

**Wetlands, Wildlife, and Botanical Issue Advisory Group
February 3, 2004
Alcoa Conference Center
Badin, North Carolina**

Final Meeting Summary

Meeting Agenda

See Attachment 1.

Meeting Attendees

See Attachment 2.

Welcome and Introductions

Jane Peebles, Meeting Director, opened the meeting with introductions and a review of the agenda. Wendy Bley, Long View Associates, explained that the purpose of the meeting is to update the Issue Advisory Group (IAG) on the ongoing wetlands, wildlife, and botanical studies.

Wetlands Evaluation

Wendy Bley introduced Sarah Allen, Normandeau Associates, who first summarized the progress to date on the Wetlands and Riparian Habitat Assessment. She said that Normandeau photo delineated all wetlands within a 200-ft buffer of the Project reservoirs. Normandeau also delineated upland land use within 200-ft of the reservoirs (400-ft minimum length along the shoreline) (see Attachment 3). Sarah said that Normandeau, at the request of the IAG, was also in the field October 20-24, 2003 examining newly established vegetation in High Rock Reservoir. The vegetation, established during the 2002 drought, was primarily black willow. Sarah said the black willow is not likely to survive the high water levels experienced in 2003.

Robert Petree, SaveHighRockLake.org, stated that there was also abundant water willow in Abbots Creek. Sarah explained that the largest percentage of the vegetation in Abbots Creek was black willow, but there was also some water willow and other emergents found. Robert noted that historically, there has been no water willow in High Rock. He said that the first year that High Rock was full for a continuous 12 months, water willow began to establish itself in Abbots Creek. He stated that given the opportunity, water willow will establish in High Rock.

Continuing, Sarah stated that Normandeau also checked shrub/emergent signatures in Narrows Reservoir during the December 2003 drawdown. She commented that the because of the topography at Narrows, there are not many wetlands.

In conclusion, Sarah said that Normandeau plans to complete the digital assembly of the wetlands maps, conduct ground truthing in 2004, and then revise and finalize the maps.

For clarification, Chris Goudreau, NC Wildlife Resources Commission, asked if Normandeau was mapping other aquatic vegetation as part of this assessment. Sarah answered yes. In response to a question from Mark Cantrell, US Fish and Wildlife Service, Sarah explained that the aquatic vegetation mapping would be coordinated with Rick Simmons' habitat assessment work.

RTE Species List

Sarah said that at the October 8, 2003 Wetlands, Wildlife, and Botanical IAG meeting, she distributed a preliminary list of rare, threatened, and endangered species (RTE species). At that October 2003 meeting the IAG asked Sarah to consult with some local experts (Moni Bates, Pete Diamond). Sarah explained that she consulted with Moni and Pete, and also Alan Weakley and Sarah McRae. Sarah distributed copies of the RTE species list, as revised. The species on the list include: mammals, amphibians, reptiles; birds; terrestrial insects, including odonates; and all vascular plants. She explained that criteria for inclusion on the list include 1) species affected by reservoir operations, 2) within 200-ft of the Project boundary, and 3) within 50-ft of edge of a transmission line corridor or powerhouse clearing. There are a total of 68 species on the list in the following four categories: 14 priority species, 16 secondary species, 5 transmission line species, and 33 excluded species (see Attachments 3 and 4).

Donley Hill, US Forest Service, asked what is meant by "secondary species". Sarah defined "secondary species" as those species not known to occur, but potentially present based on availability of suitable habitat.

Mark Cantrell asked why the bald eagle is not included on the RTE species list. Sarah explained that the Center for Conservation Biology is responsible for evaluating the RTE bird species. She agreed to add a footnote to her RTE species list. Mark questioned the accuracy of the federal status of some of the species. Sarah explained that she used the USFWS state list updated September 2003 to develop the list. Mark said that he would double-check a couple of things.

Mark and John Ellis, USFWS, questioned why salamanders, snakes, and other reptiles are not included on the list, which is predominately plant species. Sarah said that habitats suitable for those species are not likely in the Project area. She said that Normandeau is planning field surveys for April and if there are vernal pools present Normandeau will look at them. Mark thought the field surveys should also include the steep, rocky bluffs where snakes might be found. Sarah questioned how these habitats are influenced by Project operations. Mark said that there are other shoreline uses that are induced by the Project that could impact these habitats. Sarah said that high bluff areas are outside the influence of reservoir operations. Mark suggested an alternative approach – search for RTE species first and then make a determination of how the Project may or may not affect them. Wendy Bley said that Mark's suggested approach is similar to what Normandeau plans to do; however, Normandeau must begin with a reasonable list of species to search for. She said that Normandeau developed the RTE species list based on the species' occurrence and habitat type. Wendy said that it would be unreasonable to ask

Normandeau to look for everything. Mark said that he is concerned that groups of species or entire taxa and/or habitat will be ignored.

Donley Hill agreed with Mark. He suggested that Normandeau begin with the most comprehensive list of RTE species and then make an evaluation of likely effects on those species and give reasonable consideration to whether suitable habitat exists anywhere in the nearby area. Wendy explained that Normandeau began with a comprehensive list of species and then worked with the IAG, at the October 2003 meeting, to narrow and prioritize the list.

John Ellis asked if there was anywhere where the Project boundary is greater than 200-ft. Gene Ellis, Yadkin, said yes – the Project boundary is greater than 200-ft around the powerhouses and transmission lines.

Jane Peeples noted that Normandeau needs to get into the field to conduct surveys in the spring (March, April timeframe). She suggested that the IAG review the list again and submit comments to Normandeau as quickly as possible. Jane asked if the IAG was concerned with the qualifications of those conducting the surveys. Mark Cantrell replied yes. He said that the USFWS often requires permits for surveyors. Sarah Allen said that because the priority species are limited to plants, Normandeau planned to work with Moni Bates and/or Pete Diamond in the field. She said that if other animal species are added to the list, Normandeau will enlist the appropriate support.

Andy Abramson, Central NC Land Trust, commented that Davie County does not have a Natural Heritage Program (NHP) inventory and asked if Normandeau planned to search Davie County. Sarah explained that once the RTE species list is finalized, Normandeau will abandon the county-by-county approach and focus on habitat types at the Project.

Donley asked Sarah to explain how Normandeau plans to analyze the effect of Project operations on the RTE species that are found. Sarah said that Normandeau will make extensive notes and collect Global Positioning System (GPS) data on all areas searched and species found. Donley asked how species occurring outside the 200-ft boundary that are not on the list would be addressed. Sarah said that if the species is not on the list, it would only be addressed peripherally, if at all.

Chris Goudreau said that Normandeau began with a comprehensive list of species, which the IAG, at the last meeting, helped to narrow down and prioritize. He clarified that species categorized as “excluded” would not be included in the field searches, but would continue to be part of the process. Donley said he had two areas of concern 1) how search priorities are developed and 2) the analysis of Project effects. Mark Cantrell commented that the list of RTE species is limited to plant species because Normandeau only consulted with botanists. He suggested that Normandeau consult with other experts (Harry LeGrand, Alvin Braswell, and Jeff Bean). Sarah reiterated that bat and invertebrate experts were consulted as well.

Sarah agreed to distribute an electronic copy of the RTE species list and a short description of methods to the IAG for a final review and comment. At the IAG’s request, Yadkin also agreed to distribute a locus map of the Project area. John Ellis asked if the USFWS should provide input

on aquatic RTE species as well. Wendy Bley said that Normandeau is searching the Project tailwaters for everything so there is no aquatic species list. John said that the shortnose sturgeon is a species of concern. Mark Cantrell asked if Normandeau was also searching the tributaries. Wendy asked the USFWS to provide Yadkin a list of aquatic species of concern.

Sarah Allen explained that once there is a final RTE species list, Normandeau will assemble a list of species descriptions, map locations most likely to support the species, coordinate search windows and locations with local experts, and conduct the searches.

Invasive Exotic Pest Plants (IEPPS) – Draft Species List

Sarah Allen distributed a draft list of IEPPs (see Attachment 5). She described the criteria for inclusion on the list as 1) affected by reservoir operation (focus on aquatic and wetland species), 2) within 200-ft of the Project boundary, 3) natural habitats only, and 4) within 50-ft edge of transmission line corridors or powerhouse clearing. Sarah listed her sources and reviewers (see Attachment 3). A total of 32 species are on the list: 7 priority species (all aquatic) and 25 secondary species (7 aquatic and 18 terrestrial).

John Ellis asked about the difference between the priority and secondary species. Sarah explained that species listed as “priority species” are species that are currently present, or their status is unknown but they could potentially occur. “Secondary species” are not known to occur or are unlikely to occur within the Project boundary.

Sarah summarized next steps: finalize the IEPP list, assemble list of species descriptions, map locations most likely to support species, coordinate search windows and locations with local experts, and conduct searches. Wendy added that an intermediate step will be to identify any potential threats to other native species and/or communities. Sarah again agreed to provide an electronic copy of the preliminary list of IEPP species to the IAG for review and comment.

Transmission Line and Project Facility Habitat Assessment

Sarah Allen stated that the objective of the Transmission Line and Project Facility Habitat Assessment is to identify vegetation cover types and wildlife habitat types around the transmission lines, dams, and powerhouses and evaluate the effects of operation and maintenance on vegetation cover and wildlife habitat. She said that Normandeau plans to delineate cover types from aerial photos and then transfer them to a digital format. Normandeau will ground truth the cover typing in 2004 and revise the maps, if necessary.

Mark Cantrell asked about the geographic extent of the assessment. Sarah explained that the assessment would include the transmission lines and 50-ft on either side of the lines, as well Project lands within the vicinity of the four dams and powerhouses.

Schedule and Agenda for Next Meeting

In conclusion, Wendy said that the RTE species list would be finalized via email so that field work can begin in early spring. She said that the field work for many of the studies would

continue through September/October and therefore, there is no immediate need for a next meeting.

Larry Jones asked when Normandeau would be prepared to make recommendations regarding the operation of High Rock Reservoir to support water willow growth. He suggested evaluating some operational changes to see if a second continuous year of full pool at High Rock would encourage more water willow growth. Larry asked why the NCWRC is not interested in water willow on High Rock Reservoir. Chris Goudreau said that he wants to determine the benefits and trade offs of various reservoir levels on aquatic habitat, including the creation of water willow (a possible mitigation/enhancement measure). Donley Hill said that everyone could agree that higher water levels will increase wetland emergents and therefore, there is no demonstration necessary to substantiate the claim. Wendy commented that the October 2003 field work needs to be put into the broader context of the wetlands work. Jane Peebles said that questions cannot be answered independent of other data. She said that once all the data is collected, it along with the OASIS model can be used to evaluate alternative operating scenarios.

Attachment 1 – Meeting Agenda

**Yadkin Project
(FERC No. 2197)**

Communications Enhanced Three-Stage Relicensing Process

Wetlands, Wildlife and Botanical Issue Advisory Group Meeting

**Tuesday, February 3, 2004
Alcoa Conference Center
Badin, North Carolina**

1:00 PM – 3:00 PM

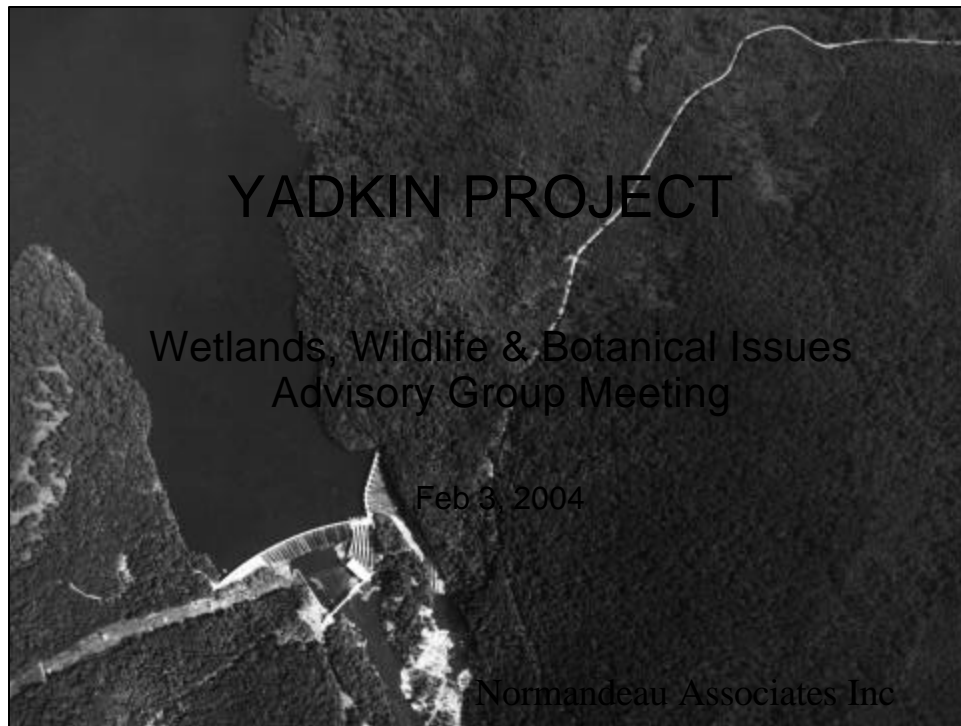
Preliminary Agenda

1. Introductions, Review Agenda
2. Update on Wetlands and Riparian Habitat Assessment
 - i. General Study Status Update
 - ii. Reconnaissance Survey of High Rock in October
3. Review and Finalize Revised List of Yadkin Project RTE Species of Concern
4. Review Spring Field Work for Upcoming Studies
 - i. Transmission Line Habitat Evaluations
 - ii. IEPP Study (Review draft list of IEPPs)
5. Schedule and Agenda for Next Meeting

Attachment 2 – Meeting Attendees

Name	Organization
Andy Abramson	Land Trust
Chris Goudreau	NC Wildlife Resources Commission
Donley Hill	US Forest Service
Gene Ellis	APGI, Yadkin Division
Jane Peeples	Meeting Director
Jody Cason	Long View Associates
John Ellis	US Fish and Wildlife Service
Larry Jones	High Rock Lake Association
Mark Cantrell	US Fish and Wildlife Service
Max Walser	Davidson County
Robert Petree	SaveHighRockLake.org
Roy Rowe	Piedmont Boat Club
Sarah Allen	Normandeau Associates
Steve Reed	NC Division of Water Resources
Todd Ewing	NC Wildlife Resources Commission
Wendy Bley	Long View Associates

Attachment 3 – Meeting Presentation

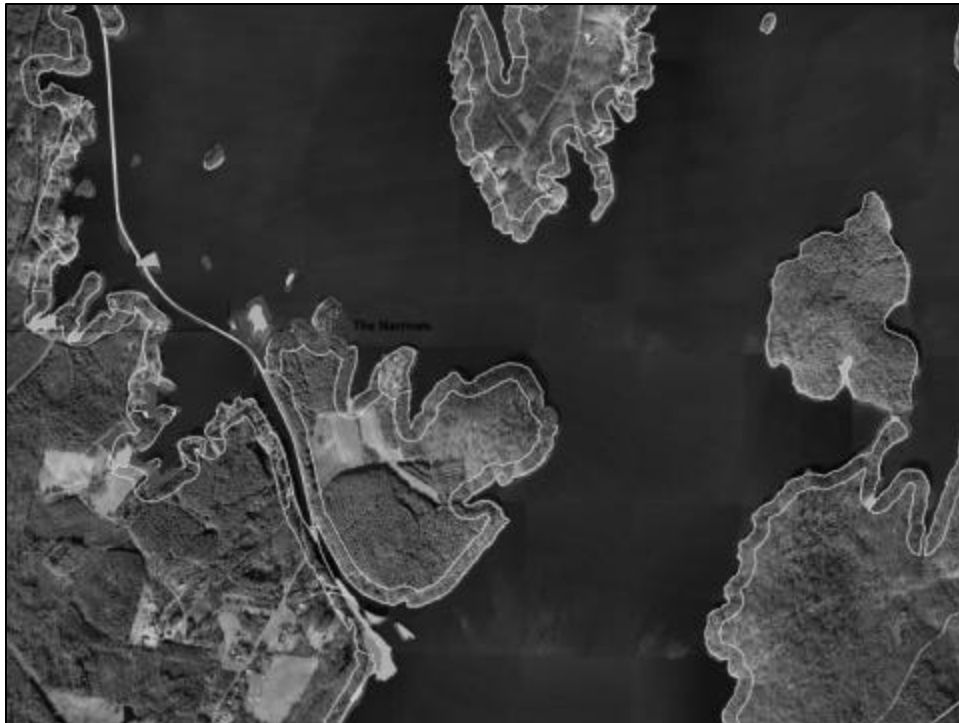


Wetlands Evaluation

- Aerial photos flown between 7/17 and 8/26, 2003
 - Scale 1 inch = 800 feet
 - True color, stereo pairs
 - 27 flight lines, ~ 260 photos
- Delineated all wetlands within 200'
 - ¼ acre minimum map unit
- Delineated upland land use within 200'
 - 400' minimum length along shoreline

Field Work

- Oct 20-24, 2003 - High Rock to review newly established vegetation
- Dec. 15-17, 2003 – Narrows to check shrub/emergent signatures, upper Yadkin to check bottomlands



Next Steps

- Complete digital assembly of map
- Groundtruth in 2004
- Revise & finalize maps

Rare, Threatened and Endangered Species

Final Species List

Species Included

- Mammals, amphibians, reptiles
- Birds
- Terrestrial insects, including odonates
- All vascular plants

- Excluded
 - Fish
 - Aquatic invertebrates

Criteria for Inclusion

- Reservoirs
 - Affected by reservoir operation
 - Within 200' of project boundary

- Transmission lines and powerhouses
 - Within 50' of edge of transmission line corridor or powerhouse clearing

Reviewers

- Dr. Alan Weakley – Herbarium curator, UNC, Chapel Hill
- Moni Bates – NC Plant Conservation Program, Raleigh, NC
- Dr. Pete Diamond, NC Zoological Park, Asheville
- Sarah McRae, Natural Heritage Program, Raleigh

List Description

58 species reviewed

- 14 Priority Species
- 16 Secondary Species
- 5 Transmission Line Species
- 33 Excluded

Priority Species

- *Amorpha schwerinii* (Piedmont indigo bush)
- *Aster georgianus* (Georgia aster)
- *Aster mirabilis* (Piedmont aster)
- *Baptisia alba* (Thick-pod white wild indigo)
- *Baptisia albescens* (Thin-pod white wild indigo)
- *Cardamine dissecta* (Dissected toothwort)
- *Carex impressinervia* (Ravine sedge)
- *Cirsium carolinanum* (Carolina thistle)
- *Helenium brevifolium* (Littleleaf sneezeweed)
- *Helianthus schweinitzii* (Schweinitz's sunflower)
- *Plantago cordata* (Heart-leaf plantain)
- *Porteranthus stipulatus* (Indian physic)
- *Solidago plumosa* (Yadkin River goldenrod)
- *Solidago radula* var *radula* (Western goldenrod)

Next Steps

- Assemble list of species descriptions
- Map locations most likely to support species
- Coordinate search windows and locations with local experts and appropriate IAG members
- Conduct searches in 2004

Invasive Exotic Plant Pests

Draft Species List

Criteria for Inclusion

- Reservoirs
 - Affected by reservoir operation
 - Focus on aquatic and wetland species
 - Within 200' of project boundary
 - Natural habitats only

- Transmission lines and powerhouses
 - Within 50' of edge of transmission line corridor or powerhouse clearing

Sources & Reviewers

- NC Aquatic Weed Control Program
- NCSU Aquatic Weed Management
- NCDA Noxious Weeds List
- Invasive Plants in Southern States (NC)
- US Forest Service Regional Invasive Exotic Plant Species List

- Dr. Alan Weakley – Herbarium curator, UNC, Chapel Hill

List Description

32 species reviewed

- Priority
 - 7 Aquatic Species

- Secondary
 - 7 Aquatic Species
 - 18 Terrestrial Species

Priority Species

- *Egeria densa* (Brazilian elodea)
- *Hydrilla verticillata* (Hydrilla)
- *Ludwigia hexapetala* (Uruguay waterprimrose)
- *Myriophyllum aquaticum* (Parrotfeather)
- *Myriophyllum heterophyllum* (Variable-leaf milfoil)
- *Myriophyllum spicatum* (Eurasian milfoil)
- *Najas minor* (Brittle naiad)

Next Steps

- Finalize list with approval of IAG
- Assemble list of species descriptions
- Map locations most likely to support species
- Coordinate search windows and locations with local experts and appropriate IAG members
- Conduct searches in 2004

Transmission Lines

2004 Effort

2004

- Delineate cover types on aerial photos
- Transfer to digital format
- Groundtruth in 2004
- Revise maps

Attachment 4 – RTE Species List

List of Rare, Threatened and Endangered Species for Yadkin Project Search

Scientific Name	Common Name	Source	State*	Federal**	County	Habitat Notes
Priority						
<i>Amorpha schwerinii</i>	Piedmont indigo-bush	1	SR-T		M, R, S, Dd	dry forests
<i>Aster georgianus</i>	Georgia aster	1,2	T	C1	M, R, S, Dd	open woods and roadsides
<i>Aster mirabilis</i>	Piedmont aster	1	SR-T		S	rich slopes and bottomlands
<i>Baptisia alba</i>	Thick-pod white wild indigo	1	SR-P		M, S	open woodland clearings
<i>Baptisia albescens</i>	Thin-pod white wild indigo	1	SR-P		M, R, S	open woodland clearings
<i>Cardamine dissecta</i>	Dissected toothwort	1	SR-P		M, R, Dd	rich woods, bottomlands
<i>Carex impressinervia</i>	Ravine sedge	1,2	SR-T	FSC	M	wet forests
<i>Cirsium carolinianum</i>	Carolina thistle	1	SR-P		M, R	forests, disturbed areas, basic soils
<i>Helenium brevifolium</i>	Littleleaf sneezeweed	1	E		M, R	bogs, seeps, riverbanks
<i>Helianthus schweinitzii</i>	Schweinitz's sunflower	1, 2, 3	E	E	M, R, S, Dd	open woods and roadsides
<i>Plantago cordata</i>	Heart-leaf plantain	1	E		Dd	beds of small, slate-bottomed perennial streams
<i>Porteranthus stipulatus</i>	Indian Physic	1	SR-P		M, Dd	forests and open woods, mainly over mafic rocks
<i>Solidago plumosa</i>	Yadkin River goldenrod	1,2	E	FSC	M, S	riverside rocks
<i>Solidago radula var. radula</i>	Western rough goldenrod	1	SR-P		S	dry woodlands over mafic rocks
Secondary						
<i>Ambystoma talpoideum</i>	Mole salamander	1	SC		M, R	fish-free semipermanent woodland ponds
<i>Anemone berlandieri</i>	Southern anemone/thimbleweed	1	SR-P		M, R, S	thin soils around rock outcrops
<i>Carex bushii</i>	Bush's sedge	1	SR-P		R	open wet areas
<i>Collinsonia tuberosa</i>	Piedmont horsebalm	1	SR-P		M	rich hardwood forests
<i>Corynorhinus rafinesquii</i>	Rafinesque's big-eared bat	***	E	FSC		old buildings, hollow trees, caves, mines, near water
<i>Fothergilla major</i>	Large witch-alder	1	SR-T		M, S	dry ridgetop or bluff forests
<i>Gomphus abbreviatus</i>	Spine-crowned clubtail	1	SR		M	rivers

<i>Gomphus fraternus</i>	Midland clubtail	1	SR		S	rocky rivers
<i>Hemidactylium scutatum</i>	Four-toed salamander	1	SC		M	wetlands in hardwood forests
<i>Hexalectris spicata</i>	Crested coralroot	1	SR-P		S, Dd, D	dry or mesic woods on basic soils
<i>Quercus austrina</i>	Bluff oak	1	SR-P		M	bluff and bottomland forests
<i>Ruellia purshiana</i>	Pursh's wild-petunia	1	SR-O		M	glades, woodlands over mafic/calcareous rocks
<i>Spartina pectinata</i>	Freshwater cordgrass	1	SR-P		M	freshwater marshes
<i>Stachys sp 1</i>	Yadkin hedge nettle	1	SR-T		M	sandy edges of forested floodplains
<i>Tradescantia virginiana</i>	Virginia spiderwort	1	SR-P		M	rich woods on circumneutral soils
<i>Verbena riparia</i>	Riverbank vervain	1,2	SR-T	FSC	S	habitat not known
Transmission lines						
<i>Echinacea laevigata</i>	Smooth coneflower	1, 2, 3	E-SC	E	M	glades and open areas over mafic rocks
<i>Gnaphalium helleri var helleri</i>	Heller's rabbit tobacco	1	SR-P		M, R, Dd	dry woodlands, openings, glades over mafic rocks
<i>Helianthus laevigatus</i>	Smooth sunflower	1	SR-P		M, R, S	shaly open woods and roadsides
<i>Lotus helleri</i>	Carolina birdfoot-trefoil/Heller's trefoil	1,2	SR-T	FSC	R, S, Dd, D	open woods over clay soils, roadsides
<i>Parthenium auriculatum</i>	Glade wild quinine	1	SR-T		M	glades and openings over mafic rocks
Excluded						
<i>Arabis missouriensis</i>	Missouri rockcress	1	SR-P		S	thin soils around basic rock outcrops
<i>Aster laevis var concinnus</i>	Narrow-leaf aster	1	SR-P		S	forests, woodland borders over mafic rocks
<i>Baptisia minor</i>	Prairie blue wild indigo	1	T		S	glades and open forests on basic soils
<i>Clemmys muhlenbergii</i>	Bog turtle	2, 3	T	T/SA	Dd	bogs, wet pastures
<i>Crotalus horridus</i>	Timber rattlesnake	1	SC		M, S, Dd	rocky, upland forests
<i>Cyperus houghtonii</i>	Houghtons umbrella sedge	1	SR-P			dry soil
<i>Desmodium ochroleucum</i>	Cream ticktrefoil	1,2	SR-T	FSC	D	sandy/rocky woodland openings
<i>Dicanthelium annulum</i>	Ringed witch grass	1	SR-P			dry, sandy or rocky woods, borders of thickets
<i>Dodecatheon meadia var meadia</i>	Eastern shooting star	1	SR-P		S, Dd	rich rocky woods over mafic or calcareous rocks
<i>Erynnis martialis</i>	Mottled duskywing	1	SR		M	upland woods, needs <i>Ceanothus americanus</i>
<i>Fixsenia favonius ontario</i>	Northern oak hairstreak	1	SR		M	dry oak-dominated woods
<i>Gomphus consanguis</i>	Cherokee clubtail	1	SR		D	spring-fed streams

<i>Helenium pinnatifidum</i>	Dissected sneezeweed	1	SR-P		R	savannahs and open mucky sites
<i>Ilex amelanchier</i>	Sarvis holly	1	SR-P		M	blackwater swamps and riverbanks
<i>Isoetes piedmontana</i>	Piedmont quillwort	1	T		R	granite flatrocks and diabase glades
<i>Isoetes virginica</i>	Virginia quillwort	1,2	SR-L	FSC	R	upland depression swamp forests
<i>Juglans cinerea</i>	Butternut	2		FSC	S	coves, stream benches, rock ledges
<i>Lilium canadense ssp editorum</i>	Red Canada lily	1	SR-P		S	bogs, wet meadows
<i>Lindera subcoriacea</i>	Bog spicebush	1,2	E	FSC	M	streamhead pocosins, white cedar swamps, bogs
<i>Masticophis flagellum</i>	Coachwhip	1	SR		S	dry sandy woods, pine/oak sandhills
<i>Matelea decipiens</i>	Glade milkvine	1	SR-P		S, Dd	thin woodlands over mafic or calcareous rocks
<i>Minuartia uniflora</i>	Single-flowered sandwort	1	E		R	granite flatrocks
<i>Oxypolis ternata</i>	Savanna/Piedmont cowbane	***		FSC		wetlands, wet swales, bogs
<i>Pellaea wrightiana</i>	Wright's cliff-brake	1	E-SC		S	rock outcrops, mafic or with nutrient-rich seepage
<i>Pituophis melanoleucus melanoleucus</i>	Northern pinesnake	1,2	SC	FSC	M	dry, sandy woods, pine/oak sandhills
<i>Platanthera integra</i>	Yellow fringeless orchid	1	T		R	savannas
<i>Portulaca smallii</i>	Small's portulaca	1	T		R	granite flatrocks and diabase glades
<i>Puma concolor cougar</i>	Eastern cougar	1, 2, 3	E	E	M	needs open forest
<i>Quercus prinoides</i>	Dwarf Chinquapin oak	1	SR-P		S	dry, rocky slopes
<i>Rhus michauxii</i>	Michaux's sumac	1, 2, 3	E-SC	E	D	sandhills, sandy forests, woodlands and edges
<i>Silphium terebinthinaceum</i>	Prairie dock	1	SR-P		D	diabase glades, open/semi-open areas, mafic rocks
<i>Sistrurus miliarius</i>	Pigmy rattlesnake	1	SC		M	pine flatwoods, pine/oak sandhills
<i>Solidago ptarmicoides</i>	Prairie goldenrod	1	E		R	diabase glades

Notes:

1 NC Natural Heritage Program County lists updated May 2003

2 NC Fish & Wildlife Service County lists updated 2/2003

3 US Fish and Wildlife Service list updated 9/8/2003

* based on NCNHP County lists updated May 2003

** based on USFWS County lists updated 2/2003

*** State and/or Federally listed but not found in counties

C1 = Consideration for listing- no protected status

E = Endangered

E/PT = Endangered Potentially Threatened

E-SC = Endangered but available commercially

FSC = Federal Special Concern - no protected status

SC = Special Concern

SR = Significantly Rare

SR-L = Significantly Rare Limited

SR-O = Significantly Rare Other

SR-P = Significantly Rare Peripheral

SR-T = Significantly Rare Throughout

T = Threatened

T/SA = Threat. due to Similarity of Appearance -

no effect on land-management activities by private landowners

Counties

S Stanly

R Rowan

M Montgomery

Dd Davidson

D Davie

Expert Reviewers

Dr. Alan Weakley, Curator, UNC Herbarium, Chapel Hill, NC

Dr. Moni Bates, NC Plant Conservation Program

Dr. Peter Diamond, NC Zoological Park, Asheboro, NC

Sarah McRae, Natural Heritage Program, Raleigh, NC

Attachment 5 – IEPP Species List

Preliminary List of Invasive Exotic Plant Pests for Yadkin Project Search

Scientific Name	Common Name	Life Form	Source	State	Fed	Status
Primary - Aquatic						
<i>Egeria densa</i>	Brazilian elodea	SAV	2, 5, 6			may be present
<i>Hydrilla verticillata</i>	Hydrilla	SAV	1, 2, 3,5, 6	Class A	Y	may be present
<i>Ludwigia hexapetala/uruguayensis</i>	Uruguay waterprimrose	SAV	2, 3, 5	Class B		may be present
<i>Myriophyllum aquaticum</i>	Parrotfeather	SAV	1,2, 5			may be present
<i>Myriophyllum heterophyllum</i>	Variable-leaf milfoil	SAV	2, 5			known to occur
<i>Myriophyllum spicatum</i>	Eurasian watermilfoil	SAV	1, 2, 3, 5, 6	Class B		may be present
<i>Najas minor</i>	Brittle naiad	SAV	2, 5			may be present
Secondary - Aquatic						
<i>Alternanthera philoxeroides</i>	Alligatorweed	SAV	1, 2, 5, 6			unlikely in the area
<i>Azolla pinnata</i>	Feathered waterfern	SAV	2, 3, 5	Class A	Y	not known anywhere in the vicinity
<i>Crassula helmsii</i>	Swamp stonecrop	SAV/emergent	3, 5	Class A		not known anywhere in the vicinity
<i>Lagarosiphon major</i>	African elodea	SAV	3, 5	Class A	Y	not known anywhere in the vicinity
<i>Polygonum perfoliatum</i>	Mile-A-Minute	Emergent	3, 5, 6*	Class A		not known anywhere in the vicinity
<i>Salvinia molesta</i>	Giant salvinia/ water fern	SAV	1, 2, 3, 5, 6	Class A	Y	not known anywhere in the vicinity
<i>Trapa natans</i>	Water chestnut	SAV	3, 5	Class A		not known anywhere in the vicinity
Secondary - Terrestrial						

<i>Ailanthus altissima</i>	Tree of Heaven	Tree	5, 6,7,8,9,10		definitely present
<i>Albizia julibrissin</i>	Mimosa	Tree	4, 5, 6		definitely present along shorelines
<i>Arthraxon hispidus</i>	Small carpgrass/hairy jointgrass	Grass	5, 6		definitely present
<i>Elaeagnus umbellata</i>	Autumn/Russian olive	Tree	5, 6,7,8,9,10		definitely present
<i>Lespedeza bicolor</i>	Bicolor lespedeza	Shrub	4, 5		definitely present
<i>Lespedeza cuneata</i>	Chinese lespedeza	Grass	5, 6,8,9,10		definitely present
<i>Ligustrum japonicum</i>	Japanese privet	Shrub	4, 5, 6		may be present
<i>Ligustrum sinense</i>	Chinese privet	Shrub	4, 5, 6		definitely present
<i>Lonicera japonica</i>	Japanese honeysuckle	Vine	4, 5, 6		definitely present
<i>Lonicera spp (morrowii, bella, tartarica)</i>	Bush honeysuckle	Shrub	5, 6, 7		definitely present
<i>Melia azedarach</i>	Chinaberry	Tree	4, 5, 6		definitely present along shorelines
<i>Microstegium vimineum</i>	Nepalese browntop	Grass	5,6,8,9,10		definitely present
<i>Miscanthus sinensis</i>	Chinese silvergrass	Grass	5,6,8,9		definitely present
<i>Pueraria montana</i>	Kudzu	Vine	4, 5, 6		definitely present
<i>Rosa multiflora</i>	Multiflora rose	Shrub	4, 5, 6		definitely present
<i>Sapium sebiferum</i>	Chinese tallowtree	Tree	4, 6		not known anywhere in the vicinity
<i>Vinca minor</i>	Common periwinkle	Forb	5,7,8,10		definitely present
<i>Wisteria senensis</i>	Chinese wisteria	Vine	4, 5, 6		definitely present

Notes

Class A, any noxious weed on the Fed list or is not native to the State and poses a serious threat

Class B, any noxious weed not native to the State, is of limited distribution statewide and poses a serious threat

1 = NC Aquatic Weed Control Program

2 = NCSU Aquatic Weed Management

3 = NCDA Noxious Weeds List

4 = Invasive Plants in Southern States, as occurring in NC

5 = Dr. Alan Weakley, UNC Herbarium Curator, Chapel Hill

6 = USDA Forest Service Southern Region

7= Tennessee

8 = Kentucky

9 = Georgia

10 = Virginia

* not listed as occurring in NC