NATIONAL FUELS & FIRE DANGER BRIEFING

PREDICTIVE SERVICES

07/28/2022
These briefings are prepared by the National Interagency Coordination Center’s (NICC) Predictive Services staff and presented to the National Multi-agency Coordinating Group (NMAC). After presentation to NMAC, the most recent briefing is posted on NICC’s Fuels and Fire Danger webpage.

Frequency of issuance for these briefings depends on National Preparedness Level (PL) and NMAC’s regular meeting schedule.

- PL1-PL2: Once per month
- PL3-PL5: Weekly (usually on Thursdays)

Because the target audience is NMAC and the material is presented as slides, the briefing content is often terse and assumes a high level of familiarity with the interagency coordination system and fire danger concepts. At the end of this document, following the briefing summary page, there are references that may be helpful for less familiar readers. These include a map of the Geographic Areas and a list of commonly-used abbreviations and acronyms.
Fire Weather Advisories

07/28/2022

Sources: NWS; Storm Prediction Center
Fuels & Fire Behavior Advisories

07-28-2022

Source: NICC, GACCs

New Advisory for Areas in Central OK & Texas

- Very dry live & dead fuels
- ERCs > 97th percentile
- More ignitions
- More large fires
- Longer to control
- Extreme fire behavior

Fuels and Fire Behavior Advisory
The Texas Western Pineywoods and North Central Texas extending into the Central Plains and Southern Cross Timbers of Oklahoma

Date Advisory Effective – July 23, 2022

Subject: Long-term drought and critically low fuel moistures in high-risk fuels have produced dangerous fire behavior conditions across North Central Texas and the Texas Western Pineywoods, extending north into the central Plains of Oklahoma, southern Cross Timbers and mixed timber regions. Problematic fire behavior, including group tree torching and frequent spot fires, quickly transitions to extreme fire behavior under elevated to critical fire weather conditions, escalating to include crown runs and spotting out to 200 yards or further.

Discussion: Persistent and intensifying drought conditions in June and mid-July left live fuel moisture values trending below normal in high-risk Oak/Juniper fuels in North Central Texas. Below normal rainfall and consistent temperatures over 100 degrees in mid-July further degraded live fuel moisture values. Live fuel moisture values in the high-risk Pine/Yaupon fuels of the Texas Western Pineywoods and mixed fuels in Oklahoma have fallen well below average values from 30-day rainfall deficits, relative humidity below 25% and persistent 100-degree temperatures.

Difference from normal conditions: Energy Release Component values in North Texas, the Cross Timbers, and the Western Pineywoods Predictive Service Areas are above the 97th percentile and are near historic values for mid-July. Live fuel moistures in Ashe Juniper are near 80%, ranging from near the 10th percentile to near the 3rd percentile in the Cross Timbers. Live fuel moistures in loblolly pine in Walker County are tending just above historic lows, with early July samples at 137%. Fire weather threshold requirements for significant fires are less when critically to extremely dry fuel is present.

Concerns to Firefighters and the Public:
- Extreme fire growth potential and fireline intensity is to be expected during both initial attack and extended attack operations, especially when critical fire weather is occurring. This is to be expected on all areas of the fire perimeters including normally less active flanks.
- Typical barriers to fire spread cannot be depended upon including roadways, rivers, and hardwood river bottoms.
- Active fire behavior may extend into the overnight hours with poor overnight rainfall recovery.

One F&FB Advisory in effect

Current Fuels and Fire Behavior Advisories
Texas & Oklahoma - Pineywoods, Cross Timbers, and adjacent areas (issued 7/23)

Source: NICC, GACCs
The rainfall deficit continues to dry fuels, prompt curing of grasses, and stress some live vegetation species across large parts of the West. Similarly, most of TX, OK, AR, & S MO remain exceptionally dry. Forecast precip may bring some relief to the area between I-40 and I-70, from the Southern Plains to the Mississippi River and further eastward.

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Some drying continues in Alaska, resulting in areas where fine fuels are available to ignite and burn. The driest and breeziest areas are located in the eastern parts of the state, particularly the Copper River, Tok, and Upper Yukon Zones. However, overall fire potential remains relatively low, as lightning is scarce and recurrent episodes of cooler, wetter weather help maintain fuel moistures and keep existing fires from becoming active again. Typical peak fire season has passed, and a return to above normal fire potential/activity is increasingly unlikely.
For the past few weeks, most of the West (outside of the monsoon footprint) has been hot and dry. ERCs for many PSAs are well above normal seasonal peak values and still trending up. Some are approaching record maxima.

Hot & dry conditions also extended east of The Divide, into the central/northern Plains. Intense but isolated thunderstorms have temporarily lowered ERC for some areas in and around the Black Hills.
Fuels and Fire Danger Conditions in Texas

Persistent hot and dry weather has resulted in abnormally dry fuels of all types and size classes. In the woodlands and forested areas of central and northeast TX, moisture content of large dead woody fuels is at the 3rd percentile. ERC values, which are heavily influenced by 1000-hr FM, are at the 97th percentile.

Continuing the months-long trend, overall fire potential will likely remain elevated into the fall months for many areas. However, a mild respite is possible for N/E TX this weekend, with temps cooling a few degrees and higher RH, thus lowering BI, reducing the risk of new ignitions, and increasing chances for quick and successful IA. Any relief will be short-lived, as another hot and dry weather pattern is expected to resume early next week.

Annual grasses have cured throughout most of the state, and some sites have relatively heavy fine fuel loading.
Likely Escalation of Large Fire Activity in Multiple GACCs

Problematic weather patterns & triggers over the next week

For most of the inland Pacific West and Greater Northwest, extending into Northern Rockies and northern Great Plains:

- Ready…
  - Baseline drought conditions; ERC >97th percentile (some setting new maxima)
  - Rapidly drying fuels due to hotter than normal temperatures past several days
  - High grass fuel loading; most sites now fully cured
- Set…
  - Threat of lightning ignitions (mixed wet/dry t-storms; how widespread?)
- Go!
  - Gusty outflow & post-frontal winds
  - Low RH

Texas & adjacent areas: Persisting hot/dry/breezy/unstable conditions

- Possible precip in N OK and eastward may provide temporary relief
Use with Reasonable Confidence

- WIMS outputs based on NFDRSv4 fuel models (5 FMs: V-Z)
  - WIMS is the authoritative source for NFDRS outputs
  - All stations in WIMS should now use NFDRSv4
  - Many units still evaluating/tweaking v4 parameters
- GACC PSA charts, 7-day Significant Fire Potential
  - Short-term plan succeeded in updating most GACC products to NFDRSv4 (note: AK doesn’t use NFDRS; Southern Area PS products still in transition)
  - Evaluation ongoing; some tweaking expected

Use with Caution

- WIMS outputs based on legacy NFDRS fuel models (20 FMs: A-U)
  - Past 6/1 deadline; legacy FMs will be purged soon
  - Many stations still using legacy FMs (must transition)
- WFDSS ERC charts (calc’d by WFDSS; uses FM-G)
  - Uses WIMS wx obs, but not WIMS NFDRS outputs
  - WFDSS & WIMS ERCs won’t be comparable as Field switches to (only) v4

Discontinue or Use Extra Caution

- WFAS products (maps & spatial data) tied to WIMS outputs based on legacy NFDRS FMs
  - Seeking clarification/list of affected WFAS products
  - Timeline for conversion to v4 is uncertain
  - Many are reliant on (old) FM-G
  - Climatology data for (new v4) FM-Y in development
- These national-scope products include:
  - SFDI, BI, & ERC percentile maps
  - Fire Danger Class map (Adjective Rating)
  - Dead fuel moisture maps (10-hr, 100-hr, 1000-hr)
  - Some features of WildfireSAFE app (e.g. SFDI)

07-21-2022

7/28: Not aware of any new developments, so this information is presumably still valid. Also see next slide for more information.
Recommendations offered on the previous slide remain valid. Most notably, users are cautioned that the NFDRS products offered on the WFAS website are currently degraded in accuracy and may not reliably depict actual conditions or trends. The degraded products include the maps depicting fuel moistures (i.e. 10-hr, 100-hr, 1000-hr; live) and adjective fire danger rating, plus the maps showing percentile classes for Burning Index, Energy Release Component, and Severe Fire Danger Index (SFDI). Because SFDI is a key data source, certain features of the WildfireSafe application may also be degraded.

Why are WFAS products degraded? WFAS relies on NFDRS outputs from WIMS, which is the authoritative source for NFDRS outputs generated for specific RAWS locations (and SIGs comprised of multiple RAWS). WFAS scales-up those outputs via interpolation or relating them to gridded weather to produce map products showing NFDRS outputs for the RAWS sites and all areas in between. These WFAS products are currently tied to the “old” NFDRS fuel models (primarily, FM-G) and fuel moisture algorithms. As managers in WIMS increasingly transition their RAWS to NFDRSv4 (applying the new fuel models and fuel moisture algorithms), fewer RAWS are contributing legacy NFDRS outputs to the WFAS product suite. In effect, the reliable data “seeds” for the WFAS maps are fewer and further apart, and this will only worsen as the Field completes its transition in WIMS to use NFDRSv4 exclusively for all RAWS.

What’s the status of the NFDRSv4 transition? On Thursday afternoon, 7/14, members of the NWCG Fire Danger Subcommittee (FDSC) received fresh information and discussed the status of the transition to NFDRSv4 and its impacts on NFDRS products. The plan to programmatically withdraw all legacy fuel models from WIMS is temporarily on hold. Without further action, this allows WIMS users to continue generating legacy NFDRS outputs for any not-yet-transitioned RAWS (and may forestall further degradation of the WFAS products). Nonetheless, WIMS managers are still encouraged to wrap-up evaluation efforts (comparing “old” and NFDRSv4 outputs) and complete their transition to NFDRSv4. Once the “enable” box is checked in WIMS, that RAWS is fully transitioned to NFDRSv4, meaning the “old” fuel models are no longer available and all outputs will be based on the new fuel models and fuel moisture algorithms. Updated guidance will soon be issued (probably next week), with input from FDSC, the WIMS support team, and other overseers.

What’s the plan for WFAS? Work is underway now, and expected to require about 2 weeks to complete, to update the WFAS product suite to also use NFDRSv4. Once completed, some degradation of WFAS products may linger if a significant number of RAWS/SIGS in WIMS remain untransitioned and only render legacy NFDRS outputs (similar to the current problem but reversed). Fortunately, the majority of untransitioned RAWS currently include both legacy and NFDRSv4 fuel models in their WIMS catalogs. Minimally, ensuring that FM-Y is (re-)added to every RAWs in WIMS will allow WFAS to attain the fullest possible degree of representation and reliability.

Bottom line: For situational awareness and decision making tied to NFDRS, highest confidence should be placed with local level products – management actions and decision classes defined in the Fire Danger Operating Plan, using WIMS outputs (scale: RAWS site; SIGs). Most GAC-level products (scale: PSAs, tied to SIGs) are also good – including GACC 7-day Significant Fire Potential, ERC/BI and fuel moisture charts. While WFDSS ERC charts (scale: RAWS site) are tied to “old” FM-G, they remain usable as a stand-alone product. WFAS products remain degraded, but efforts are underway to fix them.

7/28: Not aware of any new developments, so this information is presumably still valid.
Main threat: Problematic (very hot, dry, & breezy) weather in western GACCs, with new lightning ignitions likely. Higher-risk conditions to continue for several days.

SA: Above normal fire potential continues relentlessly in TX & OK (and adjacent states). Possible rainfall could provide temporary relief in N OK and eastward.

AK: Favorable conditions and low fire potential persists in most areas. Increasingly unlikely to see a return to above-normal activity.

ONC: Critically dry fuels; most PSAs ERC > 97th percentile. Emerging LFs likely.

NW, NR, N GB, N RM: Rapidly drying fuels have elevated fire danger to above seasonal normal (so, above typical peak) levels, with some sites approaching critical ERC thresholds. Emerging LFs likely.

Late summer size-up: Next few days will likely define the outcome for the back-half of the western CONUS fire season. New, perhaps abundant, ignitions are likely in most western GACCs. Uncertainty exists, but this could be the threshold of PL4.
9 GEOGRAPHIC AREAS &
10 COORDINATION CENTERS

Alaska Area (AK; AICC)
California Area (CA)
   North Ops (ON; ONCC)
   South Ops (OSC; OSCC)
Eastern Area (EA; EACC)
Great Basin Area (GB; GBCC)
Northern Rockies Area (NR; NRCC)
Northwest Area (NW; NWCC)
Rocky Mountain Area (RM; RMCC)
Southern Area (SA; SACC)
Southwest Area (SW; SWCC)

Note: Abbreviations used in this briefing are shown in gray font above and links to the Geographic Area Coordination Centers’ websites are in blue.

Plus, the National Interagency Coordination Center (NICC)
<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Definition</th>
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<tbody>
<tr>
<td>100-hr</td>
<td>Dead woody fuel moisture for 100-hour timelag size class</td>
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<tr>
<td>1000-hr</td>
<td>Dead woody fuel moisture for 1000-hour timelag size class</td>
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<tr>
<td>BI</td>
<td>Burning Index (an NFDRS output)</td>
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<td>BUI</td>
<td>Buildup Index (a CFFDRS output)</td>
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<tr>
<td>CFFDRS</td>
<td>Canadian Forest Fire Danger Rating System</td>
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<td>DFM</td>
<td>Dead Fuel Moisture content</td>
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<td>EDDI</td>
<td>Evaporative Demand Drought Index</td>
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<tr>
<td>ERC</td>
<td>Energy Release Component (an NFDRS output)</td>
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<tr>
<td>F&amp;FBA</td>
<td>Fuels &amp; Fire Behavior Advisory</td>
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<tr>
<td>F&amp;FD</td>
<td>Fuels and Fire Danger</td>
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<tr>
<td>FD</td>
<td>Fire Danger</td>
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<td>FFMC</td>
<td>Fire Fuel Moisture Code (a CFFDRS output)</td>
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<tr>
<td>FM</td>
<td>Fuel Model (or Fuel Moisture - see also DFM &amp; LFM)</td>
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<tr>
<td>FWW</td>
<td>Fire Weather Watch</td>
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<td>GACC</td>
<td>Geographic Area Coordination Center</td>
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<td>GOES</td>
<td>Geostationary Operational Environmental Satellite Network</td>
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<td>IA</td>
<td>Initial Attack</td>
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<tr>
<td>ICS-209</td>
<td>Incident Status Summary (large fire report)</td>
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<td>IMSR</td>
<td>National Incident Management Situation Report</td>
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<td>IMT</td>
<td>Incident Management Team</td>
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<tr>
<td>ISI</td>
<td>Initial Spread Index (a CFFDRS output)</td>
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<td>KBDI</td>
<td>Keetch-Byram Drought Index</td>
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<tr>
<td>LF, LFs</td>
<td>Large Fires (aka Significant Fires)</td>
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<tr>
<td>LFM</td>
<td>Live Fuel Moisture content</td>
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<tr>
<td>MODIS</td>
<td>Moderate Resolution Imaging Spectroradiometer (satellite-based thermal detection)</td>
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<td>NDVI</td>
<td>Normalized Difference Vegetation Index</td>
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<tr>
<td>NFDRS</td>
<td>National Fire Danger Rating System</td>
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<td>NICC</td>
<td>National Interagency Coordination Center</td>
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<td>National Multi-Agency Coordinating Group</td>
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<td>NWS</td>
<td>National Weather Service</td>
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<tr>
<td>PL</td>
<td>Preparedness Level</td>
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<td>PSA</td>
<td>Predictive Service Area</td>
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<tr>
<td>RAWS</td>
<td>Remote Automated Weather Station</td>
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<td>RFW</td>
<td>Red Flag Warning</td>
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<tr>
<td>RH</td>
<td>Relative Humidity</td>
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<tr>
<td>SFDI</td>
<td>Severe Fire Danger Index (derived from BI &amp; ERC percentiles)</td>
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<tr>
<td>SIG</td>
<td>Special Interest Group (a grouping of RAWS)</td>
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<tr>
<td>SPC</td>
<td>NOAA Storm Prediction Center</td>
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<tr>
<td>VIIRS</td>
<td>Visible Infrared Imaging Radiometer Suite (satellite-based thermal detection)</td>
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<tr>
<td>WFAS</td>
<td>Wildland Fire Assessment System</td>
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<tr>
<td>WFDS</td>
<td>Wildland Fire Decision Support System</td>
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<tr>
<td>WIMS</td>
<td>Weather Information Management System</td>
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PARTNERING AGENCIES

Fire Management Agencies and Partners
- Bureau of Indian Affairs (BIA)
- Bureau of Land Management (BLM)
- Bureau of Reclamation (BOR)
- Federal Emergency Management Agency (FEMA)
- US Fish & Wildlife Service (FWS)
- National Association of State Foresters (NASF)
- National Park Service (NPS)
- National Weather Service (NWS)
- DOI Office of Wildland Fire (OWF)
- US Fire Administration (USFA)
- US Forest Service (USFS)

Interagency Coordination & Management Groups
- Geographic Area Coordination Centers (GACCs)
- National Interagency Coordination Center (NICC)
- National Interagency Fire Center (NIFC)
- National Multi-Agency Coordinating Group (NMAC)
- National Wildland Fire Coordinating Group (NWCG)
Comments or questions?

Please contact:

Steve Larrabee
(steven.larrabee@bia.gov)

or your local servicing Predictive Services Staff