



THE ROLE OF FIRE

The fire was nature's way of reducing the grass cover and increasing the diversity of vegetation. —Samuel A. Graham, 1967

Why do we burn?

Forest fires are bad, right? Think again... For thousands of years, fire played a major role Michigan's prairies, savannas, and woodlands. Many of our native trees have evolved with the presence of fire—developing special adaptations that allow them to survive and thrive after a burn.

Fire controls invasive plants and gives a competitive edge to native plants.

Since native plants have centuries of experience adapting to fire, they have developed special tricks that help them thrive in fire-prone ecosystems. Invasive plants don't have these special adaptations to fire. So, when fire resumes its natural role in an ecosystem, guess who wins? You guessed it! The fire kills many of the invasive plants, opening space and stimulating new native plant growth, making our grasses and wildflowers vibrant and full of life.

Tricks of the Trees—Adaptations to fire

- ✓ *Deep roots*—Protected deep underground, the root systems of oaks and pines remain largely unharmed when a fire burns the landscape.
- ✓ *Thick bark*—Many species of oak and pine have thick bark, which forms a protective layer, shielding the tree from fire.
- ✓ *Tendency to grow in open stands*—Oaks tend to naturally space themselves widely across the landscape. They don't like to grow in crowds. If they did, the fire could carry up into top of the trees, burning the leaves and killing the trees.



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- ✓ *Root sprouts*—Fire stimulates aspens, oaks, and hickories to send up new shoots from their roots.
- ✓ *Serotinous cones*—The cones of certain pines, such as Jack Pine, *Pinus banksiana*, need the intense heat of fire in order to open up and release their seeds.
- ✓ *Seeds that persist in seed banks*—Oaks and hickories have large seeds that can remain underground for years before they germinate. This collection of underground seeds is called a seed bank. Fire opens the vegetation and blackens the soil. The blackened soil absorbs the heat of the sun, creating perfect conditions for these seeds to sprout!
- ✓ *Small wind dispersed seeds*—Aspens and Paper Birches produce huge numbers of tiny seeds carried by the wind. This allows them to quickly colonize burned sites.

What happens when we don't allow fire to be part of this ecosystem?

When we suppress fire, dry woody debris can build up in our natural areas, increasing the risk of an extremely hot, uncontrollable fire. On the other hand, if we encourage regular, controlled, low-intensity fires we both maintain ecological balance while protecting our own property.

Fire is an indispensable part of Michigan's native ecosystems. Without fire, invasive plants such as buckthorn and honeysuckle dominate the under-story of our woodlands and savannas. These invasive plants alter the soil, change the diet of our wildlife, and crowd out our native wildflowers, trees and shrubs.

Many of our native plants depend on fire in order to disperse their seeds and sprout new growth. Without fire, one or two invasive species can replace an array of native plants. This decreases the diversity of life and compromises the health of the ecosystem. As you can see, removing fire from an ecosystem that depends on fire is like pulling the foundation out from under a building!

We hope you enjoy witnessing the restoration of these ecosystems through the practice of prescribed burning!



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