



Invasive Species Action Team Meeting
Albemarle-Pamlico National Estuary Partnership
10:30 AM - 3:00 PM
January 24, 2017

The Imperial Centre for the Arts and Sciences
270 Gay Street, Rocky Mount, NC 27804

Meeting Notes*

*Notes by Tim Ellis (APNEP) based on an audio recording, with editing by Dean Carpenter.

APNEP Staff Present: Dean Carpenter, Coley Cordeiro, Jimmy Johnson

Team Members Present: Ray Fernald (VADGIF), Rob Emens (NCDWR), Kevin Hart (NCDCEM), Charles Yelton (NCMNS), Corrin Flora (NCDMF), Rob Trickel (NCFS), Bridget Lassiter (NCDA&CS), Jonathan Short (NCDPR), Chris Goudreau (NCWRC).

Welcome and Introductions / Action Team Purpose:

Dean Carpenter reviewed APNEP basics for the team via a PowerPoint presentation. He noted that for now, he is the primary APNEP staff assigned to this team and APNEP will facilitate future team meetings and activities.

Dean would like to see two things come out of this meeting: 1) to establish a course map for the next 2-3 years for where the team would like to go with regards to implementing Comprehensive Conservation and Management Plan (CCMP) actions and 2) a member to volunteer to be team lead. This team lead will join leads from other teams to form an APNEP Implementation Committee.

Dean noted that this Invasive Species Action Team has 4 of 5 classes of actions (i.e., Identify (A), Protect (B), Restore (C), Engage (D); the team does not have Monitor (E). He suggested that with regards to (A), it is important for this team to determine if we have enough information to move forward on any of the action items that were just reviewed. If not, then we can do rapid assessments to get a gauge of where we are and possibly identify the extent of potential threats. With regards to (B), his understanding is that preventing invasive species from establishing a foothold in an area is the most effective and efficient strategy for management. Dean read the descriptions for action items in the (C) and (D) categories as well, noting that with regards to (D) this team would likely work closely with the APNEP Stewardship and Engagement Action Team.

Dean reviewed further concepts regarding APNEP's CCMP and strategies for achieving outcomes. Details on the structure of APNEP were presented, including the Policy Board,

Science and Technical Advisory Committee (STAC), Implementation Teams, and Monitoring and Assessment Teams (MATs).

Dean reviewed a list of collaborative invasive species projects in the A-P estuary and asked for team members to raise their hands if they have been involved in any of these; many are involved with most (if not all) of the ongoing projects.

- Ray Fernald noted that the Virginia Invasive Species Council (2011) became a legislative-mandate working group in 2012 (permanent and funded).
 - It was noted that this group has a very comprehensive charge.
- Dean asked the team to be thinking about potential new invasive species to include in the 2017 APNEP ecosystem assessment (i.e., update *Phragmites* but also add others).
- Dean noted that Martha Diaz (Duke MEM student) did a project on rapid assessment protocol for invasive species in the A-P estuary.
 - This study looked at what other NEPs have done and tailored it for the A-P estuary. This hasn't been implemented yet but is being considered.
- Corrin Flora noted that the DMF hydrilla monitoring effort in the Chowan River was done again in 2016 and is ongoing (into 2017?).

Dean invited further discussion on the North Carolina Aquatic Nuisance Species (ANS) Plan.

- Rob Emens noted that the available funding from the federal government is now up to \$2M. The state plan needs a governor signature to move forward and that is currently where the process is stalled. The steering group met almost monthly for 1.5 years to draft the plan, it had a public review period, and the regional ANS task force person gave his input as well. The NC ANS plan was created to get federal money but the administration at the time rejected the plan due to "potential strings attached". Signatures were obtained from three of the major agencies (DENR, DA&CS, WRC) but now DEQ (formally DENR) asked for the team to put together a budget for implementing the plan (met last summer).
- Jonathan Short noted that none of this made it into any of the budget bills last session and he is not sure exactly where things were left in that process.
- Corrin asked why hasn't this moved forward since last year? She noted that a facilitator of the group (Judy Francis) took a new job and that neither the old plan nor the new plan has ever made it to the governor for a signature.
- Rob E. thinks now would be a good time to revisit the plan and give it another go by getting new DEQ secretary support to go to the governor (must have agency support to go to governor).
- Ray noted that Virginia does have an aquatic and terrestrial invasive species plan (since 2005) and these are 5-year plans according to ANSTF (task force) mandates.

Their new update to the plan is due in late 2017. Each state gets about \$46K (part of the \$2M mentioned earlier) and he is the chair of the mid-Atlantic regional panel, so he represents NC and the other mid-Atlantic states on the ANSTF. This panel would very much like NC to go ahead and submit their plan; he noted that 5-6 of the 8 states in the mid-Atlantic have formally-recognized plans.

- Dean suggested that the team attempt to overlay the NC and VA plans and create a hybrid plan for the APNEP geography.
- Jonathan also supported **cross walking the APNEP goals with these other ongoing NC and VA plans** because there is considerable overlap and room for multiple groups to check off the same boxes.

Dean transitioned to last three slides of his presentation.

- Boosting APNEP's citizen-science effort, particularly with regards to monitoring invasive species.
- Getting all partners together and focusing efforts on similar goals (possible NC Partnerships for Regional Invasive Species Management (PRISM) effort modeled after the New York PRISM example presented to the team).
 - Ray noted that VA has just started a PRISM model based on the NY effort. APNEP could potentially create one PRISM for the whole A-P estuary or several PRISMs based on each watershed. He said that PRISMs are becoming very popular but depend on locals being very engaged and driving the process. Ray also noted that the NY PRISM has a big budget.
 - Dean noted that if this is something the team wants to pursue than it can be presented to the APNEP policy board and floated with the idea of hiring a coordinator to work with this team to implement the plan.
 - Rob E. noted that the NC ANS plan budget included the funding of a permanent nuisance species coordinator.

Dean asked the group if there are any equivalent efforts/plans guiding the terrestrial side.

- Ray pointed out that PRISMs are not just for aquatics only (Dean agreed but noted most plans in NC are for aquatics). Ray said that VA has active efforts on feral hogs with APHIS. This committee meets regularly in VA with folks from NC, APHIS, USFWS, and Virginia Tech. He noted that they have a program for nutria as well.

Group does introductions:

- Ray Fernald: Virginia Department of Game and Inland Fisheries
 - Ray is the Environmental Program Manager (Richmond).
 - He is here as the introductory meeting representative but how the meeting goes will determine who will represent VA in the future (him or someone more species-specific).
 - VA's focus on species in the A-P region include nutria, feral hogs, *Hydrilla*, beach vitex, and *Phragmites*.

- Kudzu is problematic and “dealt with” but not much effort given to eradication.
 - Ray was charged with eradicating zebra mussels in Chesapeake Bay 10 years ago and this is how he fell into the role of invasive species liaison for VA.
 - VA does not have a dedicated budget for invasive species but rather efforts are left up to individual staff working on particular species.
 - Ray is chair of the Mid-Atlantic Panel on Aquatic Invasive Species (Rob E. is on panel as well). This panel runs from NY to NC.
 - Dean said he will talk with Ray at break/lunch about getting more VA involvement in APNEP teams.
 - Ray also noted a new book (Mid-Atlantic Guide to Aquatic Invasive Species) put out two weeks ago and copies were handed out to the group. He thinks this will hopefully cover the invasive species of interest in the A-P region.
- Rob Emens: North Carolina Division of Water Resources
 - Rob manages NC’s aquatic weed control program.
 - Rob is the past president of NC Invasive Plant Council and has chaired the NC Aquatic Weed Control Council.
 - Rob also represents NC as part of the Mid-Atlantic (since its inception in 2005), Gulf and South-Atlantic, and Mississippi River Basin Panels.
- Kevin Hart: North Carolina Division of Coastal Management
 - Kevin helped write NC ANS plan and has been involved with identifying threats in the NC Coastal Habitat Protection Plan (CHPP).
 - Kevin used to work for NCDMF and was on the NC Aquatic Weed Control Council and was a NC representative on the Gulf and South Atlantic Panel.
- Charles Yelton: North Carolina Museum of Natural Sciences
 - Charles does some education efforts around invasive species but it is not a focus of the museum.
 - He has prior experience in land management and was a past president of the NC Invasive Plant Council.
- Corrin Flora: North Carolina Division of Marine Fisheries (Elizabeth City office)
 - Corrin stated that she is the invasive species lead for NC.
 - She is on the NC Aquatic Weed Control Council and has also been working with APNEP for the last two years on *Hydrilla* monitoring in Chowan River.
 - Corrin noted that NCDMF now has baseline submerged aquatic vegetation (SAV) sampling data for much of western Albemarle Sound.
- Rob Trickle: North Carolina Forest Service
 - Rob is head of the Forest Health Branch.
 - He deals mostly with invasive insects and diseases that affect forest trees and forest resources.

- There are some issues (e.g., emerald ash borer, laurel wilt) that are very severe in NC and will impact the timber industry to some degree, as well as wildlife.
- NCFS does some outreach, at least with staff, regarding cogongrass and reporting it when found.
- Rob noted that he has a little bit of a pathology background.
- Bridget Lassiter: North Carolina Department of Agriculture & Consumer Services
 - Bridget is lead invasive weed specialist for NCDA&CS and NCFS.
 - NCDA&CS is the regulatory arm for the state on terrestrial and aquatic invasive species, and she works closely with Rob E.
 - She is not interested in widespread things like bamboo and kudzu but is interested in things that are not widespread, including *Hydrilla*, giant salvinia, purple loosestrife.
 - NCDA&CS has some long-term control programs across the state.
 - She mentioned a success story with the Witchweed Eradication Program in southeastern NC (54-year old program). The NCDA&CS took over this program in the 1990's from USDA.
 - She previously worked at NCSU with the Lake Gaston Aquatic Weed Council (efforts to get rid of *Hydrilla*).
 - She is very interested in outreach and education.
- Jonathan Short: North Carolina Division of Parks and Recreation
 - Jonathan is the invasive species and natural areas biologist, and spends 50% of his time working on invasive species.
 - He is working on two big projects involving *Hydrilla* control at Lake Waccamaw and in the Eno River.
- Chris Goudreau: North Carolina Wildlife Resources Commission
 - Chris is the hydropower and special projects coordinator.
 - He works mostly on hydropower issues and was pulled into this team for various reasons but is interested in the topic.
 - NCWRC is very concerned with both aquatic and terrestrial invasive species, particularly feral hogs.
- Coley Cordeiro: APNEP
 - Coley informed the team of the need of APNEP staff to make sure topics discussed are communicated effectively to the other APNEP teams (e.g., education/outreach, freshwater habitat).
- Jimmy Johnson: APNEP
 - Jimmy is interested in learning how today's discussions relate to the implementation of the NC Coastal Habitat Protection Plan.

Dean shared his goals and objectives for the meeting and asked for guidance on who else APNEP should invite to the discussion on invasive species.

APNEP is non-regulatory science-based organization but we have regulatory partners, which is essential.

APNEP-STAC member, Bob Miller, is very interested in this team's efforts but was unable to be at the meeting today.

Dean discusses indicators for measuring and monitoring the team's impact (e.g., management actions taken, ecological endpoints); "what do we expect to happen in 3-5 years if we implement our plan?"; and if outcomes are not as expected, do we need to invest in more research or use alternate actions?

Chris stated that he recently read a 2010 article in the Journal of Fish and Wildlife Management on structured decision making regarding invasive species (hemlock example) and said that the paper agreed with many of the comments Dean made about outlining scientific understanding, long-term projections, costs, and adaptive management strategies.

General Discussion and Ideas: Who is doing what already and where? What other resources can we draw from?

Dean opened the floor to the team for general discussion with emphasis on agenda items. He encouraged someone to step up as team leader and discussed the pace of team and meeting frequency (webinar option but face to face at least annually).

Aquatic Flora

Rob E. stated that the aquatic flora of greatest concern is *Hydrilla* and then alligator weed.

Ray said his VA agency doesn't deal very much with aquatic plants except for *Hydrilla* in certain lakes (not statewide). He noted that the VA Department of Agriculture is responsible for aquatic plants. *Phragmites* and giant salvinia are issues in VA on case by case basis but we should talk with Kevin Heffernan (VA Natural Heritage Program) at the VA Department of Conservation and Recreation.

Bridget stated that she has contacted the director of the VA Department of Agriculture who is the most informed about aquatic invasive species in VA.

Ray responded that the VA aquatic weed list is primarily the federal noxious weed list (by state law, nothing that is widespread or has commercial viability is allowed on the list...e.g., nurseries).

- Bridget stated that it is the same for NC.

- Ray noted that the process for getting the list approved is lengthy and that it will be awhile before we know what the result will be.

Dean asked Rob E. if *Hydrilla* studies provide measurements of area coverage (acreage), and the response was 'yes' but only in Lake Gaston and Roanoke Rapids area.

Corrin stated that NCDMF surveyed Chowan River and hardly found any *Hydrilla* in 2016 (anomaly year perhaps?). Kevin (?) and Bridget mentioned that higher levels of blue green algae, particularly in Edenton Bay, may be correlated, but Corrin stated that the wind direction blew such that algae was a problem in Edenton Bay.

Rob E. noted that *Hydrilla* is in Bachelor Bay in some years but not in others. They found tubers, so they knew it was still there. The challenge is identifying the parameters that affect interannual variability in *Hydrilla* presence/abundance, but it will be a nuisance every year once it is established.

Bridget stated that invasive aquatic plants aren't managed at all in Roanoke Rapids Lake. She has recently observed several species (e.g., Eurasian watermilfoil, *Hydrilla*, parrot feather) established there, especially around the boat ramps.

Bridget also noted that giant salvinia is in South Carolina and never made it further north than Pender County, NC and has been eradicated in NC. Ray noted, however, that it has shown up in VA.

Several folks (e.g., Bridget, Ray, Rob E., Charles, Corrin) have a back and forth discussion on *Phragmites* [assessment of extent, how to deal with it, is it important habitat and invasive, wetland (not terrestrial or aquatic)]. Bridget noted that aquatic herbicides must be used for *Phragmites* because it can run off into water and harm other native aquatic life. Ray noted that all the regional panels consider *Phragmites* as an aquatic species.

Dean summarized aquatic flora: *Hydrilla*, alligator weed, giant salvinia, *Phragmites*, beach vitex

- Kevin noted that we are repeating the prioritized list outlined in the NC ANS Plan and that we should consult that list instead of starting from scratch.

Aquatic Fauna

Lionfish was mentioned.

Corrin stated that blue catfish is the biggest problem from her perspective. Gillnetters target blue catfish in the Chowan River and this fishery is the main factor keeping the population in check; however, gillnet seasonal closures (due to interactions with sturgeon) limit the impact the fishery could have on controlling blue catfish in Albemarle Sound.

Dean asked the team what would be the best plan for looking at other plans and pulling out aquatic species of importance to APNEP?

Chris suggested sending a spreadsheet around to the different team members and asking them to rate species based on their region and agency expertise (need local experts at each agency to weigh-in on what is important to APNEP versus the whole state). Dean confirmed that Chris has a spreadsheet of this information.

Ray suggested consulting the book he mentioned which was vetted by experts in NC and VA on the priority of certain species (NY to NC). State biologists in VA that contributed to that list would be able to tell what species are most important for the VA portion of the A-P region.

Several folks questioned if eradicating blue catfish was preferred for all regions (e.g., invasive but popular fishery). There was limited discussion on this but someone mentioned that eradication of this species in Chesapeake Bay would be a bad idea.

Dean and Rob E. suggest creating a list of the aquatic invasive species 1) in the A-P region, 2) priority, and 3) risk of invasion for species on the horizon.

Group breaks for lunch

Terrestrial Invasive Species

Charles asked if there is a coordinated effort on terrestrial invasive animals (forest group does tree insects but what about feral hogs, fire ants, etc.)?

Bridget says her agency traps and monitors insects (emerald ash borer, gypsy moth, cotton bull worm, boll weevil) and they have quarantined areas for fire ants.

Charles mentioned that we manage for rainbow and brown trout because of popular fisheries but they are invasive. Someone mentioned that these fishes are on the invasive list but are treated like kudzu with regards to priority for eradication (“what can we do about it?”).

Charles noted that he didn’t think there was any coordinated effort across taxa with regards to terrestrial invasive species. He provided an example of the state herpetologist located at the museum, who is probably the only person that knows where invasive lizard species can be found in NC.

Ray reiterated that the VA invasive species plan covers terrestrial and aquatics (identifies issues but each agency is responsible with specific species under their authority...there is no comprehensive program to deal with all of it but rather just coordination by the plan’s advisory committee and state agency heads).

Dean asked the team if it would be beneficial to come up with a list of terrestrial invasive species like what VA has done, but for the A-P region.

Charles thought that more people would need to be involved. He brought up an example of crayfish and a museum grant to use citizen science to map out occurrence of crayfish species across the state (several invasive species). He noted that perhaps NCMNS and NCWRC are the only people that know about this work. **Natural Heritage staff should have a seat at this table as well.**

Several folks discuss back and forth with Dean about the best way to compile a list of invasive species for the A-P region. **Suggestions included creating a spreadsheet of all taxa and then approaching individual experts about each one to provide guidance on priority, risk, monitoring and data availability.** The issue was raised with filtering the list down the line to not include commercially viable species.

Charles suggested contacting all the agency, NGO, and university experts possible. **He suggested starting first with the lists from neighboring states and see what occur or can occur in the A-P region. Doing a statewide list first (which would be very beneficial to the state) and then reduce it to just the A-P region.**

Several folks discussed pathogens and whether to go down that road (e.g., nematodes in eel stomachs, striped bass disease) ...should APNEP devote resources to something that it can't do much (if anything) about? Brief mention of deer chronic wasting disease and if it's invasive.

Rob T. handed out and discussed some documentation about pests for forests, particularly those that are transported via firewood. His agency and Bridget's agency have federal umbrellas for funding and directives (USFS and USDA-APHIS, respectively). Most of the native tree insects and diseases are secondary and attack trees already under stress by something else, while invasive species attack healthy trees. Rob also noted that his agency has been doing emerald ash borer surveys and that there are maps and modeling (<https://foresthealth.fs.usda.gov/host/>) for predicting where you will find ash species in the state. He noted that ash is scattered in the piedmont but in the coastal plain, ash (green, Carolina, and pumpkin ash...riparian species) is congregated along the bottom lands. His agency needs help with the ground surveys, particularly more observations from water (boat/canoe/kayak) to locate ash on the banks. Laurel wilt is a completely different problem. It has an insect vector (*Ambrosia* beetle carries it) and there is no control option for it, only prevention. Redbay and swampbay trees in Dare County wildlife refuges are at risk, and these trees serve wildlife as a food source and habitat. There was much back and forth discussion on prevention options (e.g., transporting fire wood regulations, burning).

Dean shifted to reviewing with the team what the APNEP monitoring and assessment teams had recommended when original indicators were developed regarding non-native invasive species pre-2010:

- Invasive aquatic plants: *Hydrilla* and Eurasian watermilfoil

- Invasive wetland plants: *Phragmites* and alligator weed
- Invasive wetland fauna: nutria
- Upland plants: privet, *Microstegium*, kudzu, *Ailanthus altissima*, *Paulownia*
- Upland fauna: feral hog and fire ants

There were no group objections to any of these.

Action Items / Action Plan Discussion:

Dean reviewed the action items to take away from today (based on text in red from above).

- 1) Aquatic side: Use two plans (VA and NC) to create a regional (Albemarle-Pamlico) plan that includes both states.
- 2) Terrestrial side: Work with key agency personnel that can provide feedback by taxa on developing a statewide (then A-P regional) database.
- 3) Explore new potential partner organizations to join the team, including the NC NHP and various NGOs.

Dean asked if it would be helpful to establish a Memorandum of Understanding for this Invasive Species Action Team?

- Bridget said her agency would not commit to signing anything based on her experience with other groups.
- Rob E. asked if APNEP can bridge the gap to strengthen partnerships between NC and VA regarding efforts on nutria and feral hogs, and that maybe an MOU fits for this scale. Ray responded that there is some cooperation on feral hogs.

Team Leader and Additional Team Member Requests:

Dean asked if anyone had any other thoughts (new members, team lead)? No volunteers.

- Rob E. stated that he would prefer to devote his time to promoting the NC ANS Management Plan at the state level. He also asked Dean where he sees this action team being most effective/productive (efforts to management, outreach, or something else...is there money available)?
 - Dean explained that some APNEP funding is available to each action team but APNEP is interested in leveraging the resources of its partners as well. Dean elaborated on the role of the action team to develop a course map and the role of a separate implementation committee to approve those plans. There was further discussion between Dean and Rob E. regarding plans for actions over the next 2-3 years and the possibility for pooling funds or writing grant proposals for larger projects.

Ray noted that this action team is made up of all agency people and asked how much does APNEP involve NGOs in these team discussions and activities? He thinks this would be key for starting up a PRISM as they (e.g., Master Gardener, Native Plant Society, Virginia Landscaping

and Nursery Association, and TNC) have the most involvement aside from efforts by agencies (see Blue Ridge PRISM for VA and NY is baseline model for this).

- Coley elaborated on how APNEP has met with TNC and other NGOs [Carolina Wetlands Association (CarWA)] to see what citizen science needs they have.

Bridget alerted the group to new invasive plant in Pender County (Hampstead, NC) that was detected last August. She gave out handouts to the team. She stated that the plant has never been found in the US (native to Australia and Asia). NCWRC monitors a pond for gopher frogs and noticed that this plant was taking over. Holly Shelter Game Land is very near this area, but the pond is on private land. Herbicide was sprayed on the area and it will be monitored. There is uncertainty on how it established in the pond.

Dean provided the link for this team's page on the APNEP website (<http://portal.ncdenr.org/web/apnep/invasives>).

Meeting was adjourned