

Prescribed Fire Implementation Challenges

Burning Issues Symposium

**Lessons Learned Restoring Oak
Systems**

February 2-3, 2016

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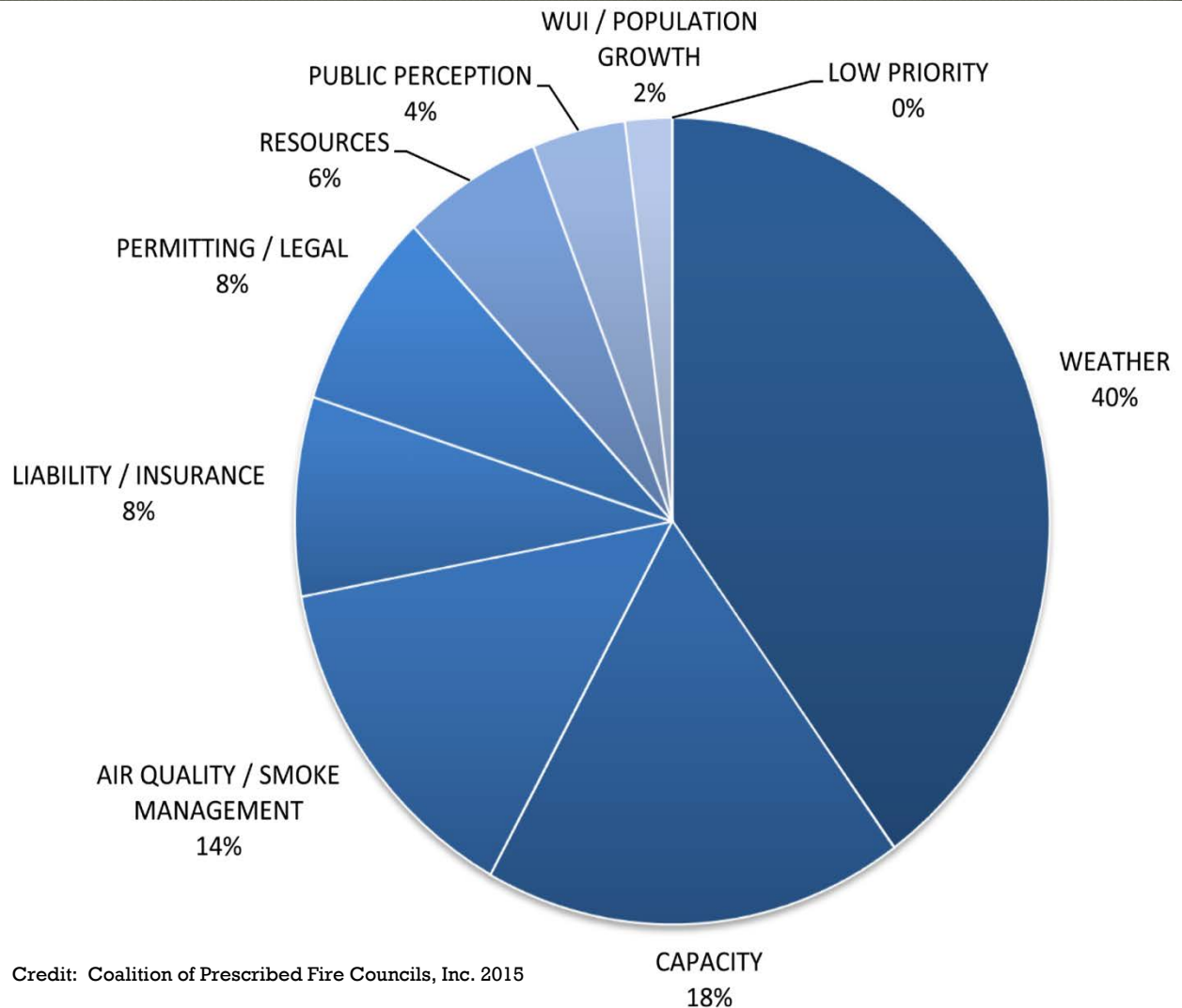


National Prescribed Fire Use Survey Report - 2015

Challenges

- Weather
- Legal/Policy
- Capacity
- Smoke Management

Mitigations



Prescribed Fire Implementation Challenges

WEATHER

You can't change the weather.

Weather prescription elements needed (at minimum) to accomplish objectives AND mitigate safety and smoke concerns:

- ✓ Relative humidity (25-50%)
- ✓ Wind speed (4-18mph)
- ✓ Wind direction
- ✓ Mixing height (2500+ ft.)
- ✓ Transport wind
- ✓ Smoke Dispersal
- ✓ Recent precipitation (effects on fuel moisture)

...FIRE WEATHER WATCH IN EFFECT FROM TUESDAY AFTERNOON THROUGH TUESDAY EVENING FOR GUSTY WINDS AND LOW RELATIVE HUMIDITY...

.DISCUSSION...HIGH PRESSURE WILL SIT ACROSS THE REGION TODAY WITH MOSTLY SUNNY SKIES. RELATIVE HUMIDITY WILL DROP TO AROUND 20 PERCENT. WINDS WILL BE LIGHT THIS MORNING...THEN INCREASING TO 5 TO 10 MPH FROM THE SOUTHWEST.

WARM AND VERY DRY WEATHER IS EXPECTED TUESDAY. RELATIVE HUMIDITY WILL DROP TO 15 PERCENT OR LESS. THIS WILL COMBINE WITH GUSTY WINDS TO RESULT IN CRITICAL FIRE WEATHER CONDITIONS.

.TODAY...

SKY/WEATHER.....SUNNY.
TEMPERATURE.....53 AT IGNITION...MAX 62.
RH.....24 PERCENT AT IGNITION...MIN 19 PERCENT.
WIND (20 FT).....WINDS SOUTHWEST AT 7 MPH AT
IGNITION...OTHERWISE LIGHT AND VARIABLE WINDS
BECOMING SOUTHWEST 5 TO 10 MPH IN THE LATE
MORNING AND AFTERNOON.
CWR.....0 PERCENT.
LAL.....1.
HAINES INDEX.....2 OR VERY LOW POTENTIAL FOR LARGE PLUME
DOMINATED FIRE GROWTH.
MIXING HEIGHT.....5000 TO 6000 FT AGL.
TRANSPORT WINDS.....SOUTHWEST 7 TO 15 MPH.
SMOKE DISPERSAL.....POOR INCREASING TO GOOD LATE IN THE MORNING.

.TONIGHT...

SKY/WEATHER.....MOSTLY CLEAR.
TEMPERATURE.....MIN 39.
RH.....MAX 55 PERCENT.
WIND (20 FT).....SOUTH WINDS 5 TO 10 MPH.
CWR.....0 PERCENT.
LAL.....1.
HAINES INDEX.....3 OR VERY LOW POTENTIAL FOR LARGE PLUME
DOMINATED FIRE GROWTH.
MIXING HEIGHT.....100 TO 600 FT AGL.
TRANSPORT WINDS.....SOUTH 5 TO 10 MPH.
SMOKE DISPERSAL.....POOR.

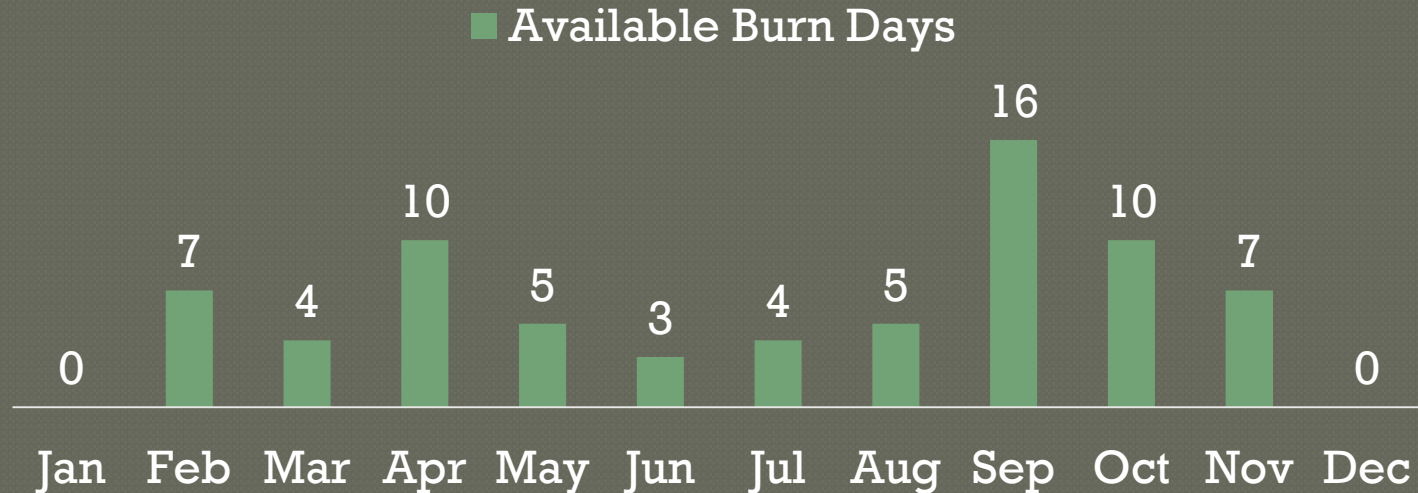
.TUESDAY...

SKY/WEATHER.....SUNNY.
TEMPERATURE.....MAX 77.
RH.....MIN 14 PERCENT.
WIND (20 FT).....SOUTH WINDS 5 TO 13 MPH INCREASING TO 15 TO 21
MPH IN THE AFTERNOON.
CWR.....0 PERCENT.
LAL.....1.
HAINES INDEX.....5 OR MODERATE POTENTIAL FOR LARGE PLUME
DOMINATED FIRE GROWTH.

Prescribed Fire Implementation Challenges

WEATHER (cont.)

Available Burn Days = 74



Based on 2015 weather data from RAWS in Southern Illinois.

Available burn days were defined using: RH (25-55%), Wind Speed (4-18mph), Excluded days with recorded precipitation plus the following 2 days (for drying).

Parameters NOT included: Mixing height, transport wind, wind direction, smoke dispersion, and fuel moisture levels in target fuels.

Prescribed Fire Implementation Challenges

LEGAL/POLICY

What restrictions further reduce available burn days?

Burn restrictions implemented to protect endangered populations.

Example: Indiana Bat

- April 1 - September 30 (Illinois restriction parameters)
- Reduces number of available burn days

Class 1 air quality restrictions

- As established under the Clean Air Act of 1970

County burn bans

County/State burn permits

Prescribed Fire Implementation Challenges

LEGAL/POLICY (cont.)

Available Burn Days = ~~74~~ 28



Based on 2015 weather data from RAWS in Southern Illinois

Available burn days were defined as: RH (25-55%), Wind Speed (4-18mph), Excluded days with recorded precipitation plus the following 2 days (for drying).

Parameters NOT included: Mixing height, transport wind, wind direction, fuel moisture levels in target fuels.

Prescribed Fire Implementation Challenges

CAPACITY

Burning needs far exceed current capacities .

Challenges:

- Fiscal limitations
- Availability of qualified personnel
- Availability of contingency resources
- Availability of fire equipment
- Available burn days



Prescribed Fire Implementation Challenges

SMOKE MANAGEMENT

You own it.

Smoke Sensitive Areas

- Roads/highways
- Residences/developments
- Healthcare facilities
- Airports

Residual Smoke (nuisance smoke)

- Could last for days
- Affects visibility
- Affects health



Prescribed Fire Implementation Challenges

MITIGATIONS

“Anticipate the difficult by managing the easy” Lao Tzu

Larger burn units

- mitigates limited burn days

Utilize natural fire breaks

- Reduces site preparation time by eliminating constructed fire breaks
- Mitigates encroachment of invasives by reducing soil disturbance

Expand pre-burn site preparation

- Seek and address potential problem areas prior to ignition
 - Snags along fire breaks (*spotting concern*)
 - Establish solid fire breaks in key holding areas (*reduces holding resource requirements & increases operational efficiency on burn day*)

Prescribed Fire Implementation Challenges

MITIGATIONS (cont.)

Build community awareness

Establish working relationships with key individuals

- Adjacent landowners
- County Fire Marshal & Emergency Management Coordinator
- Local Fire Departments
- State and Federal Agencies

Participate in developing a burning culture

- Education

Revisit the hard-date restrictions on burning

- More research needed on the fire effects on mortality of focus species
- Is a strict calendar date the best approach?
- Are these restrictions hindering the use of fire in promoting healthy ecosystems?

Prescribed Fire Implementation Challenges

“Our expectations drive our preparation.”

**Lt. Colonel Eric Carlson
(USMC Retired)**