Reintroduction of Native Fish
Species to Coal Creek

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Introduction

Location
Study Area – collection and release sites
Background
Species

Anderson County
Lake City, Briceville
NW of Knoxville
Location/Study Area

Background

Surface Mining Control and Reclamation Act of 1977

Coal Creek Watershed Foundation (2000)

Background

- Fish populations in Coal Creek watershed have been stressed by land use practices dominated by a history of coal mining.
- Some species have been lost.
- Coal Creek is isolated by cold releases from Norris Dam so missing species cannot recruit naturally.
Most fish species (27) have survived sedimentation and water quality problems.

Reintroduction Species

Target Species
- Telescope shiner
- Warpaint shiner
- Tennessee shiner
- Whitetail shiner
- Rainbow darter

500 individuals each

Opportunistically collected species
- Fantail Darter
- American brook lamprey

Why restore now?
- Efforts have been put forth by CCWF to restore the health of Coal Creek
- There are signs of environmental recovery (additional insect diversity and improved fish community indices).
- There is increased interest in restoring biodiversity.
**Benefits / Objectives**

- Improve the biological integrity of Coal Creek and its tributaries (form and function).
- Improved bioassessment ratings and healthier fisheries.
- Help preserve native fish diversity.
- Want to cause lowest initial stress to promote long-term survival.
- Want to be efficient, so fish are held for the shortest time possible.
- Project focus is to release with high survival.

**Objectives**

- Collect, transport and release species.
- Monitor reproductive success/survival.

**Methods**

- Collection
- Tagging
- Release
- Monitor
Collection

- Shocking
  - Common method for fish collection
  - Usually efficient
  - Involves less handling of fish
  - Quick, one-time stress
  - Current (AC, DC), voltage, conductivity

- Seining
  - Kick seining
  - Fish are fully aware
  - More handling time
  - Longer duration of stress
  - Methods are species specific—some more sensitive than others

- Holding
  - Fish collected and put in 5 gal buckets
  - Transferred to holding coolers, monitored for temp and DO
  - Then bagged in oxygenated bags in the coolers—counted as bagged
Tagging

Rainbow Darters
- VIE (visible implant fluorescent elastomer)
- Injected at specific sites on the fish
- Marked for seasonality

Release
- Transport fish in coolers to release site
- Acclimate bag water temp to release site temperature—within 2°C

Monitor
- Summer of 2008
- Seining – safest method
Weather Dependent

- Project success depends on rainfall
- Currently, water levels extremely low
- Survival/Repro. dependent on fish movement, flow, temperature
- Comparative study?
- Biological/physiological responses to environmental conditions

Thanks

- TDEC
- TVA
- Americorps
- Clinch River Trout Unlimited
- Coal Creek Watershed Foundation (CCWF)
- Dept. of Forestry, Wildlife & Fisheries

Volunteers or Questions for Coal Creek Fish Restoration

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