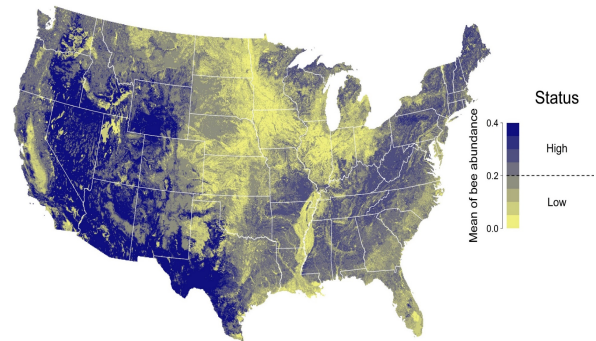


National Analysis of Wild Bee Population Highlights Areas of Concern

Wild bees help pollinate many of our most nutritious crops, support natural ecosystems, and contribute over \$3 billion to the U.S. economy each year. However, there is concern about the plight of these important insects due to widespread declines of some species. Implementing strategies to reverse these declines is critical for the long-term sustainability of agriculture and ecosystems, but that cannot be done without knowledge of the pollinators' current status. This issue has gained national attention: this year the White House released a National Strategy to Promote Pollinator Health, which emphasized the challenge of understanding the status and trends in pollinator populations, including wild bees.

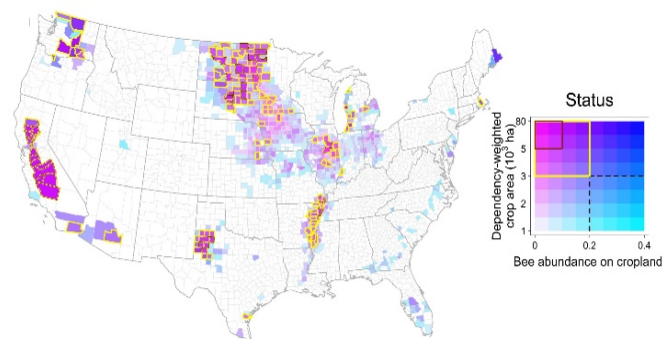
A new study by Insu Koh and colleagues links land use information and bee ecology to provide the first national analysis and associated maps of the estimated abundance of wild bee populations. The report highlights regions of the U.S. where wild bee populations are predicted to be abundant, and those where the lack of habitat provides for much lower abundance. It also reveals counties with pollination 'mismatches' where the supply of bees is predicted to be low but where crop pollination demands are high.



Map of the relative predicted abundance of wild bees.

By contrasting U.S. land use patterns in 2008 and 2013, the researchers explore how land use changes have likely affected wild bees. Decreases in grassland and pasture acreage through this period, largely due to increased corn production, led to a predicted loss of wild bee abundance across 23% of the U.S. (not including Alaska and Hawaii). These declines are concentrated in intensively managed agricultural regions that are also most dependent on the pollination provided by wild bees and honey bees.

The study also reveals that 39% of U.S. cropland that depends on pollinators faces a mismatch between rising demand for pollination and a falling supply of wild bees, which could negatively impact agricultural production. These are areas where specialty crop production (fruits, vegetables and nuts that require bees for pollination) is high or increasing, but where wild bee abundance is predicted to have declined. The researchers identify 139 counties in key agricultural areas, including California, the Pacific Northwest, and the upper Midwest, with the greatest expected mismatch between falling wild bee supply and rising pollination needs.



Highlighted regions with high demand for crop pollination by bees, but low predicted wild bee abundance.

The study highlights the following **policy implications**:

- **Counties with significant mismatch between crop pollination needs and wild bee abundance should be targeted for private and public habitat programs to support pollinators.**
- **Investment in monitoring programs is needed to understand future status and trends in wild bee populations and to reduce uncertainty about this in regions with limited information.**

MEDIA CONTACT:

Basil Waugh, Communications Officer, Gund Institute for Ecological Economics, University of Vermont, Tel: [802-656-8369](tel:802-656-8369), Email: bwaugh@uvm.edu.

BACKGROUND:

“Modeling the Status, Trends, and Impacts of Wild Bee Abundance in the United States,” by Insu Koh, Eric Lonsdorf, Neal Williams, Claire Brittain, Rufus Isaacs, Jason Gibbs and Taylor Ricketts. *Proceedings of the National Academy of Sciences* (2015). DOI: 10.1073/pnas.1517685113

The study, led by Insu Koh of the University of Vermont, included researchers from Franklin and Marshall College, University of California at Davis, and Michigan State University. Several researchers are members of the Integrated Crop Pollination Project, a USDA-funded effort that supported the study.

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