

INSIGHTS FROM THE FIELD: Forests for Species and Habitat

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SUMMARY

- Market-based mechanisms focused on candidate species conservation, also known as pre-compliance conservation, can provide preemptive and cost-effective interventions prior to a species becoming listed under the Endangered Species Act (ESA).
- To advance candidate conservation incentive programs, the World Resources Institute (WRI) is working with its partners to build demand, supply, and transactional infrastructure through a pilot initiative in the nonfederally listed range of the gopher tortoise (*Gopherus polyphemus*) in the southern forests of the United States.
- This innovative approach strives to create a scalable, voluntary, and science-based marketplace where conservation credits can be bought and sold prior to the enactment of a regulatory requirement, resulting in additional acres of southeastern forests being managed for habitat and species conservation.
- Through this pilot initiative, landowners with southern pine forests capable of supporting healthy populations of the imperiled gopher tortoise can receive payments to conserve and manage their forests. These payments and stewardship activities are designed to offset habitat disturbance elsewhere and may help preclude the species from becoming listed as threatened or endangered under the ESA.
- A candidate conservation marketplace may allow federal and private project developers to manage their environmental risk by investing in conservation on private lands in return for regulatory certainty from the U.S. Fish and Wildlife Service (USFWS). This process can help these stakeholders avoid the potential for costly project development delays and litigation since it front-loads much of the ESA review process and gives entities greater regulatory certainty.
- Interest in candidate conservation incentive programs is rapidly growing in the private, public, and nongovernmental organization sectors as changes in land use across the country spark new challenges in balancing ecosystem management with residential and commercial development, national security, energy infrastructure, and climate change.
- This issue brief reports on the mechanics of and lessons learned from an initial pilot candidate conservation incentive program focused on the gopher tortoise. Its aim is to inform the successful design and implementation of other candidate programs emerging throughout the southern forests and greater United States.

SUSTAINING FORESTS FOR WILDLIFE

As profiled in *Southern Forests for the Future* (Hanson et al., 2010), the forests of the southern United States face a number of threats to their extent and health, including permanent conversion to suburban development. Unabated, these threats will affect the ability of southern forests to provide a wide range of ecosystem services to people and to support the region's biodiversity. As part of the *Southern Forests for the Future* project, WRI is pilot-testing a number of innovative and voluntary incentive mechanisms designed to keep forests intact in the southern United States. In one of its pilots, WRI and partners are pioneering the first-ever candidate conservation marketplace.

Via this market-based approach, landowners with southern pine forests capable of supporting healthy populations of the imperiled gopher tortoise (*Gopherus polyphemus*), a candidate species (Box 1), can receive payments to conserve and manage their forests in order to help preclude the species from becoming federally listed as threatened or endangered and to offset habitat disturbance elsewhere. Thus, this approach provides increased economic incentives for sustaining forests for wildlife.

This issue brief profiles the development of this emerging pilot program, highlighting the key elements necessary to build demand, supply, and transactional infrastructure for

Box 1

What Does “Candidate Status” Mean?

Enactment of a regulation that provides for a formal listing of at-risk species under the ESA is a last resort and an often controversial option to keep a species from going extinct. As a result of continued development pressures, without proactive and innovative efforts and partnerships, a decision may be taken to list some important keystone¹ and emblematic species across the country, including the greater sage-grouse, (*Centrocercus urophasianus*), lesser prairie chicken, (*Tympanuchus pallidicinctus*) and gopher tortoise (*Gopherus polyphemus*). All three of these species are currently designated as “candidate species.”

Candidate species are plants and animals for which the USFWS has sufficient information regarding their biological status and threats to justify proposing them as endangered or threatened under the ESA, but for which development of a proposed listing classification is precluded by other higher priorities and agency capacity constraints. Candidate status gives notice to landowners and resource managers of species in need of conservation, ideally prompting them to address threats to that species. It thus provides an impetus to adopt measures that could preclude the need to list the species as threatened or endangered (U.S. Fish and Wildlife Service, 2011a).

A recent court settlement requires the USFWS to make a final determination on ESA status for at least 251 candidate species by September 2016 at the latest (WildEarth Guardians v. Salazar, 2011). Reversing the downward trends for a majority of these species requires the participation of private landowners in conservation action because many declining species in need of conservation efforts depend on private lands to meet their habitat requirements (General Accountability Office, 1995; Groves et al., 2000).

candidate conservation credits. Although the program is still in the development stage, early lessons learned from this pilot initiative have important implications for the design and implementation of other programs emerging throughout the country that aim to conserve candidate species prior to their actual listing under the ESA.

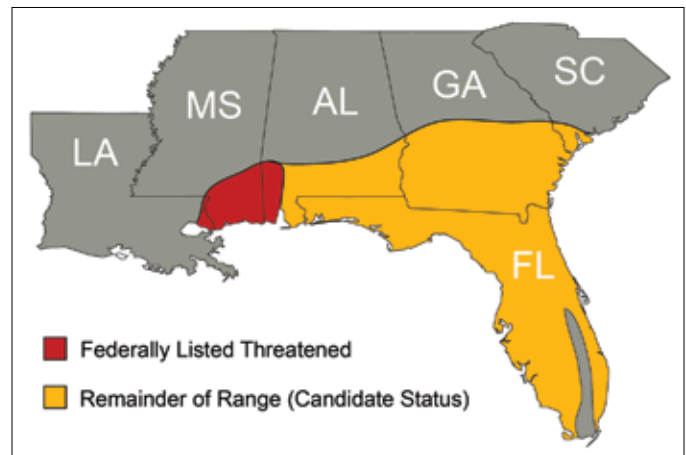
OVERVIEW OF THE PILOT

Before European settlement, longleaf pine forests spanned 90 million acres stretching from Virginia south to Florida and west to eastern Texas. The range of these forests was defined by frequent low-intensity fires that occurred throughout the southeast (Conifer Specialist Group, 1998). In the late 19th century, these expansive stands were among the most sought after timber and resin trees in the country (USFWS, 2011b). But due to conversion for development and agriculture, inva-



Source: *vladeb's photostream* (Flickr)

The gopher tortoise is seen as a *keystone species* because it digs burrows that provide shelter for 360 other animal species.



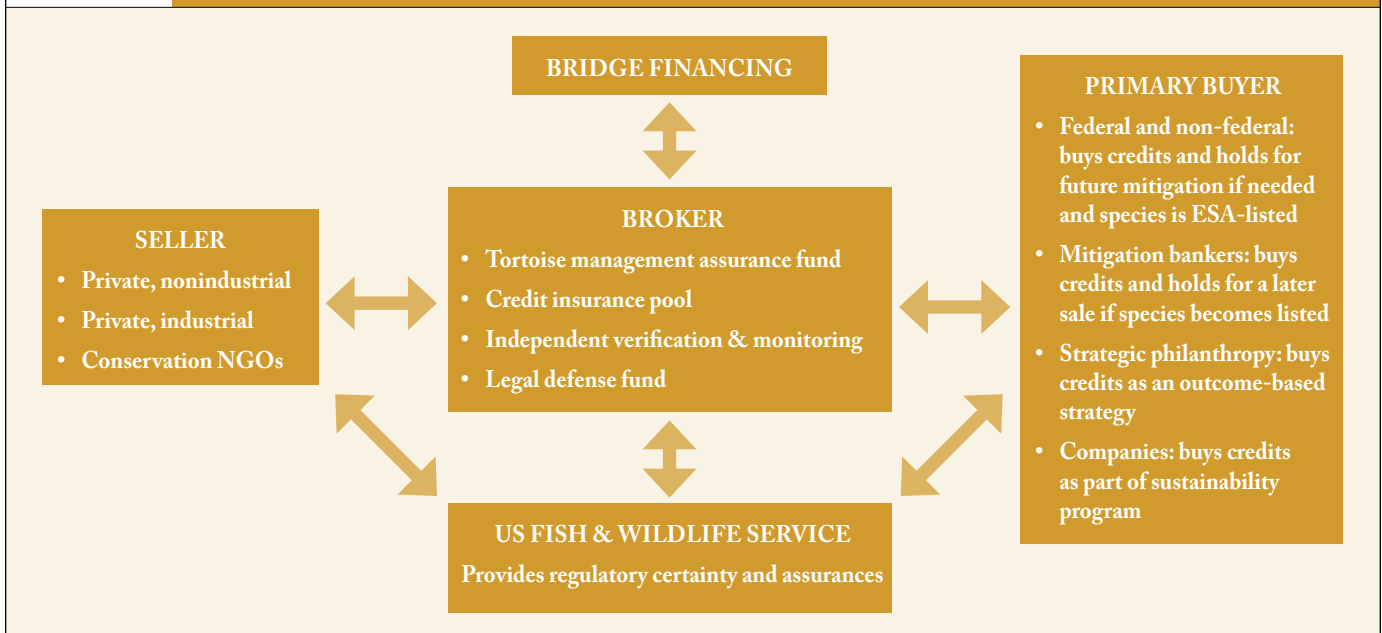
Source: *Gopher Tortoise Council*

Approximate range and status of the gopher tortoise. The gopher tortoise population west of the Mobile and Tombigbee Rivers has been listed as threatened since 1987.

sive species, and fire suppression, a mere 3 to 4 million acres of longleaf pine remain standing today. Many species, including the gopher tortoise, that depend on these forests have consequently experienced population declines (USFWS, 2011b).

Gopher tortoises are currently listed as threatened and protected by federal law under the ESA in the Alabama counties west of the Mobile and Tombigbee Rivers and in Mississippi and Louisiana. The eastern portion of the gopher tortoise's range includes Alabama (east of the Tombigbee and Mobile Rivers), Florida, Georgia, and southern South Carolina (see map above). In July 2011, the USFWS designated the eastern population of the gopher tortoise as a candidate for possible future listing under the ESA (USFWS, 2011c).

FIGURE 1

Gopher Tortoise Candidate Conservation Marketplace Structure

To prevent the eastern population of the gopher tortoise from further declining and becoming federally listed, major efforts will be needed to conserve and restore healthy longleaf pine forests. With 87 percent of southern forests currently in private ownership, this task lies primarily in the hands of private woodland owners (Hector and Beyeler, 2010). Although many landowners may be interested in managing their forests for declining wildlife, they often lack the necessary financial and technical resources. Concern over potential land-use prohibitions due to the ESA has also created a so-called perverse incentive in which landowners refuse government access to their land, refuse to manage land in a way to benefit imperiled species, or even manage their land in ways that harm these species (Lueck and Michael, 2003; Brook et al., 2003). Efforts and incentives are needed that turn managing for declining species on private lands from a perceived liability into an asset.

To address these issues, WRI, Advanced Conservation Strategies, the American Forest Foundation, the Longleaf Alliance, and other stakeholders² are developing an innovative pilot program: the creation of a scalable, voluntary, and science-based marketplace where conservation credits can be bought and sold prior to the enactment of a regulatory requirement, resulting in net gains for the protection of the gopher tortoise in the southeastern United States.³

A gopher tortoise candidate conservation marketplace is not a typical market where buyers and sellers regularly meet to exchange goods and services. Instead, the program facilitates the execution of contracts between two parties that include payments for the protection, restoration, or management of species and habitat (Madsen et al., 2010).

Here is how the gopher tortoise candidate conservation marketplace is being designed (Figure 1):

- An interested private landowner receives a negotiated payment to conserve, sustainably manage, or restore longleaf pine forests capable of supporting healthy populations of gopher tortoises on his or her property. In so doing, the landowner generates gopher tortoise habitat credits. Eligible landowners include nonindustrial family landowners, industrial forest owners, nonprofit organizations, and potentially state and county-owned lands.
- The entity paying the landowner receives the habitat credits in return. The buyer uses the credits to offset the impact on gopher tortoise habitat elsewhere to meet a voluntary net zero biodiversity impact commitment or saves the credits for later use to potentially meet offset requirements if the species becomes listed under the ESA. Other buyers may purchase credits as an investment, under the assumption that habitat credit prices will increase if the gopher tortoise becomes listed. Prospective buyers include the Department

of Defense, federal and state departments of transportation, corporations, mitigation bankers, impact investors, and philanthropic foundations.

- A gopher tortoise habitat credit is the actual currency that can be bought and sold and reflects a net conservation benefit generated for the candidate species. The number of credits on a parcel of land is determined via a science-based and peer-reviewed method, including the presence and size of a gopher tortoise population, the quality and size of habitat, and the willingness of the landowner to accept additional (i.e., translocated) tortoises to the parcel. To ensure a net conservation benefit, credit offset ratios will be greater than 1:1. For example, at least two compensatory credits may be necessary to offset one credit of impact. Under the current market design, a gopher tortoise habitat credit is perpetual to mitigate the permanent loss of habitat at the impact site. The credit price includes funds to manage and monitor the gopher tortoise habitat in perpetuity, along with a negotiated profit margin for the seller.
- The habitat credit is pre-compliance, meaning that it is generated before the species is listed as threatened or endangered. This feature benefits buyers because the cost of a habitat credit may be more expensive once the species is listed, because offsetting impacts would then be mandatory and reactive. This feature benefits landowners because it helps to finance management practices needed to conserve longleaf pine forests, such as prescribed burns and invasive species removal. In addition, pre-compliance habitat credits result in broader environmental benefits by providing more incentives for conserving forests and compensation for actively managing for tortoise habitat, reducing the likelihood that the tortoise populations will further decline and become listed.
- The USFWS approves the crediting methodology and maintains agreements with buyers and sellers. The USFWS may also provide federal-level assurances or certainty to both the buyer and seller. This regulatory certainty allows buyers to preemptively buy gopher tortoise habitat credits that can be used toward offsetting future impacts, if needed, under a scenario where the eastern population of the gopher tortoises is listed under the ESA. The USFWS could also provide assurances to the seller against any future regulation for net conservation actions undertaken that go beyond the habitat credits sold.

For the initial pilot project, the U.S. Army is interested in promoting increased gopher tortoise management on private lands in Alabama and Georgia to offset potential future negative impacts on gopher tortoise populations.



Source: *The U.S. Army's photostream (Flickr)*
Training exercise at Fort Benning, GA, in longleaf pine forests and gopher tortoise habitat.



Source: *Todd Gartner*
Translocated gopher tortoise in Florida.

The Army Species At Risk (SAR) policy memorandum specifically identifies the gopher tortoise as a priority species. The SAR policy encourages proactive management efforts for gopher tortoises and their habitats before federal protection under the ESA is necessitated and further encourages installations to capitalize on partnerships and agreements when managing for such species. Army bases are concerned that listing could result in a net loss of mission training land. Installations have the authority to work with partners to protect and restore habitat outside the installation if those activities are deemed beneficial to sustaining the installation's military mission (Gopher Tortoise Team, 2009). The need for military readiness and training flexibility on installations and develop-

ment pressure around military bases are some of the forces driving the need for innovative solutions and partnerships.

Although still in the development phase, range-wide application of the candidate conservation marketplace, in combination with other efforts, may help preclude the need to list the eastern populations of gopher tortoises due to the potential increase in acres that would be managed for the species and its habitat.

INSIGHTS TO DATE

The gopher tortoise candidate conservation marketplace's experience to date highlights a number of insights and lessons learned for other organizations and agencies that seek to develop market-based approaches for candidate species. These lessons fall into the three core elements of a functioning market: demand, supply, and transactional infrastructure.

DEMAND

Without demand, supply will not materialize, and transactional infrastructure is superfluous. Following are some candidate conservation marketplace insights for generating demand:

- **Regulatory certainty is crucial.** The purchase of gopher tortoise habitat credits will be purely voluntary; however, the primary incentive driving demand is regulatory certainty. Robust demand in a pre-compliance marketplace will only materialize if developers receive certainty that the USFWS will approve credits for successful conservation measures and that those credits are usable even if the species is listed. Otherwise, there is limited incentive for early mitigation action for anticipated future impacts.

Discussion is ongoing regarding which legal and policy mechanisms are most appropriate for the USFWS to provide regulatory certainty, especially as it relates to a federal entity, and if those authorities currently exist. The USFWS may be able to provide these regulatory assurances through an ESA section 7(a)(4) conference opinion, which would outline an approved crediting methodology and the landowner's post-listing obligations. The USFWS could then convert the conference opinion to a biological opinion if the species is listed, provided there are no material changes in the agency action or the status of the species (USFWS, 2011d). Modified candidate conservation agreements with assurances (USFWS, 1999) and/or modified habitat conservation plans (USFWS, 1998) may also be appropriate mechanisms for the USFWS to provide regulatory certainty to nonfederal actions.

In addition to the ESA at the federal level, many states have their own regulations, assurances, and protections associated with declining species. Advanced mitigation will only be attractive if regulatory certainty is aligned at the federal and state levels.

- **Early mitigation makes sense.** Early pre-compliance action and mitigation saves time and money by identifying and implementing preapproved conservation measures and outcomes, identifying willing sellers, increasing flexibility in meeting conservation needs, and simplifying the regulatory compliance process and associated paperwork. These benefits help developers avoid the potential for costly project development delays and litigation since they front-load much of the ESA review process and potentially give entities greater regulatory certainty. Understanding and communicating these benefits to potential buyers will help make the business case for advanced mitigation. Additionally, early action engages project developers in solution-oriented efforts that may avoid or minimize impacts and help preclude the need to list species.
- **Focus on major buyers.** An advanced mitigation marketplace will be most appealing to entities that anticipate reasonably large impacts to species and habitats over the foreseeable future. Identifying these buyers early on in the process and helping them understand the risks they may face if species become listed is an important first step in lining up potential investors in habitat credits and identifying feasible market opportunities. Credit purchasers may not know the details of the development project they will pursue after a species is listed. In approving agreements, the USFWS should describe the types of impacts that can be offset using credits. Early efforts to understand the needs and concerns of potential major buyers will also be useful during the development phases of the marketplace. Major buyers may include the Department of Defense, federal and state departments of transportation, wind power developers, and oil and natural gas developers.

SUPPLY

Following are some candidate conservation marketplace insights for catalyzing sufficient supply of forestland that provides gopher tortoise habitat credits:

- **Understand what landowners want.** To achieve landowner engagement at a meaningful level, it is critical to understand landowner perspectives, desires, and concerns. Landowner focus groups and survey research are useful to identify a

program design and payment and incentive structure that can be incorporated into the development of an actual conservation marketplace. The survey should ask private landowners to indicate their preferences for hypothetical conservation programs that vary based on program length, potential profit, payment options, level of administrative control, obligation to the candidate species if it becomes listed, requirement for a permanent conservation easement, and benefit to the species itself (Sorice, 2011). The marketplace must be designed so that landowners perceive having candidate species on their property as an asset as opposed to a liability.

- **Invest in parcel prioritization and woodland owner education.** Not all parcels of land are suitable for a habitat crediting system. Investment by market developers, natural resource agencies, and conservation groups in spatial prioritization analysis is desirable to identify parcels that will provide the greatest conservation benefit to the species and habitat of concern. Once identified, investment is needed in outreach and education to the landowner community through landowner workshops and management handbooks. Important topics to address include the process for becoming an eligible seller of habitat credits; land management activities; the type of technical assistance available; how the market is compatible with different types of production (e.g., timber operations); and the costs, revenues, and risks associated with selling credits.
- **Up-front financing may be necessary.** Private landowners may need initial financing to cover up-front costs associated with land audits, management plan development, prescribed burning, easement costs, and the funding of non-wasting endowments associated with long-term maintenance and monitoring reserves. Revolving lines of credit, habitat performance bonds, program-related investments and other structured transactions are mechanisms to finance initial costs, which can later be repaid once credits are sold (Yale Center for Business and the Environment, 2011).

TRANSACTIONAL INFRASTRUCTURE

In addition to demand and supply, a market needs efficient transactional infrastructure if it is to be robust. Here are a few insights from the gopher tortoise pilot experience on this aspect of market development:

- **Use a broker model.** Process complexity and transaction costs are major challenges of developing a marketplace for candidate species. While the USFWS may authorize the

use of conservation credits, the responsibility of many aspects of program development and implementation fall on the habitat credit seller and/or buyer. Therefore, a broker model may be an appropriate way to create efficiencies and economies of scale. An independent nonprofit organization, for instance, could serve as a market broker. The broker would facilitate the buying and selling of gopher tortoise habitat credits. The broker could also manage the financial transactions, provide liquidity in the market, and manage the risk of potential default of habitat credits. The broker would also be responsible for the verification and monitoring of the credits, although it may contract these duties to local technical assistance organizations. The broker would maintain relationships with investors and the easement holders of the land that is producing credits; the former may provide short-term debt for financing up-front costs to maintain liquidity in the market. The broker would be paid through a percentage of credit sales and provide value with respect to scalability, accountability, and streamlining the implementation of the market. Broker models are often used in emerging carbon markets (Carbon Broker, 2011) and biodiversity banking schemes in Australia (Ecosystem Marketplace, 2011).

- **Balance precision with practicality.** In any market-based biodiversity conservation program, the crediting and debiting method needs to establish clear linkages between conservation activities (e.g., controlled burning and invasive species control) and desired outcomes, such as species or habitat conservation. This is the only way to generate habitat credits in a fashion that creates a net conservation benefit that is scientifically sound and verifiable. Depending on the biology of the species and the details of the program's objectives, a credit may be more species-based or more habitat-based. It is important to develop the crediting methodology based on scientific principles and extensive stakeholder engagement and to build on existing regional conservation documents such as candidate conservation agreements and state wildlife action plans.

However, the precision of the crediting methodology must be balanced with the practicality of implementation at scale. Candidate status provides a window of opportunity and flexibility to experiment with new approaches to preclude formal listing. Simplicity and repeatability are critical. A balance must be struck to avoid spending more time and money measuring indicators than the benefits realized.

CONCLUDING THOUGHTS

The gopher tortoise candidate conservation marketplace is testing an innovative approach to provide financial incentives and technical assistance to private landowners who manage their woodlands for habitat and candidate species. Initial pilot transactions are intended to take place in 2012. Interest in candidate conservation incentive programs, most notably focused on the lesser prairie chicken and greater sage grouse, is rapidly growing in the private, public, and nongovernmental organization sectors as changes in land use across the country spark new challenges in balancing ecosystem management with residential and commercial development, national security, energy infrastructure, and climate change issues. Although still in the development stage, insights from this pilot could inform the successful design and implementation of other candidate conservation incentive programs leading to healthier forests and ecosystems throughout the United States.

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ENDNOTES

1. A keystone species is a species that has a disproportionately large effect on its environment relative to its abundance. Such species play a critical role in maintaining the structure of an ecological community, affecting many other organisms in an ecosystem and helping to determine the types and numbers of various other species in the community (Paine, 1995).
2. The USFWS, state wildlife agencies, Department of Defense, private landowners, and local conservation groups.
3. The methodology used to develop the system is based on scientific principles and extensive stakeholder engagement and is built upon existing regional conservation documents, including the Candidate Conservation Agreement for the Eastern population of the gopher tortoise (Gopher Tortoise Team, 2009), 2009 guidance for conservation banking in the gopher tortoise's listed range (USFWS, 2009) and Georgia's State Wildlife Action Plans (Georgia Department of Natural Resources, 2005) covering critical species and habitat. The program also integrates with the Range-Wide Conservation Plan for Longleaf Pine (Regional Working Group for America's Longleaf, 2009), thereby broadening the number of stakeholders committed to ensuring success.

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