

# TABLE OF CONTENTS

<b>Overview</b>	<b>3</b>
<ul style="list-style-type: none"><li>• Objectives of this class</li><li>• Why burn brush</li></ul>	
<b>Planning and Preparing</b>	<b>5</b>
<ul style="list-style-type: none"><li>• Weather Considerations</li><li>• Burn Permits</li></ul>	
<b>Tools</b>	<b>8</b>
<b>Brush Pile Placement</b>	<b>9</b>
<ul style="list-style-type: none"><li>• Minimizing burn scar</li><li>• Location of other fuels</li><li>• Protecting desirable vegetation</li><li>• Safety considerations</li></ul>	
<b>Safety Talk</b>	<b>11</b>
<b>Working a Brush Pile</b>	<b>12</b>
<ul style="list-style-type: none"><li>• Construction</li><li>• Ignition</li><li>• Adding to and Monitoring</li></ul>	
<b>Supervision Guidelines</b>	<b>14</b>
<ul style="list-style-type: none"><li>• Multiple brush piles</li><li>• Amount of supervision</li><li>• Distance factor</li><li>• Youth factor</li><li>• Alternative plans</li></ul>	
<b>Ending the Workday</b>	<b>16</b>
<ul style="list-style-type: none"><li>• Extinguishing the fire</li><li>• Decision on chipping</li></ul>	
<b>Reporting</b>	<b>17</b>
<ul style="list-style-type: none"><li>• Communication to FPCC</li><li>• Weekly Workday Report</li><li>• Communication to other agencies &amp; entities</li><li>• Burn call sheets</li><li>• Troubleshooting Communications &amp; Scheduling</li></ul>	

# BRUSH PILE BUILDING & BURNING

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## Communicating with the Public 20

---

- Education
- Signage

## Impact on Wildlife 22

---

## Aesthetics 23

---

## Troubleshooting 24

---

## Putting it All Together 25

---

## Certification Process 26

---

## Policy on Campfires 27

---

## Appendices

---

- Brush Pile Building & Burning Policy – Executive Summary
- Illinois EPA Burn Permit
- Cook County Burn Permit
- Weekly Workday Schedule
- Brush Pile Burn Call Sheet via Weekly Report
- Brush Pile Burn Call Sheet – Day of
- Reschedule Workday List
- Supply Order Form
- Delivery Locations
- FPCC Contacts

## OVERVIEW

### OBJECTIVES OF THIS CLASS

- ✚ Train volunteers to run workdays that are safe, effective, minimize collateral damage and leave the site safe for others.
- ✚ Train volunteers to properly construct, safely ignite, monitor and secure brush piles before leaving.
- ✚ Train volunteers on the communication requirements before and after the burn.
- ✚ Train volunteers to use available weather data and site observations to make good decisions and judgment calls on all aspects of brush pile construction and burning.

The personal safety of volunteers is vitally important. It is critical that brush pile burns be conducted safely and in accordance with Illinois EPA and Cook County regulations.

Additionally, failure to meet the regulations may jeopardize the Forest Preserves of Cook County's (FPCC) open burn permit and affects the operation throughout the county, not just your site. It is important that everyone in a leadership position at a site keeps that in mind as they are making decisions.

Conducting brush pile burns without incident also fosters positive public perception of the use of fire in restoration work.

### WHY BURN BRUSH

Piling and burning cut brush is an efficient means to handle cut brush, large quantities of which are often produced on a workday.

- ✚ Leaving excess brush on the ground impedes controlled burns, interferes with resprout and invasives control at a later date, can smother desirable ground vegetation, can be

a safety hazard and can create inappropriate wildlife habitat.

- ✚ Chipping is an alternative but can only be done in areas where a vehicle can be safely driven to without damage to the area.
- ✚ Chipping is used instead of burning only if burning creates public safety or perception issues and the site is accessible. Otherwise burning is the preferred method to eliminate brush and is almost always the most efficient.

**Addressing some concerns about brush pile burning** - Not everyone understands the need for burning brush. More information about dealing with the public will be discussed later in this class, but a few key points to consider are...

- ✚ All brush pile burns create a temporary burn scar. However, any negative impacts on a small, limited area are outweighed by the positive impacts on the entire area. Although burn scars are temporary, minimizing site damage through careful positioning and good practices while burning reduce the short-term negative impact and increase the long-term positive impact. Best practices to minimize negative and maximize positive impact will be discussed later.
- ✚ All brush pile burns have some risk and should be conducted carefully and safely. Awareness of weather conditions, careful positioning of the brush pile, good practices while burning and being prepared for unexpected factors reduce that risk. The managed risk is accepted for overall benefits.
- ✚ All burning produces smoke which includes CO<sub>2</sub>, CO and particulate matter. However, awareness of wind direction and speed and proper communication to area residents can reduce local negative impact of these. The

## BRUSH PILE BUILDING & BURNING

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long term benefits of a healthy ecosystem that will ultimately fix more carbon and produce more oxygen far outweighs the slight negative effects of these small burns in the short term.

A diverse, healthy native ecosystem is the ultimate goal. Clearing and burning brush is part of the long-term plan for achieving that.

## PLANNING & PREPARING

### WEATHER CONSIDERATIONS

Preserves staff and volunteer site leaders must check weather conditions before and during the workday. FPCC staff monitors weather data throughout the day and has the responsibility of suspending burning if there are weather concerns. FPCC staff will contact the site leader listed on the weekly report to make sure that the site leaders are aware of the conditions and are taking appropriate action. However, because cellphones are not always available, not heard out at the work site, reception is not guaranteed, etc., the call method is not fool proof. The site leaders should also be aware of weather conditions so that good decisions are being made and alternate plans for the workday are made even before any phone call is received from FPCC.

Is it especially important to monitor weather conditions on questionable weather days.

Weather impacts both where you should burn and whether you should burn. You do not need to be meteorologist but an understanding of how weather impacts burning, smoke movement, etc. will help you plan your workday, predict possible concerns, prevent problems later, and make you better prepared.

The NOAA (National Oceanic and Atmospheric Administration) website and the Airnow (EPA) website are important tools that you will use to plan your workday and conduct your brush pile burn. These websites contain the hourly forecast for AQI (Air Quality Index), wind direction, wind speed, relative humidity, temperature and a lot more! It is a good idea to save this

website to your Favorites or to your Smartphone search as you will be using it before and throughout the workday.

**Ground truthing** – is the understanding of your site, awareness of various features (ecological features or manmade structures) and how the regional data should be adjusted for your locale. You can reference the land management schedule.

**Weather Websites** NOAA's website is <http://www.noaa.gov/> Enter the zip code where you will be working to get weather data from the closest NOAA data source. Information on this website will allow you to determine how safe it is to burn.

There are several spots where you will be gathering data from within this website to make your weather related decision regarding the burn.

Below the 7 Day Forecast, there are options for different forecasts. Either the Hourly Weather Graph or Tabular Forecast will give you the hourly forecast for the following factors (one in graph form and the other in a table):

- Temperature
- Mixing Height
- Surface Wind Speed
- Transport Winds
- Wind Direction
- Posted Wind Speed (20 ft Height)
- Gusts
- Vent Rate
- Relative Humidity

The website allows you to click on and off the features that you need so you can create a

## BRUSH PILE BUILDING & BURNING

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graph or a table of just the factors that you want to look at.

<http://airnow.gov/> - This site provides the AQI (air quality index) information that you need – both the current reading (updated hourly) and the forecast. It provides information on air quality and the health effects of burning. It also has a notification service that notifies you the day before what the forecast for the next day will be, sign up required.

### How to use the data

Temperature – Brush piles will burn faster and ignite more easily on a warmer day than on a cold day. But there are no specific temperature requirements for a burn. This is a decision made by the Site Steward and the Brush Pile Burn Boss. Temperature is needed for herbicide recordkeeping as well.

Relative humidity – Ideal humidity is between 25% (more safely at 30%) and 50% for a brush pile fire. Higher relative humidity makes it difficult to burn but it is still safe. Lower relative humidity makes it unsafe to burn. **You should not burn on days with relative humidity under 25% and should be extra cautious in the 25-30% range.** Relative humidity is naturally higher very early (before 10:00am) and later (after 3:00pm). Shutting down brush pile burns in late afternoon is actually easier because of the increasing humidity late in the day.

Wind speed – In standard weather reports, (i.e. in the media) the wind speed is posted for readings at 30ft. However, for fire decisions, the wind speed is measured at a height 20ft above the ground. Wind must be at least 5 miles per hour and should be no more than 20 miles per hour generally.

**Burning when wind speed is lower than 5**

**miles per hour is a violation of our permit with IEPA.** Wind is required to feed oxygen to the fire and to move the smoke. Burning when wind speed is over 20 miles per hour is prohibited in the safety guidelines of the Preserves.

This is site dependent though, for instance wind speed in a woodland is significantly reduced from posted wind speed, because the trees slow down wind speed. If it is too windy to burn in a prairie, it may be possible to burn in a woodland. Or if it is not windy enough to burn in a woodland it may be possible to burn in a prairie. This is a good example of how ground truthing plays a role in decision making.

Wind direction, gusts, mixing height, transport winds and venting – These factors all determine where the smoke will go. Avoid sending smoke where it will directly impact roads, paved trails, walking paths, homes, businesses, etc. Gusts will challenge managing the smoke and embers. Factors such as mixing height, transport winds and venting determine the height and speed at which the smoke will move so observation (ground truthing) of what is happening to the smoke as it moves from the immediate area is very important. Familiarity with these additional factors will help you predict smoke movement and help you avoid problems later.

AQI – The air quality index is a measure of how clean or polluted the air is and is issued by the EPA. The maximum level of safe air quality is set at 100. Since fire decreases air quality in the short term, we must be aware of what the AQI is that day. **Burning when AQI is 100 or above (“Code Orange” or “Ozone Alert”) is a violation of our permit with IEPA.** Ozone alerts will be on the

Airnow website and will be announced in local media. If AQI hits 100, all fires must shut down as soon as possible. A guideline to follow is if the AQI is 85 in the morning, it will most likely (but not always) increase to 100 by late afternoon so the decision should be to not start the fire at all that workday or to monitor the AQI throughout the day and be prepared to shut the fire down early.

**Red Flag Days** – Red flag warnings are issued by the US National Weather Service and are typically announced in the local media. Red flag warnings will be issued when the relative humidity is less than 25% and the wind speed is more than 20mph but they can be called when other factors are at certain levels. Such as: drought conditions, vegetative moisture, humidity, wind speed and wind behavior.

**Burning is not allowed on Red Flag Days.**

### Shutting down a fire

We recognize that shutting down a fire quickly without a tanker of water is challenging. If a fire needs to be shut down due to weather considerations or other emergencies, we do expect that you stop feeding the fire immediately (don't try to finish) and use any tools for suppression that you have available to you.

### Ground Truthing

There is no substitute for paying attention to what is going on at that moment. Weather can change suddenly. You need to be able to shut down a fire if unsafe conditions start to develop.

### Site Knowledge

To make the best decisions at a site, it is important that the Work Leader have the necessary information. For a volunteer managed site, consult the management

schedule or contact the Regional Ecologist or the Site Steward.

It is important that the leader has an awareness of:

- 🌿 land use history or at least its' previous use
- 🌿 likelihood of any seed bank potential (related to above statement),
- 🌿 where protected, endangered or favorable species of flora and fauna are, particularly bird nesting, timing of herp hibernation and vulnerable times of year and sensitive plant populations
- 🌿 best access routes to work area that do the least damage when bringing crews and equipment through sensitive areas.

### BURN PERMITS

FPCC obtains an Open Burning Permit with the Illinois EPA and Cook County Dept. of Environmental Control. The permits are issued on an annual basis. Copies are sent out to all stewards and Brush Pile Burn Bosses as soon as we receive the renewal. A copy for you is attached with the Illinois EPA's rules. It is required to carry copies of these permits with you when burning.

### Standard Requirements

Basic requirements of our permits that always apply are:

- 🌿 Wind speed must be greater than 5 miles per hour. Caution should be exercised when burning near a smoke sensitive area if wind speeds are near 5 mph so that a consistent wind direction can be observed
- 🌿 Prohibition of burns on "Code Orange" or "Ozone Alert" days as identified by the AQI. All fires started must be extinguished if the status changes to Code Orange (100) during the burn. Use the forecast tool on AQI and if conditions are predicted to exceed 100, brush piles should not be ignited
- 🌿 Prohibition of burns on Red Flag Days

### TOOLS

Necessary tools vary by site, weather conditions, etc. The Brush Pile Burn Boss and/or the Site Steward is responsible for having the appropriate tools available for both managing and extinguishing a fire. Being prepared may mean that you will bring out tools that you won't use. But if you wait until the situation occurs, it is too late to go back and get more tools. Tools are available from Volunteer Resources via the Supply Order Form and are ordered by the Site Steward.

Common tools and their use for managing a fire are:

-  Pitchfork – Used to move larger pieces or large quantities of brush within the fire
-  Council fire rake (Frake) – Used to scrape a variety of materials from around the fire. Will cut brush if necessary
-  Fire Rake (Asphalt rake with steel shank)– Used to move brush within the fire and to create safe burn line around brush pile

-  Fire Leaf Rake with rounded tines or Wire Broom – Used to move loose leaves and light brush from around brush pile
-  DIY “Pushystick” – Can be made on site using a forked branch – Used to push and flip materials

Common tools for smothering or extinguishing fires are:

-  Flapper – Used to tamp and drag fuels to smother burning and smoldering fuels;
-  Backpack Water Pump – Used to douse spotting fires
-  Bucket for water – Can be used if close to a water source
-  Flat nose Shovel – Used to shovel snow on to the fire

The presence of tools for smothering or extinguishing fires can also decrease negative perception by the public regarding the use of fire for managing brush.

## BRUSH PILE PLACEMENT

Brush piles should be placed near the work area but care should be taken to balance dragging distance and number of piles.

### Minimizing burn scar effect on the site

- 🌿 Use an existing brush pile burn scar when practical
- 🌿 Keep brush piles limited in their space – keep footprint reasonable in size especially while adding to it
- 🌿 Don't connect new brush piles to old burn scars. Allow patches of good vegetation in between to ultimately spread back into the burn scar
- 🌿 Use a degraded area that doesn't have plants of high quality. An area that has already been damaged by excessive shade from brush can be cleared and used as a burn site
- 🌿 Be aware of your proximity to valued trees and remember that roots extend as far as their dripline
- 🌿 Use an area of herbaceous invasives or resprouts

### Recognizing location of other fuels

- 🌿 Ground fuels (peaty areas and roots) – Ground fires are slow moving, hot, difficult to extinguish and can burn for a very long time. These areas must be avoided at all costs as a peat fire is difficult to manage.
- 🌿 Proximity to tall, highly flammable fuels such as tall grasses, cattails or pine trees require extra caution. Wind direction and speed affect this decision. Guideline: stay at least 25-50 feet away from these highly flammable fuels. It does not take much to ignite these fuels.
- 🌿 Aerial fuels (vines, snags, "widow makers", dead trees, tree canopy with dead, dry leaves, needles and ladder fuels like small oaks with leaves still on the branches) - Wind

direction and speed affect this decision.

Guideline: Remember to look up! when you are placing the brush pile and make sure that you are at least 20-25ft below dead leaves and 25ft distance away from snags. You may have to increase the distance from the work site to get a site that is clear of aerial dangers.

- 🌿 Proximity to dead leaves, grasses – Although these should be avoided, they can be easily raked out of the way for a fire break or raked in and used in the fire

### Protecting desirable vegetation

- 🌿 Place the brush pile close to the area of work recognizing other safety considerations. This is not only for the efficiency of the workday but as an important consideration to limit disturbance by walking the same route repeatedly.
- 🌿 Protect nearby trees as much as possible particularly important trees to that ecosystem.
- 🌿 Avoid areas with desirable shrubs and understory trees. Even if they are not part of the fire, heat from the fire can damage them more easily than larger trees because of their thinner bark. Remember to look up and anticipate where the smoke and associated particulates will carry.
- 🌿 Avoid areas with desirable herbaceous species. Some plants may not be visible above ground at the time of year that you are burning. Knowing where these species are on your site will help you locate the brush pile to minimize or avoid collateral damage.
- 🌿 Where canopy trees, understory trees and shrubs are thick, it may not be practical to avoid them all. Base decisions for placement of the brush pile on the long-term goals for the site per the management plan.

## BRUSH PILE BUILDING & BURNING

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### Brush Pile Considerations

A burn may not be completed for a variety of reasons, many of them safety related – weather conditions, number of leaders, nature of group, available time, etc. that are all good decisions to leave a brush pile and not burn it. Brush left at the end of a workday should be left scattered, in a feeder pile, or with some seasonal exceptions, a well-made brush pile.

The brush pile can become wildlife habitat so depending on the time of year and temperature fluctuations, there are things to do to limit or prevent any wildlife impact.

- 🦎 Herps conserve energy when dormant and do not move from places of warmth or protection until conditions improve. Saved brush piles are a place where they would be vulnerable in mid-late fall and throughout the spring (not in winter).
- 🦎 If brush pile is left during a transitional temperature time (typically in late fall or late spring), herp and mammal movement in and out of piles is a possibility
  - Use an “altar” construction brush pile to keep brush off the ground and not available for animal shelter. Position several larger logs to create a raised platform (altar) at the bottom of the brush pile.
  - Create a feeder pile and use the already cut brush to feed into a new brush pile.

Brush that is resting directly on the ground should be moved so that animals, particularly herps are not accidentally burned.

- 🦎 If brush pile is left when ground was already frozen and temperatures have stayed below 50°, only mammal movement needs to be considered as herps are hibernating elsewhere. Mammals may seek temporary shelter in brush piles but are much more mobile and able to flee.
  - Rustling the pile or starting fire at one end will encourage any residents to retreat from the pile and moving the brush off a well-made brush pile left from a prior workday is not needed.

### Safety considerations

- 🦎 Keep brush piles away from paths and trails so that the smoke does not affect others’ enjoyment of the Preserves. Placement should consider wind direction and lift as mentioned earlier.
- 🦎 Make sure that the paths between the work area and the brush pile are free of vines, stumps, “impalers,” tools, etc. Remove any tripping hazards or overhead hazards if possible. If you have a certified chain sawyer in your crew, now is a good time to recheck all stump height to be 2” or less. Mark any stumps if they can’t be avoided or removed.

## SAFETY TALK

The Site Steward or Stewardship Workday Leader is responsible for giving the introductory talk at the beginning of the workday. Besides the welcome, thank you, overview of work, safety should also be part of this talk. If the leader does not adequately talk about safety directly related to the fire, the Brush Pile Burn Boss should add their comments to the intro talk.

The points that need to be covered when there is a brush pile burn should include:

- 🔥 This is a working fire, not a campfire, which is small and contained and fed slowly. This fire can get to a roaring fire stage quickly
- 🔥 The fire gives off radiant heat which is dangerous to the eyes. This is why we have protective eye covering available if you are working close to the fire
- 🔥 The fire also gives off particles and gasses that can be harmful to your lungs and ability to breathe easily. Avoid the area where the smoke is blowing, spend the least amount of time close to the fire and respect a safe zone around the fire.
- 🔥 Embers can jump quite a distance; although you think that you can anticipate movement of embers, they can jump in all directions when a heavy log is thrown on
- 🔥 Do not jump on or try to tamp down a fire as this will generate dispersal of embers and particles

- 🔥 Flames especially prompted by wind gusts can happen suddenly; Never approach a brush pile fire from the upwind side where the flames are blowing towards you
- 🔥 Tripping into the fire can happen if there are short stumps, vines, tools, etc. Be aware as you approach a fire
- 🔥 Heat from the fire can make snowy or wet ground conditions muddy and slippery
- 🔥 Synthetic materials in clothing and footwear can catch on fire and/or be damaged from embers easily. If you are wearing clothing or footwear that you value or is not fire safe, keep a distance from the fire
- 🔥 People who are sensitive to smoke should not work near the fire
- 🔥 There are many tasks in the workday that can be done a comfortable distance from the fire. The volunteer leaders can match volunteers up with those tasks.

\* To explain upwind and downwind, the best way to understand this to imagine yourself moving along a straight line with the wind blowing against your back. If you want to turn "upwind" or "into" the wind, then it will be blowing into your face.

If you wanted to turn "downwind" or "with the wind", then you will turn in the opposite direction with the wind blowing behind you.\*

### WORKING A BRUSHPILE

#### BRUSH PILE CONSTRUCTION

Different considerations apply if the brush pile is going to be burned the same day or in the future.

- 🔥 Dry dead wood is the best foundation. Use wood leftover from an earlier brush pile. Some groups actually save some dead wood from a previous workday to provide a good base for the next fire. Dead wood will also be less smoky and will allow you to get the fire hotter before green wood is added. But avoid using dead wood that has now become an animal habitat.
- 🔥 Keep pile compact but avoid having it too high and narrow so that it is susceptible to toppling over as the lower pieces start to burn and the pile collapses.
- 🔥 Stack smaller logs and brush parallel keeping pile compact, improving combustion, making it easier to stack and keeping the burn scar to a minimum
- 🔥 Small side branches should be lopped or broken off to keep the brush pile compact and easier to move the pieces once in the fire.
- 🔥 Smaller twigs and branches should be packed together at the beginning of the fire at the ignition site.

**In general, the best practice is to burn the brush pile the same day that it is built but we recognize that that is not always possible. In some cases, particularly due to weather conditions, it is also not always the safest option.**

**If the brush pile is not being lit that day,**

- 🔥 Densely packing will allow you to get more brush into a single pile. It may discourage

animal habitat. Fewer piles are less unsightly.

- 🔥 You may consider covering it with a tarp if rain or snow is anticipated.
- 🔥 When you do come back to burn it, care must be taken to make sure no animals have taken refuge in it during months that the animals will be moving from shelter to shelter – late fall and early spring. This includes animals who may not be visible (snakes, for example) because they have burrowed in the ground beneath the brush pile. Moving the brush to a new site, drastically disturbing the brush pile and starting at one end are several options that help minimize any destruction of animals. In winter, when animals are in another protected space or summer when they are free to move, a simple rustling of the pile will give the animal warning.
- 🔥 Let your ecologist know that you have left a brush pile(s) out there if you don't plan to burn it within a week.

#### BRUSH PILE IGNITION

- 🔥 There are several ways to start the fire.
- 🔥 Propane tank – pretty foolproof but heavy to carry
- 🔥 Matches/paper – most common and often all that is needed
- 🔥 Bags of dried sticks – most helpful if there has been rain, snow or dew
- 🔥 Things to consider:
  - 🔥 If burning an old brush pile with snow on it, make sure to bring a shovel or broom to remove the snow
  - 🔥 Place the ignition site on the upwind side so that the flames can help get the rest of the pile started
  - 🔥 Light in the middle if the wood is very dry to slow down the fire's advance

- Some people prefer to build the small nucleus fire first and then build the brush pile on top and around the started fire

### ADDING TO AND MONITORING A FIRE

The Brush Pile Burn Boss determines who can feed the brush pile in conjunction with the other site leaders. Everyone that works near the fire should be reminded of a few safety issues at least once at the beginning of the workday and throughout the workday if they aren't following the rules.

- Pay attention to wind direction and work from the downwind side of the fire
- Embers can burn holes in clothing. Caution should also be taken by securing long hair
- Those adding to or working the fire should wear natural fiber clothing (such as cotton and wool) and not those made with synthetics. (Nomex clothing is safest but not required). This includes shoes and boots – leather with non-synthetic laces is acceptable.
- Eye protection should always be worn while working around brush piles. Eyeglasses or goggles are recommended for all that are adding to the fire. They are required for youth under 18
- Heavy logs typically require assistance in moving to the pile and putting onto pile
- Encourage volunteers to lift heavy logs first and then toss on top rather than trying to lift and toss all in one motion
- Embers can travel upwards quickly so remember to look up throughout the burn

The Brush Pile Burn Boss also supervises activity near the brush pile site. They are in charge of assuring that:

- There is no horseplay around the fire
- Everyone stays a respectful distance away from the fire
- New items are added at an appropriate pace

- When to add green wood or rotted dead wood (when it is hot!)
- Brush should be added to the top but it is common mistake for new items to be added at the edges of the fire. Using tools can help place and keep new items on top and help prevent the burn from naturally widening and expanding the burn scar. If someone is unable to get the new brush thrown on top, particularly if it is too heavy, it is often necessary to get someone else to help place it properly.
- Weather is monitored and decisions are changed if necessary
- Fire is closely monitored while workday is active (Reduced monitoring is acceptable when most volunteers have left and the entire workday is closing down and packing up.)
- Decision on shut down – either emergency or at end of workday in collaboration with the Site Steward or Workday Leader
- Fire is reduced to embers that will not re-ignite
- Signs are posted to warn people of embers when all volunteers have left

A few other hints...

- Buckthorn is resinous and burns well (especially if dead) so it is good to use at the beginning
- Wood varies in its moisture content. Basswood, willow and maple are highest or sometimes referred to as “wet”, harder to start and smokier so should be added later after the fire is hot enough. Ash is one of the least difficult woods to burn when green.
- All dry, dead wood can be used to start a fire but basswood, willow and maple are least useful.
- Add green wood after the fire is hot to minimize smoke. Live wood always produces smoke but at higher temperatures there will be less smoke.

### SUPERVISION GUIDELINES

#### **Multiple brush piles**

Depending on the number of people cutting during the workday and/or if you have brush piles left from a previous workday, it often makes sense to have multiple brush piles burning at the same time. However, additional piles require more Brush Pile Burn Bosses (or other qualified leaders) to properly and safely monitor the fires.

#### **Amount of Supervision**

The Brush Pile Burn Boss or other leaders in charge of the fires should not be included in the calculation of the number of leaders needed at a workday. The Brush Pile Burn Boss or leaders need to be focused on their responsibility to monitor the fire and the activity around the fire. If you are working with an inexperienced volunteer group, trying to do plant ID, teaching cutting technique, interpreting nature, talking to the public, etc. you cannot also supervise the fire properly. Other qualified leaders need to do those tasks and not the same person who is supervising the fire(s). The fire while in full strength, needs focused attention.

#### **Distance factor**

The FPCC guideline for supervision is one person for up to two brush piles within 50 feet of each other. If the brush piles are farther apart, separate qualified leaders need to be assigned to each. As long as there is at least one certified Brush Pile Burn Boss on site, you can “draft” other volunteers. (ex: Assign two leaders and the Brush Pile Burn Boss splits his/her time between the two fires) If there are no other qualified leaders in the work group to “draft”, (ex: It is you, a teacher and 25 teenagers) having volunteers build a secondary “feeding” pile while you

are burning the first one is a better practice than starting more fires than you can manage at the same time.

#### **Youth Factor**

If you intend to burn while a youth group under 18 is present, it is best to err on the side of extra supervision. Making sure that the fire is added to properly and safely, that clothing, footwear and eyewear are appropriate and any other safety issues require more attention with youth groups than with adults. You may be able to “draft” an adult leader from their group to help supervise but not always. If the group leader has other interests, distractions, priorities or duties of their own (ex: grading papers on the bus), or are being used as an ID resource, they may not be able to give enough focus to safety.

If it is an individual youth(s) with their parents (not a youth group), it is the parent’s responsibility to provide that extra supervision of their own kids.

#### **Alternative Plans**

If you don’t have enough leaders actually leading at a workday, let the burn happen at a later time. Safety and being able to properly monitor everything that is going on at a workday is more important than getting the pile burned. A few options would be 1) a couple of volunteers can decide to stay and do the burn later in the day when the inexperienced group has left; 2) the piles can be left to be burned on another scheduled workday with more experienced volunteers; 3) e-mail to Volunteer Resources about getting a continuation scheduled for a Brush Pile Burn Boss and at least one other

volunteer during that same week or 4) you can contact your ecologist to see if FPCC staff is available to burn. Although we certainly like to see the brush piles get burned on the

same day, we do not recommend sacrificing safety to accomplish that.

### ENDING THE DAY

#### EXTINGUISHING THE FIRE

The Site Steward and Brush Pile Burn Boss determine the point in time when to stop feeding the fire. A live fire cannot be left even if it appears to be small and safe. The monitor needs to stay at the site until it is just embers that if left undisturbed will not re-ignite. This includes consideration for wind conditions. At that point, a Hot Coals sign is posted. (see signage section)

#### STUMPS

The Land Management Guidelines calls for stumps to be left in a safe condition (as close to the ground as practical). For both safety and aesthetic reasons, there should be a plan in place to get the stumps flush cut (no higher than 2 inches). FPCC recognizes that snow depth, availability of a chainsawyer and also the type of group that is cutting may make that difficult to achieve immediately.

Non-snow situations:

- ✂ cut anything 1" dbh (lopper size cut) and smaller flush to ground
- ✂ if group is unable to flush cut, anything greater than 1" dbh or a multistem clump, cut at waist height (30-36") as opposed to leaving the stumps at a low height which can cause tripping or impaling hazard.

Snow conditions:

- ✂ select a site away from trails or other highly trafficked areas where high stumps could be a concern or danger to the general public

- ✂ select a site with larger specimens rather than areas with many small specimens cut at waist height (30-36") and monitor snow depth at work area
- ✂ Schedule chainsaw crew as soon as snow and ground conditions permit
- ✂ Because of aesthetic reasons extra care is needed with herbicide bark treatment so that herbicide doesn't discolor snow.

#### DECISION ON CHIPPING

If an area is accessible to a FPCC vehicle (e.g. near a bike path, multi-purpose path/trail or parking lot) and is smoke sensitive, chipping may be an option. Contact the stewardship program coordinator in advance, and staff will be scheduled to address the brush generated after the workday. If it is a day of decision, notifying after the fact is acceptable. Ideally, we would like to chip the brush as soon as possible because of appearance.

#### Arranging brush to be chipped

The brush should be laid out to make it as easy as possible for someone to grab the brush and put it in the chipper.

- ✂ Cut ends should face the road or trail so they can be grabbed and fed into chipper in one motion
- ✂ Cut ends should be at the curb or about 1' in from a trail or path.
- ✂ Brush should be spread out to decrease piling and entanglement

## REPORTING

### **COMMUNICATION TO FPCC**

All workdays must be scheduled with Volunteer Resources. Workdays with a brush pile burn must be noted as such on the Weekly Workday list. The responsibility to contact Volunteer Resources belongs to the Site Steward but they may delegate it to the Brush Pile Burn Boss.

### **WEEKLY WORKDAY REPORT**

The standard communication method on brush pile burning is via the Weekly Workday report. There are two alternate methods outlined in the troubleshooting section for 1) If deadline on Weekly Workday Report is missed and 2) If burn could not be completed and needs to be rescheduled.

**Tuesday prelim** - VR prepares a list of scheduled workdays using information she collects from the Online Volunteer System (OVS), various stewardship group's websites and direct e-mail. The Tuesday list is the preliminary list of workdays and is sent out to all site contacts to verify accuracy including whether or not burning is planned on the workday. (a sample is attached) Also, included on this list is the cellphone number of the primary contact person for the workday and brush pile burn. This is needed for us to contact you in the field in case of an emergency including FPCC informing you of weather conditions that require a burn to be shut down. If the information we have does not indicate that a burn is planned, the report will show that you are not planning to burn. Contact [volunteer.fpd@cookcountyil.gov](mailto:volunteer.fpd@cookcountyil.gov).

**Thursday final** - After editing, the final report is sent out on Thursday covering the upcoming week, Friday-Thursday. (sample attached) It is important that someone from your site communicates the plan for burning so that it gets reported to everyone. If you do not report a burn via this report, you cannot burn that work week.

Emergency exceptions are discussed in the Troubleshooting section.

### **COMMUNICATION TO OTHER AGENCIES & ENTITIES**

A record of the notification to internal and external contacts is done via Burn Call Sheets. This includes all parties that are notified via the weekly report and those that are notified via phone call. This information is listed on the burn call sheet so that the Site Steward and Brush Pile Burn Boss can answer any questions on notification from the public or from any authorities that may show up at the burn site.

#### **Burn Call Sheets via Weekly Workday List**

Every site has a unique burn call sheet. These are "living" documents as parties asked to be included or to be removed from the list from time to time, jurisdictional boundaries change and phone numbers change. Requests to be added or deleted from the list should be given to Volunteer Resources and they will discuss with Resource Management and a determination will be made if the action is appropriate or necessary. There are similar forms for Controlled Burns that need to be updated in parallel to brush pile burns so it is important

## BRUSH PILE BUILDING & BURNING

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that Site Stewards let the FPCC know about any requests for changes.

### **Communication done by Volunteer Resources on Thursday**

(This is a record of all notification already done by Volunteer Resources)

FPCC staff - Landscape Maintenance, Police, Resource Management and General Office

FPCC officials – this includes the Board President and Commissioners

Municipal officials – this includes Aldermen, village presidents, mayors, city managers

Permitting agencies (State and County) – such as EPA or Department of Environment, IDNR and INPC

*These are done via fax and e-mail at the end of the workday on Thursday.*

### **Communication done by Volunteer Resources on Friday**

For a small number of sites, there are individuals within the community that have been asked to be notified by Volunteer Resources. Most sites do not have this extra requirement.

*These will be done by Volunteer Resources on Friday, noted on the brush pile burn call sheets and e-mailed to the Site Steward Friday afternoon. That way, the Site Steward will have a record of the phone calls made in case they are asked at the site.*

### **Communication done by Site Steward or Brush Pile Burn Boss via phone call the morning of**

Burn call sheets via weekly are listed on the OVS as an attachment. Site “Admins” can view and print these attachments. See Appendix for an example.

## **Troubleshooting Communication & Schedule Issues**

### **Missed Weekly Deadline**

If the Site Steward misses the deadline for the Thursday report but still wants to burn during that upcoming week, they can use the “Same Day” Burn Call Sheet. This is the same one used by our Resource Management crews and interns who do not pre-schedule their workdays.

Burn call sheets – Same Day are listed on the OVS as an attachment. Site “Admins” can view and print these attachments. See Appendix for an example.

There are more notifications to be made using this method but most are via e-mail so they go fairly quickly.

### **Unable to complete burn**

There are often good reasons why a brush pile burn could not be completed on the day originally scheduled. Some of the reasons are:

- Weather issues – red flag day, rain
- Not enough leaders to manage both the fire and the cutting
- Not enough time to let the fire burn down before volunteers have to leave
- Volunteers were extra productive and fire could not keep up with amount
- Inappropriate group of volunteers to burn with – small children

If there is a Brush Pile Burn Boss and another volunteer that can come back and burn the pile(s) during the week, the Site Steward notifies Volunteer Resources via e-mail [volunteer.fpd@cookcountyil.gov](mailto:volunteer.fpd@cookcountyil.gov) no later than 9:00am Monday morning. Volunteer Resources will publish a reschedule list and distribute it to the same group of individuals as the Thursday Weekly Workday list. This even works for a change from Saturday to Sunday burn where we will report the change after the fact.

The rescheduled burn requires staffing of at least one Brush Pile Burn Boss and one other volunteer. Only requests made to [volunteer.fpd@cookcountyil.gov](mailto:volunteer.fpd@cookcountyil.gov) will be recognized.

# COMMUNICATING WITH THE PUBLIC

There is a lot of opportunity to educate the public when they stop and ask what the group is doing. To much of the public, green is always good, especially green trees and shrubs like buckthorn. So this might be a good opportunity to engage any interested visitors in a discussion of invasives. (Most people understand pulling herbaceous weeds like garlic mustard better than tree and shrub removal.) However, if the public involvement becomes difficult and confrontational, education and positive engagement may not be possible.

### Education

- ✂ If part of the site has been restored, show them the “after” effect of restoration by asking them to compare how the two areas look.
- ✂ Inform them about invasive (including natives) species vs. natives. Tell them that invasives have an unfair advantage and what you are doing is just returning the advantage to the natives.
- ✂ Explain how our ecosystems are fire dependent based on natural fires and Native Americans’ historic use of fire. You are substituting mechanical brush removal with what fire would have removed had it been allowed to continue.
- ✂ Explain that a healthy woodland allows people and animals to move through it and allows light to the forest floor which isn’t possible with heavy brush.

### Public with concerns or questions

- ✂ Call FCPP police at 708-771-1001 and ask for their assistance with any members of the public who are interfering with the workday

- ✂ Take a work break until Police arrive if you are uncomfortable
- ✂ Protestors cannot take pictures of any youth under 18 without parental consent. You can let them know that it violates state law
- ✂ Protestors must keep at least 30 feet away from the worksite by law
- ✂ Do not argue with or confront anyone
- ✂ If you feel that your safety is being threatened, extinguish the fire and walk away. It is not worth your safety.

*At some sites where we anticipate protestor activity, we can get FPCC Police to monitor the workday and in cases where youth groups are present, they will actually stay at the workday from start to finish.*

### SIGNAGE

Volunteer Resources has several different signs available for you to order via the Supply Order Form. Each site should have enough signs to use appropriately.

#### HABITAT RESTORATION SIGN

This (these) can be placed along paths or trails to inform and educate Preserves users that the brush pile burn is part of overall restoration work for the site. This sign helps explain why our work is needed.

#### SMOKE AHEAD SIGN

This (these) should be placed along paths and trails to alert Preserves visitors that there is an intentional burn occurring in the area and smoke will be present. This sign should be placed at all the typical access points to the site before the fire is started. It serves two purposes: 1) to let people know that this isn’t an unmanaged, unplanned wildfire that

needs to be called in to 911 and 2) if they are sensitive to smoke, they should re-route themselves.

### **HOT COALS**

This sign alerts the public and staff (such as Police) that the embers that remain are the

result of a managed, planned fire and the conditions are safe if left undisturbed. It serves two purposes: 1) that the fire is not called in to the FPCC Police or Municipal Police or Fire departments unnecessarily and 2) that people don't touch or walk on the hot embers.

### IMPACT ON WILDLIFE

When working in a natural area, all of us must be cognizant of the fact that we are working in the habitat of wildlife. The long term result of our work is an improved habitat for wildlife; however, the short term effect can be disruptive and harmful to them. We take care to minimize harm to individuals within the species.

Brush piles are attractive homes to many of our woodland wildlife. If brush piles aren't burned or chipped right away, wildlife may have settled in. The best way to avoid potential negative impacts to wildlife is to move a brush pile that has been left more than a day or two. It gives wildlife ample opportunity to vacate and move on. If that isn't practical, disrupting the brush pile with movement may give the wildlife sufficient warning. Also, starting the fire at one end of the pile may also give some warning.

Knowing what species of wildlife are found in your area is helpful. Learning about their behavior patterns including seasonal patterns will help you make decisions that impact them the least. Seasonal changes determine when they are establishing shelter. What might be safe to do in late spring and summer when they are active and moving from place to place may be harmful in late fall when they are approaching a more dormant stage and looking for winter shelter. Once winter shelter has been established, it is less likely that new winter shelter will be sought. Burning established piles during winter months is usually without wildlife risk.

Wildlife at most risk are the ones unable to vacate quickly. Examples are the young or injured who may not be able to vacate on their own or cold blooded reptiles who may be sluggish and unresponsive on cold days. Hornets and wasps can also be found nesting in the brush pile.

During the nesting season all native birds, especially threatened and endangered are protected by law (refer to Illinois Wildlife Code for state guidance). Non-native species such as Starlings, Pigeons and House Sparrows are not protected. Generally April – June is recognized as nesting season in northern Illinois, although it varies by species.

If there is a discovery of a nest during the workday, it is important to move the work to a different area, except during the winter season.

Disturbance of the brush or the fire may startle and cause a surprise response from wildlife. Take caution and be extra aware!

If you have any questions about leaving brush piles and the effect it has on wildlife, talk to your regional ecologist. Although, time tables and guidelines are helpful, decisions need to take into account current weather trends and conditions as well as wildlife behavior patterns.

Any brush piles not burned or chipped within one week should be reported to your Ecologist or Volunteer Resources via phone call, e-mail or your workday report.

## AESTHETICS

Be aware of the aesthetics and public perception. The long term aesthetic improvement of an area outweighs the short term look of an area. Piles of brush and burn scars are not attractive although they are necessary to reach our goal. The following can minimize negative perception.

-  Raking over burn scars and dispersing ash
-  Deep raking and seeding burn scars after you no longer are using them
-  Limit the number of unburned brush piles
-  Keep brush piles to be burned out of plain sight

# TROUBLESHOOTING

## ESCAPED FIRE

Even if you follow all safety rules, an occasional fire may escape or slop over.

### **Do not panic!**

-  Try to resolve the issue yourself but do not put yourself or anyone else in harm's way
-  Call for necessary backup as soon as you recognize the need for assistance. Contact FPCC Police at 708-771-1001. They will contact Resource Management and any FPDCC staff on call in the area.
-  Although many situations can be handled by FPDCC staff, if you feel that the local fire departments will be needed, call 911 as well
-  You must wait at the site until FPCC staff arrive or local authorities take over
-  If a medical emergency arises, call 911 right away
-  Remember when alerting FPCC staff or local authorities that accurate directions are often difficult in remote areas. It is best to send volunteers out to key points (driveway entrances, trailheads, etc.) to direct emergency responders.

## PUTTING IT ALL TOGETHER

### **Plan & Prepare**

Check weather in the morning and throughout the workday

Decide on necessary tools and supplies to lead a safe workday. “I’d rather bring a tool and not need it than need another tool and not have it” ....*John McCabe*

Determine best site for the brush pile by considering all the factors – animal habitat, desirable trees and herbaceous to be protected, burn scar size and proximity to other scars, smoke movement, safety and perception of other Preserve users

Dress appropriately

### **Communicate**

Report your workday and your plan to burn

Make your calls per BPB call sheet

Put up Smoke Ahead signs

### **Have a safe workday**

Start with a safety talk that includes fire

Manage the brush pile – Proper tool usage; proper addition of new fuels

Manage the people around the brush pile – Continual safety awareness while burning by monitoring others near the fire and provide the proper level of supervision

### **Finishing the day**

Stop feeding the fire in advance of the end of the workday

Safely secure the fire – Proper tool usage

Put up Signage – Hot Coals

Make your calls per BPB call sheet

### CERTIFICATION PROCESS

Certification to become a Brush Pile Burn Boss includes:

-  Attendance at a BPB class
-  Completion of BPB take home test
-  2 Field Observations by certified Stewards or FPCC Staff
  - VOLUNTEERS: 1 at your “home” site and 1 at a “foreign” site
  - INTERNS: By Resource Management staff
  - NATURE CENTER STAFF: 1 by Site Steward volunteer and 1 by another staff BPB boss
  - RM STAFF: By Resource Management supervisors

After the tests and observations are received by Volunteer Resources, your volunteer profile on the website will be updated to include a Brush Pile Burn Boss opportunity.

The next time that you are in your volunteer profile, select the BPB boss opportunity, complete the survey (BPB waiver) and your certification will be recorded on the website database. You will be included in future mailings of renewed Open Burn Permits and will have access to the most current BPB call sheets for your site.

Additionally, Volunteer Resources will send you a new ID badge which includes the Brush Pile Burn Boss designation.

## **POLICY ON CAMPFIRES**

Ground campfires are not allowed in the Forest Preserves. Although brush pile fires are not the same as campfires, when they are used as a campfire for cooking, several issues must be considered.

**Public perception** - Although the stewardship volunteers understand that the fire was initially set for the purpose of managing and removing brush, other Preserve users may not understand that. If you are in an area that is visible from trails, drives, etc. FPCC's recommendation is to not use the brush pile for cooking.

**Youth education/example** - The example that is set by cooking with a brush pile fire could make it easy for youth to assume that ground fires or campfires are acceptable in the Forest Preserves. Make sure that you are educating youth properly so that they understand that they cannot start fires when they visit the Preserves. The brush pile fire used as a cooking fire is an exception only available to stewardship workdays.

**Proximity to fire** - Although the fire might not be as intense when you are using it to cook, it still isn't totally contained, and embers can still spark so remember that some of the same safety issues and same risk

to clothing, skin, etc. do apply. The FPCC's recommendation is to assign people who are dressed appropriately and who understand the safety considerations to do the cooking.

**Fire shut down** - The cooking at the end of the workday may mean that the fire shut down is even later so having adequate staff available to monitor the fire later may be needed.

Alternative:

A suggested alternative is to bring a small base from a grill and use the cut wood and twigs as fuel in the grill and cook over this fire. It doesn't set the wrong example and it is easier to shut down at the end.

Other sites have done mini fires on the scoop of a shovel using embers from the fire and additional fuel.

### **BONFIRES**

For special occasions (winter solstice or celebration events) some groups do bonfires. These need a special permit obtained through Volunteer Resources. These larger fires need a broader notice distribution (similar to Rx fires) than just the weekly brush pile burns. The permit process will take care of that additional notification.