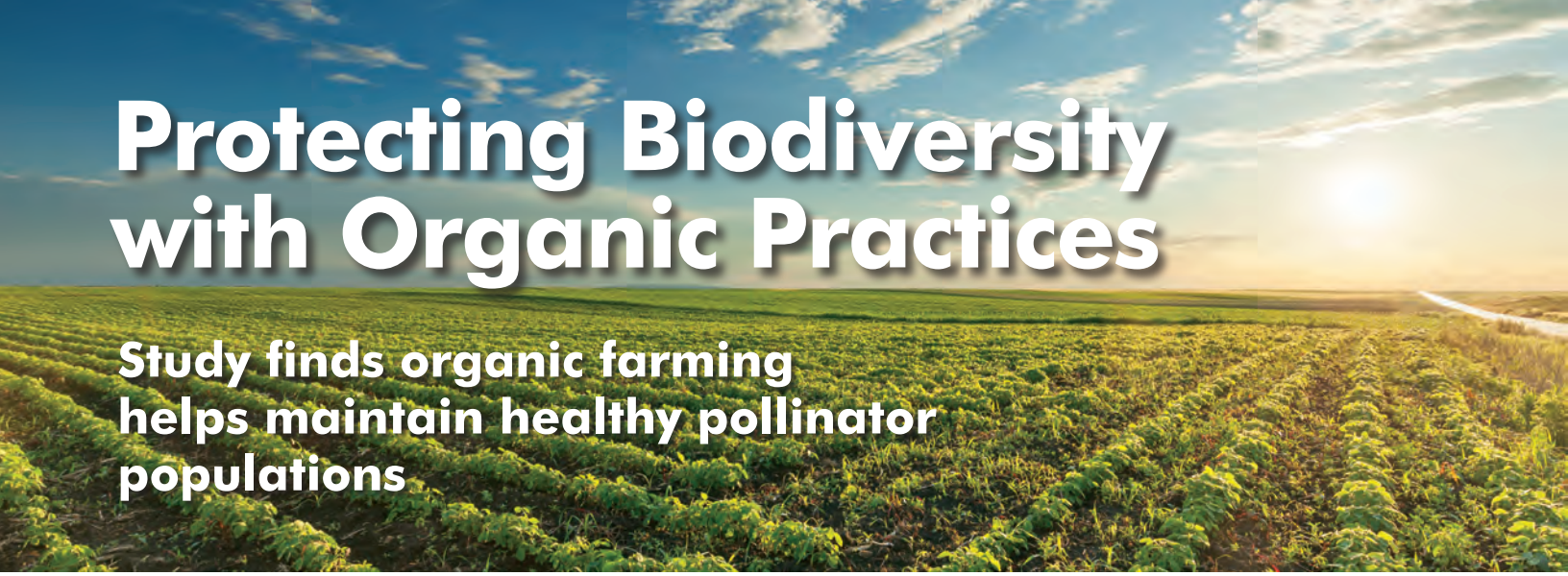

Protecting Biodiversity with Organic Practices

Study finds organic farming helps maintain healthy pollinator populations

Healthy, stable populations of bees and butterflies are best preserved in farm fields that are certified organic, according to an extensive, three-year study conducted by Swedish researchers at Lund University. The research, *Organic farming supports spatiotemporal stability in species richness of bumblebees and butterflies,* published in September, 2018 in the journal *Biological Conservation,* highlights the benefits that organic farms provide pollinators by improving floral resources and forgoing the use of toxic pesticides. The data continues to support the need for a broadscale conversion to more sustainable organic practices in the U.S. and internationally.

ORGANICS PROTECTS SPECIES RICHNESS

The study adds to the existing body of literature on the subject, including a meta-analysis that compared biodiversity on organic and conventional farms, *Land-use intensity and the effects of organic farming on biodiversity: a hierarchical meta-analysis (Journal of Applied Ecology,* 2014). The study found that, "On average, organic farming increased species richness by about 30%." According to the authors, "This result has been robust over the last 30 years of studies and shows no sign of diminishing. Organic farming had a greater effect on biodiversity as the percentage of the landscape consisting of arable fields increased, that is, it is higher in intensively farmed regions."

"[The Swedish study] is the first large-scale study over the course of several years to show that organic farming has a consistent, stabilizing effect on pollinator diversity," says Romain Carrié, PhD, a postdoctoral researcher at the Centre for Environmental and Climate Research.

Researchers recorded observations of bumblebees, butterflies, and flowering plant species at ten organic and nine conventional farms throughout Sweden for three years. Farms were compared across type, including cereal fields, temporary grasslands, and semi-natural grasslands. The study observed the spatio-temporal aspects (continuity of the number of different species in space and time) of pollinators and flowering species in these fields.

FLORAL, BEE, AND BUTTERFLY DIVERSITY

Results of the study found that, overall, organic farms had and sustained a higher rate of floral, bee, and butterfly diversity than conventional farms. The continuity of flowering species had the most significant impact on the number of bee and butterfly species observed by researchers. "This strongly suggests that both flower-enhancing management options and a reduced use of insecticides can help reverse pollinator declines," Dr. Carrié concludes.

A 2011 study, *Assessing the effect of the time since transition to organic farming on plants and butterflies (J Appl Ecol)*, found that a transition from conventional to organic farming rapidly improves the number of plant and butterfly species on a farm. In addition, a study published in 2012, *Organic Farming Improves Pollination Success in Strawberries (PLOS One),* found that organic farming practices improve the pollination success of strawberry farming.

DRAMATIC DECLINE IN INSECTS

Recent research has found dramatic drops in overall insect abundance, with leading entomologists identifying steep declines in insect populations. Various studies have found reductions of up to a factor 60 over the past 40 years—there were 60 times as many insects in some locations in the1970s. Over 75% of insect abundance has declined over the last 27 years, according to research published by European scientists last year in *PLOS One*. "We appear to be making vast tracts of land inhospitable to most forms of life, and are currently on course for ecological Armageddon," study coauthor David Goulson, PhD of Sussex University, UK, told *The Guardian*. "If we lose the insects then everything is going to collapse."

Meanwhile, the U.S. Environmental Protection Agency continues to allow the use of synthetic herbicides in a manner that kills off floral diversity and pollinator habitat, and systemic insecticides, which kill bees directly as the treated plants take in the insecticide and express it in pollen, nectar, and guttation droplets that the plant produces. In the U.S., only roughly one percent of farmland is certified organic, while the rest subjects pollinators and the plants that depend on them to regular chemical contamination.