FUTURE OF RED FLAG WARNINGS

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"RED FLAG WARNING"

- **Fire weather warnings issued since 1916**
- **Termed "Red Flag Warning/Red Flag Watch) in the 1950's/1960's**
  - Ranger districts would literally raise a red flag on the flag pole when a warning was in effect to let people know, visually, that a watch or warning was in effect.
- **South Canyon fire (July, 1994) kills 14 firefighters**
  - Page L4 of report indicates that there was confusion on whether a watch or warning was in effect and what those terms mean. Later investigation found that since the forecasts/watches/warnings are often read over the radio by dispatchers, static may result in confusion as to whether a "Red Flag" warning or "Red Flag" watch is in effect. To alleviate this, the name of the watch was changed to "Fire Weather Watch" so there would be no confusion over whether a watch or warning was in effect.
- **The RFW was NEVER meant to be used by the public. This product is produced and intended for firefighters and fire managers. Due to the public nature of NWS products, the public has access to the RFWs, but as of today, the NWS and the land management agencies have no "public" watch/warning product for wildland fires.**
- **Term "Red Flag Warning" is ingrained in firefighters and fire managers as something to be alert about. Very little likelihood that the term will be dropped for another name, especially as the forecasts, watches and warnings are still read over the radio to firefighters in the field and the possibility of mishearing the watch/warning still exists.**
  - This doesn't mean we can't come up with something for a "public" fire warning product.

CURRENTLY

Fire Weather Watch *and* Red Flag Warning based on

- Weather
- Fuel conditions
- Zone based

Difference?

- Watch: 18-96 hours out
- Warning: 48 hours or less

Average RFW Issuances Per Year: 13,000+

CURRENTLY

Use of RFW all over the map:

Heads up for critical safety conditions

Resource Management/Staffing

Burn/No Burn decisions on Rx Burns

Meant for Fire Managers, used by public

Conversation with firefighters: “There had been a Red Flag Warning out for weeks. It’s hot, it’s dry, it’s typical. It seems to just get lost in the noise…”

NWCG DEFINITIONS

Red Flag Warning:

Term used by fire weather forecasters to alert forecast users to an ongoing or imminent critical fire weather pattern. *see also:* Fire Weather Watch

Fire Weather Watch:

A Fire Weather Watch is issued to advise of ***conditions which could result in extensive wildland fire occurrence or extreme fire behavior***, which are expected to develop in the next 12 to 48 hours, but not more than 72 hours. In cases of dry lightning, a Fire Weather Watch may be issued for the next 12 hours.

Extreme Fire Behavior:

"Extreme" implies a level of fire behavior characteristics that ordinarily precludes methods of direct control action. One or more of the following is usually involved: *high rate of spread, prolific crowning and/or spotting, presence of fire whirls, strong convection column*. Predictability is difficult because such fires often exercise some degree of influence on their environment and behave erratically, sometimes dangerously. *see also:* Blowup *see also:* Fire Storm *see also:* Flare-up

CURRENTLY

NWS Severe Thunderstorm Warnings:

Watch issued by SPC for conditions that may be present

Warning issued by WFO when "…there is radar or satellite indication and/or reliable reports of (severe thunderstorms)…"

Based on occurrence/point of impact

ISSUES

Many firefighters have concern of over-warning and feeling that RFWs "…get lost in the noise…"

RFW started out strictly as a safety product. Now covers both safety and resource management

Commercial vendors using RFW as a proxy for alerting public to fire danger, but feel that RFW doesn't really fit with the message they want to convey

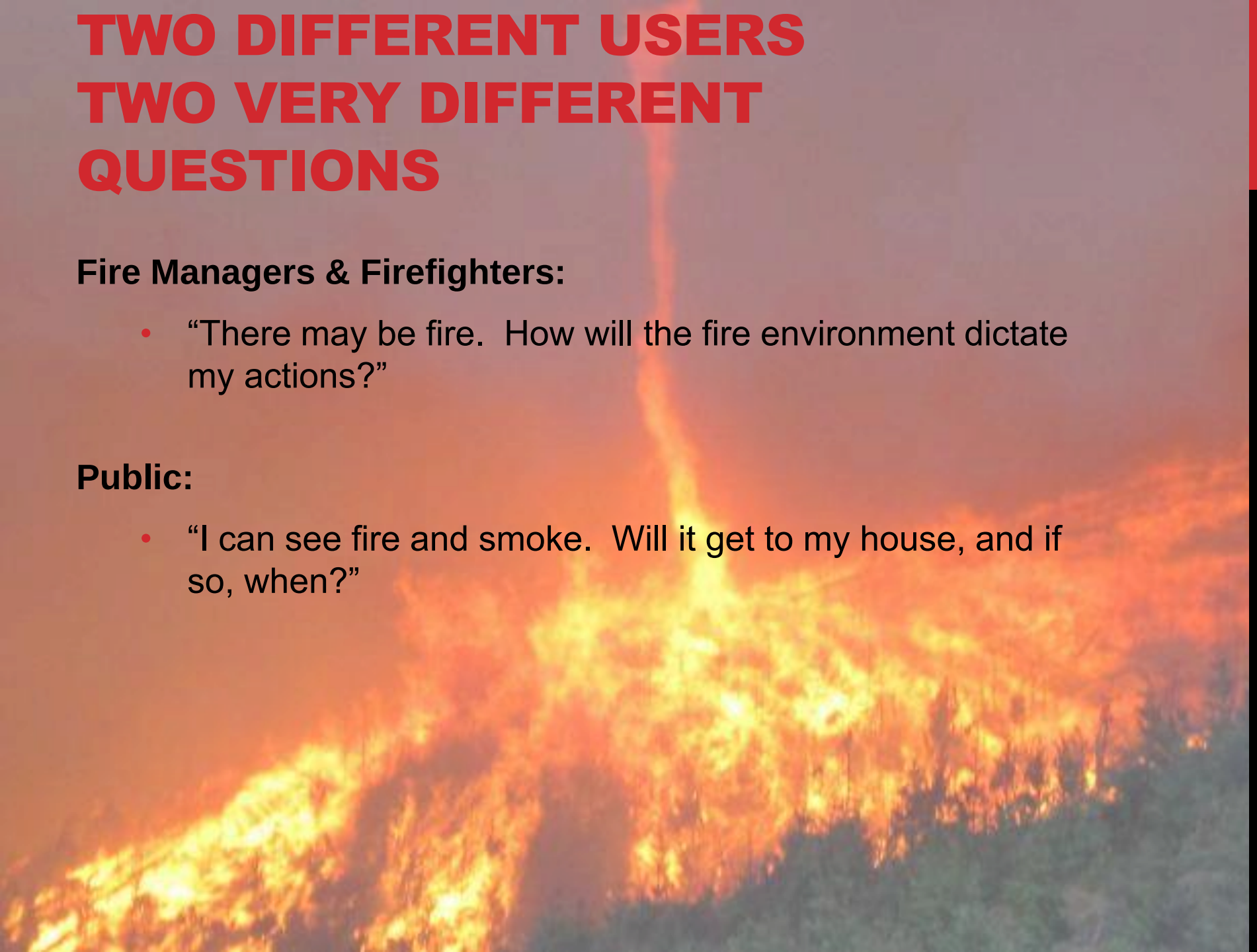
TWO DIFFERENT USERS TWO VERY DIFFERENT QUESTIONS

Fire Managers & Firefighters:

- “There may be fire. How will the fire environment dictate my actions?”

Public:

- “I can see fire and smoke. Will it get to my house, and if so, when?”



THANK YOU

1) How do you use red flag warnings?

2) Should red flag warnings be a safety tool or a resource management tool?

3) How do you think red flag warnings should be used?

NEEDS

1. Watch product that gives heads up that combined weather and fuels conditions could create extreme fire behavior

2. Warning product that warns on specific places of extreme fire behavior

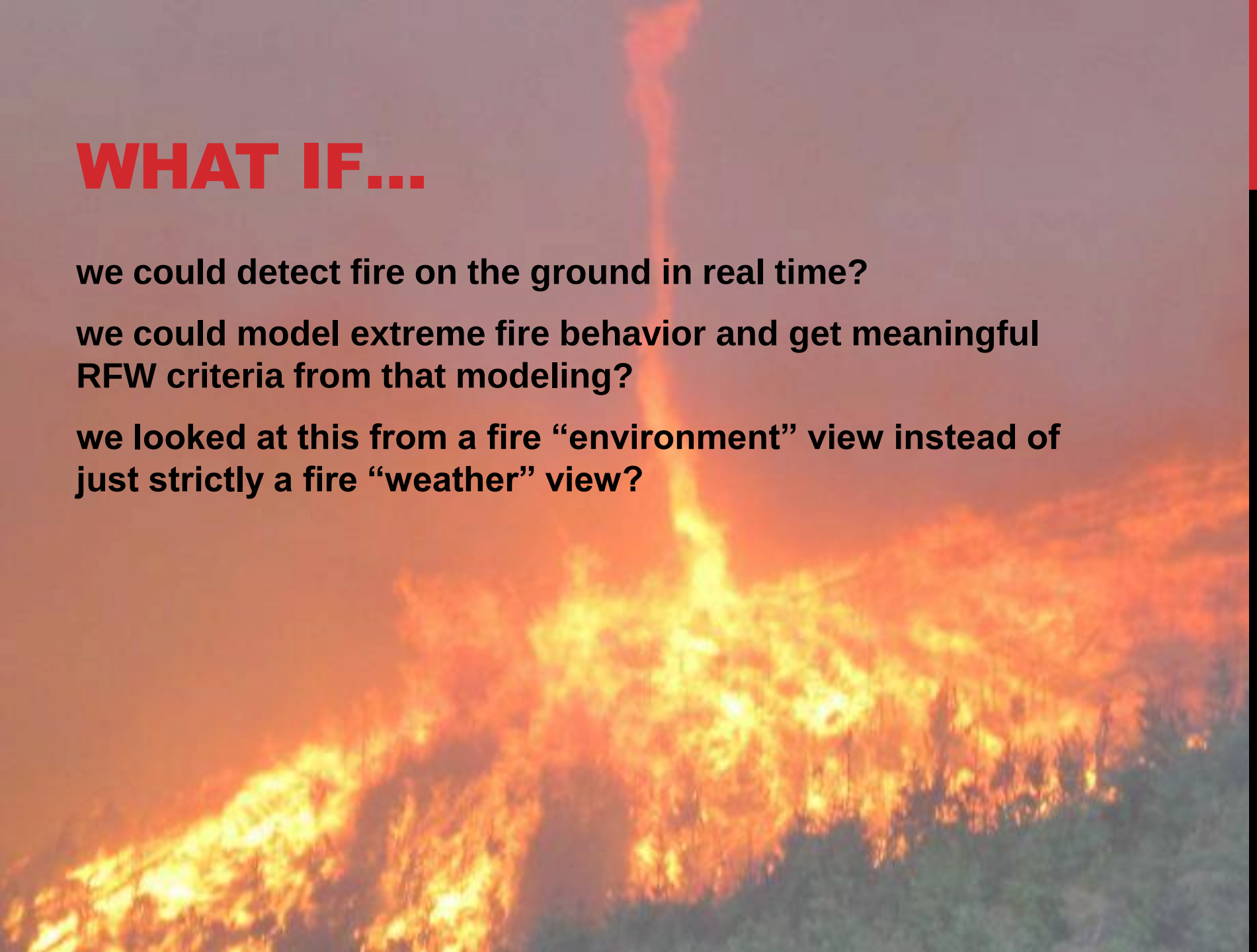
3. Alert product for when there is lightning, thunderstorm outflow/frontal wind switches in the area and personnel on the ground.

4. Management product that addresses conditions that may overwhelm initial attack

5. Management product that addresses when conditions are just right for Rx-burning

6. Public product warning of potential danger due to dry conditions

7. Public product warning of danger to public of ongoing wildfire



WHAT IF…

we could detect fire on the ground in real time?

we could model extreme fire behavior and get meaningful RFW criteria from that modeling?

we looked at this from a fire “environment” view instead of just strictly a fire “weather” view?

NEEDS

1. Watch product that gives heads up that combined weather and fuels conditions could create extreme fire behavior

This is our current watch (and warning)!

- Predictive Service provides fuel information, NWS provides weather
- SPC outlook areas should act as guidance to highlight areas WFOs should consider issuing a watch for
  - Or…how about SPC issues the watch?
- Zone based
- PS & NWS determine what conditions will result in extreme fire behavior as defined by NWCG for fuels in forecast area and then criteria set accordingly (will require modeling of extreme fire behavior)

NEEDS

2. Warning product that warns on specific places of extreme fire behavior

- A new RFW product (for extreme fire behavior only). Still called RFW. Issued only when fire is detected (spotter, satellite, radar, etc.)
- “There is fire on the ground, and it is going to display extreme fire behavior.”
- Fire Weather Watch for fire area if weather conditions will develop >24 hours out. Red Flag Warning if conditions are occurring or will occur within 24 hours (and fire is on the ground). Similar to SPC watch boxes and SVR T-Storm warnings.
- Criteria set by NWS & PS taking into account fuels in the area.
- Location point based (polygon)

NEEDS

3. Alert product for when there is lightning, thunderstorm outflow/frontal wind switches in the area and personnel on the ground.

- Allow IMETs to issue Alerts when phenomena detected in or near an area of operations.
- Could, in the future, be expanded to allow WFOs to send out alerts to crews if they are known to be working in an area (small fire or Rx-Burn).
- A simple message sent out for broadcast over agency radio network? Cell? Other?

NEEDS

4. Management product that addresses conditions that may overwhelm initial attack

5. Management product that addresses when conditions are just right for rx-burning

- NWS & Predictive Service Fire Management Outlook – Forecast discussion discusses fuels and weather conditions with emphasis on initial attack issues and rx-burning
- The PS 7-Day Forecast?

NEEDS

6. Public product warning of potential danger due to dry conditions

- Already there (NFDRS/Smokey Bear sign). Better dissemination of this information.

NEEDS

7. Public product warning of danger to public of ongoing wildfire

- New warning product geared towards public safety. More public friendly than a management product and only in effect when fire is on the ground.
- Product is produced by local fire, police or emergency management and disseminated via the NWS (similar to Amber Alerts).
- States what is happening with a fire, where it is, and where it's going to be in the next few hours. Also gives any evacuation information and other public safety information (smoke?) as it pertains to that fire.

TIME FRAME

Some tweaks to current definitions, studies on assumptions, etc. can be done now.

Work on the major hurdles (communications, remote sensing, and development of partnerships to make products possible) 3-7 years

Full conversion to new paradigm ~10 years.

Takeaway: This won't happen overnight, but if we are going to change, we need to start working on this problem and get the pieces in place to put whatever plan develops into operation in an acceptable time frame.