

EcoSummary

BioRecon Report



Turtle Creek Eglin Road 181, Okaloosa County August 01, 2000

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

Purpose

A bioassessment was performed at this Turtle Creek site to document its biota and wildlife habitat for Eglin Air Force Base's watershed rehabilitation project prior to sediment stabilization of a mining pit. The BioRecon was a quality assurance comparison conducted to assist the Base's Jackson Guard stream biomonitoring program.

Background

Turtle Creek at the bioassessment site (Lat. 30° 31' 29.4 " Long. 86° 40' 16.3") is a second order stream originating in steepheads on Eglin Air Force Base, north of Fort Walton Beach. Turtle Creek flows into Pensacola Bay via East Bay River. This site drains the Southern Pine Plains and Hills subecoregion (65f).



Results

The BioRecons indicated a healthy biological community. In both the FDEP and Eglin samples, all 3 biological indicators passed thresholds established for a healthy aquatic wildlife community:

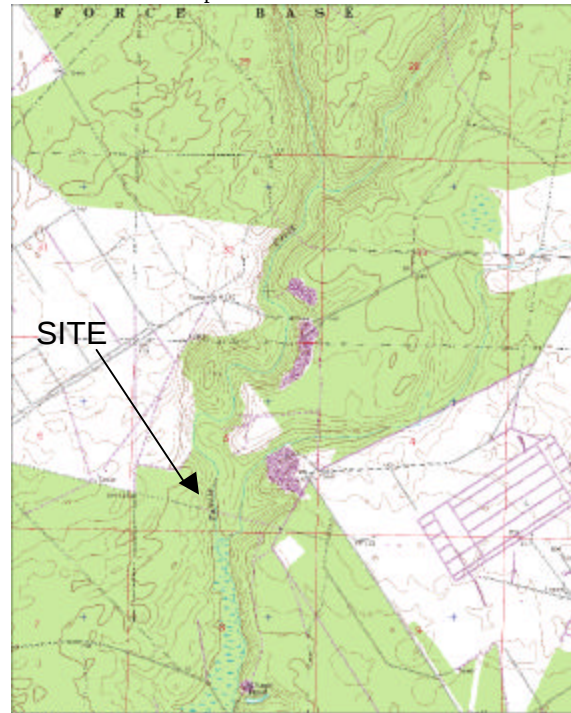
Biometrics	DEP Values	Eglin values	Thresholds
Taxa Richness	48	55	≥24
Florida Index	40	42	≥22
EPT	24	25	≥17

This site's habitat rated at the lower end of a suboptimal score (59%). Substrate diversity, water velocity, east bank riparian buffer width and vegetation rated optimal. Four productive habitats provided the optimal substrate diversity rating. An extensive combination of Atlantic white cedar and blackgum type forests contributed to the east bank's optimal riparian buffer zone width and vegetation quality. The west bank, with less than a 2 meter buffer zone from Turtle Creek, rated poor from historical stump pulling, abandoned logging road, and fire management exposed soils. This plant community disruption on the west bank lowered the riparian vegetation quality rating to marginal conditions and allowed soils from the fire bared hillside and carbon particles from the burned wood to wash off into the stream. Habitat smothering from sand and silt affected 85% of the stream, limiting the fish and wildlife productivity. Note the fine particulate organic matter (dark areas) in the foreground of the above picture. Hydraulic overload from runoff had caused the stream to widen and channelized eroding the banks on both sides. Note lavender colored

areas on the map below that indicated recent sediment deposits from mining pits, dirt roads, and cleared land.

Significance

This Turtle 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. Nevertheless, previous land management practices, such as sand and clay mining along the stream, dirt road stream crossings, and silvicultural activities had caused erosion, and sedimentation problems. This reduced habitat and limited Turtle Creek's fish and wildlife nursery function. The western panhandle of Florida experiences severe erosion. Soft sandy soil, intense rainfall, and steep topographical relief make Turtle Creek highly susceptible to erosion after removal of vegetative cover. Stabilization of the clay pit should address much of the site's sediment problems. To determine the effectiveness of the mine restoration project, the site will have another biological assessment after completion of the sediment stabilization work.



Suggestions

Eglin's mining pit restoration project to prevent sediment runoff and maintain riparian buffer zones of greater than 18 meters along Turtle Creek should assist in preserving the stream's natural morphological characteristics. The buffer zones provide the shade, food, habitat (woody debris/leaf fall) and filtration necessary for the continued propagation of Turtle Creek's biota. Preserving the stream's natural hydrology (i.e. depth/width ratio) and riparian forests buffer zones (eliminate mine sediment runoff, restrict burning and forest clearing) would benefit the watershed's fish and wildlife. **For more information, contact Donald Ray, FDEP Northwest District, 160 Governmental Center, Pensacola, FL 32501 (850) 595-8300 x1126 or SC 695-8300**