



Ecosystem Services: New Frontiers in Land-Based Resources

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Publisher's Note: *The following article written by Lorie A. Woodward was originally published in the August 2021 issue of Texas Wildlife. Learn more about the Texas Wildlife Magazine at www.texas-wildlife.org.*

Under the banner of ecosystem services, pioneers are exploring new frontiers in land-based resources.

“Initially ecosystem services were structured responses, usually in the form of offset credits, to regulations such as the Endangered Species Act or the Clean Water Act,” said Terry Anderson, founder and principal of Conservation Equity Partners based in Nacogdoches. “Today, the excitement is in the esoteric, amorphous, ever-changing frontier of it that includes carbon offsets and a host of other ecological ‘products’ encompassed by environmental, social and governance (ESG) mandates.”

With the impacts of less predictable and more extreme weather being felt around the globe, climate change has become a hot topic, literally and figuratively. Climate change, along with its attendant issues such as food insecurity, water shortages and potential civil unrest spurred by scarcity, often dominates the news cycle as well as discussions in the halls of academia, business, finance and government.

To wit, in late April, President Joe Biden announced a new target for the U.S. to achieve a 50-52 percent reduction from 2005 levels in economy-wide net greenhouse gas pollution by 2030. His stated long-term goal is a net-zero emissions economy-wide no later than 2050.

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“With this deadline, President Biden created the dynamics of urgency,” said Chad Ellis, CEO of the Texas Agricultural Land Trust. “Small, scattered groups of people have been discussing ecosystem services markets for a couple of decades, but now forces are aligning to make them happen.”

As larger numbers of people begin to seriously grapple with the implications of rising temperatures and rising seas, the idea of ecosystem services, led by carbon sequestration, has moved from the shadows of scattered think tanks to the main stage in the mainstream.

Certain segments of society, including the millennials and Gen Z, are holding institutions accountable for their behavior and their claims. For instance, not long ago, fast-food chains could wrap their burgers—and their corporations—in feel-good green by simply announcing “our beef is 100 percent sustainable.”

Today consumers are demanding to know exactly what that promise means and how the business is delivering on it. Corporations are scrambling for defensible, sound practices, so they can deliver straight answers backed with verifiable proof.

“Societal pressure is proving to be much more effective at changing behavior than government regulations,” Anderson said. “It’s not a carrot. It’s not a stick. It’s steadily applied pressure.”

For instance, many universities, under pressure from their student bodies, are reconfiguring their vast foundation endowments, Anderson said. The universities are divesting their investments in oil and gas, coal, diamonds and other “natural resources,” which are characterized as “consumables” by the young change agents, and reinvesting in low-carbon energy and other technologies and practices perceived as sustainable.

“Social activism met social media and created a perfect storm that is altering the ecological and economic landscape,” said Anderson, noting CEP’s niche is improving land’s ecological productivity through hands-on management and capturing the increased value of that enhanced productivity. “From our perspective at CEP, it’s an unprecedented time of challenges and opportunities.”

Throughout history, visionary entrepreneurs, who also happened to be wise and prudent, looked to the past to predict how their innovations would perform in the present and change the future. As 2021 reaches the halfway point, the old rules don’t seem to apply.

“Everything we thought we knew and we believed is suddenly irrelevant,” Anderson said. “We can’t look back and validate because the old data doesn’t apply. We can only look forward and project.”

THE STATE OF RURAL TEXAS

According to the U.S. Forest Service, ecosystem services are commonly defined as “benefits people obtain from ecosystems.” While this definition is accurate, it assumes that people understand ecosystems and how they work.

Ellis, whose career has focused on agricultural research, outreach and advocacy, knows one can’t assume any baseline understanding when it comes to land, management or conservation. For clarity, he defines ecosystem services as “the goods and benefits provided by the land back to the public.”

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Ellis, who has been working on developing ecosystem markets for the past seven years, is considered one of the elder statesmen in the rapidly emerging market space. Initially ecosystem services captured his imagination for two reasons.

“Having operable free markets starts incentivizing and paying for the ecological services that landowners have been providing for free for so long,” Ellis said. “By highlighting this value to the humanity as a whole, it makes the connection between working lands and life as we know it obvious.”

The Millenium Ecosystem Assessment, a four-year United Nations’ assessment of the world’s ecosystems, divides ecosystem services into four broad categories:

- provisioning services or the provision of food, fresh water, fuel, fiber and other goods;
- regulating services such as climate, water and disease regulation as well as pollination;
- supporting services such as soil formation and nutrient cycling; and
- cultural services such as educational, aesthetic and cultural heritage values as well as recreation and tourism.

As population, income and consumption levels increase, humans put more and more pressure on the natural environment to deliver these benefits. The 2005 Millenium Ecosystem Assessment, prepared by a group of more than 1,300 international experts, found that 60 percent of the ecosystem services assessed globally were either degraded or being used unsustainably. At that time, 70 percent of the regulating and cultural services were in decline.

“Every change in the ecosystem spurs an additional change in the quantity and quality of any given ecosystem service,” Ellis said. For example changes in climate can affect land cover and land use, and changes in land cover and land use will, in turn, affect climate variability.

“In Texas, we’re losing open space land faster than any other state in the country,” Ellis said. “Every time we lose a piece of open working land, the pressure on the remaining open space working land to produce critical ecosystem services increases.”

As noted earlier, the most mature ecosystem services markets exist either in response to regulations such as the Endangered Species Act or Clean Water Act or as an economic incentive used to protect a landscape deemed essential such as the Edwards Aquifer Recharge Zone or the French watershed that feeds the supply springs for Perrier Vittel, one of the world’s largest mineral water bottling companies.

Water markets based on supply and demand have also been functioning on a relatively small scale for some time. Because of the local nature of water supplies, the attendant water markets are fairly localized as well.

In these instances, the sellable goods and their value is relatively easy to define. Not every ecosystem service is as obvious or easy to value. The easier a product or good is to value, the more quickly a market may emerge.

As an example, Ellis compared setting up a system for rewarding biodiversity versus rewarding open space. Biodiversity and changes due to management can be measured on many dimensions using existing survey tools. Setting a value for open space, which provides the foundation for any ecosystem service, is not nearly as clear cut.

“The question on the table is: How do we do it [value ecosystem services]?” Ellis said. “And in the last year, there has been a surge in the number of people and start- ups trying to figure it out.”

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Recognizing, evaluating and assigning an agreed upon value that is low enough that corporations and communities can pay it, but high enough to benefit the land stewards who are providing the ecosystems services from it is a challenge.

“Right now, ecosystem services such as clean air, water and biodiversity are like the MasterCard ads—they’re literally priceless because they’ve never been assigned a value,” Ellis said. “Humans, by our nature, tend to take things that are free for granted.”

The first step is identifying a baseline value for discussions. TALT, led by Ellis, is partnering with the Texas A&M Natural Resources Institute, led by Dr. Roel Lopez, to create the first estimate of the value of ecosystem services to Texans. The groups are considering 13 different ecosystem services and anticipate releasing the information in late 2021.

“For the first time, we hope to be able to articulate the return on investment to the community as a whole, so that ultimately land stewards will enjoy a financial return on the time, energy and capital they invested in producing life-giving ecosystem services,” Ellis said.

At the moment, carbon sequestration and its attendant carbon-offset markets, are getting the lion’s share of attention, as “enviropreneurs” scramble to stake their claims. From Ellis’ perspective, carbon markets are just a starting point.

“Land stewards and landscapes provide many benefits,” Ellis said. “To my way of thinking, the markets need to be structured so they can be ‘stacked’ and land stewards receive a financial return for all of their ecological products.”

Developing multiple income streams from enhanced ecological productivity is a cornerstone of CEP’s business model. CEP Project Manager and Ecologist Tamara Wood offered the company’s Mustang Creek project as an example of the company’s unique suits-in-the-boardroom, boots-on-the-ground approach.

According to Wood, one of Mustang Creek’s advantages is its location. The 1,600-acre property is located just 15 miles southwest of Fort Worth in Johnson County. Proximity to the state’s fourth largest urban area creates a lot of opportunities for value that might be harder to monetize on more remote properties, she said.

“In ecosystem services, just like in any other industry, you have to have people who need what you have to sell,” Wood said.

As part of their overall strategy, CEP team members are conducting a stream restoration project to create regulatory offsets prompted by the Clean Water Act and restoring a two-mile stretch of intermittent stream for a mitigation bank. CEP is also developing a regenerative grazing program to enhance and restore the remainder of the ranch to native prairie. And they’re also letting their imaginations run wild.

“One component of the project is to provide corporate clients with solutions to their ESG mandates,” Wood said. “Being solution-oriented requires that we consider the broad spectrum of issues impacting natural resources in society today.”

The team is intrigued by the chance to use the land as a large-scale outdoor classroom for urban and suburban youths. Opportunities range from improving basic conservation literacy to increasing awareness in complex ecological services. They are also exploring how their regenerative grazing program could help a corporate client define and achieve its sustainability goals.

“You have to ask questions to find answers, especially when a market space isn’t defined,” Wood said. “Right now, there are literally no limits because there are no defined boundaries.”

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A SEAT AT THE TABLE

Ecosystem markets are expanding and morphing into new configurations at a mind-boggling speed. While landowners may be tempted to stay at the house until the dust clears, Ellis suggested landowners get engaged now.

“The framework for these markets is being put in place quickly,” Ellis said. “If landowners want to ensure that the system will work for them, now is the time to claim a seat at the table and speak up.”

For instance, now is the time to make federal officials understand that the best solutions are private. Again, carbon is the topic de jour.

“Instead of buying up land, creating national parks with the thought of creating their own carbon banks, federal agencies ought to be buying carbon credits from private sources just as if the government was McDonald’s or American Airlines,” Ellis said.

The emerging marketplaces are chaotic, and they likely won’t offer second chances to get things right. In the bedlam, some companies may be selling snake oil along with ecosystem services. As a result, landowners not only need to be astute as they help create workable framework, but as they align themselves with partners. The relationship and commitment will be long-term, generally measured in decades. “Be patient. Think through your goals. Establish your comfort zone. And ask the right questions to make sure the marketplace you engage in is the right one for you,” Ellis said.

Anderson added, “Don’t enter into any agreement that you’re not 100 percent comfortable with. Ecosystem services is going to be game changer in the long-run, so it pays to take a long view.”

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