Ecoregional Revegetation Application

A New Tool for Locally Appropriate Native Plant Species Selection

www.nativerevegetation.org/era

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The Ecoregional Revegetation Application (ERA) is an online mapping and native plant selection tool that is being developed by botanists and others in the Federal Highway Administration and USDA Forest Service. It is scheduled to be completed in 2019. The goal of this tool is to aid restoration practitioners and land managers in selecting and sourcing appropriate native plant materials for various rehabilitation and revegetation objectives, including pollinator conservation through habitat creation.

As representatives of the native plant conservation community, we suggest that land managers, landscape designers, gardeners, horticulture professionals and others consult the ERA as part of research to identify locally appropriate native plant species when the project objective is to create healthy, sustainable landscapes that:

- Are safe, cost effective, and environmentally friendly
- Create high quality habitat for pollinators, birds and other native wildlife
- Require little or no water, fertilizer and herbicide inputs
- Buffer local climate and capture greenhouse gases
- Resist invasion by invasive and noxious non-native weeds
- Protect water quality and reduce sediment loading into water bodies
- Protect sensitive areas and support the health of surrounding ecosystems
- Recharge groundwater, reduce soil erosion and storm water runoff

The ERA identifies locally adapted native plant species within each of the 105 EPA level III ecoregions, with an emphasis on 'workhorse' pollinator-friendly plants to help develop projects that create robust native plant communities and pollinator habitats.

The ERA displays information on more than 40 attributes for each species (see list below), including shade, sun and drought tolerance, pollination, bloom period, color, showiness, and salt, pH and fertility tolerance.

The draft ERA plant species dataset was developed based on the best available scientific information and input by agency and university botanists, pollinator specialists, and ecologists throughout the U.S. The species dataset is a draft. It is being reviewed by natural heritage programs, agency botanists, native plant societies and other local experts for accuracy.

The ERA includes a Commercial Vendor Database to allow users to locate vendors where they can obtain the plant species identified by the ERA.

NOTE: Project species selection should include consultation with local native plant societies, botanic gardens, university botany departments, natural heritage programs, and/or other local botanical experts. This will help ensure that local environmental and biological variability within ecoregions is incorporated into project planning. For more details, see the POP UP message that appears when the ERA tool is opened.

Data Sources

ERA designers utilized Natural Resource Conservation Service data and state or regional species lists from transportation departments, state and federal agencies, and conservation groups to identify locally adapted native plant species. Their goal was to select 'workhorse' species that are resilient to climate change and other stressors, appropriate for disturbed sites that require rehabilitation or revegetation, and commercially available.

The ERA produces a list of recommended workhorse and pollinator-friendly plant species for each EPA Level III ecoregion in the continental United States. The data used to create these lists were vetted by botanical experts and gathered from reliable sources including the scientific literature, USDA PLANTS database, the USDA Agricultural Research Service pollinating insect unit, and the Xerces Society for Invertebrate Conservation.

For each plant species, the ERA displays attributes such as flowering season and preference for sun that determine whether a given species is a workhorse (i.e., whether the species is a reliable revegetation plant), or pollinator-friendly (e.g., supports larval or adult pollinators). For pollinator-friendly plant species, the ERA shows which general groups of pollinators the plant species will benefit. Moreover, the commercial vendor database indicates if a species of interest is commercially available and where to purchase it.

The USDA PLANTS Database provides the nomenclatural and distributional standard for this project, including plant names, distributions, and much ecological data. USDA PLANTS distribution data were augmented from existing herbarium sources for Iowa, South Dakota, and Oklahoma, and corrected to remove obvious cases of plants that have spread from their native ranges. These distribution data were then used to assign plants to EPA Level III ecoregions for the ERA online tool. For more information, see the section on Gathering Pre-Field Information in the ERA Manual.

For pollinator species specifically, in 2017 ERA developers compiled data on North American flower visitors and the plants they visit from a broad range of sources, primarily the scientific literature and museum specimens. Experts provided some non-referenced information. Pollinator data sources in approximate order of importance can be found at Pollinator Data Sources for the Ecoregional Revegetation Application.

All large databases contain mistakes; some useful native species may be nuisance plants or worse outside their native ranges. Further, plant distributions change, now faster than ever. Therefore, consultation with other data sources and local experts is necessary to ensure that

species selections are locally appropriate. For more details, see the POP UP message that appears when the ERA tool is opened.

The current dataset is a draft. It is being reviewed for local accuracy by botanists and ecologists in agencies, natural heritage programs, and other institutions. The dataset is expected to be updated as new data are received.

We hope that the ERA, combined with consultation with local botanists, will improve the quality and success of habitat restoration and creation in gardening, landscaping and land management projects throughout the U.S.

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Emily Roberson – Native Plant Conservation Campaign**
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Doug Tallamy – Bringing Nature Home**
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**for identification purposes only

Additional Resources

Native Plants for Roadside Revegetation Brochure
Native Revegetation Online Resource Library
Table of Commercial Native Plant Vendors
Ecological Revegetation Application website
Pollinator Data Sources for the Ecoregional Revegetation Application
Ecological Restoration Alliance of Botanic Gardens Resources

Plant Attributes Displayed in the ERA Application

Plant Type	Active Growth Period
Scientific Name	Hedge Tolerance
Common Name	Resprout Ability
Plant Family	Drought Tolerance
USDA Symbol	Fire Tolerance
Native Status	Palatability (Browsing/Grazing)
Distribution in USA	Propagation
Workhorse	Commercially Available
Flower Color	Pollinator Value
Showy	Benefits To Pollinators
Flowering Months	Pollinators
Height (feet)	Native Bees (except Bombus)
Lifespan	Bombus
Growth Form	Honey Bees

Shape and Orientation	Beetles, Wasps, Flies
Fall Conspicuous	Moths
Leaf Retention	Butterflies
Sun Exposure	Monarchs
Soil Moisture	Nesting and Structure (Bees)
Moisture Use	Larval Host (Monarch)
Soil Texture	Larval Host (Butterfly)
Salt Tolerance	Larval Host (Moth)
pH (Range)	Larval Species (Lepidoptera)
Fertility Requirement	Hummingbirds
Growth Rate	Bats
	Wind

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