

What's the point of insects?

They're worth a cool \$57 billion to the United States each year, that's what.

Michael Hopkin

Next time you dismiss insects as mere creepy-crawlies, ponder for a while on what life would be like without them. Our six-legged friends might be more valuable than you think — research estimates that they're worth at least a staggering \$57 billion to the US economy every year.

The estimate was compiled by a pair of conservation researchers aiming to stress the value of wild insects. Although putting a dollar value on the environment is a difficult and controversial task, it is something many ecologists have tried to do to explain the worth of biological diversity to officials more used to dealing in dollars and cents.

It took the duo more than two years to tot up all the economic transactions that would have been impossible without insects, from agriculture to birdwatching. They publish their findings in the journal *BioScience*¹.

Money, money, money

A value of \$57 billion is a conservative estimate, says co-author Mace Vaughan of the Xerces Society for Invertebrate Conservation in Portland, Oregon. The analysis only considers processes for which hard data are available and which are directly attributable to wild insects.

Vaughan, together with John Losey of Cornell University in Ithaca, New York, looked at four processes: disposal of dung; control of crop pests; pollination; and nutrition for wildlife such as birds.

Excluded from the analysis were the services provided by domestically reared insects such as honeybees. "If you look at all of the services across the board, you're looking at hundreds of billions of dollars," Vaughan says.

As for the total, all-inclusive value of insects, Losey says the answer is clear. "I don't need to guess at the total value of insects' ecological services — ecosystems and the life they support (including humans) could not function without the services insects provide."

Hunting and fishing

By far the greatest direct contribution of insects comes from their role as food for birds, game and fish, Losey and Vaughan calculate. Given the overall value to the US economy of the recreation industries of hunting, fishing and birdwatching, and the proportion of species involved that eat insects, these industries would be almost \$50 billion worse off each year without them.

Insects also save farmers some \$4.5 billion each year by gobbling up pests on dozens of different crops, and a cool \$3 billion by pollinating many different fruits and vegetables. The

humble dung beetle chips in with savings worth \$380 million, by keeping cowpats out of the way of parasitic flies and saving valuable cattle from infections.

All of this should give people pause for thought about insects' conservation status, Vaughan hopes. Although most wild species are not endangered, and could not generate such stupendous monetary sums if they were, numbers of many species have been declining. In the past six years, the United States has lost five species of bumblebee, which are important pollinators, he says.

Moves should be taken to preserve the livelihood of humble insects, Vaughan argues. Farmers, for example, should leave margins of wild hedgerow on their land where pollinators and other insects can live. "In some places there's no natural habitat," he explains.