

The objective ecologist: no saving whales here

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It use to be, when we said we were ecologists, we would receive blank looks in return. Nowadays, it's even worse. People launch into discussions about recycling, whales or how Kyoto will destroy the economy. This is because ecologists, who are natural scientists, are often confused with environmentalists, who are advocates of certain values. Understanding the distinction is important for citizens in making informed decisions.

The natural sciences (the physical and biological sciences) are about processes and mechanisms that explain how the natural world works. For example, ecologists study predator-prey systems as one way to understand why populations of animals fluctuate over time. Or, they could be interested in the factors that explain the cycling of carbon and nitrogen in a forest, grassland, agricultural field or even an urban parking lot.

These processes are not good or bad in themselves. They just are.

Scientists and philosophers have long recognized that nature cannot tell us our values, ethics or morality or, in other words, what our choices ought to be.

So what is the responsible role that an ecologist should play when called on to offer professional advice on environmental issues? The answer is straightforward and difficult.

Science cannot prove anything true, but only false. As strange as this may seem, all of our scientific and engineering understanding is based on this approach. This is why scientists appear to waffle when called on to make statements about the truth of some scientific issue.

Ecologists can explain what we know about ecological processes and what we don't know, and how confident we are in this understanding. Scientists base these explanations on peer-reviewed scientific literature. The "peer" is not your supervisor at work or anyone with a conflict of interest. "Peer-reviewed" refers to recognized specialists in a particular field critically reviewing studies prior to publication to ensure that they are based on scien-

tific merit, rigorous and appropriate methods, with conclusions and interpretations well supported by the data. Little known to the general public is that somewhere between 30 to 90 per cent of papers submitted for peer review are not accepted for publication because they don't meet these criteria.

The good scientific reporting we read in books, reports, magazines or in the news is derived from peer-reviewed scientific literature. Next time you read a newspaper report about some new scientific finding, look for the reference to the scientific journal where it originally was reported.

Offering unbiased advice on issues is an ecologist's most difficult task. Ecologists must be careful not to insert their own values; if they do, they must differentiate that from their professional advice. This is the main difference between ecologists, who are scientists, and environmentalists, who are advocates.

Citizens determine the environmental values important to them, for example, clean air, soil and water. They promote their values through the democratic process,

through voting or lobbying their government for legislation and regulations to protect these environmental values. Governments then respond by developing standards to protect environmental values; for example, establishing limits on acceptable or unacceptable impacts to these environmental values. Citizens need scientists and the scientific literature to understand the ecological processes that will sustain the things they value. It is on these values, and our understanding of ecological processes, that policy should be developed and legislation should be written.

Ecologists can answer how well we understand an ecological system or process and what different courses of action may have on the ecological system. It is the responsibility of the citizen in a democratic society to decide what course of action is valued.

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