



Monograph of *Nylanderia* (Hymenoptera: Formicidae) of the World: An introduction to the systematics and biology of the genus

JOHN S. LAPOLLA¹, SEÁN G. BRADY² & STEVEN O. SHATTUCK³

¹Department of Biological Sciences, Towson University, Towson, Maryland, USA

²Department of Entomology, National Museum of Natural History, Smithsonian Institution, Washington, D.C., USA

³Australian National Insect Collection, CSIRO Ecosystem Sciences, Canberra, ACT, Australia

Abstract

This paper serves as an introduction to a world monographic series addressing the species-level taxonomy of the ant genus *Nylanderia*. This series will consist of several regionally based taxonomic revisions. The systematics and biology of *Nylanderia* are discussed in a global context, and a diagnosis of the genus is given. Several morphological features, which are considered putative synapomorphies for the genus, are provided. Morphological descriptions of all three castes (workers, queens, and males) are provided and discussed.

Key words: Formicidae, *Nylanderia*, *Paraparatrechina*, *Paratrechina*, *Prenolepis* genus-group, taxonomy

Introduction

The genus *Nylanderia* (Formicidae: Formicinae) is a large, ecologically important ant genus with a nearly cosmopolitan distribution. It currently is comprised of over 130 extant species and subspecies and two fossil species. Ants from this genus are found in all geographic regions (with the exception of high latitude areas). There are two known fossil species: *N. pygmaea* from Eocene age Baltic amber and *N. vetula* from Miocene age Dominican amber (LaPolla and Dlussky 2010). *Nylanderia* ants are small to medium sized (generally between 1–4 mm in total length) and range in color from pale yellow to black (see Fig.1 for illustration of all three castes). Until recently, most *Nylanderia* species were placed in the genus *Paratrechina*, but molecular phylogenetic studies and reassessment of morphological characters prompted resurrection of *Nylanderia* as a valid genus (LaPolla *et al.* 2010a).

Nylanderia species inhabit a wide array of habitats from deserts to rainforests, although they reach their highest species diversity in forested and warmer environments. *Nylanderia* are among the most abundant ant species in many places where the genus occurs. For example, Ward (2000) found that *Nylanderia* (recorded as *Paratrechina*) was the fifth most frequently encountered ant genus in leaf-litter samples from around the world. They are efficient and rapid foragers and often find resources (e.g. baits) first to which they can recruit rapidly, but rarely can defend a resource against other ants that arrive later to baits (J. Longino, pers. comm.). Most are conspicuous, epigeaic generalist species that form large, polydomous nests. Frequent nest movements are known for some species, especially those that nest in leaf litter and rotting wood. For example, *N. bourbonica* can nest opportunistically in temporary sites that are habitable for only a few days or weeks (Hölldobler and Wilson 1990). The small (125–150 individuals) colonies of *N. faisonensis* also inhabit ephemeral locations in the leaf litter or soil of hardwood forests (Lynch *et al.* 1980, identified incorrectly as *Paratrechina melanderi*). A few more morphologically specialized species exist, such as the sand-dwelling *N. arenivaga* and *N. phantasma* from the southeastern United States, several small-eyed species such as *N. microps* from Puerto Rico, and several undescribed species from Australia. There are at least three currently undescribed workerless social parasites known from the eastern United States (Cover, LaPolla, Brady unpublished).

In temperate areas most *Nylanderia* species produce reproductives during the summer, which overwinter in the nest to then emerge early the following spring; *Nylanderia* species are typically among the first ant reproductives to