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Economic Scene | Peter Passell

How much is the environment worth? A step toward answers.

HOW much, in dollars and cents, is the environment really worth?

No, this isn't a column about some bean counter who has found a clever way to put a price tag on sea otters or redwoods. Nor, for that matter, is it a tree-hugger's essay on the ineffable value of spaceship earth. Rather, it's about the pioneering efforts of some practical ecologists who are eager to make common cause with economists to create self-sustaining markets for "environmental capital."

The idea, explains Gretchen Daily, a biologist at Stanford University and the editor of "Nature's Services" (Island Press), is "to assess what we know about the tangible value of environmental resources" like watersheds and pollinating insect species. That, she argues, should set the stage for creating revenue-producing institutions — public or private — that make it profitable to invest in environmental resources, much the way one invests in physical infrastructure.

Ask your typical environmental activist how much a first-growth forest should sell for and you're asking for a fight. After all, there's much more to a stand of ancient trees than their value for recreation and lumber.

But the reflexive answer, that first-growth forests (or endangered species or pristine air over the Grand Canyon) have value beyond measure, is no answer at all. "Whether we know it or not," Ms. Daily argues, "we set implicit values" by choosing to preserve some portions of the environment and letting others go by neglect or economic development. So Ms. Daily, who has hugged a tree or two in her day, favors a less confrontational strategy.

The authors of "Nature's Services," which was largely underwritten by the Packard and W. Alton Jones Foundations and the Pew Charitable Trusts,



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lay out the basics of how big ecological systems protect everyday human activities and, in particular, how relatively small changes can cause devastating losses. "There are big-time non-linearities here," confirms Donald Kennedy, a former commissioner of the Food and Drug Administration and a contributor to the book.

But the nitty-gritty of "Nature's Services" consists of a dozen overview essays on the tangible value of services from various sorts of environmental capital. Gary Nabham of the Arizona Sonora Desert Museum and Stephen Buchmann of the Department of Agriculture survey research on insect pollination, finding that the substitution of domesticated pollinators for wild pollinators would reduce the value of 62 crops in America by \$1.6 billion annually. Katherine Ewel of the United States Forest Service found that specially constructed wetlands — in plain-speak, swamps — can treat waste from small towns at one-third to half the cost of steel and concrete. Norman Myers, a British researcher, documents the multibillion-dollar insurance value of preserving wild feed grains that offer resistance to plant diseases

More often than not, Ms. Daily concludes, "modern technology is an expensive substitute" for

environmental systems that have evolved over very long periods. Hence, she argues, it usually pays to protect (or enhance) natural systems, even if one ignores their intangible benefits.

In some cases, this knowledge alone should be enough to transform world-weary politicians into environmentalists. Graciela Chichilnisky and Geoffrey Heal, economists at Columbia University's Program on Information and Resources, estimate that New York City's investment of some \$660 million in development rights in the Catskills watershed will spare the city the \$4 billion cost of building and operating new water purification plants over the next decade.

Environmental capital for drinking water sits on the easy end of the spectrum. Governments are already comfortable with the idea of investing in clean water and covering the costs by charging by the gallon. What about the tougher cases, like insect pollination, where everybody benefits and there is no customary way of recouping outlays?

Ms. Chichilnisky and Mr. Heal would take the general approach a step further, selectively "privatizing the biosphere" by writing contracts with private corporations to invest in conservation and sell the services. Some obvious candidates: flood control, eco-tourism, marine fisheries, carbon sequestration in trees and plant and insect species diversity to assist agriculture and pharmaceutical synthesis. "If Enron can compete with the old regulated utilities in energy sales," Mr. Heal asks, "why couldn't they sell watershed services?"

Hard-line environmentalists are right in the sense that markets can't be expected to price intangible environmental services — wilderness preservation, species survival — according to society's long-term values. On the other hand, the authors of "Nature's Services" argue, the best need not be the enemy of the good. And privatization may be an answer where tangible environmental services complement the intangible.

"Why not pick the low-hanging fruit first?" Ms. Daily asks.