

Special Offer: Subscribe to the Monitor and get 32 issues RISK-FREE!

THE CHRISTIAN SCIENCE MONITOR  csmonitor.com

World USA **Commentary** Work & Money Learning Living Sci/Tech A & E Travel Books The Home Forum

[Home](#) | [About Us/Help](#) | [Archive](#) | [Subscribe](#) | [Feedback](#) | [Text Edition](#) | [Multimedia](#)

Search:

A dirty way to fight climate change

A promising strategy: Store carbon in the soil.

By Steven I. Apfelbaum and John Kimble

from the November 29, 2007 edition

 [E-mail](#)  [Print](#)  [Letter to the Editor](#)  [Republish](#)  [del.icio.us](#)  [digg](#)

Brodhead, Wis.; and Lincoln, Neb. - Switch to compact fluorescent light bulbs and plant a tree – these are the most popular strategies for mitigating climate change today.

Yet world leaders gathering for the climate-change summit in Bali, Indonesia, next week should consider an alternative. It's one of the most overlooked yet most effective and inexpensive strategies available: Store carbon in the soil.

This is one way the earth has managed carbon since it began. The earth's soil contains the second-largest quantity of carbon, where it has been the most stable and least vulnerable to fires and climate changes. (The largest amount is dissolved in oceans.)

Planting trees sounds like a flawless solution: Trees absorb carbon, after all. But it can actually be quite harmful, even dangerous. Soil needs "riches" such as carbon, organic matter, and mineral nutrients, and they come in

Commentary **Environment** Sci/Tech



Column
A Muslim belongs in the Cabinet

« Muslims are uniquely qualified to help deter Islamist

threats.

[More commentary](#)

part from the "litter" left by plants that grow and die annually on the land. By planting trees in soils that were created by other, more productive plants (e.g., prairie and wetland plants that used to occupy some of today's farmland), less litter is produced. That means less carbon and organic matter are contributed to the soil, causing it to deteriorate.

In some areas, planted trees can dehydrate the soil. They can also release nitrogen and phosphorous in runoff that enters rivers, lakes, and estuaries and hurts water quality. More worrisome, some forested areas are becoming more vulnerable to wildfires, because changing precipitation patterns and the associated drying effects are creating a tinderbox. These changes appear to be resulting in bigger and more frequent fires (e.g., very recently in California).

Ecological lesson No. 1 is that we should plant trees only where the soils will benefit from it.

The corollary, lesson No. 2, is not to plant trees where inappropriate, for example, in farmland that used to be wetlands and grasslands. Native, deep-rooted plants should be grown in those areas instead, since they enrich the soil – with carbon, among other things – more quickly.

Lesson No. 3 is that, in the face of drought and increased wildfires, rebuilding soils is a safer strategy for storing carbon.

There are two ways to do this. First, restore conservation lands – which are not used for farming – with deep-rooted grassland or wetland plants, which sequester carbon more effectively than trees do. Second, rebuild America's soil systems in farmland, where the soil's riches have been depleted by intensive growing of crops. Few farmers are going to give up their livelihood to fill their land with grassland and wetland plants. But they can still help increase carbon soil through techniques such as "no-till" farming, in which farm-seeding equipment inserts crop seeds into slits cut into the soil. Tillage farming, by contrast, involves plowing and disrupting the soil, which releases carbon.

Most-viewed stories

(for 11/29/2007)

Ashfaq Kayani: the new man with the baton in Pakistan

(11/29/2007)

Greenpeace blasts Nintendo in e-waste report

(11/28/2007)

A Muslim belongs in the Cabinet

(11/27/2007)

Ancient Greenland mystery has a simple answer, it seems

(11/28/2007)

After Annapolis, hurdles for Israeli and Palestinian leaders

(11/29/2007)

Monitor Services

- **Subscribe**
- **Treeless Edition**
- **Give a gift subscription**
- **Free sample issue**
- **Search the Archives**
- **Monitor Mall**
- **Receive our free e-mail newsletters:**
Enter e-mail address

Donate to the Monitor



**Your comments
are appreciated!**

Be Your Own Boss!

Start a franchise.
Find the right one.

Today's print issue



Enlarge page one

Scientific analyses show that recapturing atmospheric carbon into soil and plant communities is the easiest and least expensive method for mitigating climate change and that it provides many other economic, cultural, and ecological benefits. Restoring soils in currently farmed land can rein in 10 to 15 percent of the annual carbon emissions Americans create. Replanting native grasslands and restoring drained wetlands can reduce up to another 20 percent.

These techniques can also produce usable bioenergy crops, food, and fiber supplies. This enables energy, food, and commodities to be produced locally, thus reducing transportation and distribution costs and their associated carbon emissions.

Farmers have reported that no-till agricultural practices delivered savings in just 2 to 3 years and increased crop yields by 10 percent. It also reduced fossil-fuel use for farm machinery by 90 percent.

Because it leaves leftover plant matter on the land, no-till agriculture could add 1.3 inches of soil materials and organic matter per acre over the next 50 years. The many feet of new soil would be a sponge to hold back runoff and nutrients from entering rivers and lakes and hurting potable water supplies. It would also help reduce costly, damaging floods.

We need to follow nature's lead and put carbon where the earth has securely stored it for millions of years – in the soils. Among many other benefits, this will cleanse the atmosphere, taking a big bite out of the existing greenhouse-gas loads.

- *Steven I. Apfelbaum is an ecologist with Applied Ecological Services, Inc., in Brodhead, Wis. John Kimble is a retired soils scientist at the National Soils Laboratory in Lincoln, Neb. Both are contributing authors to the book, "Soil Carbon Management: Economic, Environmental and Societal Benefits."*

Get Monitor stories by e-mail:

(Your e-mail address will be protected by csmonitor.com's tough [privacy policy](#).)

USA



||) Huckabee rocks the GOP candidate image

ENVIRONMENT



||) Greenpeace blasts Nintendo in e-waste report

LEARNING



In US classrooms, 'tech sherpas' assist teachers with computers

Sponsored Links

Apparel

[T-Shirts Design Online](#)

Business Resources

[Business Cards](#)

Education

[MA in Diplomacy - Online](#)
[Student Loans](#)

Financial

[Car Insurance](#)
[UBS Canada](#)

Gifts

[Engagement Rings](#)

Graphic Design

[Logo Design - LogoBee](#)

Home Remodeling

[Home Renovation Guide](#)

Internet Services

[Internet Access](#)

Legal Services

[Find Lawyers](#)

Non-Profit Holiday Gifts

Real Estate

[Home Loans](#)
[Mortgage Calculator](#)
[Moving](#)
[Moving Companies](#)
[Real Estate](#)
[Toronto Condos](#)

Speakers Bureau

[Motivational Speakers](#)

Travel

[Hawaii Vacations](#)

Web Services

[Blog Web Hosting](#)
[Dedicated Servers](#)
[Domain Names](#)
[Email Hosting & Archiving](#)
[Website Hosting](#)
[Web Hosting iPowerWeb](#)
[Web Hosting Providers](#)
[Best Web Hosting](#)



[Home](#) | [About Us/Help](#) | [Feedback](#) | [Subscribe](#) | [Archive](#) | [Print Edition](#) | [Site Map](#) | [Special Projects](#) | [Corrections](#)
[Contact Us](#) | [Privacy Policy](#) | [Rights & Permissions](#) | [Terms of Service](#) | [Advertise With Us](#) | [Today's Article on Christian Science](#)

www.csmonitor.com | Copyright © 2007 The Christian Science Monitor. All rights reserved.

