

Newsletter article - A Tool for Managing the Land with Fire

Drip torches are used by professional fire crews to intentionally set fire to fields and forest understory brush. They are one of the tools that the Institute relies on for maintaining biodiversity in a variety of habitats. When fires are purposely ignited for land management they are called “prescribed fires” or “controlled burns.”

Fire is used as a land management tool to maintain natural communities of species that evolved to rely on fire disturbance. Fire is also used to reduce the natural buildup of brush in forest understories. The accumulation of brush serves as a fuel source for fire and is a contributing factor to many wildfires. Wildfires are characterized by their intensity, and fire intensity is determined by the rate of spread and the amount of fuel available for combustion. The routine use of controlled burns helps minimize fuel loads and prevent uncontrolled wildfires.



A Pierce Cedar Creek volunteer ignites a forest brush fire with a drip torch. The image was taken during a prescribed burn at Pierce Cedar Creek Institute on September 17th, 2021

The Institute uses fire to help control several native and non-native species. Prescribed burns can help slow the growth of aggressive non-natives, such as Autumn olive (*Elaeagnus umbellata*). Depending on the time of year, fire can be used to stimulate or suppress native species, such as big bluestem (*Andropogon gerardii*).

Some tree species evolved in environments where fire was a frequent and necessary part of the ecosystem. Oak-dominated savannas, also known as oak openings, are one such ecosystem that depended on frequent fire to maintain their natural savannas of grasses and widely spaced oak trees. Bur and white oaks are typical of oak openings and have adapted to fire by developing thick, heat-resistant bark and underground regenerative structures. These adaptations to fire disturbance allow many species of oaks to survive, even through repeated exposure to the heat of flames.

Unfortunately, oak savannas have been dramatically reduced throughout the Midwest. In fact, they are now ranked as critically imperiled in Michigan. “Critically imperiled” means oak savannas are at very high risk of being completely eliminated as an ecosystem. The Institute’s stewardship department is currently in the process of restoring 21 acres of oak savannas. Controlled burns are an important tool that the Institute is relying on to complete the restoration project.

The Institute’s Stewardship Manager develops burn plans well in advance. However, the decision to ignite a burn is made on relatively short notice based on favorable atmospheric and ground conditions. Favorable conditions help ensure that prescribed fires can be safely controlled and are likely to achieve their intended purpose. The Institute notifies surrounding neighbors a few days before a burn is ignited. On the day of the burn, the Institute obtains a burn permit from local authorities and notifies the public via social media. Safety personnel and crew members are stationed around the burn unit to direct guests away from the area.

It takes a lot of equipment to conduct professional controlled burns. The Institute uses all-terrain vehicles (ATVs) to transport fire crews. Crew members are supplied with fire-resistant clothing and hard hats. Drip torches are used to light fires. Large capacity water sprayers are mounted to the ATVs and used to control and extinguish flames. Backpack bladder bags are used for close-in fire suppression. Fire swatters are used smother smaller flames. The Institute owns many of the tools needed to conduct controlled burns, but we often rely on local professionals and volunteers to supplement equipment needs.

The Institute owns three drip torches and typically borrows others. Sometimes the borrowed units are not available and we try to make do with the three we own. One issue that can limit the effectiveness of a controlled burn is too few ignition points. Having multiple people applying fire with multiple drip torches helps improve the likelihood that we can encourage a fire that is strong enough to achieve our land management objectives.

Drip torches come in a variety of configurations and range in price from approximately \$150 - \$300. We are hoping to raise \$300 to purchase two more torches. All drip torches have similar components. As shown in the picture, drip torches generally have a fuel canister, a removable spout with a fuel trap and a wick. The canister is filled with a mixture of flammable liquids and an igniter is used to light the wick. [Fire is strategically applied](#), as outlined in a burn plan, by tipping the drip torch upside down and letting gravity move fuel through the wick and ignite as it falls to the ground. The fuel trap prevents flame from moving up the spout and entering the fuel canister.



Sure Seal 1.25 gal Drip Torch (model 85022)

Fire is a cost-effective method of maintaining the ecological integrity of the Institute’s property. Fire reduces the use of chemical herbicides and can rapidly begin the restoration process for large areas of land.

Please consider donating to our fundraising campaign to purchase two additional drip torches. [Click here to donate.](#)