

NC Fire Environment Committee Meeting

Mountain Research Station

Waynesville, NC

May 20-21, 2019

Introductions

- New members
 - Bill Coates – USFS, Davidson River Initial Attack
 - Tim Howell – NCFS D9 District Forester
 - Robert Miramontez – BIA
- Guests
 - Kirsten Lackstrom – University of South Carolina/CISA
 - Scott Kennedy – NWS Newport
 - Angela Hopper – NC Division of Air Quality based in Asheville, open burning coordinator
 - Gary Curcio – NC Prescribed Fire Council Technical Committee

Review of Minutes from November 2018 Meeting

- Carla, Margit, and NC Parks have outlined a training course for growing season burning
- Cabe and David Greathouse went to the Fire Behavior and Fuels Conference in Albuquerque
- New fire shelter idea got axed because it's too heavy; will stay with the existing shelters
 - Could still put out a publication about it?
- The redesigned S-491 has been offered a few times already
- Per Matt Jolly, NWS has committed to creating 7-day NFDRS forecasts for all RAWs and ECONet stations

Smoke Management Plan Status – Cabe Speary

- NFCS management team is onboard with the updated SMP, with a few concerns from Greg Smith
 - What about ADM approval: if a cooperator submits an ADM run, the district ops officers don't know what they're looking at (or even if all the required info./KMZ and FEPS files are included), so they need some basic training
 - Cabe: ops officers aren't approving anything – we made sure to take the word "Approve" off the website
 - **Recommendation: Add a comment box to note who ran the model**
 - What about smoke generated in other states?
 - We have no control over that
 - Burning over multiple periods but only running one ADM?

- The runs will cover up to 48 hours, so it's not an issue unless the burn goes beyond that
 - Recommendation: Kevin Harvell and Cabe will write a response to Greg Smith addressing his concerns
 - Teaching VSmoke in the certified burner course is fine
 - Will try to have the plan sent to the Smoke Management Team by June
- DAQ perspective: some concerns in the past few years with a burner in Rutherford County smoking out McDowell County, but NCFS talked to him and he adjusted his burning

Nighthawk Drought Communications Project - Corey Davis (NCSCO) and Kirsten Lackstrom (CISA)

- State Climate Office is working on a NOAA-funded project ("Project Nighthawk") to evaluate and improve drought communications for the ag, forestry, and water resources sectors in North Carolina
- Last fall, they conducted surveys that showed:
 - Current conditions and short-range forecasts are most widely used
 - Decision makers prefer shorter and translated information via email/text message alerts, fact sheets, and infographics
 - There is widespread uncertainty about how the drought monitoring process works in North Carolina
- This feedback session offered a chance for attendees to review several new information prototypes of short-range outlooks, weekly drought overviews, and resources providing background information on drought monitoring in NC
- Planning to do weekly pilot testing of these resources this summer, so anyone interested in receiving them via email can contact Corey Davis (cndavis@ncsu.edu)

Southern Blue Ridge Fire Learning Network Update – Margit Bucher (TNC)

- Based on fire history research, we learned that fire had been more frequent in the Appalachians than we previously thought
 - Now have a database based on tree rings, fire scars, and other records
 - The makeup of forests beneath the canopy has changed
- Project broken into 9 landscape teams in western NC, TN, and GA
 - Meeting yearly to discuss lessons learned, what works, what doesn't work
 - Steering team meets every 6 weeks by phone
 - Newsletters released every 6 weeks
- Creating vegetation maps, which are difficult in the Mountains compared to the Coastal Plain
 - Determined that 60-80% of landscapes could support fire
- Goals from 2007 focused on restoring fire to adapted ecosystems
- Goals in 2019 focused more on outreach to communities to help them "live with fire"
 - Working with Coweeta ecological research station to determine best practices for restoration based on water availability

- State Park Service helped put on “Good fire in the Mountains” workshop at Lake James State Park
 - Will hold a fire festival at Lake James tied in with a local brewery
 - Will also do burn demonstrations at Lake Norman and Stone Mountain
- Conducting the first burns in the watersheds of Asheville, Greenville, and Waynesville (this fall)
 - Blue Ridge Escarpment team held a Fire Exchange workshop including ~50 participants (local, national, and international) to work on taskbooks and training (if weather cooperates)
- TNC has received funding from region 8 to put new fire crews on the ground in GA/SC
 - Conducted 22 burns for 6,737 acres in Feb through April
- Controlled burn acres were down in FY2019 due to the government shutdown and weather conditions
- Next workshop is in the Nantahala National Forest on May 12-14 or 19-21, 2020
- Question: Could the Sauratown range be included in the FLN?
- Kevin H.: In the Uwharries, Chatham County, and other areas, there is acreage ready to be burned – how can we catch up on that?
- Carla F.: It has been difficult to conduct growing season burns because of landowner attitudes and lack of education
- 2021 is the “year of fire” – I&E events, state fair will be prescribed fire-centric

Training Needs and Opportunities

- S-290 was held in February at Haw River State Park for an interagency class
 - Will probably hold more like that in the future
 - Some issues with the rates for the Haw River facility; talk to Thomas Crate if we want to use it again?
- S-390 will be offered in Crossnore in June for interagency
- S-290 and S-390 are not currently on the training calendar for the fall
 - Can interagency staff take S-390 without having single-resource burn boss certification? They could take it for the NCFCS certificate but not the NWCG certificate
- Certified burner class had not been updated since 1999, but was updated this winter
 - Offered it in Elizabethtown in March and got good feedback; offered again in Carthage this spring
 - Next offering is Oct. 1-2 in Morganton
 - Will VSmoke-web be added? Yes
- Advanced growing season burning workshop will be offered by the Prescribed Fire Council
 - Scheduled for May 29-30 in Ellerbee
 - Was hoping to have 50 participants, and they’ve already got 71 registered
 - Hoping to burn >100 acres on the field day
 - Next year, will have a hardwood burning workshop
- S-211 (Portable Pumps course) will be offered June 24-28 in Crossnore – it’s full
 - Could be offered again in early fall? For partners, talk to Aaron Gay if interested

- Duff workshop on June 29 in Weymouth Woods – it's also full
 - Kevin Hiers from Tall Timbers, Morgan Varner from USFS are participating
 - Will include duff monitoring tools, decision-making using the FWIP
 - Will be held again on August 1
- S-491 (new version of Intermediate NFDRS) will be offered Oct. 21-25 in Charlottesville, VA
 - Tim H., Cabe, and David G. will be coaching/shadowing
 - 3 student slots are available for NCFS – nominations are due June 28
 - If interested, go to the National Fire Training website
 - Next southeast offering will be in Florida in two years
- 3rd International Smoke Symposium is in Raleigh the week of April 20, 2020
- National RAWS maintenance training is offered in the eastern US every 2 years
 - Will probably be held again on Oct. 6-8, 2020, at the Stan Adams Center (Jordan Lake)
 - NCFS will have 8 slots available, mostly for radio engineers
 - Partners who have RAWS stations will also be invited
- Air resources advisor training (smoke technical specialist) will be held June 23 in Boise – class is already closed
- What about advanced ADM training?
 - Probably won't be held again this calendar year
 - Only about 20% of NCFS students who have taken the course have actually become certified
- Aaron Gay sent out a survey to district training officers about options for prescribed burn school
- Hope to get Rx410 taught locally by late next year

Agency Updates

- NC Forest Service
 - Fire staff is still fully staffed for the past ~year
 - Public affairs officer Brian Haynes left last Friday; that position has not been advertised yet
 - 441 burns for 31,227 acres on private lands since last meeting
 - Wildfires 1,679 for 4,271 acres on public and state lands
 - 2018 was the 3rd-lowest acreage burned on record for wildfires (based on Signal 14, not fire report data, so it could be lower)
 - No INT deployments for fire since November
 - April 2019 was the lowest April for acreage burned on record
 - NCSU advertised and interviewed for a fire scientist faculty position, but they cancelled it
 - Cabe may write a letter to the dean encouraging them to reconsider
 - Other partners could sign on or write a similar letter
 - **Recommendation: Write a letter on behalf of the FEC, and have NCFS and other partner agencies write separate letters**
 - Hope to add 5-7 new dozers this year using lapsed salary and reimbursement funds

- National Weather Service
 - Morristown has switched to county-based zones
 - Mixing heights will be switched to AGL instead of MSL
 - Greenville-Spartanburg is making a grid to produce dispersion index in the Fire Poker website (originally developed in Duluth)
- NCFS Region 1
 - Regional forester is retiring at the end of the year, and District 4 forester is also leaving
 - Still have some vacancies
 - Stations are greened up and it's drying out
- The Nature Conservancy
 - Mike Norris (Sandhills steward) is moving to Washington state so they'll be looking for an experience burn boss
 - 65 burns on TNC lands for 6,500 acres this year
- State Climate Office
 - New permanent director will start in late June
 - Will also be looking for a new assistant director (Heather Aldridge leaving at the end of this month)
 - New FWIP contract will need to be written this summer
- US Forest Service
 - Ryan Peacock is now in the FMO position in Asheville (came from Georgia)
 - Billy Profit was in Asheville and is now fire training specialist in Atlanta
 - Croatan is done with prescribed fire until they get fuel loading issues addressed
 - USFS continues to build the job corps fire program
 - Putting out prescribed fire modules and fire crews
 - Using some detailers from out west
- Division of Air Quality
 - Ozone season started March 1 (instead of April 1); runs through October
 - No exceedances for ozone so far, and in compliance for ozone NAX
 - 2-day staff conference was last week in Raleigh (first all-staff get-together in 13 years)
 - Randy Strait (planning supervisor) and Michael Pjetraj (deputy director) attended the Prescribed Fire and Smoke Management Summit in Georgia, and met with Cabe in March
- NC Wildlife Resources
 - Decent burn season considering how wet it was
 - Still meeting burn goals in the Sandhills
 - Southern coast can't burn until they get more rain
 - 2 new foresters (central and northern coast) have come online
 - In the 3rd year of a partnership with TNC to furnish crews for central/southern coast and southern Piedmont
- NC State Parks
 - Andrew Slack is the new ecological burn coordinator
 - Jimmy Dodson got promoted to restoration forester position
 - Will bring on a 2nd natural resource crew in July (Coastal Plain burn crew and Piedmont natural resource crew with 2 engines)
 - Have an MOA with NCFS now, which makes it easier to get equipment

- Burned at Pilot Mountain, Stone Mountain, Singletary Bay, Hanging Rock, Crowder Mountain, Lumber River
- FEMA supporting 4 engines last year and 3 new engines this year
- NCFS Region 2
 - Lots of turnover – 50% of the 60 Tech-1 positions are in the two-year training program or vacant
 - 2 long-term county ranger vacancies may get filled soon
 - Have 3 service foresters in training progression
 - Lots of burning in D5 with MEDOC
 - Burned ~10k acres in D10 (including on Burning Cat 1 days)
 - Chipping away at small prescribed burns in urban areas (e.g., Duke Gardens, Reynolda Gardens, UNC Greensboro, downtown Chapel Hill) with help from ADM
 - Completely revamped I&E for “Good Fire” controlled burning; kits available including outdoor banners
 - Handouts, presentations are available
 - An app is in development, possibly similar to the one for Florida
- NCFS Region 3
 - 2,900 acres burned; 1,000 were in D9
 - Sent people to other districts to help with burns last year
- US Fish & Wildlife Service
 - Rough year for burning with the wet weather; did 6 or 7 burns for ~3,500 acres
 - Burned on Mackey Island with help from D4
 - Hopefully for other opportunities for future collaboration
 - Could burn in Dare County and on Cedar Island within the next year
 - Expecting 2 new engines this year
 - Went through a grant program to get a used marsh master
 - Pocosin FMO position is still vacant but they can start hiring soon
 - Expecting significant retirements within the next year or two
 - FWS proposing listing the king rail as threatened, which would affect work in the marshes
- NC Prescribed Fire Council
 - Monthly conference calls are difficult since Google Hangouts only allows 5 participants
 - Other updates coming tomorrow
 - Next PFC meeting is on August 14-15 in Swansboro

May 21 - Review from Yesterday

- Did we get VSmoke-web added to a website?
 - Cabe talked to Dan Chan and he said the code on the UGA site is older, written in multiple languages, and has been updated several times since then, so they're still working with NCFS IT to see if they can host it
 - Add it under Smoke Management
 - Could we also add the user guide? Gary has tweaked it since it was last updated.
- Need to contact people who have completed the certified burner course

State Climate Office Updates – Corey Davis

- Fire Weather Portal will reach its 6th anniversary in June
 - Nearly 200,000 total visits and 30,000 unique visitors so far
- Recent Portal additions:
 - Fine fuel moisture content has been added, replacing FM1 and FM10 on the Past and Current Conditions tabs
 - Volumetric moisture content from the 3 organic soil moisture monitoring stations is now available
 - Still receiving fire grids (vent rate, Turner stability, ADI, LVORI) from 4 NWS offices (AKQ, GSP, RAH, MHX)
 - Need to contact RNK, ILM, and MRX about their grids
 - SCO WRF fire grids (including Burning Category, ADI, LVORI) are also being calculated but are not operational yet – would like to do comparisons with NWS grids and SCO will need a new source for WRF data due to aging servers
- Matt Jolly said NWS has agreed to begin making 7-day fire danger forecasts that will be available in WIMS
 - Fire Family Plus will be adapted to pull in these values
- Students at the SCO recently investigated different methods to estimate solar radiation for airport-based (ASOS/AWOS) stations, including using existing equations to convert cloud cover to SR and using NOAA's gridded Real-Time Mesoscale Analysis product
 - No method was consistently accurate, and some underestimated afternoon maximum values
 - Matt Jolly is working on a WIMS standard method that can be used for these stations
- Wish list items:
 - Burning Category by County – SCO is downloading Fire Weather Forecast text files but has not yet processed them or converted them to shapefiles
 - Adjective Rating by FDRA – the static map capability is ready but needs to be updated to use the FDOT Adjective Rating breakpoints
 - Comparing FFMC at 1300 with FM1 and FM10 – possible student project?
 - Add planned burns from the NCFS database/spreadsheet – will investigate with NCFS help
 - Data download and export options – will be added this year with support from SERCH
- Current maintenance contract ends in September; will write a new one this summer
- Organic soil moisture monitoring efforts, funded by CISA and TNC/USFWS, are ongoing
 - 2 stations at Pocosin Lakes: one on the C13 restored block, and one in an outlying block near Lake Phelps
 - Phelps station had bear problems, but putting up a taller, sturdier fence in January has helped so far this spring
 - Station behind the visitor's center at Dismal Swamp State Park was installed last August and has been resilient and consistent at collecting data
 - Station planned for the Green Swamp has been delayed due to Florence and more recent wet conditions, but it's drying out now

- OSM data is now available in the Fire Weather Portal
 - For now, only volumetric moisture content for all 5 depths (5, 10, 20, 50, and 100 cm)
 - Data is also available on meteograms (average soil moisture for all 5 depths)
 - Samples are being collected and oven-dried this spring to give dry bulk density, then gravimetric moisture content and Estimated Smoldering Potential will be calculated and added
 - Funding for the Dismal Swamp and Green Swamp stations ends in August, so could local partners fund these?
 - Parks Service and TNC say they may have funds available to support those

Summer Outlook – Corey Davis

- This winter, El Nino helped make it a wet winter (3rd-wettest on record in NC) as the subtropical jet stream was shifted southward (across the Gulf of Mexico and off the east coast)
- Jet stream/storm track has shifted northwestward entering the spring, putting NC in a drier pattern
- Our summertime weather typically relies more on convection/pop-up showers and storms, but we've had the Bermuda high pressure over us so far this spring, so it's been tough to get any rain
- The Climate Prediction Center's summer outlook shows elevated chances of above-normal temperatures this summer, although that forecast is based partially on persistence (assuming the recent pattern will continue)
 - Summer forecast confidence is typically much lower – summer precip. forecasts aren't much more accurate than a coin flip
- Hurricane season forecasts predict near to above-normal activity based on warm sea surface temperatures in the Atlantic balanced by a persisting El Niño that could hold down activity by increasing upper-level winds and wind shear
 - These outlooks can't tell when and where storms may form, and storms can affect us even in an overall inactive season

NWS Fire Weather Forecast Discussion – Scott Kennedy, NWS MHX

- Would like to standardize the elements included in the FWFs from all NWS offices covering NC
 - Some offices cover more than one state, which is why certain elements are included by some
- 15 elements are currently included by all offices, but 8 parameters are offered only by some or one:
 - Precip duration
 - Precip begin/end times
 - Inversion burnoff temp
 - Turner stability index

- Davis Stability Index
- Stability class
- Minimum visibility
- Wind profile analysis
- **Recommendation: Ask all offices to include each of these elements in their FWFs**
- Do we still need the FWFs now that we have the hourly graphs?
 - Margit suggests using them together in a two-stage process: FWFs show whether a burning window could be open, and hourly graphs could help narrow it down
 - FWF is probably best not used if you're on the ground at a fire; in that case, use a point forecast
 - If FWFs are more for novice users, do we need 3 measures of stability?
- Other potential elements:
 - Early (morning) and late (afternoon) winds
 - Mixing height and transport winds at night
 - Inversion setup
- For the point forecast matrix (PFW) product, all offices cover the same elements except the offices covering SC (ILM and GSP) also include Davis Stability Index
- On the hourly weather graph, all offices cover the same elements except ILM/GSP include Davis Stability Index and ILM/RNK don't have 20-foot winds (only the 10m/surface wind)
 - **Recommendation: Ask ILM and RNK to include 20-foot winds**
 - Could be a national push "soon" to include ADI, LVORI, and Turner stability from all offices (but all NC offices currently offer these)
- Enhanced Data Display is down now
 - NWS web hosting division is understaffed and experimental tools like the EDD tend to see the first impacts
 - **Recommendation: Could we ask for this to be upgraded to an operational product? Or make the experimental product more stable?**

NC Prescribed Fire Council Update – Gary Curcio

- Technical Committee has reviewed these ideas to safely increase prescribed fire opportunities:
 - Dispersion window – the time period when environmental conditions can adequately disperse smoke
 - Roadway smoke risk assessment process
 - Would complement the existing ADM process
 - Includes 6 basic questions to help evaluate wildland smoke when roadways are subject to visibility impacts
 - ADI interpretive tables for day and night
 - Nighttime categories/breakpoints are different than daytime, and those in the FWFs
 - Have proposed roadway visibility Adjective Rating as effected by wildland smoke
 - Extracting 4 km NAM hourly data for ADM runs
 - Data extract from the Air Resources Lab takes ~20 minutes

- Creates a 1-degree lat/lon (56x69 mile) box around a location of interest

Fire Environment Project Updates – Cabe Speary

- Made tweaks to the Fire Danger Operating Plan at district requests
 - Will be submitted to the operating team for approval next week
- In WIMS, new fuel models are listed but we've been asked not to touch them yet
 - Jon Wallace will work with the technical committee (Cabe, David G., Keith M., and a few others who have done the advanced fire danger training) to review more details about NFDRS2016
- New WIMS data will be hourly instead of daily; will be broken up by FDRA instead of region due to the dataset size
- For the fire danger assessments, Cabe has been doing 7-day forecast projections for ERC and FM100
- Pocket card template has been updated for one FDRA in the Coastal Plain, and revised based on comments
 - Will be updated for other regions and shared with them for comment
 - Should be available for all FDRAs by late summer
- Live fuel moisture program in D9 will begin collecting data at headquarters in Jackson County
 - 3 locations will be collecting live fuel moisture data for rhododendron, mountain laurel, and Virginia pine at Rendezvous Mountain
 - Looking for Piedmont and coastal sites to begin collecting data as part of a statewide expansion of the program

Review and Action Items

- Next meeting scheduled for the Coastal Plain, probably November 5-6 (Tuesday and Wednesday)