

New Distribution Record of Ants Species (Hymenoptera: Formicidae) to the Fauna of Sumatra Island, Indonesia

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ABSTRACT

The Sumatra Island have a high diversity of ants and part of Sunda Shelf. The high diversity of ants in Sumatra Island was recorded in the previous studies. The present study was added more species to the list of Sumatran ants. Five species of ants were recorded from the Sumatra Island and consider as new distribution records for these ants.

Keywords: New distribution record, ants, Formicidae, Sumatra.

1. INTRODUCTION

The island of Sumatra, Indonesia, is sixth largest islands in the world and one of the main components of the Malay Archipelago. This island also known by its tropical rainforest which constituting one of the biggest conservation areas in Southeast Asia [1].

To date, a comprehensive Sumatran ant list is currently unavailable, except from Antwiki [2] based on the studies of ants for few decades in Sumatra [3,4,5,6,7,8,9,10, 11,12,13,14,15,16,17,18,19,20,21,22]. Recently, two more species were described from this island by Satria and Yamane [23]. Then total of ants species in Sumatra is 600 species [24]. However, the present study was reported that the new distribution record of four species of ants from Sumatra Island, Indonesia, and raised the number of species in Sumatra.

2. MATERIAL AND METHODS

From October to November 2012, we conducted the survey of ants in Leuser Ecosystem, Aceh Province and Educational and Biological Research Forest of Universitas Andalas, Padang, West Sumatra, Indonesia. The ants were collected by visually searching their nest in the rotten wood, under the stones, in the soil, in the lower vegetation, and in the leaf litters. The specimens were kept in small plastic vials filled with 80% ethanol. The specimens were identified by referring to Donisthorpe [25]; Taylor [26, 27]; Agosti [28]; Antwiki [2], and image of the following material provided in Antweb (<http://www.antweb.org>) are examined: *Myrmoteris marianneae*, holotype (worker) (CASENT0910214); *Strumigenys diasphax*, paratype (worker) (CASENT0102642); *Platythyrea quadridenta*,

holotype (worker) (CASENT0900569). All of the specimens were deposited in Rijal Satria collection (RSC), Ecology Laboratory, Department of Biology, Faculty Mathematics and Natural Sciences, Universitas Negeri Padang.

3. RESULT AND DISCUSSION

At present, the total of ant fauna in Sumatra is 605 species, with additional in this study. The distribution data of ant fauna was provided by Antmaps [24]. In the present study, we recognized five species with new distribution record in Sumatra, as follow: 1 species from family Formicinae (*Myrmoteris (Myagoteris) marianneae* Agosti, 1992), 3 species from family Myrmicinae (*Dacetinops concinnus* Taylor, 1965, *Meranoplus malaysianus* Schodl, 1998, and *Strumigenys diasphax* Bolton, 2000), and 1 species from family Ponerinae (*Platythyrea quadridenta* Donisthorpe, 1941). They were collected from two different sites, *Dacetinops concinnus*, *Meranoplus malaysianus* and *Platythyrea quadridenta* were collected from the leaf litters at the secondary forest of Educational and Biological Research Forest of Universitas Andalas, Padang, West Sumatra. In other hand, *Myrmoteris marianneae* and *Strumigenys diasphax* from the leaf litters at the primary forest of Leuser Ecosystem, Aceh.

Although, all species in this study were distributed in Sundaland, and Philippines, only *Myrmoteris (Myagoteris) marianneae* with uncommon distribution. We identified our specimen of *Myrmoteris (Myagoteris) marianneae* by using Agosti (1992) and compared it to the image of holotype (worker) (provided in Antweb [29], with individual code CASENT0910214). Both share similar morphological characters, so in the present study

we treat our specimen as *Myrmoteras (Myagoteras) marianneae*. The future study is needed to confirm the status of this species by using molecular approach.

The genus *Dacatinops* was recorded for the first time in Sumatra, and identified as *Dacatinops concinnus*. This species have wide distribution from Thailand, Malay Peninsula, Sumatra, Borneo, Java, and Philippines [24]. The list of ant fauna from Sumatra will be increased in the future. We believed that this island still have more species to be found, especially in the highlands of Sumatra. Then we still tackling to reveal the ant fauna from this Island.

***Dacatinops concinnus* Taylor, 1965**

Material Examined. 3 workers, Educational and Biological Research Forest of Universitas Andalas (EBRF), Padang, West Sumatra, Indonesia, 02.viii.2012, R. Satria leg., Det. Rijal Satria.

Distribution. Thailand, Malay Peninsula, Borneo, Sumatera (West Sumatra, RSC).

***Meranoplus malaysianus* Schodl, 1998**

Material examined. HPPB, Andalas University, Padang, West Sumatra, 08.ix.2011, R. Satria leg. (1 worker).

4. CONCLUSION

Five species of ants were recorded from the Sumatra Island and consider as new distribution records for this fauna. The total ant fauna in Sumatra was increased to 605 species in this study.

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REFERENCES

- [1] Corlett RT. *The Ecology of Tropical East Asia*. Oxford University Press, 272 pp, 2009.
- [2] Antwiki. *Antwiki*. Available from: <http://www.antwiki.org> (accessed 2 December 2019).
- [3] Smith F. Descriptions of new species of hymenopterous insects from the islands of Sumatra, Sula, Gilolo, Salwatty, and New Guinea, collected by Mr. A. R. Wallace. *Journal of Proceeding of the Linnean Society, London Zoology*, 8: 61-9, 1865.
- [4] Emery C. Catalogo delle formiche esistenti nelle collezioni del Museo Civico di Genova. Parte *Distribution.* Malay Peninsula, Borneo, Java, Philippines, and Sumatra (West Sumatra, RSC).
- Myrmoteras (Myagoteras) marianneae* Agosti, 1992**
Material Examined. 14 workers, Leuser Ecosystem, Aceh, Indonesia, 20.ix.2012, Rijal S. leg., Det. Rijal Satria; 2 workers, colony no. GK-37-12, Leuser Ecosystem, Aceh, Indonesia, 20.ix.2012, R. Satria leg., Det. Rijal Satria.
Distribution. Sulawesi, and Sumatra (Leuser Ecosystem, Aceh, RSC).
- Stumigenys diasphax* Bolton, 2000**
Material Examined. 1 worker, Leuser Ecosystem, Aceh, Indonesia, 21.ix.2012, R. Satria leg., Det. Rijal Satria.
Distribution. Borneo, and Sumatra (Leuser Ecosystem, Aceh, RSC).
- Platythyrea quadridenta* Donisthorpe, 1941**
Material Examined. 1 worker, Educational and Biological Research Forest of Universitas Andalas (EBRF), Padang, West Sumatra, Indonesia, 02.viii.2012, R. Satria leg., Det. Rijal Satria.
Distribution. Thailand, Malay Peninsula, Borneo, Java, Philippines, Papua New Guinea, Bismarck Archipelago, Sumatra (West Sumatra, RSC).
terza (Supplemento). Formiche raccolte dal sig. Elio Modigliani in Sumatra e nell'isola Nias. [part]. *Annali del Museo Civico di Storia Naturale* 25[(2)(5): 528, 1887.
- [5] Emery C. Formiche raccolte da Elio Modigliani in Sumatra, Engano e Mentawai. [part]. *Annali del Museo Civico di Storia Naturale* 40[(2)(20): 661-688, 1900.
- [6] Emery C. Formiche raccolte da Elio Modigliani in Sumatra, Engano e Mentawai. [part]. *Annali del Museo Civico di Storia Naturale* 40[(2)(20): 689-720, 1900.
- [7] Emery C. Formiche raccolte da Elio Modigliani in Sumatra, Engano e Mentawai. [concl.]. *Annali del Museo Civico di Storia Naturale* 40[(2)(20): 721-722, 1901.
- [8] Forel A. Einige neue und interessante Ameisenformen aus Sumatra etc. *Zoologische Jahrbücher Supplementheft* 15("Erster Ba Band: 51-78, 1912.
- [9] Forel A. Wissenschaftliche Ergebnisse einer Forschungsreise nach Ostindien ausgeführt im Auftrage der Kgl. Preuss. Akademie der Wissenschaften zu Berlin von H. v. Buttel-Reepen. II. Ameisen aus Sumatra, Java, Malacca und Ceylon. Gesammelt von Herrn Prof. Dr. v. Zoologische Jahrbücher. Abteilung für Systematik, Geographie und Biologie der Tiere 36: 1-148, 1913.
- [10] Crawley WC. Ants from Sumatra, with biological notes by Edward Jacobson. *The Annals and Magazine of Natural History* 9(13): 380-409, 1924.

- [11] Wheeler WM. The occurrence of *Formica fusca* L. in Sumatra. *Psyche* (Cambridge) 34: 40-41, 1927.
- [12] Santschi F. Fourmis de Sumatra, récoltées par Mr. J. B. Corporaal. *Tijdschr. Entomol.* 71: 119-140, 1928.
- [13] Menozzi C. Tre nuove formiche della Sumatra orientale. *Miscellanea Zoologica Sumatrana* 30: 1-5, 1928.
- [14] Menozzi C. Formiche di Sumatra raccolte dal Prof. J. C. van der Meer Mohr. *Miscellanea Zoologica Sumatrana* 47: 1-5, 1930.
- [15] Menozzi C. Qualche nuova formica di Sumatra. *Tijdschrift voor entomologie* 82: 175-181, 1939.
- [16] Brown WL Jr. *Strumigenys karawajewi*, new name for a Sumatran ant. *Entomological News*, 59:44, 1948.
- [17] Terayama M and Yamane S, 1989. The army ant genus *Aenictus* (Hymenoptera, Formicidae) from Sumatra, with descriptions of three new species. *Japanese Journal of Entomology* 57: 597-603.
- [18] Terayama M and Yamane S. A new ant of the genus *Podomyrma* (Hymenoptera, Formicidae) from Sumatra, Indonesia. *Proceedings of the Japanese Society of Systematic Zoology* 44: 69-72, 1991.
- [19] Herwina H, Nasir N, Jumjunidang and Yaherwandi. The composition of ant species on banana plants with Banana Bunchy-top virus (BBTV) symptoms in West Sumatera, Indonesia. *Asian Myrmecology* 5: 151-161, 2013.
- [20] Herwina H, Satria R, Yaherwandi and Sakamaki Y. Subterranean ant species diversity (Hymenoptera: Formicidae) in Educational and Biological Research Forest of Universitas Andalas, Indonesia. *Journal of Entomological and Zoological Studies* 6(1): 1720- 1724, 2018.
- [21] Satria R., Kurushima H, Herwina H, Yamane S and Eguchi K. The trap-jaw ant genus *Odontomachus* Latreille (Hymenoptera: Formicidae) from Sumatra, with a new species description. *Zootaxa* 4048 (1): 001-036, 2015.
- [22] Putri D, Herwina H, Arbain A and Handru A. Ant species composition in *Macaranga* spp. trees at a conservation forest of palm oil plantation in West Sumatra, Indonesia. *Journal of Entomology and Zoology Studies* 4: 342-348, 2016.
- [23] Satria R and Yamane S. Two new species of the ant genus *Myrmecina* (Hymenoptera: Formicidae: Myrmicinae) from Sumatra. *Zoosystematica Rossica* 28(1): 183-193, 2019.
- [24] Antmaps, 2019. Antmaps. Available from: <https://antmaps.org/> (accessed 2 December 2019).
- [25] Donisthorpe H. Descriptions of new species of ants from New Guinea. *The Annals and Magazine of Natural History*, 11(7): 129-144, 1941.
- [26] Taylor RW. A new species of the ant genus *Dacetonops* from Sarawak. *Breviora* 237: 1-4, 1965.
- [27] Taylor RW. The ants of the Papuasian genus *Dacetonops* (Hymenoptera: Formicidae: Myrmicinae). Pp. 41-67 in: Ball, G. E. (ed.) *Taxonomy, phylogeny and zoogeography of beetles and ants: a volume dedicated to the memory of Philip Jackson Darlington*, 1985.
- [28] Agosti D. Revision of the ant genus *Myrmoteras* of the Malay Archipelago (Hymenoptera, Formicidae). *Revue Suisse de Zoologie* 99: 405-429, 1992.
- [29] Antweb, 2019. Antweb. Available from: <http://www.antweb.org> (accessed 2 December 2019).