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New Species and New Record of the Genus *Necydalis* Linnaeus (Coleoptera, Cerambycidae) from China

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Abstract *Necydalis* (*Necydalis*) *chariessa* sp. nov. is described from Mt. Gaoligongshan in the northwesternmost area of Yunnan Province, China. *Necydalis* (*Necydalis*) *hirayamai flemonea* Takakuwa et Niisato, 1996 is newly recorded from China (Hainan Province).

Introduction

Twenty-three taxa including subspecies in the genus *Necydalis* Linnaeus, 1758, approximately two-fifths of all 60 Asian taxa in the genus (Tavakilian & Chevillotte, 2020), have been recorded from China and Taiwan to date. In the course of our field research on Chinese longhorned beetles, two additional species of the nominotypical subgenus of the genus *Necydalis* were discovered. One of these species is from Yunnan Province and is distinctly a species new to science, and the other species is *N.* (*N.*) *hirayamai flemonea* Takakuwa et Niisato, 1996 from Hainan Province, which represents a new country record. Here we describe and record these species for inclusion into the *Necydalis* fauna of China.

Material and Methods

The type series of the new species described herein are tentatively housed in the private collection of Bin Liu, Beijing, China (CBLB), though the holotypes will be stored at the China Agricultural University, Beijing, China (CAUC). The other specimens examined are housed in the private collections of CBLB and Tatsuya Niisato (CTNT). Label data for type specimens examined were quoted verbatim, attached labels were separated by a slash (/), and lines of the same label were demarcated by double quotations (“ ”).

Specimens were observed under a stereomicroscope (Leica S9W, Leica Inc., Germany). Body parts were measured using a stereomicroscope (Olympus SZX16, Olympus Inc., Japan) fitted with a digital camera (Olympus DP73) and image analysis software (Olympus cellSens). SEM images were also taken using a VHX-D500 Ultra Depth Multi-Angle Observation System (Keyence Corp., Japan). Photographs of body parts including male genitalia were taken using a digital camera (EOS 5Ds, Canon Inc., Japan) fitted with an EF 50 mm macro lens and a MP-E 65 mm with Life-size Convertor EF (Canon Inc.).

The abbreviations for the measurement ratios used in the taxon descriptions are as follows: BL — body length measured from apical margin of clypeus to abdominal apex; BLe — body length measured from apical margin of clypeus to elytral apices; HW — maximum width of head across eyes; PL — length of pronotum; PW — maximum width of pronotum near middle; PA — apical width of pronotum; PB — basal width of pronotum; EL — length of elytra; EW — humeral width of elytra; M — arithmetic mean; HT — holotype. The terminology used to describe the endophallus

generally follows that of YAMASAKO and LIN (2018) and the abbreviations used are as follows: APH — apical phallomere; BPH — basal phallomere; CT — central trunk; MT — medial tube; PAB — pre-apical bulb; avs — ventral swelling of apical phallomere; eg — ejaculatory duct; pds-I — proximal swelling on dorsal side of pre-apical bulb; pds-II — distal swelling on dorsal side of pre-apical bulb; pvs — ventral swelling of pre-apical bulb.

New Species

Necydalis* (*Necydalis*) *chariessa sp. nov.

(Figs. 1–15, 31 & 32)

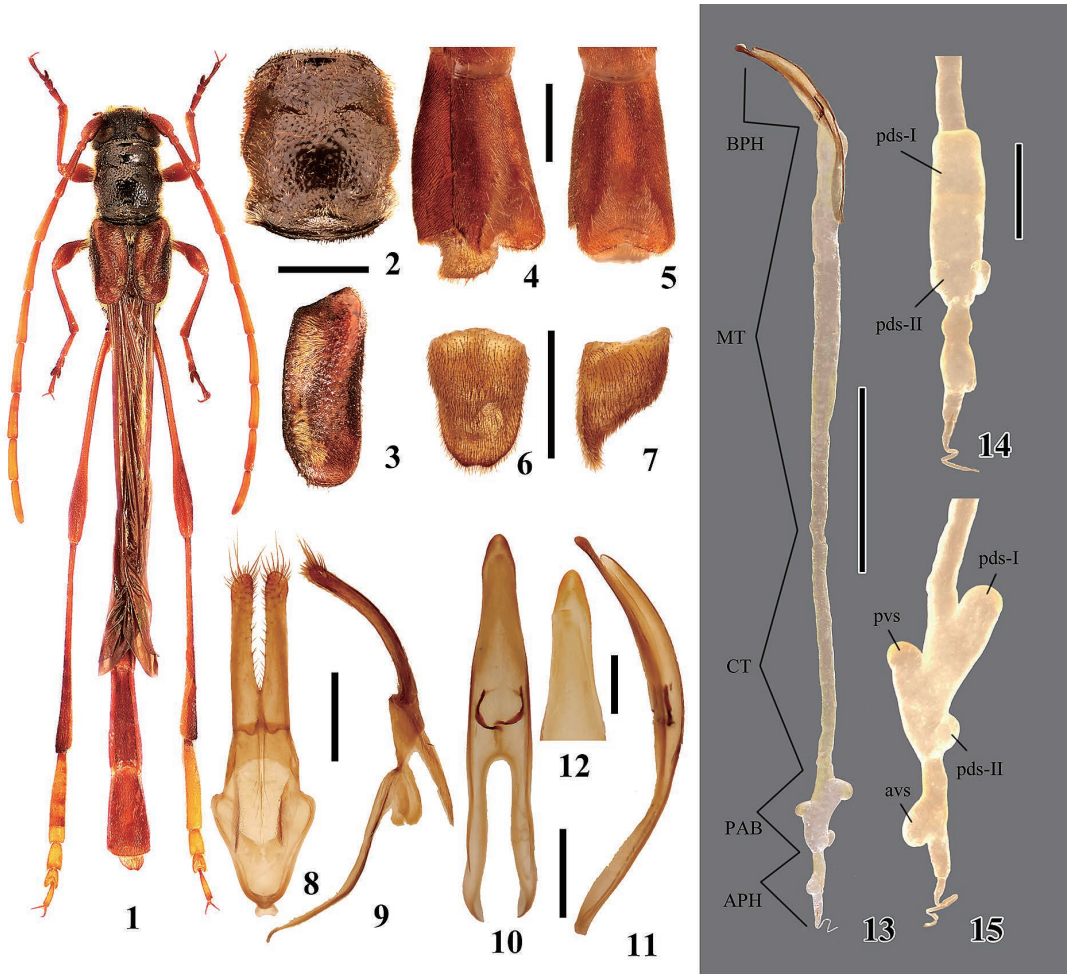
Description. Medium-sized species with slender body. Colour black and shiny in head and thoraces, brown to dark yellowish-brown and matte for the rest; antennae brown, slightly more yellowish on apical four to five antennomeres; elytra brown to light brown, blackish along part of sutural and external margins, in paratype, blackish near bases; abdomen brown, slightly infuscate at median part of ventrite I; legs brown, coxae black, infuscate in dorsal sides of fore and mid tarsi, yellowish-brown in hind tarsi. Body clothed with fine, light, golden-yellow hairs; head moderately clothed with relatively long, light, golden-yellow hairs, densely with same-coloured pubescence on frons and tempora behind eyes; pronotum densely furnished with hairs as on head, with light golden-yellow pubescence along sides except near middle; scutellum densely clothed with light golden pubescence; elytra densely clothed with wavy dark brown hairs, partly with dense, recumbent, light golden-yellow pubescence on each sutural third, from near base to apical fifth.

M a l e. Head provided with deep, coarse punctures, which are close and somewhat reticulate on most parts; frons about 1.2 times as wide as long, with a deep median groove extending from apical margin to posterior margin of occiput; clypeus with apical lobe evenly provided with medium-sized punctures; genae about half the depth of lower eye-lobes; tempora not attaining level of eyes; eyes moderate in size, weakly prominent. Antennae slender, a little longer than half of body length, reaching base of abdominal tergite V, somewhat flattened in antennomeres V–XI, weakly serrate in V–X; scape moderately swollen, closely provided with small shallow punctures; III equal in length to scape, 1.4 times as long as IV, weakly thickened apicad like in IV; VII longest though only slightly longer than VI.

Pronotum (Figs. 2 & 31) moderately longer than wide, feebly contracted at apex, with apical and basal margins almost straight near middle, narrowly bordered along posterior margin; sides distinctly constricted at apical and basal 3/10, swollen to form an obtuse triangular shape near middle; disc entirely provided with medium to large punctures, weakly convex from apical fourth to basal fifth, raised near apical and basal margins, the latter of which is shagreened with fine punctures. Scutellum elongate trapezoidal, weakly rounded at apex.

Elytra (Figs. 3 & 32) slightly longer than wide, gradually dehiscent in an arcuate line from basal half, narrowly bordered along suture; sides with humeri moderately produced latero-anteriorly, weakly emarginate in an arcuate line from basal fourth to apical fourth, completely rounded at apices; each disc strongly raised in apical fourth, with a deep L-shaped depression extending from basal 2/5 near suture to apical fourth just before external margin, flatted from middle to just before apex along external margin; surface largely provided with coarse punctures, which become fine, sparse and partly absent near humeri and raised apical area.

Most of thoraces deeply densely punctured. Abdomen 7/10 of body length, weakly shagreened,



Figs. 1–15. *Necydalis* (*Necydalis*) *chariessa* sp. nov., ♂, from Yunnan Province, China. —— 1, Habitus; 2, pronotum; 3, right elytron; 4–5, abdominal ventrite V (anal ventrite); 6–7, abdominal tergite VIII; 8–9, tegmen; 10–11, median lobe; 12, ditto, apical part; 13, median lobe with inflated endophallus; 14–15, distal part of endophallus. —— 1, Holotype; 2–15, paratype. —— 1–3, 6, 8, 10, 12 & 14, Dorsal view; 7, 9, 12, 13 & 15, lateral view; 4, latero-ventral view; 5, ventral view. Terminology of endophallus confers to text. Scales: no scale for Fig. 1; 1.00 mm for Figs. 2–7; 0.50 mm for Figs. 8–12, 14 & 15; 2.00 mm for Fig. 13.

scattered with fine shallow punctures on ventrite I; ventrites I–III weakly thickened apically though IV moderately dilated apicad; ventrite V (Figs. 4 & 5) linearly dilated towards apex, about 2.7 times as long as basal width, with discal concavity in about apical 3/4 forming an isosceles triangle, strongly declivous towards apex, and somewhat carinate in about apical half of each side, apical margin shallowly emarginate in an obtuse angle of approximately 120°; tergite VIII (Figs. 6 & 7) 1.4 times as long as basal width, narrowed in an arcuate line from base to middle before narrowing in an almost straight line to arcuate apex, which is very shallowly emarginate at middle, in lateral view, moderately convex though depressed in apical fifth.

Legs slender, medium in length, with hind tibia reaching apical third of abdominal tergite VIII; hind tarsus rather thin, with tarsomere I about twice length of the two others combined.

Male genitalia: Tegmen (Figs. 8 & 9) wholly strongly arcuate in lateral view; parameres 1/3 length of tegmen, narrowly dehiscent and almost parallel, with each lobe slightly thickened at apex, which is oblique at external side, densely clothed with long to medium setae near apex. Median lobe (Figs. 10–12) weakly arcuate in lateral view; dorsal plate in dorsal view narrowly truncate at apical margin; ventral plate moderately narrowed towards apex though arcuate for a short distance near apical fifth in dorsal view, distinctly thickened apically in lateral view; median struts somewhat less than half length of median lobe. Endophallus (Figs. 13–15) slender and markedly long, about 4.5 times as long as median lobe; MT+CT 7/10 length of endophallus, gradually narrowed distally; PAB with pds-I strongly produced dorso-proximally, pds-II on distal part formed as a pair of small swellings, pvs near middle moderately produced ventro- proximally; APH narrowed distally, with single eg on distal end, avs near middle rather strongly produced ventro-distally.

F e m a l e. Unknown.

Measurements. Male (n = 2): BL 20.10–23.50 mm (HT 23.50 mm); BLe 5.28–6.54 mm (HT 6.54 mm); HW/PA 1.23–1.32 (M 1.28); HW/PW 1.06–1.07 (M 1.06); PL/PW 1.14–1.18 (M 1.16); PL/PA 1.43–1.45 (M 1.44); PB/PA 1.09–1.14 (M 1.12); EL/EW 1.05–1.06 (M 1.05); EL/PL 1.04–1.08 (M 1.06).

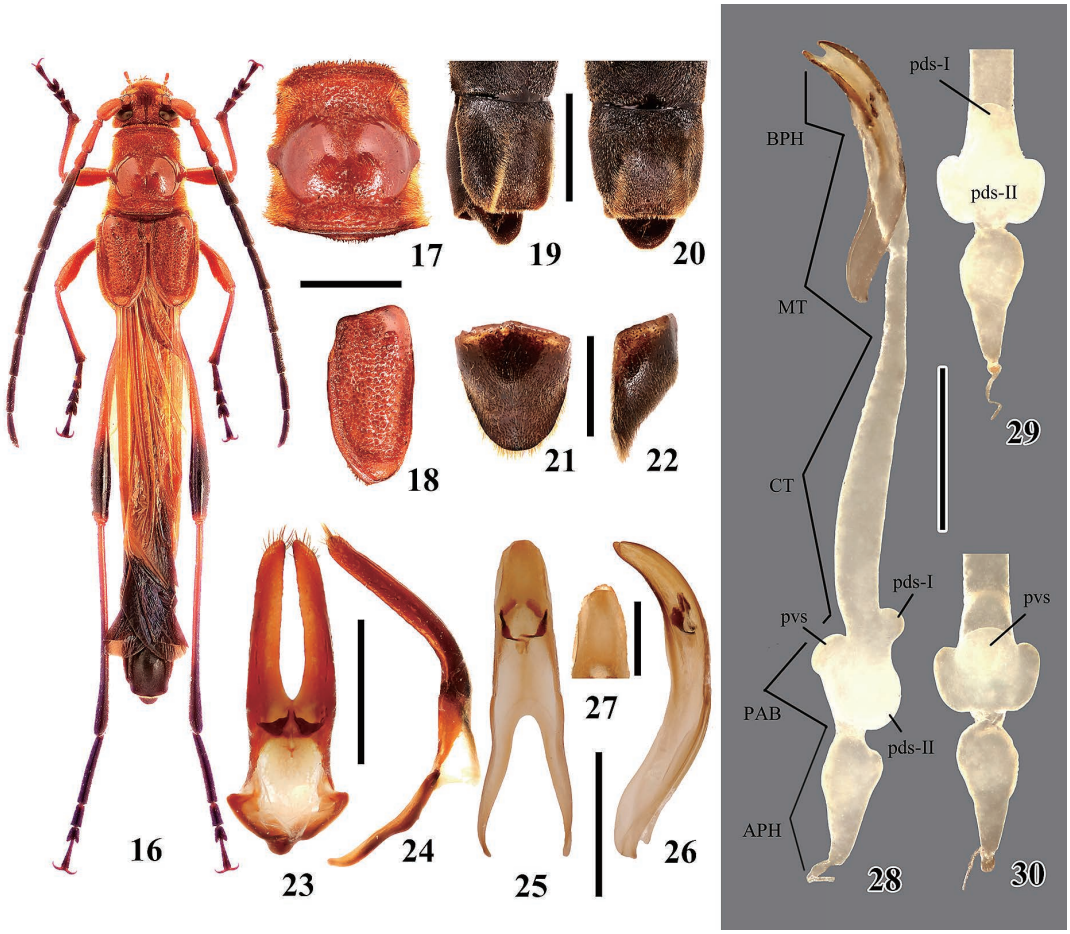
Type series. Holotype: ♂ (CAUC), "云南省怒江傈僳族自治州贡山县" "丙中洛鎮石门 关乡高黎贡山 " "28°2'2.85"N, 98°34'51.81"E" "2,017 m in alt.; 22. VII. 2017" "On flower; Yinghui LI leg." / "CHINA: Yunnan Province" "Nujiang in the Lisu Autonomous Region", "Prefecture, Gongshan County", "Blingzhongluo Town", "Shimenguan Township", "Mt. Galigongshan" / "HOLOTYPE" "*Necydalis* (*Necydalis*)" "*chariessa*" "Niisato et Liu, 2020" (red card with black margin). Paratype: 1 ♂ (CBLB), same data as holotype / "PARATYPE" "*Necydalis* (*Necydalis*)" "*chariessa*" "Niisato et Liu, 2020" (orange card with black margin).

Diagnosis. Despite sharing some features with *Necydalis* (*Necydalis*) *kumei* TAKAKUWA, 1997 from northern Thailand, this new species is easily distinguished from the latter by the slender pronotum, which is clearly longer than the basal width, as well as having sides covered with fine, suberect, pale yellow hairs. Whereas in *N.* (*N.*) *kumei*, the fairly broad pronotum is as long as, or a little shorter than, the basal width, and the sides are covered with dense, recumbent, golden-yellow pubescence. In general appearance, this new species is similar to *N.* (*N.*) *niisatoi* HOLZSCHUH, 2003 from the Sichuan and Yunnan Provinces of China, but it is clearly distinguished from the latter by having the elytra that are moderately longer than the humeral width, and the sides that are rather distinctly emarginate over almost the entire length. Also, the apical margin of the male anal ventrite is emarginate with a wide triangular shape. However, in *N.* (*N.*) *niisatoi*, the elytra are as long as, or a little shorter than, the humeral width, and their sides are very weakly emarginate. The apical margin of the anal ventrite is arcuately and shallowly emarginate. As mentioned above, the affinity between the three species does not seem very close, as there are several marked differences in some of their basic features, such as the pronotum, elytra and male anal ventrite.

Etymology. The specific name "*chariessa*" or "χηαριεισ (charieis)" means "beautiful" in Greek, and refers to both the habitus and type locality of this new species. Specifically, this new species has a particularly delicate and elegant habitus among the members of the nominotypical subgenus. Also, the type locality is located in the region inhabited by the Lisu tribe. In their language, Lisungo, Li-Su means beautiful people.

Distribution. China: Yunnan Province (known only from the type locality).

Bionomics. The bionomic information of *Necydalis* (*Necydalis*) *chariessa* sp. nov. is almost unknown. We could examine only the type series of two male that were collected on the tree blossoms of *Castanopsis* sp. in late July.



Figs. 16–30. *Necydalis* (*Necydalis*) *hirayamai flemonea* Takakuwa et Niisato, 1996, ♂, from Hainan Province, China. —— 16, Habitus; 17, pronotum; 18, right elytron; 19–20, abdominal ventrite V (anal ventrite); 21–22, abdominal tergite VIII; 23–24, tegmen; 25–26, median lobe; 27, ditto, apical part; 28, median lobe with inflated endophallus; 29–30, distal part of endophallus. —— 16–18, 21, 23, 25, 27 & 29, Dorsal view; 22, 24, 26 & 28, lateral view; 19, latero-ventral view; 20 & 30, ventral view. Terminology of endophallus confers to text. Scales: no scale for Fig. 16; 1.00 mm for Figs. 17–24, 26 & 27; 0.50 mm for Figs. 25, 29 & 30; 2.00 mm for Fig. 28.

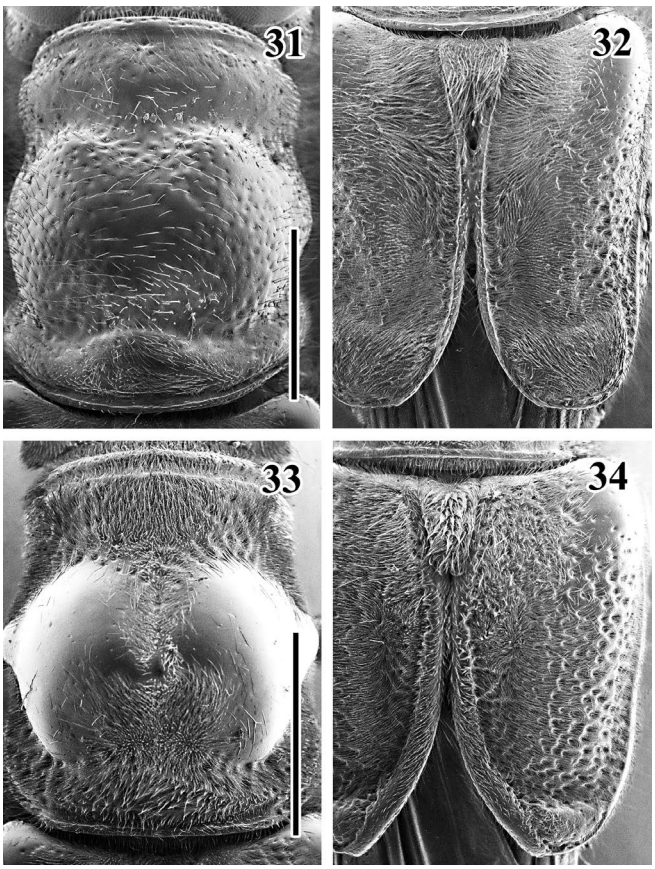
New Record

Necydalis* (*Necydalis*) *hirayamai flemonea Takakuwa et Niisato, 1996

(Figs. 16–30, 33 & 34)

Necydalis (*Necydalis*) *hirayamai flemonea* Takakuwa et Niisato, 1996: 78, figs. 1, 8–12; type locality: "Mt. Tam Dao, Vinh Phu Prov., N. Vietnam". —— Niisato, 1998: 3, fig. 1 [redescription]. —— Niisato, 2008: 262, figs. 3 & 4 [distribution].

Additional description of male genitalia. Endophallus (Figs. 28–30) moderately long, about 3.0 times as long as median lobe; MT+CT 3/5 length of endophallus, becoming gradually broader from the proximal fourth to distal part; PAB with pds-I on proximal part rather small and moderately



Figs. 31–34. Pronotum and elytra of *Necydalis* (*Necydalis*) spp. from China, showing discal feature (SEM images). —— 31–32, *Necydalis* (*Necydalis*) *chariessa* sp. nov. from Yunnan Province, holotype ♂, from Yunnan Province; 33–34, *N.* (*N.*) *hirayamai flemonea* TAKAKUWA et NIISATO, 1996, ♂, from Hainan Province. —— 31 & 33, Pronotum; 32 & 34, elytra. Scales: 1.0 mm for Figs. 31–32; 2.0 mm for Figs. 33–34.

produced dorso-proximally, pds-II on distal 2/3 formed as a pair of large swellings produced laterally, pvs on proximal part somewhat transverse, weakly produced ventro-proximally; APH almost drop-shaped in dorsal view, though somewhat asymmetrical and moderately swollen on dorsal side of proximal part, with single eg on ventral side of distal part.

Specimens examined. [CHINA] 1 ♂ (CBLB), Main Peak (主峰頂), 18°43’0.85”N / 108°52’17.74”E, 1,412 m in alt., Mt. Jianfengling (尖峰岭), Jianfeng Township (尖峰镇), Ledong County (乐东县), Hainan Province (海南省), 25.IV.2017, Y.-H. LI leg. [VIETNAM] 1 ♂ (paratype; CTNT), Mt. Tamdao, Vinh Phuc Province, 1–18.VI.1995, local collector leg.; 1 ♀ (CTNT), same locality, 15–31.V.2001, local collector leg.; 1 ♂ (CTNT), Pu Mat, Nghe An Province, VI.2008, local collector leg.; 1 ♂ (CTNT), Mu Cang Chai, 1,700 m in alt., Yen Bai Province, V.2019, local collector leg.

Diagnosis. This subspecies is distinguished from the nominotypical subspecies from Taiwan mainly by the colouration of the elytra, hind wings and hind legs, the deep and rugose punctuation on the head and pronotum, and by having an anal ventrite with a subquadrate instead of subtriangular concavity. *Necydalis* (*Necydalis*) *hirayamai flava* NIISATO, 2003 from Yunnan is distinguished from this subspecies by having a slender and reddish-yellow body, simple punctuation without rugose arrangement on the pronotum and elytra, and shallower concavity of the anal ventrite.

The characteristics of the single male specimen from Hainan Island matches almost completely the abovementioned characteristics of *N.* (*N.*) *h. flemonea*.

Distribution. Northern and central Vietnam: Yen Bai, Vinh Phuc and Nghe An Provinces; China: Hainan Province —— new country record.

Bionomics. *Necydalis hirayamai flemonea* on Hainan Is. appears to be an extremely rare beetle, as in other localities (NIISATO, 1998). Despite continuing field research on the island in recent years, we have examined only a male specimen, which was collected on a windblown peak of Mt. Jianfengling.

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要　　約

新里達也・刘　彬：中国産ホソコバネカミキリ属（鞘翅目カミキリムシ科）の1新種と1新記録種．——雲南省西北縁の怒江リス族自治州から，ホソコバネカミキリ属名義タイプ亜属の1新種，*Necydalis* (*Necydalis*) *chariessa* sp. nov. を命名・記載した．本新種は，タイ北部から知られる *N.* (*N.*) *kumei* TAKAKUWA, 1997 に類似する特徴を多く備えるが，前胸背板は基部幅より明らかに長く (*N.* (*N.*) *kumei* は基部幅と同長かやや短い)，その側縁は直立した淡黄金色細毛を備える（*N.* (*N.*) *kumei* は横臥した濃黄金色毛で密に縁どられる）点で容易に区別することができる。また，本新種は四川省と雲南省から知られる *N.* (*N.*) *niisatoi* HOLZSCHUH, 2003 に一見すると似ているが，上翅は肩幅より明らかに長く，その側縁はほぼ全長にわたり浅いが明瞭にえぐれ（*N.* (*N.*) *niisatoi* は肩幅と同長かやや短く，側縁のえぐれは微弱)，雄の腹部腹板末端節の先端は三角形にくぼむ（*N.* (*N.*) *niisatoi* は弧状にくぼむ）特徴から区別は難しくない．前記のようにその外観は類似するものの，本新種と *N.* (*N.*) *kumei* および *N.* (*N.*) *niisatoi* との間には重要な形態上の相違が認められるため，類縁関係はそれほど近くはないものと思われる．*Necydalis* (*Necydalis*) *hirayamai flemonea* TAKAKUWA et NIISATO, 1996 を海南島（海南省）から記録した．本亜種はこれまでベトナム北・中部から知られていたが，中国から記録されるのは初めてのことである．本研究で検したのは1雄のみであるが，ベトナムの個体群との間にとくに明瞭な差異を見出すことはできなかった．

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