Field Notes

Kerr Center for Sustainable Agriculture E-Newsletter

E-Field Notes
October 2021

It's almost Halloween, and decorations designed to scare have popped up everywhere you turn. In keeping with the spirit of the season, here are some **frightening farming and ranching stories**:

Which of these would be the scariest?
You wake up one morning and...
a) all your **pastures have been stripped clean of forage** overnight by an unseen invader,
b) there are **no bumblebees left**,
c) all your **topsoil has washed away**.

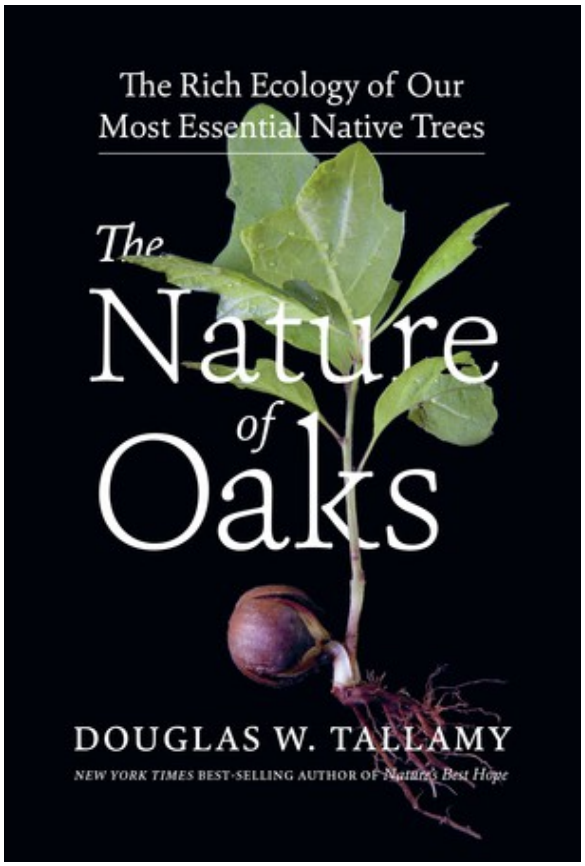
Unfortunately, the correct answer is coming uncomfortably close to "all of the above" - and, unlike spooks and goblins, these stories are all true. In this issue, we're taking a look at **the reality behind each of these frightening headlines**, and some **steps you can take to turn them around**.

In this issue:

Not so much scary as just flat fascinating are oak trees. David Redhage explores their ecology in this month's president's note.

One of the scariest things we can imagine is that you decide not to **donate to the Kerr Center!** Please continue to show your support with your generous contributions - and if you've already given, **thank you!**

President's Note: Oak Trees



I have always been interested in **forestry**. One major component of the forests I grew up with and see here at the Kerr Center Ranch are **oak trees**. To say they are an important part of the forest ecosystem would be an understatement.

Oaks provide mast for wildlife, and, historically, indigenous people used oak mast as a food source. We use oaks for durable, long lived shade trees around our homes, and the lumber is excellent (depending on the species) for furniture.

I read a recently published book entitled ***The Nature of Oaks***, by Douglas Tallamy. The book is broken into chapters based on the months of the year, and explores how insects, birds, and other wildlife use the oak trees in our landscapes and forests throughout the year.

One thing I learned was how many caterpillars overwinter in the bark of oak trees. The birds you see going up and down the bark in the winter are searching for those overwintering caterpillars! A chickadee's diet in the winter can be 50% insects. So, many of the birds who visit your bird feeder in the winter still need insects - which oak trees provide habitat for - as part of their diet.

Another component of food production provided by oaks is, of course, acorns, or mast. It is important for some birds as well as squirrels, deer, and turkey. I have been asked if fertilization increases acorn production in oak trees, and the surprising answer is no - based on **research from Tennessee**.

Continue reading....

Famished Fall Armyworms Feasting on Forage

Fall armyworms (*Spodoptera frugiperda*) are on the march, as many farmers and ranchers have learned to their dismay over the past several weeks, finding fields of healthy crops or tall stands of forage eaten to the ground literally almost overnight.

The rapid onset of the devastation owes to the fall armyworm's growth pattern. In the final 2-3 days of its growth, an armyworm larva eats 80% of the vegetation consumed in its entire development. Also, of course, they march - hence their name - moving across the landscape in search of more food.

The unusually widespread nature of the destruction this year stems from a combination of weather conditions that favor armyworms' reproduction, with both a milder winter and a wetter summer.

While the armyworm may seem unstoppable, there are steps that can be taken to **prevent its spread**, and **limit the damage** where it overcomes those. First, early detection is key. **Regular monitoring** can reveal the presence of the pest before their numbers or developmental stage reach the threshold of economic damage.

Should that threshold be reached, a variety of conventional insecticides are available to combat armyworm infestations. However, as the next article highlights, those chemicals often have devastating spillover effects on non-target organisms. Some organic pesticides are also effective against armyworms, though these, too, must be applied with caution.

Continue reading....

American Bumblebee Becoming Endangered?

While armyworms are stripping fields and pastures of crops and forages across the south, another invertebrate - the iconic **American bumblebee** (*Bombus pensylvanicus*) is undergoing a **drastic population decline**.

Over the past 20 years, the American bumblebee's **population has dropped by 90%** nationwide. The trend is most extreme in the northeastern part of the country. The species is now considered extinct in four states in that region - Maine, New Hampshire, Rhode Island, and Vermont - with a 99% decline in New York. However, the problem is more widespread, with the bees also extirpated from Idaho, North Dakota, Oregon, and Wyoming,

That's according to data from a **petition** submitted to the U.S. Fish and Wildlife Service by the Center for Biological Diversity and the Bombus Pollinator Association of Law Students, asking the agency to consider the species for endangered status.

In response, the agency conducted a 90-day review, and found that the bee's situation merits an additional year-long study, at the end of which endangered status could be conferred.

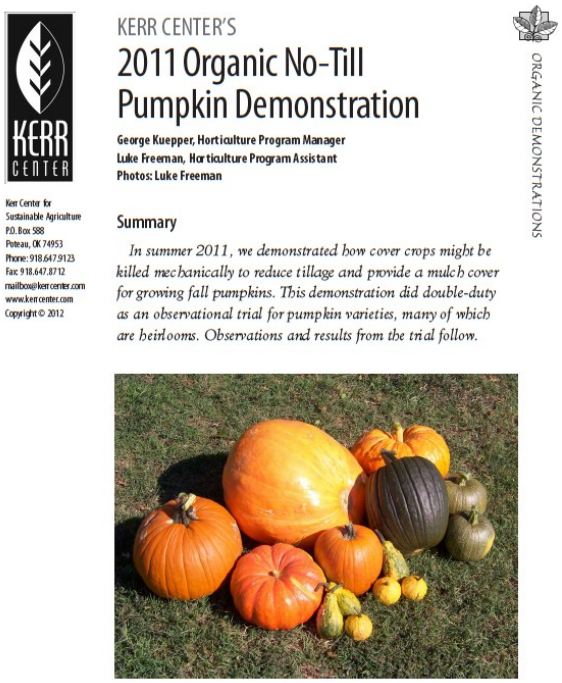
Several different causes have been proposed to explain the decline - from **habitat loss** to **disease** to competition with **invasive species**. If the usual trend in ecology holds, the answer will likely turn out to be "all of the above." However, **the largest population declines have taken place in the states with the largest increases in pesticide use**, including neonicotinoids (**neonics**).

In the southeastern and midwestern regions, the situation is less dire, with population declines of "only" around 50%. **Oklahoma has lost roughly a quarter of its American bumblebees** over the same period.

For Oklahomans interested in keeping this once-common bee off the endangered list, the recommendations are straightforward: **don't spray the stuff that kills the good guys**, and **plant more habitat**. The Kerr Center's **online pollinator library** is full of **resources to help you**!

Which Pumpkins to Pick?

Want to know which heirloom pumpkin varieties make the spookiest jack-o'-lanterns? We may not be able to help with that. However, we do have a report documenting the results of an **heirloom pumpkin demonstration**.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2011 Organic No-Till Pumpkin Demonstration

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Photos: Luke Freeman

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Summary

In summer 2011, we demonstrated how cover crops might be killed mechanically to reduce tillage and provide a mulch cover for growing fall pumpkins. This demonstration did double-duty as an observational trial for pumpkin varieties, many of which are heirlooms. Observations and results from the trial follow.

ORGANIC DEMONSTRATIONS

The demonstration used **six heirloom pumpkin varieties** - Cinderella, Howden, Jack Straw, Big Max, New England Pie, and Old-Fashioned Tennessee Vining - and the report contains observations on the performance of each.

Perhaps even more interestingly, the pumpkins in the demonstration were grown in an **organic no-till** system on the Cannon Horticulture Plots.

With conventional herbicides prohibited, organic farming traditionally relies on mechanical cultivation for weed control - but that leaves the soil surface more exposed and disturbed, creating more opportunities for erosion. No-till systems, by contrast, keep the soil much better covered - but typically use synthetic herbicides to terminate the cover crops.

This demonstration used a **specially developed roller** to **mechanically terminate warm season** cover crops to prepare the pumpkin beds for planting - **keeping weed pressure down while protecting the soil**. The report summarizes data on the **three summer cover crops - crotalaria, sesbania, and pearl millet** - used in the demonstration.

These were also evaluated relative to one another as part of the demonstration, with observations including **extent of regrowth following mechanical termination**, and **effectiveness for weed control**.

The **report is available free** in electronic format from the Kerr Center's **online horticulture library**.

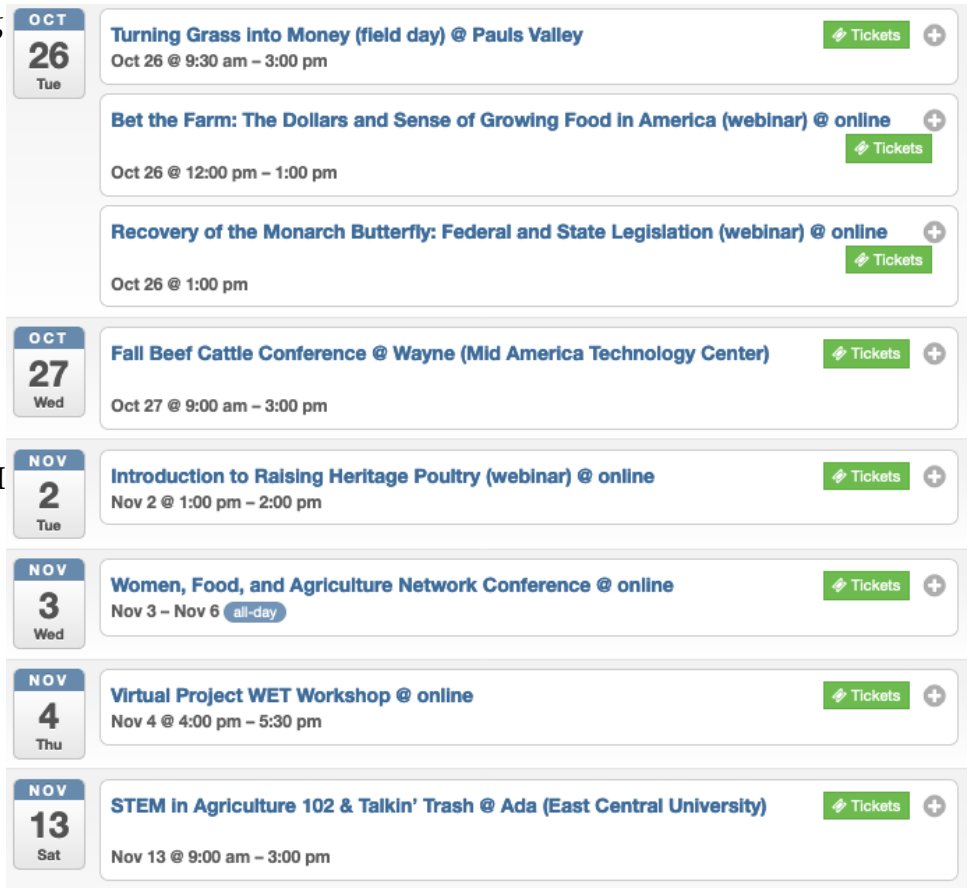
Download *2011 Organic No-Till Pumpkin Demonstration*

Fall Events: Grazing, Farm Transitions, Monarchs, Soil Health, Heritage Poultry, Women in Ag....

October 26 has something for everyone, with a **regenerative agriculture field day** (Paul's Valley), plus **webinars** on **farm transitions** and **laws pertaining to monarch butterflies**.

Other upcoming **in-person** events include a fall **beef cattle conference** (Oct. 27, Wayne) and ECU's **STEM in Agriculture** workshop (Nov. 13, Ada).

Online, you can learn about **raising heritage poultry** (Nov. 2), and attend the **Women, Food, and Agriculture Network Conference** (Nov. 3).



Full details on these and other sustainable agriculture learning opportunities, as always, 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** 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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