

## What is prescribed fire?

Prescribed fire, also referred to as a “controlled burn” or “prescribed burn,” is a highly calculated operation that ensures the safety of fire staff and the public while supporting natural processes that promote resilient and diverse natural communities. Each prescribed fire has a detailed burn plan prepared in advance that describes the ecological objectives, fuels, acreage, and precise environmental conditions. A prescription of specific weather parameters—temperature, relative humidity, and wind speed and direction—is used to identify precise environmental conditions ideal for targeted ecological goals. Through a collection of fire suppression equipment and burn breaks, fire is ignited within the boundaries of a burn unit. Fire staff is in constant communication and is under the authority and direction of an experienced burn boss orchestrating the event.



*Kelly Giles, Steeby Land Management Fellow ignites a strip fire on a growing season burn August 2021.*



*Institute burn crew and experienced volunteers.*

The Institute’s Stewardship Department facilitates prescribed burns on the Institute’s property, follows all local guidelines, and obtains all necessary permits. If you are interested in participating in or learning more about prescribed fire, contact:

**Mary Parr, Stewardship Manager**  
[parm@cedarcreekinstitute.org](mailto:parm@cedarcreekinstitute.org)

**Pierce Cedar Creek Institute**  
for environmental education

***CedarCreekInstitute.org***

701 W. Cloverdale Road, Hastings, MI 49058  
(269) 721-4190

**Pierce Cedar Creek Institute**  
for environmental education

## Prescribed Fire at Pierce Cedar Creek Institute



Fire is a natural process that historically occurred throughout North America. Fire-resilient natural communities and associated flora and fauna have very specialized relationships with fire and require it to maintain healthy populations. The Institute has several natural communities that rely on frequent fire including reconstructed prairies, savannas, prairie fens, and oak-dominated forests. Pierce Cedar Creek Institute’s staff, along with local professionals and experienced volunteers, perform prescribed burns to sustain and conserve these resilient natural communities on the Institute’s property.

## History

Fire is a natural process that historically occurred throughout the North American landscape. Lightning strikes and fire ignited by native peoples were primary sources for fire and enabled the existence of diverse natural communities. Native peoples used fire as a tool for many purposes including clearing brush, making land more passable, and increasing the productivity of berries and agriculture. Fire was especially used to attract grazers such as bison, elk, and caribou to the fresh nutritious regrowth for forage. The frequency of fire varied with topography, natural fire breaks, and the population of native peoples.



*Bison foraging on nutritious regrowth post fire.*

Once white settlers arrived in the 1800s, fires plagued newly established cities and resulted in historical tragedies. By the 1920s, fire suppression became a primary response nationwide to spare cities, causing profound ecological consequences in return. Suppressing naturally occurring fire regimes results in a build-up of fuels and establishment of dense woody species.

In the western United States, 100 years of fire suppression have resulted in severe wildfires, further augmented by drought and climate change. In the eastern United States, fire suppression has resulted in historically open lands transitioning into closed-canopy forests. As a result of dense canopy cover, shade-loving, fire-intolerant species like maples dominate and out-compete sun-loving, fire-tolerant species like oaks. The dense forest creates a cool, damp, and shady environment, further inhibiting fire presence. This transition of forest from fire-tolerant to fire-intolerant is called mesophication. Reintroducing fire through prescribed burns is one of the most useful tools in managing wildfires and degraded natural areas today.

## Fire Resilient Ecosystems

Fire is a natural process of disturbance essential in maintaining dynamic, diverse, and resilient landscapes. Natural communities of prairie, savanna, and forest were a constantly shifting mosaic across the land, the result of fire frequency and intensity over time. Frequent severe fire would cause prairie expansion while infrequent and low-intensity fire would result in woody plant and forest encroachment. Flora and fauna of these natural communities would move accordingly, creating an ever-changing environment.

## Fire Resilient Ecosystems cont.

Flora and fauna of fire-resilient communities have very specialized relationships with fire and often require it to maintain healthy populations. As fire rolls across the landscape, some healthy individuals may be damaged but will rapidly regenerate and recover, while weak or diseased individuals will not. This selective survival of healthy individuals promotes a robust and resilient community. Many species require fire for nutrient cycling, seed germination, stimulating regeneration, and minimizing disease and pest outbreaks.

For instance, Jack pine has serotinous cones that are tightly sealed with resin and require heat (over 120 °F) to release seeds. Jack pine systems will even encourage fire through a phenomenon called “spring dip,” which

reduces the live foliar moisture content in the needles and causes them to be extremely flammable.

Fire is also beneficial in reducing

insect outbreaks that eliminate large stands of Jack pine every few decades. Jack pine is just one of many plant species that has a highly specialized relationship with fire.



*The serotinous cone of a jack pine before (right) and after fire (left). Its resinous cones remain shut for years, until heated by fire to open and drop seeds.*



For an electronic version, please use the QR code.

Instructions about using QR codes can

*To Inspire Appreciation and Stewardship of our Environment.*