

# FOREST STEWARDSHIP BRIEFINGS

Timber ◇ Wildlife ◇ Water Quality ◇ Soil Conservation ◇ Best Management Practices ◇ Recreation ◇ Aesthetics

## CARBON CREDITS - WHAT ARE THEY?

by Eric Taylor, Texas AgriLife Research and Extension, Overton, TX; Burl Carraway, Texas Forest Service, College Station, TX; Darwin Forster, Texas AgriLife Extension, Lufkin, TX

For more information:

- <http://texasforestservicetamu.edu/uploadedFiles/Sustainable/enviro/TCEA%20Carbon%20Credits%20for%20Landowners.pdf>
- <http://texasforestservicetamu.edu/main/article.aspx?id=2366>

Carbon dioxide (CO<sub>2</sub>) is one of several greenhouse gases (GHGs) recognized and monitored by the U.S. Environmental Protection Agency (EPA).

Natural sources of atmospheric CO<sub>2</sub> such as volcanic activity, wildfire and the respiration processes of plants and animals are by far the largest sources of emissions. There is concern, however, over the increase in CO<sub>2</sub> in the atmosphere caused by man-made sources - burning of fossil fuels for heating, power generation and transport and from the rate of deforestation due to urbanization and other land use changes.

The U.S. has joined international efforts to limit greenhouse gases through voluntary initiatives and is committed to reducing national GHG emissions by 18% by 2012. As a result, there is growing interest at the state, regional and federal level to establish CO<sub>2</sub> cap-and-trade mechanisms and to develop voluntary registries (official records or listings on specific subjects).

A carbon cap-and-trade market might work as follows. A business entity such as a manufacturing company must purchase the right to emit or be allocated a specific amount of the total allowable CO<sub>2</sub> emission or "cap" established by the government. This is called an emission allowance. While the manufacturer must comply with this allowance, there is a certain degree of flexibility in how it complies.

An entity has the options to:

- Reduce point emissions,
- Use alternative energy sources with lower or no emission (e.g., solar, wind, etc.),

- Purchase offset credits from another entity that has reduced its emissions below the allowance, or
- Purchase offset credits from carbon sequestration projects that sequester (fix) atmospheric carbon.

### Why Forests?

Forests are great at sequestering carbon. In fact, U.S. forests sequester 200-280 million tons of carbon per year. This currently offsets 12% of the U.S. GHG emissions resulting from human activity. Plants remove CO<sub>2</sub> from the atmosphere through the process of photosynthesis and store the carbon in plant tissue.

### How Can I Sell My Carbon?

First, you need to identify a Carbon Aggregator in your area, through which you can register carbon credits from your property. Next, you'll need to meet basic requirements for eligibility. Possible requirements could be: 1) You have planted pine on open land since January 1, 1990; 2) You've maintained a minimum of 250 trees per acre; and 3) You've enrolled your land in the American Tree Farm System, the Conservation Reserve Program, a long-term forest conservation easement, or transferred ownership of the land to a land trust or similar entity.

The next step would be to quantify your property's carbon sequestration potential by using look-up tables that list carbon accumulation coefficients, or by direct measurements in the field. Once properly enrolled, your credits will be available for sale through the Chicago Climate Exchange® (CCX). For more detailed information, go to articles listed in the sidebar.

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## HIRING AN IMPORTED KILLER

*from the High Plains/  
Midwest Ag Journal, dated  
11/21/07*

*For more information:*

- <http://www.hpj.com/archives/2007/nov07/nov26/Tinybeetleshowing-promiseinh.cfm>

When imported ornamental trees turn renegade, sometimes it takes an imported killer to chew them down to size. Texas Cooperative Extension (Texas AgriLife Extension) entomologists are using beetles from Greece to combat invasive saltcedar along the Pecos River in West Texas.

Saltcedar was first introduced from southern Europe and Asia in the 1800s for erosion control and as an ornamental. Unfortunately, it was far too adaptable. Now thick stands of rogue trees choke many of the state's environmentally sensitive western waterways, sucking up water to the exclusion of native vegetation and municipalities.

To help combat the program, Dr. Allen Knutson, Extension entomologist at Dallas, and Dr. Jack DeLoach, Agricultural Research Service scientist at Temple, successfully established a small population of saltcedar leaf beetles along a creek near Big Spring. Knutson said those beetles have since spread along five miles of the creek and defoliated 40 acres of saltcedar.

In 2006, Extension organized the Saltcedar Biological Control Implementation Program to release more beetles at sites in the Upper Colorado River Watershed and along the Pecos River.

Releases of beetles by Knutson's colleague Dr. Mark Muegge, Extension entomologist at Fort Stockton, at two sites on the

Pecos River have been especially successful. Beetles were released in mid-summer of 2006 and defoliated several trees before cold weather stopped them. Muegge said the adult beetles overwintered and began feeding and reproducing in April. Populations at both Pecos River sites increased and dispersed during the summer.

By mid-October, beetles had defoliated more than 500 saltcedar trees across about 90 acres along the Pecos River, said Muegge. "The rapid success at these sites demonstrates the potential these beetles have for long-term suppression of saltcedar on the Pecos River."

The saltcedar leaf beetle eats the trees' leaves, Knutson said. Without leaves, the tree can not manufacture food. Once defoliated, the saltcedar regrows new leaves which are soon eaten by another generation of beetles. After repeated defoliation, the trees slowly starve to death.

The Biological Control Implementation Program plans to establish saltcedar leaf beetles at other sites in the Pecos River watershed in 2008.

Muegge said research by U.S. Department of Agriculture scientists demonstrated that the beetles feed and reproduce only on saltcedars and do not pose a threat to any crop or native plant. Both adults and larvae feed on saltcedar leaves, but larvae eat more leaves.

## CHOPSTICKS-NOT JUST FOR EATING ANYMORE

*by staff writers, AFP, Tokyo, August 21, 2007*

*For more information:*

- <http://timberbuysell.com/Community/DisplayNews.asp?id=1370>

Japan will try to turn millions of wooden chopsticks that go discarded each year into biofuel to ease the country's energy shortage. Japan has virtually no natural energy resources of its own.

Each of Japan's 127 million people uses an average of 200 sets a year, meaning 90,000 tones of wood, according to data.

Disposable chopsticks have historically been a cash cow for Japan's forestry industry, which says it uses timber from thinning that would have otherwise been dumped.

But today, about 90 percent of chopsticks used in Japan are imported from China, mostly using bamboo and aspen timber.

## TFS-AN APPROVED CARBON VERIFIER

Texas Forest Service (TFS), well known for its role in protecting and sustaining the state's forest resources, has added a new dimension to its responsibilities - verifier of forestry offset projects for landowners seeking to sell their trees' carbon credits on the open market.

The agency was notified Nov. 2, 2007, by the Chicago Climate Exchange® (CCX®) of its application's approval, making TFS the first state forestry agency in the nation to become an Authorized Verifier for Forestry Offset Projects. The CCX® is currently the only market that trades forestry carbon.

Landowners are realizing that in addition to the value of the timber, the carbon

stored in their forests has economic and environmental value as well. In order to sell the carbon credits however, landowners must first go through a multi-step process, one of which is to quantify the amount of carbon stored in their trees.

"As a CCX-approved verifier, Texas Forest Service's role is to verify the quantity of the carbon stored in a landowner's forest stand," said Burl Carraway, manager of the TFS Sustainable Forestry Program.

The agency's new responsibility is part of its ongoing exploration into the emerging forestry ecosystem services arena and is an integral part of its mission to sustain the state's healthy forest resources for current and future generations.

*from TFS website*

*For more information:*

- <http://texasforestsERVICE.tamu.edu/main/article.aspx?id=3202&terms=Carbon+Credits>
- <http://texasforestsERVICE.tamu.edu/main/article.aspx?id=2366&terms=Carbon+Credits>

## FROM THE GUTS OF TERMITES . . .

An international team of scientists has sequenced and analyzed the genomes of the microbes found in termite guts. Termite guts harbor a gold mine of microbes that have now been tapped as a rich source of enzymes for improving the conversion of abundant biomass and wood to valuable next-generation biofuels.

The termite is a remarkable machine. It can digest a frightening amount of wood in a very short time, as anyone who has had termites in their house is painfully aware. Instead of using harsh chemicals or excess heat to do so, termites employ an array of specialized microbes in their hindguts to break down the cell walls of plant material and catalyze the digestion process.

Like cows, termites have a series of stomachs, each harboring a distinct community of microbes under precisely defined conditions. These bugs within bugs are tasked with particular steps along the conversion pathway of woody polymers to sugars that can then be fermented into fuels such as ethanol. The mandibles of the

insect chomp the wood into bits, but the real work is conducted in the dark recesses of the belly, where the enzymatic juices exuded by microbes attack and deconstruct the cellulose and hemicellulose, which, along with lignin, are the basic building blocks of wood.

Adapting these findings for an industrial-scale system is far from easy. Termites can efficiently convert milligrams of lignocellulose into fermentable sugars in their tiny bioreactor hindguts. Scaling up this process so that biomass factories can produce biofuels more efficiently and economically is another story. To get there, we must define the set of genes with key functional attributes for the breakdown of cellulose, and this study represents an essential step along that path.

These findings follow on the heels of the announcement by Dept. of Energy Secretary Samuel Bodman in 2007 that DOE will invest up to \$375 million in three new Bioenergy Research Centers to accelerate basic research in the development of cellulosic ethanol and other biofuels.

*from timberbuysell.com and biopact.com, dated November 22, 2007*

*For more information:*

- <http://biopact.com/2007/11/scientists-publish-genomes-of-termite.html>
- <http://www.timberbuysell.com/Community/DisplayNews.asp?id=1780>

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#### Editorial Board

- Rusty Wood, TPWD, Nacogdoches, Texas
- Joe Pase, TFS, Lufkin, Texas

## TAX AND ESTATE PLANNING

TAX AND ESTATE PLANNING CONFERENCE  
THURSDAY, FEBRUARY 28, 2008 - CONROE, TEXAS

#### *Topics to be covered:*

- Estate Planning Fundamentals
  - Property Gifting Options
  - Will and Trust Basics
  - Estate Tax Payment Relief Provision
  - Family Limited Partnership
  - Limited Liability Company
  - Special Use Valuation for Forest Land
  - Conservation Easements
  - Updates on Federal Income Tax on Timber
- 
- Registration begins at 8:30 a.m.
  - Presentations from 9:00 a.m. until 4:00 p.m.
  - \$50 per person; additional family or business member(s) \$20 each - workbook not included
  - Location: **City of Conroe Service Center**, 401 Sgt. Ed Holcomb Boulevard South
  - Go to <http://texasforestservicetamu.edu/main/popup.aspx?id=3262> or contact John Warner, TFS, at (936) 273-2261



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