

# *Gonodera gilanica* n. sp. (Coleoptera: Tenebrionidae: Alleculinae: Gonoderini) from Iran

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## Abstract

*Gonodera gilanica* n. sp. is described from Iran and compared with the similar species *G. macrophthalma* Reitter, 1884 and *G. rufoaenea* Reitter, 1900. *G. jureceki* Mařan, 1944 is a **new synonym** of *G. rufoaenea*. All species treated are keyed and illustrated.

**Key words:** Taxonomy, new species, new synonymy, key, Alleculinae, *Gonodera*, Palaearctic region.

## Zusammenfassung

*Gonodera gilanica* n. sp. aus dem Iran wird beschrieben und mit den ähnlichen Arten *G. macrophthalma* Reitter, 1884 und *G. rufoaenea* Reitter, 1900 verglichen. *G. jureceki* Mařan, 1944 ist ein **neues Synonym** von *G. rufoaenea*. Alle behandelten Arten werden abgebildet und in einem Bestimmungsschlüssel dargestellt.

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## 1 Introduction

MULSANT (1856) described the genus *Gonodera* Mulsant, 1856 of the subtribe Gonoderina Seidlitz, 1896. BORCHMANN (1910) knew 10 species of this genus, MADER (1928) 10 and NOVÁK & PETERSSON (2008) 12. SEIDLITZ (1896) and MAŘAN (1944) separated the species of *Gonodera* s. str. (i. e. with antennomere 3 almost as long as antennomere 4) into a species group with elytral interspaces convex and into a group with elytral interspaces flat; into this latter group fall *Gonodera jureceki* Mařan, 1944 from Turkey, *G. macrophthalma* Reitter, 1884 from Armenia, Russia (southern territory), Turkey (Asian territory) and “Caucasus”, and *G. rufoaenea* Reitter, 1900 from Syria and Turkey. An additional species from Iran, evidently also belonging to this group, is described in the present paper as *G. gilanica* n. sp. and compared with its congeners.

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Republic) for making digital photographs and ZUZANA ČADOVÁ (Liberec, Czech Republic) for the excellent drawings.

## 2 Material and methods

Two important morphometric characteristics are applied: the ‘ocular index’ (CAMPBELL & MARSHALL 1964), i. e. minimum distance between the eyes divided by maximum dorsal width across the eyes, the resulting quotient multiplied by 100, and the ‘pronotal index’ (CAMPBELL 1965), i. e. ratio of the pronotal length along the midline to the pronotal width at the posterior angles, this value multiplied by 100 for convenience.

Labels of type material are cited in their original spelling and language, except for the following adaptations according to the general format requirements of the journal: names of persons (except authors of species) in small capitals, scientific names of genera and species in italics. A slash (/) separates lines from the labels, and a double slash (//) separates different labels.

### Acronyms of depositories

HNHM	Hungarian Natural History Museum, Budapest, Hungary
NMPC	National Museum of Prague, Czech Republic
SMNS	Staatliches Museum für Naturkunde, Stuttgart, Germany
VNPC	private collection VLADIMÍR NOVÁK, Praha, Czech Republic

### 3 Taxonomy

#### 3.1 *Gonodera gilanica* n. sp.

(Figs. 1, 2, 8, 12)

Type locality: Iran, Gilán.

**Holotype** (♂): 'Iran bor. 1.6.2001' / 'Gilan mer.or' / 'Rudbar env.' / 'Igt. ORZSULIK' (VNPC).

**Paratypes**: 1 ♀: 'Iran, C Gilán, 36.51N/49.36E,' / 'Darr e Dasht,' / '(20 km E Rúdbár),' / '4.v.2000, J. KALÁB leg.' (VNPC). – 1 ♀: 'Iran – Gilan m. 150' / '9 km S Asalem' / '18/22.V.2002, leg. G. SAMA' (SMNS).

All types have printed red labels '*Gonodera gilanica* sp. nov. Holotypus [respectively Paratypus] V. NOVÁK det. 2008'.

#### Etymology

The new species is named after the type locality, district Gilán, in Iran.

#### Description

Male holotype:

Habitus see Fig. 1. Body from pale brown to dark brown, length 11.32 mm, widest near two-thirds of elytral length, maximum width 3.93 mm, 2.88 times as long as wide.

Head (Fig. 8) large, relatively broad, posterior half dark brown, anterior half and clypeus pale brown with short pale brown setation, setation of clypeus longer. Head widest across eyes (1.79 mm), approximately 0.73 times as wide as pronotal base. Length of head (visible part) 1.69 mm. Eyes large, transverse, dark, slightly excised. Space between eyes shorter than diameter of eye, ocular index 27.21. Punctuation of posterior half dense and coarse, punctures large and relatively deep. Punctuation of anterior half sparse, punctures smaller.

Antenna relatively long (7.48 mm, i. e. reaching 0.66 of body length), unicoloured pale brown with short pale brown setation, dense punctuation and microgranulation. Antennomeres dull, antennomeres 3–10 slightly serrate, conspicuously widened at apex, antennomere 2 shortest, antennomeres 4–11 longer than antennomere 3. Ratios of lengths of antennomeres 1–11 equal to 0.76 : 0.36 : 1.00 : 1.75 : 1.66 : 1.82 : 1.95 : 2.07 : 2.02 : 1.95 : 1.98. Length/maximum width ratios of antennomeres 1–11 equal to 1.40 : 1.25 : 2.39 : 3.00 : 2.76 : 3.13 : 3.34 : 3.80 : 3.96 : 4.11 : 6.05.

Maxillary palpus unicoloured pale brown, concolorous with tarsi and antenna, with short pale brown setation, shiny. Palpomeres 2–4 distinctly widened at apex, penultimate palpomere shorter than palpomere 2 and ultimate palpomere. Ultimate palpomere elongate triangular, axe-shaped, apex distinctly rounded near outer border. Ratios of lengths of palpomeres 2–4 equal to 1.68 : 1.00 : 0.93. Length/maximum width ratios of palpomeres 2–4 equal to 3.97 : 2.00 : 2.32.

Pronotum (Fig. 8) six-angled, brown, glabrous, distinctly narrower than elytra; at base 1.36 times as wide as

head across eyes, longest in the middle (1.51 mm) and widest near the middle, width at base 2.44 mm. Pronotal index 62.07. Borders complete, conspicuous through their entire length, except the middle of the base which is inconspicuous. Posterior margin very finely bisinuate and slightly rounded, posterior and anterior angles rounded and obtuse-angled, lateral margins with distinct angle and impression on both sides near the middle, finely excised and with additional impression near posterior angles on both sides, anterior margin nearly straight. Surface with microgranulation and relatively dense punctation, punctures small, interspaces broader than diameter of punctures.

Elytra unicoloured brown, glabrous, 8.12 mm long and 3.93 mm wide, distinctly broader than pronotum, widest approximately at two-thirds from base. Ratio elytral length/maximum width 2.07. Surface punctate, elytral striae distinct, punctures in striae medium-sized, separated by less than one puncture diameter. Elytral intervals with relatively dense punctation and microgranulation, punctures small-sized, slightly shiny. Elytral epipleura well developed, glabrous, pale brown, evenly narrowing in basal half, parallel in apical half anterior to abdominal sternite 5, then narrowing to rounded apex.

Scutellum large, glabrous, triangular, brown with dark margins, paler than pronotum.

Legs pale brown with dense, short, pale brown setation, tarsi with distinctly longer pale brown setation. Femora thicker than tibia. Tibia very narrow in posterior half, slightly widening anteriorly in anterior half. Penultimate tarsomeres without membranous lobes. Ratios of lengths of tarsomeres 1–5 and 1–4 equal to 1.00 : 0.64 : 0.59 : 0.49 : 1.23 (protarsus), 1.00 : 0.46 : 0.42 : 0.30 : 0.92 (mesotarsus), and 1.00 : 0.47 : 0.30 : 0.69 (metatarsus). Both anterior tarsal claws with 7 visible teeth.

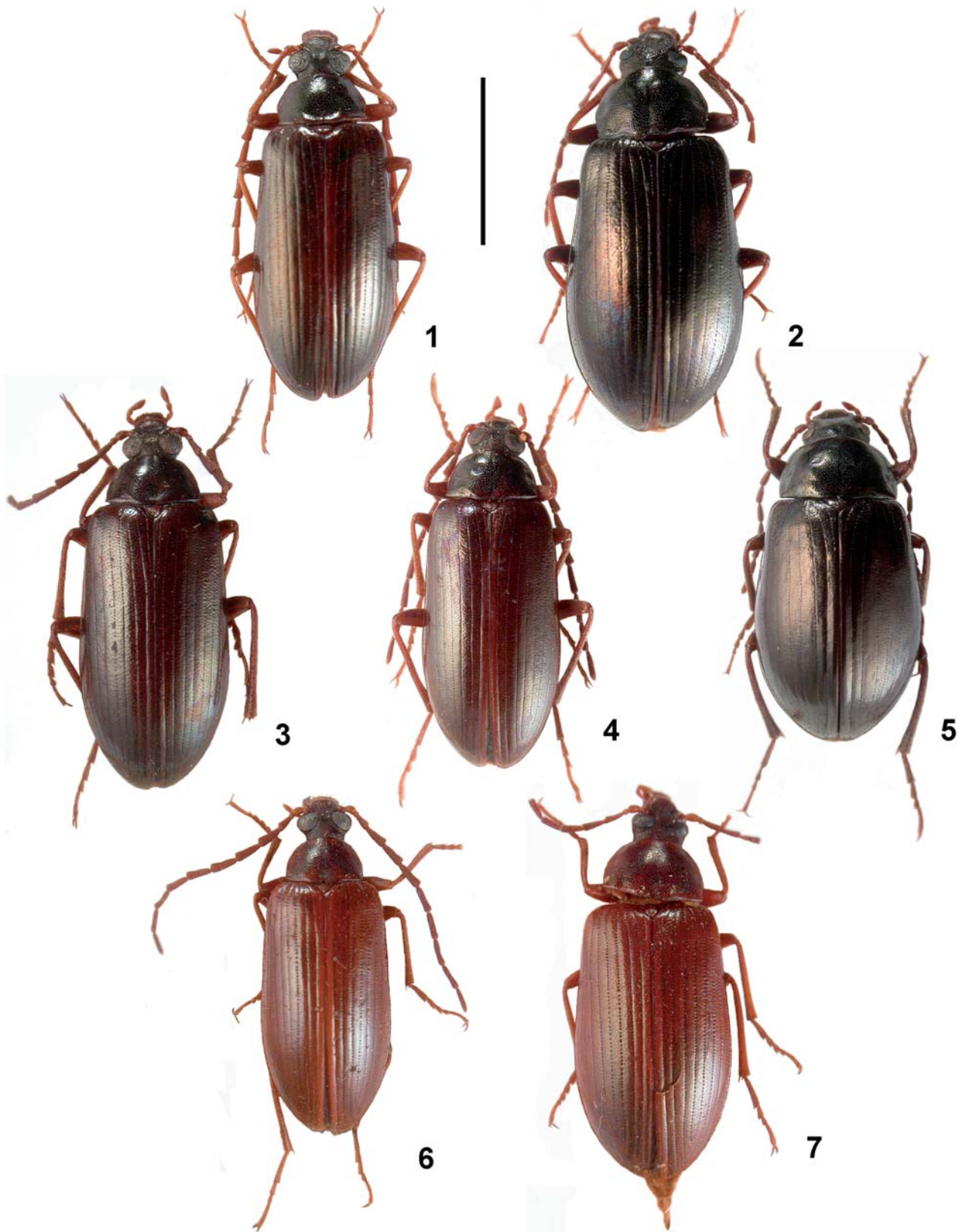
Ventral side of body and abdomen brown, slightly paler than upper part of body, with punctation. Abdomen with sparse, short setation, sides of abdominal sternites with microgranulation and rugosities, more matt. Ultimate abdominal sternite laterally with shallow impression on both sides.

Aedeagus see Fig. 12. Pale yellowish brown, slightly shiny, apical piece evenly elongate triangular dorsally, relatively narrow and evenly narrowing laterally.

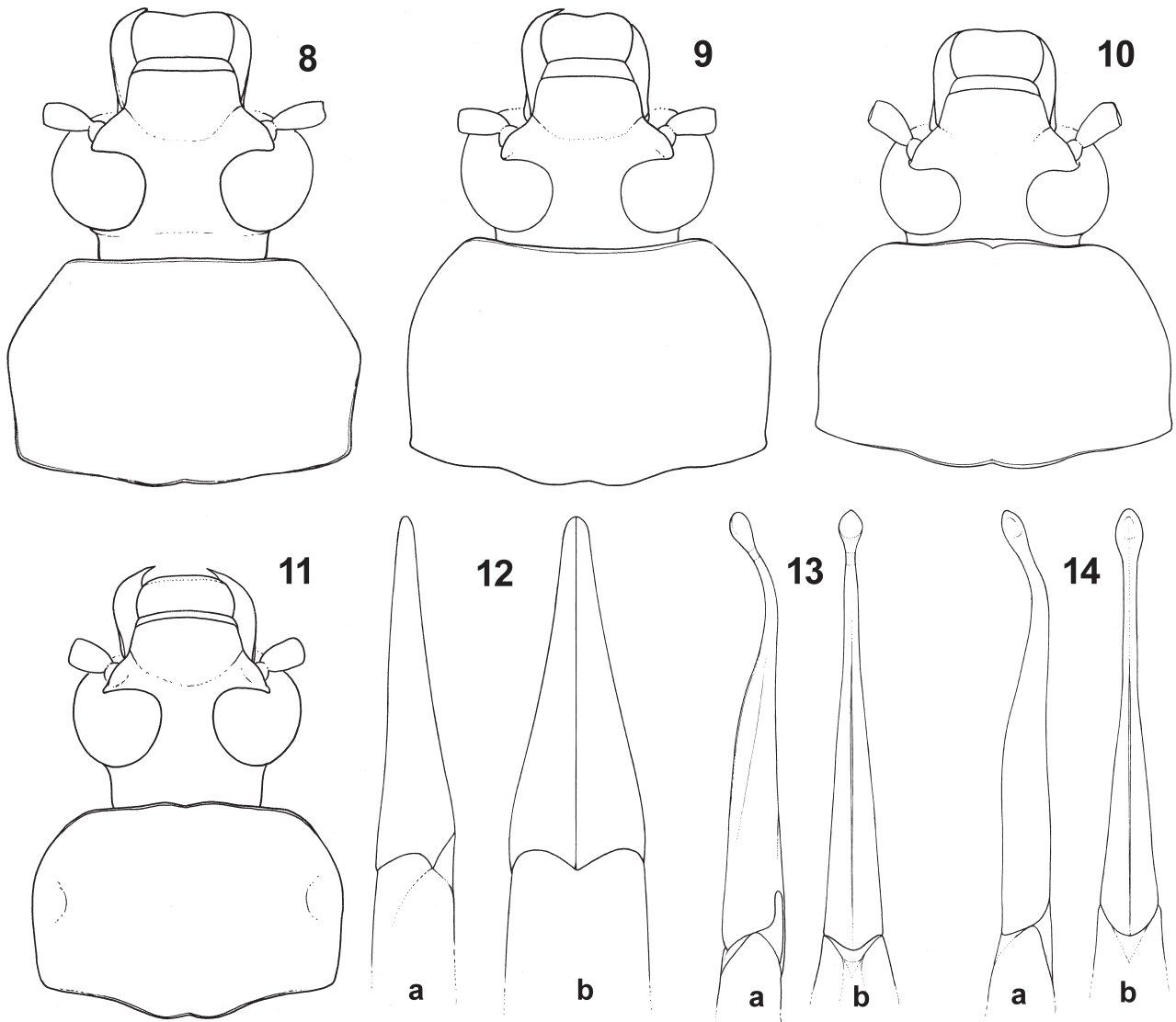
Female paratypes (Fig. 2):

Ratios of lengths of antennomeres 1–11 equal to 0.43 : 0.19 : 1.00 : 0.83 : 0.96 : 0.86 : 0.89 : 0.94 : 0.86 : 0.86 : 0.91. Length/maximum width ratios of antennomeres 1–11 equal to 1.34 : 0.85 : 3.75 : 2.53 : 3.07 : 3.21 : 3.20 : 2.74 : 2.79 : 2.77 : 3.57.

Ratios of lengths of tarsomeres 1–5 and 1–4 equal to 1.00 : 0.55 : 0.51 : 0.33 : 1.22 (protarsus), 1.00 : 0.49 : 0.42 : 0.25 : 0.88 (mesotarsus), and 1.00 : 0.39 : 0.25 : 0.73 (metatarsus). Both anterior tarsal claws with 5 visible teeth.



**Figs. 1–7.** *Gonoder* spp., habitus. – **1, 2.** *G. gilanica* n. sp., ♂ holotype (1), ♀ (2). **3.** *G. jureceki*, ♂ holotype. **4, 5.** *G. macrophthalma*, ♂ (4), ♀ (5). **6, 7.** *G. rufoaenea*, ♂ holotype (6), ♀ allotype (7). – Scale: 5 mm.



**Figs. 8–14.** *Gonoderia* spp., head and pronotum (8–11), aedeagus (12–14) in lateral (a) and dorsal (b) view. – 8, 12. *G. gilanica* n. sp., ♂ holotype. 9, 13. *G. jureceki*, ♂ holotype. 10, 14. *G. macrophthalma*. 11. *G. rufoaenea*.

Other measurements and ratios (mean value,  $n=2$ ; full range in parentheses): Body length 13.02 (12.79–13.24) mm; head length 1.84 (1.81–1.86) mm; head width 2.03 (1.98–2.07) mm. Ocular index 49.44 (45.85–53.03). Pronotal length (along midline) 2.14 (2.08–2.19) mm; pronotal width at base 3.19 (3.06–3.31) mm. Pronotal index 66.94 (66.11–67.76). Elytral length 9.05 (8.85–9.25) mm; elytral width 5.28 (5.18–5.37) mm.

#### Differential diagnosis

*Gonoderia gilanica* n. sp. differs from the similar species *G. macrophthalma* Reitter, 1884 and *G. rufoaenea* Reitter, 1900 mainly by the pronotum, which is six-angled, has the lateral margins with a distinct angle and is broadest

at about half of its length, while *G. macrophthalma* and *G. rufoaenea* have the lateral margins of the pronotum without a distinct angle and the maximum pronotal width near base. For further details see the key below (chapter 4).

Distribution: Iran.

#### 3.2 Similar species

*Gonoderia jureceki* Mařan, 1944  
(Figs. 3, 9, 13)

*Gonoderia jureceki* MAŘAN, 1944: 193.

Type locality: Turkey (Asia minor, Brussa).

Type material examined: Holotype, by monotypy (♂): [white label] 'Brussa V. / Asia min. / Dr. JUREČEK 31.' [printed in black] // [red label with black frame] 'Typus' // [white label] 'Gonodera / jurečeki m. [black handwritten] / Dr. MAŘAN det.' [printed in black] (NMPC).

Remarks: Ocular index 32.03; pronotal index 59.11. Ratio of length apical piece/basal piece of aedeagus 1 : 1.53. Ratios of lengths of antennomeres 1–11 equal to 0.74 : 0.36 : 1.00 : 1.34 : 1.41 : 1.57 : 1.64 : 1.83 : 1.65 : 1.72 : 1.85. – The figures of habitus (Fig. 3), head and pronotum (Fig. 9), lateral and dorsal views of the aedeagus (Fig. 13), and the given indexes and parameters clearly indicate that *Gonodera jureceki* Mařan, 1944 is a new junior synonym of *G. macrophthalma* Reitter, 1884.

Distribution: Turkey.

#### *Gonodera macrophthalma* Reitter, 1884

(Figs. 4, 5, 10, 14)

*Gonodera macrophthalma* REITTER, 1884: 89.

*Gonodera latior* PIC, 1903: 163, syn.

*Gonodera jureceki* MAŘAN, 1944: 193, n. syn.

Type locality: 'Kaukas'.

Type material examined: Holotype (♂): [white label] 'Kaukas' / 'LEDER' [printed in black] // [white label with red frame] 'Holotypus' [printed in red] '1884 ♂' [black handwritten] / 'Gonodera' / 'macrophthalma' / 'Reitter' [black handwritten] // white label 'G. macroph' / 'thalma' / 'm.' [black handwritten] // [white label] 'Coll. REITTER' [printed in black] (HNHM).

Other material examined (all VNPC): 1 ♂, Russia, Caucasus, Krasnaja Poljana, 14.VI.1974, JAN VIŠA leg. – 2 ♂♂, Turkey, NW Anatolia, Kızılcahaman env., 1500 m, 30.V.1992, S. KADLEC leg. – 1 ♂, NW Turkey, N Yaralıgöz, Geçidi [= pass] near Kastamonu, N41°46' E34°04', 1333 m, 22.VI.2006, P. KABÁTEK leg. – 1 ♂, Turkey, prov. Zonguldak, Safranbolu, 1000 m, 4.–5.VI.1996, P. ZAHRADNÍK leg. – 3 ♂♂, Turkey, prov. Bolu, Abant gölü [= Lake Abant], 1200 m, 4.VI.1996, P. ZAHRADNÍK leg. – 1 ♂, NW Turkey, prov. Bolu, lake Abant env., 19.IV.–12.V.1995, F. MORAVEC & J. HRON leg. – 1 ♂, N Turkey, Drazon, 6.VI.1991, SKOUPÝ leg.

Remarks: Habitus of male holotype see Fig. 4, habitus of female see Fig. 5, head and pronotum see Fig. 10. Ocular index 30.61; pronotal index 58.77. Aedeagus see Fig. 14; ratio of length apical piece/basal piece 1 : 1.60. Ratios of lengths of antennomeres 1–11 equal to 0.70 : 0.34 : 1.00 : 1.27 : 1.44 : 1.52 : 1.60 : 1.72 : 1.65 : 1.66 : 1.89.

Distribution: Armenia, Russia (southern territory), northern Turkey.

#### *Gonodera rufoaenea* Reitter, 1900

(Figs. 6, 7, 11)

*Gonodera rufoaenea* REITTER, 1900: 159.

Type locality: Asia minor, Bulghar Maaden.

Type material examined: Holotype (♂): [white label with red frame] 'Asia minor' / 'Bulghar Maaden' / 'v. BODEMEYER' [printed in black] // [white label with red frame] 'Holotypus' [printed in red] '1900 ♂' [black handwritten] / 'Gonodera' / 'rufo-aenea' / 'Reitter' [black handwritten] // [white label] 'Gonodera' / 'rufo-aenea' / 'm.' [black handwritten] // [white label] 'Coll. REITTER' [printed in black] (HNHM). – Allotype (♀): [white label with red frame] 'Asia minor' / 'Bulghar Maaden' / 'v. BODEMEYER' [printed in black] // [white label with red frame] 'Allotypus' [printed in red] '1900 ♀' [black handwritten] / 'Gonodera' / 'rufo-aenea' / 'Reitter' [black handwritten] // white label 'Coll. REITTER' [printed in black] (HNHM).

Remarks: Habitus of male holotype and female allotype see Figs. 6, 7, head and pronotum see Fig. 11. Ocular index 30.61; pronotal index 58.77.

Distribution: Syria, Turkey.

#### 4 Key to the species treated

- 1 Antennomere 3 distinctly shorter than antennomere 4 or elytral intervals distinctly vaulted and space between eyes as wide as clypeus. .... Other *Gonodera* species
- Antennomere 3 almost as long as antennomere 4, elytral intervals flat and space between eyes distinctly narrower than width of clypeus. .... **2**
- 2 Pronotum broadest near the middle, six-angled, lateral margins with distinct angle (Fig. 8). Aedeagus see Fig. 12. – Iran. .... ***Gonodera gilanica* n. sp.**
- Pronotum broadest near basal angles, lateral margins straight or rounded (Figs. 9–11). .... **3**
- 3 Upper part of body pale reddish-brown with metallic shine; elytral intervals very finely and sparsely punctate. Pronotum see Fig. 11. [Aedeagus not studied]. – Syria, Turkey. .... ***Gonodera rufoaenea***
- Upper part of body dark metallic; elytral intervals strongly and densely punctate. Pronotum see Figs. 9, 10. Aedeagus see Figs. 13, 14. – Caucasus, Armenia, Russia (Southern territory), Turkey. .... ***Gonodera macrophthalma*** [= *Gonodera jureceki* n. syn.]

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