Field Notes

Kerr Center for Sustainable Agriculture E-Newsletter

E-Field Notes
October 2019

In this issue:

President's Note: Bird Populations in Decline

Sweet Sorghum Production and Processing - New Edition!

Fixing Farming's Carbon Footprint

Pollinator Resource Updates

Fall Events: Pollinator Habitat, Raised Beds, Early Conferences...

It's October: days shorten, the heat finally breaks, and spooky thoughts begin to seep in from the shadows.

Speaking of spooky, do you remember the old Hitchcock film, "The Birds"? Would it be even spookier to contemplate the alternative, "**No Birds**"? David Redhage summarizes new research findings that show **how uncomfortably close that's coming to reality**.

Another sign of fall is the sorghum harvest. This is a venerable tradition, both in the region overall and at the Kerr Center in particular. It's also very much a living one, though - and as such, **we've updated our classic manual, *Sweet Sorghum: Production and Processing***.

Back to frightening topics, the UN has released its latest estimate of **agriculture's contribution to global greenhouse gas emissions** - but the Rodale Institute is on the case, with **data-based recommendations for reducing farming's carbon footprint**.

If the shorter days have you looking for evening reading material, you might consider the **latest additions to our pollinator resource guides**.

Here's perhaps the scariest thought of all: how we'd continue making a positive difference for sustainable agriculture without your **contributions**. Please consider **donating** - and, if you already have, **thank you**!

President's Note: Bird Populations in Decline

In a recent issue of the journal *Science* (Vol. 365, Issue 6459), there is an article by Elizabeth Pennisi reporting on a recent study showing a **steep decline of common birds in North America**.

The study looked at bird counts from the 1970s, including the North American Breeding Bird Survey, the Audubon Christmas Bird Count, and the International Shorebird Survey. Aerial surveys over water, swamps and marshes were included.

The study covered 529 bird species, which is about three-quarters of all species in North America, and almost 90% of the bird population. The results indicate a **loss of 3 billion birds** over the time period.

This is also happening to the more common species, including sparrows, warblers, finches, and blackbirds. There is a chart showing losses per habitat, and **the hardest hit were grassland birds**, with a drop of 53%.

There are some bright spots. Waterfowl and raptor populations have increased over the same time period. I am including a link to the **article from Science magazine** and a link to the **Cornell Lab of Ornithology**, which includes a link to the full scientific study.

I find the study very concerning. I have written about the **decline in the monarch butterfly** and **decline in pollinator species**; there have been reports on the **decline in amphibians**; and now we have a study showing a dramatic decline in birds. **What is happening?**

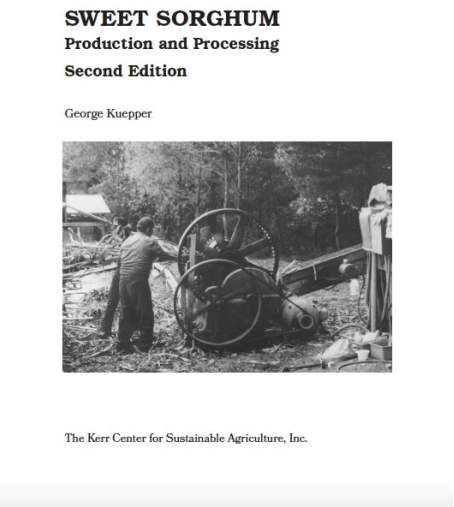
While we understand some of the root causes, like habitat destruction affecting wildlife populations, why are we seeing declines in birds that have adapted to urban landscapes?

Hopefully this will result in studies to more accurately identify the causes. The Cornell website gives some **actions individuals can take to help bird populations**.

I sincerely hope this will be a wakeup call to everyone on the effect we are having on our ecosystem, since we rely on it for our survival as well.

Sweet Sorghum Production and Processing - New Edition!

One of the Kerr Center's most enduringly popular publications, ***Sweet Sorghum: Production and Processing*****, is now available in an updated second edition**.



George Kuepper, the author of the original 1992 report, also penned the new edition.

Sorghum is a traditional crop throughout the southern United States and the lower Midwest. The name also refers to the sweetener made by boiling down the juice from the crushed stalks of the sorghum plant.

The Kerr Center published the original edition in response to the **resurgence of interest in small-scale sorghum syrup production**, and also to document and share the **Center's extensive experience with the crop**.

The **interest continues, and most of the original report's content remains useful and relevant**. However, **changing times have merited an update**.

"Though several aspects of the original manual are dated, the principles and practices described remain contemporary and relevant," writes Kuepper. "This led to our decision to keep the 1992 document intact, and provide updated information as appendices."

The updates include a section on **sugar cane aphids**, which emerged as a serious pest of sorghum in 2013. The report covers sugar cane aphid biology, and explains how to scout fields for it. It also details **both organic and non-organic approaches to managing this new pest**.

The second edition also explains **why many sorghum growers now prefer early deheading**, and describes several **sorghum varieties developed since the publication of the original report**.

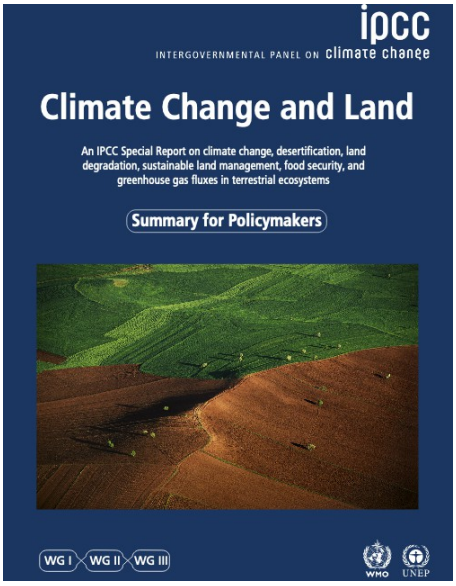
New lists of **sources of equipment, supplies, and seed**, as well as the bibliography, round out the second edition's updated content.

The new second edition of ***Sweet Sorghum: Production and Processing*** is available in both print ($18) and electronic ($10) formats from the Kerr Center website.

The Kerr Center's online library includes additional resources on sweet sorghum. The results of a **2008 heirloom variety trial** are available in report form. ***Farm Made: A Guide to On-Farm Processing for Organic Producers***, discusses sorghum syrup production as one of four potential value-added enterprises.

Download or order your copy of Sweet Sorghum: Production and Processing today!

Fixing Farming's Carbon Footprint



Agriculture contributes about a quarter of the world's total greenhouse gas emissions every year. That's the bad news from the **latest report** of the Intergovernmental Panel on Climate Change (IPCC).

Carbon dioxide (CO_2), the best-known greenhouse gas, only gets about 13% of its total from agriculture. However, according to the report, farming (including ranching, forestry, and related activities) accounts for higher shares of other greenhouse gases. **Agricultural activities pump out 44% of the methane** (CH_4) **and a whopping 82% of the nitrous oxide** (N_2O) that enters the atmosphere each year.

There is a **silver lining: soil**, on which all agriculture depends, **can soak up greenhouse gases**. In fact, it's **already absorbing nearly a third of the carbon** released to the atmosphere every year. Many **sustainable farming practices can increase this amount**. After all, the key to building soil is to add organic matter, and carbon is the stuff of which organic matter's made.

The forty-year old **Farming Systems Trial** at the Rodale Institute has demonstrated that **organic farming methods use roughly half the energy of conventional systems, and emit 40% less carbon**. The organic matter accumulated in organically farmed soils can limit the impact of drought - **with yields up to 40% higher than conventional fields during drought years**.

Organic farming systems make heavy use of **cover crops**, but cover crops can make a positive difference for soils' organic matter content whether used in organic or conventional systems. Likewise, no-till and minimal-till practices help soils hold onto their carbon, regardless of the management system. Adding **biochar** can also help lock carbon up in the soil

Farm fields aren't the only place where good management can help keep carbon in the ground and out of the air. Good **pasture management** can also contribute in multiple ways. Sustainable grazing management, leaving more residues to enter the soil, is one. Agroforestry is another.

Most of agriculture's N_2O emissions come from synthetic fertilizers, which are used more to grow grains than forages. As such, feeding cattle grass on pasture, as opposed to grain in feedlots, helps keep a lid on N_2O emissions. (Other research has shown that grass-fed cattle emit less methane as well.)

Sustainable farmers were using all these practices long before greenhouse gases became a concern. They're old solutions to problems both old and new, but in today's changing climate, they're more valuable than ever.

Pollinator Resource Updates

How recently have you checked out the Kerr Center's **pollinator resource guides**? Here are some of the **titles we've added most recently**:

- *Essential Native Trees and Shrubs for the Eastern United States*. Tony Dove and Ginger Woolridge. Imagine. 2018.

- *Monarchs and Milkweed: A Migrating Butterfly, A Poisonous Plant, and Their Remarkable Story of Coevolution*. Anurag Agrawal. Princeton University Press. 2017.

- *Oklahoma Native Plants: A Guide to Designing Landscapes to Attract Birds and Butterflies*. Conni Scothorn and Brian Patric. The Roadrunner Press. 2019.

- *The Solitary Bees: Biology, Evolution, Conservation*. Bryan N. Danforth, Robert L. Minckley, and John L. Neff. Princeton University Press. 2019.

- *The Sunflower Family: A Guide to the Family Asteraceae in the Contiguous United States*. Richard Spellenberg and Naida Zucker. Botanical Research Institute of Texas Press. 2019.

- *Wildflowers of the Atlantic Southeast*. By Laura Cotterman, Damon Waitt, and Alan Weakley. Timber Press. 2019.

- *Wildflowers of the Southeast*. By Jaret C. Daniels and Stan Tekiela. Adventure Publications, Inc. 2012.

These, and many other **high-quality reference guides**, are contained in our list of **native pollinator books**.

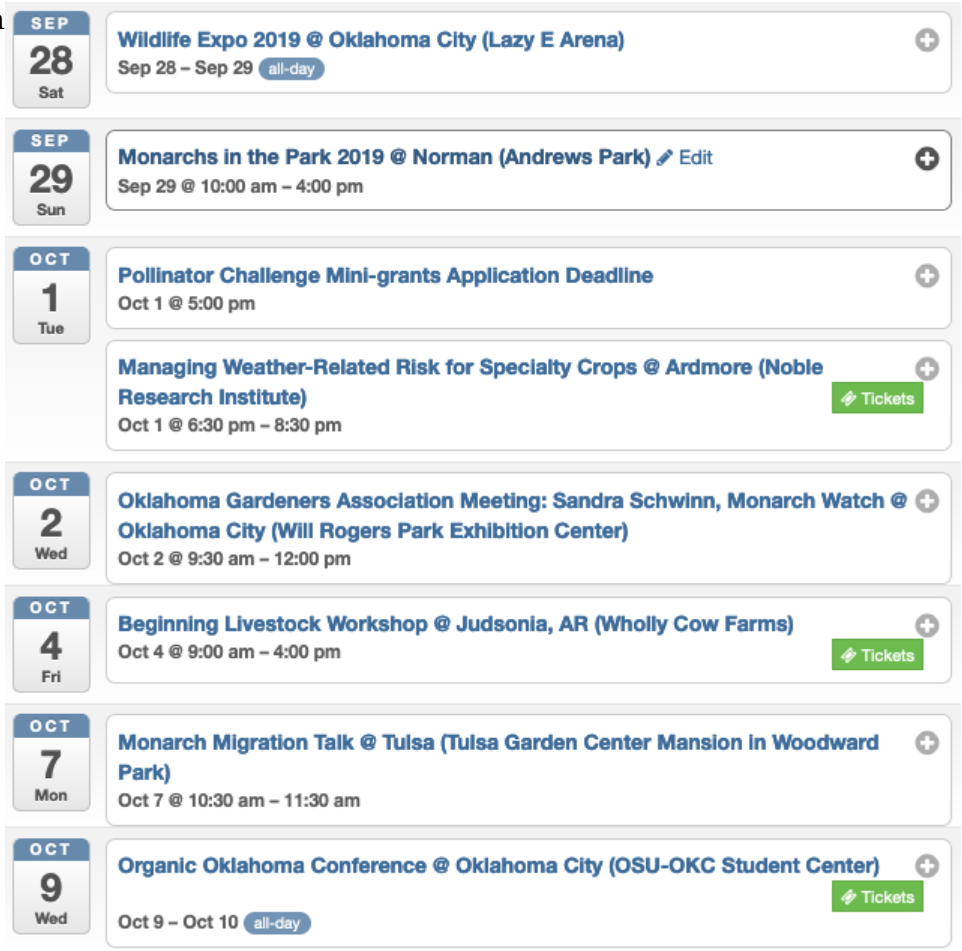
The master **resource list for native pollinators and plants** contains the entire book list, as well as compilations of resources in the following areas (each also available separately at these links):

- **internet resources**
- **native plant identification guides**
- **nurseries and seed sources**
- **pollinator plant landscaping guides**
- **pollinator plant propagation guides**

These, in turn, are only a fraction of the educational resources available in our online **native plant and pollinator library**. Happy reading!

Fall Events: Pollinator Habitat, Raised Beds, Early Conferences...

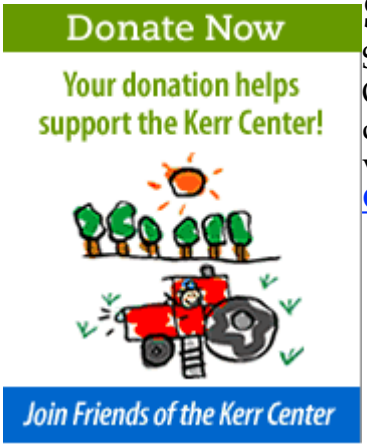
November's popping with **pollinator workshops**: **prairie land preparation** on the 16th (Oklahoma City) with a follow-up event focusing on **prairie seed and hay** on the 23rd. November 23rd is actually a triple whammy - you can also learn about **insect hotels** (Oklahoma City) or **raised beds and container gardens** (Ardmore).



Conference season also gets rolling in November, with the **Kansas Rural Center's annual conference** (Nov. 8, Wichita, KS) and Holistic Management International's **Regenerate 2019 conference** (Nov. 19, Albuquerque, NM).

Full details on these and many other upcoming sustainable agriculture events around the state and region can be found on the Kerr Center's online **events calendar**.

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.



Support the Kerr Center

Since 1965 the Kerr Center has been reaching out to folks in Oklahoma and beyond. Today, the Friends of the Kerr Center help us continue this vital work! If you enjoy reading this newsletter or visiting our website, please consider **making a gift to the Kerr Center** today!

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