

Sasitorn Hasin 2015: Distribution of the Yellow Crazy Ant (*Anoplolepis gracilipes* Smith, 1857; Hymenoptera: Formicidae) in Thailand and Its ecological Impact at Sakaerat Biosphere Reserve. Doctor of Philosophy (Forestry), Major Field: Forestry, Faculty of Forestry. Thesis Advisor: Assistant Professor Wattanachai Tasen, Ph.D. 149 pages.

Anoplolepis gracilipes is a widespread, tropical ant species in Asia and can cause considerable damage to natural ecosystems. Recent information on this ant has shown that it has caused the reduction of native animal communities in island ecosystems. *A. gracilipes* is currently formally classified as an invasive ant species which is threatening the biodiversity of fauna and flora in Thailand, However, in Thailand, there is a little information concerning its distribution, and its impact on forest ecosystems is uncertain. This study focused on the distribution of *A. gracilipes* in Thailand and its impact on forest ecosystems in the Sakaerat Biosphere Reserve (SERS). The sampling distribution of *A. gracilipes* in Thailand was investigated in 2011, 2012, and 2013, and its ecological impact was assessed during November, 2011 to October, 2012, in a dry evergreen forest in SERS. Based on the sampling distribution, *A. gracilipes* had the highest frequency (82 % of the total study sites) and currently inhabits almost all habitats-types in Thailand including forest areas, plantation, agricultural and urban areas, with the exception of hill evergreen forest, and these data provide strong evidence that *A. gracilipes* is the most common invasive species in Thailand. The study documents that *A. gracilipes* has a negative ecological impact on the diversity of non-ant arthropods and communities resulting in the potential loss of six groups of non-ant arthropods—isopods, cockroaches, termites, centipedes, millipedes, and spiders. Similar results were also found for ants, with the study providing evidence that invasion by *A. gracilipes* has resulted in losses of native ant diversity and communities and has altered the nest abundance of ants and especially ant nest soil and litter. The CO₂ measurements indicated that supercolonies of *A. gracilipes* can have direct and indirect effects on soil CO₂ efflux. There is a direct effect on soil CO₂ efflux values from its subterranean nests from which the CO₂ efflux was significantly higher than from surrounding nest soil. Thus, it is possible that the reduction of ant diversity and community composition, and nest abundance caused by the invasion of *A. gracilipes* could be the causes of a decrease in the CO₂ efflux from the soil in dry evergreen forest.

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