

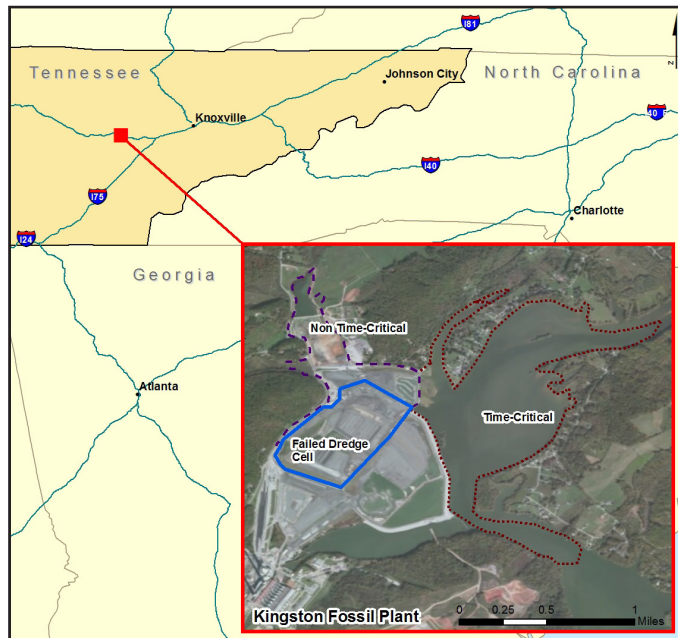


Supporting the Health of Pollinators: *Ecological Reuse and the TVA Kingston Ash Recovery Project*

Site Background

In December 2008, a containment dike surrounding part of a dredge cell at the Tennessee Valley Authority (TVA)'s power plant in Kingston, Tennessee collapsed, releasing about 5.4 million cubic yards of ash into the Emory River and other area waters. A byproduct of burning coal in power generation plants, the ash contained hazardous substances such as metals and radionuclides. Ash material contaminated surface water and sediment at the site.

Time-critical remedial actions – dredging, excavation and disposal of the ash and construction of a 13-mile-long containment wall – began immediately following the spill. Further non-time-critical actions by TVA then restored riparian and wetland habitat. Final restoration activities finished in April 2015. Long-term monitoring of natural resource impacts and restoration plantings is ongoing.



The Tennessee Valley Authority (TVA) Kingston Ash Recovery Project is located in Harriman, Tennessee. The project area, or site, includes TVA's Kingston Fossil Fuel Plant, which is located on the Emory River close to the confluence of the Clinch and Tennessee rivers.

Going Beyond Cleanup Requirements

TVA's ecological restoration efforts and community redevelopment activities went far beyond cleanup requirements. Ecological restoration focused on creating diverse natural habitats using native plants. These habitats connect to each other, providing a contiguous ecosystem that increases wildlife use and allows for recreation. The native plants provide much-needed habitat for pollinators. These areas are also now part of a highly valued community resource, the 32-acre Lakeshore Park, which provides a range of recreation and environmental education opportunities.

Ecological restoration can provide broader benefits as well, addressing liability concerns, informing operation and maintenance requirements, and lowering cleanup costs. Restored habitat can also help enhance remedies by reducing surface water infiltration; restored wetlands can be part of a site's stormwater controls.



TVA Kingston site, following ash release, December 2008.



TVA Kingston site, after cleanup and restoration, June 2012.

What Are Pollinators? Why Are They Important?

A pollinator is an insect or animal that moves pollen within or to another flower, fertilizing the plant. There are about 200,000 species of pollinators, including bees, butterflies, wasps, beetles, birds and bats. Many types of plants, including vegetable and fruit crops, require pollination to bear fruit. Recent declines in pollinator populations – and bees in particular – have raised concerns about the future of food supplies worldwide.

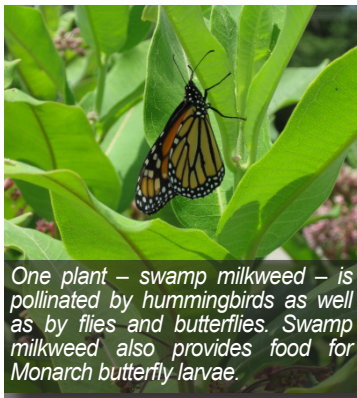
Restoring Native Trees, Plants and Wetlands

Ecological restoration at the TVA site included reforestation, restoration of the shoreline and wetland habitat, and reclamation of other disturbed areas. About 15 acres have been reforested, using over 40 types of trees. Plantings of hardwood trees and understory shrubs promote natural successional growth of hardwood forest.

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One plant – swamp milkweed – is pollinated by hummingbirds as well as by flies and butterflies. Swamp milkweed also provides food for Monarch butterfly larvae.

Providing Pollinator Habitat

Ecological restoration reestablishes habitat for pollinators. In addition to pollen and nectar, the habitat provides pollinators with the space they need to thrive. The reforested area at the TVA site includes basswood and maple as well as elderberry, pawpaw, redbud, serviceberry, sourwood, spicebush and staghorn sumac. Maple, serviceberry and sourwood attract bees. Basswood and elderberry attract bees, flies and moths. Pawpaw attracts beetles. Redbud, spicebush and staghorn sumac play important roles as host plants, providing food for the larval stage of butterflies. The native seed mixes included many plants that attract bees, beetles, butterflies and flies.

The use of native trees and plants as part of ecological restoration and reuse during efforts such as the Kingston Ash Recovery Project results in vibrant, healthy ecosystems, providing a haven for pollinators that supports their long-term health. Many federal cleanup sites are well suited to support a range of ecological reuses, including pollinator habitat.

What is EPA Doing to Protect Pollinators?

EPA supports the health of pollinators in many ways. Agency efforts include:

- Co-chairing the interagency Pollinator Health Task Force and development of a Strategy to Promote the Health of Honey Bees and Other Pollinators ([https://www.whitehouse.gov/sites/default/files/microsites/ostp/Pollinator Health Strategy 2015.pdf](https://www.whitehouse.gov/sites/default/files/microsites/ostp/Pollinator%20Health%20Strategy%202015.pdf)).
- Issuing guidance on how to minimize risks to pollinator health from pesticides and other chemicals.
- Convening summits and conferences to discuss pollinator health.
- Partnering with pollinator-focused groups such as the Wildlife Habitat Council, the Pollinator Partnership and the Monarch Joint Venture. For more information on EPA's Pollinator Partnership, visit <http://www.epa.gov/superfund/programs/recycle/activities/pollinatorpartnership.html>.
- Promoting the ecological reuse of Superfund sites and other areas, with special assistance and incentives for pollinator-friendly reuses.
- Recognizing the efforts of responsible parties and other stakeholders in supporting pollinator health.

For more information on EPA's support of pollinator protection and health, visit <http://www2.epa.gov/pollinator-protection>.

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