

Connecting with Nature

People share complex relationships with nature and enjoy a broad variety of benefits from this connection, but some benefits are less visible than others. The concept of ecosystem services attempts to provide a way to quantify these benefits, but is more needed to foster deeper connections between society and nature?

ES Value Is More Than Monetary



Rachelle K. Gould and Taylor H. Ricketts
Rubenstein School of Environment and Natural Resources, University of Vermont

The framework of ecosystem services (ESs) allows us to measure (biophysically) and value (socially and economically) the contributions of nature to human well-being and to elucidate consequences and trade-offs associated with ecosystem change. Human well-being is a multi-dimensional goal with both physical and intangible facets. Monetary values can capture some of these facets, but studies increasingly illustrate how we can quantify ES benefits in rigorous, relevant, and non-monetary terms. As one example, non-monetary metrics work well for dimensions of physical health—bushmeat consumption reduces human anemia, and upstream forests reduce childhood waterborne disease. These findings need not be monetized to be meaningful.

Non-monetary metrics can also help to expand the benefits we can characterize beyond the physical. The intangible aspects of well-being (e.g., psychological or spiritual well-being) are often associated with cultural ESs or non-material components of ecosystems' contributions to people. Cultural ESs are typically underrepresented in assessments, partly because it is hard to measure them. Monetary valuation is often particularly inappropriate and difficult for these ESs, but we can characterize the benefits of cultural ESs in myriad other ways: via the frequency of visits or interactions, by interviews and surveys, and by novel methods (e.g., analysis of stories, ceremonies, social media, or not-yet-explored data sources).

This emerging work helps to broaden the measurement of ES benefits and better capture the richness and breadth of nature's contributions to human well-being.

ESs to Reconnect People to Nature



Elena Bennett
Department of Natural Resource Sciences, McGill University

People obtain many benefits from nature, including those we are quite aware of (such as food, water, or recreation) and those we might be less aware of (such as the fact that nutrient cycling helps maintain agricultural productivity or stores carbon to mitigate climate change). The ES concept helps to ensure that we notice not only the services that are obvious but also the less obvious services and ecological processes that underlie the provision of these services. That is, we might appreciate the ability to swim in a cool, clear lake on a summer's day, and recognition of that, plus knowledge about where that clean water comes from, could lead to appreciation for wetlands' role in cleaning the water on its way to the lake. One way to foster deeper connections between people and nature is through experience and education—getting into nature to see with our own eyes and feel with our own bodies how ESs are provided to us is a great start. Add to that cognitive knowledge about where services come from and how they are linked together, and we start to build a system that fosters a deeper connection to nature—one that moves from material and experiential connections to deeper cognitive, emotional, and philosophical ones. Education to promote greater awareness of the role that both nature and people play in the provision of ESs is an important first step toward helping people build the connection between the lake they love and the wetlands they need.

Losing Human-Nature Interactions



Kevin Gaston
University of Exeter

There is some irony in observing that at much the same time as scientific understanding of the benefits that people gain from nature has been improving, so too has it become evident that the personal human-nature interactions that underpin receipt of some of those benefits have been in long-term decline. Particularly in economically richer societies, there have been progressive cross-generational losses in the frequency and quality of direct forms of such interactions, termed the “extinction of experience.” Put another way, our personalized ecologies have become poorer. If, for many people, current human-nature experiences are but a vestige of what they might once have been, then it seems likely that we have also dramatically underestimated the scale of the benefits that these could potentially provide. This is particularly true of the gains to human health and well-being (including components of their physical, mental, and social dimensions) that have now been clearly demonstrated to arise from direct experiences of nature. The extinction of experience could in turn have led to a progressive lowering, and “shifting baseline,” of people's accepted thresholds for normal levels of human-nature interactions. It could be vitally important to determine these links given suggestions that declining levels of human-nature interactions lead to less support for pro-biodiversity policies and behaviors and thus further exacerbate the extinction of experience and encourage a cycle of disaffection toward nature.



Urban Nature-Based Solutions**Dagmar Haase**

Institute of Geography, Humboldt Universität zu Berlin

Science and policy arenas have been celebrating nature-based solutions as a novel way to “make use of nature” to solve environmental and social challenges in heavily urbanized areas around the globe. Many of us work in operationalizing and implementing novel nature-based solutions in cities be they for flood or rainwater retention of active recreation or counteracting hazardous summer heat waves. However, as it is nature—ecosystems—that we “employ,” we tend to forget that nature is a part of the Earth system, which operates on both the short and long term, when providing adaptation and regulation benefits. Thus, implementation next to active “construction” often means simply “time” and “laissez faire”—leave all as it is, no management, no purpose-driven (re)construction. This is sometimes condemned by both scientists and urban planners as a kind of “non-action” with no care or sustainability. However, it can be effective. To give a small example, we recently studied lawns in a German city and found them partly stabilizing after the heat summer of 2018, but in “their way” they slowly converted from grass-dominated English lawns to multi-species and trample-resistant systems consisting of sedges, low herbs, and wildflowers. These are natural ground covers that can be walked upon for recreation and that also let floodwater infiltrate.

Embracing Relational Values**Kai Chan**

The University of British Columbia

Many ESs are central to *relational values* that motivate ongoing relationships with nature. These relational values—preferences, principles, and virtues about human relationships involving nature—go beyond an instrumental value framing in necessary ways given the deeply relational nature of human existence and cognition. Many people connect with nature not only for self-oriented benefits but also because doing so constitutes what seems a virtuous or fulfilling way to live, or a way to fulfil obligations to or desires for other people.

Thus, fostering deeper connections between people and nature means cultivating experiences and capabilities that inspire deep relational values. These are a subset of cultural ESs in contexts of learning and play, particularly for young people with close adult mentors (family, friends, and relatable instructors).

Deepening connections also means enabling the easy, enjoyable, inexpensive expression of relational values of responsibility and care. This is critical in the context of supply chains, which are great diffusers of environmental impacts to distant times and places. Current options for consumers and organizations to mitigate their environmental impacts are a paralyzing cacophony of certification labels, which also entail residual impacts (not net-positive ones). Some of us are trying to greatly simplify the choice presented to consumers and organizations, which could mitigate a whole suite of environmental impacts enjoyably and inexpensively, enabling net-positive relationships with nature (e.g., CoSphere).

Mainstreaming Nature? Potentials and Limits**Sven Wunder**

European Forest Institute

The ES concept has allowed us to identify, often map, sometimes quantify, and at best actively promote the provision of separate tangible benefit flows, provided distinctly in time from nature to humans. This anthropocentric compartmentalization of “welfare returns” from complex interwoven ecological systems can become simplistic, e.g., in fleshing out biodiversity’s role. Trade-offs between these services can be ignored, as can nature’s disservices. The twin term “environmental services” can be more accurate when marginal changes in human behavior are needed for the human-nature co-provision of improved environmental outcomes. Notably, the confusingly termed “provisioning services” are in fact products that hold distinct attributes from services and call for divergent management strategies. Yet, overall the concept has been helpful, at times when societies bring into question the “bang for the buck” from every allocated cent.

As an environmental economist, I believe that economic valuation of ESs has been over-emphasized: we cannot, and should not try to, put monetary values on every such service. For some key services, we cannot even safely determine the biophysically needed quantities. Our strategy should be two pronged: make it privately profitable to provide many more ESs across society by getting prices (and incentives) right—or at least less wrong—while also recognizing that economics, “the dismal science” (Carlyle), cannot price everything we value from nature: ethics, compassion, and education are just as essential.

Deliberating Social Values of Ecosystems



Jasper Kenter
Environment and Geography, University of York

The ES approach has hugely expanded in terms of breadth over the past decade, going well beyond ecology and economics. There is an increasing diversity of social research to understand the values of nature's benefits. But most studies still take an individual perspective on values: values are largely seen as subjective rather than intersubjective, whereas methods and indicators are individualistic. Of course, people do connect with nature at both an individual and a social level. But connecting policy with ecosystems more deeply demands much more attention to social questions: what are the roles of, for example, socialization, collective norms and practices, institutions, and social learning in how we form, express, and change values? How do we consider our values for ecosystems versus other social priorities? ES scholars are only just now starting to really connect with diverse theoretical traditions that have considered such questions of social values in other arenas. A related issue is that increasingly diverse ES scholars harbor different value lenses, producing knowledge that is difficult to compare. We need mechanisms that act as boundary objects between diverse valuations if we want this pluralism to be integrated into policy. I see much potential in deliberative integrated approaches as new democratic spaces where researchers, stakeholders, and policy can meet to reconcile different values of ESs, as well as values associated with other ways of conceiving of human-nature relations, including less anthropocentric perspectives.

ES as a Tool to Connect People with Nature



Patricia Balvanera
Institute of Research in Ecosystems and Sustainability

The ES concept has had a deep impact on the way the connections between people and nature are understood. Stemming from the need to further protect nature, ESs were defined in the late 1980s as the benefits that people obtain from nature. In 2005, the Millennium Ecosystem Assessment suggested three types of ESs: the provision of goods, the regulation of Earth's functions within limits suitable for human endeavors, and the experiences and capacities that emerge when people interact with nature. Since then, attention paid to ESs in academia, government, and non-governmental organizations has grown exponentially. Close to 17,000 academic sources published in 2019 describe only how to characterize, monitor, manage, and internalize ESs into local and global public policies. The adoption and operationalization of the concept has led to the very notion that future societal well-being depends on sustaining nature, which supports the United Nation's Sustainable Development Goals. Launched in 2012, a global platform on Biodiversity and Ecosystem Services is showing that biodiversity loss is at least as dire a threat as climate change to human existence. Business leaders across the planet under the World Economic Forum recognize that they are sleepwalking into catastrophe by ignoring connections between people and nature. ESs have been very useful to show that people and nature are interdependent. Yet, the increasing magnitude and extent of the nature crisis remind us that more is needed.

Embracing Our Nature



Sarah Klain
Utah State University

When asked to tally up the ESs derived from a species such as bighorn sheep, I cringe. I'm just not convinced a dollar value makes a difference in the political debate regarding what constitutes desirable population sizes.

Granted, the ES metaphor has proven useful in many contexts: it's reduced managers' and decision makers' myopia by highlighting previously overlooked benefits from nature, it helps us organize how we assess and quantify trade-offs, and assessments have justified important restoration efforts. And yet, it remains a market-oriented, reductionist, anthropocentric metaphor. Asking "how much does a bighorn sheep benefit me?" commodifies the life of a wild animal. Calculating their total social value requires assuming that social preferences are fixed and knowable rather than fluid and debatable. Attributing a dollar value to an animal does not sufficiently replace the deliberative, political, and sometimes messy processes needed for identifying acceptable management solutions.

I, along with a growing chorus of sustainability scientists, argue that there is a need to go beyond the monetary valuation of ESs with a greater emphasis on responsibility, commitment, and the obligation to provide care. The challenge remains to engage people's hearts, minds, and hands in building connections between each other and nature. Fostering connectedness and establishing communities inclusive of humans and nature are crucial to creating a more just and ecologically sustainable world and safeguarding the richness of life on this planet.