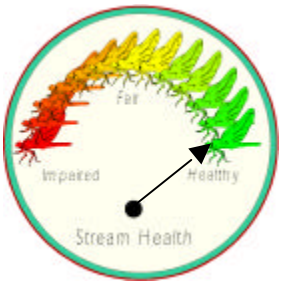
Bio-Reconnaissance

EcoSummary

BioRecon Report



Prairie Creek above Eglin Road 678, Okaloosa County
August 29, 2000

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

Purpose

A bioassessment was performed at this Prairie Creek site to document its biota and wildlife habitat for Eglin Air Force Base's watershed monitoring. The BioRecon was a quality assurance comparison conducted to assist the Base's Jackson Guard stream biomonitoring program.

Background

Prairie Creek at the bioassessment site (Lat. 30° 27' 2.3. " Long. 86° 48' 45.0") is second order stream originating in steephead springs near Eglin Air Force Base's ranges A-73 and B-70, northeast of Navarre. Prairie Creek flows into Pensacola Bay via East Bay River. This site drains the Southern Pine Plains and Hills subecoregion (65f).

Results

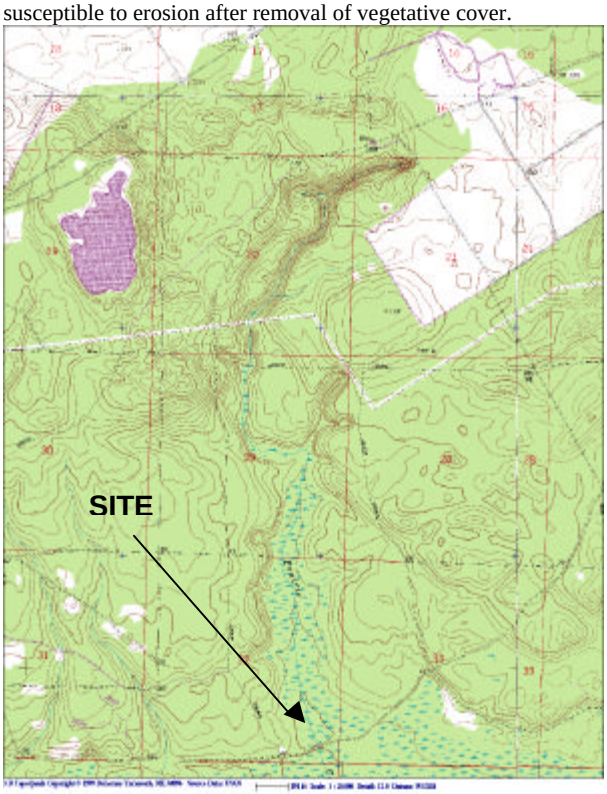
The BioRecons indicated a healthy biological community. In both the FDEP and Eglin samples, all 3 biological indicators passed thresholds established for a healthy aquatic wildlife community:

Biometrics	DEP Values	Eglin values	Thresholds
Taxa Richness	56	54	≥24
Florida Index	45	42	≥22
EPT	26	26	≥17

However, because of historical human impacts (silviculture, weapons testing, utility right of way, and dirt roads) this site's habitat rated a suboptimal score (62%). Sediment smothering covered 82% of the stream, limiting potential fish and wildlife productivity. Recent hydraulic overload runoff had eroded the stream banks increasing the channel on each side by a 1-meter width. The erosion was aggravated by recent severe fire, which killed many trees of the Atlantic white cedar type riparian zone forest, baring soil along the stream banks. Note in the photo above, the fallen cedar that was killed by fire, which also opened the canopy. The wetland forest's hardwood trees shading the stream had been burned and replaced by fire tolerant shrubs and pines. The Eglin road 678 culvert's dam affects caused significant upstream silt deposits, downstream channelization, and clay road fill runoff to Prairie Creek

Significance

This Prairie 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. Minimal runoff due to dry conditions mitigated some of the sedimentation impact to this stream reach. Nevertheless, silviculture, including severely burning the stream banks, weapons testing, and dirt road management activities had caused erosion leading to watershed sedimentation problems. This reduced habitat and limited Prairie Creek's fish and wildlife nursery function. The sediment impacts especially affect the slower flowing downstream reaches as the stream nears the East Bay River swamp. At this point, the sediments settle and accumulate, smothering aquatic wildlife habitats. The western panhandle of Florida experiences severe erosion. Soft sandy soil, intense rainfall, and steep topographical relief make Prairie Creek highly susceptible to erosion after removal of vegetative cover.



Suggestions

Remove the riparian zone road fill and replace it and the culvert with a bridge spanning the stream and wetland to restore the stream's natural morphological characteristics. Stabilizing and re-vegetating the upstream eroded hillside gullies during Eglin's stream restoration project should reduce sediment runoff. This project, along with maintaining a greater than 18 meters riparian buffer zone along Prairie 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 Prairie Creek's biota. Preserving the stream's natural hydrology (i.e. depth/width ratio) and riparian forests buffer zones (eliminate 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**