North Carolina Sandhills Conservation Partnership

Quarterly Meeting Minutes

"Flora of the Sandhills"

1:00-4:30 PM, Wednesday, June 15, 2022

- Welcome & land acknowledgement
  - As we gather to discuss stewardship and conservation of the Sandhills, it is important to acknowledge the original inhabitants and stewards of these lands. Many still live here today, including the Coharee and Lumbee tribes. We pay our respects to these past, present, and emerging leaders who have been custodians of this land for many years.

- Steering Committee Attendance

Present:

Pete Edmonds (chair)	Fort Bragg – Training
Brady Beck	NCWRC
Pete Benjamin	USFWS
Jeff Marcus	TNC
Scott Pohlman	NCDENR-CPCA
Crystal Cockman	Three Rivers Land Trust

Other attendees:

Sarah Hecocks (TNC), Jessica Jordan (NC State Parks), Jason ___ (Fort Bragg – Forestry), Alan Schultz (Fort Bragg – Wildlife), Victoria Acosta (Fort Bragg – Wildlife), Rod Fleming (Fort Bragg), Kerry Brust (SEI), Lauren Pharr (NCSU & SEI), Alicia Jackson (JCA), Stacy Huskins (Fort Bragg – Endangered Species), Katherine Culatta (NCPCP), Jeff Austin (NCPCP), Erick Rietschier (TNC), Scott Pohlman (NCNHP), Jesse Wimberley (Sandhills PBA), Terry Sharpe (Sandhills PBA), Barry Hull (Fort Bragg – ACUB), Brian Williams (Fort Bragg – Training), Dale Suiter (USFWS), Alan Weakley (UNC Herbarium), Susan Miller (USFS), Maya Miller (Cape Fear River Assembly), Harlan Chavis (TNC & Lumbee Tribe), Ryan Bollinger (Longleaf Alliance), Crystal Cockman (TRLT; with interns Natalie & Maggie), Mike Martin (NCWRC), Dallas Shoemaker (NCWRC), Jesse Woodsmith (Southern Conservation Trust), Caren Cooper (NCSU), John Hammond (USFWS), Colleen Bowers (NC State Parks), Rex Badgett (NCDOT), Brandon Outen (NCFS), Jeff Beane (NCMNS), Alice Cohen (NCFS), Mary Lou

Addor (Sentinel Landscape Partnership), Jake Comer (Quail Forever), Jimmy Dodson (NC State Parks), Gabriela Garrison (NCWRC), Kacy Cook (NCWRC)

- Partner updates

- Working Group updates

Resource Management (Jessie Jordan, NC State Parks):

- Field trip on June 22 at Carver's Creek SP at 9am. Focus is on the restoration project planned for Long Valley. A timber harvest is happening on that land, which is unusual for state parks. Will also be discussing invasive plant removal and other management. All are invited; Sign up by June 17.
- Another trip is planned for sometime in early fall at McCain Forest, but a date has not been solidified yet. Resource Management meeting will be in conjunction with field trip.

Land Protection (Jeff Marcus, TNC):

- Uwharries projects: TRLT closed on a 210 acre tract joining the Uwharrie Trail that will eventually be transferred to USFS, and 11 acres on the Uwharrie River
- Sandhills projects: TNC is working on closing on 5 projects; some are close to the Sandhills Gamelands, some are in the gap. Working to get it done before end of September when current cooperative agreement (and associated funding) ends.

Reserve Design (Sarah Hecocks, TNC/USFWS):

- Our knowledge of the locations and extent of upland depressional wetlands in the Sandhills will be improved following the completion of a mapping project that TNC has engaged in with Natalie Paparone, a Masters student at Duke University. She will use remote sensing and predictive modeling to try and identify new isolated wetlands and potential breeding locations of Species of Greatest Conservation Need (SGCN) amphibians in the Sandhills and Bladen Lakes region. Using LiDAR-derived products like digital elevation models (DEM)s and models of vegetation structure, along with DEM-derived layers (like topographic position indices), soil maps, and multi-season aerial imagery, Natalie will aim to predict wetland locations by classifying land/herbaceous cover, the presence and seasonality of water, and the potential for the SGCN amphibians to be present – all model results that can be tested for accuracy against existing wetland locations and known SGCN amphibian breeding locations. New/potential sites identified by Natalie's model will be prioritized for ground-truthing and future monitoring based on their proximity to known breeding locations, the presence of open/seasonal water, and the amount of herbaceous cover present.

Communications (Debbie Crane, TNC – absent, so Jeff Marcus filled in):

- TNC National Magazine will be featuring a story on longleaf this fall. Pictures were taken at Fort Bragg, interviews were held with Jesse Wimberley.

RCW Recovery (Kerry Brust, SEI & Lauren Pharr, NCSU):

- SEI and partners are currently in peak RCW monitoring of the fledging period. Nesting started earlier this year than last year and wasn't as big as a nesting effort as 2021. Some pairs did not attempt nesting or failed. New RCW groups-- there are two ways new groups are formed: pioneering (novel groups in areas not

historically occupied) & budding (split cluster). This year, 1 pioneer group and 1 bud group were found. Artificial cavity work at Weymouth Woods is going well; 2 family groups. 1 budded group in western Moore. McCain: stable/no new groups. TNC found new nest cavity tree (now 12 groups on Calloway). Gamelands: 1 new group. Camp McCall: no new groups yet but it's still early; this is the time of year when SEI finds missed nests. Now SEI might expect to see double brooding; 1 double brood has already been found at Smith Lake.

- Lauren Pharr's PhD project: Focused on RCW reproductive success & productivity in relation to climate change. Currently helping SEI & WRC monitor on the gamelands (in charge of 32 groups). PhD-specific research: is climate change linked to long term trend of brood reduction? For example, in a well-studied population on Eglin Air Force Base, a recent trend of partial hatching & a decrease in reproductive success has been observed. Is this the future for RCW in the sandhills? Lauren will look at hatching asynchrony, food provisioning rates, insect abundance, temperature and weather patterns. Using 40+ year dataset from Jeff Walters. She has 2-3 more years and is slated to receive funding from REPI Challenge.

- Fort Bragg training update- *Barry Hull, Peter Edmonds*
  - Tank Range: over the next 5 years (FY 23-27), 6 significant ranges will be developed to support Fort Bragg's training and mission of readiness.
    - MPTR (multi-purpose training range): planned for sometime this summer, FY23, and will be complete in FY25. Will support new tank that the army is developing.
    - ARF+ (automated record fire range): start construction in FY24. Will support the next generation squad weapon (weapons to support entry level soldiers).
    - MPMR (multi-purpose machine gun range): current MPMR on Fort Bragg is the busiest range in the US Army. Second one is planned for FY25.
    - Shoot House: 2nd one is planned for FY25.
    - IPBC (Infantry Platoon Battle Course): Planned for FY25. Fills a shortage that Fort Bragg has had for 10 years; allows army to exercise all weapons and plan for integration into real-world mission.
    - SRGC (__ __ Gunnary Complex): Planned for FY27. Going to be built over old Range 63 which is 40 years old.
  - Maneuver Trail: overuse of firebreaks to move through training area was negatively impacts both training and environmental efforts, so the recommendation was to develop designated network of maneuver trails. Focused on northern part of training area. This will concentrate the impact of a live tank moving through area and lessen environmental damage. In the future, the focus will be to expand those maneuver trails to the southern and western portions of the training range.
  - Comment from Jeff Marcus: A dozen RCW clusters will be lost. But, this is what success looks like for the Army; We have been working on RCW recovery for years, and are finally at a point where this loss won't have a catastrophic impact on overall populations. ACUB has protected ~24K acres. However, it is also a reminder that RCWs are not the only species of concern, and while RCW clusters can be offset elsewhere, it is very difficult to replicate the ecological value of an acre of habitat lost on Fort Bragg with another acre elsewhere. Fort Bragg is one of the best places on the planet to see full suite of species in LLP ecosystem; not

just RCWs. Significant land clearing on Bragg may negatively impact populations of northern pine snake, southern hognose snake, many rare plants, etc and so it is important to minimize impact on Bragg and to not take our foot off the gas for protecting and restoring habitat throughout the Sandhills.

- USFWS RCW updates- *Pete Benjamin*
  - Lot reviews are moving much more slowly due to loss of FWS staff in the Sandhills. An online tool has been working okay, but that system needs improvement.
  - Safe Harbor: Pete is permit-holder, so we now have capability to enroll new landowners. Sarah (ORISE fellow) will be helping check in with current SH enrollees and enroll new landowners.

- Federally endangered plants: ecology, status, and conservation and management needs- *Dale Suiter, US Fish and Wildlife Service*
  - NC biodiversity hotspots: Blue Ridge, Sandhills, Coastal Plain
  - Endangered:
    - Michaux's sumac
      - 38 populations still extant
      - Habitat: sandy forests, rocky open woodland and edges
      - Threats: fire suppression/ecological succession, logging, mowing, herbicides
      - Recovery criteria: downlist to threatened when 19 self-sustaining populations are protected. There are currently 17, but whether they will be protected in perpetuity depends on the agency
      - To-do list: population monitoring, complete management plans, augment populations, and preserve seeds
    - Rough-leaved loosestrife
      - Habitat: ecotones between LLP uplands and pond pine pocosins, highway and powerline ROW
      - Threats: land conversion, ROW management
        - It is also a poor seed-producer
      - Recovery criteria: downlist to threatened when mgmt plans implemented for 9 publicly-owned and TNC population centers & populations are stable for at least 5 yrs.
      - Recent propagation efforts: soil moisture is critical, dormant season better than growing season
      - To-do list: update mgmt plans, continue monitoring, augment pops, preserve seeds
    - American chaffseed
      - Currently declining. 41/43 pops protected; recovery goal is 50 geograpically distinct pops protected across range
      - To-do list: population monitoring, research on germination and fire, reintroductions across historic range, seed bank pops at FB
  - At-risk (petitioned for listing as T or E):
    - Bog spicebush
      - Petitioned for listing in 2010. By 2020: >100 known pops, ~1/3 are of uncertain status. FB has some of most robust pops.
      - Can be difficult to distinguish from spicebush which has led to misidentifications
    - Georgia leadplant

        - Petitioned for listing in 2010. 2022: 16 pops, with majority on FB
        - Fire-dependent; found in blackwater river terraces, savanna/pocosin ecotones, and cypress gum swamps.
    - Venus flytrap
      Petitioned for listing in 2014. 2021: 870K individual plants at 74 pops. Largest pops in outer CP, extirpated in inner CP and few in Sandhills
        - One of most fire dependent species, so fire suppression is big threat. Other threats are land conversion and poaching

- At-risk plant species- a Fort Bragg perspective- *Stacy Huskins, Fort Bragg Endangered Species Branch*
    - Michaux's sumac: 24 sites on FB mostly in training areas. Challenges: pollen transport. Pollinator is not specific to this plant. 4 native bees that generalize on many plants. Sites are male or female; pollen doesn't make it to female site; 2-10miles of separation. Bad for genetic diversity. Another problem is hybridization (hybrids with Rhus glabra). Another challenge is prescribed fire coordination; previous fires did some damage to equipment.
    - Rough-leaf loosestrife: 88 sites on FB mostly in impact areas, but 22 in training areas where pops are not doing as well (thin stems and never flower). Did timelapse imagery on it and Clyde Sorenson saw very little visitation, indicating that it likely has a very specific pollinator (or its pollinators are not doing well?). Challenges: fire penetration (in training areas); reintroduction by rhizomes has little success.
    - American chaffseed: 67 sites (65 in impact, 5 in training). We still don't really understand its relationship with fire. Found in oak stand, open field that had been mowed (literature suggests stem removal is good, perhaps in response to fire). This plant is hemiparasitic but has been found green; this individual was in a site with only 3 plants. Pollinated mainly by Bombus but they nectar rob. Several thousand seeds stored at 2 seed banks.
    - Venus flytrap: previously covered by Dale.
    - Georgia indigo-bush: FB has 65% of this plant range-wide. Mgmt challenge is fire penetration; occurs in pine savannas.
    - Sandhills milkvetch: 145 upland sites on FB. Mgmt concern is development, not fire (occurs in upland area).
    - Sandhills lily: 44% on FB; 50 sites on FB. Mgmt challenge is fire penetration because it occurs in wet areas.
    - Bog spicebush: not much is known about this, but research is ongoing. How do seeds disperse? Lots of mortality in GA and SC.
    - Pixie-moss: 95% on FB (pretty much every upland site in training areas, 372+ plants). Narrowly endemic but locally abundant. Maneuver trails will help this in long run by concentrating traffic. Pollinated by ants because it flowers in the winter. Mgmt concerns are digging and development.
    - Pickering's Dawn Flower
    - FB burns >50K acres annually, which is always a big challenge and feat

- Plant Conservation Policy and Funding / NCPCP sandhills preserves - *Katherine Culatta, NCPCP*

- Katherine has been the field botanist and permit coordinator with the NC Plant Conservation Program since 2019. She is filling in at this meeting for PCP program manager Lesley Starke.
- Part of NC Dept of Ag. 5 main duties: maintaining list of protected plants; regulate illegal activities; establish and manage nature preserves (core of work); monitor on preserves; research
- How to prioritize? Ecoregions. Protect 2 most viable pops of each listed spp in each ecoregion in which it occurs.
- Sandhills ecoregion: 59 listed species; 53% have goal met, 20% partially done, 12% none, 15% historical only.
- PCP preserves in sandhills:
    - Eastwood (Moore County): important powerline corridor. Focal sp: sandhills lily
    - Mcintosh Bays: significant because it's the only known site for Camby's dropwort. Likely to be important reintroduction site
    - Changes to plant policy and funding-- NC Wildlife Action Plan: keeping common spp common and avoiding losses, federally funded, focus on SGCN (only fauna right now but could expand to plants)
- NC does not currently include plants but will soon (when?)
- Competitive fed funding will hopefully get easier if Recovering America's Wildlife Act is passed (NC would see $26 million directly to SGCN). Currently awaiting Senate approval.
- Updating the NCWAP—adding list of protected plant spp to then include as SGCN in WAP so they can qualify for fed funding. In prep for next major update in 2025.

- Plants in the NC Sandhills Conservation Partnership's Conservation Plan, and monitoring and reporting for rare plants. - *Scott Pohlman, NC Natural Heritage Program*
    - Scott has over twenty years of experience working to conserve North Carolina's important places, employed by the North Carolina Coastal Land Trust and the NC Natural Heritage Program, but working with as many partners as possible. He doesn't consider himself a botanist, and feels lucky that he has been able to work with some remarkable biologists in North Carolina, including folks associated with NCNHP, WRC, PCP, FWS, DPR, the Museum, NCSU, and others.
    - ~ 1 in 5 spp in NC are rare. Still discovering new spp! One recently described (2020) is Streamhead Lobelia
    - NHP tracks:
        - EO (element occurrence): area in which a natural community is or was present
        - Natural Area/Conservation Site
    - Many ways to submit data! They work with the observer/submitter in whatever format they want to submit in
        - iNaturalist: need to submit to NHP projects ("rare vascular plants of NC")
    - Reserve Design—1. define focus area. 2. Identify target elements for conservation
    - Alabama beaksedge: 2 known pops in NC (both on FB)
    - Twisted-leaf goldenrod: current extant pops predominantly in sandhills