Two new species and new records of *Quedius* from Nepal
(Coleoptera: Staphylinidae: Staphylininae)

With 7 figures and 1 table

**Alexey Solodovnikov** and **Andreas Kleeberg**

Summary

Two new species of *Quedius* are described from Nepal: *Quedius (Microsaurus) lamjung* sp. n. and *Quedius (Raphirus) tingra* sp. n. Syntype of *Quedius (Raphirus) aureiventris* Bernhauer is examined and the non-type based identification of this species in the revision of Smetana (1998) is proved to be correct. In addition to two new species, new records are provided for eleven species of *Quedius* distributed in Nepal Himalayas.

Key words

*Quedius*, new species, syntype, new records, Nepal, Himalayas

1. Introduction and conventions

*Quedius* of Nepal were revised by Smetana (1988, 1992). This revision opened great opportunities for further studies of the genus in this region. Present study is based on the material on 221 *Quedius* specimens recently collected at 15 localities from three neighboring provinces (Gandaki, Bagmati and Janakpur) of eastern Nepal. Examination of this sample revealed 13 species of *Quedius*, two of which are new for science and are described here.

The collecting sites of the material studied are briefly described and partly illustrated in the 'Localities' section. Records for the new and known species are summarized in Table 1. The new species are described and illustrated following the standard by Smetana (1988), except we consider the parameral side of the aedeagus as dorsal.
Most of the material of the present paper belongs to the collection of A. Kleeberg. Some specimens are kindly donated by that author to the collection of the Field Museum of Natural History (FMNH). The types of the described two species are deposited in the FMNH, collection of A. Smetana in Ottawa (cSm), and collection of A. Kleeberg (cKle) as specified in the corresponding sections of the 'Taxonomic part' below.

Measurements of the specimens are given in mm. They were taken and abbreviated as follows: HL - length of head (from base of labrum to neck constriction); HW - width of head (maximal); PL - length of pronotum (along medial line); PW - width of pronotum (maximal); EL - length of elytra (from acute humerus to most distal apical margin; best taken from lateral view of the elytron); EW — combined width of both elytra (maximal, when elytra closed along suture). Length of the body as a whole was measured from tip of mandibles to tip of abdomen. Measurements of *Quedius tingra* are given in the format: min – max (average).

The junior author greatly acknowledges participation of J. Schmidt in the joint field-work, and both authors are very thankful to A. Smetana for providing some necessary comparative material and final comments on this paper. The work of A. Solodovnikov on Quediina, and in particular this contribution, is supported by US National Science Foundation PEET grant DEB-0118749 to Margaret K. Thayer (FMNH, Chicago). Cooperation of the Field Museum colleagues M. Thayer and A. Newton is appreciated.

### 2. Localities

**Gandaki Province:**


[b] Annapurna Mts., Lamjung Himalaya, W Taunja Dada, 5 km NE Sikles, 2200-3000 m, 19.V.1993, leg. J. Schmidt; *Rhododendron* -oak cloud forest of the lower and middle cloud forest terrace.


Bagmati Province:

[f] NE Kathmandu Valley, 6.V.1993, leg. A. Kleeberg, NW of Kathmandu, near Jalkini at 1745 m [27°48' N, 85°16' E]. Lower montane with remainders of indo-malayan rain forests; leaf litter from the edge of a brook was sifted.

Janakpur Province:

[g] Rolwaling Himal, W of Daldung La Pass, 3300 m, 29.V.2000, leg. A. Kleeberg; [27°52' N, 86°15' E] upper cloud forest terrace, mainly Rhododendron leaf litter.


[i] Rolwaling Himal, Rolwaling Valley, Nyimare 3300 m, 19.V.2000, leg. A. Kleeberg; [27°54' N, 86°21' E]. A larger plateau in the Rolwaling river valley, upper cloud forest terrace (Rhododendron campanulatum and Juniperus recurva). Sampling materials were (mainly Rhododendron) leaf litter, woody debris covered by epiphytic moist liver mosses (Herbertus spp.). Quedius were found together with Sepedophilus spp., Stenus montosus Puthz as well as Nazeris sp. and various Tachyporinae.

[j] Rolwaling Himal, NE slopes of Daldung La Pass, 27.V.2000, leg. A. Kleeberg, at 3700 m, [27°52' N, 86°16' E], upper cloud forest terrace. Stream-edge organic material was sifted at a small brook; Quedius together with Stenus and Lathrobium spp.

[k] Rolwaling Valley Dugong Kharka, 2700-2900 m, 17.V.2000, leg. J. Schmidt; [27°54' N, 86°20' E]. Middle cloud forest terrace with Quercus semecarpifolia and Abies spectabilis, both covered by epiphytic mosses, at steep valley slope, run through by brooks. The location represents the typical summer (cattle) pasture.

[l] Rolwaling Valley near Beding village, 3300 m, 19.V.2000, leg. J. Schmidt [27°54' N, 86°21' E] at the middle cloud forest terrace; an anthropogenically cleared fir forest (Abies spectabilis) with brooks.

[m] Near Shivalaya, bank of Khimti Khola, 02.05.1993, leg. A. Kleeberg, at 1750 m [27°35' N, 86°14' E]. An older, but still moist flash-flood stack was sifted. Quedius were found together with Rugilus, Tachyporus, Ochthephilus spp., as well as Tachinus striatulus Ullr., Diaerus lobigerus Champ., Tolmerinus simulans Cam., Craspedomerus bernhaueri Cam., Paederus nigricornis Bernh., and Gabrius deceptor (Cam.).

[n] Near Junbesi, 20.04.1993, leg. A. Kleeberg, at 2675 m [27°35' N, 86°31' E]. A haystack was sifted; Quedius with various Philonthus and Sepedophilus spp., as well as Stenus sikkimensis Cam.

[o] Near Sete, pond (leaves), 19.04.1993, Solu, at 2575 m [27°35' N, 86°26' E], leg. A. Kleeberg; small pond surrounded by different Rhododendron trees. Moist leaf litter was sifted; Quedius were collected together with Craspedomerus bernhaueri Cam., Rugilus lutetipennis Kr., Gabrius taplejungensis (Schillhammer), and Osorius spp.
3. Taxonomic part

Quedius (Raphirus) aureiventris Bernhauer, 1915

The revised identity of this species in Smetana (1988, 1992) was based on the non-type material. In the original description (Bernhauer, 1915) nothing is said about the number of types. One specimen (female, with the labels as follows: 'Binsar / Kumaon / 7900 f [all three labels in handwriting] / 25-5-1912 A.D. Imms [printed + handwriting label] / For Zool. Coll. [printed label] / 51 [label in handwriting] / aureiventris Bernh. Typus [label in Bernhauer's handwriting] / Chicago NHMus M. Bernhauer Collection [printed label]'), kept in the collection of the Field Museum of Natural History, therefore is considered to be a syntype. Its identity confirms that the identification of that species in Smetana's revision (1988, 1992) is correct. Since the only now available syntype is a female, we refrain from the lectotype designation.

Quedius (Microsaurus) lamjung Solodovnikov & Kleeberg, sp. n.


Description

Body brown: head darker, pronotum, elytra and appendages paler; abdomen and ventro-posterior sides of all tibiae dark with strong metallic iridescence. Body length: 10 mm.

Head before neck constriction of rounded shape, slightly wider than long (HL/HW = 0.90/1.02 = 0.88), with moderately large eyes protruding from lateral contours of head; temples distinctly shorter than length of eyes seen from above; posterior angles of head indistinct. Chaetotaxy of dorsum of head on each side as follows: one seta at base of clypeus; one seta near antennal insertion; two setae along inner margin of eye, of them one (anterior frontal) closer to anterior margin of eye, another (posterior frontal) closer to posterior margin of eye; two setae near neck constriction. Temple with one large seta (temporal) which is closer to posterior margin of eye than to neck constriction, and with few smaller setae in sparse irregular arrangement. Surface of head with dense and well-distinct microsculpture of irregular transverse waves with longitudinal connections, these becoming more numerous laterally and anteriorly so that microsculpture along eyes appears as longitudinal, and (in anterior part of frons) as mostly isodiametric. Antenna moderately long: segment 3 slightly longer than segment 2; segment 4 longer than wide, following segments gradually becoming shorter and wider, segments 8-10 about as wide as long; last (11th) segment shorter than two preceding segments combined.

Pronotum slightly longer than wide (PL/PW = 1.13/1.25 = 0.90), widest at middle, converging stronger anteriorly and weaker posteriorly, with rounded but distinct posterior angles. Dorsal rows each of three setae; sublateral rows each with three setae (two near anterior margin of pronotum, one far behind), posterior seta situated distinctly behind level of large lateral seta. Microsculpture of pronotum similar to that on vertex but slightly weaker. Scutellum impunctate. Elytra short (EL = 0.97), slightly narrower than pronotum (EW/ PW = 1.20/1.25 = 0.96); their punctuation moderately dense and coarse.
slightly asperate, surface between setiferous pores (punctures) very shiny with extremely 
fine microscopic irregularities. Wings reduced.

Abdomen with tergite VII without apical seam of palisade setae; punctuation of abdomi­
nal tergites at base about as dense as punctuation of elytra, punctures becoming sparser 
towards apex of abdomen.

**Male.** Anterior tarses dilated (their maximal width distinctly wider than apex of tibia).  
Apical margin of sternite VIII with broad and shallow emargination. Sternite IX strongly 
asymmetrical (Fig. 3). Aedeagus (Figs. 1, 2, 4) strongly curved dorso-ventrally; apical 
portion of median lobe with longitudinal keel behind ('k' in Fig. 1) and flat lobes lat­
erally from median orifice ('l' in Fig. 2), with obtusely pointed apex and pair of dorsal 
teeth directed basad ('t' in Fig. 4); paramere broad with curved lateral contours, without 
sensory peg setae, with median incision and four pairs of long setae at the apex.

**Female unknown.**

**Comparison**

Based on external characters and general plan of the structure of the aedeagus, *Q. lam­
jung* sp.n. is closely related to *Q. goropanus* Sm. *, Q. tanderi* Sm. and *Q. kailo* Sm.

From all these externally very similar species, the new species can be easily distinguished 
by structure of the aedeagus, especially by its characteristic ventral keel and flat lobes of 
median lobe, wide paramere with curved lateral contours and lack of sensory peg setae.

**Distribution**

Annapurna mountains (Gandaki Province, eastern Nepal).

**Bionomics**

The collecting site for *Q. lamjung* is an *Rhododendron*-oak forest of the lower and middle 
cloud forest terrace at elevations of 2200-3000 m.

**Etymology**

The name is derived from the geographic term 'Lamjung Himal' where the type locality 
of that species is from. The word 'lamjung' is used as noun in apposition.

**Quedius tingra** SOLODOVNIKOV & KLEEBERG, sp. n.

**Material examined:** Nepal: Tanakpur Prov.: holotype: ♂, Ost-Nepal, Rolwaling Himal, 
obeh. [upper] Simigaon, 2700-2800 m, 31.V. – 1.VI. 2000, leg. A. Kleeberg (FMNH);  
paratypes: 1 ♂, 2 ♀, same data as in holotype (FMNH); 1 ♂, 2 ♀, same data as in 
holotype (cKle); 1 ♂, 2 ♀, same data as in holotype (cSm).

**Description**

Head and abdomen (except paler apical margins of abdominal segments) dark brown; 
pronotum (especially along its margins) and elytra paler than head and abdomen, brown; 
appendages pale, yellowish-brown; abdomen iridescent. Overall degree of darkness of 
coloration varies. Body length: 6.5-7.5 mm. Other measurements (n=10): HL = 0.72-
0.76 (0.74); PL = 0.98-1.04 (1.00); EL = 0.95-1.09 (0.99); HW = 0.87-0.93 (0.89); PW 
= 1.02-1.10 (1.06); EW = 1.12-1.24 (1.19).

DOI: 10.21248/contrib.entomol.54.2.357-364
Head before neck constriction rounded, wider than long \([HL/HW = 0.71-0.77 (0.74)]\); eyes very large and convex, temples much shorter than length of eyes seen from above. Chaetotaxy of dorsum of head on each side as follows: one seta near base of clypeus; one seta near antennal insertion; one seta (anterior frontal) near inner margin of eye closer to eye's anterior margin; one seta (posterior frontal) near inner margin of eye at eye's posterior margin; one seta near neck constriction, slightly closer to the latter than to posterior frontal puncture. Temple with large seta (temporal) at posterior margin of eye and with several very short setae (structure of head as in Fig. 421 in Smetana, 1988). Surface of head with dense and very fine microsculpture of irregular transverse waves with sparse longitudinal connections, which become gradually more numerous anteriorly. Antenna moderately long: segment 3 slightly narrower and as long as segment 2; segment 4 and 5 very distinctly longer than wide; segments 6-8 longer than wide, gradually becoming shorter and wider; segments 9-10 about as long as wide; last segment (11th) shorter than segment 9 and 10 combined.

Pronotum almost as long as wide \([PL/PW = 0.91-0.98 (0.95)]\), widely arcuate basally, slightly narrowed anteriorly. Dorsal rows each with three setae; sublateral rows each with two setae and, occasionally, with third (posterior) shallow puncture (without seta), posterior seta being situated far before level of large lateral puncture. Microsculpture of pronotum as on head. Scutellum with few setae on apical half. Elytra short, their punctuation dense, moderately coarse, surface between setal sockets very shiny, with extremely fine microsculpture. Wings reduced.

Abdomen with tergite VII without apical seam of palisade setae. Punctuation of abdominal tergite III same as on elytra, punctuation of the following tergites becoming sparser towards apex of abdomen; each tergite with distinct patch of denser yellowish setae on either lateral portion.

**Male.** Front tarses dilated, their maximal width equal to width of tibial apex. Abdominal sternite VIII and segments IX and X do not distinctly vary from those structures in similar species (Q. tikta Smet., Q. toglu Smet. and Q. pharak Smet., and others). Aedeagus as in Figs. 5-7: median lobe gradually tapering apically, with obtusely pointed apex (in dorsal view), with one median dorsal tooth close to the apex (best seen from lateral view); paramere very slightly shorter than median lobe, lanceolate (dorsal view), with about 30 sensory peg setae on its internal side arranged in two rows diverging basally from parameral apex, with four pairs of longer setae at the apex, and three to four pairs of significantly smaller setae basally from those.

**Female.** Front tarses dilated, but less distinct than in males, narrower than tibial apex. Structure of abdominal segments IX and X as in other similar species (Q. tikta, Q. toglu, Q. pharak and others).

**Comparison**

The new species belongs to the Smetana's (1988) Q. musicola-species group where it is most similar with Q. tikta Smet., Q. toglu Smet. and Q. pharak Smet. From all of these species, Q. tingra can be reliably distinguished by structure of the aedeagus only. Unlike Q. tikta, the new species has lanceolate paramere with basally diverging rows of peg setae (in Q. tikta rows of peg setae are basally converging), and more obtuse apical part of median lobe (best seen from dorsal view). Unlike Q. toglu, Q. tingra has less expanded lateral contours of the apical portion of median lobe and much more apical position of...
its dorsal median tooth. From *Q. pharak* the new species differs in shape of the paramere (narrow, not lanceolate in *Q. pharak*) and less pointed apical portion of the aedeagus.

**Distribution**
Rolwaling Himal (Janakpur Province in eastern Nepal). Known from type locality only.

**Bionomics**
Specimens were collected in mainly *Rhododendron* leaf litter of the middle cloud forest terrace at elevations of 2600-2800 m.

**Etymology**
The name for the new species is composed from the parts of the names of three most similar species: *[tikta], *[tonglu] and *[pharak]. It is used as noun in apposition.

**Comments**
Noteworthy is that *Q. tingra* is sympatric with the very similar and apparently closely related *Q. tonglu* Smet. (Tab. 1). As far as known, it is allopatric to *Q. tikta* Smet. Geographic relations of the new species with the supposedly wider distributed *Q. pharak* Smet. are unclear because of the current lack of adequate distributional data. (For the currently known distributions of *Q. tonglu*, *Q. tikta* and *Q. pharak* see Smetana (1988, 1992).

**Table 1.** Number of specimens (N) of *Quedius* collected at various localities (a-o) in Nepal (for details see 'Collecting localities' section)

<table>
<thead>
<tr>
<th>Species</th>
<th>Collecting sites</th>
<th>N</th>
</tr>
</thead>
<tbody>
<tr>
<td>apicicornis Epp.</td>
<td>a 3 b 4 c 1 d 21 e 4 f 1</td>
<td>34</td>
</tr>
<tr>
<td>aureiventris Bernh.</td>
<td>a 3 b 2 c 6 d 8 e 5 f 25 g 4 h 1 i 1</td>
<td>54</td>
</tr>
<tr>
<td>inquietus (Champ.)</td>
<td>j 1</td>
<td>1</td>
</tr>
<tr>
<td>kaito Smet.</td>
<td>k 3 l 2 m 8 n 4 o 3</td>
<td>5</td>
</tr>
<tr>
<td>kuiro Smet.</td>
<td>p 8 q 4 r 3 s 61 t 76</td>
<td></td>
</tr>
<tr>
<td>lamjung sp. n.</td>
<td>u 1</td>
<td></td>
</tr>
<tr>
<td>milansaar (Smet.)</td>
<td>v 1</td>
<td></td>
</tr>
<tr>
<td>naati Smet.</td>
<td>w 10</td>
<td></td>
</tr>
<tr>
<td>placidus Cam.</td>
<td>x 1</td>
<td></td>
</tr>
<tr>
<td>stevensi Cam.</td>
<td>y 1 z 1</td>
<td></td>
</tr>
<tr>
<td>taruni Smet.</td>
<td>a 8 b 4 c 12</td>
<td></td>
</tr>
<tr>
<td>tingra sp. n.</td>
<td>d 10</td>
<td></td>
</tr>
<tr>
<td>tonglu Smet.</td>
<td>e 4 f 6 g 3 h 13</td>
<td></td>
</tr>
</tbody>
</table>

| sum                | i 3 j 5 k 10 l 1 m 3 n 2 o 10 p 47 q 25 r 33 s 7 t 10 u 62 v 2 w 1 x 221 |

**References**


DOI: 10.21248/contrib.entomol.54.2.357-364
Figs. 1-4: *Quedius lamjung* sp.n., holotype: 1. aedeagus in lateral view; 2. same in dorsal view; 3. sternite IX and tergite X, and lateral tergal sclerites IX of abdomen (setae of the tergite X omitted, setae of the lateral tergal sclerites IX are shown as sockets only); 4. apical portion of median lobe of the aedeagus (without paramere) in dorsal view; Figs. 5-7: *Quedius tingra* sp.n., holotype: 5. aedeagus in lateral view; 6. aedeagus in dorsal view; 7. underside of the apical portion of paramere. k – keel; l – lateral flat lobe; t – teeth. Scale bars equal to 0.5 mm.

Author's addresses:
Dr. Alexey Solodovnikov
Department of Zoology, Field Museum of Natural History
1400 South Lake Shore Drive
Chicago, Illinois, 60605-2496, U.S.A
e-mail: asolodovnikov@fieldmuseum.org

Dr. Andreas Kleeberg
Rapunzelstrasse 22, D-12524 Berlin
Germany
e-mail: A.G.Kleeberg@t-online.de

DOI: 10.21248/contrib.entomol.54.2.357-364