



The Humboldt County PBA has two 55-gallon slip-in units that can be easily lifted by two people and used in the bed of a pick-up. In this case, a PBA member brought both units to a burn in his livestock trailer.

Field Report: Building a burn trailer to support your community's prescribed fire efforts

by Lenya Quinn-Davidson¹ and Jeffery Stackhouse² Photos courtesy Lenya Quinn-Davidson

Throughout the West, there is increasing interest in utilizing prescribed fire to reduce fuels, improve and restore habitat, and increase wildfire resilience on private lands. For California grasslands in particular, prescribed fire shows promise as one of the most cost-effective tools for controlling invasive species like medusahead (*Elymus caput-medusae*), starthistle (*Centaurea solstitialis*), and barbed goat grass (*Aegilops triuncialis*), as well as for limiting the spread of woody plants. Although prescribed fire has been an “expert”-driven practice in the West for many decades—used primarily by federal and state land management agencies that staff wildland fire crews—there is a history of community-based burning in the region, and many areas are finding a renewed interest in grassroots prescribed burn associations (PBAs), which they see as the only realistic model for

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bringing fire back to private lands at a meaningful scale. Prescribed burn associations are common in the Great Plains and have enabled a significant scaling-up of prescribed fire in that region over the last decade (Weir et al. 2015). In 2018, Humboldt County (CA) formed the first prescribed burn association in the West, convening more than 70 local members and 10 volunteer fire departments and burning more than 900 acres on nine different properties in their first two years.

Critical to the efforts of the Humboldt County Prescribed Burn Association (HCPBA) has been their burn trailer, which was funded in 2017 and 2018 by the California Deer Association and includes equipment and tools to support prescribed fire implementation. This document presents a list of recommended burn cache items, and it is intended to inform the efforts of newly forming PBAs and other community-based prescribed fire efforts in the West.

Additional recommendations and lessons learned

Trailer: When the Humboldt County PBA built their burn trailer, they special-ordered a high-clearance trailer that was big enough to fit a UTV, should they someday find grant funds to purchase one. The trailer is roomy and can drive over rough terrain, but it is also very tall

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and too large for anything but a full-size pickup to tow. **Recommendation:** Purchase a burn trailer that is big enough to fit tools and equipment, but it is not necessary to have a high-clearance trailer or a trailer big enough for a UTV.

Slip-in units: The Humboldt County PBA purchased two 55-gallon Northstar skid sprayers and one 200-gallon Northstar skid sprayer, thinking the 55-gallon units would be suitable for UTVs and the 200-gallon unit would be suitable for a pick-up truck. However, the 55-gallon units were bigger than expected and, in the steep country of California's North Coast, are safer in the bed of a pick-up than in a UTV. The 55-gallon units are easily moved by hand with two or three people, and their water supply lasts longer than expected thanks to an efficient hose and nozzle. The 200-gallon unit is too heavy to move without a tractor or forklift, and it is therefore less user-friendly than expected.

Recommendation: Unless you have a vehicle available to permanently house the 200-gallon unit, prioritize purchase of the 55-gallon units. Likewise, smaller units (in the 15-25 gallon range) are most appropriate for ATVs and UTVs.

Personal protective equipment: The Humboldt County PBA requires volunteers to wear the following: natural fiber clothing (no synthetics), long pants and long-sleeved shirts, leather boots, leather gloves, hard hat (for forested units) or cap, and eye protection. The Humboldt County PBA does not require participants to wear Nomex or to carry fire shelters. Requiring Nomex and shelters can be limiting for

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Figure 1. Tools and equipment to include in a burn trailer. Note: The costs outlined in this document are estimates based on purchases made by the Humboldt County PBA and through additional online research. Individual PBAs will need to assess costs and desired numbers as appropriate for their local efforts and needs.

Item	Estimated cost/unit	Recommended number	Total cost
HIGH PRIORITY NEEDS			
Enclosed trailer (7x16)	\$6,800	1	\$6,800
Spare tire	90	2	180
Tie-downs/straps	250	1	250
Locks/totes/other	200	1	200
Custom tool rack in trailer	400	1	400
Kestrel 5500FW Fire Weather Meter Pro	450	1	450
VHF radio	300	40	12,000
PBA radio frequency (10 year)	600	1	600
Radio chest harness and/or belt clip	40	40	1,600
55-gallon skid-sprayer for pick-up truck	2,000	4	8,000
Drip torch	160	12	1,920
Road sign and stand	160	4	640
Backpack sprayer	180	10	1,800
McLeod	60	15	900
Fire rake	60	10	600
Rogue hoe	60	10	600
First aid kit	150	1	150
Hard hat	20	20	400
Smoke mask (N95 20-pack)	15	10	150
ATV sprayer (15-20 gal)	220	4	880
Ethanol-free fuel/2-stroke oil	160	1	160
MEDIUM PRIORITY NEEDS			
Pulaski	60	5	300
Shovel	60	5	300

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Building a Burn Trailer *continued*

community members who can't afford to buy them, and it can also make some community members uncomfortable.

Recommendation: The Humboldt County PBA has found that participants are most comfortable, agile, and confident when wearing their own clothes, as long as they meet the basic safety requirements outlined above. Carhartt makes nice fire-resistant work clothes, which are also an option.

Radios: Communication is one of the most important safety considerations on a prescribed burn. **Recommendation:** Prioritize purchase of reliable radios. The Humboldt County PBA also purchased a 10-year county-wide frequency to increase the autonomy and reliability of their radio communications.

Planning: Project planning is critical for success. The Humboldt County PBA often hires private burn bosses to help develop burn plans, and University of California Cooperative Extension advisors have been a helpful resource for understanding the appropriate timing for burns and monitoring the ecological effectiveness of burning. Local Cal Fire staff are also a good resource for private landowners interested in burning, and they should be looped into project plans as they develop, especially for in-season burns that require Cal Fire permits.

Recommendation: Resources are available to help with burn planning. Reach out to a private burn boss, your local University of California Cooperative Extension office, the authors of this article, Cal Fire staff, or other prescribed fire experts as plans develop.

Conclusion:

Private landowners throughout the West are interested in bringing prescribed fire back into the management toolbox. Prescribed fire can be a cost-effective means of achieving a wide variety of management objectives, including the restoration and maintenance of grasslands and woodlands, reduction of hazardous fuels, and the control of invasive species. In the Great Plains and other parts of the country, shared tools and equipment are a cornerstone of community-based prescribed fire efforts, and prescribed burn associations have burn trailers to house and transport shared equipment caches. This article outlines and prioritizes items that could be included in a burn trailer, and it lends additional insights from the perspective of the Humboldt County Prescribed Burn Association—the first PBA in the West. As new PBAs coalesce and start to build capacity, this article is intended to provide ideas, guidance, and inspiration.



References

Weir, Twidwell, and Wonkka 2015. Prescribed burn association activity, needs, and safety record. Great Plains Fire Science Exchange publication 2015-6.



Members of the Humboldt County PBA designed and installed tool racks on the inside wall of the burn trailer.

Figure 1. *continued*

Item	Estimated cost/unit	Recommended number	Total cost
MEDIUM PRIORITY NEEDS			
Flapper	60	5	300
Fire goggle	45	20	900
Fire shroud	30	20	600
Flo-Fast fuel canister for drip mix	95	6	570
UTV sprayer (20-35 gal)	600	2	1,200
LOW PRIORITY NEEDS			
Solar panel/lights/battery	300	1	300
Logos/wrap	250	1	250
10 gal water jug	2	75	150
Fold-a-tank	1,100	1	1,100
Hose: 1.5" x 100'	150	15	2,250
Hose: 1" x 50'	85	10	850
Inline T	75	10	750
1.5" Y	80	1	80
2.5" to 1.5" reducer	45	1	45
Nozzle/bail 1.5"	275	1	275
Nozzle 1"	15	10	150
Hose clamp	65	10	650
Hose pack	175	2	350
Hose coupling 1.5"	5	5	25
Transfer pump	550	1	550
UTV	16,000	1	16,000
String trimmer	190	2	380
Backpack blower	580	1	580
Pole saw	600	1	600
Chainsaw- 18" bar	350	1	345
Saw chain	12	20	240