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## A new species of *Niganda* Moore, 1879 from Thailand, with descriptions of variation in male genitalia and female facies of *N. radialis* Moore (Lepidoptera: Notodontidae, Ceirinae)

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### Abstract

*Niganda phichai* Pellinen, **sp. n.**, is described from northern Thailand. The new species is diagnosed and illustrated, including details of the genitalia and DNA sequencing. Variability in the male genitalia of *Niganda radialis* Gaede is reviewed, and notes are presented on the facies of female *N. radialis*.

**Key words:** Lepidoptera, Notodontidae, Ceirinae, Thailand

### Introduction

The primarily southeastern Asian genus *Niganda* Moore, 1879 (Noctuoidea: Notodontidae) has been studied most thoroughly by Schintlmeister and Pinratana (2007). Holloway (2011) treated the genus as part of a faunal review of Borneo. According to Schintlmeister and Pinratana (2007), the *Niganda radialis*-group is composed of the following four species: *N. radialis* Gaede; *N. donella* Schintlmeister; *N. richaardi* Schintlmeister; and *N. ancipitalis* Schintlmeister, as well as a number of undescribed species. The taxonomy of *Niganda* is still partially unresolved. For example, Schintlmeister and Pinratana (2007) suggest that there may be as many as 14 undescribed species that can be assigned to the *N. radialis*-group. However, we hypothesize that the number of undescribed species is considerably fewer based on our findings that the male genitalia of *N. radialis* are highly variable. Species within the *N. radialis*-group are difficult to identify owing to superficial similarity in facies and intraspecific variation in male genital morphology.

Here we describe a new species belonging to the *N. radialis*-group that is morphologically distinct from other members of the group. Using data from four gene regions, we confirm that the species is genetically distinct from its putative closest relative, *N. radialis*. We also describe morphological and genetic variation in *N. radialis* and demonstrate that it is genetically uniform despite its highly variable male genitalia.

### Material and methods

**Morphological study.** Three males were dissected using modern dissection methods. The detached abdomens were macerated in 10% KOH in a boiling water-bath for 10 minutes. The softened abdomens were cleared of hairs, scales, and internal tissues, and the genital apparatus was disconnected from the integument. The genitalia then were cleared and flattened in the standard position using absolute ethanol for desiccation. The genital structures were stained with chlorazol black and mounted on a microscopic slide using euparal.

The male genitalia were compared to illustrations of the genitalia of *N. radialis*-group species (Schintlmeister and Pinratana 2007) and to the genitalia of a syntype of *N. radialis* in The Natural History Museum, London.