



Economic Value of The Conservation Foundation's 33,000 Acres of Preserved Land – Executive Summary

The Conservation Foundation

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Look deep into nature, and then you will understand everything better.

Albert Einstein

Introduction

Those that do not look deep into nature may not see value in its preservation. However, recent work has explored the economic impact of the goods and services, or ecosystem services (ESS), that nature freely provides. Unfortunately, it is because ESS are “free”, e.g. one cannot derive a direct profit or cost off of their functionalities, development decisions do not factor in the economic ramifications of environmental degradation. This economic invisibility limits the urgency placed on protecting nature and has resulted in the destruction and degradation of natural areas, in turn imposing an unrecognized cost on society. In an attempt to combat this economic distortion and consequently promote future preservation initiatives, The Conservation Foundation (TCF) has valued the annual economic impact of the ESS provided by the approximately 33,000 acres that it has helped preserve at \$210,273,428.83. This paper will explain why it was necessary to value natural areas, provide a high-level explanation of ESS, and discuss the valuation techniques used.

Why Value Ecosystem Services

The value of a good or service is the monetary price yielded from the exchange of that good or service for money. Unfortunately, this approach does not value the nonmonetary ESS provided by nature. The historical approach to valuing nature’s goods or services involves extracting or harvesting resources such as minerals and lumber or converting grasslands to support buildings for commercial or residential use. Economists label this approach Direct Use Value and economic worth is derived by the dollars exchanged for the lumber sold or land built upon. However, to understand the full economic impact of such usage, one must also account for non-use value (e.g. economic benefits that do not require extraction of natural assets or landscape conversion). In other words, the financial costs for ESS no longer freely provided by nature should be included in development decisions. This recognition and quantification of ESS will enable decision-makers to reach informed conclusions that take into account both the positive and negative financial impacts of developing natural areas, whereas previously only the positive economic impacts were estimated. TCF expects that this improved perspective will lead to more environmentally friendly development decisions.

What Ecosystem Services Does Nature Provide?

Identification of the ESS provided by natural areas is the first step in the valuation process. The global initiative The Economics of Ecosystems and Biodiversity (TEEB) has identified twenty-two separate ESS that nature provides. These services are categorized into four groups based on the benefits provided. The groups include provisioning, regulating, habitat and cultural services. A more complete listing of ecosystem services is presented in the appendices to this paper.

Valuing the Acres TCF Helped Preserve

To value the ESS of the acres it helped preserve TCF utilized several valuation techniques based on the availability of previous studies. To determine the forested areas’ value, TCF employed a 2007 iTree study that the U.S. Forest Service conducted. The study examined the economic and environmental value of Chicago’s regional forests, noting their positive impact on air pollution and residential energy costs. Based on these two main economic drivers, the study concluded trees have a beneficial impact of \$51.2 billion per year. Simply taking the 16,500 forested acres that TCF has helped preserve as a percentage of our region’s forested acreage would imply a value of over \$194 million. It is important to note though that the iTree study included

only a portion of the ESS provided by trees. Immense environmental benefits such as stabilization of watersheds and water flows, wildlife habitat, and human recreational usage were not included.

The prairie and wetlands' values were determined through use of the benefits transfer method (BTM). This technique "involves obtaining an estimate for the value of ecosystem services through the analysis of a group of primary valuation studies which have been previously carried out to value similar goods or services in similar geographies and contexts." Researchers have found that extrapolating the valuations of ESS from one area to another is an accurate approach to estimating economic impact when biomes share enough characteristics.

In its valuation, TCF included studies from the TEEB database that assessed grasslands and wetland biomes in similar geographical areas as Chicagoland. To ensure the applied biomes shared enough environmental characteristics so that application of the BTM approach was valid, TCF's staff reviewed each study's evaluated area's climate, topographical makeup, and biological attribute. Further, extreme outlier valuations were excluded to prevent grossly overstating or understating economic value. Lastly, appropriate adjustments were made to express values in constant 2015 US dollars. Unfortunately this filtering, in conjunction with the strict standards TEEB requires to include a study in its database, meant that only 3-5 of 22 recognized ESS were valued. Just as with the forest's value, excluding the values of multiple ESS introduces a very conservative bias to the process. This indicates that the actual value would be higher and likely significantly higher, than the result of this appraisal. Based on analysis the 13,200 acres of grassland and 3,300 acres of wetlands that TCF has helped to preserve provide ESS with an annual value of approximately \$16 million.

Conclusion

Because TCF did not value all of the ESS provided by its 33,000 acres of protected land, the actual value of these acres would be higher than the result of this assessment. Nonetheless, TCF believes this valuation, expressed in 2015 US dollars, is of great interest and importance. Natural areas through their physical structures and processes freely offer a diverse array of highly correlated socioeconomic benefits. These ESS are under constant threat by development and, when ESS are not included in the cost/benefit analyses of development studies, their values are not appropriately considered in decisions. This unfortunate situation is further compounded by the fact that no person, business, or government is able to directly capture the financial benefits of the ESS provide. Thus, the unvalued "free" benefits of ESS are taken for granted, which provokes unsustainable consumption and degradation from overuse.

Factors such as political and economic feasibility, community impact, and potential financial gains are integral in the land development decision-making process. TCF continues to support inclusion of these fundamental factors; however, TCF believes that by adding ESS valuations to the process, decision-makers will have greater insight into the full impact, both positive and negative, of land development. With this greater insight, TCF believes that more natural areas will be preserved and restored, rivers and watersheds will be protected and the need for environmental stewardship will be realized. In other words, valuing ecosystem services will enable people to look more deeply into nature and to understand everything better.

Appendices

Listing of Ecosystem Services

Classification of ecosystem services

PROVISIONING SERVICES

- 1 Food (e.g. meat, milk, honey)
- 2 Water (e.g. for drinking, irrigation, cooling)
- 3 Raw Materials (e.g. fodder, fertilizer, bioenergy)
- 4 Genetic resources (e.g. medicinal purposes, gene banks)
- 5 Medicinal resources (e.g. biochemical products, models and test-organisms)
- 6 Ornamental resources (e.g. decorative plants)

MAINTAINING NATURAL CYCLES

- 7 Air quality regulation (e.g. capturing fine dust, chemicals, etc.)
- 8 Climate regulation (carbon-sequestration and storage, greenhouse-gas balance)
- 9 Moderation of extreme events (e.g. flood prevention)
- 10 Regulation of water flows (e.g. natural drainage, irrigation and drought prevention)
- 11 Waste treatment (especially water purification, nutrient retention)
- 12 Erosion prevention (e.g. soil loss avoidance, vegetated buffer strips)
- 13 Maintenance of soil fertility (including soil formation)
- 14 Pollination (e.g. effectiveness and diversity of wild pollinators)
- 15 Biological control (e.g. seed dispersal, pest and disease control)

HABITAT SERVICES

- 16 Maintenance of life cycles of migratory species (e.g. bio corridors and stepping stones)
- 17 Maintenance of genetic diversity (especially in gene pool protection)

CULTURAL and AMENITY SERVICES

- 18 Aesthetic information (e.g. harmonic agricultural landscape)
- 19 Opportunities for recreation and tourism (e.g. agro-tourism)
- 20 Inspiration for culture, art and design
- 21 Spiritual experience
- 22 Information for cognitive development

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