

## Description of two new *Neocollyris* W. Horn, 1901 species from Vietnam (Coleoptera: Cicindelidae)

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Two new species of the genus *Neocollyris* (s. str.) from Vietnam are described: *N.* (s. str.) *trichocephala* sp. n. and *N.* (s. str.) *hirsuta* sp. n. Illustrations of habitus and aedeagus for each new species are provided. A key to all species of the subgenus *Neocollyris* s. str. known from Vietnam is given.

Key words: Coleoptera, Cicindelidae, *Neocollyris* s. str., taxonomy, new species, SW Asia, Vietnam.

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### INTRODUCTION

The genus *Neocollyris* occurs from Pakistan, India, and SE-Asia to Indonesia and includes 12 subgenera with 270 known species. The nominative subgenus *Neocollyris* s. str. presently includes 74 species and 12 subspecies (Anichtchenko, 2022; Wiesner, 2020).

The tiger beetle fauna of Vietnam was recently revised (Wiesner et al. 2017).

Herein we describe two new species of *Neocollyris* from central Vietnam, one with unusually dense pubescence and one with multiple setiferous pores on its vertex. They are included in a key of all known Vietnamese members of the subgenus.

### MATERIAL AND METHODS

The specimens we examined are from the DUBC – Daugavpils University Beetles collection (Latvia); cJW – collection of Jürgen Wiesner (Germany, long term loan of the Zoologische Staatssammlung, München).

Measurements: body length, from anterior margin of clypeus to apex of elytra along suture; length of head (LH) from the anterior margin of the frons to the anterior margin of the neck; WH width of head (WH), with eyes; length of pronotum (LP), along midline; width of pronotum (WP), at widest point; length of elytra (LE), from its base to apex along suture; width of elytra (WE), at widest point. All measurements are given in millimeters.

Photographs of the habitus and individual structural details were taken using a Canon EOS 6D camera with a MP-E 65 mm macro lens. All pictures were processed using Helicon Focus 8 and Adobe Photoshop CC software.

High-resolution habitus images of most *Neocollyris* species, including type specimens and additional material, are available at Carabidae of the World web-project <http://carabidae.org>

## RESULTS

### *Neocollyris* (s. str.) *trichocephala* sp. n.

**Type material:** Holotype, male – “Vietnam, Nang Pro, Da Nang, | So’n Trà Mt., IV.2018” (DUBC). Paratype, 1 male, with the same label data (cJW).

**Diagnosis.** This new species can be easily differentiated from all known species of the genus by

its head, with 25–25 large setiferous pores bearing long hairs (Fig. 13).

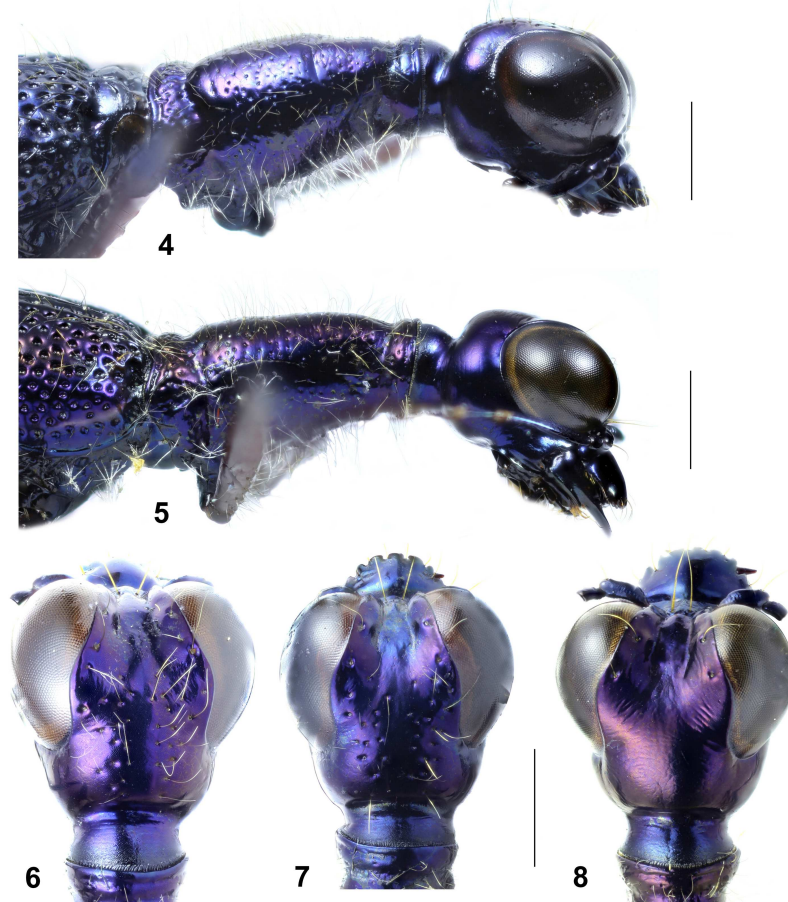
**Description.** Body length 10.7 mm in holotype, 11 mm in paratype (Figs 1, 2).

Body color uniformly violet with weak purple luster on the head and pronotum.

Head (Figs. 4, 6, 7) oblong, HL/HW = 0.87–0.89, with thin microsculpture consisting of polygonal meshes, temples protruding and evenly rounded; clypeus with two setae; frons narrow, frontal grooves shallow, slightly divergent from clypeus towards vertex; eyes moderately protruding; each supra-orbital plate with 5–10 long setae; vertex and occiput with 25–26 large setiferous pores, bearing long setae. Labrum (Fig. 13) short and transverse; unicolored, violet; smooth, without micro reticulation, with eight long sub marginal setae and seven apical teeth: with three short and wide central teeth, with obtuse apices, as well as a pair of slightly longer and narrow latero-apical



Figs. 1–3. Habitus of *Neocollyris* (s. str.) spp.: 1 – *N. trichocephalus* sp. n., holotype; 2 – idem, paratype. 3 – *N. hirsutus* sp. n., Holotype. Scale line = 1 mm.



Figs. 4–8. *Neocollyris* (s. str.) spp.: 4–5 – head, pronotum, and basal part of elytra, right lateral view; 6–8 – head, dorsal view. 4, 6, 7 – *N. trichocephalus* sp. n.; 5, 8 – *N. hirsutus* sp. n., Holotype. Scale line = 1 mm.

teeth and relatively smaller latero-basal teeth with pointed apex on both sides. Mandibles black with violet luster on the base. Palpi entirely black, maxillary with the shape of isosceles triangle (Fig. 9) and labial with the shape of right triangle (Fig. 10). Antennae relatively long; antennomere 3 the longest; scape and pedicel dark violet, antennomeres 3–4 violet, with brown apices; antennomere 5 violet, with brown ring in central part; antennomeres 6–11 dark brown, almost black, with violet reflections. Scape with a single apical seta, antennomeres 3–4 glabrous except for 5–6 thin and short setae on ventral ridge, apical half of antennomere 5 and antennomeres 6–11 densely pubescent with very short yellow setae.

Pronotum (Figs 1, 2, 4) with a shallow collar, without anterior hump, moderately long,  $PL/PW = 1.69-1.72$ , distinctly expanded in basal third; disc slightly convex in lateral view, with indistinct, sparse, shallow, transverse wrinkles in anterior half, unevenly punctured by setiferous pores, bearing very long white hairs; punctures on base of pronotum twice as large as on disc; anterior sulcus relatively wide and shallow, while posterior one more narrow and deeper. Prosternum, pro-episternum, mesothorax and mesosternum densely pubescent with long, white hairs.

Elytra (Figs 1, 2) moderately long,  $EL/EW = 2.74-2.83$ , parallel sided, metallic violet with

light purple luster and without elytral maculation; covered with isodiametric microsculpture; disc with numerous regularly distributed, rounded, blue pits, slightly elongate and smaller in apical fifth; almost all pits with very small setiferous pore on anterior margin, bearing extremely long white hairs; suture moderately protruding. Sutural tooth on apice of elytra right, prominent, well visible, exterior angle of elytra obtuse and rounded. Scutellum black.

Abdominal sternites black with violet luster, sternites with thin pale setae. All coxae, as well as fore- and mid-trochanters black.

Profemora dark violet, ventrally dark brown with violet reflections. Meso- and metafemora dark brown with violet reflections, dorsally and apically violet. All tibiae dark violet. Pro- and mesotarsi uniformly violet; metatarsi light yellow, with two apical tarsomeres violet (Figs 1, 2).

Aedeagus (Figs 15, 16) relatively long, 2.0–2.15 mm; with a wide, gradually curved basal bulb; ventral side of median lobe straight; apical part relatively long, strongly downturned, apex narrow and acute; internal sack with short and thick flagellum, and with thin undulate sclerite at base of flagellum.

**Distribution.** Vietnam: province Da Nang.

**Etymology.** The name of the new species is Latinized form from the Greek “τριχωτός” – hairy, and “κέφαλος” – head, because of its unusually punctate and hairy head.

*Neocollyris* (s. str.) *hirsuta* sp. n.

**Type material:** Holotype, male – “Vietnam, Nang Pro, Da Nang, | So’n Trà Mt., IV.2018” (DUBC).

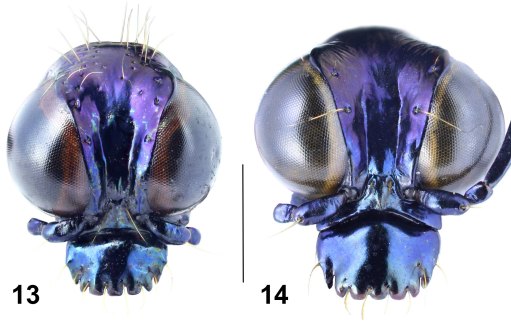
**Diagnosis.** This new species is similar in body size, color, and dense pubescence to the newly described *N. trichocephala* sp. n., but *N. hirsuta* sp. n. can be differentiated by its smooth head. Elytra with dark brown, barely visible but evident sub-humeral and transversal elytral pattern, while in *N. trichocephala* sp. n., elytra lack this pattern. Labrum of *N. trichocephala* sp. n. with thin microsculpture, while in *N. hirsuta* sp. n. it is smooth. Aedeagus of *N. hirsuta* sp. n., is larger than in *N. trichocephala* sp. n. and with apex longer and less downturned.

**Description.** Body length 12.8 mm in holotype (Fig. 3).



Figs. 9–12. Palpi of *Neocollyris* (s. str.) spp. 9 – maxillary palpus of *N. trichocephalus* sp. n.; 10 – labial palpus of *N. trichocephalus* sp. n.; 11 – maxillary palpus of *N. hirsutus* sp. n.; 12 – labial palpus of *N. hirsutus* sp. n. Scale line = 1 mm.





Figs 13–14. Head in frontal view and labrum of *Neocollyris* (s.str.) spp. 13 – *N. trichocephala* sp. n.; 14 – *N. hirsuta* sp. n. Scale line = 1 mm.



Figs. 15–17. Aedeagus of *Neocollyris* (s. str.) spp.: 15–16 – *N. trichocephala* sp. n., Holotype and paratype; 17 – *N. hirsuta* sp. n., Holotype. Scale line = 1 mm.

Body color uniformly violet with strong purple luster.

Head (Figs. 5, 8) oblong, HL/HW = 0.82, with thin microsculpture consisting of polygonal meshes, temples protruding and evenly rounded towards base; clypeus with two setae; frons narrow, frontal grooves shallow, almost straight, subparallel in anterior third, slightly divergent in pos-

terior third; eyes moderately protruding; each supra-orbital plate with 2 long setae. Labrum (Fig. 14) relatively short and transverse; unicolored, violet; with microsculpture, consisting of polygonal meshes on the center, and transverse meshes on the sides; with eight long sub marginal setae and seven apical teeth: with three short and wide frontal central teeth with rounded apices, as well as a pair of slightly longer and narrower latero-apical teeth and longer and pointed latero-basal teeth on both sides. Mandibles black with violet luster on the base. Palpi entirely black, maxillary with the shape of isosceles triangle (Fig. 11) and labial with the shape of right triangle (Fig. 12). Antennae relatively long; antennomere 3 the longest; scape and pedicel dark violet, antennomeres 3–4 violet, with yellow apices; antennomere 5 yellow, with violet basal third; antennomeres 6–11 brown. Scape with a single apical seta, antennomeres 3–4 glabrous except for 6 very short setae on ventral ridge, apical half of antennomere 5 and antennomeres 6–11 densely pubescent with very short yellow setae.

Pronotum (Figs 3, 5) with a shallow collar, without anterior hump, moderately long, LP/WP = 1.83, distinctly expanded in basal third; disc almost flat in lateral view, with shallow, transverse wrinkles in anterior half, relatively densely and unevenly punctured by setiferous pores, bearing very long white hairs; punctures on base of pronotum twice as large and denser as on disc; anterior sulcus relatively wide and shallow, while posterior one more narrow and deeper. Prosternum, pro-episternum, mesothorax and mesosternum densely pubescent with long, white hairs.

Elytra (Fig. 3) moderately long, EL/EW = 3.33, parallel sided, metallic violet with light purple luster; elytral maculation dark brown, barely visible, consisting of sub-humeral elongate spot, and transversal middle spot; covered with isodiametric microsculpture; disc with numerous regularly distributed, rounded, blue pits, slightly elongate and smaller in apical fifth; almost all pits with very small setiferous pore on anterior margin, bearing extremely long white hairs; suture moderately protruding. Sutural tooth on apices

of elytra obtuse, not prominent, exterior angle of elytra obtuse and angulate. Scutellum dark blue.

Abdominal sternites black with violet luster, with few thin and long pale setae on each side. All coxae, as well as fore- and mid-trochanters black.

Profemora dark violet, ventrally dark brown with violet reflections. Meso- and metafemora dark brown with violet reflections, dorsally and apically violet. All tibiae dark violet. Pro- and mesotarsi uniformly violet; metatarsi light yellow, with two apical tarsomeres violet (Fig. 3).

Aedeagus (Fig. 17) relatively long, 2.0–2.15 mm; with a wide, gradually curved basal bulb; ventral side of median lobe straight; apical part relatively long, strongly downturned, apex narrow and acute; internal sack with short and thick flagellum, and with thin undulate sclerite at base of flagellum.

**Distribution.** Vietnam: province Da Nang.

**Etymology.** The name of the new species is derived from the Latin “hirsuta” – roughly hairy, because of unusually long pubescence of pronotum and elytra.

## DISCUSSION

To incorporate these two new species, the key to the species of the subgenus *Neocollyris* from Vietnam (Wiesner et al., 2017) is modified as follows:

1. Disc of pronotum densely punctured and covered by long hairs ..... 2  
– Disc of pronotum smooth, or slightly punctured on sides ..... 3
2. Head with 25–26 setiferous pores and long white hairs ..... *N. (N.) trichocephala* **sp. n.**  
– Head normal, with two supra orbital setae ..... *N. (N.) hirsuta* **sp. n.**
3. Aedeagus rounded distally; apophysal process of female apical sternum strongly divergent ... 4

– Aedeagus pointed distally; apophysal process of female apical sternum parallel, not divergent ..... 5

4. Labrum as long as wide; aedeagus strongly curved in the apical part ..... *N. (N.) rufipalpis* (Chaudoir, 1864)

– Labrum wider than long; aedeagus not strongly curved in the apical part ..... *N. (N.) similis* (Lesne, 1891)

5. Metatibiae completely dark ..... 6  
– Metatibiae completely or partly pale ..... 7

6. Elytra bright blue ..... *N. (N.) bonellii bonellii* (Guérin-Méneville, 1834)  
– Elytra black, with gold reflections .....  
..... *N. (N.) intermedia* Naviaux, 1994

7. Metatibiae completely pale, of same color as metafemora ..... *N. (N.) fuscitarsis* (Schmidt-Goebel, 1846)  
– Metatibiae partly pale ..... 8

8. Pronotum with deep transverse furrows .....  
..... *N. (N.) pseudosignata* (Horn, 1902)  
– Pronotum smooth or with shallow furrows ..... 9

9. Elytra slender, more than three times longer than wide ..... 10  
– Elytra stout, less than three times longer than wide ..... *N. (N.) compacta* Naviaux, 1994

10. Elytra black, with or without gold reflections in apical half ..... 11  
– Elytra blue, blue green or violet ..... 12

11. Elytra black, parallel sided .....  
*N. (N.) stiengensis* (Horn, 1914)  
– Elytra black with gold reflections, enlarged in apical fourth ..... *N. (N.) orichalcina orichalcina* (Horn, 1896)

12. Pronotum short, less than two times longer than wide ..... *N. (N.) devei* Naviaux, 1991

- Pronotum long, more than two times longer than wide ..... 13
13. Pronotum elongate, with long collum ..... 14  
– Pronotum short, no collum presented ..... 15
14. Femora light brownish ..... *N. (N.) moesta moesta* (Schmidt-Goebel, 1846)  
– Femora dark brownish ..... *N. (N.) moesta fusca* Naviaux, 1994
15. Distal six antennomeres pale; metatibiae pale at its distal tip only ..... *N. (N.) impressifrons* (Chaudoir, 1864)  
– Distal six antennomeres dark; distal fourth of metatibiae pale ..... *N. (N.) cruentata* (Schmidt-Goebel, 1846)

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