

# Karen Telleen-Lawton: InVest-ing in Natural Capital

Software uses public data to estimate the costs and benefits of 'ecosystem services'



Government and conservation officials now have a tool, InVest software, to help them make decisions about the use of natural resources, such as those found in Rattlesnake Canyon. (Karen Telleen-Lawton / Noozhawk photo)

By Karen Telleen-Lawton, Noozhawk Columnist | Published on 05.03.2010

Talk about think globally, act locally. Someone has invented a tool to value “ecosystem services,” helping decision-makers such as government officials, conservation professionals and farmers improve their tradeoffs in natural resource use.

Ecosystem services are products and processes that are “free” as long as we take care of the system, such as seafood and game, air and water purification, pharmaceuticals, pollination, seed dispersal and recreation. The tool is a software program called InVest, and I wish I had invented it.

The “someone” is actually quite a few someones under the umbrella of the [Natural Capital Project](#). Its three founders are Drs. Gretchen Daily, a biology professor at [Stanford University](#),

Peter Kareiva, chief scientist for [The Nature Conservancy](#), and Taylor Ricketts, director of conservation science for the [World Wildlife Fund](#).

Dr. Kareiva is also an adjunct professor at [UCSB](#). “In this world, cost-benefit analysis and dollars are how decisions get made,” he explains in a podcast. “When the benefits of nature are not converted to dollars, then it can’t be on the table for those discussions and, in a way, nature’s not getting credit for what it’s doing.”

InVest systematically uses public data to estimate the future costs and benefits of decisions that affect people and the environment. From a user’s point of view, the first step is gathering data about an area, such as the percentage of land in crops or forest, and how much is privately managed. The decision-makers then gather to outline scenarios possible under varying land-use conditions, such as development, restoration or new government policies. Finally, they brainstorm desired outcomes, perhaps poverty alleviation, clean drinking water or carbon sequestration.



Then comes the black-box part. The InVest Web site says, “Each scenario is ... fed into InVEST’s unique modular structure: Each module represents a different life-support system that can be evaluated independently, or selected modules can be bundled together according to the specific scenarios and priorities in each place. InVEST can model and map the consequences of decisions on life-support systems in both economic and biophysical terms.”

The outputs are maps, trade-off curves and balance sheets that help answer such questions as: How will alternative patterns of urban growth impact the production of ecosystem services? How does a proposed hydropower management plan affect hydropower production, biodiversity, water quality and recreation? Where would reforestation achieve the greatest sustainable timber production and value for carbon sequestration and crop pollination?

Economists are taking note.

“Ecosystem-services researchers are now providing such balance sheets in more and more of the world,” according to a January issue of [The Economist](#). “Poor countries such as South Africa and Tanzania have realized that if they study the provision of such services sensibly, they can make more rational decisions and avoid some of the costly mistakes made by those places that have already developed.”

Of course, with inputs as complex as this, the output could succumb to “garbage in, garbage out.” But the software is being tried around the world as well as nearby. An [assessment of the health of California’s Sierra Nevada region](#) using InVest has been in use since the mid-2000s.

InVest is free to use, though it requires specialized software that puts it beyond the reach of the merely curious. Perhaps some combination of the city and county of Santa Barbara, the [Land](#)

[Trust](#), [Community Environmental Council](#) or the [Environmental Defense Center](#) might make good beta sites for implementation. I'm just sayin'.

— *Karen Telleen-Lawton's column is a mélange of observations supporting sustainability. Graze her writing and excerpts from Canyon Voices: The Nature of Rattlesnake Canyon at [www.CanyonVoices.com](http://www.CanyonVoices.com).*