The Beetle Family Carabidae of Costa Rica: Twenty-nine new species of *Agra* Fabricius 1801 (Coleoptera: Carabidae, Lebiini, Agrina)

TERRY L. ERWIN

Megadiversity Group, Entomology Section, Department of Systematic Biology, Smithsonian Institution, Washington, DC 20560, USA

Abstract

Based on a study of 1,100 specimens of the genus *Agra* (Coleoptera: Carabidae: Lebiini: Agrina) from Costa Rica, twenty-nine new species were discovered and are here validated and described: *A. catie*, **n. sp.** (type locality: Limón, Tortuguero National Park, Estacíon Cuatro Esquinas, sea level, LN 280000,590500); *A. catbellae*, **n. sp.** (type locality: Cartago, Turrialba, 600m, 09°53'N 083°38'W); A. *dable*, **n. sp.** (type locality: Heredia, Estacíon Magsasay, Parque Nacional Braulio Carrillo, 200m, LN 264600,531100); *A. delgadoi*, **n. sp.** (type locality: Cartago, Turrialba, CATIE, 600m, 09°53'N 083°38'W); *A. fugax*, **n. sp.** (type locality: Heredia, Estacíon La Selva, 10°27'N 083°59'W; *A. giesberti*, **n. sp.** (type locality: Cartago, 15km NE Turrialba, 10°00'N 083°30'W); *A. granodeoro*, **n. sp.** (type locality: Cartago, Turrialba, Chirripo, Grano de Oro, 1120m, LN 200250,595900); *A. ichabod*, **n. sp.** (type locality: Alajuela, Atenas, 9°58'N 084°23'W); *A. jim-wappes*, **n. sp.** (type locality: Guanacaste, La Pacifica, 10°28'N 085°07'W); *A. julie*, **n. sp.** (type locality: Cartago, Turrialba, 600m, 09°53'N 083°38'W); *A. katewinsletae*, **n. sp.** (type locality: Puntarenas, Monteverde, 1380m, 10°50'N 085°37'W); *A. liv*, **n. sp.** (type locality: Puntarenas, Manual Antonio National Park, Quepos, 80m, 09°23'N 84°09'W); *A. monteverde*, **n. sp.** (type locality: Puntarenas, Monteverde, 1380m, 10°50'N 085°37'W); *A. not*, **n. sp.** (type locality: Puntarenas, Carara Biological Reserve, Estacíon Bonita, 50m, LN 194500,469850); *A. notcatie*, **n. sp.** (type locality: Limón, Tortuguero National Park, Estacíon Cuatro Esquinas, sea level, LN 280000,590500, November (R. Delgado)(INBio: CRI000-298655); *A. pitilla*, **n. sp.** (type locality: Guanacaste, Guanacaste National Park, Estacíon Pitilla, 9 km S Santa Cecilia, 700m, LN 330200,380200); *A. phallica*, **n. sp.** (type locality: Cartago, Tucurrique, 09°51'N 083°43'W); *A. quesada*, **n. sp.** (type locality: Limón, Manzanillo, RNFS Gandoca y Manzanillo, 0-10 sea level, LS 398100,610600); *A. santarosa*, **n. sp.** (type locality: Guanacaste, Santa Rosa National Park, 280m, 10°50'N 085°37'W); *A. schwarzeneggeri*, **n. sp.** (type locality: Cartago, Turrialba, 650m, 09°53'N 083°38'W); *A. sirena*, **n. sp.** (type locality: Heredia, Estacíon La Selva, 10°27'N 083°59'W); *A. solanoi*, **n. sp.** (type locality:); *A. solisi*, **n. sp.** (type locality: Limón, Tortuguero National Park, Cerro Tortuguero, 119m, LN 285000,588000); *A. turrialba*, **n. sp.** (type locality: Cartago, Turrialba, 600m, 09°53'N 083°38'W);

A. ubicki, **n. sp.** (type locality: Puntarenas, 3 km NE Golfito, 8º39'N 083º10'W); *A. winnie*, **n. sp.** (type locality: Guanacaste, Guanacaste National Park, Estacíon Santa Rosa, 800m, LN 313000,359800); *A. zumbado*, **n. sp.** (type locality: Guanacaste, Guanacaste National Park, Estacíon Patilla, 9 km S Santa Cecilia, 700m, LN 330200,380200); *A. zuniga*, **n. sp.** (type locality: Puntarenas, Manual Antonio National Park, Quepos, 80m, LS 370900,448800). Six additional species are recorded for the first time in Costa Rica: *Agra castaneipes* Bates, *A. campana* Erwin, *A. fortuna* Erwin, *A. guatemalena* Csiki, *A. incisa* Liebke, and *A. rufiventris* Bates. The presence of a Panamanian species, *A. championi* Bates, in Costa Rica, as noted by Max Liebke has been confirmed (*Agra danjanzeni* Erwin = *A. championi* Bates, **new synonymy**). Also included: Neotype designation for *Agra pia* Liebke 1940 and apparent rediscovery of this species in Costa Rica; *Agra aurifera* Liebke 1940 description translated from the German and reproduced here with comments.

Key words: Costa Rica, Coleoptera, Beetles, Carabidae, *Agra*, new species, synonyms, geographical distribution

Introduction

Pivotal to our knowledge of species that regulate most of the environmental processes on Earth is who they are, where they are, and what they are doing (Daniel Janzen, pers. comm.). This knowledge will come from inventories of all species at regional and local scales, everywhere. The National Biodiversity Inventory of Costa Rica (INBio, El Instituto Nacional de Biodiversidad as conceived by D. Janzen and R. Gamez in the late 1980's) set out in the early 1990's to make available on the World Wide Web a "page" for every species, their basic unit of biodiversity information (UBI, Unidades Básicas de Información) with all current information readily available. As species are discovered (or rediscovered) and documented, their images, descriptions and natural history become available to this growing **Encyclopedia of Life** in Costa Rica for all Costa Ricans and for the people of Earth, generally via the Internet. Previously described species can go onto a page as rapidly as taxonomists can get them there, with portals to parallel web sites. However, new (to science) insect species (the focus here) discovered and documented, first must be published according to the International Code of Zoological Nomenclature; "web validation" of a new species name currently is not an option. Hence, the main purpose of the present contribution is to validate 29 new species names for the carabid genus *Agra* and make descriptions and illustrations available to the web site at INBio where they will become potentially available to some 6 billion persons via home and office computers and the many CyberNet Cafes, the access points in "differently cultured countries."

Forty-two additional species of Costa Rican *Agra* are "in press" at the INBio web site. The presented knowledge comes from a study of 1,100 specimens collected within Costa Rica and 11,142 specimens from other parts of the Neotropics and Neo-subtropics.

Once it is fairly certain that all the species of this genus are described for Costa Rica (see below regarding females specimens), I will produce a key to their identification that will appear at the INBio web site "Information Services" icon (e.g. see Erwin, Kavanaugh,