I**. Ventral view of a: maxilla, scale bar = 0.55 mm; b: palatine, scale bar = 0.45 mm; c: pterygoid, scale bar = 0.75 mm. Dorsal view of d: mandible, scale bar = 1 mm. **II**. Outer lateral view of a: maxilla, scale bar = 0.45 mm; b: palatine, scale bar = 0.4 mm; c: pterygoid, scale bar = 0.65 mm; d: mandible, scale bar = 1 mm. **III**. Inner lateral view of mandible, scale bar = 1 mm.

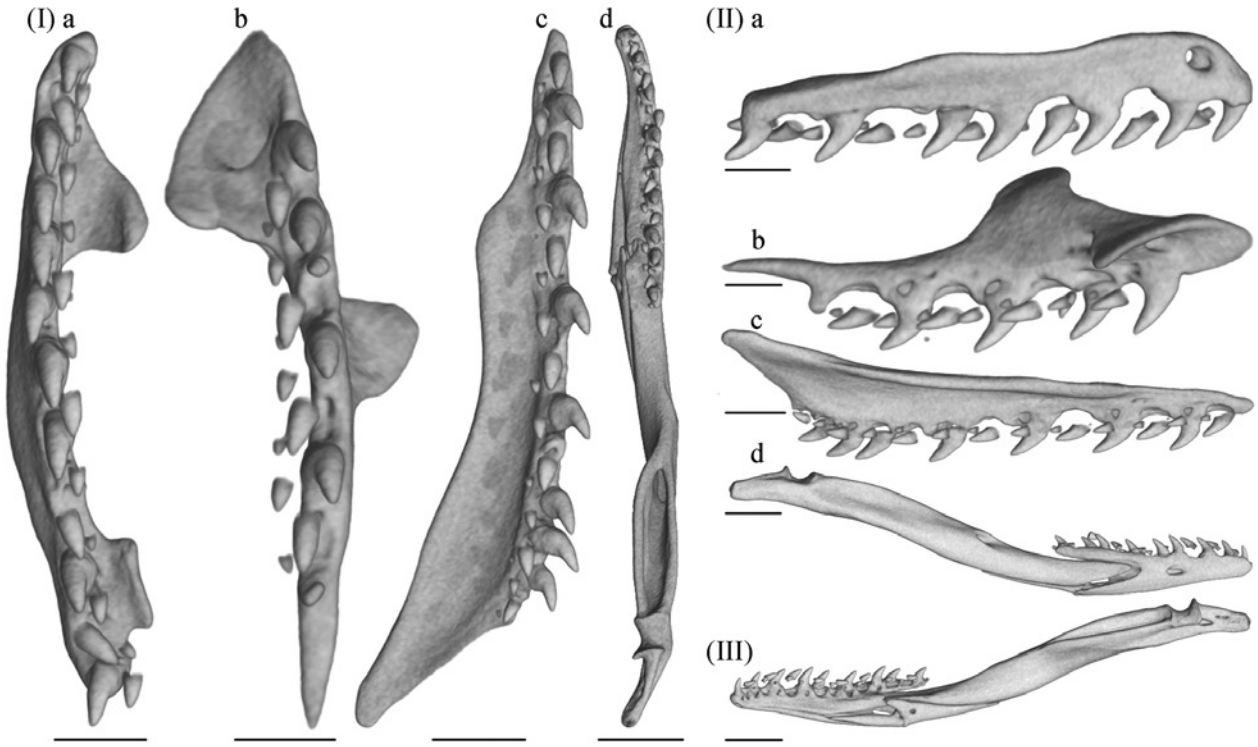


Plate IV, Fig. 2: *Eirenis (Pediophis) coronelloides*, ZSM 103/1983; tooth-bearing bone of the right side of head. **I**. Ventral view of a: maxilla, scale bar = 0.45 mm; b: palatine, scale bar = 0.4 mm; c: pterygoid, scale bar = 0.65 mm. Dorsal view of d: mandible, scale bar = 1 mm. **II**. Outer lateral view of a: maxilla, scale bar = 0.4 mm; b: palatine, scale bar = 0.3 mm; c: pterygoid, scale bar = 0.55 mm; d: mandible, scale bar = 1 mm. **III**. Inner lateral view of mandible, scale bar = 0.9 mm.

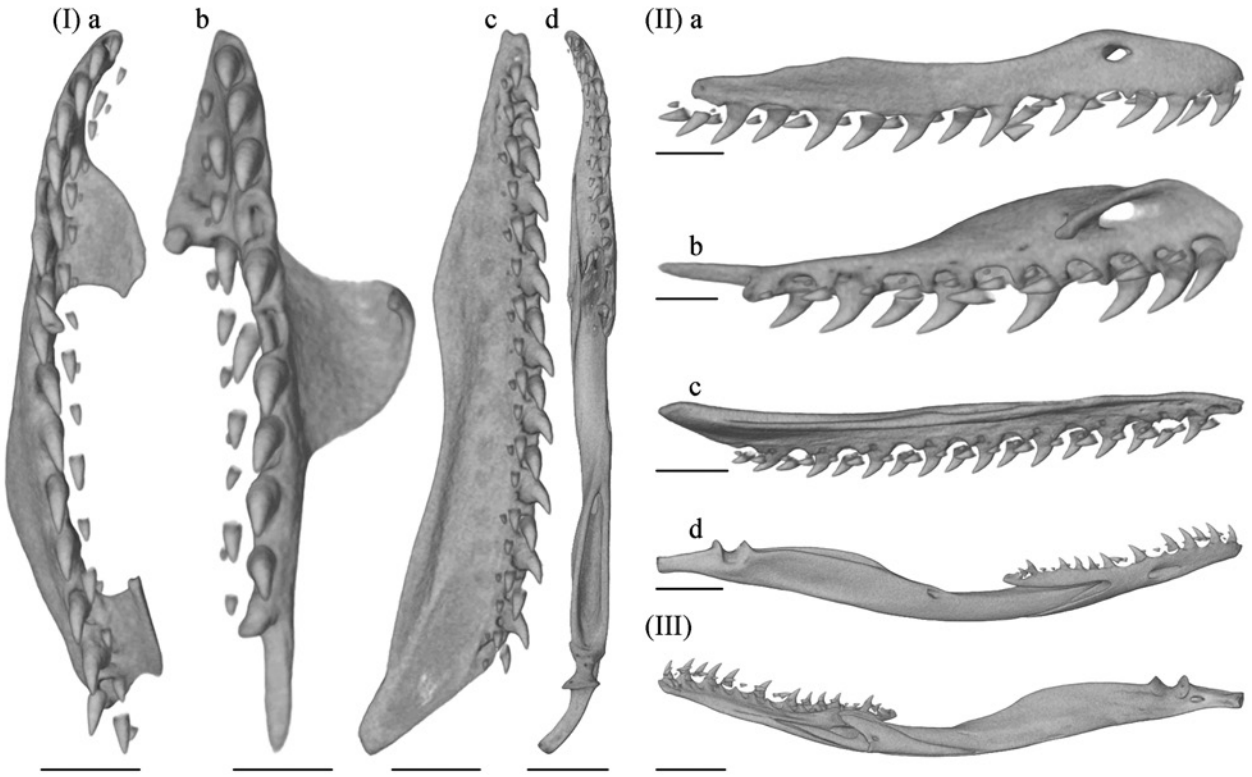


Plate V, Fig. 1: *Eirenis (Pediophis) eiselti*, ZSM 1295/2005; tooth-bearing bone of the right side of head. I. Ventral view of a: maxilla, scale bar = 0.55 mm; b: palatine, scale bar = 0.4 mm; c: pterygoid, scale bar = 0.65 mm. Dorsal view of d: mandible, scale bar = 1 mm. **II**. Outer lateral view of a: maxilla, scale bar = 0.45 mm; b: palatine, scale bar = 0.3 mm; c: pterygoid, scale bar = 0.65 mm; d: mandible, scale bar = 1 mm. **III**. Inner lateral view of mandible, scale bar = 1 mm.

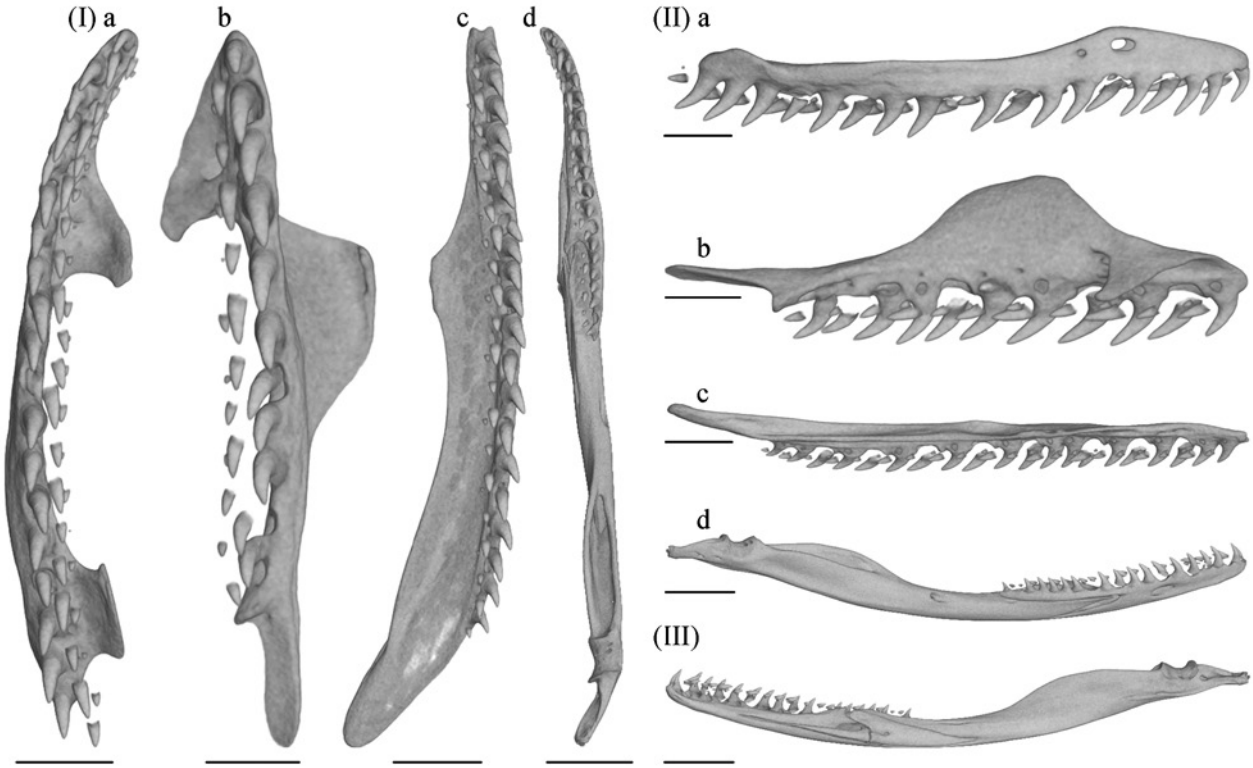


Plate V, Fig. 2: *Eirenis (Pediophis) hakkariensis*, ZSM 2888/2005, paratype; tooth-bearing bone of the right side of head. **I**. Ventral view of a: maxilla, scale bar = 0.75 mm; b: palatine, scale bar = 0.55 mm; c: pterygoid, scale bar = 0.9 mm. Dorsal view of d: mandible, scale bar = 1.5 mm. **II**. Outer lateral view of a: maxilla, scale bar = 0.65 mm; b: palatine, scale bar = 0.55 mm; c: pterygoid, scale bar = 0.9 mm; d: mandible, scale bar = 1.5 mm. **III**. Inner lateral view of mandible, scale bar = 1.5 mm.

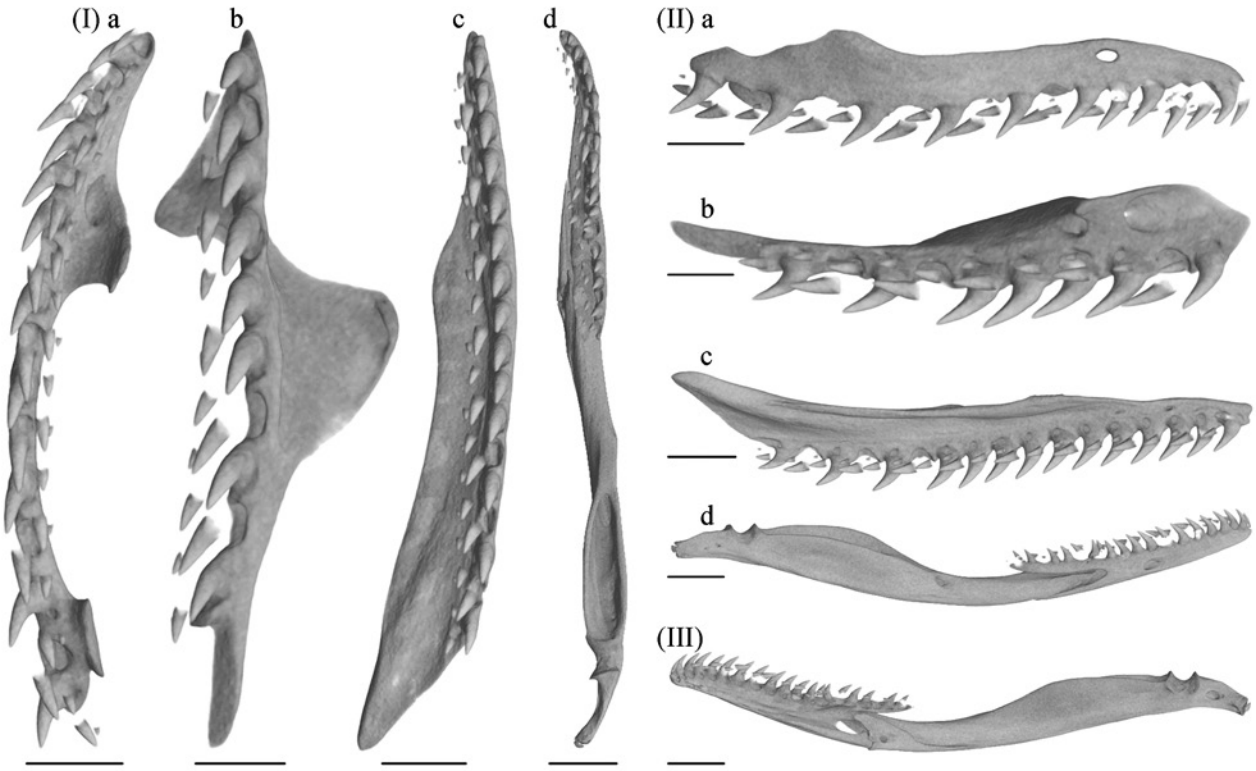
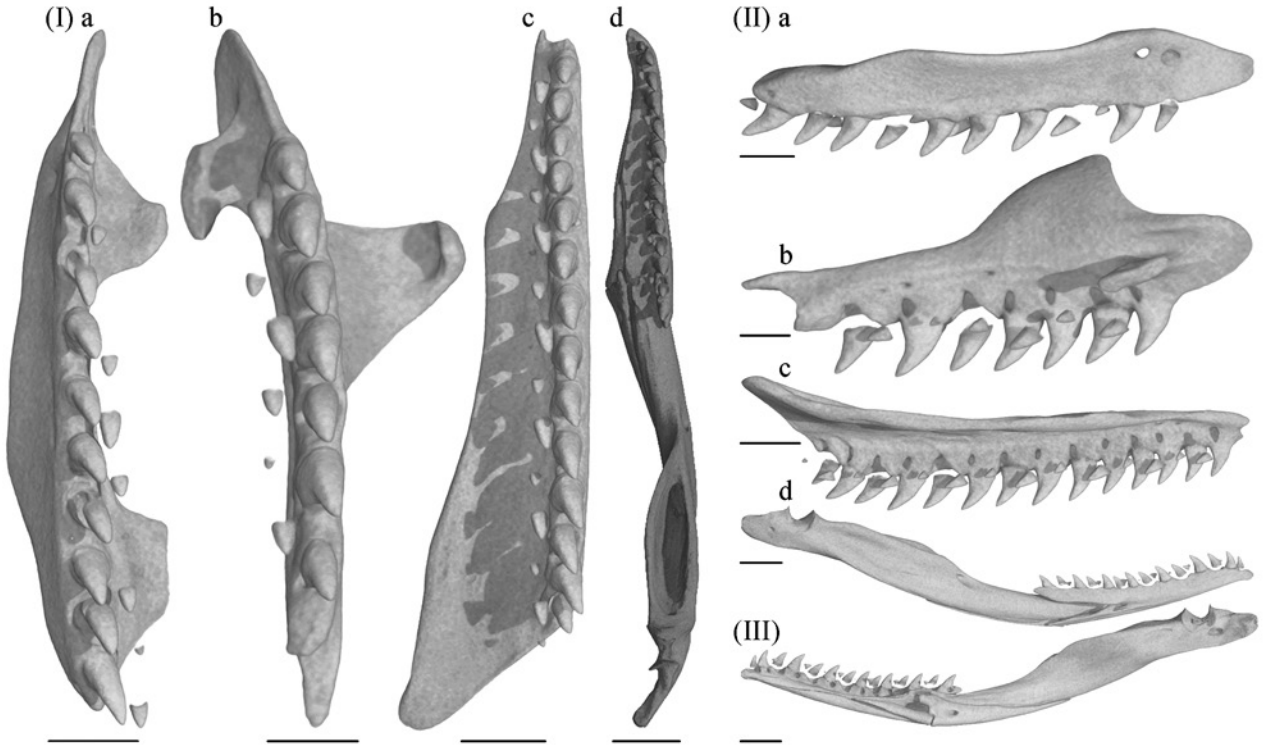


Plate VI, Fig. 1: *Eirenis (Pediophis) levantinus*, ZSM 3647/2005; tooth-bearing bone of the right side of head. **I**. Ventral view of a: maxilla, scale bar = 0.65 mm; b: palatine, scale bar = 0.45 mm; c: pterygoid, scale bar = 0.75 mm. Dorsal view of d: mandible, scale bar = 1 mm. **II**. Outer lateral view of a: maxilla, scale bar = 0.65 mm; b: palatine, scale bar = 0.4 mm; c: pterygoid, scale bar = 0.75 mm; d: mandible, scale bar = 1 mm. **III**. Inner lateral view of mandible, scale bar = 1 mm.



Pl. VI, Fig. 2: *Eirenis (Pediophis) lineomaculatus*, ZMB 19912; tooth-bearing bone of the right side of head. **I**. Ventral view of a: maxilla, scale bar = 0.55 mm; b: palatine, scale bar = 0.4 mm; c: pterygoid, scale bar = 0.65 mm. Dorsal view of d: mandible, scale bar = 1 mm. **II**. Outer lateral view of a: maxilla, scale bar = 0.45 mm; b: palatine, scale bar = 0.3 mm; c: pterygoid, scale bar = 0.65 mm; d: mandible, scale bar = 1 mm. **III**. Inner lateral view of mandible, scale bar = 1 mm.

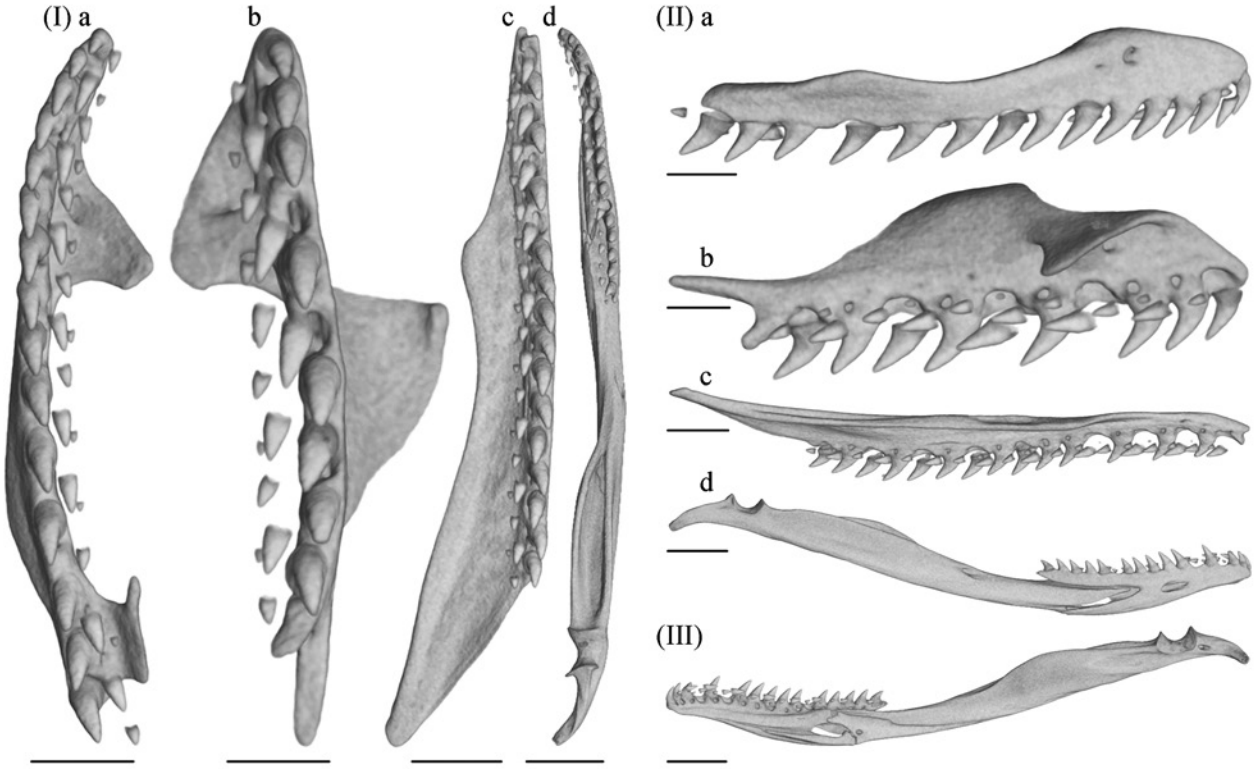


Plate VII, Fig. 1: *Eirenis (Pediophis) medus*, MTD 39375; tooth-bearing bone of the right side of head. **I**. Ventral view of a: maxilla, scale bar = 0.55 mm; b: palatine, scale bar = 0.4 mm; c: pterygoid, scale bar = 0.75 mm. Dorsal view of d: mandible, scale bar = 1 mm. **II**. Outer lateral view of a: maxilla, scale bar = 0.45 mm; b: palatine, scale bar = 0.3 mm; c: pterygoid, scale bar = 0.65 mm; d: mandible, scale bar = 1 mm. **III**. Inner lateral view of mandible, scale bar = 1 mm.

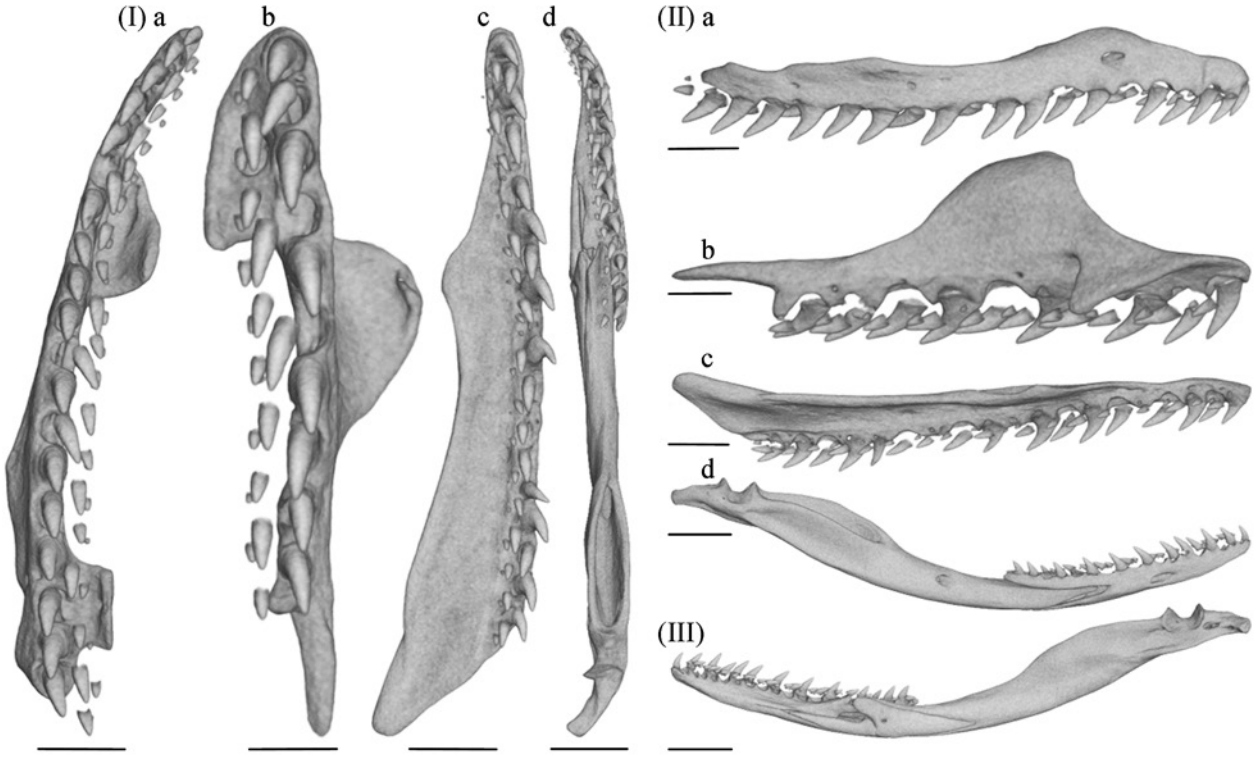


Plate VII, Fig. 2: *Eirenis (Pediophis) punctatolineatus punctatolineatus*, MTD 17705; tooth-bearing bone of the right side of head. **I**. Ventral view of a: maxilla, scale bar = 0.9 mm; b: palatine, scale bar = 0.65 mm; c: pterygoid, scale bar = 1 mm. Dorsal view of d: mandible, scale bar = 2 mm. **II**. Outer lateral view of a: maxilla, scale bar = 0.9 mm; b: palatine, scale bar = 0.55 mm; c: pterygoid, scale bar = 1 mm; d: mandible, scale bar = 2 mm. **III**. Inner lateral view of mandible, scale bar = 2 mm.

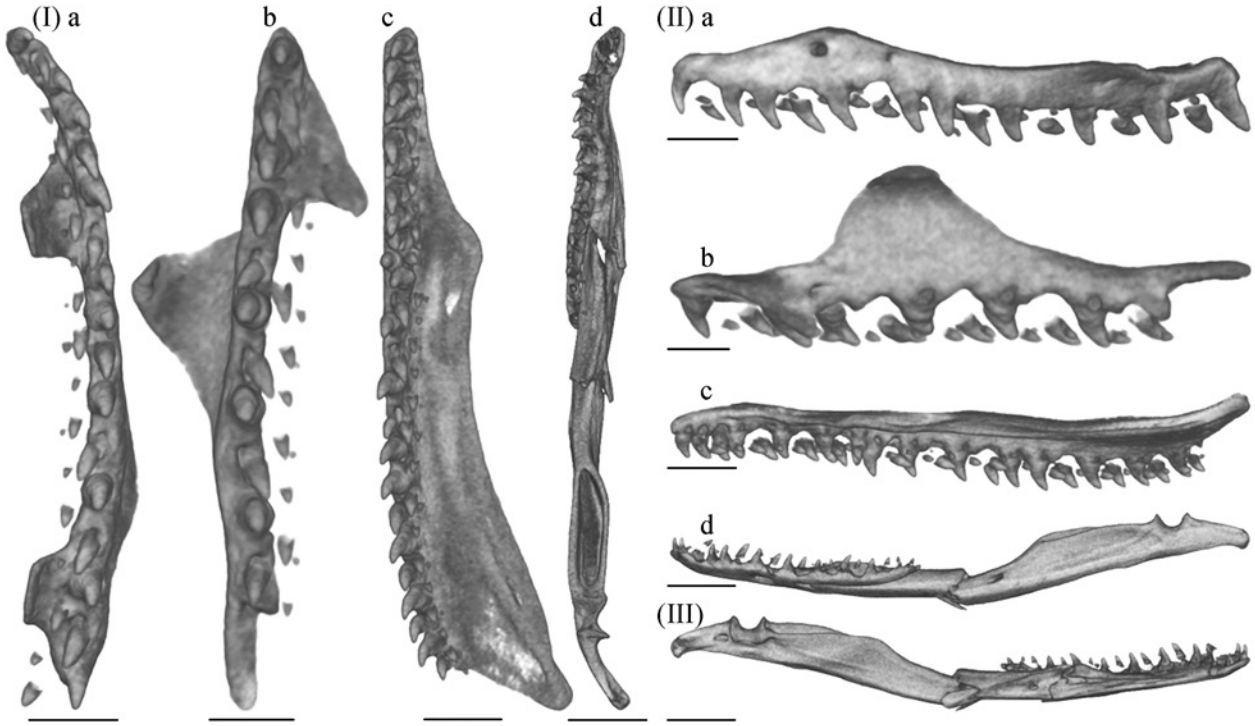


Plate VIII, Fig. 1: *Eirenis (?Pediophis) rechingeri,* NMW 19688, holotype; tooth-bearing bone of the left side of head. **I**. Ventral view of a: maxilla, scale bar = 0.65 mm; b: palatine, scale bar = 0.45 mm; c: pterygoid, scale bar = 0.75 mm. Dorsal view of d: mandible, scale bar = 1 mm. **II**. Outer lateral view of a: maxilla, scale bar = 0.55 mm; b: palatine, scale bar = 0.4 mm; c: pterygoid, scale bar = 0.75 mm; d: mandible, scale bar = 1 mm. **III**. Inner lateral view of mandible, scale bar = 1 mm.

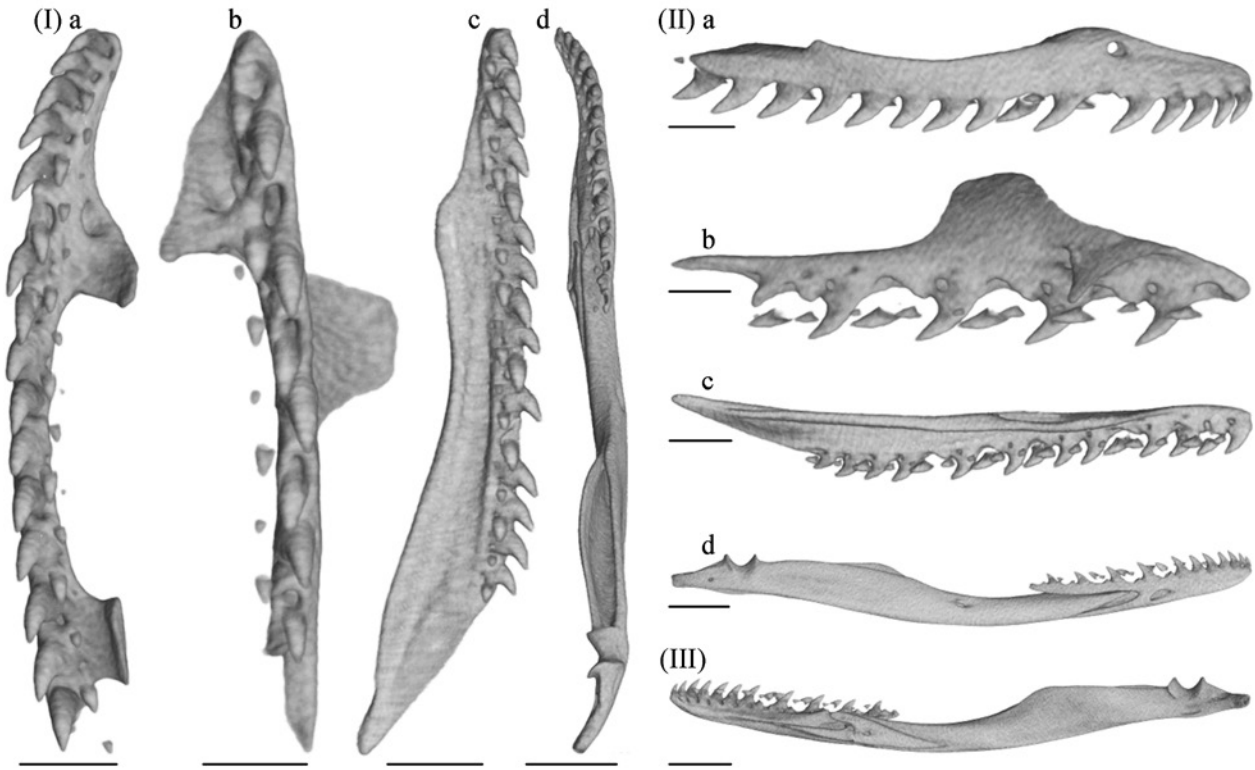


Plate VIII, Fig. 2: *Eirenis (Pediophis) rothii*, ZMB 77663; tooth-bearing bone of the right side of head. **I**. Ventral view of a: maxilla, scale bar = 0.45 mm; b: palatine, scale bar = 0.4 mm; c: pterygoid, scale bar = 0.65 mm. Dorsal view of d: mandible, scale bar = 0.9 mm. **II**. Outer lateral view of a: maxilla, scale bar = 0.4 mm; b: palatine, scale bar = 0.3 mm; c: pterygoid, scale bar = 0.55 mm; d: mandible, scale bar = 0.9 mm. **III**. Inner lateral view of mandible, scale bar = 0.9 mm.

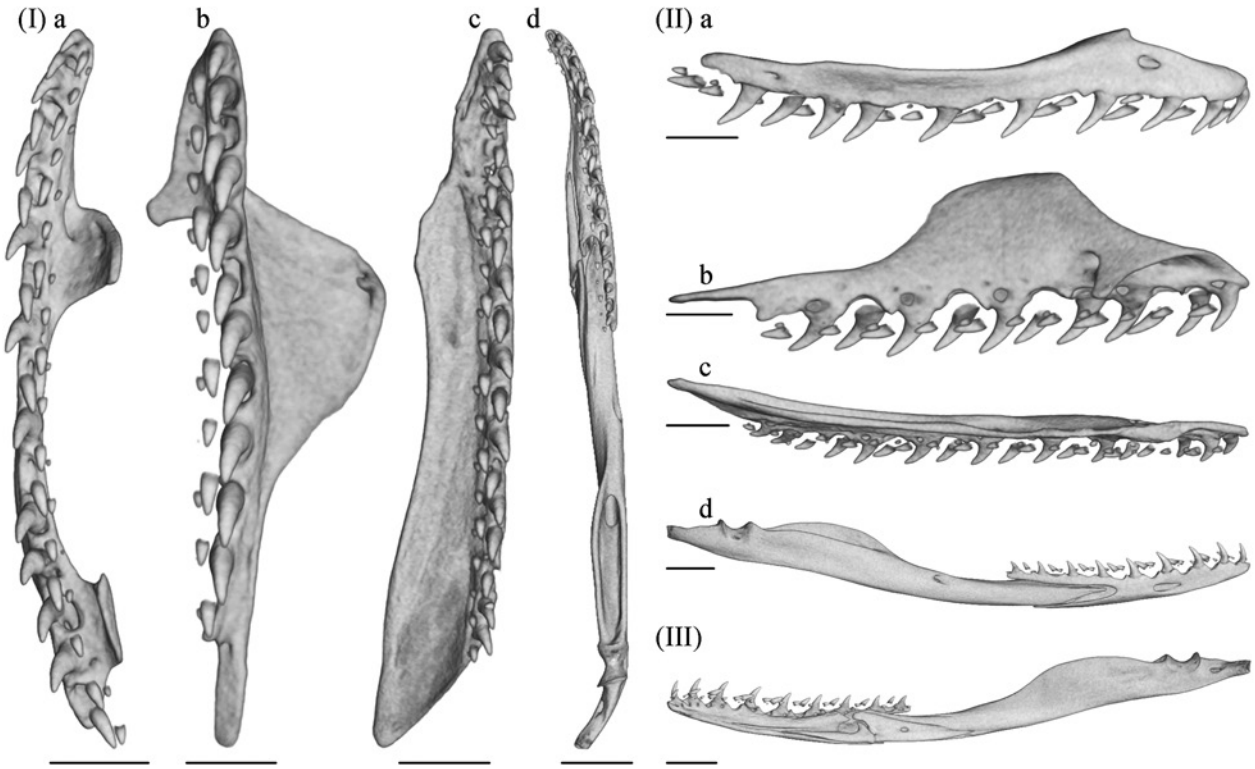


Plate IX, Fig. 1: *Eirenis (Pediophis) thospitis*, ZSM 3445/2005; tooth-bearing bone of the right side of head. **I**. Ventral view of a: maxilla, scale bar = 0.65 mm; b: palatine, scale bar = 0.45 mm; c: pterygoid, scale bar = 0.75 mm. Dorsal view of d: mandible, scale bar = 1 mm. **II**. Outer lateral view of a: maxilla, scale bar = 0.55 mm; b: palatine, scale bar = 0.4 mm; c: pterygoid, scale bar = 0.65 mm; d: mandible, scale bar = 1 mm. **III**. Inner lateral view of mandible, scale bar = 1 mm.

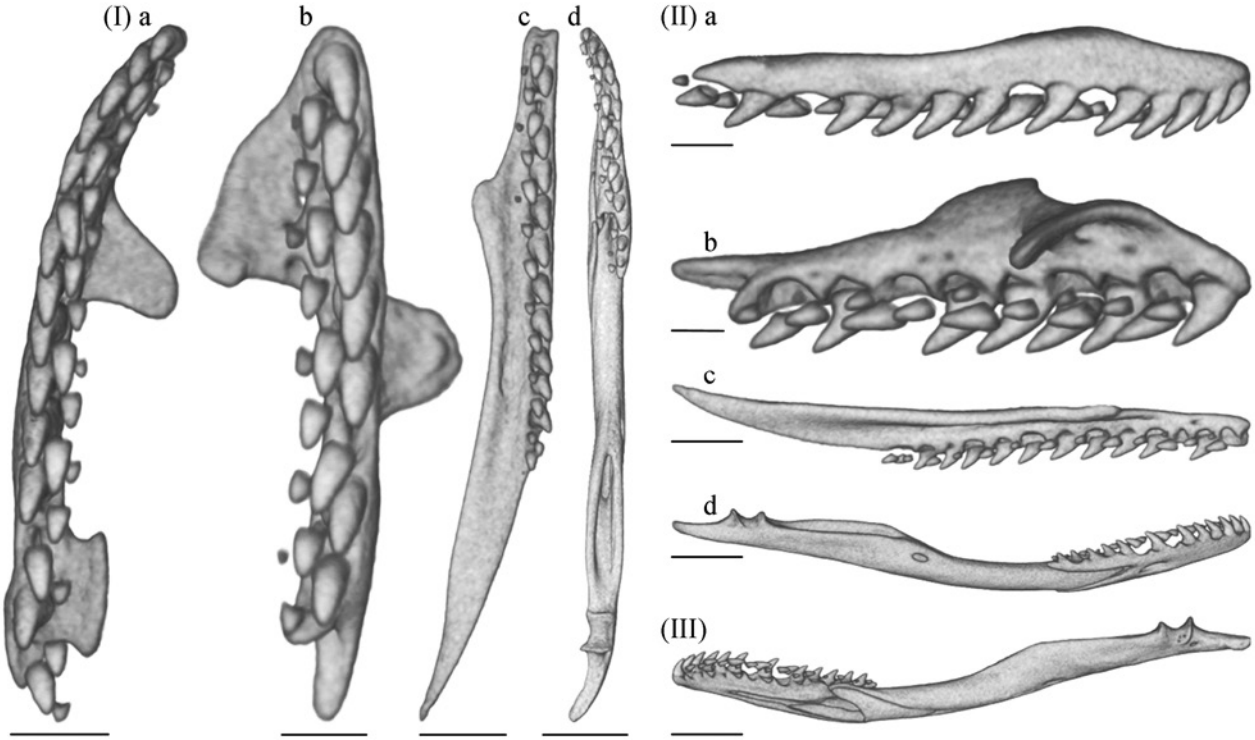


Plate IX, Fig. 2: *Eirenis (Pseudocyclophis) persicus* (sensu lato), ZFMK 87379; tooth-bearing bone of the right side of head. **I**. Ventral view of a: maxilla, scale bar = 0.4 mm; b: palatine, scale bar = 0.25 mm; c: pterygoid, scale bar = 0.55 mm. Dorsal view of d: mandible, scale bar = 0.9 mm. **II**. Outer lateral view of a: maxilla, scale bar = 0.3 mm; b: palatine, scale bar = 0.2 mm; c: pterygoid, scale bar = 0.55 mm; d: mandible, scale bar = 0.9 mm. **III**. Inner lateral view of mandible, scale bar = 0.9 mm.

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Appendix 1

Material examined

***Eirenis* (*Eirenis*)**

aurolineatus
Turkey: ZMB 78175, S Taurus; ZSM 1131/2005, 5 km N Findikpinar; ZSM 3443/2005, 3639/2005 3641/2005, all from 5 km N Karaisali.
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cf. *aurolineatus*
Lebanon: NMW 15267, without exact locality, (Paratype of *Eirenis levantinus*); SMF 19279–19280, Broumana.
—
modestus-complex (including the nominate ssp. sensu SCHMIDTLER (1993, 1997))
Azerbaijan: MTD 47637, 48128, Girdimancay, W Aksu.
Georgia: MTD 25052–25053, Tiblisi; ZMB 47082, Tibilisi.
Greece: NMW 15268, Alazonisi (Lectotype of *Contia modesta werneri*); SMF 70222, Agiassos, Lesbos.
Syria: NMW 15243:7–11, without exact locality.
Turkey: MHNG 2423.059, Iskenderun; MTD 25236, "Selcuk oder Antalya"; MTD 29296–29298, O Anatolia, Karakurt; ZMB 6190A–D, Trapezunt; ZMB 13524, 77482 Karien; ZMB 13525, Adanda Kalesı; ZMB 78708, Taurus; ZMB 7357, Izmir; ZMB 77651 Hierapolis; ZMB 77652 without exact locality; ZMB 78176, S Taurus; ZMH R09734, Göcek, Bay of Makri.
—
modestus cilicius
Turkey: MHNG 1405.052, 1406.037, Silifke (Paratypes of *Eirenis modestus cilicius*); MHNG 1406.043, N Mersin (Paratype of *Eirenis modestus cilicius*); MHNG 2148.050, Anatolien (Paratype of *Eirenis modestus cilicius*); NMW 31872:3–4, NE Anamur (Paratypes of *Eirenis modestus cilicius*); NMW 32028:1, Mersin; ZMB 23973a–b, ZMB 23981a–b, all from Taurus.
—
modestus semimaculatus
Turkey: MTD 25238, Selcuk or Antalya; ZMB 78707, Taurus.
Greece: SMF 19287, Chios (Holotype of *Ablabes modestus* var. *semimaculatus*); SMF 64957–64958, Xerokampos, Leros; ZMB 13526, Chios.

***Eirenis* (*Eoseirenis*)**

decemlineatus
Israel: MTD 15379, Haiffa; ZMB 65398–65399, Tabylia nr. Tiberias; ZMB 77654, nr. Tiberias.
Syria: ZMB 23779, 23783, 23784a–d, 23796a–b, 23840, 77969, all Central Mesopotamien, NE Syria.
Turkey: NMW 15247, Mush [Muş], Kurdistan; ZMB 11044, Sendschirli; ZMB 11046, Sendschirli; ZMB 14302, Sendschirli; ZMB 19910–19911, Mersin; ZMB 24017, Mersin; ZMB 26677a–e, Sendschirli.
—
Without locality: MNHN 3389 (Holotype of *Ablabes decemlineatus*); MNHN 7402 (Holotype of *Eirenis collaris* var. *inornata*); ZMB 53721–53723; ZMB 77653.

***Eirenis* (*Pediophis*)**

africanus
Djibouti: MNHN 1999–9279 region of Dittilou.
Sudan: BMNH 1941.5.14.21, Erkowit, Red Sea Province, (Holotype of *Contia africana*).
—
barani barani
Turkey: ZMB 26676, Sendschirli; ZSM 3709/2005–3711/2005, 7 km N Kaypak; ZSM 3713/2005–3716/2005, 24 km E Nurdagi; ZSM 3732/2005–3737/2005, 35 km N Ceyhan; ZSM 3738/2005–3740/2005, 6 km S Karsanti.
barani bischofforum:
Turkey: ZSM 3681/2005–3682/2005, 3721/2005–3722/2005 all from 40 km SW Kahramanmaras; ZSM 3702/2005–3703/2005, SE Püren-Paß.
—
collaris
Armenia: MTD 12203–12204, 20324–20325, 20374, 21886, all from Jerewan.
Azerbaijan: ZISP 1546, Bèchebermak, (Lectotype of *Coluber collaris*); ZSM 952/2010–959/2010, all from Ordubad.
Iran: MHNG 1363.048, Gorgor; SMF 70947, Ahwaz N Abadan.
Iraq: FMNH 74608, Erbil Liwa.
—
coronella coronella
Iraq: FMNH 11362, Rutba Post, (Paratype of *Eirenis coronella fraseri)*; FMNH 19576, Papworth's area, 25 mi S Rutba, (Paratype of

Eirenis coronella fraseri); FMNH 74606, Bastura River valley, 4 mi upstream from Erbil-Salahedin road.
Israel: MHNG 1363.041, Beersheba Terr, 50 km southeast Ghaza; MHNG 2574.088, Mitzpe Ramon; NMW 20183, Jerusalem; SMF 48123, Jerocham.
Jordan: FMNH 48512, Transjordan, Amman to el Qatrane; MTD 35659, without exact locality.
Syria: MNHN 1935.0377, Palmyre; SMF 19300, without exact locality; ZFMK 7540, 100 km S Damaskus.
—
coronella fennelli
Saudi Arabia: MHNG 2456.074–2456.075, Shafa.
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coronelloides
Jordan: ZSM 2730/2005 without exact locality.
Syria: MNHN 1935.0375–1935.0376, Djebel et Amiri; ZMB 23817–23818, 23822, 23832 Central Mesopotamien, NE Syria.
Turkey: ZSM 465/1976, Urfa; ZSM 103/1983, 10 km O Viransehir.
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eiselti
Syria: ZMB 23809 Central Mesopotamien, NE Syria.
Turkey: MTD 3504, Malatya; MTD 14596, Diyarbakir; MTD 25961, Diyarbakir; ZMB 45870, Diyarbakir; ZSM 568/2002, 3245/2005–3247/2005, all from 22 km W Viransehir; ZSM 1295/2005, 15–40 km N Mardin; ZSM 1802/2005–1806/2005, 49 km SE Kangal.
—
hakkariensis
Turkey: ZSM 2887–2892/2005 and ZSM 3409/2005, all paratypes from above Hakkari-City.
—
levantinus
Cyprus: ZMB 11719, without exact locality.
Israel: ZMB 29115, without exact locality.
Syrien: MHNG 2423.098, 2425.079, route from Latakia to Iskenderun (Paratypes of *Eirenis levantinus*); MHNG 2423.062, Kizilyuku (Paratype of *Eirenis levantinus*); MHNG 2425.078, 35km O Ceyhan (Paratype of *Eirenis levantinus*); ZMB 38960, without exact locality.
Turkey: MTD 25237, MTD 25239–25243 all from Selcuk or Antalya; MTD 25749, Cinetal; NMW 31873:14–19, Belem-Paß, Prov. Antakya (Paratypes of *Eirenis levantinus*); MHNG 1406.044, N Mersin (Paratype of *Eirenis levantinus*); ZMB 27354, Bulghar Dagh (Taurus); ZMB 31150, S Taurus; ZMH R09731, ?Göcek; ZSM 3383/2005–3387/2005, 20–33 km E Camliyayla; ZSM 3647/2005, 1 km N Teknepinar; ZSM 3648/2005–3652/2005, 12 km SSW Hassa.
—
lineomaculatus
Israel: FMNH 21909, Jordan Valley (Holotype of *Eirenis lineomaculata*); FMNH 74399, Jerusalem; NMW 15280:2, 20181:1–2 all from Jerusalem; NMW 20180, Jaffa; SMF 19294–19296, Haifa; SMF 48180, 49661, 50366, Ramat; ZFMK 30685, Jerusalem; ZMH R09730, Talpioti.
Lebanon: SMF 19298–19299, Beirut.
Syria: NMW 20179, without exact locality; NMW 22301:1–4, Golan hights.
Turkey: MHNG 1363.042, Iskenderun; NMW 15279, Iskenderun; ZFMK 30507, N Adana; ZFMK 38509–38510, Belen-Pass; ZMB 19912, Mersin; ZMB 31375, Marasch; ZMB 65407, without exact locality; ZSM 1511/2005; 45–47 km SW Malatya.
—
medus
Iran: MHNG 2642.086, Gonharan; ZFMK 71613, 100 km S Teheran: Razan.
Turkmenistan: MTD 27072–27073, Kopet-Dagh, Gaudan; MTD 35067, Saivan; MTD 39375–39376, Aschchabadskaja Oblast: Aschchabadskij Raion: ur Gaudan; ZMB 51838, Tekemor; ZSM 1175/2006–1176/2006, Kopet-Dagh.
—
punctatolineatus punctatolineatus
Armenia: MTD 17705–17706, Sar; SMF 19288, Karabagh (Holotype of *Cyclophis modestus* var. *punctatolineata*).
Azerbaijan: FMNH 83963, Ordubad District, Parag.
Iran: MHNG 2626.099, Hashtijan; ZMB 31840 Kurdistan, West Persien.
Turkey: MHNG 1363.053–055, Gerger; ZSM 1277/2005, Zab valley near Hakkari-bridge; ZSM 1768/2005, S Gündüzbey; ZSM 2782/2005, 60 km W Malatya; ZSM 3446/2005, Edremit, S Van.
—
punctatolineatus condoni
Iran: BMNH 1946.1.5.41, Shiraz (Syntype of *Contia condoni*); MHNG 2626.100, 2627.001 autour de Do Gonbadan, Boyer Ahmadi va Kohkiluyeh; MHNG 2646.037; Jamal Barez, Kerman; MHNG 2646.045, Kerman; MHNG 2646.062, Boyerahmad; NMW 32021:1–2, Shiraz; ZMH R09733, SW Persia.
—
p. punctatolineatus **x** *p. condoni*
Iran: ZSM 1178/2006, Quazvin.
—
cf. *punctatolineatus*
Iran: FMNH 20950, Persien, without exact locality (Holotype of *Eirenis iranica*); MHNG 2646.044, 27 km before Jiroft, Kerman; MHNG 2646.045, Kerman.
—
rechingeri
Iran: NMW 19588, Schiraz (Holotype).
—
rothii
Turkey: ZMB 14375, 77658–77672, 77967–77968, all from Sendschirli.
Israel: MHNG 1543.098, Jerusalem; SMF 19289–19290, Haifa; ZMB 6565, 13787 without exact locality; ZMB 21642, Jerusalem.
—
thospitis
Turkey: ZSM 3445/2005, 10 km E Van; ZSM 3505/2005, Erek Mountains E Van.

***Eirenis* (*Pseudocyclophis*)**

persicus-complex
Iran: MVZ 236795, Khabr, Mazandaran Prov.; NMW 19557:1–2, Sultanabad; NMW 19558:1, 32020:2, Darab; NMW 32020:4, 60 km E Qasr-e shirin; NMW 19558:2, Sarmenshad nr. Kazerun; NMW 32020:1, Schiraz; NMW 32020:3, Sirjan; RAN 749, near Sirjant, Kerman Prov.; RAN 1792, near Qasr-e-Shirim, Kermanshah Prov.; ZFMK 31620, Schiraz; ZFMK 87379–87380, Kermanshah City; ZISP 10323, Urbs Dizful, (Holotype of *Contia persica* var. *nigrofasciata*).
Iraq: FMNH 74953, Kirkuk Liwa; SMF 51858, Salahudin; SMF 70948, Erbil; SMF 76437, Swaratuka.
Pakistan: SMF 62955, Band Murad Khan.
Turkey: NMW 19556:1–3, surroundings of Mardin; NMW 19556:4, Siirt; NMW 19556:5–6, surrounding of Hakkari; NMW 19556:7–9, Semdinli-Pass; ZFMK 75825–75826, 75832, Halfeti, Euphrat; ZSM 565/2002, Euphrates valley 3 km N Halfeti; ZSM 569/2002, 3242/2005–3243/2005, 22 km W Viransehir; ZSM 1711/2005–1712/2005, Euphrates valley 4 km N Halfeti.
Turkmenistan: MTD 39374, Aschchabadskaja Oblast: Aschchabadskij Raion: ur Culi; ZMB 38438, around Serakhs; ZMB 38818, 77656–77657, Serakhs.
—
Eirenis sp.
Turkey: ZMH R09732, Göcek.