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Article

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Taxonomic redefinition and natural history of the endemic silphid beetle *Silpha longicornis* (Coleoptera: Silphidae) of Japan, with an analysis of its geographic variation

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Table of contents

Abstract 1
Introduction 1
Material and methods 2
Results and discussion 4
Taxonomic results 4
Taxonomic redefinition 5
Silpha longicornis Portevin, 1926 5
Key to species of *Silpha carinata* group 15
Acknowledgments 15
References 15
APPENDIX 1. 18
APPENDIX 2. 22
APPENDIX 3. 25

Abstract

A taxonomic redefinition of *Silpha longicornis* Portevin, 1926 is presented and the lectotype of *S. longicornis* is designated. *Silpha yamatona* Kôno, 1929 and *Silpha imitator* Shibata, 1969 are synonymized with *S. longicornis* based on examination of their type specimens and the geographic pattern of mtDNA CO1 region collected from representative localities in Japan, including their type localities. A key for the northeast Asian members of the *Silpha carinata* group is presented, and the geographic distribution, life cycle, microhabitat, and feeding biology of *S. longicornis* are summarized. Body size and elytral colors and sculptures are influenced by climatic conditions, and this morphological variation conformed to Gloger's rule and the converse of Bergmann's rule.

Key words: taxonomy, *Silpha carinata* group, synonymy, CO1, geographic distribution, converse of Bergmann's rule, Gloger's rule

Introduction

The family Silphidae consists of two subfamilies, Nicrophorinae and Silphinae, comprises about 180 species on all continents except Antarctica and displays an amphitropical distribution pattern (Newton 1997). The eastern Palaearctic region is the center of the family diversity. Most members of the Nicrophorinae show

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