



Meeting: Northeast PARC Meeting

Date: September 3-4, 2003

Location: USFWS National Training Center - Shepardstown, WV

Proceedings

Wednesday, September 3, 2003

1:15 pm: Meeting Commence- Welcome & Introductions (Kathy Leo, WV DNR)

- ❖ Welcome to Wild & Wonderful WV!
- ❖ Herp list on NCTC available
- ❖ Brochures available and WV References books for sale

1:18 pm: Thelma Flynn (DOI-FWS-NCTC)

- Welcome to NCTC
- History of NCTC, 438 acres along Potomac, lots of walking trails

1:20pm: Welcome - Al Breisch (NY State DEC) & Stafford Madison (US EPA, Boston)

- Working sessions, talks, and presentations
- Emphasis on participation; heading up initiatives
- Introductions around room

1:30pm: Intros to NE PARC/PARC (S. Madison)

- Intros on Structure of NE PARC, co- chairs, roles, projects leaders, meeting hosts
- Keep suggestions in mind for tomorrow

1:35pm: Molecular Genetics in Wildlife Management: A Conservation Tool (Tim King, USGS, Leetown, WV)

- Conservation Genetics Lab at Leetown, WV
- Goal help resource managers identify proper units of management for conservation
- Overview of markers used for amphibians and reptiles
- Work with Bog Turtles, Jefferson's Salamanders, etc.
- Measure genetic variation because it is the most basic form of biodiversity
- Goal to preserve evolutionary processes in form of local adaptation
- Understand nature of processes that generate and sustain biodiversity
- First step is to preserve macro level of diversity within and among wild pops
- Methods: Protein immunoassays, allozymes, DNA-DNA hybrids, RFLP, RAPDs, DNA Sequencing, Microsatellite
- What are Microsatellites? Simple sequences, randomly repeated that measures variation in and among individuals, measured on automated sequencers

BOG TURTLE WORK

- Microsatellite DNA Variation in Bog Turtle and cross species amplification in *Emydidae* Family: Markers work very well in all emydid turtle species
- Natural history of Bog turtle: fragmented populations because of loss of habitat and illegal wildlife trade (Northern and Southern populations were thought to be distinct, but they are really not)
- Objectives:
- Develop suite of Microsatellite DNA

- o Define population structure among multiple wetland areas within and between watershed
- o Delineate management units and evolutionarily significant lineages among geographic populations
- o Provide characteristics for reintroduction after recovered in illegal pet trade.
 - N & S pop divided through WV and V
 - Microsatellites: Example: GmuD21-15 alleles observed, etc...
 - Allelic and Genotypic variation: 454 individuals, 22 polymorphic, 337 alleles observed, 454 unique genotypes, 64% mean heterozygosity, 13.5-52.5% (>20% little gene flow), Pop subdivision: .26-.69 genetic distance
 - Large genetic distance, according to location (isolation due to distance i.e. genetic drift)
 - With multi-loci genotypes: can take collections, pool, and then pool out and recalculate max likelihood assignment to county: overall correct assign to county: 85.5%, correct assignment to site 73% (Jack-knife procedure)
 - Tail tips, blood samples, shell shavings, used for this procedure
 - Development, assignment to Recovery Units for FWS based on Max likelihood assignment: 5 existing recovery units (correct assignment: 89%), 6 proposed recovery units (97.6% correct assignment)
 - Analysis of molecular variants (AMOVA and Fst Comparisons: existing vs. proposed recovery units)
 - Other *Emydidae*: Markers used in Box & ornate Box, Spotted, Wood Turtles, Blandings Turtles, Painted, Diamondback Terrapins

JEFFERSONS SALAMANDERS

- Identification of Population structure and Hybrid Complex in Jeff Salamanders
- Same work as bog turtle project
- Goal was to develop markers (15-16 markers developed)
- In Delaware Water Gap *Ambystoma jeffersonianum* and *Ambystoma laterale* hybrid to form triploid hybrid individuals (This can be detect with allele markers)
- MAX like Assignment: Jefferson's 92.3% correct assignment to pond, 97.9% correct assign to cluster in DEWA
- Also working on identification of Population structure, metapopulation extent and evolutionary significance of lineage of spotted salamanders and wood frogs inhabiting vernal pools in 6 national parks

Questions:

- Can analyses be done from shavings or old shells?
Answer: There has been mixed success but worth a try

2:35pm- Announcements: K. Leo

- Research Posters are currently hanging on the wall
- Dr. Pauley talk 7pm
- Drawing for prizes tonight after Dr. Pauley's Talk

2:40pm

- Description of 2 working group for break out sessions

Education Working Group - Stafford Madison (EPA, Boston)

Goal: Develop content for draft publication "Herps for Dummies"

- Booklet providing information on herp conservation
- Audiences - planning boards, policy makers, landowners

Task: Brainstorm topics

- Develop "mini chapters"
- Discuss formatting, production, and dissemination
- Assign task & develop project time frame

Risk Assessment - Priya Nanjappa (USGS Patuxent Wildlife Research Center)

Task: Work on charts according to taxonomic groupings

- Add info to Life history, habitat
- Info to contribute to rank of vulnerability

Goals: To identify uses of these Risk Assessment Charts

- Ideas, Suggestions for Ranking System
- Structure: Scientific Name, Common Name, Global Heritage Rank (level of vulnerability)
- State Rank Compilation

Biological Attribute Variables:

- Aquatic
- Aquatic Specialist
- Terrestrial
- Terrestrial Specialist
- Water (fresh/brackish/salt)
- Hibernacula
- Buffer Distance
- Endemic to NE?
- Habitat Fragmentation
- Introduced Species

Life History & Demography:

- Feeding Specialization
- Max Longevity
- Age at Maturity
- Reproduction
- Courtship
- Breeding Season
- Breeding Specializations
- # eggs per female
- Breed annually?

Movement & Habitat Use:

- Max dispersal
- Cross roads
- Cross agricultural lands
- Territory size
- Home range
- Average distance travel (m)?
- Aggregation
- Density p hectare

- Philopatric
- Distribution
- Misc: toxic, venom, poison

2002:

- Question/data provided in 2002 have been incorporated for each Order
- Tables are as complete as possible
- Many Unknowns still exist

Topics for Discussion

- Where do we go from here (Post table on NEPARC for view downloading)
- How should these tables be used (Conservation, Management, New Research)
- Should these tables be kept current?

Discussion

- Who was original Audience? How will it be used?
 - Research Priorities: Identify data gaps
 - Rank Species/ states: how rank, is there a uniform ranking system? By Species? By state?
 - View this as multi-state project? Uniform monitoring policies
 - Ways to streamlined this? Hard because varies, how to break up? Lots of gaps? What are the most important aspects to rank? Depends on how using information: conservation, management, new research
 - Website based, can be multi-layered, can all be used or can be set in more detailed for others
 - Endangered Species: helpful info for listing package, readiness of info helps to facilitate the steps and process of listing
 - Data Presentation: searchable database by characteristic
 - Use the fact that some info is unknown to rank/key into status: unknowns are important for conservations
 - Funding? Who will build database? Who will maintain?
 - Publications? Template for Assessing, Peer review, gray literature, process
 - First Cut Assessment/Ranking- will get feedback
 - Distribution Maps: issues in data/site sharing of T & E species. Location concerns, is it at risk?
 - Tools as how to conserve: should these tools be given out to any/everyone? FOIA, what can we share, what do we have to share because of FOIA?
 - Information not shared to National FWS because cannot be protected, but on state level can deny information
 - Access to information goes back to audience, who? Conservation managers? Landowners? What info should be made to whom? How should info be disseminated? Proactive dissemination, versus retroactive dissemination
 - Can use state heritage rankings? How does that play into our ranking system?
 - DELPHI Process: anonymous panel of experts to rank, 85% consensus cutoff, <85% send for comments, "no opinion response does not count toward consensus"
 - Research Needs; summarize data gaps, summarize data rows for an overall view
- Actions:
- Will post tables on the NE PARC Website? Yes
 - Ranking species in NEPARC region, how do we value each topic, according to use of information? Use of a state rank should be incorporated. Biological uniqueness, i.e. 1 Hellbender species in NE region vs. several species of Ranids in NE.
 - Smith fellows w/ Nature Conservancy, to fund a grad student to head project, get publication????

- How do our rankings play in the grand scheme of things? Why do we need them? States have individual rankings, what is purpose of having regional list? Regional ranking good because there may be other areas where species may be declining.

Summary:

- Rank: yes, identify gaps and summarize
- Publish: good, how can we get a publication out of this?
- Technical paper? Peer Review it?
- Database: will post as a .PDF file on website
- Still need to know who will maintain/update?

Thursday, September 4, 2003

8:45am- Meeting reconvened

8:50am- **Brainstorming section for Research Priorities** (Al Breisch)

- Steps: Brainstorming, regrouping, and voting for priorities of action items
- Topics: Research, habitat, management actions

IDEAS

- ❖ Population studies in habitat altered environment
- ❖ Ways to reduce or mitigate road kills
- ❖ Buffer distances
- ❖ Metapopulations, existence/management
- ❖ Baseline pop data
- ❖ Smart growth vs urban sprawl
- ❖ Assemblage studies not effected by CWA
- ❖ Affects of Herbicide Rodeo: has widespread approval in wetlands
- ❖ Effects of contaminants
- ❖ Relocation/repatriation technology
- ❖ Review of how existing rules/regulations being applied
- ❖ Effects of invasive plants and animals
- ❖ Impacts of commercial harvest
- ❖ Using GIS to model pop
- ❖ Studying natural pop fluctuation vs. impacted pop fluctuations
- ❖ Timbering practices impacts
- ❖ Standard vernal pool definition
- ❖ Correlation of herp species to other species
- ❖ Effects of parasites and other stresses
- ❖ Synergistic effects
- ❖ Identification of critical habitat
- ❖ Prevalence of viruses in herps
- ❖ Food Chain dynamics in herp populations
- ❖ Use of culverts and eco-passages
- ❖ Data gaps specific to NE, how varies across the nation
- ❖ Database old GIS information
- ❖ Apply genetic knowledge into management issues
- ❖ Using genetic information to establish species and sub species status
- ❖ Development of baseline genetic info
- ❖ Effectiveness of mitigated/created wetlands in herp habitat
- ❖ Benefit of herpetoculturalist
- ❖ Further knowledge of species and distribution

- ❖ Potential effects of climate change of herps
- ❖ Location of protected areas (present/future)
- ❖ Regional gap analysis
- ❖ Corridors
- ❖ Outdoor recreation effects/ORV, ATV use on herp communities
- ❖ Appropriateness use of assurance/captive breeding colonies, assurance of genetic diversity in captive colonies
- ❖ Veterinary protocols for release
- ❖ Standard monitoring protocols for NE
- ❖ Capture historical data, from small institutions, use for atlas, compilation of grey literature
- ❖ Non-lethal Sampling methods for assessment of health status
- ❖ Definition of malformation vs. deformities
- ❖ Practicalities of balancing inbreeding and out-breeding in captive populations
- ❖ Differences of cryptic species vs. rare species
- ❖ Fluctuating asymmetry studies
- ❖ Effectiveness of herp education techniques
- ❖ Human dimension work- public perceptions
- ❖ Role of Natural History Organizations in Herp conservation
- ❖ Economic value of herps
- ❖ Better reporting of malformation/deformities
- ❖ Behavioral changes in captive populations
- ❖ Completion of Risk Assessment Project

9:15 Grouping of Research

- Critical upland habitat & buffer zones
- Gap analysis & GIS to model spatial analysis
- Capture historic data, gray lit, and current research

9:20am: Break

9:55am: Meeting Reconvene

9:57am: Overview of Research Priorities and review of voting session,

- Capture historic data from college/private collection, capture of gray lit, and ongoing research
- Reduction or mitigation of road kill
- Baseline Population statuses
- Identification of critical habitat

10:00am: **Translocation as a Conservation Tool: Repatriating Tortoises to Formerly Occupied Sites** (Kurt Buhlmann, Conservation International and Savannah River Ecology Lab)

- Populations are going extinct, want to be able to reintroduce/relocate/translocate chelonian populations

Purpose:

1. Relocation- moving individuals from area where threat to safer location
2. Translocation- intentional release of individuals of species at location different from capture location in order to establish, reestablish or augment populations
3. Repatriation- intentional release of individuals of species into an area formerly occupied by that species

Biology concerns:

1. Genetic mixing
2. Disease transmission
3. Competition

- 4. Security of recipient site
- 5. Disruption of social structure

- Political concerns: (Dodd & Seigel, 1991): Detracts from land protections
- What is value of individual populations

Can translocation work?

- o Document methods
- o Define success
- o Long term monitoring
- o Publishing results (+ & -)

Defining success

- ❖ Site fidelity
- ❖ Home range establishment
- ❖ Health and survivorship
- ❖ Social interaction
- ❖ Reproduction and recruitment

- Range and Distribution- GA, FL, S. AL,
- Project goals
 1. Re-established protect pop on Savannah River Site
 2. Test efficacy of existing relocation methods
 3. Develop model for relocation of other tortoise species
- Uniqueness of Project
 1. Repatriation of tortoises to site where populations were extirpated
 2. No resident tortoise populations
 3. People to monitor
- Steps
 1. Removal of tortoise from development site
 2. 173 burrows identified/ GPS and plotted spatial distribution
 3. Caught with buckets or digging out
 4. 39 adults/subadult, 31 juvs, 35 hatchlings = 105 total
 5. 95 acre site to 2400 acre site
- Effects of penning duration on site fidelity and movement patterns
 1. Circular penning
 2. Starter burrows put in with augers
 3. 3 treatments: no penning, 9 month, 12 month, pens removed but animals not touched

Group 1	Group 2	Group 3
No penning Immediate release Radio transmitters 30% stayed in area Dispersers retrieved multiple times	9 months in penned area Then open up pen 69.2% stayed in area Dispersers retrieved only once	12 month penning 91.7 % stayed in area Tortoise returned on own

- No supplemental feeding, fecal matter was weighed and analyzed, all animals were gaining or sustaining weight

- Complicating factors
 1. Time of year effects release
 2. Lost animals
 3. Effect of sex and age on dispersal
 4. Stress from handling
 5. Conservation needs vs. movement study
- Health Survivorship
 1. No overt clinical symptoms
 2. No URTD from blood samples
 3. 2 died juveniles
 4. 1 adult mortality from road kill
- Reproduction
 1. Prior to translocation: eggs/hatchling all hatched
 2. 1 year after relocation: no reproduction
 3. year: 5 reproduced
 4. Possibly stress from relocation
- On site research projects
 1. Radio telemetry
 2. Temperature selection
 3. Paternity and reproduction success
 4. Commensal species (pine snakes, gopher frogs, scarlet snakes)
- Can translocation be used as a cones tool for torts?
 1. Continue monitoring
 2. Publishing literature

10:26am- Concurrent Working Sessions Reconvened: Education (S. Madison) & Risk

RISK ASSESSMENT

Guidelines

1. Break up into taxonomic and then discussion ideas on how to rank
2. Select a few species only
3. Priorities: ranking, publication (smaller packet listing species priorities and larger documents with more detailed info)
4. Topics: Unknown, State rarities, state vulnerabilities, state/global ranks (focus on 3-4 species)

10:33am- Break up into Taxonomic Groups

11:15am- Report Back from Taxonomic Sessions and Education Groups

RISK ASSESSMENT GROUPS

Anurans

- Process of narrowing down list, choose 5-10 species
- Coarse filter including which categories are important
- Ranking systems (1=not vulnerable, 2 less vulnerable, 3 vulnerable)
- Specializations, endemic, buffer, age maturity
- More formal and subjective rankings in addition

Turtles

- Plus/minus system to incorporate all the categories
- Factors that are important to some but not all species would still be incorporated into the ranking system.
- The higher the sum total then the more vulnerable the species
- Want to also include individual state rankings (TES species)
- Had some categories listed as Unknown, that we did know information on
- Unknown info: subjective ranking to how likely think the category is to the species

Squamates

- Categories: 1) widespread, common, not vulnerable, 2) widespread, rare, vulnerable, 3) widespread, rare or fragmented, peripheral species, 4) Widespread, vulnerable
- Which species well studied
- Focused on Timber Rattlesnakes, Ribbon Snake, Hognose Snake, Five-lined Racerunner

Caudates/Salamanders

- Hellbenders
- Green Salamander
- Tiger Salamander
- Midland Mud
- Species with limited distribution: Cow Knob, Cheat Mountain Salamander, Shenandoah Salamander
- Important topics that affect each species: contaminants, habitat degradation, etc.

Summary

- Process: elect panel to formally rank these species

EDUCATION WORKING GROUP REPORT

- Working title: "Increase Your Land Values Through Wildlife: A Guide to Amphibians And Reptiles"
- Audience: Private landowners
- Chapters
 - ❖ What are amphibians and reptiles?
 - ❖ Differences between amphibians and reptiles
 - ❖ Definitions of frogs, salamander, snake, turtles, and lizards
 - ❖ What is not a herp-fish, inverts,
 - ❖ Native vs. introduced spp
 - ❖ A list of northeast herps
 - ❖ Common species are important
 - ❖ Why should you care?
 - ❖ What matters to land owners
 - ❖ Indicator spp
 - ❖ Intrinsic value
 - ❖ Land values increase b/c of natural aesthetics
 - ❖ Heritage/legacy for your kids
 - ❖ Bridging trophic levels "turkey food" (speaks to hunters and birders)
 - ❖ Why so cool?
 - ❖ Life history
 - ❖ Highly mobile
 - ❖ Many are very long-lived relative to other critters
 - ❖ Turtles never leave their shells
 - ❖ Why are they are risk and what can you do to help; problems and solution
 - ❖ Roads
 - ❖ Minimize pesticide use
 - ❖ Plant native species
 - ❖ Keep cats inside
 - ❖ Get involved w/ planning board, community open space committee
 - ❖ What can and can't do
 - ❖ Do not release Carolina Supply Co. animals to wild
 - ❖ Lobby for state incentives for putting land conservation
 - ❖ Additional information and resources list
 - ❖ Dissemination Outlets:
 - International Wildlife Federation, US FWS, NGOs?

ID groups: reptile groups, extension offices, farm burrows, NRCS, Nature centers, State DNR/wildlife diversity programs, state parks, Professional meetings (landscape architects, planners, university ag extensions)

- Home shows
- Nurseries/Ag way, Lowe's, Home Depot
- Museums/zoos
- Master Gardeners
- Schools/scouts 4-H

- Assignments

- o Stafford- project coordinator, EPA Mailing (Guidelines to author on lengths)
- o Lindsay-risk, problems, solutions
- o Joe Mitchell and Tom Pauley- What are Amphibians & Reptile, why should you care, draft document
- o Reviewers
- Teachers, landowners, ag extensions,

Richard Ogust, Tom Tynning, Scott Jackson, Susan Tiedman, John Satta

11:52- Lunch

1:15pm- Review of Action Items

NE Habitat Management Guidelines- Joe Mitchell

- Nationwide workshop in Chicago, 2001 and then broke out into working groups
- Working Draft in PDF format
- Full document w/ ISBN number
- Review of document and sections, suggestions, sections that need comments?
 - o Preface
 - o How to use guidelines: Ideal, Compatible, or Incompatible
 - o Intro: Natural History of Amphibians and Reptiles
 - o Ecoregions of Northeast
 - o Amphibians and Reptiles of the Northeast
 - o Threats
 - o Habitats important to Amphibians and Reptiles in Northeast
 - o Management Plans of habitats
 - o Appendix A: Species Matrix
 - o Appendix B: Resources Information

- Need photos to help landowners see what problem are and how to fix it

- Joe Mitchell requested hard copy edits, and needs photos to help landowners see what the problems are and how to fix them, and for the guide in general.

A discussion ensued as to how to fund the Guide. There is a non-profit agency in New York that can accept donations for printing. Currently, if the guide is 32 pages long, it is estimated that 10,000 copies could be printed for about \$25,000. Logos from contributors could be printed in the guide.

Listserve & Frog Quiz Updates - Linda Weir (USGS, NAAMP Coordinator, Patuxent Wildlife Research Center)

Linda mentioned that there are two listserve; one for National PARC, and one for NEPARC. A signup sheet was passed around for those who wished to subscribe to the NEPARC listserve.

The frog quiz is an Internet-based educational tool to help people to learn frog calls identification. This is a USGS product and PARC education project. Linda requested people from each state volunteer to

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test the quiz, so please contact her if you are willing to help. Testing would occur in 2004, and be ready for public use in 2005.

Update from National PARC – Tom Akre (National PARC)

The PARC website is being updated. A handout was passed around delineating the structure for PARC that was recently adopted. There is a Joint National Steering Committee. Members must 1) attend meetings, and 2) facilitate Federal, State, and Industry participation.

Under the Joint National Steering Committee there is:

Federal Agency Coordinator (Alison Haskell); State Agencies; NGOs; Industry and Academics
NEPARC reports to the National Steering Committee, as well as the other regional working groups (Northwest, Midwest, Southwest, and Southeast) and the technical working groups (Policy/Regulation/Trade; Inventory/Monitoring; Management; Research; Education/Outreach and International).

The agendas for the National Steering Committee meetings are posted on the website. Tom is soliciting issues of national significance for meeting discussion (such as NEPARC's work on risk assessment).

Outreach to New Members – Scott Smith (Regional Heritage Ecologist, MDD DNR)

Scott discussed a handout that was given to the meeting participants. Currently, there is forest certification process for wood and wood products that have been produced in an environmentally responsible manner. (Home Depot and others sell lumber that is "green" certified). There are two main groups that provide this certification; one of which is industry oriented (the Sustainable Forestry Initiative) and the other which is more environmentally rigorous (the Forest Stewardship Council). Several states either have or are seeking "green" certification for their state forests, notably Maine, Minnesota and Maryland. A great opportunity is available to the conservation community, including PARC, to identify conservation standards for certification. This would be an excellent outlet for the PARC habitat management guidelines being developed by Joe Mitchell and the ones already produced by Kingsbury and Gibson for the

Midwest. Scott spoke with Michael Thompson, Vice President of Woodlot Alternatives, an environmental consulting and forest product certification organization based in Maine. Mike feels that this certification process is the biggest opportunity for the ecological conservation community to interact positively with the forest industry, and is willing to review Joe Mitchell's habitat management guidelines. He also is willing to attend the next NEPARC meeting and give a presentation on forest certification, interact with NEPARC members and discuss ways NEPARC can become involved with the forest industry.

State Regulatory Update – Scott Smith

Northeast states:

- o Connecticut — No Report
- o Delaware — No changes
- o Maine — Has closed commercial harvest for snapping turtles
- o Maryland — Is currently updating commercial turtle regulations; terrapins and snapping turtles still under fishing regulations; SSAR is changing all nomenclature; there will be no take for some species; turtle breeding will be allowed as well as sale of captive bred turtles.
- o Massachusetts — The spotted turtle will remain a species of special concern (no change in status)
- o New Hampshire — No Report
- o New Jersey — Has updated their Threatened and Endangered list; the queen snake is now endangered; downlisted another species; proposed tightening T & E legislation to protect upland

habitat (actually designate and protect upland habitats, wetlands already protected) that will be stronger than the current Federal regulations.

o New York — No law changes; one was submitted that would bar all wildlife as pets, waiting on decision.

o Pennsylvania — Still regulate herps under their Fish & Boat Commission

o Vermont — No Report

o Virginia — Their VA Game and Inland Fisheries Department is starting soon to begin review of their current and proposed taxa for listing

o West Virginia — No Changes

Updates on other states:

o Minnesota — The state allows turtle farming, and they are funding a study of painted turtle harvests.

o North Carolina — In 2003 the legislature voted for a moratorium on commercial trapping of freshwater turtles.

The USFWS has finished their status assessment of the hellbender. This is the first step towards possible federal listing. It will probably remain a candidate species as no species are currently being listed.

Election of New Co-Chair

The Co-chair serves 2 years on a rotating basis. Al Breisch's term is up, so a new co-chair is to be elected. Stafford Madison nominated Linda Weir. Linda was chosen by a unanimous vote.

Selection of next meeting hosts and location

Some ideas discussed: may want to piggyback this meeting with another; site should be in northern New England; mid-August best; keep costs down. Al Breisch inquired over the list serve for a possible site for next year's meeting. No decisions were made.

Action Items:

1. Habitat Management Guidelines – All invited to review the draft document, available on the NEPARC website. Please follow the Instructions to Reviewers. Due no later than November 1st, 2003.
2. Education workgroup – Work on writing assignments for the landowner guide to herps (formerly "herps for dummies"). See details in session notes above.
3. Risk Assessment – Provide the information gathered on NEPARC website. Considering other publication as well.

The Timber Rattlesnake Conservation Action Plan Committee meeting met at 3:00pm.