A Brief Guide to Butterfly Behavior

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On the Table of Contents page of *American Butterflies* there is a statement that the purpose of the North American Butterfly Association (NABA) is to "promote public enjoyment and conservation of butterflies." The unstated subtext for those who know and support NABA is that live butterflies are the focus and not dead butterflies housed in collections. Dead specimens preserved for posterity in museum, and university collections have had, and continue to have, an important place in the scientific study of butterflies and other insects, but it is the support of butterflying, the hands-off observation, study, and identification of free-flying butterflies in nature, that is NABA's *raison d'être*.

Those who pursue butterflying with the naked eye or through binoculars cannot help but notice that these beautiful animals are active and behaving in all sorts of interesting ways. Sometimes the reasons or purposes of their behavior are obvious but sometimes they are not. We frequently get questions from relatively inexperienced and even experienced butterfliers about the nature and function of butterfly behavior that they have observed. In this article we intend to provide a brief guide to butterfly behavior that will hopefully promote your enjoyment of the butterflies you see and especially their behavior. To some extent this article pulls together information and ideas about butterfly behavior that are in articles from our lab that have appeared in previous issues of American Butterflies.

Some General Points about Butterfly Behavior

To set a context for this guide there are a few features of butterflies and the study and interpretation of their behavior that need to be kept in mind. First, there are over 20,000 species of butterflies in the world and the differences in behavior among species are as large as their differences in coloration, body size, and preferred habitats. As a result, generalizations about behavior that apply to all butterflies are inaccurate more often than not, and so we will often highlight the diversity or qualify our broader claims as being true of many butterflies but not all. In this brief guide we will try to give a sense of the diversity but will obviously not have the space to do it full justice.

Second, once a butterfly emerges from its chrysalis or pupa it will not molt (or grow) again and individuals in most species are expected then to live for only a week or two or three. Moreover, butterflies are adult organisms which are fully mature and capable of reproduction. Mating and the production of eggs are key determinants of their success as adults, so during butterfly evolution, selection is expected to have produced adults that are behaviorally focused on reproduction. However, the consequences of selection to reproduce should be different for males and females, that is, males and females should behave differently. Females, once mated,

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Florida Whites and Statira Sulphurs reminisce about an obscure Marx Brothers movie while imbibing nutrients from rotting coconuts.
July 22, 2003. Near Yaxchilan, Chiapas, Mexico.

should be focused on finding the resources to produce eggs and good places to lay them. Males, on the other hand, should be focused on finding females and "convincing' them to mate with them, often mating with multiple females over their short lifetime.

Third, butterflies, unlike us, do not generally create their own body heat. They do like to be warm and, when active, keep their body temperature up at or close to 98°F. They do this mostly by exposing themselves to the warming rays of the sun. At body temperatures much below their preferred temperature they cannot fly and move slowly, if at all. At body temperatures much above this temperature they run the risk of heat shock and dying. The result is that butterflies are generally only behaviorally active when sunlight and air temperatures allow them to achieve but not exceed their preferred body