

Upper Mississippi and Illinois Rivers Floodplains Experience Widespread Loss of Forested Areas



Photo courtesy of USFWS Midwest Region

Longer periods of flooding, human modifications to the river, and other environmental changes contribute to the decline of floodplain forests.

What are floodplain forests?

Floodplain forests along the banks and islands of the Upper Mississippi and Illinois Rivers are subject to periodic flooding. Tree species native to floodplain forests, such as silver maple, swamp white oak, willow, northern pecan, boxelder, cottonwood, sycamore, river birch, and ash, are adapted to being temporarily underwater. These forests make up most of the vegetation in the rivers' floodplains.

Why are forests important?

In addition to providing rich habitat for wildlife and migrating birds, floodplain forests provide scenic recreational landscapes, valuable wood products, critical carbon storage, and improve water quality by filtering excess pollutants, sediment, and nutrients from water.



Photos courtesy of Larry Reis

Historic Forest Loss

The Upper Mississippi and Illinois Rivers have lost nearly one-half of all floodplain forests from 1891 to 1989 due to the expansion of agriculture and urban communities, poor forest management, and lock and dam construction in the 1930s and 1940s.

This loss reduced habitat quality and quantity and increased the amount of edge habitat. More edge habitat can increase pressure from invasive species, alter movement of plant and animal populations, make it difficult to manage forests on a landscape scale, and reduce available habitat for species that depend on large connected areas of forests.

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This is a summary of the long-term trends in floodplain forests observed via monitoring from 1989 to 2010 as reported in the [Ecological Status and Trends of the Upper Mississippi and Illinois Rivers](#).

Floodplain Forests are Still Declining

Floodplain forests have continued to decline since 1989. This decline may be in response to several factors:

- ▶ Longer periods of flooding that extend beyond the tolerance of native tree species have increased tree mortality.
- ▶ Dutch Elm Disease and attacks from insects such as the emerald ash borer have led to declines in elm and ash populations.
- ▶ Invasive herbaceous species, such as Japanese hops and reed canary grass, outcompete native tree seedlings for light, space, and resources, preventing regeneration in canopy gaps.



Photo courtesy of Stephen Winter, USFWS

Changing Hydrology Threatens Floodplain Forests

There is more water in the river more often with high flows lasting longer and occurring more frequently throughout the system. Floodplain forests are experiencing greater stress due to this change in hydrology, which is predicted to occur even more often as the climate shifts. This stress, combined with competition from invasive species, is expected to result in additional floodplain forest decline in coming years.



Photo courtesy of Andrew Stephenson, UMRBA

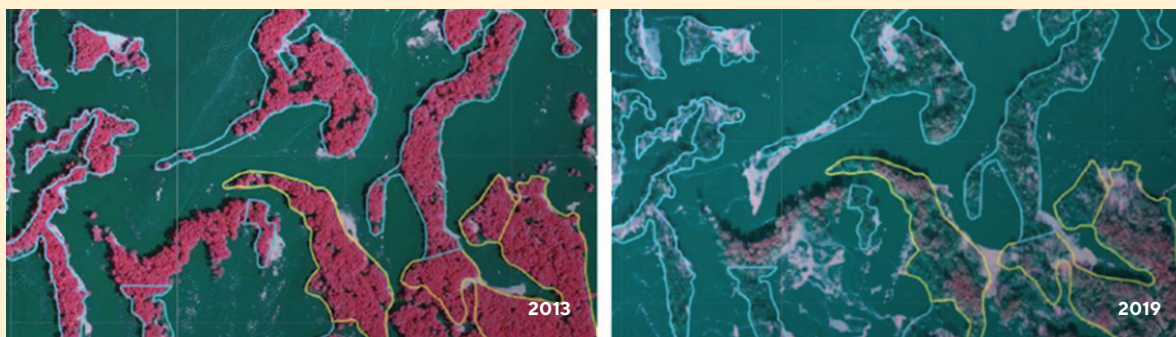
Restoring Our Forests

The Upper Mississippi River Restoration program (UMRR) and others monitor floodplain forests to assess the health of these areas and target habitat restoration projects. The restoration of these forests will ensure the river system continues to provide habitat for wildlife, including rare and endangered species, and connect human communities to the river.

Management practices include forest improvement work to promote natural regeneration, tree planting, chemical and mechanical treatments, and increasing land elevations to protect forested areas from high water.

Mapping the Future of Floodplain Forests

Partners who manage floodplain forests map these areas to assess the quality and quantity of habitat for wildlife that use floodplains as their homes or as migratory corridors. The maps below show impacts from the record 2019 flood and reveal additional floodplain forest loss in parts of the river. This recent flood event was not captured in the report.



To the Left: Aerial imagery of historic 2019 flooding reveals further impacts on the floodplain forest community. Infrared imagery shows the health of trees in the floodplain: live trees are red and dead trees are green. Outlines show a reduction in live trees of 50% in blue and 90% in yellow. *Photos courtesy of Andy Meier, USACE*