Fire Environment Committee Meeting

November 14, 2018

Cliffs of the Neuse State Park

Welcome and Introductions

- Kenny Griffin replacing Brad Allen on the FEC
- Chris Jordan replacing Ryan Jacobs as NC Wildlife representative
- Scott Kennedy replacing Jim Merrell as MHX fire weather focal point
- Scott Sharp (NWS RAH) now the state fire weather focal point

Review/Discussion of Minutes from May 2018 Meeting

- Minutes were approved

Growing Season/Upland Hardwood Burning (Margit Bucher and Carla Freeman)

- A sample brochure with upland hardwood burning information that could eventually be given to landowners was recently shared with Mark Megalos (Cooperative Extension agent) and Dr. Joe Roise
    - Some of their recommended changes ended up adding lots of content including scientific references
- Margit: Break it down either regionally (Coastal Plain, Piedmont, Mountains) or by forest type (longleaf or oak hardwoods)?
    - The effects of burning and concerns will vary by forest type
    - Carla: We already have information on longleaf, but the public and NCFS doesn't have much existing guidance on hardwoods
    - Keep growing season burning information separate?
        - Hardwoods don't burn in the summer outside of droughts, so don't recommend summer burning
        - But in the spring and fall, there are typically better burning conditions
        - We can also see a dramatic change in effects from the dormant season to early spring to late spring to the growing season
            - Depending on the time, it won't burn with RHs anywhere near 50%
        - Look at the current forest status and the goals of burning (is retaining the timber value important?)
- Carla: The brochure should be simple – if a landowner is willing to burn hardwoods, offer some recommendations about whether they should burn or Forest Service should burn
    - Should it include weather requirements like humidity? That would be ideal.
- John Cook: Brochures usually end up being too vague. If you're going to include prescription values, it's best just to write a burning plan for the landowner.

- Would these be geared more toward Prescribed Burn Associations or managers instead of individual landowners?
- Should we first better educate practitioners or land managers in the burning community on the benefits of growing season burns? Discuss it the same way we talk about hazard reduction burns?
    - Then address the public, who will talk with their county rangers, NRCS, etc.
- Include before and after pictures from burns, plus descriptions of the conditions in which the burns took place and effects of the burns?
    - Could put it on a website?
    - Hold a workshop for land managers? With a presentation, then a field visit?
- Cabe will be dean of prescribed burn school next February, so he may have some influence over what it includes
    - In the past, it has not included much information on Piedmont/upper Coastal Plain or growing season burning
        - Talk to Rob Lidford or others with GSB experience about their concerns or lessons learned with these sorts of burns
            - TNC could help identify sites where growing seasons burns are currently taking place
            - Hold the next FEC meeting (scheduled to be in the Mountains) near one of those sites? NC Wildlife, NCSU, or Clemson may know of some sites too
                - Possibly South Mountains? Morganton area?
- Should this be part of advanced burn training/seminar?
    - Who is the audience? Forest Service/land managers? Extension agents? Private landowners themselves?
- Recommendation: Carla, Margit, and NC Parks will get together and come up with an outline for possible training/site visit well in advance of the next FEC meeting
    - Could also hold a pilot training separate from the spring FEC meeting

Training Needs and Opportunities

- Southern Area course schedule for the next few months:
    - S330 (Task Force/Strike Team Leader) on Dec. 11-14
    - S490 (Advanced Fire Behavior Calculations) from Mar. 11-15
    - L481 (Advanced Leadership for Command and General Staff) on Mar. 11-16
    - L480 (Organizational Leadership in the Fire Service) on May 20-24
- NCFS training calendar is still in the management team's hands, but know of some possible courses
    - S212 (Power Saws) at Stan Adams Training Center on Nov. 26-30 – it's full
    - 140/190/L180 was cancelled; it will be moved back to the district level – likely will be opportunities for other agencies to send folks to it
    - Some NC community colleges may begin teaching 130 and 190
        - 130 and 190 are often taught at Bridge, although usually on short notice like on rainy days; however, they may be able to accommodate students
    - Next certified burner course is tentatively scheduled for Feb. 12-13 in Bladen County

        - Will still be taught under the old system
    - S290 and S390 will be offered on February 4-8 to make up for the one canceled due to Florence – it's already full
- Will need to know soon (by the next FEC meeting) from non-NCFS folks whether there is enough interest for another S290 course next fall at Haw River, like was offered in fall 2017
    - Would need at least 15 students to make it worthwhile to hold
- International Assoc. of Wildland Fire will hold the 15th International Wildland Fire Safety Summit and 5th Human Dimensions of Wildland Fire Conference in Asheville on Dec. 10-14
    - The faculty working on the Hoke County smoke program will have a presentation at the meeting
    - Possible grant money available to cover registration costs?
- 6th Fire Behavior and Fuels Conference in Albuquerque on Apr. 29 – May 3
- Southern Blue Ridge Fire Learning Network meeting will be held in Athens, TN, on May 14-16
- Cabe went to the RAWS course in Georgia in May; it's expensive to hold that course outside of Boise so no other courses are planned for the eastern US this year
    - May hold it in NC next year with 4-5 slots available for NCFS?
    - Cabe can also help folks maintain their RAWS stations
- National WIMS course and 491 are on hold until NFDRS2016 is in place
- RX-410 is still being planned

Agency Updates

- NC Forest Service
    - 784 fires over 29,031.2 acres since the last meeting
    - 91 prescribed burns (91.2 acres per burn) since the last meeting
- Camp Lejeune
    - 33 wildfires year to date over ~4,500 acres
    - 23 prescribed burns this year
    - 2 vacancies: GS-9 position vacant since July 2017 and a GS-5 position that should be filled soon
    - Need another equipment operator
    - Recently received 4 new Freightliners to replace aging equipment; expect to receive some new modified John Deere 700Ks soon
- US Fish & Wildlife Service
    - Pocosin FMO left, now at Dismal
    - New type 6 engine is coming in soon
    - Not much burning this year since most days with northeast winds were also rainy
    - Not many wildfires this year
- National Weather Service
    - Overall, staffing is better than it was year or two ago
        - MHX is down ~2 spots, RAH is down 1 spot; other offices are near full
    - From Phil Manuel at RNK:

        - The RAWS station at Pilot Mountain has been added to the FWM (NFDRS) forecasts, but its ID is still shows as Crabtree (the old station)
        - Also need to update the House of the Horseshoe RAWS
        - Recommendation: Corey will contact Alexander Jacques at MesoWest about updating the metadata for these two stations
        - RNK has removed Boone from the fire danger rating system forecast list
            - Boone ECONet at App State was decommissioned in Dec. 2013
    - From Sam Roberts from MRX:
        - The Peachtree City office is developing a new mixing height smart tool but it's not ready for testing yet
        - MRX and Nashville will be transitioning to county-based FWFs next year
    - The National Blended Model includes transport winds and mixing heights, but RAH is having trouble importing the data
        - Eventually, it could be used to populate hourly mixing heights
    - No updates about national implementation of Stull method for mixing heights
    - Not all WFOs are currently generating hourly fire weather grids – it depends on the transition from NIDS to IDP
        - SCO is currently getting hourly grids from GSP, MHX, and AKQ but not RAH
- Region 3
    - Lots of new staff including a new regional forester, Greg Smith
    - Some site prep burning this year and hoping to do some HRBs but weather isn't looking favorable
- Region 2
    - District staff hasn't changed much but new 25-28 new ACRs and equipment operators
    - Several site prep burns this year before Florence and Michael
    - Lots of hurricane response such as hauling hay
    - District 5 at one point had 13 vacancies; still 2 ACRs vacant, but recently filled a couple district-level positions
    - Estimate of 3,500 acres of aerial burning across 5 districts
- The Nature Conservancy
    - 10 burns since the last meeting
    - 50 burns over the last fiscal year (July – Aug.) covering 3,300 acres
    - Staffing is stable
    - Will have a squad of 12 in the Sandhills from Jan. through June and 20 on-call based in Asheville
    - Type 6 engines in Wilmington and Sandhills + two type 7s
    - Helped the SC chapter with 2 burns in the upstate
- Prescribed Fire Council
    - Dr. Roise is the new chair
    - First meeting this Friday (Nov. 16)
    - Chris Jordan is the chair-elect
    - Technical Committee : would like to see inversion burnoff temperature on all FWFs (especially helpful for private burners)
- NC State

    - Almost have 2 working type 6 engines thanks to help from Bob Mickler and the Wild Turkey Federation
        - One engine blew its transmission last summer
    - Will be hiring a new fire scientist in College of Natural Resources; 3 interviews coming up in January
    - Will register for AFE certification for fire ecology once the new fire scientist is on board
    - Request from FEMA about fire safety research and development; any ideas for what we need in NC?
- State Climate Office
    - New interim director: Dr. Walt Robinson, who is also a professor in the Dept. of Marine, Earth, and Atmospheric Sciences
        - Replaced Dr. Aaron Sims, who moved on to a private environmental modeling group
    - Search for a new permanent director is underway
        - Expect to do interviews early next year and have someone identified by late spring/early summer
    - Recently started a NOAA-funded drought communication project
        - Some NCFS folks received an invitation to a survey about information needs
        - Plan to develop and test prototypes this winter/spring and have final versions to share by late next summer
- National Park Service
    - New name is Appalachian-Piedmont-Coastal
    - Added the Reconstruction Era National Monument in SC
    - Chris Jacobs' position is moving from fire manager to operational fuels role
    - Will advertise a GS-7 position next spring and a GS-5 shortly thereafter
    - 4 prescribed fires in NC for 450 acres
    - Not many wildfires in NC this year
    - New RAWS station going in at Buxton; still deciding on the location
    - Outer Banks is looking to do some burning at Hatteras in 2020
- NC Parks Service
    - Thomas Crate moved to the newly created FMO position
        - Thomas' old position will be filled soon (Andrew Stack?)
    - This calendar year, 55-56 burns for 6,100 acres
        - Mountains burned slightly more acreage than the Piedmont
            - Tracks tend to be bigger in those regions than in the Coastal Plain
    - In the next year, may add a second road crew based west of Raleigh
    - Several type 5 and 6 engines being built now; plan to have at least one in every region of the state
- Region 1
    - Not much burning due to the hurricanes
    - Need a new helicopter pilot in Kinston
    - Helicopter 10 has 24 hours left on the engine
- Bureau of Indian Affairs
    - Jonathan Lee retired this spring as Cherokee FMO; that position hasn't been filled

Lab and Field Testing for Next Generation Fire Shelters (Dr. Joe Roise)

- The M2002 is the current model used across much of North Carolina
    - Under hot enough temperatures, the aluminum will melt (over ~600°C)
- With support from FEMA, NC State's College of Textiles and College of Natural Resources created and tested 11 new models
    - Added extra thermal protection layers along with the radiant energy protection
        - Current model has only 2 layers
    - Needed the same weight as current model (4 lbs, 3 oz)
    - Also wanted a version without seams since that's a typical failure point of the current model
    - Added a gas barrier to all models
    - Field-tested 4 of the new models in full-scale in CA, SD, NC, and the Northwest Territories
- Internal temperatures were generally survivable (< 140°C) in most cases, but a fast-moving burn in South Dakota grasslands caused it to spike to 300°C in one case because edges weren't sealed and fire burned under the shelter
- In combined performance between lab tests and 2 field tests, the M2002 model was about 5 times worse than the two best prototypes
- Between NASA and NC State, no decision has been made on the best shelter

NFDRS2016 Update (Jon Wallace)

- Matt Jolly and Larry Bradshaw have been leading the NFDRS2016 effort
- Current NFDRS is very complex and has been static since 1978 despite learning a lot about how to apply it and how it really works
    - For instance, how fuel moisture changes over 24 hours; current NFDRS only shows it at one hour
- Want the updated system to provide more intuitive output, simplify WIMS, and replace some of the fire danger expertise that has diminished/retired
- Past preparations for NFDRS2016 include installing solar radiation sensors on RAWS stations, evaluating new fuel moisture and Growing Season Index model performance
- Current live fuel moisture model is weak and was recommended for replacement in 1978
    - Will finally be replaced with the Growing Season Index (GSI) – a meteorological-based phenology model
        - Requires no human intervention; uses only weather data and predicts green-up, grassland curing, and automatically integrates freezing and dormancy
        - GSI "thinks like a plant" – requires a balance of water, heat, and sunlight
            - Includes minimum temperature, day length (based on date and latitude), and vapor pressure deficit (using relative humidity)
            - Calculated daily and smoothed using a running average over 21 days

        - Values mean the same thing everywhere so it's comparable between sites
        - GSI is rescaled from 0 to 100 in FireFamily Plus, called the Live Fuel Index
        - Compares favorably with measured live fuel moisture, while current NFDRS woody fuel moisture is not well-correlated
- Current dead fuel moisture model was developed by Fosberg in the 1970s; uses once-daily weather information and requires manual entry of State of the Weather code and wet flag
    - Applies a correction to the temperature and relative humidity based on the SOW
    - New Nelson model more accurately tracks diurnal fine dead fuel moisture using hourly temperature, relative humidity, solar radiation, and precipitation
        - Requires no human intervention such as State of the Weather
            - A new "automated state of the weather" was implemented in 2011 using solar radiation at the 1300 observation and precipitation over the past 24 hours
        - Accounts for diffusive and capillary water transport
        - Derives surface temperature from an energy balance (net input of heat gains and losses)
        - Scalable to any sized dead fuel
            - Could be scaled to 10,000 or 100,000 hours to better model organic soils
        - Includes slope and aspect effects with solar radiation, precipitation and dew formation effects such as fuel wetting
        - In field tests, Nelson compared extremely well with measured 10-hour fuel moisture
- Both GSI and Nelson models will cause a difference in fire danger on days following a rain event to make it better match observed conditions on the ground
- New NFDRS consolidates 40 fuel models to 5 (grass, grass/brush, brush, timber, slash)
    - Many of the current models are strongly correlated even though their ranges may differ significantly
    - Current models group into five similar sets anyway
    - New models are derived from the existing 40 models with the addition of 1,000 hour and drought fuel loading
    - There was some angst about losing the widely used fuel model G, but it is very strongly correlated with the new fuel model Y (timber)
- KBDI was used to depict fuel load transfer; GSI now includes those curing and greenup effects
    - KBDI will remain part of the system but will become less widely used for drought fuel loading
- End result is a fully automated NFDRS – no need to change type R obs to O or enter SOW
    - Should be more consistent, better show drought response, and be applicable to gridded weather data
- Adjusting to the new system will create some temporary increases in workload to update breakpoints, but automation will decrease the day-to-day workload

- S-491 is being redesigned to account for NFDRS2016 – training in the southern area next year will be the new class
- Can create some real-time pocket cards (ERC vs. Spread Component) to link fire danger and fire behavior to make this information more accessible to firefighters
- WFAS is producing normalized 7-day ERC forecasts for CONUS
    - www.wfas.net/nfdr/mapfiles/wfas_map.html
    - Running ERC calculations daily for fuel model G
    - Uses the Nelson model at sub-daily intervals to track fuel temperatures and remove SOW
    - Uses GSI/LFI as a surrogate for life fuel moistures
    - Calculates a long-term average for ERC (G)
- When will the new system become active? If we switch our stations to the new fuel models, it will happen. (Need to check a box on the ENFDR screen and remove the existing fuel models for each station.) It will happen automatically in 2020.
- Generating climatologies in FFP is buggy and takes a lot of time
    - The first time you run them, it has to calculate all the fuel moistures. It then stores those in a table so subsequent calculations are quicker.

November 15, 2018

Seasonal Outlook (Corey Davis)

- Last winter was slightly warmer and drier than normal overall, but we also had memorable periods of cold weather and several snow events (including in March)
- We were in a weak La Niña last winter, since then, Pacific sea surface temperatures have warmed and we're now entering a weak El Niño phase
    - Sea surface temperature anomalies in the central Pacific recently spiked to +0.5°C above normal (the El Niño threshold) and warm water beneath the surface should help reinforce that this winter
    - Atmosphere has recently begun to respond to the warmer ocean surface: seeing signs of cloud cover over the western Pacific and a slackening of the easterly trade winds
    - Model forecasts generally agree about a weak to moderate El Niño lasting through the winter
    - El Niño strengthens the southerly/subtropical jet stream and helps it bring Gulf moisture and storm systems to the southeast US
    - This year's El Niño shows a "Modoki" (similar, but different) pattern with the strongest SST anomalies in the central and western Pacific instead of the east
        - Changes where large-scale high and low pressure systems set up, and often means more ridging over the western US and more troughing (cool air) over the east coast
- Polar vortex/jet stream is less predictable (changes every week or two), but some indicators can tell us its overall tendency
    - A rapid increase of snow cover over Siberia in the fall can cool the surface, warm the upper atmosphere, and cause the polar vortex to weaken and the polar jet stream to become weaker and more wobbly, which can allow cold air to funnel farther south

    - This year, a late-October spike in Eurasian snow cover appears to have already triggered a polar vortex weakening and the recent cool weather in the eastern US
    - Expecting another weakening event by late November, so forecasts for December are favoring cooler-than-normal weather in NC
- Four past weak to moderate Modoki El Niño years showed differing impacts on NC
    - 1977-78 had strong east-coast troughing and overall cold and wet weather
    - 1986-87 had less intense troughing but was still cooler and wetter than normal
    - 2004-05 had troughing off the east coast, so NC had near-normal temps and was slightly drier than normal
    - 2006-07 was a weak El Niño event and had little troughing and was warm and dry
        - Set the stage for the 2007-08 drought because we didn't get the wintertime recharge we expected
- SCO's winter outlook expects above-normal precipitation, near-normal temperatures (with a good amount of variability/mix of warm and cool periods) and the best chances for cold weather from mid-December through late January
- NOAA's winter outlook also expects wet weather across the southern US and mid-Atlantic states with equal chances of above- or below-normal temperatures

Updates from the State Climate Office (Corey Davis)

- Organic soil moisture monitoring
    - Background: Monitoring stations are funded by CISA and TNC/USFWS; hope to have them in the ground for at least 3 years and eventually use that data to compare with satellite-based or other measures to find proxies for OSM and ESP
    - First station in a restored block at Pocosin Lakes NWR was installed in March; had a few missing months of data this summer but communications were restored in October
    - Second station in an outlying block of Pocosin Lakes NWR near Phelps Lake was installed in July but has had consistent problems with bears getting in and chewing through cables
    - Third station at Dismal Swamp State Park was installed in August; data has been reliable since then, but the barbed wire fence does need to be finished
    - Fourth station at Green Swamp is still planned but was not installed this fall due to Florence; planned for the winter or early spring?
    - Data from Dismal Swamp so far shows wetter conditions at lower levels with a 10-15% decrease during the drier conditions this fall
        - At upper levels, 5 cm running consistently wetter than 10 cm
            - Due to moisture uptake within the root zone? Or water running down the slope of the land near the surface? Or shade limiting evaporation at the top levels?
    - In the next 6 months, plan to get all stations installed/finished/repaired, collect and oven bake soil samples, and get data added to the FWIP
    - Cabe has funds for some RAWS-type soil sensors (Stevens Hydra Probe 2 -- ~$600 each)

        - A total station with 15 soil sensors would run $18 to $20,000, but we could go with a reduced option with fewer columns or sensors
        - Could we put some in at the existing Pocosin RAWS station? Are the soils there organic?
        - Interest from Camp Lejeune and Dare Bomb Range for putting in stations/sensors
- Fire Weather Portal updates
    - Added CPC temperature and precipitation outlooks this summer
        - Also plan to add seasonal drought outlooks
    - Added WPC short-term precipitation forecasts (up to 7 days out)
    - A fine dead fuel moisture product was requested to provide better real-time estimates than the NFDRS 1-hour and 10-hour products provide
        - Matt Jolly's SimpleFFMC product has been coded up using the flowchart and tables available online; apparently Matt also has Python code available with the equations used to create those tables
        - Data has been calculated historically and is almost ready to show in the Portal
            - Suggested removing the Past and Current 1-hour and 10-hour products when the new FFMC dataset is added in to avoid confusion
                - Keep the forecasted 1-hour and 10-hour products, though
        - Recommendation: Compare FFMC with FM1 and FM10 from 1300 observations to see how similar or different they are
    - Fire grids from 4 NWS offices covering NC are now coming in
        - Jake Wimberley from GSP initially developed the script to share the data on the NWS Eastern Region server; he has shared it with other offices
        - Now GSP, MHX, RAH, and AKQ are all sharing their grids
            - Data from all offices will soon be added to the FWIP
        - Still need to talk to ILM and RNK
        - MRX may not be able to share their grids since they're in the NWS Southern Region
    - Fire grids using SCO WRF output are also being calculated
        - Forecasts up to 72 hours out over 2 model domains (15 km CONUS, run once daily, and 4 km Carolinas, run twice daily)
        - Will add 6 parameters: transport wind speed, ventilation rate, Burning Category, stability class, ADI, and LVORI
            - Also created experimental super fog indices using Gary Curcio's input
        - These grids are still undergoing testing and evaluation, but will be added to the FWIP once that's done
    - Interest in 7-day NFDRS forecasts for parameters such as BI, ERC, and DENSCA
        - We may be able to get these forecasts for individual RAWS stations from a text file that Matt Jolly is already generating for SACC
        - DENSCA would also require minimum RH; we could get that from NWS NDFD?

        - Recommendation: Talk to John Wallace about whether the national gridded ERC and other forecast NFDRS products could be shared
    - NCFS would like to see Burning Category by county
        - Recommendation: Create an example using the NWS Fire Weather Forecasts even though they're not truly county-based (some counties are split in half and Great Smoky Mountains is its own zone)
    - Some interest in showing planned burns from the NCFS database/spreadsheet
        - Will need to sign up for an NCID and see how easy it would be to automatically grab that spreadsheet and show the burns as points
            - Don't show information like landowner names or addresses; just basic burn info. such as the acreage
    - Future Portal maintenance
        - Currently in a one-year no-cost extension with NCFS
        - Plan to write a new two-year maintenance contract next summer
            - Cabe: we can still do another extension and just write an amendment if we want to shift some support to cover hardware for WRF runs
        - Also receiving ongoing support from the USDA Southeast Regional Climate Hub
            - They are funding some student work looking at solar radiation estimation methods, and next year will fund some Portal enhancements such as data download options

DENSCA Index Preliminary Statistics (Pete Steponkus)

- Pete, John Magnusson, and Tim Howell worked together on this analysis
- Fire reports are available going back to 2000 from Camp Lejeune
    - Early years had lots of fires because of the fuels left behind after the ranges were cleared
    - Typical spring fire season is from Feb. through June, plus a fall season in Sept. and Oct. in years without tropical systems
    - Tend to see multiple fire days, such as March 9, 2016 (simultaneous wildfires at SR-7 and SR-8)
- DENSCA combines min RH, FM100, FM1000, BI seasonal percentile complement, ERC seasonal percentile complement into a single indicator scaled from 0 to 100
    - Lower DENSCA values associated with higher fire danger
- From Sandy Run data, DENSCA is better-correlated with fire days than ERC, FM100, BI, or SC
- DENSCA was better correlated with large fire days than ERC, but worse than BI or SC
- For multi-fire days, ERC performance best (DENSCA second-best r^2)
- Could adapt existing Ludlum cards to include DENSCA

Fire Environment Project Updates (Cabe Speary)

- Fire Danger Operating Plan

    - All FDOP team members are at this meeting; they will get together after the meeting to put the finishing touches on it
    - It will continue to use the old fuel model (G) due to issues with FireFamily Plus
    - An initial comparison between G and Y for one station over ~3 months shows generally an 8 to 15% difference between them
    - For now, this plan will only cover NCFS, not other agencies or the federal plans
- Live fuel moisture program
    - Now one year into the pilot program
    - Have gotten good data from one location (Dupont State Forest) and some data from Rendezvous Mountain
    - One measurement per month from Dupont, with two measurements in two spring months
        - Comparing live fuel moisture with values from Guion Farms, the woody fuel moisture is not very comparable to the actual measurements
    - Cabe is still looking for sites outside of the mountain region where folks can commit to making measurements for 4-6 man hours per month
        - Site requirements:
            - Minimum of 5 acres
            - No planned disturbances (e.g., timber harvesting or prescribed burning) for the next few years
            - Must have a good representation of the local fuels
    - Funds are available for purchasing equipment for ~3 sites per region

Smoke Management Plan Review and Revisions (Cabe Speary)

- Revised as of 11/9/18
- Added a link to the NC Administrative Code; recommend that all burners read the entire act
    - 3 rules apply to smoke management
        - Defines a forest
        - Defines a certified burner
        - Delivering the prescribed burn plan
            - To be delivered to a NCFS employee, then signed and sent to the district office ASAP
        - Calling in a burn in the morning is *not* a rule
- Adjusted Burning Category thresholds
    - 0 to 14,760 is Stagnant (revise to Category 0) – can't burn in this range due to minimum mixing height and transport wind speeds
    - 14,760 to 33,499 is Category 1
    - Recommendation: NWS and SCO should implement Burning Category 0 now
- Kept Open and Understory separate but added a footnote clarifying the difference
    - Understory = under standing timber or light fuels such as grasses and light brush
    - Open = site prep, heavy brush, burning some or all overstory (stand replacement)
    - Recommendation: remove general size classes (light or heavy) in reference to brush

    - Also change open definition to “Open refers primarily to site preparation burning or burns where long-term smoldering is anticipated, i.e., stand replacement burns”
- Changed prerequisites to Advanced ADM training to include RX-301 and RX-341, which some federal partners have taken
    - Recommendation: Remove prerequisites and revise to “This course is designed for burn bosses and smoke management professionals.”
- Should we make a distinction between basic and advanced ADM?
    - Basic would not require an ADM course; just a few extra hours after the Certified Burner course to go over VSmoke and complexity worksheets; Advanced would require full ADM certification
    - Recommendation: allow anyone who meets their agency standards as a burn boss to run VSmoke Web for low-acreage, low-complexity burns (as determined by the complexity worksheet)
        - Build VSmoke into the prescribed burner school
    - Goal should be to have at least one person in each district who can run ADMs
- Certified ADMers will receive a certificate
- Recommendation: ask Dan Chan to send the model tool code from the Georgia Forestry Commission site so NCFS or NC PFC can host it as well
- Ask modelers to retain a copy of their weather files (.met) in their records for at least 3 years
    - But don’t ask they to send it in since they’re too big to email
- Randy Strait recommended some changes re: the Air Quality Index
    - Burning on Code Orange days is highly recommended against for certain forecast regions. Could remove Orange per the MOU on open burning between NCFS and DAQ, but the Smoke Management Plan applies to a wider audience.
- Cabe will make recommended changes by Dec. 1 and send it out for review again; send comments by Dec. 8; finalized and available to the public by Jan. 1
    - These changes should not require approval from the management team

Next Meeting

- Scheduled for May 8-9, 2019
- Mountains region is up next
    - Possible venue near a site where we can see a growing season burn demonstration?
    - If not, then hotels with state rates are available in Sylva, Maggie Valley, and Mars Hill