

**Rare Fishes Meeting
March 26-27, 2008
Holiday Inn Express
1228 Bunker Hill Road
Cookeville, Tennessee**

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Wednesday, March 26, 2008

Welcome and Introduction by Geoff Call

Barrens Topminnow

James Harvey and Vincent Neary (TTU) An ecohydraulic approach to controlling western mosquitofish invasion of Barrens topminnow habitats

Exhaustion Threshold (ET) Curves

Endurance Test Limitations; Velocity/Endurance – one length/velocity combo

Pressurized pipe still allowed mosquitofish (MF) passage

Assess performance of ET curves:

 full pipe, drawdown pipe, backwash pipe – 3 flow types

Methods – Passage/Exclusion Study, variation in velocity

Results – Cohen's Kappa

Conclusion – performed pretty well, passage and exclusion predicted, ET curves do show promise, but not outright exclusion; absolute exclusion not achievable; exclude large number but not all; hydraulic control is powerful tool in addition to other control methods

Discussion

 Females are larger than male MF

 Comp Fluid Dynamics

 100% exclusion is one flow type

 Velocity is lowest at outlet entry

 Highest velocity entering culvert

Vince Neary (TTU) Predicted effects of culverts on Barrens topminnows and western mosquitofish (summary of preliminary study and discussion of Fish Passage funding proposal)

National Inventory and Assessment Procedure

Design culvert to prevent MF

Can't guarantee prevention, but will reduce number moving through

Goals – Accurate Passage Screens, assess and inventory hydraulic barrier

 BTM better threshold curves than MF

 Outfall drop threshold of >4 cm for MF, both tested

Objective of Special Projects Class

Practice and test field methods

Inform expanded experimental design, work scope and budgeting – Fish Passage

How well can we predict passage/exclusion of MF on ET curves and outfall drop threshold

Passage Predictions (PP): exhaustion threshold, velocity, barrier length

PP – outlet drop height

Summarization of MF passage screening performance evaluation

Conclusions: passage screen performance shows promise but inconclusive

Mean velocity, field measurement at outfall may not be relevant to ET curve model

HEC-RAS or other hydraulic models applied to test other possible flow conditions at culverts

Clayborne Site – model did not accurately predict MF exclusion

Models only accurately predicted MF presence at 3 of 7 sites (Crooks, Collier Spring, and Greenbrook 1-Smithfield Pond)

Based on one day of sampling

Headwater connections during high water are something to keep in mind in the Barrens

Lab tests assume “pipe-full” condition, but this is rarely seen in the field

Crooks Spring site – no/few fishes above culvert, many below

Paul Benton thinks it is a good barrier to all fish and during spate events fish get pushed down below the barrier

Allison Watts and Hayden Mattingly (TTU) Winter 2008 monitoring report and discussion of draft monitoring protocol

Funded by TWRA

Count and Measure

Assess Recruitment

Determine presence and absence

Six top sites in 2007-2008:

Verville, Green Brook Pond (Smithville), Marcum, Collier Spring, Ramsey, Clayborne (Sain)

Three native sites: Pedigo, Pond Springs, Type Locale

Pedigo - fenced out cattle, worst shape ever, cattle reintroduced into stream by renter

Verville – recruitment and no MF, barrier installed in 2006

Greenbrook, Marcum, Collier – all recruitment and no MF

Merkle site – many fish stocked; few found in monitoring

Pedigo site has MF as of 2005

Type Locale site – gone dry 3 years, fish salvaged, will be restocked next week

Allison Watts and Hayden Mattingly (TTU) Evaluating refugia for enhancing in situ juvenile Barrens topminnow survival

Reference handout by Hayden (population over next 20 years)

Artificial Refugia (AR)

Objectives

Background and Justification

Why AR?

Design Recommendations

Study Sites

Refuge Design

How to Test for Reproduction?

Presence of barrier-in hydrology – may be two separate barriers

Need to stop stocking at some sites and see how population is doing on its own

Jim Peterson of UGA – modeling may be integrated into this

Allison Watts – proposed thesis project

Deploy artificial habitat into BTM streams

Propagation and Stocking 2007

Conservation Fisheries, Inc. (CFI) – Pat Rakes and J.R. Shute

production at type locale, Charles Creek, Pond Springs and Lewis sites –
approx 2639 BTMs

problems with funding and space

Dale Hollow and Wolf Creek NFHs – grow out of propagated juveniles

Warm Springs NFH – screening for disease

April 1st – planning release of approx 250 rescued fish from type locale

approx 700 produced fish that Pat would like to stock

approx 500 of these for stocking

approx 200 for grow-out and later release

talk with Brad Bingham about sites to release

Tennessee Aquarium – Matt Hamilton

scaled back, but produced approx 1000 fish, approx 280 rescued fish from type locale

discuss putting all these fish back in type locale

would like to hold some type locale fish to test outside culture versus indoor culture

discussion of genetics work for BTM; Greg Moyer or Anna George could compare stocks

Dale Hollow NFH – Andy Currie

approx 400 Elk River Fish to go out March or April

have 1263 on hand (2006 and 2007 year classes)

would like to mix all stock/genetics together

could move 300 fish this spring

Wolf Creek NFH – James Gray

1650 total

approx 850 need to be stocked (large fish, full capacity, some already out for screening

need to coordinate with Allison and Hayden about where to stock fish)

Discuss fate of wild BTMs from type locality currently held at CFO and TN Aquarium – Brad Bingham

Barrens Darter

Darren Bergen and Hayden Mattingly – barrens darter status survey

Selected three sites to survey

Mud creek may have interbreeding with other darters

Habitat selection versus variables in selected nest sites

Crosstym and forbsi

Briana Zuber, graduate student, will be coming on soon for status assessment related to GIS/land use (in July or August)

Spotfin Chub

Brad Cook and Johnathon Davis (TTU) Long-term monitoring protocol development for Duskytail darter and spotfin chub at the Big South Fork NRRRA and Obed Wild and Scenic River

Specific Goal, Overall Goal and Research Goal (see power point presentation)

Presentation Study, Simulation Study, Field Application, Final Monitoring Protocols

Steve Bakaletz says funding sources are T&M program or contracted out

T.R. Russ, Steve Fraley, CFI, Bob Butler Update on NCWRC10-year monitoring report initiated in 2007

Update of monitoring project

Monitoring objectives follow recovery plan

Little Tennessee River (Little T) population of spotfin chub (SFC)

Pre 1975 – only in impounded reach

1976 – four fish

1997-2000 – stable

2006 – one fish at TVA IBI site

Assess distribution and abundance after 10 years

Fish prefer bedrock substrate; choose sites accordingly

50m transects and random snorkel searches

Needmore and Rattlesnake sites had most SFCs

Subadults found in random searches at Wiggins and Rattlesnake; none in transects

High percentage of juveniles found over sand substrate

75% target bedrock

333 SFC observed; 60 subadults in lower 5 sites of Little T

No young (subadults) in upper half of Little T

10 sites surveyed in 2007; will do 5 sites/year for next 10 years

Recovery Plan requires 10 sites for 10 years to delist the species

North Carolina had \$8000 for 2008 sampling (5d work)

Steve Bakaletz—NPS has small area, will need other funding sources to cover what Recovery Plan dictates, maybe partnership with TVA (Peggy Shute)

Steve Fraley – presence of large riparian trees important for finding SFC

Canopy cover/shade with bedrock where fish were found

Bob Butler – assess overall status; look at 3 or 4 populations; may not need “ten sites” to delist species if warranted; may need to rewrite recovery plan or may not have to follow recovery plan to the extreme; five-year review will be completed in two years; hoping to wait until we have this data

Geoff Call – good long-term monitoring needed; level of funding?

Tellico River and Shoal Creek Update on propagation, stocking, and monitoring of Nonessential Experiment Populations (NEP)

Propagation and Stocking (CFI and UT/JARTU, Dale Hollow NFH, Wolf Creek NFH, Cherokee NF, Great Smoky Mountains NP)

Pat Rakes-CFI- Shoal Creek effort with Emory River fish propagations

21 collected in 2006; spawned early this year; shutdown early; had 6300 eggs in August; 5000 juveniles in October; first release in 2007 with approx 591 SFC

will do initial monitoring in 2008 at Shoal Creek; not applying monitoring protocols

would like to concentrate stockings in one area for first few years to monitor and see how far they disperse

space at CFI will drive releases this summer; fish like warmer water

Dale Hollow has approx 550 SFC Shoal Creek grow-out fish

SFC do not grow as fast as Little T population

Wolf Creek has approx 525 with part of them ready to release

Later this year CFI will release grow-out fish to Dale Hollow and Wolf Creek unless they get more space

Ratio of one BTM to one gallon of water

Ratio of one SFC to two gallons of water

Water temps mid to upper 70s

JARTU collection grew more this winter due to warmer water

Little T population up for spawning and egg production

Fate of Buffalo River fish held at CFI

Buffalo River broodstock approx 120 fish; electrofishing/embryo study

Marion facility has approx 1000 SFC for Cheoa; first time release this year; minimum release and now great habitat; funding to remain strong (Fraley-Section 6 funds); Less than 50K for Cheoa-Tapoco

Jim Herrig passed out Conasauga River snorkeling report

Bluemask Darter and Boulder Darter

Bo Baxter (TVA) Implementation of Biological Opinion for TVA O&M consultation

7 Boulder darter monitoring sites at Tims Ford

TVA looking at possibility of not generating in spring, summer and fall

Temperatures drop 30°c during generation

Minimum flow is 80 cfs; need to bump this up or pulse flows so reservoir doesn't get too full

Adaptive management

Minimum 10-year monitoring; temperature, water quality, habitat assessment

Specific monitoring; mapping of upper reach this spring

(Pat Rakes (CFI) - may be SFC habitat)

Bluemask—looking in lower reaches where reservoir has an affect; is there good habitat

Look at what habitat is used and is this habitat available in Calfkiller

Subgenus – pelagic larvae – so reservoir effect areas may end up being nurseries; will look to determine if this holds true

Great Falls Reservoir – Bluemask

Bluemask monitoring sites; one in Cane Creek; one in Caney Fork; two in others

Survey in other sites in reservoir; survey habitat in lower sites this year in April before reservoir fills; survey upper sites in June

Time Surveys – Suitable Habitat

Looked for sites in Collins but were not finding fish; sites were inaccessible, spotty numbers

Tag fish in Cane and Caney Fork – recapture to determine if moving between two areas
Age-class structures; survey plans; tagging in multi years; permit needed
Management information on stable populations
Reservoir is small; drawdown in winter; nursery areas
Great Falls has second best population
Limits reproductive habitat; spawn later (June)
Rocky River Gorge streambed modified by gravel and rock collection; ½ mile stretch
Sediment problems
Preliminary work in Calfkiller this year

Boulder Darter

CFI Propagation and Stocking; Status of Supplemental Habitat

no Elk River work in 2007
no evidence of reproduction in Shoal Creek; stocked approx 600 fish
need to collect more broodstock week of April 7, 2008
Grundy County – 3 miles above county line, Big Spring, June

TWRA – Mark Thurman

Stream restoration in upper Collins River
Bluemasks found at Big Spring; land may be available for purchase
Collins River Compact to coordinate agency efforts (next meeting April 1st in Morrison)
Good riparian habitat site; compact not well received; removed from list of Scenic Rivers Act

Beans Creek – Pat Rakes – TDEC and ADEC working together

Below Tims Ford RM 119; initiatives in Elk and Beans Creek by TVA

Pat Rakes – Production 2007

Constantly refining and improving; great survivorship, but same number of fish due to egg reduction;
Shoal Creek Monitoring 2007 – Brewers Branch release site, prestock survey found no fish; September survey found 14 fish; canoed next day and found no fish; large population found near bedrock; solid bedrock area is good survey area; early in project
Discussion on tubs/vats with CFI
Stock needed; more wild stock needed; TVA ceasing releases in early May

Slackwater Darter

CFI Update from Surveys

Collected largest numbers at Little Shoal Creek; did not spawn in 2006, collected too late
Chief Creek, a historic site for this species, found six in a scour-hole, rest of the river adjacent to this was dry
Bernie Kuhajda looking at genetics of different populations
2008-all populations at CFI are spawning/reproducing, but no funding
Little Shoal Creek—found some in 2006, but no spawning
Boschung sites collected
2007 surveys – historic site on Chief Creek

Found some before drought; several in possession; three from Buffalo Creek; sent fin snips for genetic study

All populations spawning/reproducing this year

No money – doing this on their own

No stocking plans at this time

Potential for land protection on North Fork Buffalo

Thursday, March 27, 2008

Duskytail Darter, Yellowfin Madtom, Smoky Madtom, Spotfin Chub

CFI Propagation, Stocking, and Monitoring Update

Citico Creek

Drought conditions made monitoring difficult in 2007; no fall monitoring; no normal data
Spring populations looked good
49 smoky madtoms – collected 14 of 15 nests to spawn individuals for Tellico River
27 yellowfins collected at all 4 nests found
51 duskytail darter (DTD) collected at 12 nests

Abrams Creek

No spring monitoring; four surveys near campground; found 242 DTD
Drought conditions may have concentrated individuals
Fin clips and tissue collected from each species reintroduced this year
Grey Moyer - population genetics study for 2008

Tellico Creek

Plan to stock all four fishes near Tellico Plains (3-4 mile stretch) including a KOA
campground: 1460 SFC, 277 smoky, 419 yellowfin, 510 duskytails (2007 releases)

Monitoring still inadequate due to drought

47 SFC

28 smoky (19 YOY)

0 yellowfin (need more night surveys); not a lot of effort either

9 duskytail

SFC – bedrock habitat was either covered by silt or out of water due to drought
conditions; made monitoring difficult; hopefully this year was an anomaly

Smoky madtoms have taken off in Tellico

DTD had decent numbers but monitoring was difficult; released into Tellico in
October 2007; 2008 release depends on spawning

Not great stocking sites but found some new ones to stock

Jim Herring, USFS, North Carolina ORV laws changed this year

Season opens April 5; two worst trails closed this year

Water from NC looks good

TDEC has seen new residential development; some runoff

2007 Production/2008 Stocking

DTD approx 500

Little TN SFC production was difficult; need new broodstock; <1000

2006 was a good year; 2400 left for release

2007 madtoms: 330 smoky and 390 yellowfin will be released in April unless
some in Abrams

North Carolina permit in process now for CFI

Chilhowee-darters (wounded) to be reintroduced (700 each location)

Working on propagation for sicklefins for Oconaluftee

Eliminated above dam; enough habitat?

EBC Ind – money – sicklefin to be sent to Indian Hatchery

Powell River Lone Mountain

Yellowfin stocking site at Lone Mountain Coal Slurry Spill Restoration Site

Cannot catch slender madtoms
yellowfins at Hall Ford; 300 produced
Funding low this year
mussel populations not great, but fish populations good
four sites near Frost Ford found pygmy madtoms to propagate;
77 juveniles released and later three adults observed (one guarding a nest)
Yellowfin: 16 seen at Hwy 666 crossing; 5 nests; approx 310 young for 2008 stocking efforts
Want to float reach above Hall Ford below Hwy 758 bridge in Virginia
Inaccessible area - need to assess habitat; fish fauna seems to be improving

Little River Duskytail Darter

DTD – Hwy 33 collected eggs; stocking above (2 sites) Coulter bridge and at Camp Wesley Woods/Capshaw Branch
Only 7 nests gathered for 92 produced
Monitored at 5 sites
18 seen at Little John's Island (privately owned and usually too deep to survey)
restore further upstream above nasty sections
recently found in areas with some sediment/fine silts
looking for funding to do more work in Little River
3-4 years stocked; did not collect many; only produced 77
Habitat for crayfish could be reason for no DTD
Best habitat at Seventh Day Adventist Church; seem to like a little silt
Good site, micro habitat; still learning after 15 years
Sicklefin vs Longhead darter; restricted distribution
Ashy darter looks pretty good, but still small numbers
Evaluated soon; different species or ESUs?
Little River, Holston, and Emory only locales for *E. williamsi*
Proposal to SWG and Alcoa to work on Ashy darter in Tellico and Little River
Will be three species (Duck/Buffalo, Cumberland, Upper Tennessee)
Upper Tennessee looks bad, possibilities to restore in Citico and Tellico

Copper Creek

Yellowfin – work with Mike Pinder in Virginia; collected but no production last year
Madtoms outside; bad winter; cool temperatures mean greater propagation
Section 6 funding for DTD in Virginia (since early 80s)
August 2007 observed 7 yellowfins and 12 duskytails at CCM 1.8
CCM 2.6 none at all eventhough habitat was decent
~169 juveniles to be reintroduced in April/May 2008 above Hwy 71 bridge
Observed nests: 12 adults (5 were gravid females), 4 subadults
No yellowfins or duskytails were seen at Jenkins Fork just above sites
very specific habitat

Brad Cook, Matt Kulp, Keith Gibson, Jason Throneberry (TTU) and CFI Recovery evaluation of introduced T&E fishes, Abrams Creek, Great Smoky Mountains NP

Keith Gibson – Duskytail Darter (DTD) and Spotfin Chub (SFC)

Jason Throneberry – Yellowfin Madtom (YM) and Smoky Madtom (SM)

Historical Info – fish extirpated since 1957

Objections, Study Design, Preliminary Results (see slide presentation for more info)
Current distributions, macrohabitat, recovery status
Establishing long-term monitoring sites and protocols
SFC extirpated from Abrams Creek; CFI in agreement
 numbers low; low flow due to drought
YM – absence/presence; bedrock pool to run habitat
SM – absence/presence; only 5 fish in sample; more in runs, less in riffles, low water
DTD – absence/presence; more over sand/silt, cobble; decrease in runs; increase in riffles
2008 to look at visitor habitat alterations “dams”
Stream alteration – deconstruct dam; hope to create new preferred habitat
Study Design – photographs document every three weeks of study

Greg Moyer and Mark Cantrell Assessing gene flow among Citico, Abrams, and Tellico populations

Assessing geneflow among Citico, Abrams, and Tellico populations
Tapoco hydro projects (4 dams) and Fontana (TVA)
Fontana – coldwater releases; limited fish habitat downstream
Develop recommendations for future rate/frequency exchange in genetics
FERC relicensing work ongoing
Estimate effective population size

Lower French Broad/Lower Holston Nonessential Experimental Population (NEP)

Soliciting input on recovery possibilities:
Debate over suitable habitat
snail darter and mountain madtom populations are great
no Amblemine mussels because cyprinid hosts cannot make it; flood every day; twice daily
Phenacobius seen, but not other “benthic” fishes
TVA to do some bank stabilization at Campbell Island
Gravel shoals dewatered, nursery shoals dry when not peaking
Areas of sunlight have too much aquatic vegetation; poor habitat
shallow area habitat totally overgrown with vegetation; areas with riparian cover have best habitat
budget issues - do not want to pull funding from other successful efforts; need to work with pygmy madtoms and the NEP may be good for this species; TVA found single individual of pygmy madtom in Duck River IBI sampling, Duck River good habitat for pygmy
time and effort may not be worth money unless TVA flow changes occur, flows, dissolved oxygen, etc still not appropriate in the NEP for most fishes
TVA changes due to drought; generated less; Charlie Saylor will have data by the end of April
Mussel reproduction on the rise
Hydromodernization changed flows

Slender Chub

CFI and Mark Cantrell Update on surveys and plans for continuing collection efforts

Ancient record; rediscovered in Clinch River in 1966

Critical habitat designated in Powell River and Clinch rivers, backwater of Norris Lake to state line

Difficult to collect; easy to overlook

Honey holes are Garland Hollow, Frost Ford, Brooks Ford, and above Frost Ford

Pea gravel runs; lots of good factors

May 2007 Clinch River monitoring resulted in no fish

2008 Plans for Powell and Clinch rivers

May and June new survey techniques to be used

Clinch: Swan Island, Grisham Ford

Powell: Fletcher, McDowell, Buchanan Ford, and island at Fletcher Cliff

Norris good site to look per recommendations from Charlie Saylor

Chubs are fast fish

may try pre-positioned electrofishing grids

experimenting with different sampling techniques

J.R. Shute says Fletcher Ford habitat changed; was one of the best areas at one time

Pat Rakes says Grisham Island 2002 caught one; left over from the 80s

Blackside Dace

Hayden Mattingly and Kevin McAbee (TTU) Cumberland HCP blackside dace working group update

Hayden could not attend; Two HCP efforts: effects on water resources & forestry - TWRA WMAs

Michael Floyd Update on Mill Branch restoration and other recovery efforts

Mill Branch in Knox County, Kentucky

Stream restoration; Brent Harrel gets the recognition

Six landowners involved; logging is bad in Stinking Creek area; an immediate threat in SE KY

NRCS - 2005 - stream problems

Associated problems – failing banks

County road culvert (2002 improvement); three barrens

Illegal dump is massive

Headcuts upstream

Did not know it was BSD habitat at first

Phase I work on 1800 feet of stream; Phase II work on 3500 feet of stream in 2008-2009

Brewer Property; Priority I Restoration; some Priority II

Phase I:

Groundwater dam (dig to bedrock, remove gravel, fill with sediment, 25' deep)

Culvert replacement at Walker Road (significant problems, expensive)

Rescued 130 BSD from pool; moved them upstream of restocking area

\$60K for culvert; pipe is temporary due to sediment

20 year easements with six landowners; 20' on each side; 50' of land given up

Created some small problems in riffles for YOY

Tree planting scheduled for this year

Survey in 2006-2007-2008; BSD caught each year

2006-76 BSD; 2007-525 BSD; 2008-400+ BSD

Surveys/monitoring yearly in February and March

Devil fish

5000' of survey work; October-January restoration period

No BSD in new channel, but lots of fish found

Total Costs - approximately \$500,000

Snail Darter

Bo Baxter (TVA) Update on TVA monitoring and habitat management

Reservoir Operations Study – FWS consultation required monitoring in Holston River

Lower Holston had few adults (5 or 6) and no YOY; I-40 bridge area had 8 above and 25 below;
3 age classes; starting to see them again

Campbell Island on French Broad has good populations; erosion at Campbell Island

Erosion problems: cut trees off and cable them to avoid further problems; backing off on flow

Sample types make a difference

Face in Water is best type of survey method so far

Cumberland Darter

Matt Thomas (KDFWR) Report on status survey

Status survey in Kentucky and upper Jellico River

Poor Fork specimens are Johnny darter, *E. nigrum*

Morphological diagnosis – three things to check for

Cumberland occurrences in six watershed immediately above Cumberland Falls

Most sites on Cumberland escarpment and most within USFS property (DBNF)

Young and Wolf Creek are on private land

Historic distribution in McCreary and Whitley counties

20 streams added after 1985

Methods: study area and fish sampling

Results of 47 sampled sites: only 51 at 11 of 23 sites

One new occurrence in Jellico Creek

Habitat and Life History: presumed similar to Johnny darters

Associated with: Creek Chub, White Sucker; Stripetail Darter, Arrow Darter

Heavily forested, moderate gradient, 3rd order streams; bedrock with sand and gravel;

Shallow pools and low velocity runs

Headwaters impacted by park construction in Whitley City

Plateau – larger section of lower gradient, shallow, broken bedrock, patches of sand

Calf and Briar Creeks populations likely extirpated

Conclusions

Declined over 20 years

Extirpated in 9 of 20 streams

Awaiting results of genetic analysis comparing six population fragments by Rex Strange

Protect and restore habitats: corridors recommended

Some watershed only 20-25% FS owned; mining off of FS lands affecting streams

Lake Sturgeon restoration planned for Upper Cumberland

Above Wolf Creek dam/below falls

270 to be released in April 2008 at Laurel Dock

20-30 held over to be implanted with radio transmitters

Will receive 5000 eggs this year
Historic record – last seen in 1954 in Cumberland River

Laurel Dace

Stephanie Chance Proposed Listing Rule for laurel dace, chucky madtom, Cumberland darter, and rush darter

Southeast Fishes Rule – could possibly see proposed rule in Federal Register in early fall
Not designating Critical Habitat at this time

Jeff Simmons Report on surveys of potential laurel dace streams

Jeff Simmons – focusing on additional populations in southern portion of Walden's Ridge

Need to fill in the gaps

North Suck Creek and Tribbs – no dace, evidence of past coal mining still having an effect
at least 50 years since coal has been mined

Fish cannot return to these areas – barren

Lewis Creek and Middle Creek = mining influences

Falling Water Creek

TDEC is landowner and developer owns headwater property

May be willing to do an easement

Good water quality

Mark Thurman TWRA plans for 2008 (Laurel Dace)

Life History Research Proposal

Southern – industry, etc.

Northern – Bumbee – fish have persisted through many years of timber harvest

Distribution and ecology

Propagation proposal by CFI

Laurel Branch looks good for recovery if locate southern fish for broodstock

Culverts could be barriers; all streams have some serious culverts

specifically southern population

Headwaters of Richland and other creeks may have suitable habitat

Found only in five streams now

Pat Rakes – spawned a few for Chris Skelton

Less of a nest associates than other *Phoxinus*, so will be easier to propagate

David Withers TDEC land acquisition on Walden Ridge

Bowater divested land holding last year

Strongly lobbied, but could not acquire

Timberland Investment Resources (TIR) owns land now and cooperating with TDEC

No advantage to a non-binding agreement

Could sell blocks that have populations – Bumbee and Youngs Creek

TIR meeting in two weeks to see what future holds

Who owns Soddy Creek property? Pine Plantation

TWRA needs match monies for land acquisitions

Blotchside Logperch

CFI Propagation

Some on display at Tennessee Aquarium

Talassee Funding to CFI

Upper Clinch in Virginia had good populations; on the increase

More common than regular logperch

Finding ashy darters and Yellowfin madtoms in same areas; also areas where mussels are doing well (around Cleveland)

Chucky Madtom

Update on implementation of Little Chucky Creek Watershed Action Plan

TVA still providing funding for CFI to do some survey work

Other Species/Topics

Russ Buhl and Ted Henry (UTK) Research on the Effects of Electrofishing on Embryos of Threatened and Endangered Fishes

Shocking during spawning season may be harmful to *cyprinids*

Egg size plays a role in survival

Mark Cantrell Status Report on Talassee and Cheoa Funds

Alcoa funding

Settlement agreement from Tapoco Hydroelectric Project for restoration work:

40 years of funding for Cheoa is \$25K a year; Talassee is \$100K; 4 years into funding

Slide of six funded projects

Several fish and mussel studies funded to date

Restoration of fishes in regulated rivers

Private mitigation money to be used as match money

Managed by Talassee Fund Board (TFB)

Jim Herrig needs snail darters from Citico Creek – fund project to define populations geographically; Step 1 is identify as priority