TRACKING BIODIVERSITY

AVIAN INSECTIVORES

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Focus on Biodiversity

Why focus on biodiversity. In her book, *Silent Spring,* Rachel Carson alerted the public and government regulators to the importance of protecting complex biological communities. The interrelationship and interdependency of organisms is critical to ecological balance and human survival. With broad spectrum pesticide use, and indiscriminate poisoning with systemic pesticides, an ecological imbalance is created, sacrificing the benefits of nature and escalating pest problems.

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We all know about the appetite of purple martins for mosquitoes, but most songbirds eat insects at some stage of their life. Organic farmers have long appreciated the "ecosystem services" that birds provide on the farm. North Carolina organic farmer, Neill Lindley, told Beyond Pesticides National Forum participants, "We call [purple martins] our organic insecticide. These birds fly around and eat their body weight in insects in half a day." Even birds who eat seeds or nectar feed insects to their young. Some of these insectivorous birds eat caterpillars, like cabbage worms and cutworms that feed on our food plants. Others eat flying insects that may be bothersome—like mosquitoes or flies. To get a good idea of the number of insects eaten by baby birds, stake out a nest and watch the parents come in with food for their young.

Altogether, birds consume as many as 20 quadrillion individual insects, totaling 400–500 million metric tons per year. This consumption of insects makes birds an important part of biological systems, including agroecosystems. In Central America, the coffee berry borer, which is considered to be the most damaging insect pest in coffee, is controlled by insectivorous birds. Benjamin Franklin reportedly observed, "In New England they once thought blackbirds useless, and mischievous to the corn. They made efforts to destroy them. The consequence was, the blackbirds were diminished; but a kind of worm, which devoured their grass, and which the blackbirds used to feed on, increased prodigiously . . . they wished again for their blackbirds."[1]

On the other hand, insectivorous birds are threatened directly by pesticide use and indirectly by the loss of their prey. In 1962, Rachel Carson drew attention to the poisoning of songbirds in her book *Silent Spring.* Despite restrictions on the organochlorines used in 1962, an estimated 672 million birds are exposed each year to pesticides used in agriculture, resulting in the death of about 10%—67 million birds per year.[2]

Meanwhile, the world is experiencing an insect Armageddon. Recent research has found dramatic drops in overall insect abundance, with leading entomologists identifying steep declines in insect populations. Various studies have found reductions of up to a factor 60 over the past 40 years—there were 60 times as many insects in some locations in the 1970s. Over 75% of insect abundance has declined over the last 27 years, according to research published by European scientists last year.

Insectivorous birds are an essential part of global food webs that bring balance to ecological communities. The loss of insects is seen in protected natural areas, and the resulting loss of their avian predators can cause disruptions in agricultural areas as well. It is important to protect both insects and birds to promote ecological stability.

"We appear to be making vast tracts of land inhospitable to most forms of life, and are currently on course for ecological Armageddon," study coauthor David Goulson, PhD of Sussex University, UK, told *The Guardian* (2017). "If we lose the insects, then everything is going to collapse."

Footnotes

1 Glacken, C.J., 1967, Traces on the Rhodian Shore: Nature and Culture in Western Thought from Ancient Times to the Eighteenth Century, University of California Press, Berkeley.

2 *https://nationalzoo.si.edu/migratory-birds/news/when-it-comes-pesticides-birds-are-sitting-ducks.*

Resource

Supporting Beneficial Birds and Managing Pest Birds, Baumgartner et al., Wild Farm Alliance, Winter 2019, *wildfarmalliance.org/bird_resource.*