

Managing Butterflies In Urban Environments

By Don Riepe and John T. Tanacredi, Gateway N.R.A.

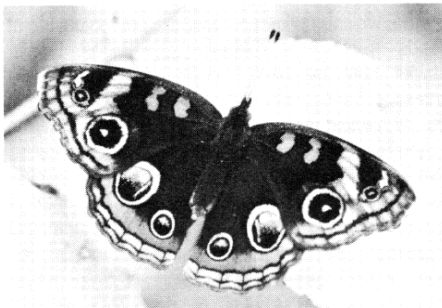
Management of insect species at most parks is limited to the development and implementation of pest control policies and integrated pest management plans (IPMs). Often overlooked, or underemphasized in faunal communities, butterflies, moths and other beneficial insect species often times play a larger role in ecosystems than some of the more conspicuous macrofauna such as birds and mammals. As pollinators, soil builders, decomposers and environmental quality indicators, insects and other invertebrates perform major functions of the system.

Park managers, desirous of obtaining a more complete ecological perspective in their resource management, should consider the invertebrates in their long term planning. Many species of lepidoptera, for example, are restricted to one or a few species of host plants for larval development. Some species are very localized in occurrence and/or fly only two or three weeks a year. Failure to inventory and incorporate these insects into management actions may lead to their extirpation from park habitats.

Insects are a form of wildlife. Butterflies add color, form and movement to an environment. Public attitudinal studies toward wildlife have given highly favorable ratings for butterflies (Riepe, 1979). In urban parks, where only small natural sites exist, insects may be the major wildlife group for interpreters to use in developing environmental education programs. The fact that butterflies, beetles, grasshoppers, etc. forage, nectar and carry out life cycles at or near ground level makes them ideal subjects for school children to focus on.

At Gateway's Jamaica Bay Wildlife Refuge, several areas have been zoned for butterflies and wildflowers. Woody vegetation is routinely removed and fields are mown on a one- or two-year rotation, thus allowing greatest production of grasses and wildflowers. These fields also provide good cover for ground nesting avifauna such as pheasant, quail and Song Sparrow. Other management actions for lepidoptera undertaken include the following:

- maintaining herbaceous/woody shrub edge adjoining woodland to provide a source of nectar and basking sites for woodland species.
- select planting of host plant species (i.e. milkweeds for Monarchs).
- placement of brush and woodpiles in protected areas to provide overwintering sites for Mourning Cloak and other species that spend winter in adult or larval stages.



Buckeye moth (*Junonia coenia*) is a rather irregular immigrant from the south. Typically it is found in sandy locales, even on beaches. (Photo by Don Riepe)



Butterfly weed is the name of the flowering plant mound that grows in the Jamaica Bay Refuge at Gateway NRA and attracts butterflies to the delight of visitors. Ranger Carol Borneman examines the blossoms. (Photo by Don Riepe)

Initial attempts to inventory lepidoptera can be problematic as many species (esp. skippers) may be difficult to identify. At Gateway, resource management staff personnel have enlisted the help of experienced amateurs from the New York City Butterfly Club and members of the Xerxes Society for survey work and baseline data collection. To facilitate inventory work, certain wildflower species were planted in representative habitat types. One plant in particular, butterflybush (*Buddleia*), was favored by many nectaring species, including some diurnal moths. It is, however, an exotic and should later be removed from strictly natural areas.

As many species of lepidoptera are attracted to dung, tree sap and rotting fruit, various concoctions can be used for inventory purposes. One recipe used by Gateway staff consisted of stale beer, molasses and overripe bananas or other fruit. Dubbed "mung" by park rangers, it readily attracted woodland species such as Question Mark and Red Admiral to tree trunks smeared with this substance. Numerous underwing and other moth species also were drawn to it and it was especially useful for nocturnal surveys.

Since butterflies, moths and other insects undergo metamorphosis and thus spend seasons in various forms with different needs, managing for them can be both challenging and rewarding. Setting aside small areas as "butterfly gardens," perhaps managed by a local garden club, may add beauty and interest to otherwise static environments. The following species listing and distribution is a summary of data to date and also an expression of the diversity of these organisms in an urban setting: 46 recorded species, in these categories - Swallowtails (3 species); Whites and Sulphurs (6 species); Gossamer Wings (7); Snouts (1); Brushroots (11); Milkweed (1); Skippers (14), and including three new species recorded in 1986, the Little Wood Satyr, the Tawny Emperor, and the Pipevine Swallowtail.

NPCA Unveils NP System Plan

"Seventy-one years after the founding of the National Park Service, the NPS research program is underfunded, understaffed, and struggling for an identity in the organization."

Thus opens the section on "Research in the Parks: an assessment of needs," in the executive summary of the National Parks and Conservation Association's National Park System Plan, unveiled at a well-publicized press conference on Feb. 18 in Washington, DC.

The nine-volume study (of which the science and research section is Volume No. 2) is the result of three years of work by a wide-ranging group of professionals from within and outside the National Park Service. The work was funded by the Andrew W. Mellon Foundation, the William and Flora Hewlett Foundation, the American Conservation Association, the Beldon Fund, and the David and Lucile Packard Foundation.

"The role of research in the NPS is ill-defined, primarily due to the lack of a specific legislative mandate directing the Service to engage in natural, cultural and social science as an essential element of its mission," the executive summary states.

"The organization of the research program historically has been unstable. NPCA found the research program to be fragmented and suffering from little policy guidance from the Washington Office (WASO). Regional research programs are structured inconsistently across regions and from park to park. Fragmentation and lack of consistency have created obstacles to inter-regional and interagency communication, and have resulted in duplication of effort," the summary continues.

Fourteen recommendations are summarized, beginning with the need for a specific legislative mandate from Congress for NPS research which "clearly defines the role of research in resource management and decision making and requires the completion of standardized Servicewide inventories of natural and cultural resources, and implementation of permanent monitoring programs."

Also recommended are a separate line item in the annual NPS budget for research equivalent to 10 percent of the total operating budget and establishment of a Science Advisory Board of "demonstrably qualified experts to provide independent, balanced and expert assessment of NPS natural, cultural, and social science research needs and programs."

On the back cover of the Executive Summary, William Penn Mott, Jr., NPS Director is quoted as saying: "I have been looking forward to the results of your work on this project and the beginning of a spirited debate on the future of the National Park System." Retired NPS Director Russell E. Dickenson also is quoted: "The insights and conclusions drawn are, for the most part, compatible with my own experience and thinking."

The Executive Summary is available immediately for \$11 including postage by writing National Park System Plan, care of the NPCA 1015 31st St., N.W., Washington, DC 20007. The nine-volume Report is still in press and no price has yet been determined.

Managing for the enhancement of these macro-invertebrates is a long-term goal of this park. For more information on our program for lepidoptera write to Don Riepe, Office of Resource Management and Compliance, Gateway NRA, Floyd Bennett Field, Brooklyn, N.Y. 11234.

Riepe is a Resource Management Specialist at Gateway NRA and Tanacredi is the Park's Chief, Office of Resource Management and Compliance.