

SHORT FAUNISTIC NOTES - NEW RECORDS

First record of the stag beetle species *Aegus chelififer* MacLeay, 1819 (Coleoptera: Lucanidae) from Xiaoliuqi Island, South Taiwan

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Abstract. A short note gives the distribution of *Aegus chelififer* MacLeay, 1819, first record from Xiaoliuqi Island, South Taiwan. A checklist of all five Taiwanese *Aegus* is also given.

Coleoptera: Lucanidae: Lucaninae: Aegini

***Aegus chelififer* MacLeay, 1819.** Taiwan: 11 ♂, 4 ♀, Pingtung, Xiaoliuqi Island, 19.-20. XI.2019, S.-C. YU and H.-C. WEI leg., (JZLT, NMNS, NTM); 21 ♂, 2 ♀, Pingtung City, Neipu, 11.VI.2014, local collector leg., (JZLT); 23 ♂, 14 ♀, Kaohsiung City, Cijin, 29.VII.2017, local collector leg., (JZLT); 1 ♂, 2 ♀, Chigu, Tainan, 19.II.2020, local collector leg., (JZLT); 39 ♂, 14 ♀, Taichung, 21.XI.2014, local collector leg., (JZLT); 3 ♂, 4 ♀, Tianzhong, Changhua County, 20.VII.2018, local collector leg., (JZLT); 2 ♂, 8 ♀, Taitung City, 05.IV.2010, local collector leg., (JZLT); 5 ♂, 4 ♀, Yunlin County, 23.VIII.2017, local collector leg., (JZLT); 1 ♂, 1 ♀, Liukuci, Kaohsiung Hsien, 5-VI-2002, H.-Y. LEE leg., (NMNS).

The stag beetle genus *Aegus* MacLeay, 1819 is the largest genus in the Lucanidae with approximately 260 species worldwide (Cao et al. 2016). *Aegus chelififer* MacLeay, 1819 is a common species, widely distributed in southern Asia and has been reported from several locations in China, Vietnam, Thailand, and Myanmar (Fujita 2010). Although *Aegus chelififer* is native to Southeast Asia, it has recently been found in the Seychelles. It is speculated to have reached there on logs that washed ashore from Southeast Asia during the 2004 Indian Ocean tsunami (Carpaneto et al. 2010). The first record in Taiwan was in 1993 Kaohsiung. It is generally believed that the populations in Taiwan are alien species (Chang 2006). The author has now received a good number of both male and female specimens of *A. chelififer* from all over Taiwan. Herein, this records *A. chelififer* from Xiaoliuqi Island for the first time. This new locality is relatively close to Pingtung County in southern Taiwan, and *A. chelififer* now appears to be common and widespread on Xiaoliuqi Island, suggesting that there is at least a stable population on this island. Xiaoliuqi Island is a coral island.

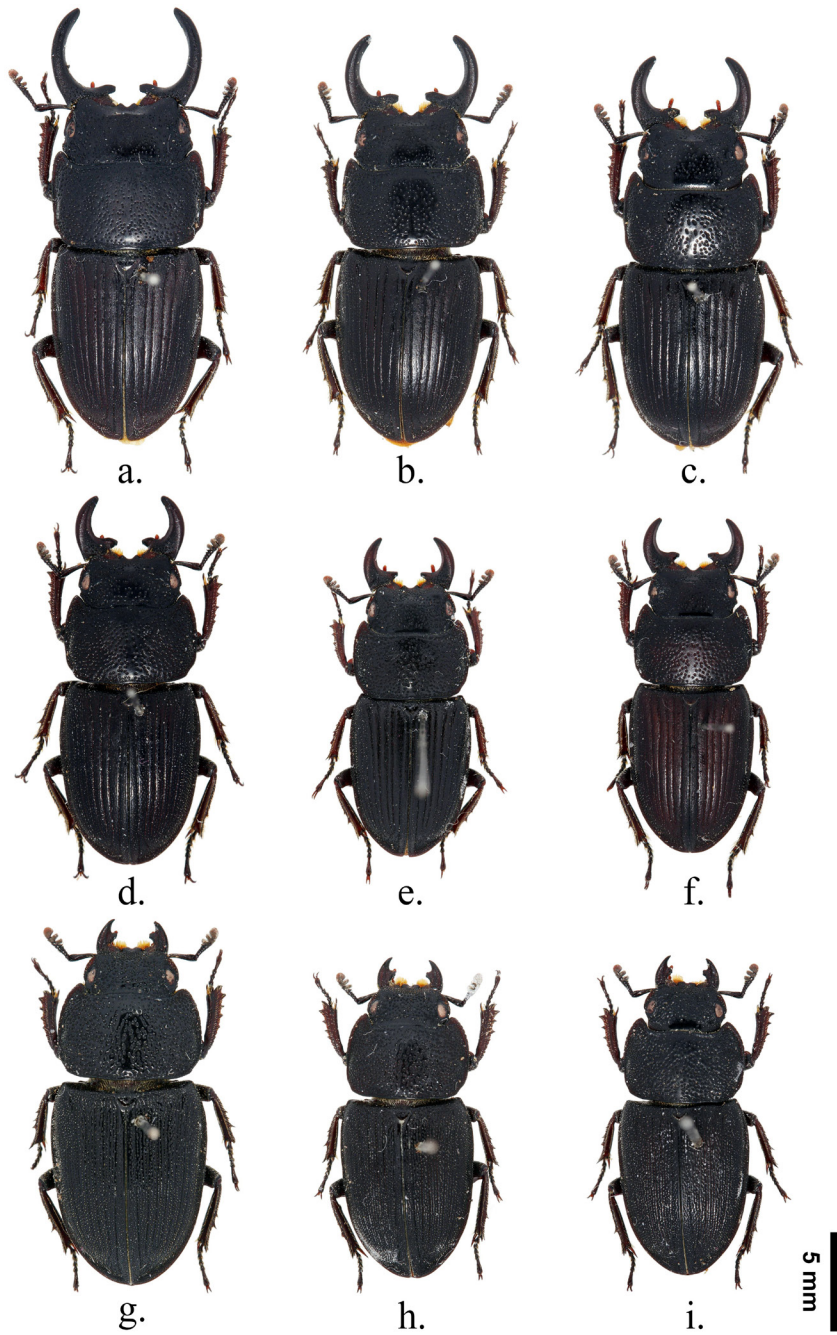


Fig. 1a-i. Dorsal habitus male and female specimens of *A. chelifera*.



Fig. 2. Local collection large male *A. chelififer*.

Located in the southeast corner of the Taiwan Strait, its highest point is about 80 m above sea level, and Liuqiu is the only island community in Pingtung County. It is one of Taiwan's largest coral islands and the only one with a significant population and human activity, and its forests include white popinac, acacia, crew pine and bamboo. The locality report is geographically close to Pingtung, so the discovery of *A. chelififer* from Xiaoliuqiu was not surprising, but it contributes to our understanding of the local insect fauna of Xiaoliuqiu and fills a small geographical gap for this species. In addition, this report provides a new checklist of all five Taiwanese *Aegus*.

The specimens used in this study are deposited at the National Taiwan Museum (NTM), Taipei, Taiwan. National Museum of Natural Science (NMNS), Taichung, Taiwan and in the private collection of the author (JZLT), Taipei, Taiwan.

Identification was based primarily on Huang and Chen (2017), Fujita (2010) and Chang (2006).

The occurrence of the species on Xiaoliuqiu Island could be explained by transoceanic dispersal by floating logs, (Carpanetog et al. 2010) due to the action of ocean currents on logs removed by the tsunami. There are many subspecies of this species, but identification is difficult. *Aegus chelififer*, the type species of *Aegus*, this species has a taxonomic problem that type locality of its nominotypical subspecies is not specified.

MacLeay's reference locality "Australasia" is read in the article as referring to the Australian continent, but this species does not occur in Australia. Huang and Chen (2017) suggested that *A. chelififer nitidus* may be a synonym of the nominotypical subspecies, but not subjected to certainty due to the unknown origin of the nominotypical subspecies.

A. chelififer tonkinensis was assigned to the continental subspecies previously considered to be the original subspecies. This paper tentatively follows the classification of Fujita (2010), but the subspecies classification may change depending on future surveys. At present, it is not known to which subspecies this Taiwanese population (better: population) belongs.

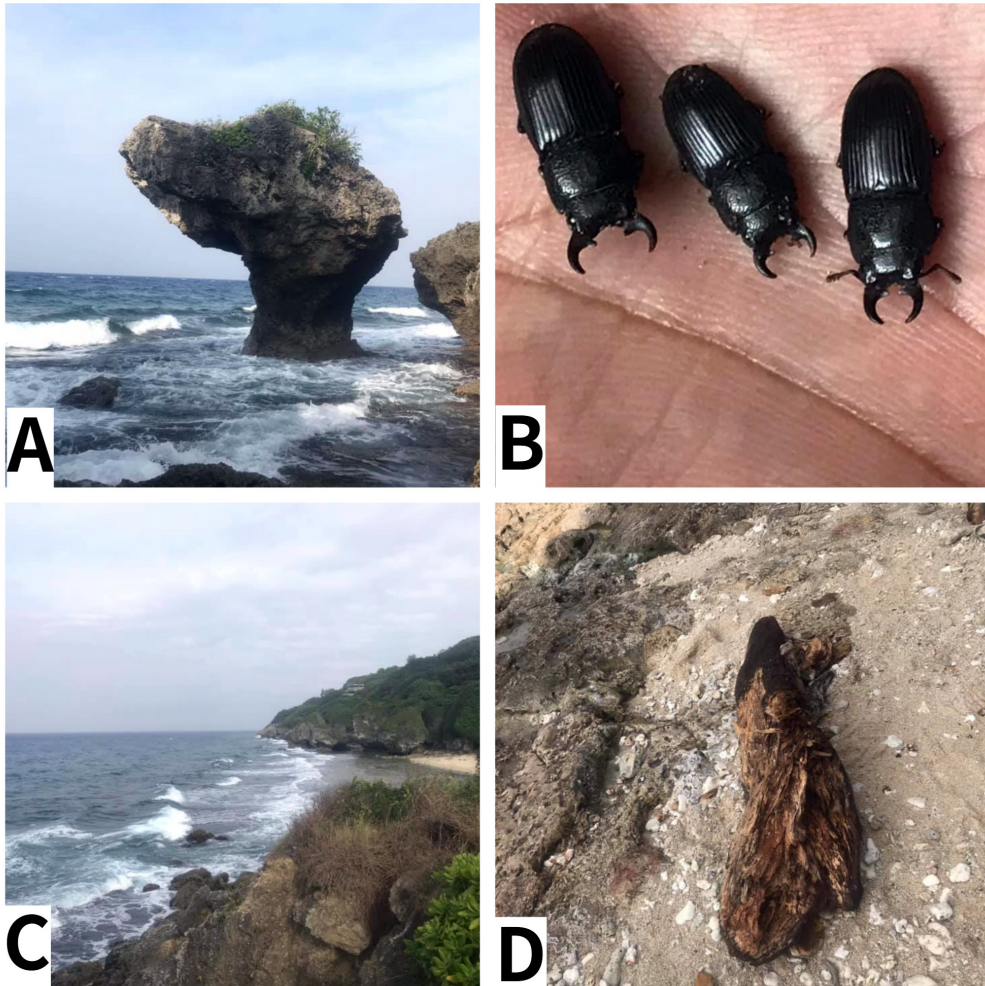


Fig. 3. A- famous landmarks in Xiaoliuqiu; B- local collection *A. chelifera*; C- native habitat; D- this species inhabits rotten wood (photo by Hsin-Chieh Wei).

This paper believes that only DNA studies on specimens from the different populations will allow clarification of the real status of this taxon. In the same way, molecular analysis could identify from where the Xiaoliuqiu specimens originated, and it would be desirable to verify molecular data in different population (populations) in neighboring countries in the future.

In Taiwan, Sato and Lee (2003) reported a pair of *Aegus* sp. from Liugui, Kaohsiung and identified it in a short note as *Aegus philippinensis* Deyrolle, 1865, although there are no further explanations or illustrations in the short notes, making the identity of this species uncertain and confusing. Their results were challenged by Chang (2006) and Yang (2007), although with some doubts. Sato and Lee's concept of Taiwan as *A. philippinensis* has been

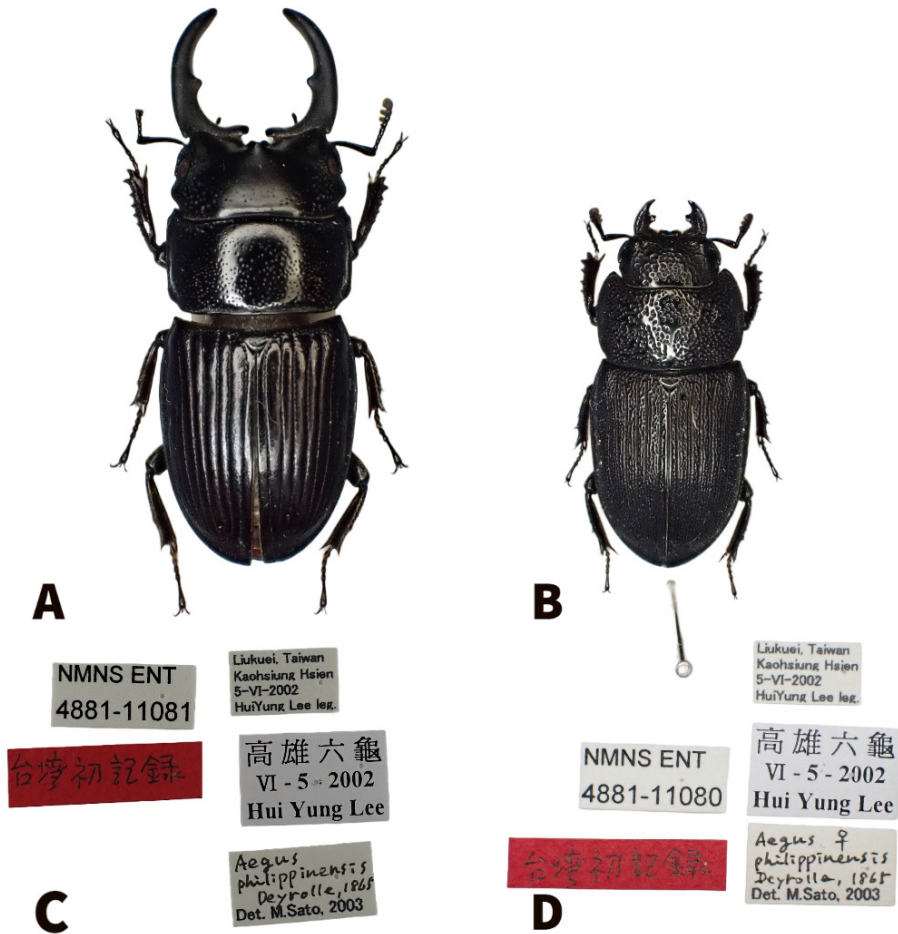


Fig. 4. Taiwanese voucher specimen of *Aegus philippinensis* (nec Deyrolle, 1865) det. M. Sato, 2003, habitus view; A- male, B- female, C- male labels, D- female labels, (Photo by Bao-Cheng Lai , NMNS).

followed generally by later authors who have included this species in the stag beetle fauna of Taiwan. To answer this question, the voucher specimen of Taiwan *A. philippinensis* deposited in the National Museum of Natural Science (NMNS) was re-examined in this paper and compared with the good number of male and female specimens of *A. chelifera* from all over Taiwan (Fig. 4).

Based on the morphological comparisons of diagnostic characters, this report confirms that *A. philippinensis* in Taiwan is a misidentification of *A. chelifera*. In conclusion, this report recommends *A. philippinensis* should be excluded from the list of Taiwanese Lucanidae.

List of *Aegus* Species in Taiwan

These records are based on Huang and Chen (2017), Fujita (2010), Chang (2006) and author of the present study.

Aegus formosae Bates, 1866

Distribution: Taiwan (the altitude of the whole island is 500-2000 m)

Aegus nakaneorum Ichikawa & Fujita, 1986

Distribution: Taiwan, 500-1400 m (Miaoli, Taichung, Nantou, Chiayi, Kaohsiung, Pingtung)

Aegus jengi Huang & Chen, 2016

Distribution: Taiwan, 200-1400 m (Taipei City, New Taipei City, Keelung City, Taoyuan, Hsinchu, Miaoli, Taichung, Nantou)

Aegus kurosawai Okajima & Ichikawa, 1986

Distribution: Taiwan, 1600-2600 m (New Taipei City, Taoyuan, Hsinchu, Miaoli, Taichung, Nantou, Yilan)

Aegus chelifer MacLeay, 1819

Distribution: Taiwan, 0-200 m (Taichung, Changhua, Chiayi, Yunlin, Tainan, Kaohsiung, Pingtung, Taitung, Xiaoliuqi Island (new record))

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REFERENCES

- BOMANS H. E. 1992: Considerations sur le genre *Aegus* MacLeay et description d'espèces nouvelles. (77ème contribution à l'étude des Coléoptères Lucanides). *Lambillionea* 92(2): 179-196.
- CAO Y. Y., WEBB M. D., BAI M. & WAN X. 2016: New synonymies and records of the stag-beetle genus *Aegus* MacLeay from Chinese fauna (Coleoptera: Lucanidae). *Zoological Systematics* 41(3): 261-272.
- CARPANETO G. M., BARTOLOZZI L., MAZZEI P., PIMPINELLI I. & VIGLIOGLIA V. 2010: *Aegus chelifer* MacLeay 1819, an Asian stag beetle (Coleoptera, Lucanidae) invading the Seychelles Islands: a threat for endemic saproxylic species. *Tropical Zoology* 23: 173-180.
- CHANG Y. J. 2006: *Stag beetles 54*. Taipei: Yuan-Liou Publishing Company, 160 pp. [in Chinese]
- FUJITA H. 2010: *The lucanid beetles of the world Mushi-sha's Iconographic series of Insect. Vol. 6*. Mushisha, Tokyo. 472 pp. [In Japanese]
- HUANG H. & CHEN C. C. 2017: *Stag Beetles of China III*. Taipei: Formosa Ecological Company, 524 pp.
- KRIESCHE R. 1920: Zur Kenntnis der Lucaniden. *Archiv für Naturgeschichte* 86A(8): 92-107.
- MACLEAY W. S. 1819: *Horae entomologicae: or essays on the annulose animals*. London: S. Bagster, Vol. 1 part 1: 1-160.

- MASATAKA S. & LEE H. Y. 2003: Records of two Lucanid beetles (Coleoptera) from Taiwan. *Elytra* 31(2): 370.
- SONGVORAWIT N., BUTCHER B. A. & CHAISUEKU C. 2017: Decaying Wood Preference of Stag Beetles (Coleoptera: Lucanidae) in a Tropical Dry-Evergreen Forest. *Environmental Entomology* 46(6): 1322-1328.
- YANG F. L. . 2007: *Stag beetles*. Taipei: Tropical Forest Company, 122 pp. [in Chinese]

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