Evaluating Your Burn Unit

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Why Prescribe Fire?

- To control competition
- To reduce risk from wildfire
- To attract wildlife and improve/maintain ecosystem
- To keep a tradition alive
- Know you need to/ought to….but not sure why?

OBJECTIVES

Is Rx Fire the Right Practice Right Now?

- Young longleaf
- Fine fuels present
- Dormant season Rx

Is Rx Fire the Right Practice Right Now?

- Heavy hardwood component
- Low fire behavior
- Mechanical/chemical before prescribing fire

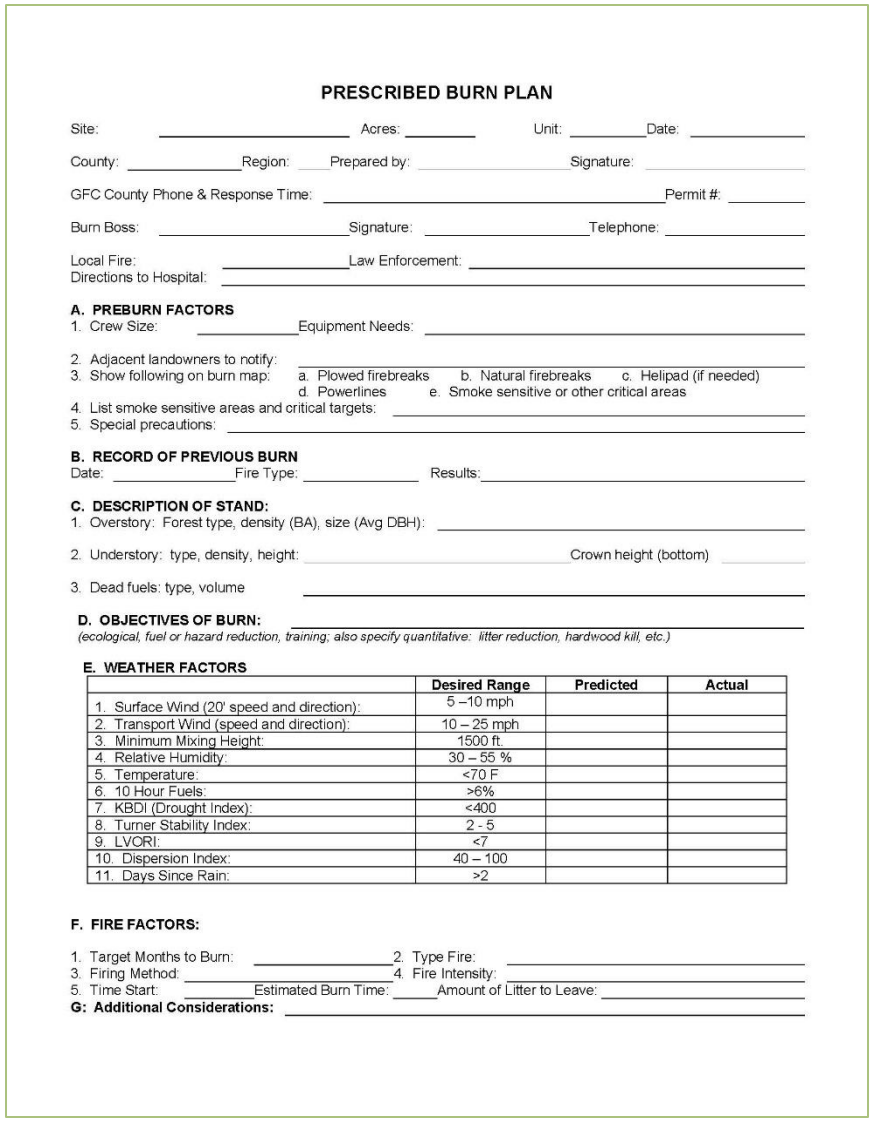
Properly Prescribed Chemical/Fire – Photo Point

2019
1 yr rough

Prescription Parameters

- Weather and Fuels: acceptable ranges
  - *Wind direction and speed, temperature, rH, fuel moisture, overnight conditions, days since rain, etc.*
- Is weather compatible with your desired fire behavior?
- Specific objectives can also guide your parameters
  - burning young longleaf
  - burning deep duff areas
  - for flowering responses

Components of a Burn Plan (*Considerations)



PRESCRIBED BURN PLAN

Site: _____ Acres: _____ Unit: _____ Date: _____

County: _____ Region: _____ Prepared by: _____ Signature: _____

GFC County Phone & Response Time: _____ Permit #: _____

Burn Boss: _____ Signature: _____ Telephone: _____

Local Fire: _____ Law Enforcement: _____
Directions to Hospital: _____

A. PREBURN FACTORS
1. Crew Size: _____ Equipment Needs: _____

2. Adjacent landowners to notify: _____
3. Show following on burn map: a. Plowed firebreaks b. Natural firebreaks c. Helipad (if needed)
d. Powerlines e. Smoke sensitive or other critical areas
4. List smoke sensitive areas and critical targets: _____
5. Special precautions: _____

B. RECORD OF PREVIOUS BURN
Date: _____ Fire Type: _____ Results: _____

C. DESCRIPTION OF STAND:
1. Overstory: Forest type, density (BA), size (Avg DBH): _____

2. Understory: type, density, height: _____ Crown height (bottom) _____

3. Dead fuels: type, volume _____

D. OBJECTIVES OF BURN: _____
(ecological, fuel or hazard reduction, training; also specify quantitative: litter reduction, hardwood kill, etc.)

E. WEATHER FACTORS

	Desired Range	Predicted	Actual
1. Surface Wind (20' speed and direction):	5 –10 mph		
2. Transport Wind (speed and direction):	10 – 25 mph		
3. Minimum Mixing Height:	1500 ft.		
4. Relative Humidity:	30 – 55 %		
5. Temperature:	<70 F		
6. 10 Hour Fuels:	>6%		
7. KBDI (Drought Index):	<400		
8. Turner Stability Index:	2 - 5		
9. LVORI:	<7		
10. Dispersion Index:	40 – 100		
11. Days Since Rain:	>2		

F. FIRE FACTORS:

1. Target Months to Burn: _____ 2. Type Fire: _____
3. Firing Method: _____ 4. Fire Intensity: _____
5. Time Start: _____ Estimated Burn Time: _____ Amount of Litter to Leave: _____

G: Additional Considerations: _____

- General Information
- Pre-burn Factors
- Record of Previous Burns
- Description of Stand
- Objectives of Burn
- Weather Factors
- Detailed Unit Description
- Fire Factors
- Smoke Management
- Burn Management
- Contingencies
- Map

General Information

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Pre-Burn Factors; Record of Previous Burns

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Description of Stand

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Objectives of Burn

D. OBJECTIVES OF BURN: _____

(ecological, fuel or hazard reduction, training; also specify quantitative: litter reduction, hardwood kill, etc.)

- Usually pertaining to immediate goal(s) of this fire event

Goals and Objectives of Burn Management

- **Short term goals of managing with fire (burn to burn)**
  - *Ex. Fuel loading reduction*
  - *Ex. Top kill hardwood*
  - *Ex. Keep unit on regular burn rotation*

- **Long term goals of managing with fire (multiple fires later)**
  - *Ex. Provide quality habitat quality for NOBO*
  - *Ex. Maintain an open longleaf pine stand with minimal midstory with Rx fire only*
  - *Ex. Restore native understory grasses and legumes*

Assuming a young longleaf stand, a shift in fire seasonality will need to occur to meet long term goals

Seasonality

Dormant Season (Dec-Feb)

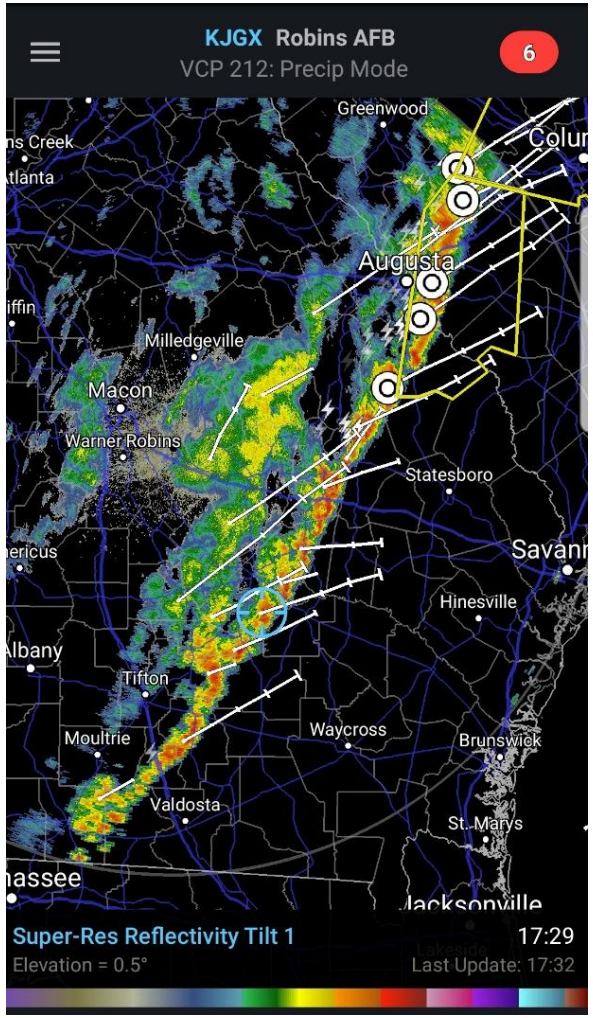
- Predictable Forecasts
- Dependable Moisture
  - Passing wet, cold fronts
- Lower rates of evapotranspiration
- Cooler ambient temps
- Favors forbs

Growing Season (Mar-July)

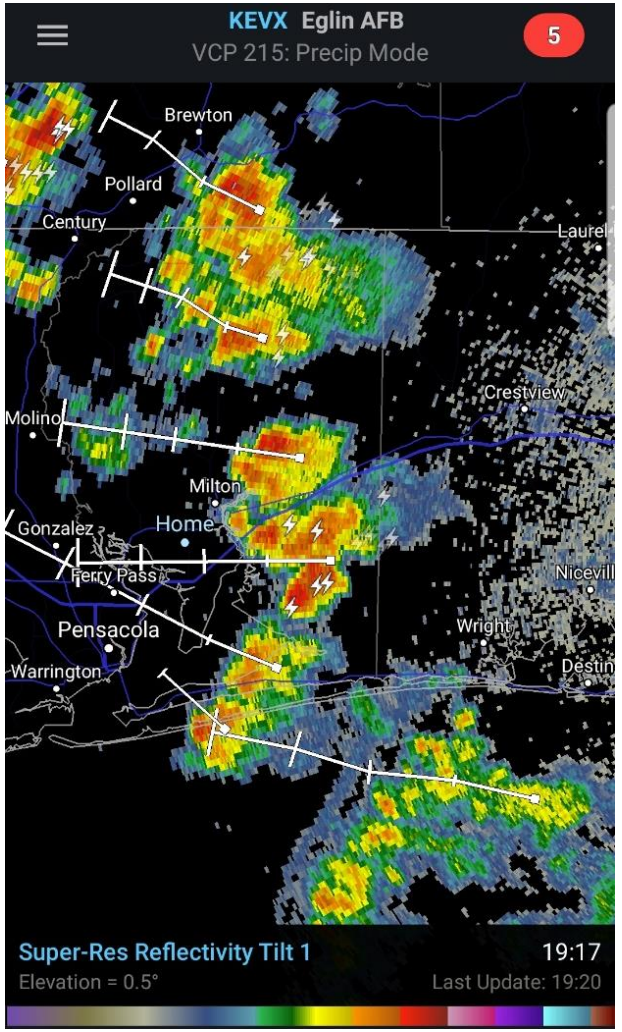
- Forecasts not as predictable
- Sporadic rain events
  - Convective storms
- Higher ambient temps
- Warmer ambient temps
- Favors grasses

Seasonality

Dormant Season (Dec-Feb)



Growing Season (Mar-July)



Weather Factors

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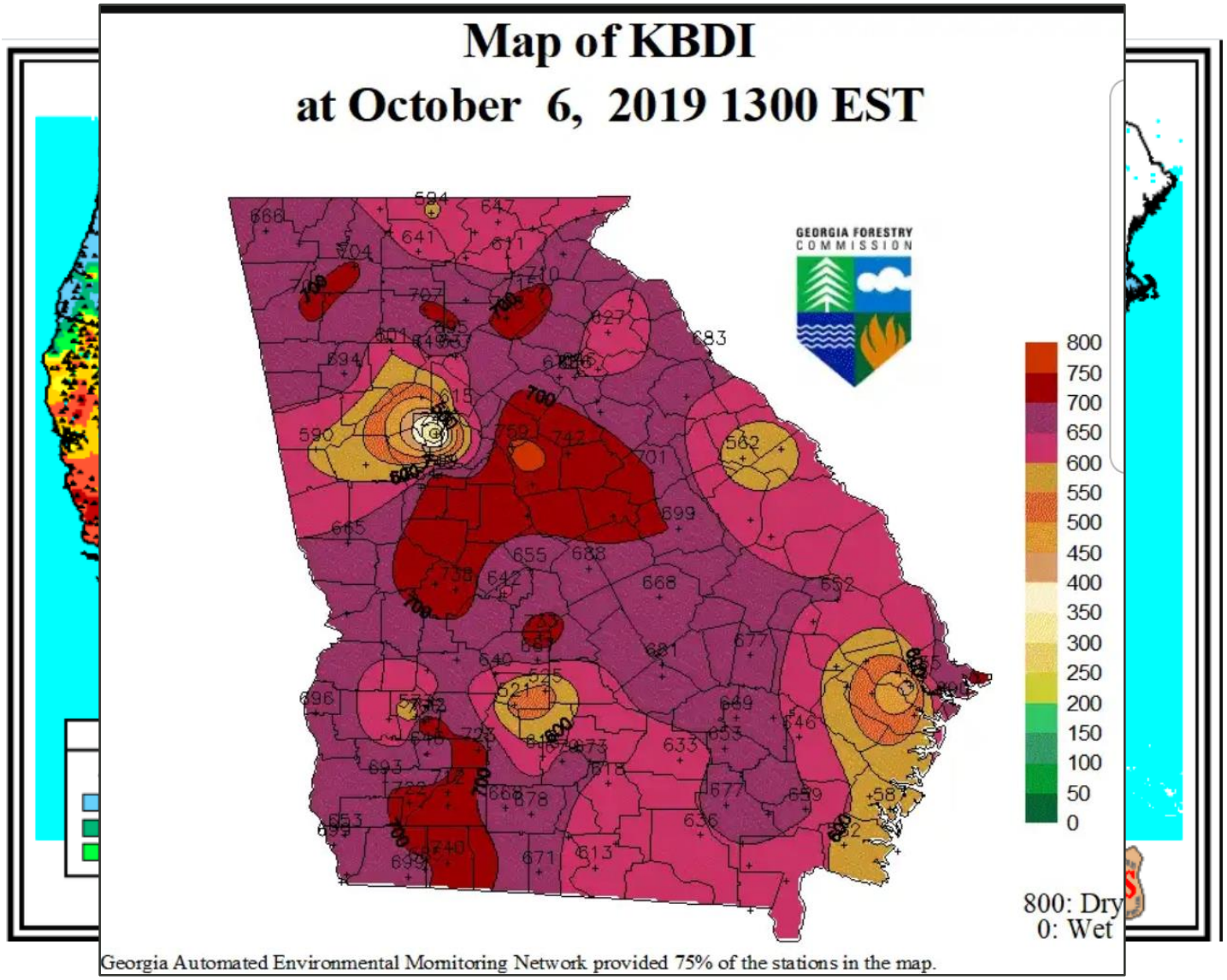
Weather Factors-Keetch Byram Drought Index

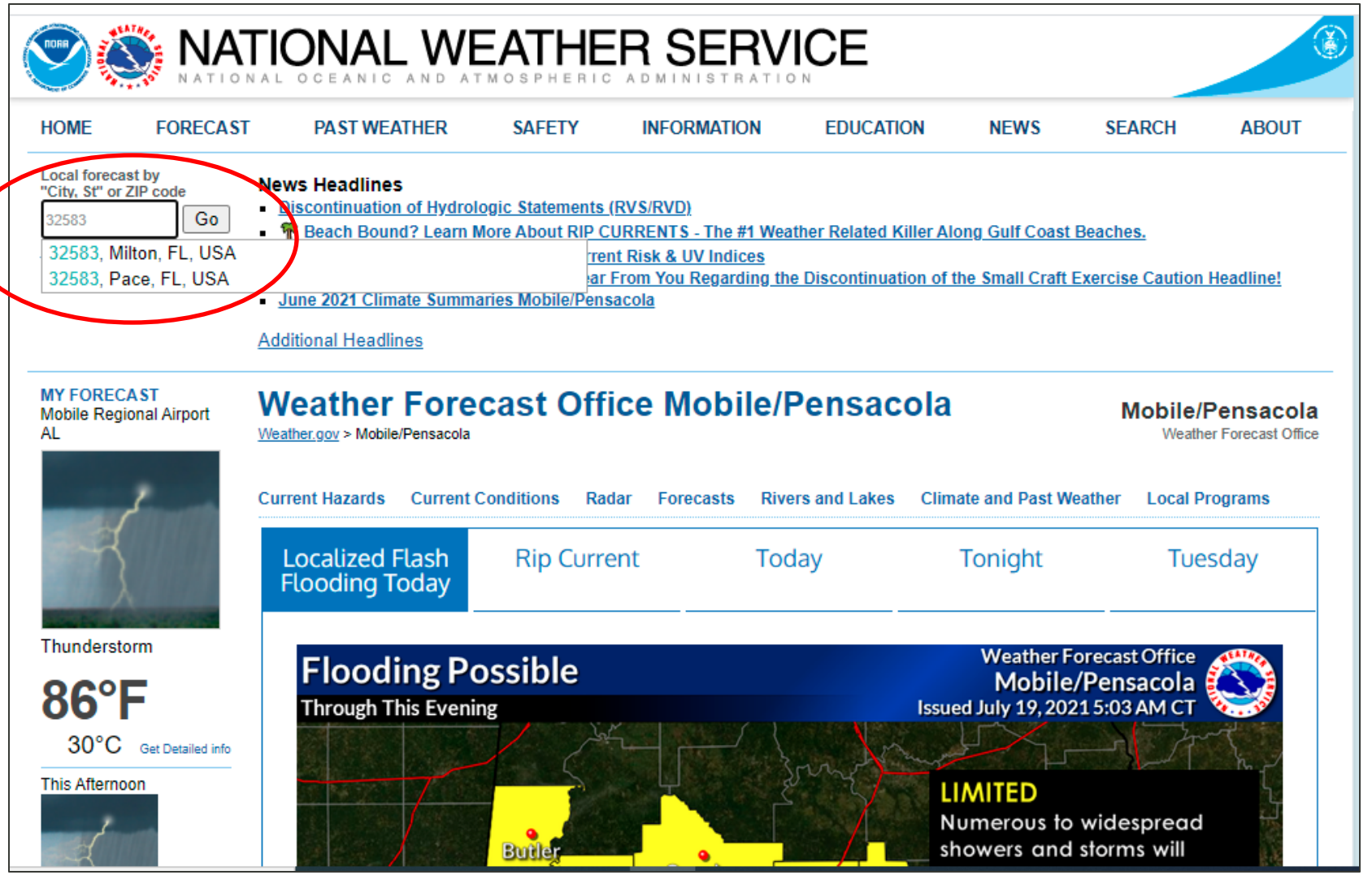
- Measures top 8’’ of soil’s moisture
- 0-800 scale; 0 being saturated



Weather Factors (Predictions/Forecasts)

- Pull multiple predictions (if possible)
- NWS spot weather has been the most accurate, in my opinion
- Other weather prediction services: State Forestry Commissions, Weather Channel, etc

Weather Factors-NWS Spot Weather

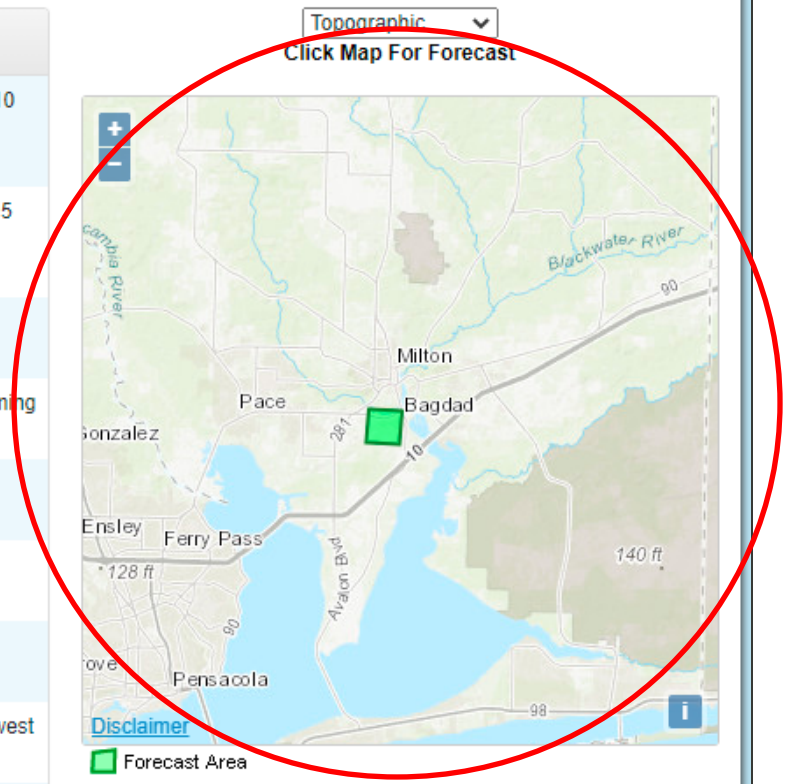


Weather Factors-NWS Spot Weather

High: 86 °F	Low: 75 °F	High: 86 °F	Low: 74 °F	High: 87 °F	Low: 75 °F	High: 90 °F	Low: 75 °F	High: 91 °F

Detailed Forecast

This Afternoon	Showers and thunderstorms. Some of the storms could produce heavy rainfall. High near 86. South wind around 10 mph. Chance of precipitation is 80%. New rainfall amounts between a tenth and quarter of an inch, except higher amounts possible in thunderstorms.
Tonight	Showers and thunderstorms likely, mainly after 1am. Mostly cloudy, with a low around 75. Southwest wind around 5 mph becoming calm in the evening. Chance of precipitation is 60%. New rainfall amounts between a tenth and quarter of an inch, except higher amounts possible in thunderstorms.
Tuesday	Showers and thunderstorms. High near 86. Light southwest wind becoming south 5 to 10 mph in the morning. Chance of precipitation is 90%. New rainfall amounts between a quarter and half of an inch possible.
Tuesday Night	Showers likely and possibly a thunderstorm. Mostly cloudy, with a low around 74. South wind around 5 mph becoming calm in the evening. Chance of precipitation is 60%.
Wednesday	Showers and thunderstorms. High near 87. Light southwest wind becoming south 5 to 10 mph in the morning. Chance of precipitation is 80%.
Wednesday Night	A 30 percent chance of showers and thunderstorms, mainly after 1am. Partly cloudy, with a low around 75. South wind around 5 mph becoming calm after midnight.
Thursday	Showers and thunderstorms likely, mainly after 1pm. Mostly sunny, with a high near 90. Light west wind becoming southwest 5 to 10 mph in the morning. Chance of precipitation is 60%.
Thursday Night	A 30 percent chance of showers and thunderstorms, mainly after 1am. Partly cloudy, with a low around 75. Southwest wind around 5 mph becoming calm in the evening.
Friday	Showers and thunderstorms likely, mainly after 1pm. Mostly sunny, with a high near 91. West wind 5 to 10 mph. Chance of precipitation is 60%.
Friday Night	A 30 percent chance of showers and thunderstorms, mainly after 1am. Partly cloudy, with a low around 75.
Saturday	A 50 percent chance of showers and thunderstorms. Mostly sunny, with a high near 91.



Point Forecast: Bagdad FL
30.59°N 87.05°W (Elev. 69 ft)

Last Update: 3:45 am CDT Jul 19, 2021

Forecast Valid: 2pm CDT Jul 19, 2021-6pm CDT Jul 25, 2021

Forecast Discussion

Weather Factors-NWS Spot Weather

					Showers		Showers	
High: 85 °F	Low: 75 °F	High: 86 °F	Low: 75 °F	High: 86 °F	Low: 74 °F	High: 90 °F	Low: 75 °F	High: 91 °F

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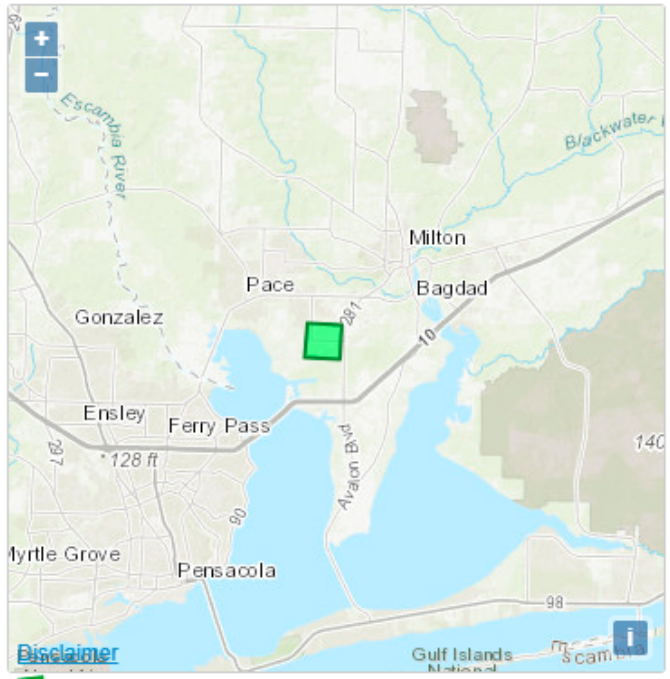
Topographic

Click Map For Forecast



Forecast Area

Point Forecast: 4 Miles WSW Bagdad FL
30.57°N 87.1°W (Elev. 131 ft)

Last Update: 3:45 am CDT Jul 19, 2021

Forecast Valid: 2pm CDT Jul 19, 2021-6pm CDT Jul 25, 2021

Forecast Discussion

Weather Factors-NWS Spot Weather

ZONE AREA FORECAST FOR SANTA ROSA INLAND, FL

Forecast Discussion
Printable Forecast
Text Only Forecast

Hourly Weather Forecast
Tabular Forecast

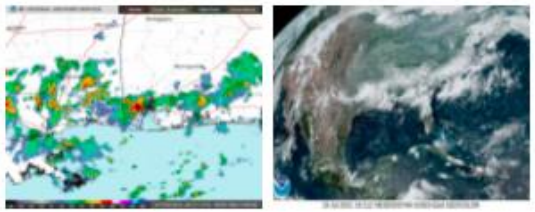
About WFO Mobile
Hazardous Weather Outlook
Local Climatology
Marine Weather

Air Quality Forecasts
International System of Units

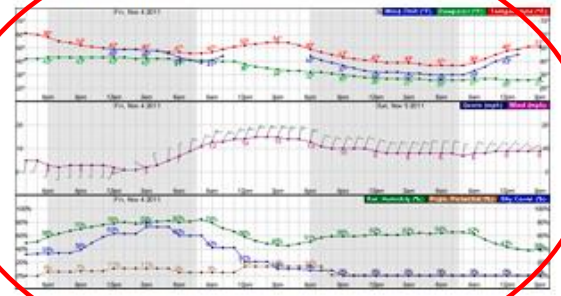
Beach Forecast
Fire Weather
River Data and Forecasts
Aviation Weather

Tropical Weather
NWS Mobile Home
Outlooks
Submit Storm Report

Radar & Satellite Image



Hourly Weather Forecast

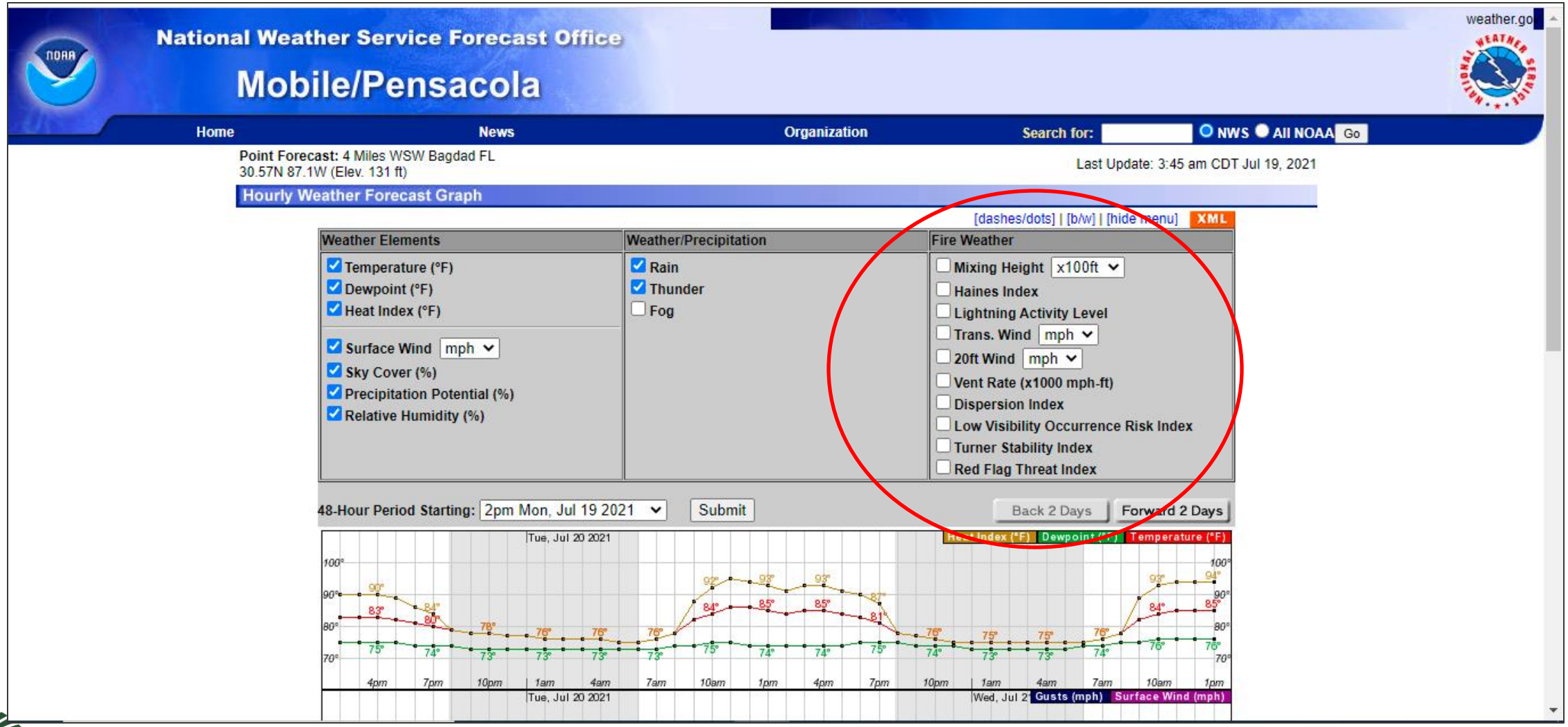


National Digital Forecast Database

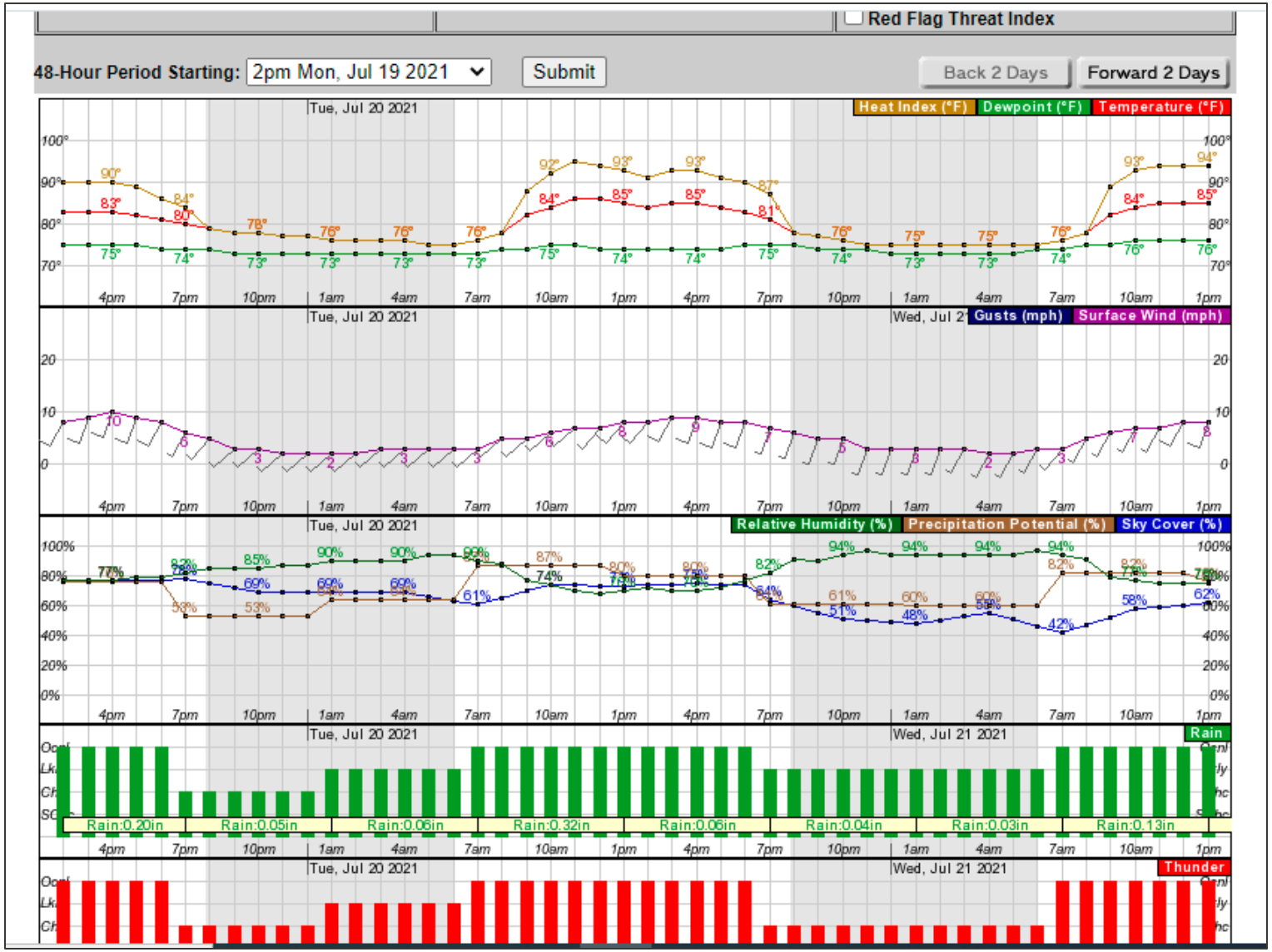
High Temperature

Chance of Precipitation

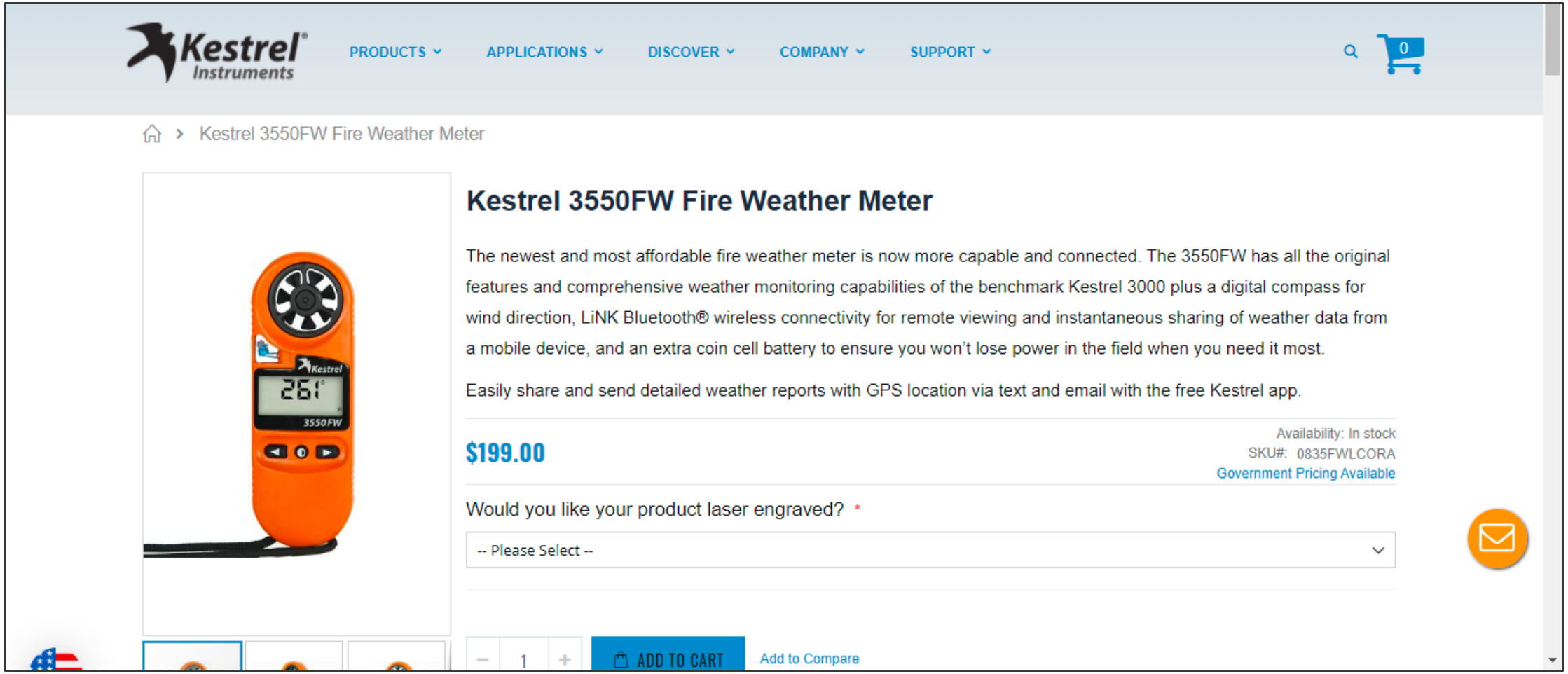
Weather Factors-NWS Spot Weather



Weather Factors-NWS Spot Weather



Weather Factors-Measuring Current Factors



Detailed Unit Description

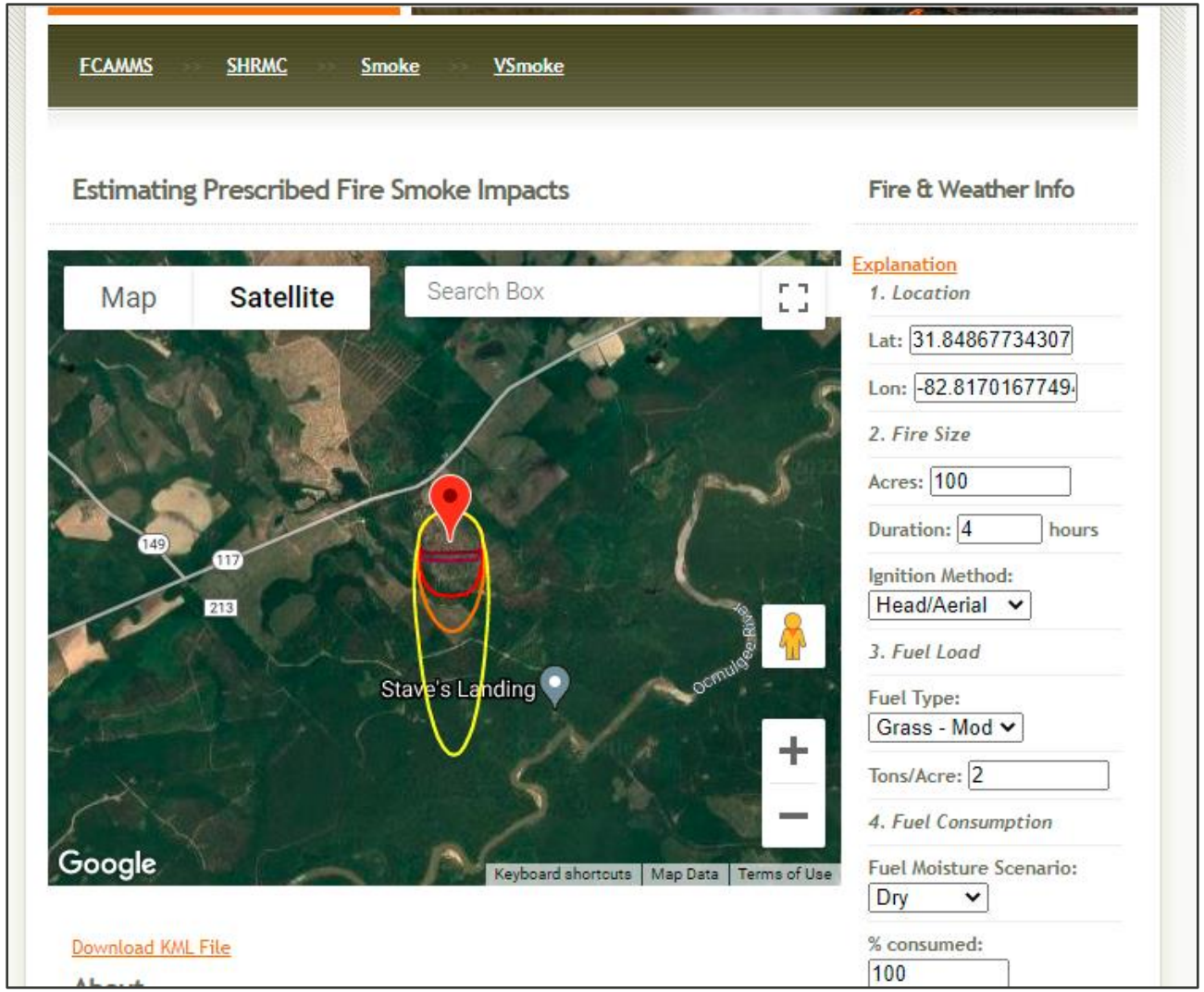
- Firebreaks
- Access
- Overstory/understory
- Fuels inside & outside of unit
- Fuels of Concern
  - Jackpots, Snags, Ladder Fuels

Fire Factors-Fire Behavior Narrative

- Describe predicted fire behavior
- Flame lengths
- Rates of spread
- Expected scorch and mortality

Smoke Management

- Identify nearby smoke sensitive areas
- Highlight downwind & down-drainage smoke sensitive areas
- Utilize smoke prediction tools



Burn Management

- Test Fire
- Firebreak Inspection and preparation
- Potential hazards
- Describe ignition pattern plan
- Mop-up

Evaluating Your Burn Unit

Contingency Plans:

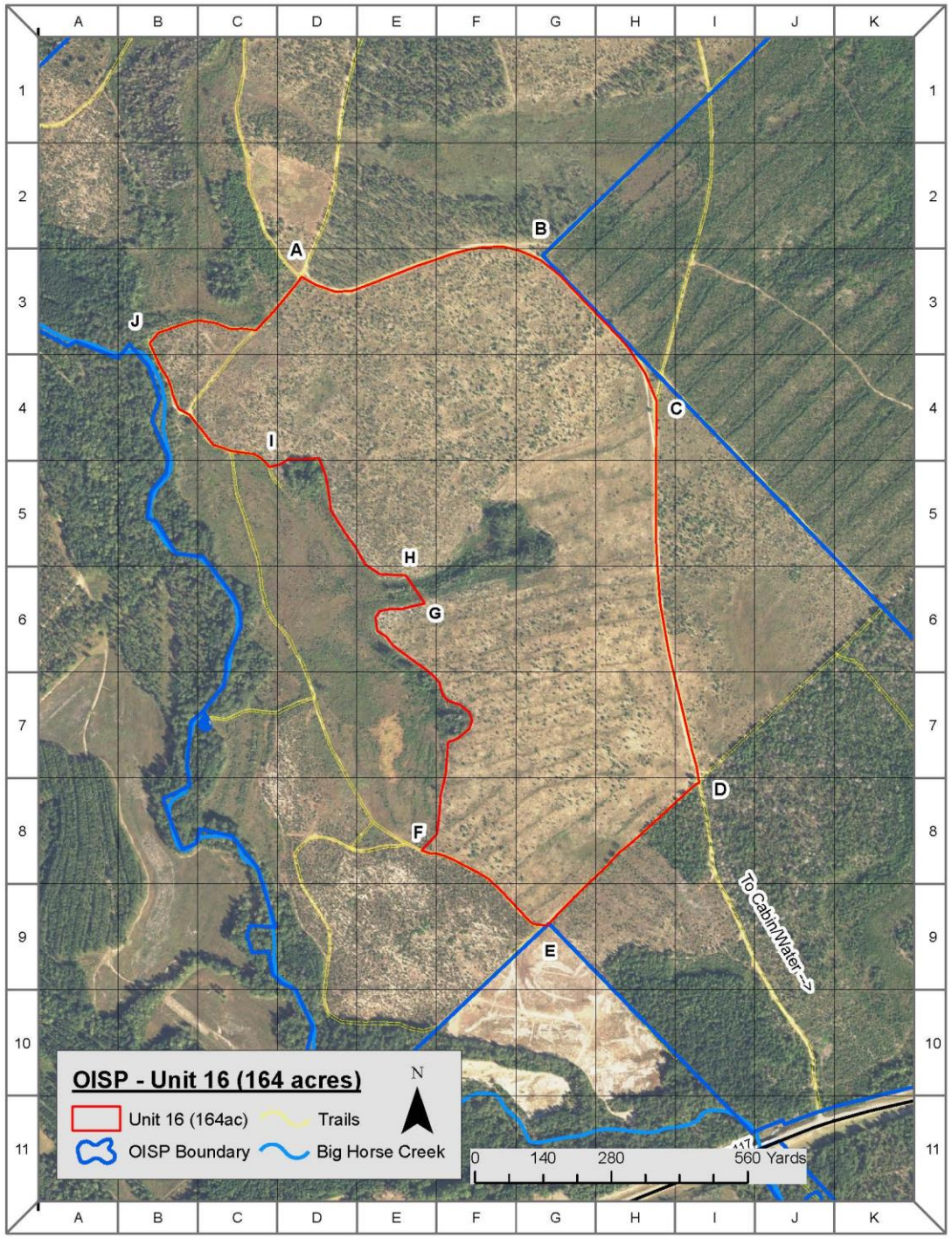
Preparing for "what if!"

- **What is the plan if:**
  - it gets out of the box?
  - the hydrants/water sources are dry?
  - crew member gets hurt?
- **What resources are available?**

  --How will you make those calls?
  - Forestry, VFD, Fire & Police

Attributes of Quality Maps

- Legend
- North Arrow
- Scale
- Defining Features (drop points/grids)



Resources

- Start with what you have, then what you can modify
  - bobcat-type equipment
  - water handling vehicles
  - tractors
  - 4x4 ATVs
  - hand tools
- Contractors
- Pull from neighbors, co-ops, PBA friends, state resources
- Learn and Burn Programs

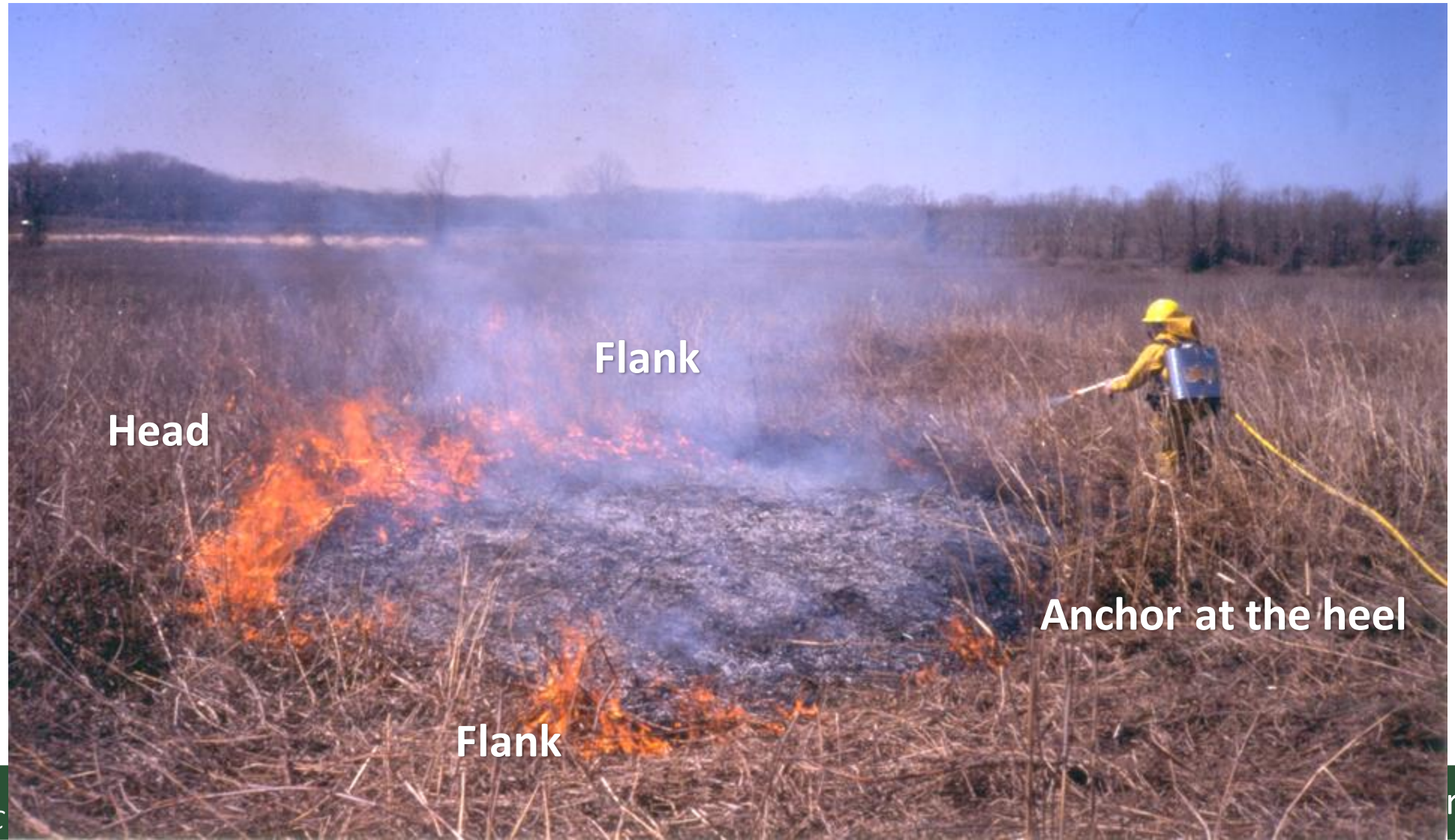
There is a reason for all of this.

Personal Protective Equipment (PPE)

The basics:

- Choose natural fibers, NO Synthetics!
- All cotton jeans, work pants, long-sleeved shirts
- Leather gloves
- Leather work boots
- Eye protection: sun/safety glasses
- Head protection: hard hat, esp if overhead hazards are present

Spot Fires: fires outside of the unit that are ignited by embers from the main fire



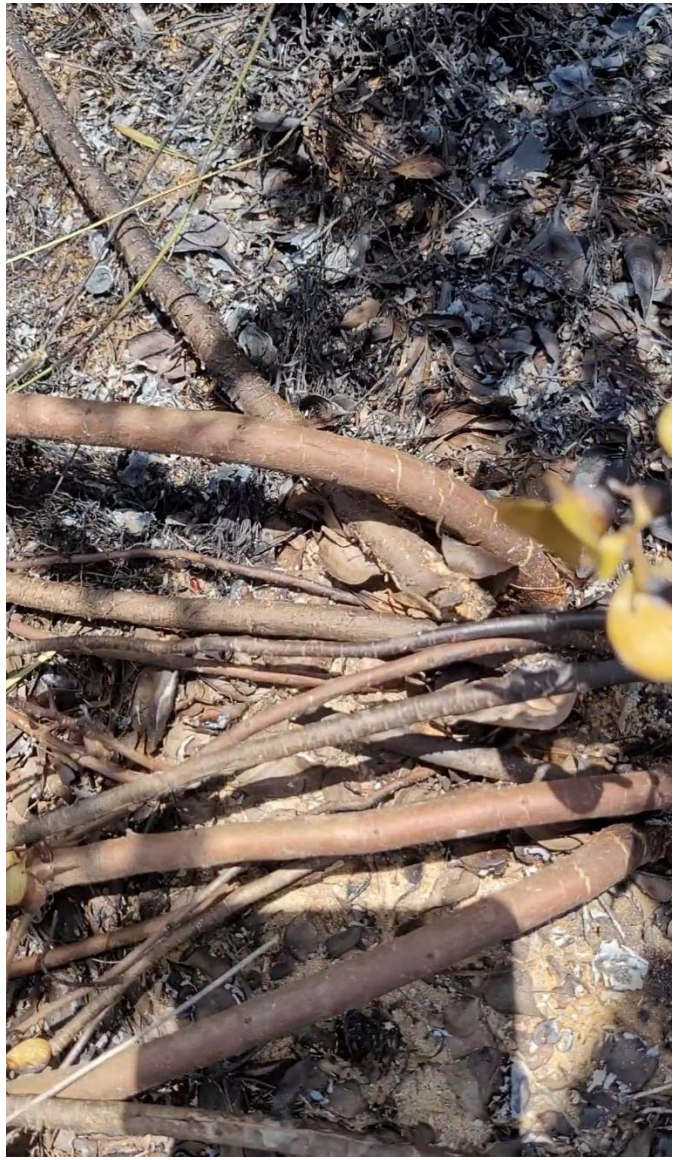
What if all else fails….

- Plan for it!
- Have help on hand
- Take a “Know how to light it, know how to fight it” approach-TRAINING and PLANNING
- Trigger points: know when it’s out of your control and time to call it in

Monitoring

- During the burn:
  - **Weather, clouds**
  - **Fire Behavior**
  - **Fire Effects**
- Overnight and next day:
  - **Wind direction—where is smoke going to settle?**
  - **Overnight dispersion and visibility—high LVORI?**

Monitoring-Fire Effects



Post-burn Activities

- Ensure fuels are consumed--diligent with unburned fuel against the line
- Stay with the burn through the peak of the day, as long as needed
- Mop-Up standards described in the plan

After Action Review

Plan

Leadership

Obstacles

Weaknesses

Strengths

On the best days, the dozer never gets off the transport!

Conclusions:

What makes for a good plan?

- Defined objectives
- Comprehensive
- Compatible with your objectives (& realistic)
- Flexible
- Recognizes the role of uncertainty

Take home messages

- Know your site, your fuels, your surroundings, weather and seasons—take it back to your objectives
- It costs nothing to plan ahead!

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THE LONGLEAF ALLIANCE