

NOTE

*Dufouriellus ater* (Puton), *Macrotrachelia nigronitens* (Stål), and *Xylocoris* (*Arrostelus*) *flavipes* (Reuter) (Hemiptera: Heteroptera: Cimicoidea: Anthocoridae): First Records from the Hawaiian Islands

A recent shipment of unidentified Lasi-ochilidae, Lyctocoridae and Anthocoridae from the Bishop Museum, Honolulu, included specimens of three species not previously reported from the Hawaiian Islands. Currently, I am reviewing these families found on the Hawaiian Islands. (Note: Following Schuh and Štys (1991) and Schuh and Slater (1995), three families are now recognized: Lasi-ochilidae, Lyctocoridae, and Anthocoridae.) The species reported here are placed in the Anthocoridae.

*Dufouriellus ater* was described from Europe and Syria by Dufour (1833) (as *Xylocoris ater*). Subsequently, this species has been reported from Europe, North Africa, Middle East, and Asia Minor (Péricart 1972). It was first reported from North America by Van Duzee (1916) and subsequently reported from B.C., Calif., Id., Ky., N.C., N.Y. and Ont. in Canada and the United States (Henry 1988) and Ore. (J.D. L., unpublished). Zheng and Bu (1990) reported it from China. Lattin (1999, 2000) reviewed this species and its habits that included occurrence under bark where it attacks bark beetles and elsewhere as a predator of stored product pests.

Two specimens of *Dufouriellus ater*, a male and a 5th instar nymph, were found in the material from the Bishop Museum. The label information reads: Hawaii, Hawaiian I., Saddle Road at Pohakuloa, 1829 m., 10-1-1971//*Plasithymus* borings//in *Chenopodium*//W.C. Gagné Collector, Bishop Museum 1971: 366. This species is likely to be found under bark at higher elevations for this is a temperate species and could be taken from stored products as it is a known predator of stored product pests.

*Macrotrachelia nigronitens* (Stål) was

described from Brazil (1860) (as *Anthocoris nigronitens*). Later, it was reported from Panama by Champion (1900). Specimens of this species were deliberately introduced into Oahu in 1965 from Cuernavaca, Morelos, Mexico, collected by Krauss and reported by Davis and Krauss (1966) (as *Macrotrachelia thripiformis* Champion). Six specimens (3 males and 3 females) of this original series were in the unidentified collections of the Bishop Museum and a large label stated "Part of series collected and released." These specimens were identified by me as *Macrotrachelia nigronitens* (Stål) rather than *M. thripiformis* utilizing the key of Champion and the illustrations of this species (Plate 19, figs. 18, 19, 19a, b) in the same publication. These specimens agreed in every way with the description and illustrations on *M. nigronitens*, not *M. thripiformis* Champion. This is a correction of the information that appeared in several publications following the introduction (Davis for Chong 1967; Nishida 1994, 1997, 2002). No additional specimens of *Macrotrachelia nigronitens* have been seen since its original release. Nishida reported its occurrence on Kauai, Oahu, Molokai, Maui, and Hawaii (as *M. thripiformis*), but it appears that these island records actually apply to another Anthocoridae, very likely *Montandoniola moraguesi* (Puton), introduced from the Philippine Islands in 1964 (Davis and Krauss 1966) into Kauai and Oahu and quickly spreading to Maui, Molokai, and Hawaii (Funasaki 1966). *Montandoniola moraguesi* was not included in the checklists of Nishida (1994, 1997).

*Xylocoris* (*Arrostelus*) *flavipes* was described by Reuter from Lithuania in 1875 (as *Piezostethus flavipes*). Péricart (1972)



published a review of this species and included illustrations of the brachypterous and macropterous adults. It was first reported from the United States by Bibby (1961) although specimens were dated well before that date (see Henry 1988). Péricart (1996) cited the occurrence of this species in North Africa, Turkey, China, Saudi Arabia, and Yemen, and North America, South America, India and Indonesia. A citation of particular interest is that of Orian (1956) who reported *X. flavipes* from the island of Mauritius. Henry (1988) reported this species from Ariz., D.C., Ga., Ks., Md., and Tex. Arbogast et al. (1971) reviewed the activities of this bug as a predator of stored grain pests. Awadalla and Tawfik (1972) published on the biology of this species in Egypt, followed by LaCato and Davis (1973) on the interactions of the bug with various species of stored grain pests in the United States. Press (1989) studied the compatibility of *X. flavipes* with a parasitic hymenopteran in the suppression of the almond moth. Two brachypterous specimens of *Xylocoris flavipes* were found in the collections of the Bishop Museum, one brachypterous male from Kalmuk, Oahu, 10-28-20, Coll. O.H.S./with *O. oryzae* L. [(now *Sitophilus oryzae* (L.)], in sorghum seed. The other brachypterous male came from Honolulu, T.H., 11-19-35/R.A. Smith/ex organic fertilizer. While no more recently collected specimens have been seen, this is a very small bug (1.7 mm) and easily overlooked when examining lots of organic materials.

Thus, three additional non-indigenous species of Anthocoridae are added to the reported fauna, substantially increasing the number of non-native species known from the Hawaiian Islands (8 native, 14 non-native). This is a remarkably high percentage of non-native species in the Hawaiian Islands, 64%, well above the number cited for all insects of the Hawaiian Islands by Nishida. Careful collecting at higher elevations on the islands will likely add additional species for the fauna—both native and non-na-

tive. These are small insects, and for that reason, they are likely to be overlooked by the average collector. It is appropriate to mention the important collections of Hawaiian Hemiptera: Heteroptera made by the late Wayne C. Gagné. He added many interesting specimens of Heteroptera, including Anthocoridae, to the collections of the Bishop Museum.

Acknowledgments.—My thanks go to A. Ramsdale, Collection Manager, Bishop Museum, for the loan of specimens and to L. Parks, Oregon State University, Corvallis, for manuscript preparation, and to a careful reviewer.

#### LITERATURE CITED

- Arbogast, R. T., M. M. Carthon, J. R. Roberts, Jr. 1971. Developmental stages of *Xylocoris flavipes* (Hemiptera: Anthocoridae), a predator of stored product insects. *Annals of the Entomological Society of America* 64: 1131–1134.
- Awadallah, K. T. and M. F. S. Tawfik. 1972. The biology of *Xylocoris* (= *Piezostethus*) *flavipes* (Reut.) (Hemiptera: Anthocoridae). *Bulletin de la Société Entomologique d'Egypte* 56: 177–189.
- Bibby, R. F. 1961. Notes on miscellaneous insects of Arizona. *Journal of Economic Entomology* 54: 324–333.
- Champion, G. C. 1900. Insecta. Rhynchota. Hemiptera: Heteroptera, Vol. II. *In Biologia Centrali—Americana*, London, xvi + 416 pp.
- Davis, C. J. and N. L. N. Krauss. 1966. Recent introductions for biological control in Hawaii. XI. *Proceedings, Hawaiian Entomological Society* 19(2): 201–207.
- Davis, C. J. for M. Chong. 1967. *Macrotrachelia thripiformis* Champion. *Proceedings, Hawaiian Entomological Society* 19(2): 379.
- Dufour, L. 1833. Mémoire sur les genres *Xylocoris*, *Leptopus* et *Velia*. *Annals de la Société Entomologique de France* 2: 104–118.
- Funasaki, G. Y. 1966. Studies on the life cycle and propagation technique of *Montanandoniola moraguesi* (Puton) (Heteroptera: Anthocoridae). *Proceedings, Hawaiian Entomological Society* 19: 209–211.
- Henry, T. J. 1988. Family Anthocoridae Fieber, 1837, pp. 12–28. *In* Henry, T. J. and R. C. Froeschner, eds. 1988. *Catalog of the Heteroptera, or True Bugs, of Canada and the Continental United States*. E.J. Brill, Leiden, 958 pp.
- Lattin, J. D. 1999. Bionomics of the Anthocoridae. *Annual Review of Entomology* 44: 207–231.
- . 2000. Minute pirate bugs (Anthocoridae), pp.



- 607–637. In Schaefer, C. W. and A. R. Panizzi, eds. *Heteroptera of Economic Importance*. CRC Press, Baton Raton, 828 pp.
- LeCato, G. L. and R. Davis. 1973. Preferences of the predator *Xylocoris flavipes* (Hemiptera: Anthocoridae) for species and instars of stored-product insects. *The Florida Entomologist* 56(1): 57–59.
- Nishida, G. M., ed. 1994. Hawaiian terrestrial arthropod checklist. Second edition. Bishop Museum Technical Report No. 4, 287 pp.
- . 1997. Hawaiian terrestrial arthropod checklist. Third edition. Hawaii Biological Survey Bishop Museum. Bishop Museum Technical Report No. 12, 263 pp.
- . 2002. Hawaiian terrestrial arthropod checklist. Fourth edition. Hawaii Biological Survey Bishop Museum. Bishop Museum Technical Report No. 22, iv + 310 pp.
- Orian, A. J. E. 1956. Hemiptera (Heteroptera and Homoptera excluding Sternorhyncha) of Mauritius. *Annals and Magazine of Natural History Series* 12, 9: 641–654.
- Péricart, J. 1972. Hémiptères Anthocoridae, Cimicidae et Microphysidae de l'Ouest—Paléarctique. In *Faune de l'Europe et du Bassin Méditerranéen* 7: i–iv, 1–404. Masson, Paris.
- . 1996. Family Anthocoridae Fieber, 1836, pp. 108–140. In Aukema, B. and C. Rieger, eds. *Catalogue of the Heteroptera of the Palearctic Region*, Vol. 2. Cimicomorpha I. The Netherlands Entomological Society, The Netherlands, 359 pp.
- Press, J. W. 1989. Compatibility of *Xylocoris flavipes* (Hemiptera: Anthocoridae) and *Venturia canescens* (Hymenoptera: Ichneumonidae) for suppression of the almond moth *Cadra cautella* (Lepidoptera: Pyralidae). *Journal of Entomological Science* 24: 156–160.
- Reuter, O. M. 1875. *Genera Cimicidarum Europe*. Bi-hang till Kongliga Svenska Vetenskapsakademien Handlingar 3: 3–66.
- Schuh, R. T. and J. A. Slater. 1995. *True bugs of the world (Hemiptera: Heteroptera)*. Comstock Publishing Association, Ithaca, New York, 336 pp.
- Schuh, R. T. and P. Štys. 1991. Phylogenetic analysis of cimicomorphan family relationships (Heteroptera). *Journal of the New York Entomological Society* 99: 298–350.
- Stål, C. 1860. Bidrag till Rio Janeiro—trakens Hemipter—Fauna. Kongliga Svenska Vetenskapsakademien Handlingar, Stockholm, II, No. 7: 1–84.
- Van Duzee, E. P. 1916. Checklist of the Hemiptera (excepting the Aphididae, Aleyrodidae and Coccidae) of America North of Mexico. New York Entomological Society, New York, xi + 111 pp.
- Zheng, L. Y. and W. J. Bu. 1990. A list of Anthocoridae from China. *Contributions from the Tianjin Natural History Museum* 7: 23–27 (in Chinese).

John D. Lattin, *Department of Botany and Plant Pathology, Oregon State University, Corvallis, OR 97331-2902, U.S.A.*



Lattin, John D. 2005. "Dufouriellus ater (Puton), Macrotrachelia nigronitens (Stål), and Xylocoris (Arrostelus) flavipes (Reuter) (Hemiptera: Heteroptera: Cimicoidea: Anthocoridae): First records from the Hawaiian Islands." *Proceedings of the Entomological Society of Washington* 107, 466–468.

**View This Item Online:** <https://www.biodiversitylibrary.org/item/100258>

**Permalink:** <https://www.biodiversitylibrary.org/partpdf/40796>

#### **Holding Institution**

Smithsonian Libraries and Archives

#### **Sponsored by**

Smithsonian

#### **Copyright & Reuse**

Copyright Status: In copyright. Digitized with the permission of the rights holder.

Rights Holder: Entomological Society of Washington

License: <http://creativecommons.org/licenses/by-nc-sa/3.0/>

Rights: <https://biodiversitylibrary.org/permissions>

This document was created from content at the **Biodiversity Heritage Library**, the world's largest open access digital library for biodiversity literature and archives. Visit BHL at <https://www.biodiversitylibrary.org>.