

## SHORT FAUNISTIC NOTES - NEW RECORDS

### Note on *Neolucanus doro horaguchii* Nagai, 2001, with a new synonym from Taiwan (Coleoptera: Lucanidae)

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**Taxonomy, new synonym, Coleoptera, Lucanidae, *Neolucanus*, Taiwan**

**Abstract.** The note make sure the holotype Storage location of *Neolucanus doro horaguchii* Nagai, 2001, which is synonymized here with *Neolucanus swinhoei* Bates, 1866. The two species are sympatric with each other in habitat, and there are no significant differences in the genitalia.

#### Coleoptera: Lucanidae: *Neolucanus*

*Neolucanus doro horaguchii* Nagai, 2001 was described by the late specialist Shinji Nagai, based solely on the elytra, usually reddish brown ground color of the dorsal surface instead of blackish, the upper surface of elytra is more strongly lustrous, from Guanwu, Hsinchu, in the north of Taiwan. But here is a well known that the color of the dorsal surface is individually variable not only in the genus *Neolucanus* in general, but also in most species of *Neolucanus* from Taiwan. Therefore the ground color itself can not support a subspecific division. And the original publication was based on the difference in altitude distribution to distinguish *N. doro horaguchii* and *N. swinhoei*, but in fact, this author found that the two taxa still have mixed habitats at an altitude of 1500-1700 meters; there is no isolation.

As Leuthner (1885) wrote in his monograph “The study of types is more important in the Lucanidae than in almost any other group, for without this assistance many riddles would remain insoluble”. When this author wanted to examine the type specimen, whos learned from the paper that the specimen was deposited in the Department of Entomology, National Taiwan University. But in fact, no type specimens were found in the museum. Shinji has passed away and cannot be contacted.

**Type material.** Holotype *Neolucanus doro horaguchii* Nagai, 2001 (Figs. 1a-c), 1 ♂, TAIWAN, Hsinchu county, Wufeng Dalu Forest Road, 02.VIII.1998, 1920 m, Yu-Long Lin leg. (will be deposited in NTU Insect Museum, Taipei, Taiwan soon). Allotype 1 ♀ (Fig. 3i) same data as holotype, (private collection of Jing-Zhi Lin, Taipei, Taiwan). Paratypes: 1 ♀ (Fig. 3e), same locality as holotype, 19.VIII.1998, 1920 m, Yu-Long Lin leg. (Academia Sinica, Taiwan); 1 ♂ same locality as holotype, 10-13.IX.1998, 1920 m, Shigeo Horaguchi leg., (private collection of Jing-Zhi Lin, Taipei, Taiwan); 1 ♂ same locality as holotype, 7.IX.1997, 1920 m, Yu-Long Lin (Academia Sinica, Taiwan).

**Other specimens examined** (all private collection of Jing-Zhi Lin, Taipei, Taiwan): TAIWAN: 28 ♂, 4 ♀: same locality as holotype, 09-12.VIII.2016, 1500-1910 m, Jing-Zhi Lin leg; 19 ♂, 5 ♀: Hsinchu county, Wufeng

Township, 17-20.VIII.2018, 1650-1900 m, Jing-Zhi Lin leg.; 21 ♂, 3 ♀: Hsinchu county, Jianshi Township, 11-12.VIII.2015, 1450-1700 m, Jing-Zhi Lin leg.; 6 ♂, 2 ♀: Hsinchu county, Jianshi Township. Xiuluan, 25.VIII.2020, 1,628-1,910 m, Jing-Zhi Lin leg.; 3 ♂, 1 ♀: Taoyuan City Fuxing Dist Baling, 17-20.IX.2014, 1760 m, Jing-Zhi Lin leg.; 13 ♂: Taoyuan City Fuxing Dist 05.IX.2017, 1470 m, Jing-Zhi Lin leg.; 2 ♂: Taoyuan City Fuxing Dist., 25.IX.2017, 1700 m, Jing-Zhi Lin leg.

Until this year, with the help of Mr. Horaguchi from Japan the author has the opportunity of studying the holotype of *N. doro horaguchii* (Fig. 1) together with a series of specimens examining a good number of specimens from various localities of Taiwan, covering the type localities of both taxa. This variability however is found all over the distribution range of the species and therefore is an individual variability without a geographical meaning. The author cannot find differences between the two taxa, and found no genitalic difference among the different populations. Based on this new interpretation, the author establishes here the synonymy: *Neolucanus swinhoei* Bates, 1866 [= *N. doro horaguchii* Nagai, 2001; syn. n.].

Further on, the published molecular phylogenetic analysis (Tsai et al, 2014) studies did not support any division among the populations of *N. doro* from Taiwan. Therefore it is reasonable to treat *N. doro horaguchii* as a synonym.

After the completion of this study, the author will assist Shinji Nagai is depositing holotype specimens in NTU Insect Museum soon, and the paratype will be deposited in Academia Sinica, Taiwan.

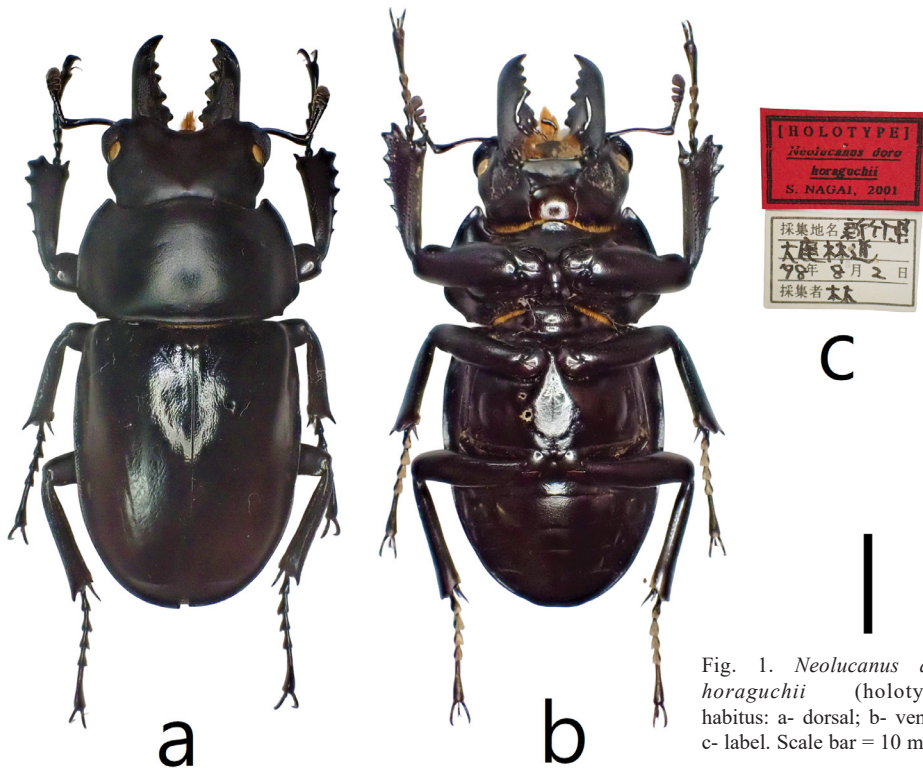


Fig. 1. *Neolucanus doro horaguchii* (holotype), habitus: a- dorsal; b- ventral; c- label. Scale bar = 10 mm .

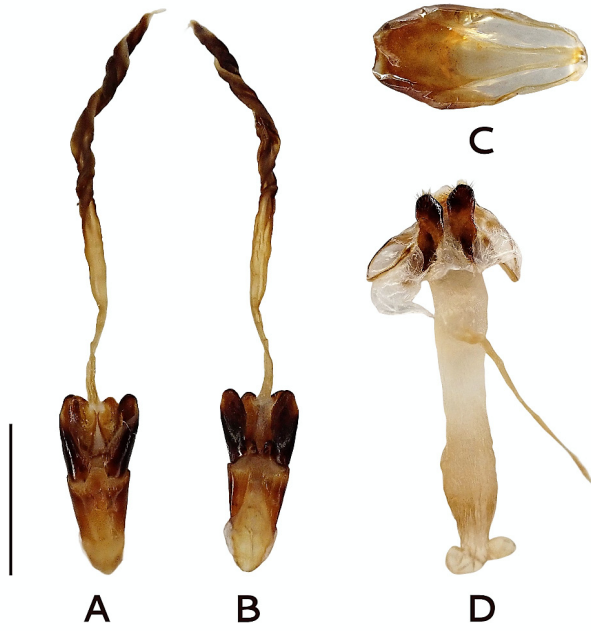


Fig. 2 A–D. *Neolucanus doro horaguchii*: A- male (holotype), aedeagus, dorsal view; B- aedeagus, ventral view; C- abdominal segment IX, dorsal view; D- female (allotype) genitalia, dorsal view. Scale bar = 5 mm

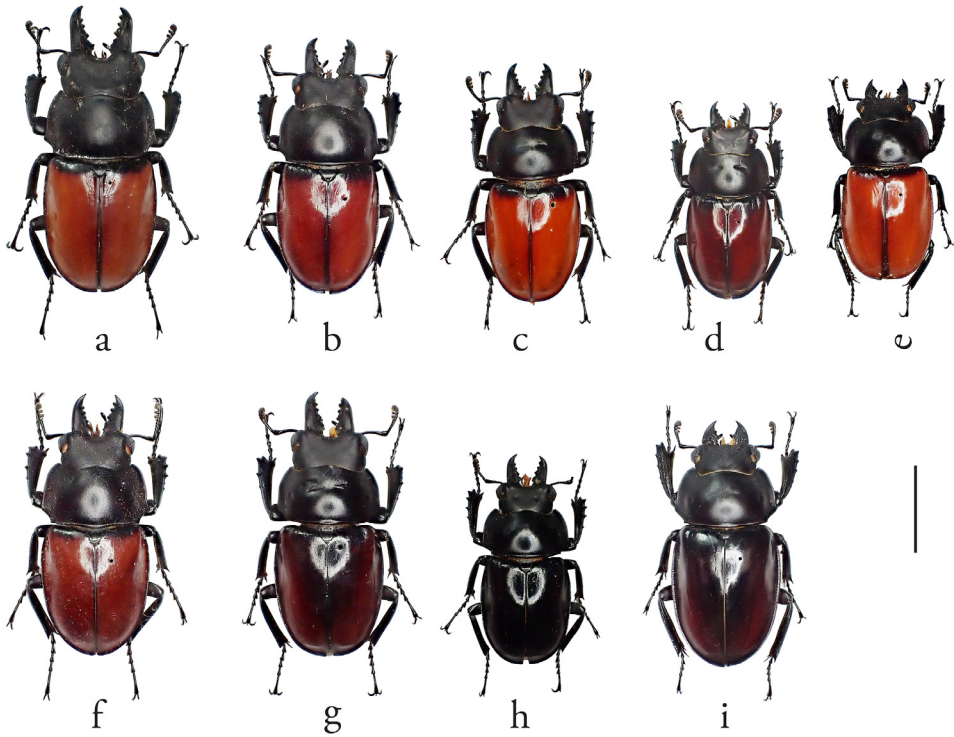


Fig. 3 a–i. Habitus of *N. doro horaguchii*, Type specimen and *N. swinhoei*. Scale bar = 10 mm.

ACKNOWLEDGEMENTS. The author of this study is grateful to Shigeo Horaguchi and to the late specialist Shinji Nagai for providing important type specimens and information for references; thanks also belong to Cheng-Lung Tsai for the molecular phylogenetic analysis research on stag beetles in recent years provide important references for this article.

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*Received: 2.6.2022*

*Accepted: 20.6.2022*

*Printed: 5.10.2022*