



# Field Notes

## Kerr Center for Sustainable Agriculture E-Newsletter

*E-Field Notes*  
May 2019

This month David Redhage reviews a book with gritty **subject matter: sand.**

We share a study that documents **how grazing can build up organic matter in the soil.**

With summer looming, **you can still start a successful sweet potato crop.** The Kerr Center has several **free resources** to help.

We also hope you'll take a look at a new, free manual on **low-cost techniques for restoring creeks and streams.**

The Kerr Center works hard to spread **free, quality information** on sustainable agriculture. It still takes money to do that, though. Your [donations](#) help us keep it up. [Thank you!](#)

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# President's Note: Book Review: The World in a Grain of Sand

The book I am reviewing covers a topic you probably wouldn't consider important for sustainable agriculture unless it was part of your soil.

The book's title is [\*The World in a Grain: The Story of Sand and How It Transformed Civilization\*](#), by Vince Beiser. The basic message is how important sand is to modern life, and that we are running out of it.

It left me wondering about all those photos I have seen of the Sahara Desert in Africa, and all the sand. It turns out that windblown sand does not have the correct shape for use in concrete, and the grains are contaminated with other minerals, making it unsuited for use in glass.

So what do we use sand for? Concrete (cement + aggregate + sand), asphalt (petroleum product + aggregate + sand), glass, silicon for computer chips, fracking for gas and oil, and to rebuild beaches.

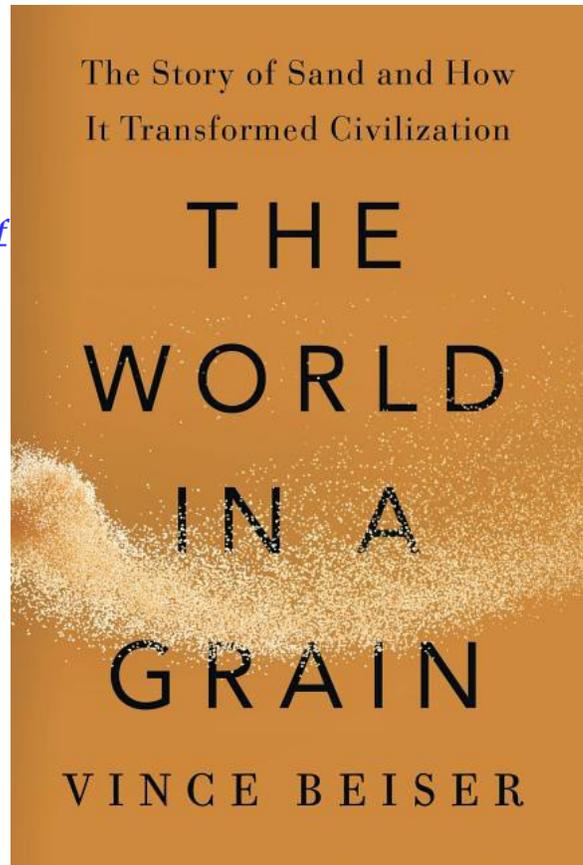
When you think of glass, realize that it's not just windows in houses or skyscrapers, but glassware in your kitchen, car windows, lightbulbs, smart phones, fiber optic cables, fiberglass insulation, computer and TV screens, microscopes, telescopes, and camera lenses. Computer chips require very pure silica sand, and it is found in only a few locations.

I thought the oddest use of sand was for rebuilding beaches. It turns out that modern coastlines with wharves and docks have prevented the natural deposition of sand along some coastal beaches, leading to beach erosion.

In Florida, some beaches are rebuilt every five to six years using sand mined inland and hauled to the beach. The sand must be deposited at the correct slope, and tested to make sure it is the correct size and shape, for sea turtles who come ashore to lay eggs.

We are using sand much more rapidly than in the past, and today's modern society is based on it. Agriculture relies on concrete for building foundations and warehouses. A processing house concrete floor can be washed down, promoting food safety. Computers and smart phones are very important to modern agriculture.

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# Cropland to Pasture: Banking Organic Matter in the Soil

One of the themes the Kerr Center emphasizes is the importance of [building and maintaining organic matter in soils](#), for the whole host of ecological benefits that it brings.

A new study has documented yet again how [transitioning old fields to rotationally grazed pastures](#) can boost soil organic matter - with a surprising twist.

It's been a quarter-century since White Oak Pastures, in Bluffton, Georgia, first converted old crop fields to pastures grazed by a mixture of species. They've kept at it the whole time since, so that the farm now consists of an assortment of pastures ranging from those original, now 25 year-old pastures, on down to those first grazed less than a year ago.



Soil samples collected across that range of pasture ages tell the story you'd expect. The newest pastures have the lowest soil organic matter levels, around 1%. **As the age of the pasture - and thus the time spent under grazing - goes up, so does the soil organic matter content.** The oldest pastures on the farm have soil organic matter levels of around 5%.

The surprising twist? A life cycle analysis, conducted by a commercial environmental research firm, found that the farm's **grazing practices are storing more carbon as soil organic matter than the entire production chain, from calving through slaughter, is emitting.**

In recent years, cattle have drawn environmentalists' ire for their greenhouse gas emissions. If this study's results hold up, though, it would show that in many cases grazing can help more than it hurts. A team of university researchers has reviewed the results and plans to publish them in a peer-reviewed academic journal.

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# Sweet Potatoes, A to Z

It's still not too late to get **sweet potato** slips in the ground - and the Kerr Center is your **one-stop informational resource** for all aspects of small-scale sweet potato production, especially if you're interested in [heirloom varieties](#).

We ran **three consecutive years of heirloom sweet potato variety trials** ([2010](#), [2011](#), and [2012](#)), trying to find out which varieties performed best in southeastern Oklahoma's soils and climate. One year, we even did a taste test!



After concluding the trials, we wrote up another report describing [which tools and techniques worked best at every stage of small-scale sweet potato production](#), from starting slips to harvesting to field curing.

To help keep all this information straight, we also have an [overview](#) document that **summarizes and links to all of our sweet potato resources**.

# Low-Cost Riparian Restoration

A **new, free design manual** can help landowners understand and implement **low-cost, low-tech stream restoration practices** on their farms and ranches.

**Traditional approaches** for restoring streams often involve **costly** fixes that change the shape of the waterway using **sophisticated designs and heavy construction machinery**.

While this "form-based restoration" is appropriate for certain areas, it's **too expensive to re-work all of the streams in need**.

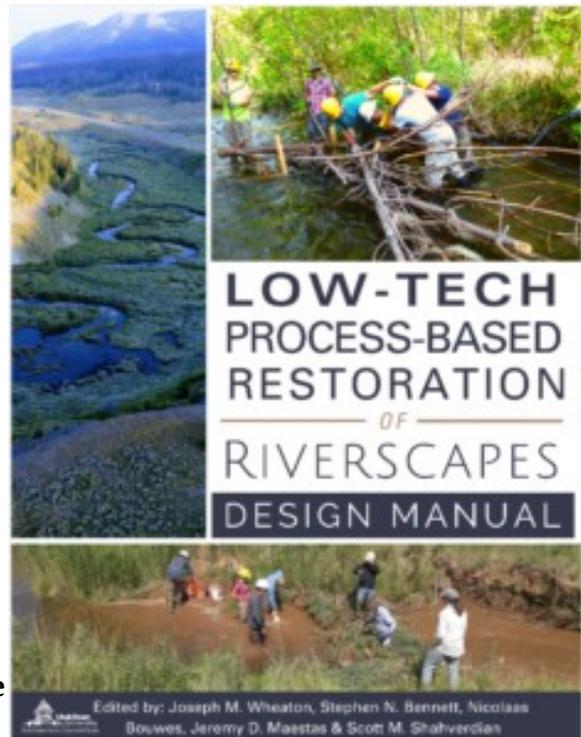
Luckily, **low-tech "process-based restoration"** is emerging as an **efficient and effective** way to **expand upon existing restoration efforts** and **restore more watersheds**.

This approach includes using low-tech tools - **simple hand-built structures made from natural materials that have short-term lifespans** - to initiate processes that allow nature to heal itself.

**Low-tech restoration projects usually cost a fraction of traditional approaches, so resource managers can treat more stream miles** using these methods. Also, the low-tech approach **gives land managers more options** to address the vast network of streams in rural headwaters, which typically don't receive the same attention as large waterways.

The manual is the result of a partnership between the USDA-NRCS, Pheasants Forever, and the Utah State University Restoration Consortium.

Download [Low-Tech Process-Based Restoration of Riverscapes](#).



# Late Spring Events: Monarchs, Soil Health, Compost, Elderberries

The tail end of May holds one more **monarch** workshop (Shawnee, May 29). Rolling into June, you can learn about **speciality crops** (Tyronza, AR, June 2), **soil health** (Ponca City, June 6) **compost** (Bladen, NE, June 12), and **elderberries** (Jefferson City, MO, June 13-15).

In addition, there are full details on many other upcoming sustainable agriculture events around the state and region on the Kerr Center's online [events calendar](#).

MAY 29 Wed	<b>Workshop: Monarch Butterfly, Importance of Pollinators @ Shawnee (Citizen Potawatomi Nation (CPN) South Reunion Hall)</b> May 29 @ 10:00 am	+
JUN 2 Sun	<b>Field Day: Specialty Crop Production @ Tyronza, AR (Whitton Farms)</b> Jun 2 @ 10:00 am	+
JUN 6 Thu	<b>Workshop: Simple Steps to Healthy Soil @ Ponca City (Pioneer Technology Center)</b> <a href="#">Edit</a> Jun 6 @ 11:00 am	+
JUN 11 Tue	<b>Tour the Kerr Center @ Kerr Center</b> Jun 11 @ 9:00 am	+
JUN 12 Wed	<b>Compost Boot Camp @ Bladen, NE (Webster County Fairgrounds)</b> <a href="#">Tickets</a> Jun 12 @ 8:30 am – 5:00 pm	+
JUN 13 Thu	<b>Comprehensive Elderberry Workshop @ Jefferson City, MO (The Carver Center)</b> <a href="#">Tickets</a> Jun 13 – Jun 15 <a href="#">all-day</a>	+

The calendar also serves as a reminder for the dates of **monthly Kerr Center tours**, which run all year round, every second Tuesday by appointment.

Don't forget that you can also use our online calendar to **keep yourself and your friends up to date** on these and other upcoming events, including our tours:

- **Subscribe to our feed** and receive **updates to your personal calendar** (Outlook, Google+, etc.) as they are made.
- **Share events on the calendar** via a number of **different social media sites**, including Facebook, Twitter, and Pinterest.

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