



A New Environmental and Economic Option

Our forest lands offer people and society a suite of goods and services of tremendous value - clean air, clean water, shelter for wildlife, storage of carbon to help address global warming, and the solitude of nature to nourish the soul. All of these things can be categorized as environmental and/or ecosystem services. As much as they are valuable, they have also long been free of charge to the public. But they should not be taken for granted; development continues to fragment into our private forest lands, and the cost of conservation practices is one that forces the stewards of those lands to make difficult decisions.

The US Forest Service has spent nearly three years examining a market-based approach to implementing conservation practices on these private lands and forests in an attempt to protect them. The concept is simple: when something has value, there is supply and demand. Knowing just how great the demand for carbon storage or clean air is, for example, could be useful in developing a market-based approach for keeping and maintaining these lands in the form of payment or tax credits.



Ecosystem Services

Today ecosystem services as a market-based approach is gaining steam, and it was a major topic of discussion at the NACD Forest Resources Committee meeting in August and the National Association of State Foresters annual meeting in September.

"My sense is that with each passing day it becomes a little more real," said Rob Doudrick, ecosystem services coordinator for the Forest Service. Doudrick's position in the Forest Service, in fact, is evidence of how far this concept has come in this country.

How it started

In early 2004, Forest Service Associate Chief Sally Collins wanted to get a better understanding of how similar markets were being developed in other countries. Collins turned to Forest Trends, an international

non-profit organization that works to expand the value of forests to society. Forest Trends worked with the Forest Service to develop a week-long seminar for USFS senior executives in Oaxaca, Mexico, where ecosystem services was a major topic of the discussion. Collins and 20 USFS senior executives were intrigued enough to schedule other out-of-country explorations so as to gain further knowledge on the subject.

The Forest Service's interest is to create more incentive for landowners to stay on private forest lands.

"If our goal is to slow the loss of open space, one way to do it is to get those landowners to stay on the land for as long as possible," said Larry Payne, director of Cooperative Forestry for the Forest Service. "Part of that is to provide landowners with an opportunity to make money off of the land so that they can keep it as a forest instead of selling it so that it becomes a parking lot."

One person in attendance at the Oaxaca seminar was Texas State Forester Jim Hull, who became interested in implementing ecosystem services in his state. With grant money from USFS, Hull has spent the past two years providing educational assistance and attempting to bring potential buyers and sellers to the table.

Said Payne, the biggest challenge someone like Hull will face is in unifying the individuals that make up each of those two sides.

"The challenge is that with individual landowners, there are not two that are alike," said Payne. "Landowners need to come together as a group so that they can attract buyers, and that's the principle they're working on right now in Texas."

But it has been proven to work elsewhere. Payne pointed out that many of the coun-



Preserving wildlife habitat is one of the many things landowners could profit from in an ecosystem marketplace (NACD photo).

tries that signed the Kyoto Treaty regulating greenhouse gas emissions are participating on some level.

Costa Rica and Australia are two examples of countries that already put a monetary value on such goods and services. Costa Rica's system is controlled by its government, which regulates the markets. Australia has a unique system of biobanking that attracts developers and buyers and rewards those landowners who choose to participate with credits. Both countries are continuing to develop existing and new ecosystem service markets.

Why it deserves consideration

Approximately 85 percent of the country's 429 million acres of private forest land in this country are owned by non-industrial

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What it means on a global scale

The United States is by no means the first country to consider taking a market approach to improve environmental issues. Costa Rica and Australia are two countries that have long regulated ecosystem services.

A recent study in Canada has valued the ecosystem services from Canada's forest lands at \$93.2 billion dollars which is two-and-a-half times the value of Canada's annual GDP. Primary values are for carbon storage, water filtration, and

flood control.

According to a report released by Reuters, forests in northern nations such as Russia and Canada are worth \$250 billion a year because of services they provide by purifying water or soaking up greenhouse gases, according to researchers.

Said Mark Anielski, an ecological economist based in Edmonton, Canada, "We only realise what nature is worth when it's gone."



Districts Needed to Bring Buyers and Sellers Together

If implemented, an ecosystems services marketplace could benefit a large number of landowners across the country. Private landowners would have an opportunity to get engaged in markets that relate to them. But putting the puzzle together is something the Forest Service cannot do alone, nor will it attempt to. It needs help, and America's conservation districts may find a central role in the development of these markets.

According to Keira Franz, NACD director of legislative affairs, opportunities are being explored for districts in this arena.

"We're trying to make districts aware of opportunities and we're having staff discussions about policy and these potential markets," said Franz.

Ecosystem services reach a broad scope, and Franz sees potential involvement across the board.

"Air, water, wildlife ... in my mind we are talking all of those things and the potential to stack those benefits and integrate it all together," said Franz.

One of the biggest obstacles that the Forest Service would face after the creation of the marketplace would be to identify and organize potential buyers. This is no small task. Each parcel of land is different, and thus each would need to be analyzed. And landowners will naturally have questions about how markets work and how payments will be made or credits handed out. As aggregators and educators, conservation district leaders could be the link the Forest Service needs to bring the idea to the people interested and willing to put it into action.

"I see a role for districts as educators because they are on the land already," said Karen Solari, watershed coordinator for the Forest Service.

Another possible role districts could take on is monitoring. Keeping a close eye on the amount of activity these goods and services create will be crucial in building a credible marketplace for buyers and sellers. Because districts are often viewed as impartial voices for conservation issues and practices, they can be considered ideal facilitators for the monitoring process.

"We're not looking to have federal bureaucracies monitor it," said Ted Beauvais, assistant director of Cooperative Forestry for the Forest Service. "Districts have good credibility with landowners. They would be seen as an impartial and fair organization."

And, said Beauvais, districts are an

excellent candidate to keep an eye on ethical issues that might arise.

"There will be a need to ensure that aggregators and brokers are treating landowners fairly," said Beauvais. "It's going to attract some unscrupulous folks because, although it offers opportunities, there are risks. So there is a need for an outside, independent organization like a conservation district to get involved."

But so far, albeit early on in the process, there is evidence of success in those relationships.

In Illinois, the Environmental Protection Agency has sponsored a working relationship between the Department of Agriculture and the Department of Natural Resources to control temperature through no-till forestry manure management practices. The Association of Soil and Water Districts was asked to be a practice verifier and also as a point of contact for landowners. The group began accepting contracts at the beginning of this year and as of September 5 had finalized 166 contracts that cover an area of more than 45,000 acres. Rich Nichols, the executive director of the Association of Illinois Soil and Water Conservation Districts, considers those numbers to be a success. But Nichols also believes there are many more landowners willing to get involved. "I know there are a lot of people watching this first go around," said Nichols. "I think there will be more interest in it as soon as observers see that first round of checks go out."

The Willamette Partnership in Oregon is another example where ecosystem services are being tested. Although not currently engaged with conservation districts, leaders involved in the project believe that districts can play a big role.

Said David Primozich of the Willamette Partnership, "Conservation Districts will be



Conservation district employees are trusted friends of farmers and private landowners. That relationship could make districts key partners in the implementation of a successful ecosystem marketplace. (NACD photo).

the fundamental delivery mechanism for the process."

Districts with ecosystem services-related involvement or success stories should contact Mike Beacom at 715/824-6091 or email at msbeacom@gmail.com.

Three Things Districts Can Do

1 Farmers, ranchers and landowners will need to become aware of these programs, and policies will need to be explained. Districts have the on-the-ground capability of doing this

2 For ecosystem services to work, sellers will need to get on the same wavelength with buy-

ers. Districts can be viewed as an independent party, and therefore are an excellent connector to bringing both sides to the table

3 There will be a great need to monitor these services. Districts have the ability to provide that service, or to subcontract the work to another local agency



Willamette Basin is a model for future projects

The Willamette River flows 190 miles through an 11,478-square-mile watershed in Oregon that supports 2.5 million people--almost 70 percent of the state's total population. Within the Basin there are 100 cities, including Oregon's largest urban areas and the state capital. Agricultural enterprises including vineyards, nurseries, grass seed and vegetable farms, occupy 22 percent of the land.

The population of the Basin is expected to double over the next 50 years, and sensitive parts of it are under increasing stress, which prompted the Oregon Department of Environmental Quality in 2004 to implement Total Maximum Daily Load (TMDL) restrictions on three main pollutants: temperature, mercury and bacteria.

A coalition of leaders, called the Willamette Partnership, banded together in an effort to improve the function of basin ecosystems by developing the Willamette Ecosystem Marketplace where regulated industries, developers and other investors can pay to land managers to manage for important services provided by nature such as clean abundant water, healthy populations of fish and wildlife, and a stable climate.

"Those services tend to be undervalued in current commodity markets," said David Primozich of the Willamette Partnership, "limiting options for private landowners to recover costs associated with managing their lands to provide the clean drinking water, better fish and wildlife habitat, and clean air we all - including urban residents - expect and depend on."

According to Primozich, one area that will be critical to the marketplace's success is the establishment of a fair and accurate system of monitoring grower output.

"In order for farmers and foresters to sell the ecosystem services they are uniquely positioned to produce, it is necessary to quantify the outputs of targeted, voluntary land management activities in units of measure that match individual drivers," said Primozich. "In the same way various agricultural and forest products are described and sold in units relevant to their markets (variety, quality, size, weight, etc.) regulato-

ry drivers describe units of measure important for endangered species, habitats, water and air quality.

"Once we get on solid ground quantifying ecological outputs from targeted voluntary land management activities, we can build the institutional and legal mechanism needed to pay farmers who target specific ecosystem service markets."

Some programs already exist, such as wetland mitigation and endangered species conservation banking. The marketplace will assist buyers and sellers in these programs in leveraging the additional resources of factories, developers, transportation agencies, cities and sewer and water ratepayers to expand the scale and effectiveness of conservation areas in the Basin.

In 2005, the Willamette Partnership won a \$779,000 "Targeted Watershed Grant" from the U.S. Environmental Protection Agency to inaugurate development of the marketplace. The grant will allow the Willamette Partnership to do several things:

- assess the drivers and opportunities for investments
- formulate scientifically-sound methods to quantify the value of conservation actions
- create a portfolio of investment opportunities
- establish the technical, legal, regulatory and institutional mechanisms to allow trading of conservation credits
- execute transactions; evaluate the project's effectiveness; and prepare a strategic and business plan to continue and expand the Marketplace.

Under the terms of the EPA grant, the marketplace must first target transactions to



A photo of how Quartsville Creek, a tributary of the Middle Santiam River, once appeared to Oregonians (Oregon State University library archive).

achieve temperature reductions for the Willamette River, consistent with TMDL objectives. In the marketplace, cities and industries that discharge hot water into rivers and streams will be able to purchase conservation credits offered by landowners who restore streamside shade, reconnect floodplains, or take other actions that cool water naturally.

This temperature-focused project, which launched this year, intends to construct much of the basic infrastructure needed for the marketplace's operation. However, additional scientific, technical, and institution-building work is needed to establish a marketplace that is self-sustaining and can facilitate a wide range of transactions to achieve other ecological improvements, such as protection and restoration of fish and wildlife habitat and at risk upland oak and prairie landscapes. The Willamette Partnership is therefore vigorously seeking additional seed funding from other sources to underwrite this work in tandem with their implementation of the EPA-funded project.

In April, Willamette Partnership won a \$50,000 matching grant from the Oregon Governor's Fund for the Environment to help fund initial outreach and market appraisal efforts.

For more information of the Willamette Partnership or the Willamette Ecosystem Marketplace, visit the website at www.willamettepartnership.org, or email David Primozich at primozich@willamettepartnership.org.





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interests. The Forest Service believes that within the next 25 years, more than 40 million of those acres will be at risk to development.

The value of the goods and services those acres produce is considerable, even if an exact dollar number has not yet been assigned to it. In 2000, Forest Service economists estimated that the value of water alone from the National Forest System was worth \$3.7 billion per year.

How can that estimate be realized in actual dollars? Take the Willamette Basin in the State of Oregon, for example, where a large temperature cooling structure may be needed to meet state standards for treating waste water from cities and industries.

Investing in natural ecosystem services such as, stream side shade, may offer a more affordable and certainly more environmentally sensible option.

"Foresters, farmers, and ranchers produce more than food and fiber," said David Primozich of the Willamette Partnership. "By quantifying the temperature reduction from stream side shade, foresters, farmers, and ranchers can sell that service to cities and industries that would otherwise have to construct expensive concrete and steel structures to meet new temperature standards.

"Ecosystem service markets give land managers additional high value products that they produce and sell to buyers faced with expensive regulatory compliance options."

"Imagine - the idea of the community lowering its water treatment costs using trees as

a solution to the problem," said Karen Solari, the Watershed Coordinator for the Forest Service.

The bigger picture, though, is the amount of money needed to impact forest health and forest preservation.

Said Doudrick, "The magnitude of the resources issue is one that we'll never have enough public dollars or donations to make a difference. Unfortunately, the environmental costs in producing these goods are not accounted for. Consequently, just like at the buffet table, we're going to eat as much as we're going to eat and not worry about whether it's high in cholesterol or bad for us."

What challenges are the USFS dealing with?

As the Forest Service continues to evaluate possibilities, several potential obstructions are being examined. One is the way in which these markets will be developed. The financial implications of assigning a dollar value to something that has always been free is of great concern because there is no road map outlining how to make it acceptable to buyers and sellers. Said Doudrick, "We're looking beyond the potential short-term benefit. The Forest Service is still trying to learn what it means if someone takes ownership for what's been perceived as a free public resource? It has huge legal and policy implications."

And of the models the Forest Service has to examine, none is similar enough to draw from because none of the above mentioned

countries are organized in a way - politically or economically -- that is similar enough to the United States.

"Costa Rica imposed a fuel tax that pays for everything. So it's being paid for by government," said Doudrick. "That's not unlike what we're doing in the United States with land practices. But it is illegal to de-forest in Costa Rica and my guess is that will never happen here."

Another challenge down the road will be promoting the concept to landowners and potential buyers.

"The public has to be aware that this is not just a paper exercise," said Solari. "There are environmental improvements being accomplished through these market-based trades."

Perhaps the greatest challenge is in how the values for these goods and services will be determined. It is still debatable as to what clean air is worth, and how supply and demand will accept that assigned value.

Still, Forest Service leaders believe there is reason to think ecosystem services is a sound option to solve many of the problems landowners face today.

"If you are interested in quality of life, stewardship, hunting and fishing, then your goal is to hold onto the land," said Ted Beauvais, assistant director of Cooperative Forestry for the Forest Service. "If you can keep the cost down through tax breaks and you can make money managing the land sustainably, then you can enhance the revenue side. For family forest ownership to remain viable, it needs to be affordable."



Ecosystem Services Resources

There is a wealth of material available on ecosystem services. Below are a few resources that district leaders and landowners

can rely on to learn more about these potential markets:

USFS Ecosystem Services Website

<http://www.fs.fed.us/ecosystems-services>

The Ecosystem Services Project

<http://www.ecosystems-services-project.org/index.htm>

Willamette Partnership

<http://clev17.com/~willamette/?q=>

Millennium Ecosystems Assessment Website

<http://www.millenniumassessment.org/en/Products.Synthesis.aspx>

Illinois Climate Control Website

<http://www.illinoisclimate.org>

Katoomba Group's Ecosystem Services Website

<http://www.ecosystemmarketplace.com>

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