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Palm Research at La Selva, Costa Rica

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During the past 15 years, La Selva has been a busy hive of research on many aspects of tropical biology. Much of this research has been done by graduate students at U.S. and Costa Rican universities. Many investigations by students are initiated as individual or group projects during or following a field course offered by the Organization for Tropical Studies (OTS). For the past 5 years, OTS has funded numerous doctoral research projects through grants from the Jessie Smith Noyes Foundation. The development of improved research and housing facilities, such as a new air-conditioned laboratory and spacious cabins for long-term researchers, was made possible through grants from the National Science Foundation. The excellent research facilities at La Selva (including 2 microcomputers) and the easy accessibility of a diversity of rain forest habitats make La Selva one of the best sites in the world for tropical research. Furthermore, the site has been selected by the National Research Council Committee on Research Priorities in Tropical Biology as one of four worldwide tropical localities for intensive long-term ecological research.

1968–1980

Palm research at La Selva gained impetus soon after 1968, when OTS purchased the reserve from Leslie R. Holdridge, an internationally known tropical forester. This purchase opened the door to research at La Selva. Each year students in courses sponsored by OTS and other institutions visit the field station. Some return and add to the continually growing research base of the field station. Schmid's early studies of pollination in *Asterogyne martiana* were of the first to describe pollination in a rain forest palm species (Schmid 1970*a*, *b*). A long-term project on the demography of *Welfia georgii* was undertaken by John Vandermeer, Jean Stout, Steve Risch, and Gene Miller in the mid 70's. This project has produced several interesting publications (Vandermeer et al. 1974, 1979, Vandermeer 1977, see also Vandermeer 1983). Young (1973) studied the incidence of cicadas on various palm species at La Selva.

1980–1984

The 80's ushered in a new era of palm research at La Selva. Increased levels of research funding and improved facilities attracted graduate student research. James Beach (now of Duke University) conducted detailed investigations of the phenology of *Asterogyne martiana* and also studied pollination of *Bactris gasipaes* and *B. porschiana* (Beach 1984). The flowering phenology and insect visitors of eight palm species were studied by Steve Bullock, now of Universidad Nacional Autonoma de Mexico (Bullock 1981). Robin Chazdon (formerly of Cornell) studied the ecophysiology and architecture of *Asterogyne martiana*, *Geonoma cuneata*, and *G. congesta* (Chazdon 1984).

H. Elizabeth Braker (Univ. of Calif., Berkeley) investigated the feeding ecology of *Microtylopteryx hebardi*, a rain forest grasshopper that feeds on understory palm species and other understory plants. While

they were at La Selva together, Chazdon and Braker collaborated in studies of the interactions between this important herbivore and its palm food-sources. Andrew Henderson of the New York Botanical Garden studied beetle pollination of *Chryosophila albida* (Henderson 1984). Paul Rich (Harvard) is currently conducting research on the mechanical architecture of six canopy and subcanopy palm species at La Selva, including *Iriartea gigantea* and *Welfia georgii*.

Despite the recent surge of interest in studying palms in their natural environment, much work remains to be done. The reproductive biology of most of the geonomoid species at La Selva has not been investigated. The ecology of the swamp species *Astrocaryum alatum* and *Calyptrogyne sarapiquensis* and the liana *Desmoncus costaricensis* remains unstudied. Relatively little attention has been focused on studies of frugivory, seed dispersal, and seedling establishment of palm species. La Selva is also an excellent site for research on responses of palm species to habitat degradation and succession, a subject of increasing concern in view of the deforestation of many tropical areas.

There is always the continual need for further collecting of palms both inside and outside the borders of La Selva. The palm flora of the adjacent Zona Protectora altitudinal transect has not yet been described, and undoubtedly harbors new species. The future holds much excitement for the study of palms at La Selva and its environs.

Note: For more about the palms at La Selva see pp. 74–85.

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