RX-300 Unit 18: Monitoring

Summary:

This unit covers the who, when, and why of monitoring on prescribed fires. Students will discuss the barriers and possible solutions to improving the monitoring on prescribed fires.

Incident Position Description (IPD) Alignment:

- Evaluate environmental, fire behavior and fire effects monitoring plans in conjunction with existing agency requirements.
- Ensure fuels and weather conditions are conducive to achieving prescribed fire objectives as outlined in the plan.
- Evaluate and document fire behavior and fire effects.

Unit Objectives:

- List the considerations for determining monitoring needs.
- Identify and discuss the four levels of monitoring and what needs to be covered in the prescribed fire plan.

Unit at a Glance:

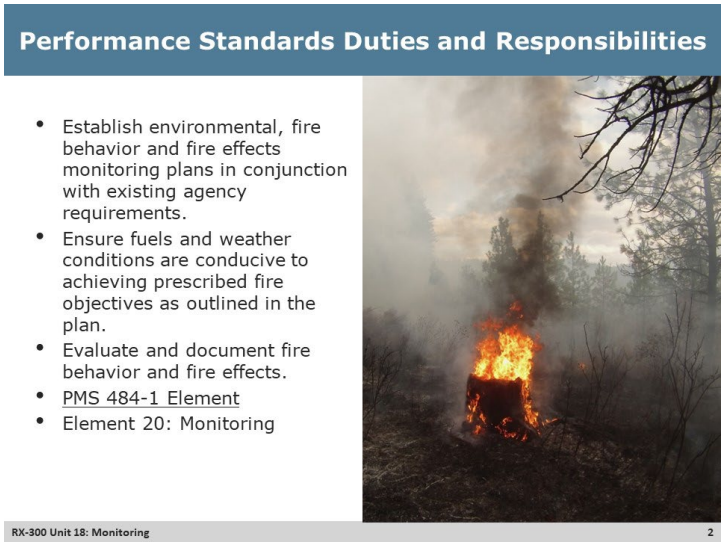
Topics	Method	Duration
Why Monitor?	Presentation	11 Minutes
What to Monitor	Discussion	17 Minutes
FEMO	Presentation	22 Minutes
Total Unit Duration		**50 Minutes**

Materials:

- Example FEMO reports

Slide 1

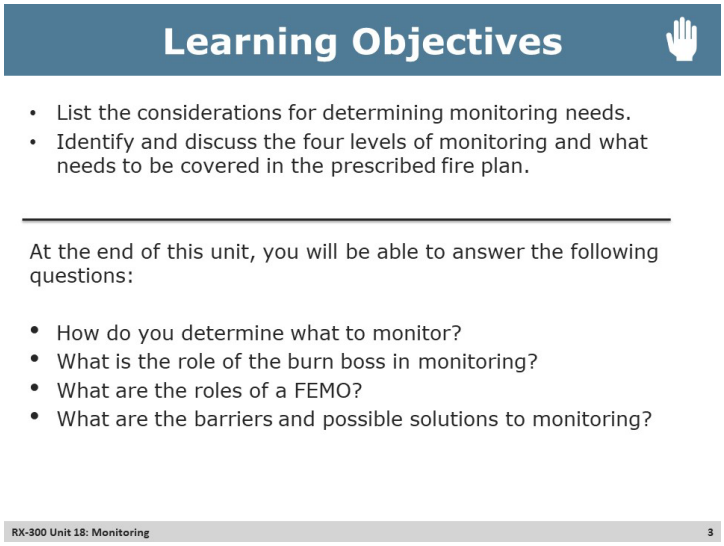
Slide 2



Time estimate – 30 seconds
Outline

- ❑ Allow students time to read standards on their own. Refrain from reading the standards verbatim off the slide.
- ❑ Refer students to the incident position standards for direction for completing these duties and responsibilities.

Slide 3



Time estimate – 1 minute
Outline

- ❑ Allow students time to read objectives on their own. Refrain from reading the objectives verbatim off the slide.
- ❑ Review the questions or have the students read them.

Slide 4

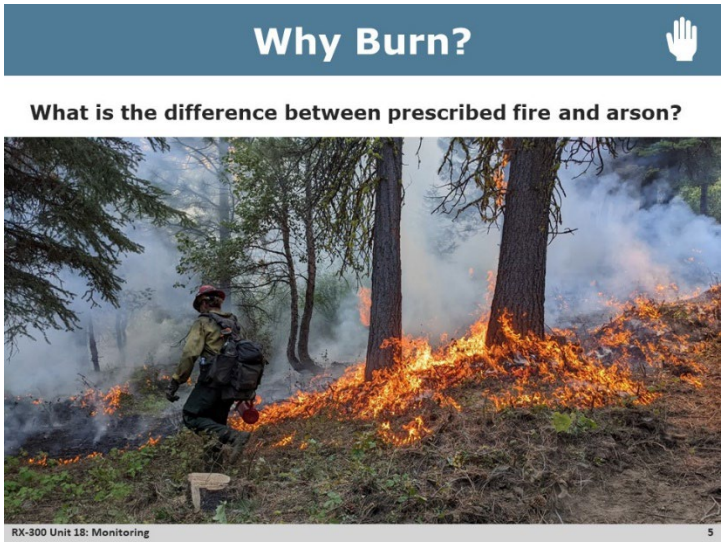
Time estimate – 2 minutes
Outline
Monitoring can include management objectives or prescribed fire monitoring
Monitoring for management objectives includes

- ❑ Evaluate changes in condition and progress toward meeting management objectives
- ❑ Usually facilitated by project proponent (i.e., fuels specialist)

Monitoring for prescribed fire includes

- ❑ Weather
- ❑ Fuel moisture
- ❑ Fire behavior
- ❑ Smoke dispersal

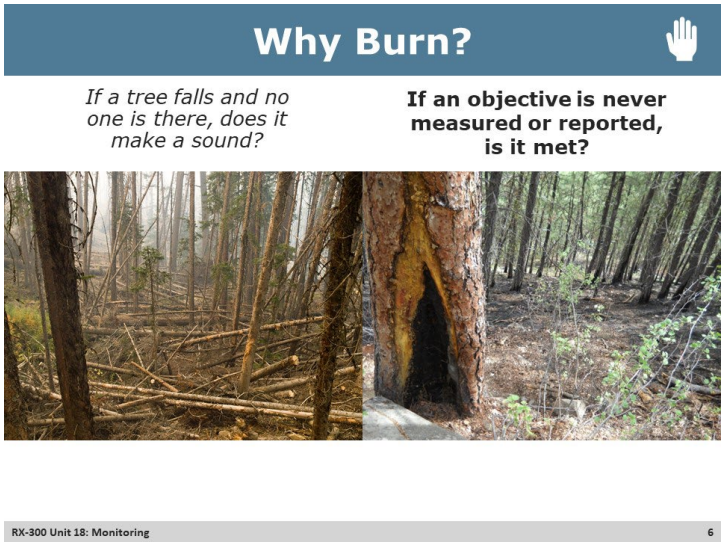
Slide 5



Time estimate – 1 minute
Outline

- ❑ This question is a review from the Goals and Objectives lesson.
- ❑ What is the difference between prescribed fire and arsons?
    - Goals and objectives!

Slide 6



Time estimate – 2 minutes
Discuss

- ❑ If an objective is never measured or reported, is it met?
    - Just like the tree falling in the forest – we will never know if we have met objectives if we do not measure.

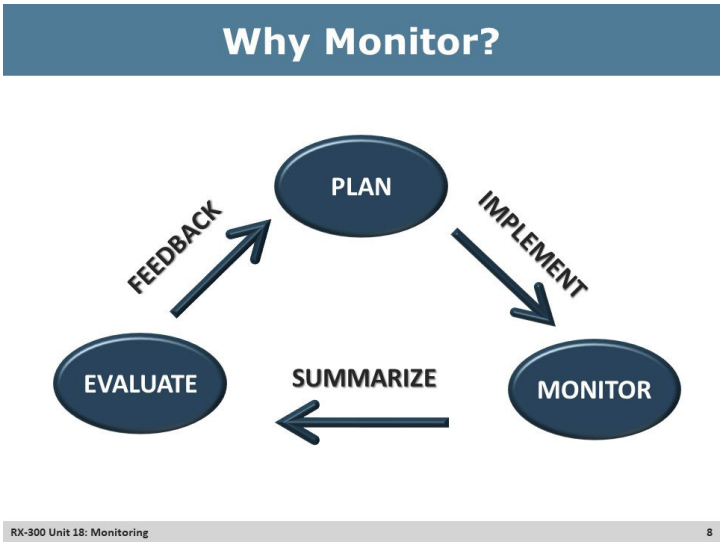
Slide 7

Time estimate – 3 minutes

Discuss

- ❑ What are the consequences of not MEASUREING objectives?
  - ❑ Unknown if you met objectives
  - ❑ Not able to refine process to better meet objectives in the future
    - ❑ Repeating mistakes
    - ❑ Not capturing the unexpected benefits
- ❑ What are the consequences of not REPORTING the observations on whether you met objectives?
  - ❑ Less support for future work
  - ❑ Less tracking of previous fire events

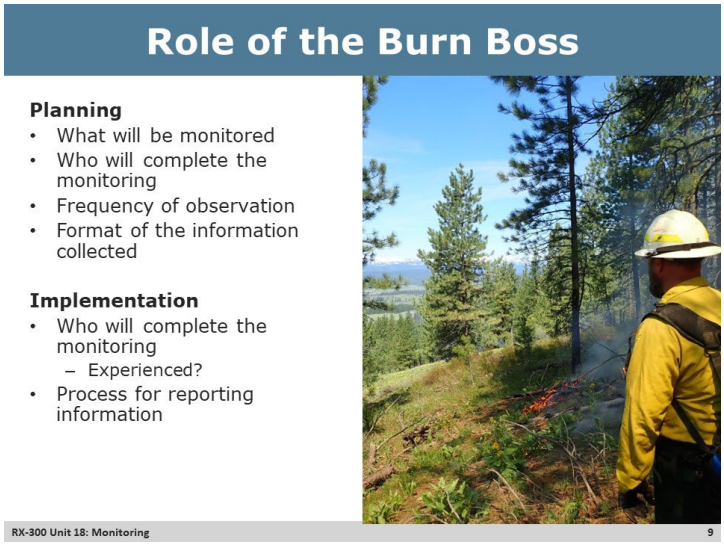
Slide 8



Time estimate – 1 minute
Discuss

- ❑ Monitoring is an important part of the adaptive management loop to check if the plan is working and adjust as needed.

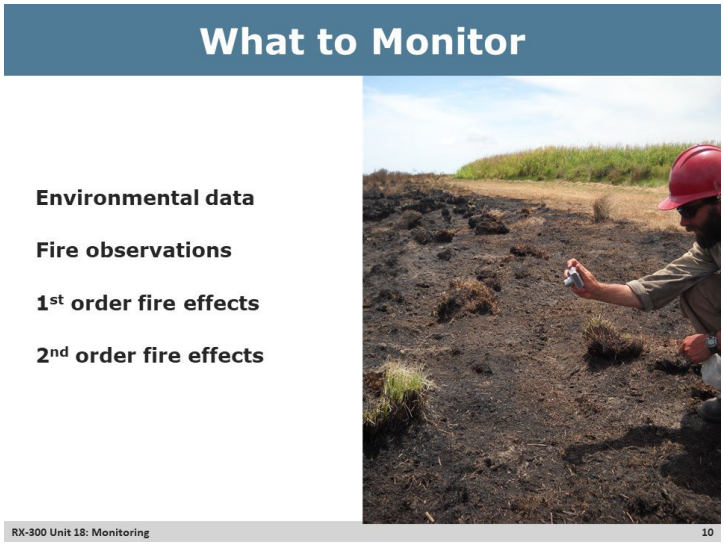
Slide 9



Time estimate – 2 minutes
Outline

- ❑ The role of the burn boss is to plan for and FACILITATE the completion of monitoring.
- ❑ Planning
  - What will be monitored?
  - Who will complete the monitoring?
  - What is the format of the information collected?
  - What is the frequency of observation?
- ❑ Implementation
  - Who will complete the monitoring?
  - How experienced are they? Less experience could lead to variability in the results.
  - Process for reporting information.

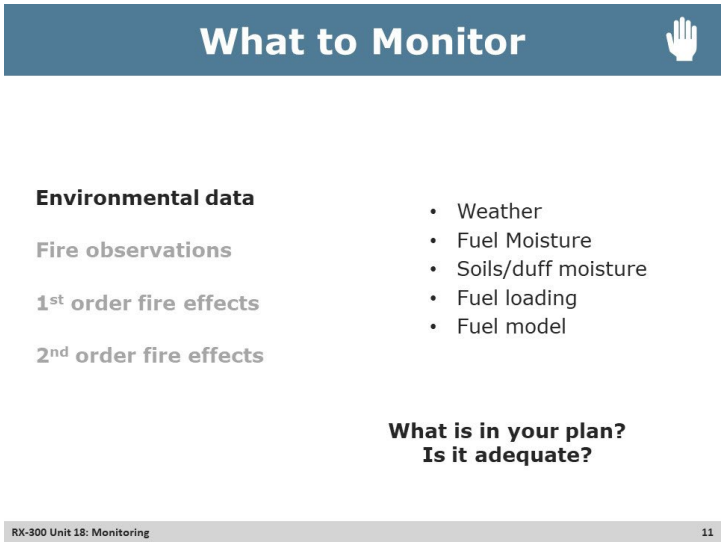
Slide 10



Time estimate – 1 minute
Outline

- There are four levels of monitoring:
  - Environmental
  - Fire observations
  - 1st order fire effects
  - 2nd order fire effects

Slide 11

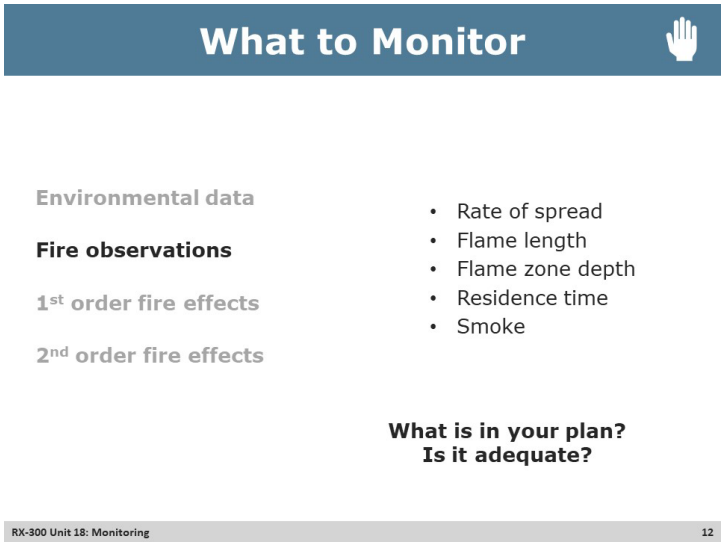


Time estimate – 4 minutes
Outline

- ❑ Review the slide

Discuss
What monitoring requirements are in your plan? Is it adequate?

Slide 12

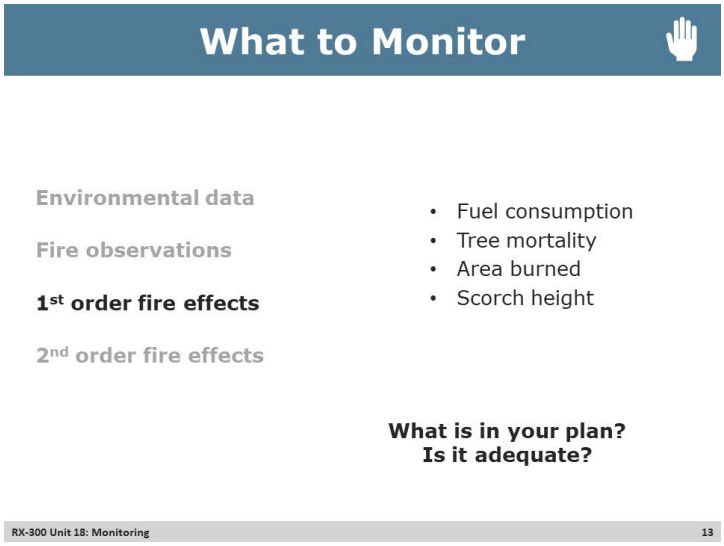


Time estimate – 3 minutes
Outline

- ❑ Review the slide

Discuss
What monitoring requirements are in your plan? Is it adequate?

Slide 13

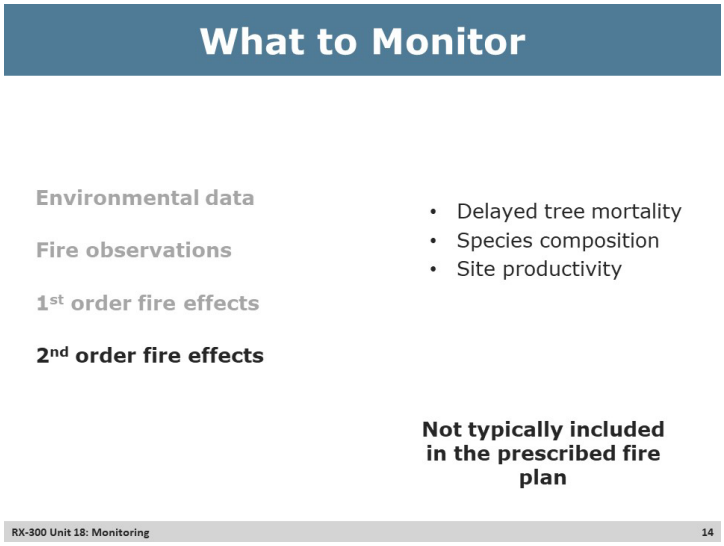


Time estimate – 3 minutes
Outline

- ❑ Review the slide

Discuss
What monitoring requirements are in your plan? Is it adequate?

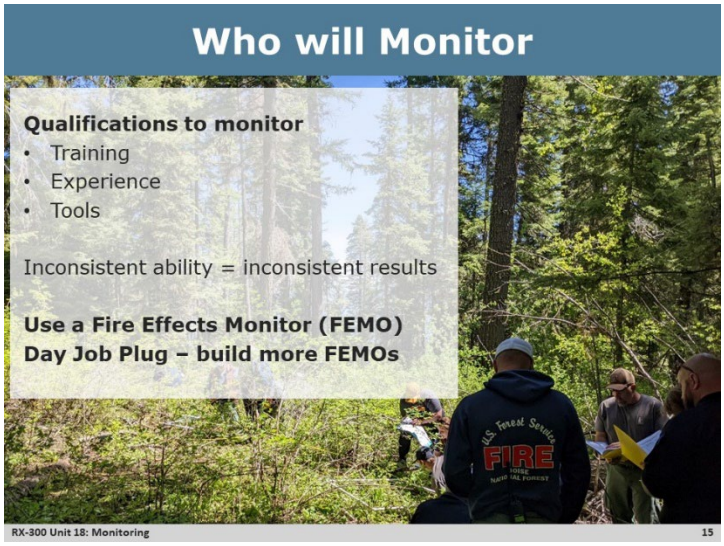
Slide 14



Time estimate – 1 minute
Outline

- ❑ Review the slide

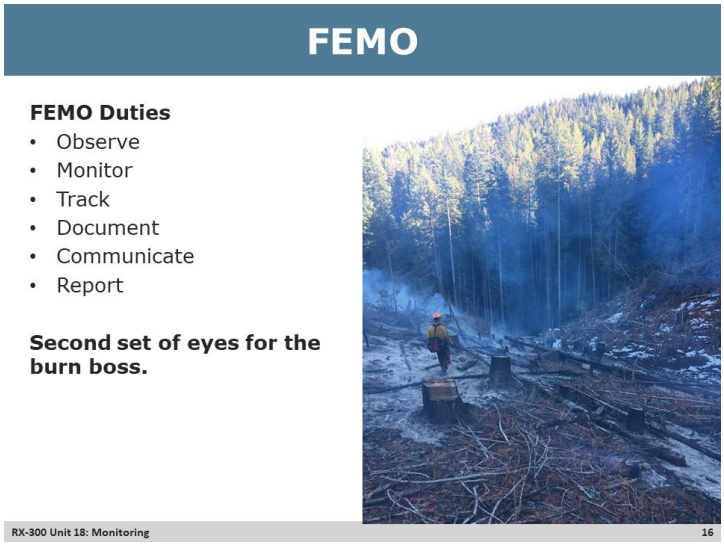
Slide 15



Time estimate – 2 minutes
Outline

- ❑ What are the qualifications to be able to monitor?
  - Right training
  - Right experience
  - Right tools
- ❑ Inconsistent ability = inconsistent results
- ❑ Using a FEMO will help increase consistency in ability and results.
- ❑ Day Job Plug – build more FEMOs

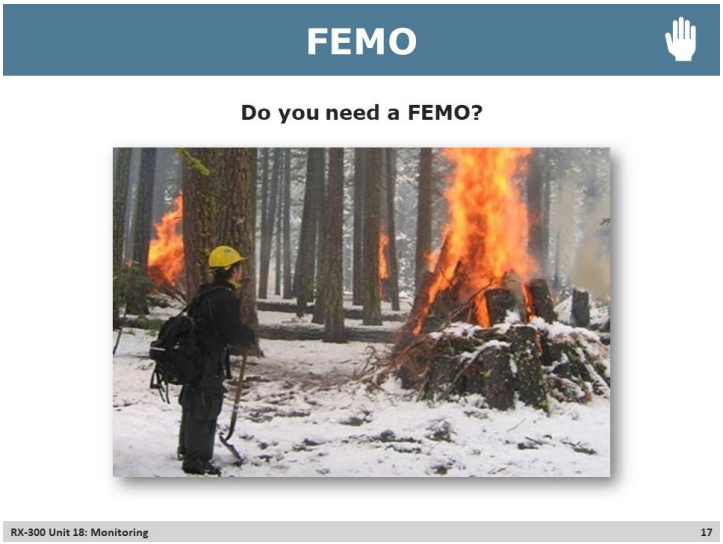
Slide 16



Time estimate – 3 minutes
Outline

- ❑ The duties of a FEMO are to:
  - Observe any and all aspects of the burn.
  - Monitor requested items such as weather, fire behavior, and smoke.
  - Track the trigger points of the burn and ensure weather objectives are being met.
  - Document the events of the burn and the results of the monitoring.
  - Communicate with the burn boss and other burn resources as necessary.
  - Compile a report summarizing the information.
- ❑ In short – A FEMO can be a second set of eyes for the burn boss.

Slide 17



Time estimate – 2 minutes
Discuss

- ❑ It is January 15th and you are burning piles in a remote unit. Do you need a FEMO?

Outline
For routine maintenance burns you may be fine with assigning anyone to take weather observations or just using a spot weather forecast depending on the requirements of your home unit.

Slide 18

Time estimate – 3 minutes

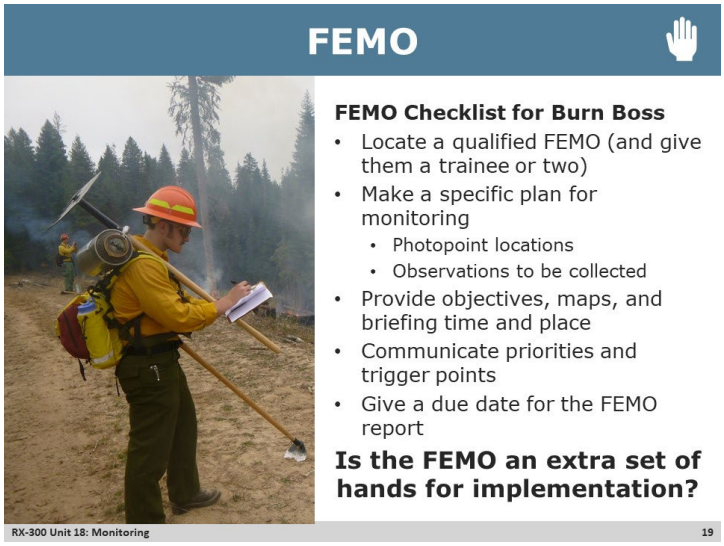
Discuss

- ❑ It is September 30th and you are burning at the high end of your prescription. Do you need a FEMO?
- ❑ How could you use a FEMO in this scenario?

Outline

- ❑ Confirm objectives are being met.
- ❑ Maintain a close eye on trigger points and prescription.
- ❑ If you exceed prescription parameters, consult with FEMO to gather information. Prescriptions may be negotiable if the modeled fire behavior used to write the prescription is not matching what you are seeing on the ground.

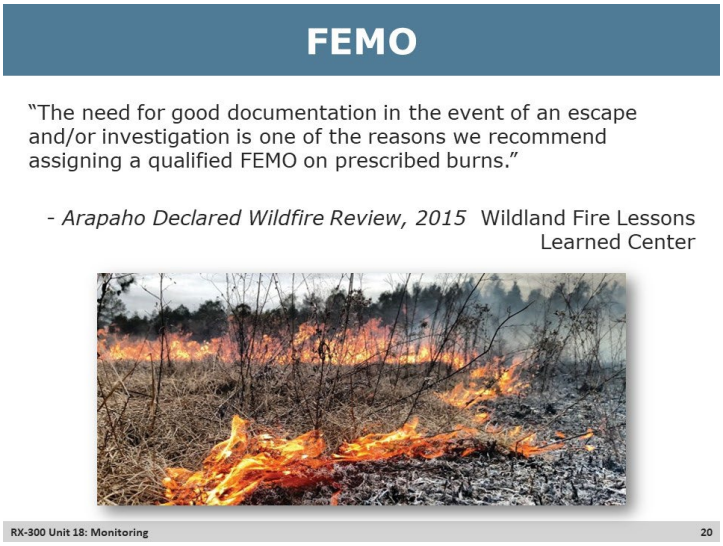
Slide 19



Time estimate – 2 minutes
Outline

- ❑ Review the slide

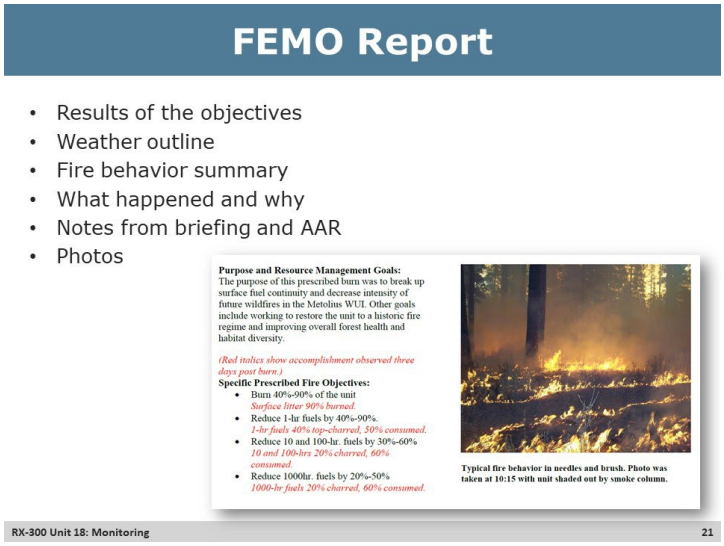
Slide 20



Time estimate – 1 minute
Outline

- ❑ Review the slide

Slide 21

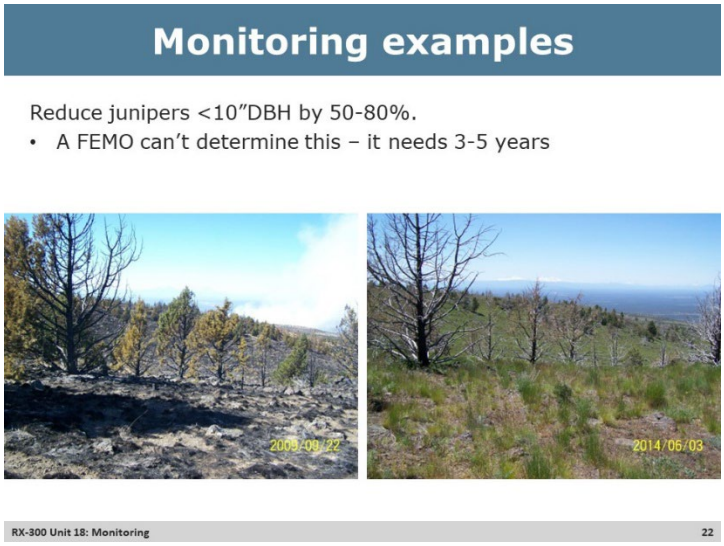


Time estimate – 2 minutes

Outline

- ❑ A FEMO report should contain:
  - Results of the objectives
  - Weather outline
  - Fire behavior summary
  - What happened and why
  - Notes from briefing and AAR
  - Photos
- ❑ A good FEMO report can help the planner fine-tune the next prescription. It can also help build trust and credibility with resource specialists on ID teams.
- ❑ There are example FEMO reports in the resources for the class.

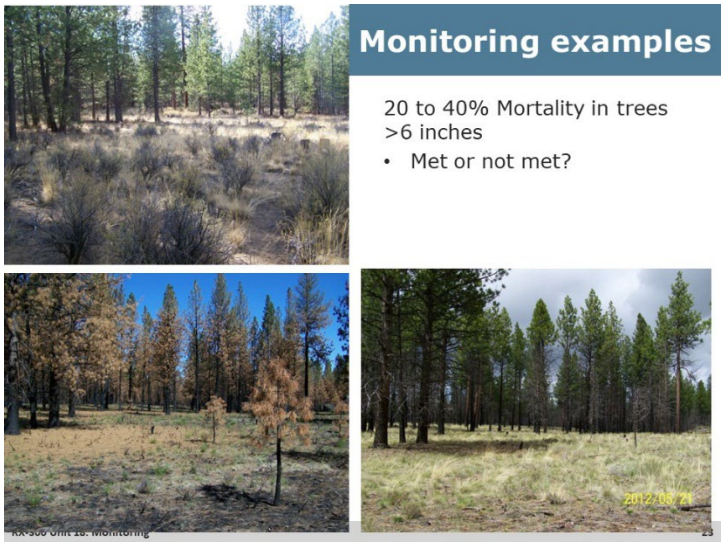
Slide 22



Time estimate – 1 minute
Outline

- ❑ Reduce junipers <10" DBH by 50-80%.
  - o A FEMO can't determine this – it needs 3-5 years.
  - o A good FEMO will set up plots and photo points that other people can find for resampling.

Slide 23



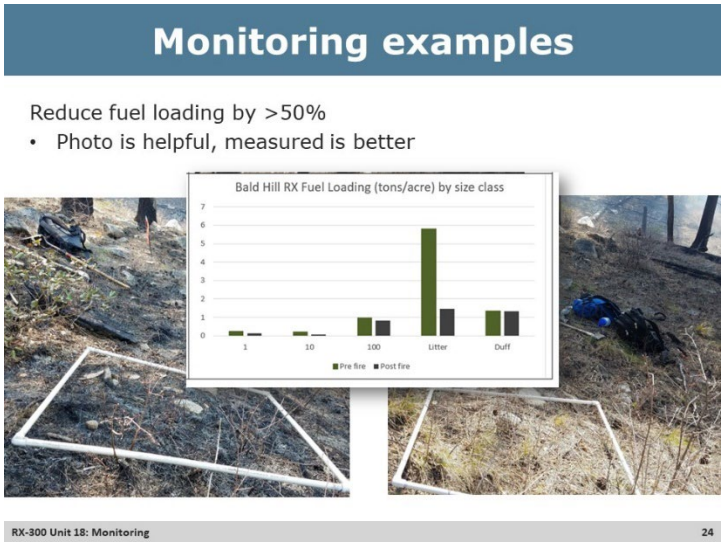
Time estimate – 1 minute
Outline
20 to 40% mortality in trees > 6 inches

Based on the picture immediately post fire does it looks like this objective was over met or under met?

<<click>>What about the picture from several years later?

Repeated photo points can be powerful tools to measure objectives.

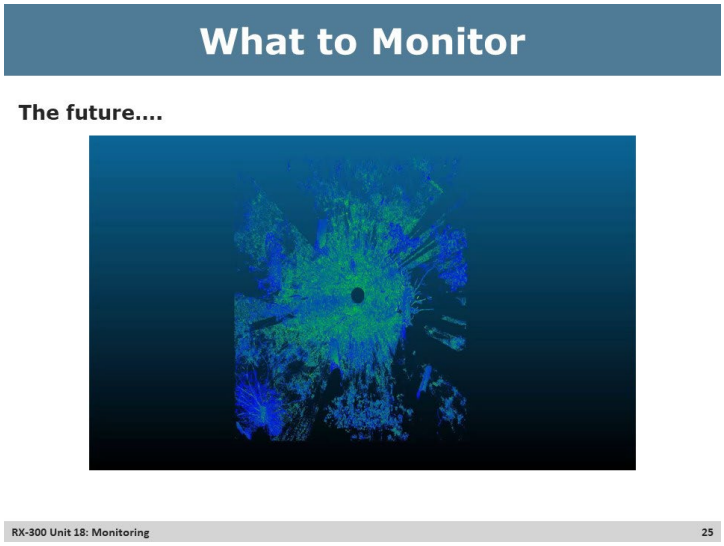
Slide 24



Time estimate – 1 minute
Outline

- ❑ Reduce fuel loading by >50%
  - Photo is helpful
  - <<click>> measured is better

Slide 25



Time estimate – 2 minutes
Outline

- ❑ Terrestrial LiDAR units are growing in availability and functionality.
- ❑ They are a quick and repeatable way to collect fuels and vegetation information.
- ❑ Play the video to show the LiDAR acquisition.

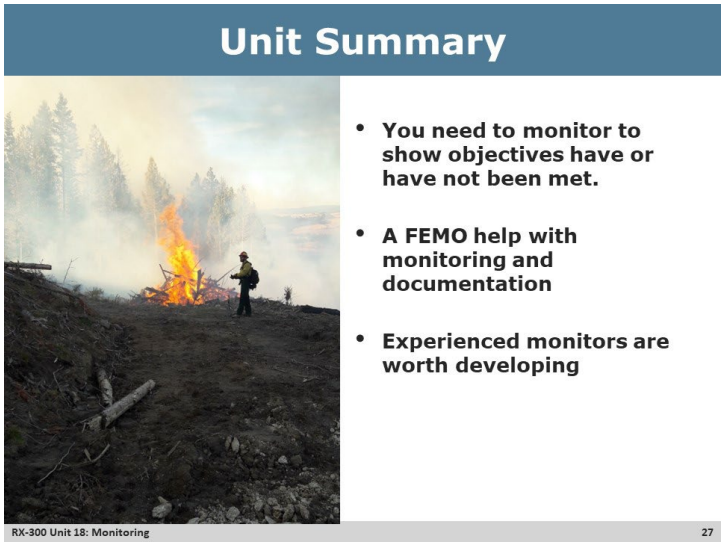
Slide 26

Time estimate – 4 minutes

Discuss

- What are the barriers to effective monitoring?
  - Time
  - Experience
  - Equipment
  - Motivation
  - Others?
- What are some possible solutions to overcoming these barriers?
  - Buy equipment
  - Provide training
  - Provide time during implementation
  - Provide time after implementation for reporting
- <<Click>> More practice in monitoring = more efficient monitoring = less time required to monitor

Slide 27



Time estimate – 1 minute

Outline

Review the summary.