Outside-the-Market Valuation of Ecosystem Services
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Ecosystem services encompass the suite of resources and process perpetuated in natural systems that benefit humankind. These services can be thought of as assets obtained from nature. They include such things as the production of fresh water, the prevention of disease outbreak, the pollination of crops, the maintenance of biodiversity, and outdoor recreational opportunities.

Some of the ecosystem services attributable to wildlife include pollination, seed dispersal, nutrient dispersal, and pest control. With >1,100 species worldwide, bats have representative species performing each of these ecosystem services around the globe! Forty-eight species of bats are present in the United States, with 13 species considered year-round residents in Florida.

With the exception of a few uncommon bats in the Keys, all resident bats in Florida consume insects. Due to their small size and high metabolism, bats have exceptionally high energetic demands. Thus, each bat must consume large quantities of insects each night. The large quantity consumed per bat per night, coupled with the tendency of many bat species to congregate in large groups, leads to the ability of bats from a single roost site to have a substantial impact on the abundance of insects nearby.

The Brazilian free-tailed bat is common throughout Florida and typically lives in very large congregations. Recent research in South Georgia has demonstrated that these bats consume many of the insect pests that afflict pecan groves, suggesting that bats may play a role in IPM on pecan farms.

Researchers have estimated the economic value of the pest control services provided by free-tailed bats in Texas. DNA tests have confirmed that these bats regularly consume the corn earworm moth during the early part of the growing season in this state. Experts estimate that approximately 100 million bats occur in an eight-county region of south-central Texas, and these bats can consume 4 billion corn earworm moths per night. These bats have the potential to reduce the need for 1 or 2 insecticide applications each year, which could reduce costs by $19/acre on conventional cotton fields and $35/acre on transgenic cotton fields (costs reported in 2007). The total financial contribution of the bats was determined by estimating the value of the cotton crop that would have been lost if bats were not present, plus the cost of insecticides that would have been needed if bats had not consumed any insect pests, plus the social and environmental costs saved by the reduced use of insecticides. The value of the pest control services bats provide for cotton producers in south-central Texas was estimated to be $741,000 per year. Similar estimates have not yet been made in the Southeast.

Although cost estimates are not yet available for the ecosystem services provided by bats in Florida, it is clear that bats serve as valuable allies to humans by consuming enormous quantities of night-flying insects, many of which are pests to humans and to crops. Pest control by bats, related to forest health in Florida, has also not yet been explored. Because Brazilian free-tailed bats frequently live in man-made structures, this species could be attracted to areas where additional pest control services are desired. Furthermore, because this species tends to live in large groups and tends to feed on numerous important agricultural crops, it is likely they could have substantial impacts when incorporated into integrated pest management (IPM) strategies. Article reprinted with permission from http://nfrec.ifas.ufl.edu/outside_the_market/Bats.shtml. To learn more about Dr. Holly Ober go to http://nfrec.ifas.ufl.edu/contact/HollyOber.shtml.
Long-term effects of fire and fire-return interval on population structure and growth of longleaf pine (*Pinus palustris*)


We investigated the effect of fire and fire frequency on stand structure and longleaf pine (*Pinus palustris* P. Mill.) growth and population demography in an experimental research area in a southwest Florida sandhill community. Data were collected from replicated plots that had prescribed fire-return intervals of 1, 2, 5, or 7 years or were left unburned. Experimental treatment burns have been ongoing since 1976. Plots were sampled to estimate species distribution, stand structure, and longleaf pine density in four developmental stage classes: grass, bolting, small tree, and large tree. Tree-ring growth measurements in combination with burn history were used to evaluate the effects of fire and fire-return interval on basal area increment growth.

Fire-return interval impacted stand structure and longleaf pine population structure. Our results suggest that recruitment from the bolting stage to later stages may become adversely affected with very frequent fires (e.g., every 1 or 2 years). Although adult tree productivity was negatively impacted during fire years, tree growth during years between fire events was resilient such that growth did not differ significantly among fire-return intervals. Our study shows that the longleaf pine population as a whole is strongly regulated by fire and fire-return interval plays a key role in structuring this population.

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**CFEOR Workshop!**

**Tour of Florida Scrub Jay Habitat Restoration Sites and Florida Goldenaster Reintroduction Sites**

**Sponsor:** Southwest Florida Water Management District

**Date:** October 14, 2010

10am - 2pm at the Edward W. Chance Reserve- Gilley Creek Tract in Parrish, FL

**Objective:**
The workshop is a tour of Florida scrub jay habitat restoration sites and the reintroduction sites of the Florida goldenaster at the Edward W. Chance Reserve/ Cordell Tract and Gilley Tract.

**Program description:**
The Cordell tract offers the opportunity to observe a large colony of perforate reindeer lichen and reintroduction sites for the narrowly distributed endemic Florida goldenaster which will be in flower at the time. Restoration efforts in the Gilley creek tract focus on reestablishing scrub jay habitat in fallow agricultural fields that will expand an existing population of the Florida scrub-jay, currently listed as threatened in the state and in the U.S., as well as a host of other species that depend on scrub communities. The hydrology of the site will also be restored to the extent possible. These efforts will enhance the property’s natural communities and improve water quality.

**Tour is free and open to the public, members have priority registration.**

Bring a bag lunch and field boots.

4X4 vehicle recommended.

**Click Here to Register!** Registration closes October 12th, 2010.
Upcoming Events

- The Wildlife Society 17th Annual Conference - October 2-6, 2010 at Snowbird, Utah. The TWS Annual conference is the largest gathering of wildlife professionals and students in North America and provides a great opportunity to learn about the latest research and techniques in wildlife management and studies. To register go to [http://store.wildlife.org/scriptcontent/Conference.cfmsection=unknown&product_major=UT10&functionstartdisplayrow=1](http://store.wildlife.org/scriptcontent/Conference.cfmsection=unknown&product_major=UT10&functionstartdisplayrow=1)

- Changing Roles Webinar Series: Green Infrastructure, Forest Cooperatives, Climate Change, and Ecosystem Goods and Services. Offered September 20th through October 15th, 2010. This 4-part series introduces the concepts in the Changing Roles new module 5 “Emerging Issues”. Session speakers include experts and practitioners speaking from their experience, citing relevant research findings, and discussing hot topics and best practices. Case studies and exercises will offer insights into strategies. Webinar is for natural resource professionals who want to learn more about wildland-urban interface issues and strategies. Earn CEU’s! To learn more go to [http://www.interfacesouth.org/products/changing-roles/changing-roles-webinar-series-2010/](http://www.interfacesouth.org/products/changing-roles/changing-roles-webinar-series-2010/)

- Natural Areas Training Academy Presents Managing Visitors and Volunteers in Natural Areas October 19-21, 2010 at the Gold Head Branch State Park, Keystone Heights, FL. This workshop provides comprehensive guidance for managers on the issues associated with successfully integrating visitors and volunteers into the work of natural areas management. This workshop is relevant for natural areas managers who work in remote wilderness preserves as well as for those managers who work in parks and preserves with more intense visitor use. Registration is open at [http://nata.snre.ufl.edu/registration.htm](http://nata.snre.ufl.edu/registration.htm).


CFEOR Mission:
To develop and disseminate knowledge needed to conserve and manage Florida’s forest as a healthy, working ecosystem that provides social, ecological and economic benefits on a sustainable basis.