

Fire Environment Committee Meeting

Virtual via WebEx

November 10, 2021

Welcome and Introductions

- Guests at today's meeting:
 - Carmella Stirrat representing The Nature Conservancy, based in the Sandhills
 - Lucas Farlo, student at UNC Wilmington
 - Mike Rehnberg, meteorologist at NWS Greer, SC
 - Bradley McLamb, air quality forecaster at NC Division of Air Quality

Review and Discussion of Minutes from May 2021 Meeting

- In May, we talked about the prescribed fire needs assessment – will get an update today
- Should get an update on ADM training, following from the discussion at our last meeting
- Crate moves to approve, Krentz seconds; minutes are approved
- These minutes will be posted on NCF's new [Fire Environment website](#) later this week

Southeast Prescribed Fire Training Needs Survey (Thomas Crate)

- Gary Wood, Jenn Fawcett, and Laurel Kays authored this [training needs survey report](#), together with a broader regional working group
- During the pandemic, most agencies stopped training altogether, so this working group assembled to put together virtual workshops and optimized fire education courses
 - Building on work done in the Northeast
- In January 2021, Jenn and Laurel put together a survey sent to all southeastern prescribed fire councils, with 1,081 total participants
 - Mostly from state agencies, private landowners, and federal agencies
 - Mostly managers/practitioners and land owners
 - Most in-demand training courses were RX-301/341/410 (instead of S-211/215/290)
 - Preferred hybrid online courses for non-NWCG prescribed fire training, but fewer preferred full virtual
- NCWG recommendations:
 - For non-wildfire response agencies, help minimize "W" task requirements by substituting "O", "I", or "W/RX" options, or creating a prescribed fire track with few to no "W" tasks
 - Increase cooperation between non-suppression and suppression agencies
 - Work more closely with university and community college systems
- Non-NWCG recommendations:
 - Continue Prescribed Burn Associations to provide mentorship and burning experience
- Overall, need more funding for prescribed fire and more cross-agency collaboration and training opportunities, sharing MOUs between states
 - Training material can also go on the [Wildland Fire Learning Portal](#), and it includes some on-demand courses

- Thomas is a portal editor, so he can add in-state training materials there
- Currently, a shortage of instructors, so may need to form training teams to travel and provide 1-2 weeks of on-site training and mentoring
- Next, the work group will break into specific committees with possible additional surveys
- NC shares many of the same needs and issues as at the regional level, especially training needs for collaborating agencies (e.g., state parks) and finding qualified instructors and mentors
 - For interagency classes, main need would be RX-410 (for smoke issues)

Seasonal Weather Update and Outlook (Corey Davis)

- Note: full [winter outlook blog post](#) is posted on the SCO website
- Recently, a wet and cooler start to summer transitioning to a warmer and drier fall
- Most fall cold frontal passages have been moisture-limited, with few tropical systems affecting NC (Claudette in June, Elsa in July, and Fred in August)
- Drought has emerged in the SW Piedmont, Sandhills, and Coastal Plain in recent weeks due to dry weather over the past few months and declining soil moisture
- A moderate La Niña event is emerging for the second year in a row, which typically means warmer and drier winters for NC
 - Last year didn't have the expected impacts, potentially because of warmer water in the Pacific just north of the equator
- A very dry winter like 2010-11 would likely mean a bad spring fire season, but a slightly dry winter like 2017-18 may not bring significant degradation
- [NOAA's winter outlook](#) calls for above-normal temperatures and enhanced odds of below-normal precipitation across most of NC
 - Matches typical La Niña impacts, but unknown how much this year's event will affect us or whether we might flip back into a wet pattern, as we did in June

Recent Fire Weather Portal Updates (Corey Davis)

- Over the summer, we decided to do a "hard transition" to NFDRSv49 (formerly NFDRS2016) beginning on Oct. 1 in the [Fire Weather Intelligence Portal](#), so dates before then will show the old NFDRS data and dates after that will show NFDRSv4 data
- This transition is apparent on the meteograms, which may show a jump in values on Oct. 1 in the raw data or historical statistics
- NFDRS estimates are now available for ~20 additional ECONet stations in NC
- The public-facing Adjective Rating map on the [fire-focused website](#) now uses NFDRSv4 data and the updated breakpoints from the FDOP
- The [Hazard Assessment Tool](#) has also been updated with NFDRSv4 data and breakpoints, plus additional helpful features for setting readiness plans, including past 10-day average Hazard/Staffing Level and maximum 24-hour precipitation over the past 14 days
- A few issues came up with WIMS, mainly with ECONets not showing NFDRSv4 data or having KBDIs reset, but those seem to be mostly resolved
- Remaining tasks:
 - Generate historical NFDRSv4 data for remaining ECONets (to show on meteograms)
 - Update DENSCA to use NFDRSv4 data

- Adding percentile options for fire danger parameters (viewing recent conditions in a historical context on all days, days with fires, days with large fires)
- The [Station Status tool](#) was also updated to provide a more user-friendly map interface for viewing the recent availability of weather and fire danger data
- In the Portal, the Climate Prediction Center's weekly data files have been added for two parameters:
 - Palmer Drought Severity Index, a longer-term drought indicator
 - Palmer Z-Index, a shorter-term/monthly drought indicator

NC Prescribed Fire Needs Assessment Update (Lukas Farlo)

- NC's first fire needs assessment compares the current fire regime to the natural fire regime
- How to determine the natural fire regime?
 - Currently working on collecting data from USFS, USFWS, NPS, Fort Bragg, Camp Lejeune, NC Wildlife, TNC, and many others
 - Comparing these direct burn records against remotely sensed fire info. from SE FIREMAP
 - Agencies collect data in different formats, and aggregating those can be time-consuming
 - Could also work with the lab at Salem College or Dr. Cecil Frost?
- Assessment will help inform policymakers, land managers, and prescribed burns
- Timeline is having a written report done in about a year and a half
 - Also hope to create a publicly available web map service
- For questions or ideas, email Lukas at lmf8085@uncw.edu

Atmospheric Dispersion Modeling Training Discussion (Chris Jordan)

- The new Fuel & Fire Tool is now available, after development with Bill Jackson
 - Offers more fuelbed choices
 - Can edit fuelbeds and environmental inputs (fuel moisture, wind speed, etc.) and run FCCS, Consume, and FEPS
- Also a new interface to build PC-HYSPLIT files
 - Can pull in emissions data from Fuel & Fire Tool
 - Can pull in hourly weather from NWS for your burn location
- Will a tutorial be created like the [one for the old FEPS](#)?
 - Bill Jackson said it would take \$4,000 to \$6,000 to create a new video -- could Prescribed Fire Council, NCFS, and NC Wildlife each kick in a little?

NC Fire Danger Operating Plan, NFDRSv4 Update (Cabe Speary)

- NC Fire Danger Operating Plan:
 - Background: the National Wildfire Coordinating Group requires federal agencies to have a fire danger operating plan, and as a state agency, NCFS has created one as well since 2018
 - Cabe went to workshops in KY and LA to help them develop state operating plans, and a workshop was hosted in March 2021 in NC to help update NC's plan
 - FDOP correlates fire danger ratings with decisions such as staffing levels, burn bans, and prevention actions (messaging)

- Adjective Rating is the public-facing “Smokey the Bear” scale from Low to Extreme fire danger
 - In NC’s FDOP, it uses ERC and 100-hour fuel moisture, so it evolves fairly slowly (compared to indicators with a wind component)
- Hazard/Staffing Level helps agencies set daily readiness plans, together with other indicators such as available resources and personnel
 - In NC’s FDOP, it uses BI and 100-hour fuel moisture
- Severity Levels are based on the Hazard/Staffing Level for the last 10 days, the drought status or lack of precipitation in the past 14 days, weather patterns or critical weather events in the Fire Weather Forecast, and number of FDRAs impacted
- FDOP is out for final review until November 15
- NFDRSv4 update:
 - New version incorporates new fire science & technology (such as RAWs), better computing power since the 78/88 updates
 - Includes a new dead fuel moisture model that more accurately responds to environmental changes, and the fuel sizes can be adjusted per station
 - We’re seeing higher dead fuel moistures with the new models, but that should be more accurate (so a 5% value under the old system may translate to 8 or 9% now)
 - Also a new live fuel moisture model, the Growing Season Index (based on low temperatures, day length, and vapor pressure deficit as a proxy for soil moisture)
 - Better mimics actual plant conditions, and avoids having to manually set freeze dates/green-up dates in WIMS
 - Reduces number of fuel models from 20 to 5
 - For more info. about NFDRSv4, see the YouTube videos on [NCFS’s channel](#)
 - New [fire danger cards](#) are being updated and posted on the NCFS website
 - Can help acclimate to what the different indices are showing and what their typical and extreme values are throughout the year
 - Issues with the new system:
 - 8 of NC’s FDRAs work well with fuel model X, but not for the Sandhills, which uses model Z (includes no live fuels and an even loading of 1-hour, 10-hour, 100-hour, and 1000-hour fuels, similar to a slash site)
 - This fall, we’re seeing hazard/staffing levels that are too high since live fuel moistures have dropped to their minimums and Burning Index values are inflated
 - Apparently the photoperiod/day length is the problem in the GSI
 - Note: you may see values jumping around a bit as adjustments are made in WIMS
 - Removal of the old models has been postponed until next May, mainly since some national products are still being updated
 - Forecasts for Burning Index are running too high, which also affects the hazard/staffing levels

Training Needs/Offerings

- Based on survey findings, RX-410 is a major need
 - NC has the personnel to put it on

- Probably best to hold this course in person, although it's being hosted virtual by U-Idaho
 - **Cabe and Thomas will talk with Aaron Gay about holding this?**
- NCFS Covid restrictions: can hold "mission-critical" training in person
- Upcoming offerings:
 - S-290 on Feb. 21-25 in Browns Summit
 - Mountain Fire Academy on Feb. 28-Mar 4 (L-280, S-215, S-230, and line locator school)
 - S-390 on June 13-17 in Crossnore
 - Coastal Fire Academy on June 20-24 (L-280, S-215, S-200, S-290)
 - S-211 pump school on June 27-July 1 in Crossnore
- No certified burner training on the schedule
 - Hybrid course worked well, but it takes a lot of coordination, and paying online is difficult since they can't accept credit cards
 - Likely will be an in-person course next time it's offered
- From Wildland Fire Learning Portal, all training for the southern area has been cancelled
 - But a TN/KY course will be held in early January?
 - But basic on-demand courses are hosted there
 - Thomas is building RT-130 refresher course in the Portal, expected to be released by December 1
 - May need to have local access to a practice shelter to meet final requirements
- From Kevin Harvell: planning for a prescribed burn school next year, which should have room for cooperators
- NC State Parks will host a southern area engine academy in fall 2022

Agency/Program Updates

- NCFS Forest Protection
 - No changes to fire staff
 - Christy Adams promoted to I&E branch head
 - Ashley Snider is the new multimedia specialist, working on the website and social media
 - Statewide, 196 burns for 16,030 acres since the last meeting across all agencies
 - For NCFS, 67 burns for 3,243 acres – mostly site prep
 - Since last meeting, 1,401 wildfires for 3,469 acres
 - This year, running about average for acres burned and above average for wildfires
 - NC had 233 dispatches to 11 states beginning in May
 - [fiResponse tool](#) went live Oct. 1, and fire info. will be full moved there on Jan. 1
 - New organic soil moisture station at the Dare Bomb Range, designed after NCSCO's research stations
 - 2 columns of sensors with 4 sensors in each (at depths of 10 cm, 25 cm, 50 cm, and 1 meter)
 - Station is recording data but the number of sensors is beyond WFMI's abilities

- WFMI system is undergoing a major upgrade that should support this data access
 - Possibly setting up another station at Camp Lejeune? Would also like to have one in the northern Coastal Plain and maybe Green Swamp within the next few years
- NCFS Region 2 (Kevin Harvell)
 - Around 10 vacancies, mostly ACRs and FFEOs
 - Including FFEOs in Anson, Richmond, Chatham, Northampton counties
 - About 45% of initial attack forces have less than 5 years' experience
 - Brand new engine went into service in August; was in Washington state for 7 weeks
 - New tractor coming for Sampson County by the end of the fiscal year
 - Handful of new type 6 engines across the region
 - 2 new district rangers: Carla Freeman and Phillip Ramsey
 - Sauratown Mountain fire has burned 10-15 acres so far, mid-slope in the rocks with 4-5 feet of duff
- National Parks (Chris Corrigan)
 - Wet pattern in the Mountains is coming to an end
 - Critical staffing shortages: FMO position has been vacant for a year
 - Currently shut down for fall burning in the Smokies, pending the Fire Management Plan is being updated
 - New RAWS station was added on Hatteras Island in Buxton this fall
- BIA (Reese Kerbow)
 - Cow Mountain RAWS movement is complete due to development near the old station area and data not transmitting
 - Note: their RAWS stations are not reporting fire danger ratings in the Portal
 - **Cabe will check their settings in WIMS**
 - Hired: one type 6 engine fully staffed, 2x fire module on station, will be flying 4x GS04 positions (1x ENG, 3x fire module)
 - 4x Rx WUI Burn scheduled (more to come), will be conducting an engine operator course for our employees to meet new NWCG direction
- US Fish & Wildlife (Bert Plante)
 - Soils are drying out but not many wildfires so far
 - Burned 440 acres yesterday at Mackey Island
 - New type 6 engine at Alligator River
 - Federally, could be funding for some fuels projects over the next few years
 - Bert has filed for retirement as of December 31
- US Forest Service
 - From Steve Little: have approval and funding to hire a fire planner for NC national forests
- Camp Lejeune (Pete Steponkus)
 - Year-to-date, 25 burns for 4,900 acres and 45 wildfires for 5,400 acres
 - Treated 800 acres in the WUI with herbicide
 - Likely bringing on an FFEO position by the end of the year
- State Climate Office (Corey Davis)
 - Still expecting a new ECONet station install at Jockeys Ridge State Park, but delayed by permitting issues

- Hiring a new ECONet technician to help with fieldwork around the state
- NCFS Region 1 (James Caddy/Derrick Moore)
 - 2 FFEO vacancies and a district ranger vacancy
 - Not much fire activity yet and no frost so far, so vegetation has stayed green
 - Hoping for some burning late winter/early spring, but a lack of burn bosses now
 - Could also have some burning opportunities this fall where soil moisture is still sufficient to protect fine roots
- NC State Parks (Thomas Crate)
 - Bought 2 Cat299 track loaders with mulching heads, so have equipment for fire lines in all corners of the state
 - Located at Hanging Rock, Hammocks Beach, Lake James, and Weymouth Woods
 - Also have a medium-sized excavator with a mulching head at Cliffs of the Neuse State Park
 - Ordered 5 UTV fire units and 2 pumper units to replace outdated equipment
 - Assembling a new burn crew for the Mountain region, located at Lake Norman
 - Working with FL Parks Service to create an apprentice program
 - 70 vacancies across the state, and 2 vacancies on burn crew
- NC Wildlife (Chris Jordan)
 - No change in personnel or equipment
 - Winding down site prep burn season and getting ready for longleaf planting
- The Nature Conservancy (Carmella Stirrat)
 - Fire director position (Margit's old position) is still open, but for now it's being supported by SC/VA managers
 - Mountains has on-call crew going with a few burns conducted so far
 - Sandhills will have 3 crews through December and 2 beginning in January
 - Coast as 2 UTVs with tracks
 - Sent some resources to the Bootleg fire in Oregon since it impacted a marsh preserve that TNC owns
- NC Division of Air Quality (Bradley McLamb)
 - [Ambient Information Reporter tool](#) was released this summer (was shared at the May FEC Meeting)
 - Ozone season ended on October 31
 - Fairly quiet for the second year in a row
 - Maintaining attainment status, which was in question after an active 2019 ozone season, especially in the Charlotte area
- National Weather Service (Scott Krentz, Mike Rehnberg, Jimmy Taeger)
 - **Could Cabe check the location (lat/lon) of the Busick RAWS station and get it updated in WFMI?**
 - NWS Raleigh: have added inversion burnoff time and temperature to the Fire Weather Forecast, and it seems to be stable

Next Meeting

- Should be in May
- Unknown whether virtual vs. in-person