

Free exchange

Valuing the long-beaked echidna

Setting a price on nature is a useful exercise, up to a point

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ZAGLOSSUS ATTENBOROUGHII, a species of long-beaked echidna named after the British naturalist Sir David Attenborough, lives in the Cyclops Mountains in the Indonesian province of Papua. It has many unusual attributes, both social and physical. It is a solitary creature: it meets its own kind only once a year, to mate. The male has a four-headed penis; the offspring (known as a puggle) hatches from an egg and lives in its mother's pouch until its growing spines make it an uncongenial companion. It is greatly valued by locals—not, unfortunately, for its evolutionary quirks, but as a snack traditionally shared when tribal rivalries have been set aside. From its point of view, peace breaks out inconveniently often among the tribespeople of the Cyclops Mountains, and its grasp on existence is consequently tenuous. On the basis of reported sightings by locals and a few observations of the holes it makes when nosing around for earthworms, it is reckoned still to be around, but nobody is quite sure.



As though *Zaglossus attenboroughii* did not have enough to contend with in the Cyclops Mountains, it also has problems with the discipline of economics. Over the past few years, economists have been making concerted efforts to value the natural world, and have made some headway. But they struggle to make sense of Sir David's long-beaked echidna—and quite a lot of other evolutionarily interesting species too.

Humanity's servants

Adam Smith spotted that economics has problems valuing nature. “Nothing is more useful than water: but it will purchase scarce anything; scarce anything can be had in exchange for it. A diamond, on the contrary, has scarce any value in use; but a very great quantity of other goods may frequently be had in exchange for it,” he wrote. In Smith's time, failing to value nature's bounty had little consequence, but since then mankind's activities have put some priceless (in both senses) resources—fresh water, clean air, a stable climate, healthy oceans—at risk, so the argument for taking them into account in designing policy has grown. At the same time, economics has tightened its grip on policy-making, so factors that are to shape policy need numbers.

Bowing to the primacy of economics, the Millennium Ecosystem Assessment, a huge global study of the state of the planet published in 2005, pushed the idea that nature provided “ecosystem services” to people as a way of persuading humanity that it trashed nature at its peril. That led to the establishment of The Economics of Ecosystems and Biodiversity, an initiative designed to put numbers on, and publicise, the economic benefits of biodiversity. Other country-level schemes were also established around the world, of which Britain's is perhaps the most advanced. Some of the people involved in Britain's effort have also contributed essays to a new book* which provides a useful guide to the methods, uses and pitfalls of valuing biodiversity.

Nature has two sorts of value—use value and non-use value. The first includes water, which can be drunk; bees, which pollinate crops; bacteria, which fertilise soil; and so on. The second applies to things whose continued existence people value even though they are not necessarily going to use them—not just natural phenomena, but also man-made marvels such as Afghanistan's Bamiyan Buddhas, whose destruction by the Taliban was mourned around the planet.

Establishing the value of these goods is tricky, but there are ways of going about it. First, if an ecosystem service has an output—such as pollinated crops—then it is often possible to work out the value of the input. On that basis, a study by academics at Cornell University estimated that bees and other insects contributed \$29 billion to the American economy in 2010. Second, if market prices are affected by nature, a value can be derived from them. Thus an apartment in New York with a view of Central Park is worth considerably more than one without such a view. Third, people’s behaviour—for instance the costs that they are prepared to bear to visit a national park—reveals the value that they place on unpriced goods. Finally—and this last method applies principally to non-use value—people can be asked whether and how much they prize aspects of nature.

Some of the numbers derived from these methods are distinctly dodgy, but conservationists argue, fairly reasonably, that it is better to have mediocre estimates than none at all. They lend force to environmentalists’ arguments and can usefully be fed into cost-benefit analyses. Governments thinking of planting forests or creating nature reserves, for instance, can put sensible numbers on the value people attribute to them, and thus work out whether the land in question would be better used for agricultural or recreational purposes.

Yet, as the story of *Zaglossus attenboroughi* suggests, these methods have their limits. Beyond its snack value, it is not useful to humanity. It produces nothing. There are no goods whose market price it affects. Nobody visits it. And it would not do well in surveys asking people whether they valued it: the outcome of such exercises is always a big vote for African elephants, lions, and the other “charismatic” beasts that people like to look at (and that are, mostly, not endangered).

Zaglossus attenboroughi is not charismatic; but, as a creature clinging on to one of the most distant and thinly-populated branches of the tree of life, it is of great scientific interest. Perhaps, after all, it does have a use: to remind people that although putting numbers on nature is worthwhile, economics cannot quite capture the value of all the creatures sharing this planet.

Nature in the Balance: The Economics of Biodiversity. Edited by Dieter Helm and Cameron Hepburn. Oxford University Press

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