

## Lightwood Knot Creek Steephead above Clay pit Eglin AFB Okaloosa County

August 6, 1998

BioRecon: A rapid, cost-effective screening mechanism for identification of biological impairment

### Purpose

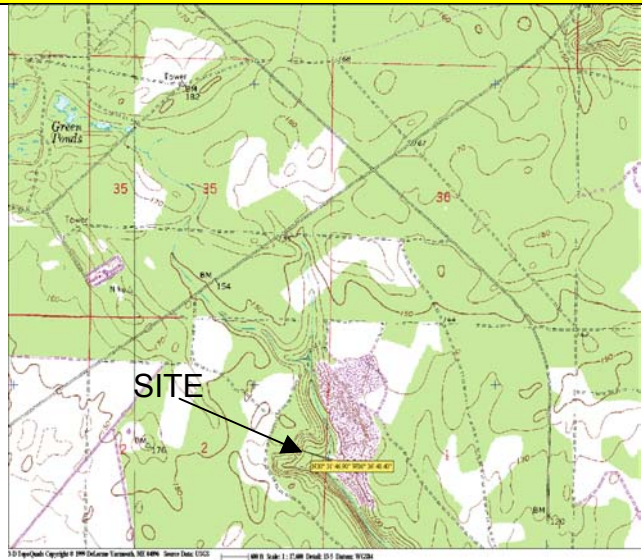
This Lightwood Knot Creek steephead site was a reference to compare the biota and wildlife habitat to a nearby steephead affected by mining. This bioassessment was a partnership with the Jackson Guard staff at Eglin Air Force Base.

### Background

Lightwood Knot Creek at the bioassessment site is a first order steephead stream located north of Fort Walton Beach (Lat. 30° 31' 46.9" Long. 86° 36' 48.4"). This steephead stream flows to Garniers Bayou in the Choctawhatchee Bay system. This site drains the southern pine plains and hills of subcoregion 65F.



The steephead slope of the Lightwood Knot bioassessment site.



### Results

The BioRecon indicated a healthy biological community. All 3 biological indicators met thresholds established for healthy aquatic ecosystems:

Biometrics	Value	Thresholds
Taxa Richness	42	≥24
Florida Index	25	≥22
EPT	20	≥17

This Lightwood Knot Creek steephead had a diverse and productive fish and wildlife community. The stream habitat assessment score was good at 86%. All habitat parameter scoring was 100 % except suboptimal ratings for substrate availability and habitat smothering (both 65%) and water velocity (75%). Sediments from an upstream logging road crossing and possible silvicultural activities affected these parameters.

### Significance

This Lightwood Knot Creek site met Class III State Water Quality Standards 62-302 for recreation and the propagation and maintenance of a healthy, well-balanced population of fish and wildlife. Steepheads are a distinct type of slope forest stream found only in Northwest Florida. They are formed when groundwater leaks through porous sand onto a sloping surface at the head of the stream. Steephead streams can easily disappear after upland erosion deposits sediment into the channel. In contrast, a stream developed by surface runoff from rainfall is better able to wash sediment from its channel. These steephead habitats contain many species of endemic biota as well as rare northern plants. The loblolly bay (*Gordonia*), Ashe's magnolia, and native camellia (*Stewartia*) are examples of plants found at this site. The endangered Okaloosa darter found exclusively in steephead streams was listed from the adjacent Turkey Creek watershed.

### Suggestions

Historical silviculture activity has reduced the riparian zones in many Northwest Florida streams. Forest management to restore and protect native riparian and transitional zone forests would enhance fish and wildlife diversity and productivity. Best management practices for dirt roads, especially minimizing effects on stream morphology is important to protect sensitive steephead ecosystems.

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