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Insect Accounting

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BioScience

Organisms from Molecules to the Environment

American Institute of Biological Sciences

Insect Accounting

Insects don't get enough respect. Yes, their depredations of structures and plants of all types, especially crops, are famed and feared: They were responsible for no less than three of the biblical plagues, and it is only a little over a century since the Rocky Mountain locust devastated agriculture in the Great Plains. And yes, the physical and chemical feats that insects routinely perform while pursuing their objectives can inspire awe: The deadly aim of the bombardier beetle and the careful munching of parasitoid wasp larvae come to mind, though readers will have their own favorites. Yet the beneficial services that insects provide humans, aside from a few obvious examples such as pollination and the production of honey and silk, are often overlooked, quite literally—over much of Earth's surface, insects go about their important business unremarked, at our feet.

The article that begins on p. 311, by John E. Losey and Mace Vaughan, represents one of the few attempts to date to quantify the minimum economic value of some of the services rendered by undomesticated insect species. The dung beetle, whose acrobatics with a ball of excrement are surely a candidate for the awe-inspiring list, carries out a number of these services by processing cattle feces, thereby recycling nitrogen, reducing parasitism, and otherwise saving humans hundreds of millions of dollars a year. Other services are provided by native bees, assorted insectivorous predators and parasitoids, and uncounted insect prey of birds and fish.

The study is most notable not for the sum the authors arrive at—that total, as they acknowledge, depends on the specific subset of services that is considered, and Losey and Vaughan's selections depended on the availability of data. Rather, the study is illuminating because of the authors' ingenuity in showing how available data can be used to put minimum estimates of economic value on the chosen services. The article thus points to the types of data that might be important to gather to extend knowledge of our dependence on nature's services. Among the obvious ones are the toxicity of pollutants, the pollinating and pest-suppression activities of different insect species, and the dependence of economically important species on insects for nutrition.

In the meantime, it is hard to argue with Losey and Vaughan's plea that planning of conservation funding pay specific attention to insects and the role they play in ecosystems, especially as there is evidence of a decline in beneficial insect numbers. With better data, future studies could rely less on historical information and determine confidence intervals to bracket estimates of value. If that were to happen, prudent economic management of ecosystems would become a more realistic possibility, and some astounding creatures might be saved from extinction.

TIMOTHY M. BEARDSLEY
Editor in Chief

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