Exploring the Secrets of Native Seeds & Their Resilience to Climate Change

Growing Through Change: Sourcing Climate-Resilient Seed for Ecological Restoration

An aerial view of the 180-acre research project area at Grant Woods in Ingleside, Ill. (Photo ©Mike Borkowski)

LIBERTYVILLE, ILLINOIS, UNITED STATES, March 3, 2021 /EINPresswire.com/ -- The garden adage “right plant, right place” may be the latest tool in the toolbox for conservation ecologists and land restoration specialists working to help plant communities adapt to climate change.

“Research is necessary to learn how we can better preserve plant vitality and protect native ecosystems as climates change,” said Pati Vitt, Ph.D., manager of restoration ecology with the Lake County Forest Preserve District in Libertyville, Ill. “Growing plants from native seeds that adapt to change across typical provenance boundaries can foster resilience.”

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>
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Across the country and around the globe, climate change is influencing the health of native plants, impacting the resiliency of natural communities, and bringing uncharted technical challenges to land and habitat restoration initiatives.

“With warmer winters and more drought-prone summers, these changes have been gradual over the last 100 years and will greatly affect the next 100,” Vitt said. “We need to understand when and how to update our ecological management practices to ensure plants and native communities remain healthy and resilient.”

For her part, Vitt is leading on-the-ground research to determine if using source-identified seeds from more southern and distant regions is as, or more, successful than the standard purchasing practices often used by the growing industry to source native seeds. Findings from her work will

present timely opportunities for researchers, conservation ecologists, restoration specialists, plant breeders, seed producers and native plant growers specializing in commercial applications.

"Key findings will inform habitat restoration techniques and may have implications for other natural and planted areas," Vitt said. "Outcomes will also inform best practices for native plant growers and provide fresh marketplace opportunities for retailers and consumers."

The native seed mix spread here contains seeds sourced from southern Illinois and Kentucky. (Photo by ©Mike Borkowski)

At the heart of this project are 180 acres of retired Illinois farmland where, late last fall, a massive 800 pounds of native grass seeds from Kentucky and southern Illinois were planted. The land is located within Grant Woods Forest Preserve, about an hour northwest of Chicago in Ingleside, Ill. The large-scale planting followed more than a year of planning and preparation, which included hands-on habitat restoration and months of sourcing enough bulk native seed necessary to cover the acreage – a tricky challenge that Vitt sought creative ways to overcome.

Brush removal and cover crop plantings, followed by installation of native grass seed, were completed first, along with restoring the hydrological integrity of the agricultural land by disabling drainage tiles. Native grass seed now covers the former agricultural land, with one-third of the acreage planted in seed sourced locally. Two-thirds are planted in seed sourced from downstate Illinois and areas of Kentucky.

"A challenging issue for conservation organizations throughout the region, as well as restoration ecologists and others within the industry, is how we source seeds for restoration activities," Vitt said. To address the issue and learn from one another, a virtual workshop presented by the Lake County Forest Preserves last September drew 124 participants from across the Midwest and the broader United States, as well as Argentina, Australia, Canada and Germany. Of particular interest are the findings of a pre-workshop survey, which provided an overview of participants' bulk seed sourcing strategies.

"By far, the participants noted that most of their on-the-ground restoration projects were in natural areas, especially in forest preserves or conservation districts, state and regional park systems, and private conservation land trusts," Vitt said. "The scale of restoration projects varied from 1 acre to more than 100 acres, with an average size of 33 acres."

Most organizations said they currently use more than one source in their restoration projects

(67%) and tend to use more than one vendor or producer to source seeds for a single project (72% sourced from between one and three producers). While most organizations don't engage in a formal competitive bid process (63%), they do have formal guidelines or policies that direct their sourcing strategies (66%).

"But by and large, participants' sourcing guidelines for bulk seed do not currently consider climate resilience explicitly," Vitt said. "Only 33% of respondents said their guidelines do consider it. I think our workshop was successful in raising awareness among industry influencers who can help bring about change."

The workshop, "Growing Through Change: Sourcing Climate-Resilient Seed for Ecological Restoration" is available to view on YouTube at https://bit.ly/38j1q33. In addition to Vitt, notable speakers included Julie Etterson, Ph.D., professor at the Institute on the Environment at the University of Minnesota, Duluth, and principal scientist at Project Baseline, as well as Anna Bucharova, Ph.D., assistant professor in the Biodiversity and Ecosystem Research Group, Institute of Landscape Ecology, Münster, and Jennifer Ogle, coordinator of the Arkansas Native Seed Program and collections manager at the University of Arkansas Herbarium.

With a promising spring production season on the horizon, Vitt and her colleagues will continue to monitor the site closely, as they've done throughout the winter.

"We have 60 permanent monitoring plots in place for data collection," she said. "This will ensure that we have the best evidence possible for how plants from different sources of commercially grown seed will fare now and over the upcoming decades."

Support for the project is provided by the Preservation Foundation of the Lake County Forest Preserves, a private donor and the Wildlife Conservation Society Climate Adaptation Fund. Follow @LCFPD on social media and visit LCFPD.org to track the project's progress.

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