

# ANNOTATED CHECKLIST OF THE BUTTERFLIES OF THE TIKAL NATIONAL PARK AREA OF GUATEMALA

GEORGE T. AUSTIN<sup>1</sup>, NICK M. HADDAD<sup>2,4</sup>, CLAUDIO MÉNDEZ<sup>2,3</sup>,  
THOMAS D. SISK<sup>2,5</sup>, DENNIS D. MURPHY<sup>2</sup>,  
ALAN E. LAUNER<sup>2</sup>, AND PAUL R. EHRLICH<sup>2</sup>

<sup>1</sup>Nevada State Museum and Historical Society, 700 Twin Lakes Drive, Las Vegas, Nevada 89107, USA;

<sup>2</sup>Center for Conservation Biology, Stanford University, Stanford, California 94305, USA; and

<sup>3</sup>Centro de Estudios Conservacionistas, Universidad de San Carlos, Av. Reforma 0-63, Zona 10, Guatemala City 01010, Guatemala

**ABSTRACT.**— An inventory of the butterflies of Tikal National Park and vicinity, in the Department of Petén in northern Guatemala, is being conducted as part of a long-term study of butterfly populations, their habitat requirements, and their responses to land use changes. Here, we present a list of 535 species recorded from the Tikal area from February 1992 through November 1994 with annotations on their phenologies, habitat associations, and relative abundances. This is the first checklist of butterflies for any region of Guatemala, and includes 92 species not previously recorded from the country. Species richness for the Tikal site is greatest during the dry season and lowest at the end of the wet season. The largest number of species was recorded from forest edge habitat and the smallest was in forested habitats. Many species (especially nymphalids) were encountered in both primary forests and secondary, often highly disturbed, forests.

**RESUMEN.**— Se realizó un inventario de las mariposas diurnas del Parque Nacional Tikal y áreas aledañas en el Departamento de Petén en el norte de Guatemala, como inicio de un estudio a largo plazo de las poblaciones de mariposas y su respuesta a los cambios del uso de la tierra. Se presenta una lista de 535 especies registradas en el área de Tikal desde febrero de 1992 hasta noviembre de 1994, con observaciones sobre su fenología, asociaciones con hábitats, y su abundancia relativa. Esta es la primera lista de mariposas diurnas de una región de Guatemala. La lista incluye 92 especies registradas por la primera vez en Guatemala. La riqueza de especies es mayor en la época seca y menor al final de la época lluviosa. El mayor número de especies se registró en los hábitats de borde, y el menor número en el interior del bosque. Muchas especies (particularmente Nymphalidae) comparten tanto el bosque primario como el secundario y también el bosque alterado.

**KEY WORDS:** Central America, conservation, distribution, faunal composition, habitat associations, Hesperidae, inventory, Lycaenidae, Mesoamerica, Neotropical, Nymphalidae, Papilionidae, Petén, phenology, Pieridae, Rhopalocera.

The distributions of most Neotropical butterflies are very poorly known. Most available information comes from material gathered before the turn of the century (e.g., see Godman and Salvin, 1879-1901) or is scattered as specimens among museums worldwide. Data are slowly being accumulated for certain tropical countries (Hoffmann, 1940, 1941; Steinhäuser, 1975; DeVries, 1987; de la Maza, 1987; de la Maza *et al.*, 1989, 1991) and more localized regions (e.g., Hoffmann, 1933; Beutelspacher, 1975, 1980, 1981, 1983; de la Maza, 1975, 1976; Ross, 1975-1977; de la Maza and de la Maza, 1985; Llorente *et al.*, 1986; Raguso and Llorente, [1992]; Luis *et al.*, 1991; Vargas *et al.*, 1991; Balcázar, 1993; Meerman and Boomsma, 1993) and as gaps are filled, regional distributional patterns will become clearer. An understanding of such patterns among butterflies will contribute to more detailed analyses of overall species distributions and abun-

dances, and should assist in tropical conservation efforts. To this end, we have been gathering data on the occurrences, phenologies, and habitat utilizations of butterflies in and adjacent to Tikal National Park, in the Department of Petén, northern Guatemala. This inventory is being conducted in conjunction with ongoing efforts to monitor the response of butterfly populations (and populations of other taxa) to changing land use patterns. These studies will contribute to an international effort to develop sustainable management strategies for the 2 million ha Maya Biosphere Reserve that covers much of northern Guatemala, with the conservation of biological diversity as a primary goal.

## DESCRIPTION OF TIKAL AND VICINITY

Tikal National Park encompasses 576 km<sup>2</sup> of relatively mature seasonal rain forest in the Department of Petén, northern Guatemala (Fig. 1). These forests are described as *selvas subperennifolias* (González-Quintero, 1974, Rzedowski, 1978) or subtropical dry forest (Holdridge, 1967). Tikal was the center of the Mayan

4. Present address: Institute of Ecology, University of Georgia, Athens, Georgia 30602.

5. Present address: Center for Environmental Studies and Education, Northern Arizona University, Flagstaff, Arizona 86011.