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Generic Synopsis of the Formicidae of Vietnam (Insecta: Hymenoptera), Part I — Myrmicinae and Pseudomyrmecinae

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Abstract

Alpha taxonomy of Vietnamese ants was initiated by European and American authors in the early 20th century, and approximately 160 species and infraspecific taxa were described or recorded in this early period. From 1965 to 1966 an inventory project of insects in northern Vietnam was conducted by the Agriculture Ministry of Vietnam, and 36 ant species were recorded. The identity of those taxa, however, needs to be revised based on the modern taxonomy of ants. Since the

end of the 1980's dozens of ant species have been newly recorded or described from Vietnam. Regional revisions dealing with Vietnamese species have also been published for several genera including *Myrmica*, *Probolomyrmex*, *Pheidole*, *Acanthomyrmex* and *Anillomyrma*. Furthermore, two new genera, *Parvimyrma* (Myrmicinae) and *Opamyrma* (Amblyoponinae), were recently described from the country. However, there has been no comprehensive systematic treatment of the Vietnamese ants to date. In order to develop the taxonomy of ants in Vietnam, we have begun a program to: (1) explore local ant faunas; (2) give species codes to all species; (3) overview ant genera known from Vietnam; (4) describe unnamed taxa and review higher taxa known from Vietnam and adjacent areas. Ninety-two genera in twelve subfamilies have so far been recognized by us: DOLICHODERINAE: *Chronoxenus*, *Dolichoderus*, *Iridomyrmex*, *Liometopum*, *Ochetellus*, *Philidris*, *Tapinoma*, *Technomyrmex*; FORMICINAE: *Acropyga*, *Anoplolepis*, *Camponotus*, *Cladomyrma*, *Echinopla*, *Gesomyrmex*, *Lasius*, *Lepisiota*, *Myrmoteras*, *Nylanderia*, *Oecophylla*, *Paratrechina*, *Paraparatrechina*, *Plagiolepis*, *Polyrhachis*, *Prenolepis*, *Pseudolasius*, Undescribed genus "eg-2"; PSEUDOMYRMECINAE: *Tetraponera*; CERAPACHYINAE: *Cerapachys*, *Simopone*; AENICTINAE: *Aenictus*; DORYLINAE: *Dorylus*; LEPTANILLINAE: *Leptanilla*, *Protanilla*; AMBLYOPONINAE: *Amblyopone*, *Myopopone*, *Mystrium*, *Opamyrma*, *Prionopelta*; PONERINAE: *Anochetus*, *Centromyrmex*, *Cryptopone*, *Diacamma*, *Harpegnathos*, *Hypoponera*, *Leptogenys*, *Odontomachus*, *Odontoponera*, *Pachycondyla*, *Platythyrea*, *Ponera*; ECTATOMMINAE: *Gnamptogenys*; PROCERATIINAE: *Discothyrea*, *Probolomyrmex*, *Proceratium*; MYRMICINAE: *Acanthomyrmex*, *Anillomyrma*, *Aphaenogaster*, *Calyptomyrmex*, *Cardiocondyla*, *Cataulacus*, *Crematogaster*, *Dacatria*, *Dilobocondyla*, *Gauromyrmex*, *Kartidris*, *Lasiomyrma*, *Liomyrmex*, *Lophomyrmex*, *Lordomyrma*, *Mayeriella*, *Meranoplus*, *Monomorium*, *Myrmecina*, *Myrmica*, *Myrmicaria*, *Oligomyrmex*, *Paratopula*, *Parvimyrma*, *Pheidole*, *Pheidologeton*, *Pristomyrmex*, *Proatta*, *Pyramica*, *Recurvidris*, *Rhopalomastix*, *Rhoptromyrmex*, *Solenopsis*, *Strumigenys*, *Temnothorax*, *Tetramorium*, *Vollenhovia*, *Vombisidris*. As the first major contribution to the third goal of the program, here we provide: (1) a key to subfamilies, (2) a key to myrmicine genera, and (3) a synopsis of myrmicine and pseudomyrmecine genera known from Vietnam. A second paper will deal with the Aenictinae, Cerapachyinae, Dorylinae, Leptanillinae Amblyoponinae, Ponerinae, Ectatomminae and Proceratiinae, and a third with the Dolichoderinae and Formicinae.

Introduction

The family Formicidae is one of the dominant terrestrial invertebrate groups in Vietnam, and ants play various ecological roles such as predators of small animals, scavengers, indirect herbivores (through symbioses with homopterans), seed feeders and dispersers, soil-mixing agents and as the prey of small animals. Several exotic species, e.g. *Solenopsis geminata* and *Monomorium pharaonis*, may be nuisance and insanitary pests in urban areas. Recent inventories of local ant faunas in northern Vietnam (Bui 2002; Yamane et al. 2003; Bui & Eguchi 2003; Eguchi et al. 2005) have discovered high levels of species richness. For example, a total of 160 species belonging to 50 genera were recorded only from Cuc Phuong National Park, a lowland limestone forest (Yamane et al. 2003). Alpha taxonomy (descriptive taxonomy) of Vietnamese ants was initiated by European and American authors in the early 20th century, and approximately 160 species and infraspecific taxa were described or recorded in the period (Bingham 1903; Santschi 1920a, b, 1924; Wheeler 1927, 1928; Karavaiev 1935). From 1965 to 1966 an inventory project of insects in northern Vietnam, conducted by the Agriculture Ministry of Vietnam, recorded 36 ant species (National Institute of Plant Protection 1976). The identity of those taxa, however, needs revision based on the modern taxonomy of ants. Since the end of the 1980's dozens of ant species have been newly recorded or described from Vietnam (e.g. Radchenko 1993a, 1993b; Radchenko & Elmes 2001; Roncin 2002; Dubovikoff 2004; Eguchi & Bui 2005, 2006; Eguchi 2006). Regional revisions dealing with Vietnamese species have also been published for several genera including *Myrmica* (Radchenko & Elmes 2001, Radchenko et al. 2006), *Probolomyrmex* (Eguchi et al. 2006), *Pheidole* (Eguchi 2008), *Acanthomyrmex* (Eguchi et al. 2008), and *Anillomyrma* (Eguchi et al. 2010). Furthermore, two new genera, *Parvimyrma* (Myrmicinae) and *Opamyrma* (Amblyoponinae), were recently described from the country (Eguchi & Bui 2007, Yamane et al. 2008). However, there has been no comprehensive systematic treatment of Vietnamese ants and to some extent the taxonomy of ants in Vietnam is still at an early stage. This is mainly due to the hyperdiversity of the fauna and attendant taxonomic problems.

How can we develop the taxonomy of ants in Vietnam? The activities of the Myrmecological Society of Japan provide a useful framework. Since the society was established in 1965, upon M. Kubota's initiative, many amateurs and professionals have conducted faunal, taxonomic and ecological studies of Japanese ants. In the process, common names (Japanese names) have been given to almost all ant species known from Japan (the Japanese Society of Myrmecology (ed.) 1988). Because the type material of most Japanese ants was stored in western museums, and taxonomic literature on ants was hardly available in Japan, Japanese myrmecologists faced difficulties in determin-