

Fire Ecologies

Study Units

[Iowa's Wildlife Habitats](#); [Wildlife Management](#)

Supplemental Information

Iowa is the perfect place to study the effects of fire on the landscape. Historically it was almost entirely (29 million acres or 83%) prairie habitat maintained in part by fire. Prairie plants are adapted to fire. Many are perennials with deep roots that grow back after a fire. Even prairie shrubs re-sprout after burning. Fire kills most woody plant species and many non-native plants. Resource managers use fire to kill invasive species and encourage native plants in prairie remnants.

Succession in a plant community can be defined as a process of changes in species composition of the community over time. Succession is ongoing. It is easiest to see after a disturbance in an area leaves open ground. This disturbance may be natural - fire, flood, storm, or glacier. Humans also cause disturbances by clearing land for agriculture or urban development.

There are many areas where fire has been suppressed and succession has changed the vegetation. For example, in the Loess Hills of western Iowa, red cedars now grow on the north and east slopes, shading-out the native prairie. These trees were killed in the past when fire periodically swept through the area.

Prairie reconstruction can be used as a habitat management tool. Reconstruction or restoration can include increasing the size of an area to support area-sensitive species like prairie chickens and northern harriers, clearing brush through prescribed burning or cutting, and removing trees. Enhancing prairies / grasslands reduces the cover used by edge predators (skunks, raccoons, red-tailed hawks) and improves the quality of the habitat for grassland animals.

Teaching Suggestions

The Neal Smith National Wildlife Refuge near Prairie City, Iowa, is an 8,000-acre prairie reconstruction and restoration project. Refuge managers and researchers keep records of burn planning, timing, and results. There is even a curriculum guide to enhance visits to the refuge (See the [Additional Materials](#) section).

Many local areas are managed with fire. See these links to [county conservation board](#) (CCB) or [Iowa Department of Natural Resources](#) (IDNR) contacts to arrange a field trip to a native prairie near you. Less than one percent of Iowa's native prairie remains intact, so the class may want to adopt-a-prairie and do more in-depth research at a particular site.

Many pioneer and Native American writings contain references to fire. Have students research some of these writings and compare and contrast the attitudes of the two groups toward fire in the landscape. See the [Additional Materials](#) section.



Evaluation

See the activity.

Student Materials

None

Teacher Aids

None

Additional Materials

- Kurtz, C. 2013. *A Practical Guide to Prairie Reconstruction*. Iowa City: University of Iowa Press. Available as [PDF downloads by section from Project MUSE](#).
- [Iowa's Prairies – Biological Communities](#) (PDF). Iowa Association of Naturalists publication with information on types of prairies, plants of Iowa prairies, wildlife of Iowa prairies, prairie ecology and more.
- Madson, J. 1982. *Where the Sky Began: Land of the Tallgrass Prairie*. University of Iowa Press. A [2009 revised edition of *Where the Sky Began* is available in PDF form from Project MUSE](#).
- [Project Bluestem](#). Neil Smith National Wildlife Refuge curriculum guide on prairies and savannas.
- United States Department of the Interior. 1986. *Interpretation and Compendium of Historical Fire Accounts in the Northern Great Plains*. USFWS Resource Publication 161. [Available as a Google Book from the Hathi Trust](#).
- US Forest Service [Living with Fire](#) simulation game—students become fire managers of a Ponderosa pine forest, making management choices and seeing the consequences; lesson plan and student worksheet.

