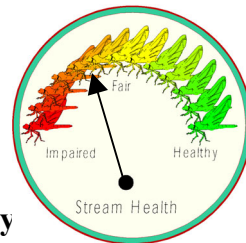


EcoSummary

BioRecon Report



Juniper Creek above Eglin Air Force Base Clay Pit B-43, Okaloosa County January 18, 2000

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

Purpose

A bioassessment to monitor benthic biota and wildlife habitat was performed at this site on a Juniper Creek tributary as a background for a site downstream of the B-43 mine pit runoff. This bioassessment was in technical support of a University of Florida grant with Eglin Air Force Base's Jackson Guard to measure erosion/sedimentation rates and impacts of mine runoff on riparian zone vegetation and streams.

Background

The Juniper Creek tributary at the bioassessment site is a first order stream, originating about 1 mile east of State Road 85 (Lat. 30°35' 35.3" Long. 86° 30' 56.0") about 21/4 miles north of Niceville. This site is 100 meters above the downstream site monitoring the nonpoint discharge (NPS) impacts of mine pit B-43. This watershed is part of the drainage basin that is home to the Okaloosa Darter, listed as a Federally endangered species. Juniper Creek flows into Choctawhatchee Bay via Turkey Creek and Boggy Bayou. This site drains the Southern Pine Plains and Hills of subecoregion 65f.



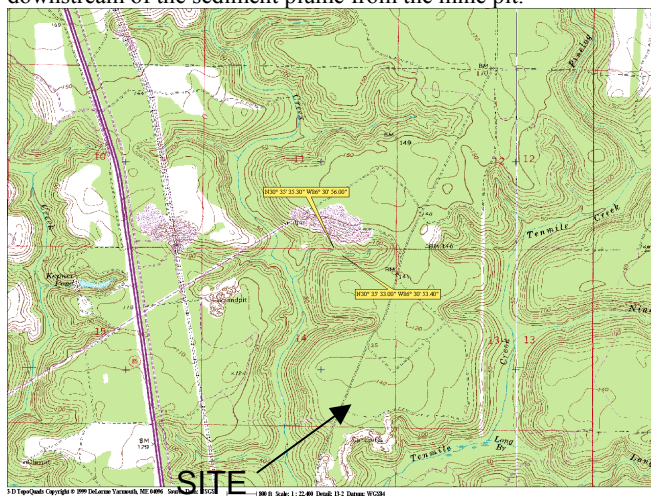
Results

The BioRecon indicated moderately impaired biological community. Two of 3 biological indicators at this background site on the Juniper Creek tributary failed thresholds established for a healthy aquatic wildlife community. Biometrics results from the downstream Juniper Creek tributary site impacted by historical NPS discharge from mine pit B-43 are given below as a comparison.

Biometrics	Juniper Cr. Values	J.C. below Values	Thresholds
Taxa Richness	34	17	≥24
Florida Index	18	14	≥22
EPT	14	3	≥17

Feral pig rooting along the stream channel affected the stream community. Recent erosion caused by the hogs was observed and those eroded soils were deposited in the stream, which created braided channels. Half of the University of Florida sediment study plots were uprooted at this control site. Sediment deposition, which included erosion impacts from fire baring riparian zone soils, was moderate. Because of the burning, young plants, dominated by a pioneer community of titi and briars, had replaced the climax blackgum/sweetbay riparian forest community. Mature riparian buffer zones

provide the shade, food, habitat (woody debris/leaf fall/roots) and filtration necessary for the continued propagation of a healthy stream biota. Despite the recent and historical impairments, the benthic habitat assessment rated a low optimal score of 68%, a considerable improvement of the 35% found downstream in the NPS affected area. The water depth was 0.5 meters or less which enabled a limited fish population. This was also much greater than the 0.2 meters found downstream of the sediment plume from the mine pit.



Significance

This Juniper Creek tributary site almost 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. The sediment from recent hog damage and historical fire management contributed to this stream not meeting State designated use. Sediment deposition has reduced stream flow, which impaired the stream's fish and wildlife nursery function. The western panhandle of Florida experiences severe erosion. Soft sandy soil, intense rainfall, and steep topographical relief make Juniper Creek highly susceptible to erosion after removal of vegetative cover. Habitat smothering from sedimentation caused by feral pigs and historical silvicultural practices negatively affected Juniper and Turkey Creeks, Boggy Bayou, and Choctawhatchee Bays' fish and wildlife. Reduced flows, plus sediment loading could affect the federally endangered Okaloosa darter inhabits Juniper Creek.

Suggestions

Restore the stream's natural hydrology (i.e. depth/width ratio), maintain a >18 meter riparian forest buffer zone and eliminate sediment runoff to allow the watershed's fish and wildlife habitat (woody debris, leaf packs, undercut banks, roots, and aquatic vegetation) to return to a healthy ecological status. Eglin Air Force Base had initiated a plan to eliminate feral pigs illegally placed on the base. Also, land management included buffer zones that follow Best Management Practices to protect riparian vegetation along the streams on Eglin Air Force Base. The Jackson Guard was continuing restoration study at this site. **For more information, contact Donald Ray, FDEP Northwest District, 160 Governmental Center, Pensacola, FL 32501 (850) 595-8300 x1126 or SC 695-8300**