

Prescribed fire equipment

What do you need to do it effectively and safely?

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- Only a few basic tools needed for small scale do it your self burning
- More needed for safe burning at larger scale
- Shared tools and equipment can facilitate community-based Rx efforts/ Prescribed Burn Associations

At all scales – PPE Personal Protective Equipment

- **PPE** - affects mobility, safety and amount of radiant heat absorbed from burning.
- **Headwear** – protects from falling embers, falling debris, tools
 - Cap or hat
 - Helmets/ hard hat – can attach other safety items (goggles / shrouds)
 - Hard hat \$25 – \$50
- **Eyewear** – reduces smoke, blocks floating debris / embers
 - Must fit securely, be heat resistant and non-flammable.
 - Safety glasses most likely to be worn entire time while burning. inexpensive, relatively more comfortable and provide smoke protection similar to goggles
 - Safety glasses \$1-\$15
 - Goggles \$25 – \$100





Clothes

- **Shirts/pants** – Insulate from heat and resist ignition. Protect the wearer from burning embers, hot parts of a drip torch or other equipment, briars, thorns
- Fire resistant (FR) or non-flammable material:
 - 100% cotton, 100 % wool, Nomex[®], Indura[®] FR cotton, Tescasafe[®] or other FR-rated cloth.
- NOT synthetic materials such as nylon, can melt or ignite
- **Shirts** - long sleeve and free of rips, tears or holes. Worn with sleeves down
 - T-shirts plain 100% cotton without screen-printing underneath
- Nomex shirts about \$115, pants about \$225
- Carhartt fire resistant pants \$80, shirts \$80

Hands and Feet

- **Gloves** – Protects hands from radiant heat, gas/diesel if spilled
 - Worn at all times while conducting the burn.
 - Leather is a good, tough insulator.
 - Avoid partially synthetic material or canvas.
- Leather Gloves \$15
- **Boots** – Non-flammable, heat resistant material, leather withstands wear, insulates.
 - NO Steel toes - increase danger of burning skin as they heat up fast and hold heat against the toes longer
 - Avoid rubber boots, pac-type boots or others with rubber or synthetic components
 - Federal agency personnel required to wear 8- 10-inch tall all-leather, lace-up boots, Vibram®- soles.
 - Choose comfort - consider terrain and distance you may have to walk
- Leather Boots \$100 – \$500



Hand Tools

- Have multiple uses on Rx burns:
 - construct firebreaks, suppress spot fires, mop-up
- McLeod - rake with coarse tines for one side and a flat sharpened hoe for cutting on other
- Pulaski - axe and an adze in one head, construct fuel breaks since it both dig soil and chop wood
- Shovel – dig trenches, move debris, spread dirt
- Rake – flexible metal tines can remove light fuels like leaves
- Flapper – used to smother flames, mostly in grasslands
- Cost \$65 - \$85/ each



Drip Torch

- Most widely used ignition device
- Spout stows inside the tank but reassembled tip out for use. 360° loop (fuel trap) in spout prevents ignition of fuel in tank. Nozzle / wick at tip
- Fuel flows through spout continuously onto wick, keeping it lit for a steady drip of ignited fuel & continuous burn line.
- Safety when operating:
 - Wear PPE, keep inside the burn unit, hold upright/ extinguish when not in use, always keep an eye on where others are around you.
- Cost \$150 each



Gas cans

- 5 gallon metal Jerry cans
- Fill with mixture of diesel and gasoline. Ratio varies
 - 50:50 diesel to gasoline for temperatures 35 F - 75 F
 - 60:40 or 70:30 diesel > temp to reduce gas volatility
- Need several to refill drip torches when run out of fuel
- Need to be non-flammable, not plastic
- Cost \$50-\$75



Backpack pumps

- Used to spray water to reduce fire intensity, hold a line, mop up
- Can reach areas that trucks/ ATVs cannot
- Holds 5-gallons of water (>45 pounds)
- Soft and hard bladders
 - Soft more comfortable but wear faster and can rip
- Use two hands to hold wand and use push pull motion to squirt water
- Most have 2 spray nozzles for penetrating versus fan spray
- Cost \$135 each



Chainsaws

- Used to cut downed trees, downed branches, dead snags or brush piles
- Used prior to the burn to remove problem trees or logs and to clear firebreaks.
- Can be important during or after to cut burning trees and logs, reducing spot fire potential.
- Chainsaw operators should wear full protective gear including: FR clothing, helmet, eye protection, hearing protection, gloves / chaps.
 - Air movement created by the saw can cause flames to flare-up injuring the operator or damaging the saw.
- Have two-cycle engine fuel in marked containers for refueling and that the crew knows their location.
- Cost \$300 – 800 ?



Burn Signs



- Important when burning in areas that are highly populated or along a high-traffic road.
- May deter people from calling the fire department,
- Make sure the signs are easy to read, set-up properly so they don't blow over, are highly visible and placed in locations where they can be easily viewed by motorists.
- Cost \$50 - \$100 or DIY

Radios – very important at larger scales of burning

- Allow for communication amongst burn crew
 - ensures the burn will be conducted safely, effectively and correctly.
- Hand-held radios carried individuals.
 - Everyone needs to understand how to operate
 - All on the same frequency.
 - Compatibility between radios check prior to burn
- Need sufficient range. Vegetation and terrain can block transmission
- Be sure radios are not bunched up in just a few locations, but spread from the lead torch to last person monitoring the burn.
- Cost \$100 - \$300 each



Pumper Units

- 200-gallon skid sprayer
 - too heavy to move without a tractor/forklift
 - Best in vehicle available to permanently house it
 - Cost about \$3,200
- 55-gallon skid sprayers
 - In steep ground safest in back of pick-up truck
 - Easily moved by hand with two or three people
 - Water supply lasts longer than expected thanks to an efficient hose and nozzle
 - Cost about \$1,750
- 26 gallons
 - Most appropriate for ATVs and UTVs.
 - Cost \$200-\$300



Burn Trailer

- Can help store group equipment for a Prescribed Burn Association
- Can be moved to different properties to implement burns
- Should be big enough to fit tools and equipment
- Small trailers more flexible, don't require a large pick up to haul
- Large trailers have high clearance trailer, can haul a UTV
- Cost \$3,000 – 8,000





Contingency resources

Important to identify in burn plan

Volunteer Fire Departments/ Fire engines of different types

- Develops community relationships
- Great opportunity for training