Beville Creek (BVC) BioRecon Summary

Hogtown Creek Watershed

Introduction

Beville Creek is a small, first-order suburban creek in northwest Gainesville, in the Hogtown Creek Watershed. The sampling site is located north of NW 8th Avenue on the 4700 block upstream of the culvert under NW 8th Avenue. Residential neighborhoods accounted for 90 percent of the land use in its watershed with 5 percent natural and 5 percent commercial. Beville Creek was sampled on September 11, 2003.

Physical and Chemical Characterization

Beville Creek is an average of 1 meter wide and 0.07 meters deep. The banks are steep, mossy, and about 2 meters high. Non-point source pollution at the site was likely from the residential neighborhoods. The water velocity was marginal, 0.05 meters per seconds. The water was clear with no unnatural odors or oils present. Temperature, pH, dissolved oxygen, and conductivity were all within normal ranges. The riparian zone was vegetated with native and non-native plants that lightly shade the stream. Fish and periphyton were common and aquatic macrophytes and iron/sulfur bacteria were absent.

Habitat Characterization

The habitat suitable for benthic macroinvertebrates included roots of vegetation living on the banks, snags of fallen tree branches, rock rubble, and leaf packs. Erosion was evident in places and some of the habitat was sand or silt-smothered. The riparian zone was dense but quite disturbed and only about five meters wide in some areas. Invasive exotic plants such as coral ardesia, taro, wisteria, cast iron plant, non-native azalea and border grass were present on the banks. Of 160 possible points for the Habitat Assessment, Beville Creek received 97 points, placing it in the suboptimal range.

Benthic Macroinvertebrates

In Beville Creek, we found species that include damselfly, mayfly, blackfly, caddisfly, and midge larvae. Many adult black-winged damselflies flew above the creek. Worms, snails, and beetles were also present. Beville Creek did not pass any of the biometrics used to categorize creeks, placing it in the impaired category.

Discussion

Beville Creek is a small, relatively short creek with low water velocity and evidence of human disturbance along the banks and in the watershed. These factors may have a negative impact on the environment for the macroinvertebrates.

Blues Creek (BLC) BioRecon Summary

North Central Region

Introduction

Blues Creek lies in the North Central Region, in northwest Gainesville. It flows west from NW 43rd Street, north of NW 53rd Avenue, to Big Otter Ravine where it enters an underground sink. The sampling site is located east of NW 71st Street in a low-density residential area. Upstream of the site, the watershed contains natural forest, residential neighborhoods, experimental agricultural lands, and some silviculture land uses. Blues Creek was sampled on February 13, 2003.

Physical and Chemical Characterization

Blues Creek was an average of 1.7 meters wide and 0.15 meters deep. Non-point source pollution sources were not evident at the site, even though there were residential areas upstream. The water velocity was good, averaging 0.3 meters per second. The water was clear but tea-colored with no unnatural odors or oils present. Temperature, pH, and dissolved oxygen were all within normal ranges. The riparian zone was vegetated with native plants that lightly shaded the stream. Fish and aquatic macrophytes were not observed.

Habitat Characterization

The habitat suitable for benthic macroinvertebrates included snags of fallen tree branches, leaf packs, and a few roots of vegetation living on the banks. Erosion was not evident. The riparian zone was greater than 18 meters wide. Of 160 possible points for the Habitat Assessment, Blues Creek received 136 points, placing it in the optimal range.

Benthic Macroinvertebrates

Blues Creek contained a variety of benthic macroinvertebrates including dragonfly, damselfly, mayfly, fishfly, blackfly, cranefly, caddisfly, and midge larvae. Amphipods, worms, and beetles were also present. Blues Creek passed two of the three biometrics used to categorize creeks, placing it in the suspect category.

Discussion

Blues Creek appeared to have a healthy habitat at this location. A lack of abundant root substrate and rock rubble, which typically supports many diverse benthic macroinvertebrates, is the likely cause for the suspect rating. Most creeks do not pass because of a lack of mayfly and caddisfly species. Blues Creek contains these and other sensitive macroinvertebrates. If one or two more sensitive species had been found, it would be placed in the healthy category.

Boulware Springs Run (BLWRSR) BioRecon Summary

Paynes Prairie Watershed

Introduction

Boulware Springs Run is located in Boulware Springs in the Paynes Prairie Watershed, in southeastern Gainesville. Boulware Springs was a meeting and swimming place as well as a source of drinking water for Alachua County residents for many years. The spring's run flows into Paynes Prairie State Preserve. The sampling site is located in Robinson Heights Subdivision, a medium-density residential area. Upstream of the site, natural forest, residential neighborhoods, pasture, and a small amount of commercial land are present. Boulware Springs Run was sampled on March 6, 2002.

Physical and Chemical Characterization

Boulware Springs Run was an average of 1 meter wide and 0.07 meters deep. Non-point source pollutants such as nutrients and pesticides may run into the creek from residential yards or from septic tanks. The water velocity was fairly good; it averaged 0.22 meters per second, but there was moderate silt smothering on the plants and leaves in the water. The water was clear with no unnatural odors or oils present. Temperature, pH, and dissolved oxygen were all within normal ranges. The riparian zone was vegetated with native and exotic plants that lightly shade the stream. Fish and periphyton were common and a few aquatic macrophytes were present.

Habitat Characterization

The habitat suitable for benthic macroinvertebrates included roots of vegetation living on the banks, snags of fallen tree branches, leaf packs, and a small amount of aquatic vegetation. Moderate erosion due to human activity and lack of a natural riparian zone was evident. Exotic plants such as white flower wandering jew, coral ardesia, taro, and elephant ear were common along the banks. Hydrilla was growing in the water. Of 160 possible points for the Habitat Assessment, Boulware Springs Run received 83 points, placing it in the suboptimal range.

Benthic Macroinvertebrates

Boulware Springs Run contained a variety of benthic macroinvertebrates including many different dragonfly and damselfly larvae. Blackfly, cranefly, caddisfly, and midge larvae, worms, exotic clams, and crayfish were also present. The lack of mayfly and more caddisfly larvae indicate some disturbance. Boulware Springs Run passed two of the three biometrics used to categorize creeks, placing it in the suspect category.

Discussion

Boulware Springs Run has a suboptimal habitat for macroinvertebrates at this location which is likely due to human activity. Water quality may also be impaired by runoff from the residential area. Boulware Springs Run, like many creeks, does not fall into the healthy category because of a lack of sensitive mayfly and caddisfly species. The lack of these species may be related to habitat smothering (sand) and poor riparian buffer width and quality.

Cellon Creek (CELCR) BioRecon Summary

North Central Region

Introduction

Cellon Creek is located in the North Florida Region, near the City of Hague in Alachua County. Upstream of the site, agricultural, natural, and residential areas were present along with small amounts of industrial, commercial, silviculture, and pasture. The sampling site is on the western side of US 441. The creek was sampled on September 18, 2003.

Physical and Chemical Characterization

Cellon Creek is a first-order stream that is an average of 2 meters wide and 0.1 meter deep with a rocky to sandy bottom. Non-point source pollution at the site may be caused by residential use, runoff from US 441, and construction activity nearby. The velocity was a bit slow, averaging 0.12 meters per second. However, several places along the 100 meter stretch reached ideal velocities of 0.35 meters per second. The water was clear with no unnatural odors or oils present. The fairly high values of pH and specific conductivity make it conducive for mollusk growth. The dissolved oxygen is good for macroinvertebrates. The riparian zone was vegetated with native plants that moderately shaded the stream. However, Japanese climbing fern grew near US 441 and some human disturbance was evident in the riparian zone. Fish and periphyton were common and aquatic macrophytes were absent.

Habitat Characterization

The habitat suitable for benthic macroinvertebrates was diverse and included roots of vegetation living on the banks, snags of fallen tree branches, rocky riffle areas, and leaf packs. The amount of habitat was small, but adequate enough to sample. Some leaf packs were silt-smothered, and the water velocity varied from optimal to marginal. The riparian zone had been disturbed and some erosion was evident. Of 160 possible points for the Habitat Assessment, Cellon Creek received 113 points, placing it in the high suboptimal range.

Benthic Macroinvertebrates

Cellon Creek had an abundant amount and variety of benthic macroinvertebrates including damselfly, dragonfly, mayfly, blackfly, caddisfly, dobsonfly, and midge larvae. Amphipods, worms, hemipterans, and a variety of beetles were also present. Cellon Creek passed all three biometrics used to categorize creeks placing it in the healthy category.

Discussion

The Cellon Creek macroinvertebrate community appears to be healthy and has not suffered greatly from human activity in its watershed. The quantity and diversity of benthic habitat available, as well as the rural character of the watershed, contribute to the biological health of this stream. It is one of the nine sites (out of thirty-five), which were found to have a healthy population of in-stream biota.

CSX Ditch to Sweetwater Branch (CSX) BioRecon Summary

Paynes Prairie Watershed

Introduction

The CSX Ditch flows from the property of CSX Transportation, a railway transportation company, into Sweetwater Branch in southeastern Gainesville. It is located in the Paynes Prairie Watershed where land use is mainly industrial, commercial, and residential. The sampling site is on the CSX property near Veitch Street and SE 10th Avenue. The creek was sampled on March 1, 2001.

Physical and Chemical Characterization

The CSX Ditch was only one half meter wide with low banks in a small wetland. Water velocity was fair at an average of 0.2 meters per second. The water was clear with an oily sheen on the surface. The pH was normal, but specific conductivity and dissolved oxygen were not measured. The riparian zone was vegetated with native wetland plants that lightly shaded the stream. Fish, periphyton, and aquatic macrophytes were common.

Habitat Characterization

The habitat suitable for benthic macroinvertebrates included aquatic vegetation, roots of vegetation living on the banks, snags of fallen tree branches, and leaf packs. The amount of habitat was adequate but much was smothered with a reddish-colored silt. The banks were moderately stable, and the riparian zone was wide with many native plants such as cypress trees, rushes, and arrowheads. Of 160 possible points for the Habitat Assessment, the CSX Ditch received 114 points, placing it in the suboptimal range.

Benthic Macroinvertebrates

The CSX Ditch had few benthic macroinvertebrate species and a low number of organisms. The species present included damselfly, dragonfly, and midge larvae, clams, flatworms, exotic snails, crayfish, and a beetle. The low number of species and few sensitive species placed this creek in the impaired category.

Discussion

The habitat seemed as though it should support a wider variety of macroinvertebrates than our study found. Water quality may be adversely affecting the macroinvertebrates. Since most of the water quality parameters were not measured in this study, it would be advisable to measure and evaluate dissolved oxygen, conductivity, and other parameters and/or contaminants that may be affecting this site. Other factors that may have affected in-stream biota are the intermittent nature of this creek and the urban character of the watershed. This site had the lowest biological diversity (only eight taxa) of the thirty-five sites evaluated.

Deer Run Creek (DRC) BioRecon Summary

Devil's Millhopper Region

Introduction

Deer Run Creek is located in the North Florida Region, in northwest Gainesville. It is a short, intermittent creek that flows east from the Deer Run subdivision, north of NW 53rd Avenue, to the Devil's Millhopper Geological State Park. The creek flows to the edge of the large sinkhole and tumbles down the side to the bottom. It continues as a small creek in the sink before it disappears underground. Sampling sites were located in two areas. One was above the sink at a footbridge in the park that crosses the creek. The other was at the bottom of the sinkhole. Macroinvertebrates were collected from both areas and combined for BioRecon evaluation. The habitats and physical and chemical evaluations were done separately for each site. Upstream of the sampling sites, residential neighborhoods and natural forest areas are present. Runoff from NW 53rd Avenue poses as a potential source of pollutants. Deer Run Creek was sampled on September 13, 2001.

Physical and Chemical Characterization

Deer Run above the sink was an average of 1.0 meters wide and 0.12 meters deep. A pipe carrying surficial groundwater discharges into the creek at the footbridge. The pipe was lined with a layer of slimy iron bacteria. Non-point source pollution was not evident near the sites except from the pipe, but sources were likely from septic tanks and runoff from yards upstream. The water velocity was very slow at 0.08 meters per second. The water was slightly turbid and colorless with a sulfur odor in places indicating low dissolved oxygen. Dissolved oxygen was low at 3.7 mg/L. The riparian zone was vegetated with native plants that moderately shaded the stream. The banks were very high and steep with moderate to heavy erosion potential. Fish, periphyton, and aquatic macrophytes were not observed, but iron bacteria were abundant.

In the bottom of the sink, the creek was about 0.5 meters wide and 0.02 meters deep with an average water velocity of 0.12 meters per second. Temperature, pH, and dissolved oxygen were within normal ranges. The water was clear and colorless with no abnormal odors or oils. The banks were very low with little erosion potential. Native plants lightly shaded the creek. Periphyton, fish, macrophytes, and bacteria were all absent.

Habitat Characterization

Deer Run, above the sink, contained habitat suitable for benthic macroinvertebrates including rock rubble, leaf packs, snags of fallen tree branches, and a few roots of vegetation living on the banks. Erosion was evident and habitat silt smothering was common. The riparian zone was greater than 18 meters wide with native plants. Of 160 possible points for the Habitat Assessment, Deer Run received 114 points, placing it in the suboptimal range.

In the bottom of the sink, rock rubble, leaf packs, snags of fallen tree branches, and a few roots of vegetation living on the banks also comprised the habitat. Erosion was not evident and water velocity was higher. Habitat smothering was slight. This portion of the creek received a score of 132, placing it in the optimal range.

Benthic Macroinvertebrates

Deer Run contained a small variety of benthic macroinvertebrates. Twelve species were found at the top of the sink and 8 were found at the bottom. Species found included dragonfly, dobsonfly, cranefly, caddisfly, and midge larvae. Amphipods, worms, and beetles were also present. Deer Run did not pass any of the three biometrics used to categorize creeks, placing it in the impaired category.

Discussion

Deer Run had adequate habitat at this location. The major problems were low water velocity, low dissolved oxygen in the upper portion of the creek, and the fact that the creek was dry for several months and had only been flowing for three months prior to the sampling. Water quality may be a cause for concern, but without adequate sustained flow, this was difficult to determine.

Hatchet Creek at CR 225 (HAT225) BioRecon Summary

Newnans Lake Watershed

Introduction

Hatchet Creek flows from west of SR 24 (NE Waldo Road) and north of NE 53rd Avenue southeast to Newnans Lake in Alachua County. It is situated in the Newnans Lake Watershed. The sampling site was located on CR 225 at approximately NE 90th Place. The creek had been channelized up to the portion at the site, which was naturally sinuous. The land uses upstream of the sampling site included pine plantation, natural forest, residential neighborhoods, and agricultural. Hatchet Creek was sampled on December 4, 2001.

Physical and Chemical Characterization

Hatchet Creek was an average of 2.75 meters wide and 0.3 meters deep. Non-point source pollution was not evident at the site except from the road. The water velocity typically was not measurable and the creek appeared stagnant in places. Only one small portion of the sampling site had a good velocity of 0.25 m/s. The water was clear but tea-colored (tannic) with an odor and surface sheen from decomposing leaves. Temperature and pH were within normal ranges. The dissolved oxygen was low at 4.2 mg/L, which is common in darkly colored streams. The riparian zone was vegetated with native plants that lightly shaded the stream. Fish and periphyton were present but rare.

Habitat Characterization

The habitat suitable for benthic macroinvertebrates included roots of vegetation living on the banks, snags of fallen tree branches, and leaf packs. Erosion was slight and some of the habitat was silt-smothered. The riparian zone was greater that 18 meters wide and wetland plants such as cypress, Virginia willow, fetterbush, and golden club were growing along the banks. Of 160 possible points for the Habitat Assessment, Hatchet Creek received 110 points, placing it in the high suboptimal range.

Benthic Macroinvertebrates

Hatchet Creek contained a variety of benthic macroinvertebrates including damselfly, dragonfly, mayfly, caddisfly, dobsonfly, and midge larvae. Amphipods, worms, mites, and beetles were also present. Many of the taxa present were sensitive to pollution. Hatchet Creek passed all three biometrics used to categorize creeks placing it in the healthy category.

Discussion

In spite of the low water velocity in most of the creek, Hatchet Creek at CR 225 had a very healthy macroinvertebrate population. This site had the highest species diversity, thirty taxa, of all thirty-five sites evaluated as part of this study. It also had the highest Florida Index, eighteen, and EPT index, twelve, of all thirty-five sites studied.

Hogtown Creek at NW 45th Ave (HOG45) BioRecon Summary

Hogtown Creek Watershed

Introduction

Hogtown Creek lies in the Hogtown Creek Watershed in western Gainesville. The creek is several miles long and flows in a southwesterly direction from north of NW 45th Avenue near US 441 to Haile sink, southwest of I-75 and SW 20th Avenue. The sampling site was located near the headwaters north of NW 45th Avenue. Natural forest, residential neighborhoods, and small amounts of commercial and industrial land are located upstream of the site. Hogtown Creek was sampled on January 12, 2001.

Physical and Chemical Characterization

Hogtown Creek was an average of 0.8 meters wide and 0.2 meters deep at this site. The water rises to 1.6 meters above the base flow during storms. Banks were high and mossy with evidence of erosion and clay outcroppings in places. Native plants lightly shaded the creek in winter and provided heavy shade in summer. The only exotics near the creek were a few loquat trees. Non-point source pollution was not evident. The water velocity was low, and the water was clear with a sulfur odor, due to leaf decomposition, in places. Temperature, pH, and dissolved oxygen were all within normal ranges. Fish were common and a small amount of periphyton was present. No aquatic macrophytes or iron/sulfur bacteria were observed.

Habitat Characterization

The habitat suitable for benthic macroinvertebrates included snags of fallen tree branches, leaf packs, roots of vegetation living on the banks, and rock rubble. Erosion was slightly evident and silt smothered some of the habitat. The riparian zone was greater than 18 meters wide. Of 160 possible points for the Habitat Assessment, Hogtown Creek at NW 45th Avenue received 113 points, placing it in the high suboptimal range.

Benthic Macroinvertebrates

Hogtown Creek contained a variety of benthic macroinvertebrates including dragonfly, damselfly, mayfly, dobsonfly, blackfly, cranefly, caddisfly, and midge larvae. Worms, crayfish, clams, snails, and beetles were also present. Hogtown Creek at NW 45th Avenue passed all three biometrics used to categorize creeks, placing it in the healthy category.

Discussion

Hogtown Creek had a healthy and diverse macroinvertebrate population at this location even though the flow and water velocity were low. The diverse substrate and the optimal riparian buffer zone width and quality contributed to the biological health of the stream.

Hogtown Creek after Confluence with Springstead Creek (HOGSS) BioRecon Summary

Hogtown Creek Watershed

Introduction

Hogtown Creek lies in the Hogtown Creek Watershed in western Gainesville. The creek is several miles long and flows in a southwesterly direction from north of NW 45th Avenue near US 441 to Haile sink, southwest of I-75 and SW 20th Avenue. The sampling site was located downstream of the confluence of Springstead Creek with Hogtown Creek. Land uses included primarily residential neighborhoods and commercial with some natural forest and industrial uses as well. Hogtown Creek was sampled at this site on February 6, 2001.

Physical and Chemical Characterization

Hogtown Creek was sand-bottomed, and averaged 2.5 meters wide and 0.1 meters deep at this site. The water rose to 1.3 m above the base flow during storms. Banks were high and steep with erosion and clay outcroppings in places. Native and a few exotic plants lightly shade the creek in winter and provide heavy shade in the summer. Sources of non-point pollution were the residences backing up to the creek and local businesses on US 441 with roads and parking lots draining directly into the creek. The water velocity was good, about 0.2 meters per second, and the water was clear with no unnatural odors in the water or sediment. Water quality parameters were not measured except for temperature, which was a cool 15 degrees Celsius. Fish and periphyton were common. No aquatic macrophytes or iron/sulfur bacteria were observed.

Habitat Characterization

The habitat suitable for benthic macroinvertebrates included snags of fallen tree branches, leaf packs, roots of vegetation living on the banks, and rock rubble. An adequate amount of habitat was present, but erosion was evident and sand smothered much of the habitat. Silt was also found on leaf packs and roots. The riparian zone was about 15 meters wide. Of 160 possible points for the Habitat Assessment, Hogtown Creek after the confluence with Springstead Creek received 111 points, placing it in the high suboptimal range.

Benthic Macroinvertebrates

Hogtown Creek contained a variety of benthic macroinvertebrates including dragonfly, damselfly, mayfly, dobsonfly, blackfly, cranefly, caddisfly, and midge larvae. Worms, crayfish, Asian clams, snails, and beetles were also present. Hogtown Creek passed two of the three biometrics used to categorize creeks placing it in the suspect category. If only one more mayfly or caddisfly had been present, it would have qualified as healthy.

Discussion

Hogtown Creek has a fairly healthy macroinvertebrate population at this site in spite of commercial and residential runoff. Erosion and sand deposition affecting the habitat was evident, especially during storm events. However, the riparian zone shades the creek and provides habitat for macroinvertebrates.

Hogtown Creek at Haile Sink (HOGSINK) BioRecon Summary

Hogtown Creek Watershed

Introduction

Hogtown Creek lies in western Gainesville, in the Hogtown Creek Watershed. The creek is several miles long and flows in a southwesterly direction from north of NW 45th Avenue near US 441 to Haile sink, southwest of I-75 and SW 20th Avenue. The sampling site was located on a 100-meter stretch upstream of Haile sink, where the creek filters underground to the Floridan aquifer. Land uses in the watershed are mainly residential neighborhoods and natural forest with some institutional. Hogtown Creek at Haile sink was sampled on March 12, 2002.

Physical and Chemical Characterization

Hogtown Creek at this site was rocky-bottomed, and averaged 4 meters wide and 0.4 meters deep. The water rises to 0.5 m above the base flow during major storms. The banks were low, and no local erosion or non-point source pollution was evident. The canopy was open with rushes, sedges, grasses, and scattered willow trees in the riparian zone. The water velocity was very good, abut 0.4 meters per second, and the water was tea-colored (tannic) but not turbid. No unnatural odors were observed in the water or sediment. Water quality parameters were within normal ranges and dissolved oxygen was very good at 10.5 mg/L. Aquatic macrophytes and periphyton were abundant, and fish were common. No iron/sulfur bacteria were observed.

Habitat Characterization

The habitat suitable for benthic macroinvertebrates included aquatic vegetation, rock rubble, roots of vegetation living on the banks, and leaf packs. An adequate amount of habitat was present. The riparian zone was greater than 18 meters wide and contained native, mostly wetland plants. Of 160 possible points for the Habitat Assessment, Hogtown Creek at Haile sink received 141 points, placing it in the optimal range.

Benthic Macroinvertebrates

Hogtown Creek contained a variety of benthic macroinvertebrates including dragonfly, damselfly, mayfly, blackfly, caddisfly, and midge larvae. Worms, crayfish, shrimp, amphipods, Asian clams, snails, and beetles were also present. Hogtown Creek passed all three biometrics used to categorize creeks, placing it in the healthy category.

Discussion

Hogtown Creek at Haile sink had a very healthy macroinvertebrate population. This site had the second highest EPT index, eight, only Hatchet Creek at CR225 had a greater diversity of these species. The optimal water velocity and riparian buffer zone width and quality combined to provide habitat for macroinvertebrates. The abundance of periphyton on the rocks may indicate nutrient enrichment.

Hornsby Springs Run (HORNSBY) BioRecon Summary

Santa Fe Springs Region

Introduction

Hornsby Springs lies in the Santa Fe Springs Region in northern Alachua County and flows north to the Santa Fe River. The sampling site was located at Camp Kulaqua, near US 441 and West Dixie Highway. Natural forest, residential land, silviculture, and pastureland were present upstream of the site. Hornsby Springs Run was sampled on August 23, 2001.

Physical and Chemical Characterization

Hornsby Springs Run has a limestone and silty mud bottom. It was an average of 11 meters wide and 0.9 meters deep. Banks were low with cypress trees and other wetland plants. The water velocity was low at 0.04 meters per second. Temperature and pH were within normal ranges, but dissolved oxygen was quite low, ranging from 1.2 to 2.6 mg/L. The sediment had a sulfur smell from decomposing vegetation. The water was clear with no odor or surface oils. Periphyton, fish, and aquatic vegetation were abundant. Native trees moderately shaded the creek. Non-point source pollution may drain into the creek from the camp and its parking lot.

Habitat Characterization

The habitat suitable for benthic macroinvertebrates included floating aquatic vegetation as well as eelgrass under water. The eelgrass was coated with blue-green algae. Limestone, fallen tree branches, and roots of vegetation living on the banks also provided habitat. A significant amount of habitat was present, but silt and algae smothered much of it. Exotic invasive water hyacinth was prevalent. The riparian zone was greater than 18 meters wide and contained a record-sized cypress tree. Of 160 possible points for the Habitat Assessment, Hornsby Springs received 124 points, placing it in the optimal range.

Benthic Macroinvertebrates

Hornsby Springs Run contained a variety of benthic macroinvertebrates including dragonfly, mayfly, damselfly, cranefly, soldierfly, and midge larvae. Worms, mites, shrimp, snails, water striders, and beetles were also present. The organisms present seemed to be selected for speed or mobility due to predation pressure from fish. There were many very small, very fast, and difficult to catch true bugs (Hemiptera), mites, and amphipods. Hornsby Springs passed only one of the three biometrics used to categorize creeks, placing it in the suspect category.

Discussion

Hornsby Springs Run had a somewhat diverse macroinvertebrate population. However, those species most sensitive to pollution were missing. Water quality may be affecting the population in natural and unnatural ways. The dissolved oxygen would be expected to be low, as the water was coming from underground where it does not come in contact with the air. The smothering of the eelgrass and other habitat with algae and silt was not natural and may indicate high nutrient levels in the water. Infiltration of nutrients from septic tanks, the small wastewater treatment facility at the camp, agricultural, and pastureland may be influencing the groundwater that feeds the spring.

Lake Forest Creek at Morningside Nature Center (LFCMS) BioRecon Summary

Newnans Lake Watershed

Introduction

Lake Forest Creek lies in eastern Gainesville and is located in the Newnans Lake Watershed. It originates several blocks north of Morningside Nature Center on SR 26 (East University Avenue) and flows south and then east to Newnans Lake. The sampling site was located north of SR 26 on the property of Morningside Nature Center. Natural forest, agricultural lands, fields and pasturelands, pine plantation, residential neighborhoods, and commercial lands all lie upstream of the site. This Lake Forest Creek site was sampled on March 8, 2001.

Physical and Chemical Characterization

Lake Forest Creek was an average of 0.6 meters wide and 0.1 meters deep. Erosion of the banks was moderate. Non-point source pollution was likely from nearby agricultural lands. The water velocity was slow, an average of 0.07 meters per second. The water was clear, but a surface sheen was visible from decomposing leaves. The creek had previously been channelized but was recovering some sinuosity. It was lightly shaded and periphyton was common. Fish, aquatic macrophytes, and iron/sulfur bacteria were present but rare. Water chemistry measurements were not taken at this site.

Habitat Characterization

The habitat suitable for benthic macroinvertebrates included roots of vegetation living on the banks, leaf packs with pine needles, a few snags of fallen tree branches, and a small amount of aquatic plants. Because of erosion, sand and silt smothering of the habitat was moderate. The riparian zone was greater that 18 meters wide and included pine, wax myrtle, red maple, and sweetgum. Invasive exotic plants such as Japanese climbing fern, camphor trees, Japanese honeysuckle, and taro were also present on the banks. Of 160 possible points for the Habitat Assessment, Lake Forest Creek received 90 points, placing it in the low suboptimal range.

Benthic Macroinvertebrates

Lake Forest Creek contained a variety of benthic macroinvertebrates including damselfly, mayfly, blackfly, cranefly, caddisfly, and midge larvae. Clams, worms, and many beetles were also present. This Lake Forest Creek site passed one of three biometrics used to categorize creeks, placing it in the suspect category. If the creek supported more macroinvertebrates that were sensitive to pollution, the rating would have been higher.

Discussion

Lake Forest Creek at Morningside Nature Center shows much evidence of human disturbance that may be detrimental to the benthic macroinvertebrate population. Low water velocity, eroding banks, and habitat smothering are likely causes of the low assessment score. Parameters such as dissolved oxygen should be measured and evaluated.

Lake Forest Creek at SE 43rd St (LFC43) BioRecon Summary

Newnans Lake Watershed

Introduction

Lake Forest Creek, in the Newnans Lake Watershed, lies in eastern Gainesville. It originates several blocks north of SR 26 (East University Avenue) by Morningside Nature Center and flows south and then east to Newnans Lake. This sampling site was located on the eastern side of SE 43rd Street near a new subdivision and Lake Forest Elementary School. Natural forest, agriculture, pasture, silviculture, residential, and commercial lands are upstream of the site. This Lake Forest Creek site was sampled on April 3, 2001.

Physical and Chemical Characterization

Lake Forest Creek at SE 43rd Street was an average of 2.5 meters wide and 0.1 meter deep. Erosion of the banks was only slight and non-point source pollution was likely from NE 43rd Street. A stormwater retention pond located in the new subdivision will greatly reduce the chances of runoff entering the creek. The water velocity was fair, averaging 0.16 meters per second. The water was clear but tea-colored (tanic) with a slight rusty odor. The sediment was sand with no odors or oils. The creek had previously been channelized but was mostly recovered. It was lightly shaded and periphyton, fish, and aquatic macrophytes were common. Iron bacteria were present but rare. Temperature, pH, and dissolved oxygen were within normal ranges.

Habitat Characterization

The abundant habitat suitable for benthic macroinvertebrates included roots of vegetation living on the banks, leaf packs, snags of fallen tree branches, rock rubble, and aquatic plants. The riparian zone was greater that 18 meters wide with sugarberry, sweetgum, water oak, wax myrtle, and understory plants such as lizard tail, royal fern, and Virginia willow. However, invasive exotic plants such as Japanese climbing fern, coral ardesia, spiderwort, and elephant ear were present on the banks. Of 160 possible points for the Habitat Assessment, Lake Forest Creek at SE 43rd Street received 133 points, placing it in the optimal range.

Benthic Macroinvertebrates

Lake Forest Creek contained a variety of benthic macroinvertebrates including dragonfly, damselfly, mayfly, blackfly, cranefly, caddisfly, and midge larvae. Clams, worms, snails, mites, leeches, and many beetles were also present. Lake Forest Creek passed two of three biometrics used to categorize creeks, placing it in the suspect category. If the creek supported two more species in the mayfly or caddisfly groups, the rating would have been healthy.

Discussion

Lake Forest Creek at SE 43rd Street contained a fairly healthy benthic macroinvertebrate population. Human disturbance was evident and may be detrimental to the benthic macroinvertebrate population. However, the taxa count and diversity within the stream appeared to be good.

Little Hatchet Creek at NE 53rd Avenue (LHT53) BioRecon Summary

Newnans Lake Watershed

Introduction

The North Branch of Little Hatchet Creek is located in the Newnans Lake Watershed and flows from west of SR 24 (NE Waldo Road) southeast to Newnans Lake in Alachua County. This sampling site was located just south of NE 53rd Avenue, southeast of the Gainesville Regional Utilities Water Treatment Plant where the drinking water for Gainesville is pumped from wells and treated for distribution. Two smaller branches join together upstream of the site, each with different water quality characteristics. A utility easement runs parallel to the site. Natural forest, silviculture, the GRU Murphree plant, and a small area of residential neighborhoods are located upstream of the site. Little Hatchet Creek at NE 53rd Avenue was sampled on January 30, 2002.

Physical and Chemical Characterization

Little Hatchet Creek at this site was sand-bottomed with low banks, an average of 1.0 meter wide and 0.1 meter deep. Non-point source pollution at the site was not evident. The water velocity was good, an average of 0.25 meters per second. The water was clear but tea-colored (tanic) with no unnatural odors or oils present. Temperature, pH, specific conductivity, and dissolved oxygen were all within normal ranges. The riparian zone appeared to have been logged many years ago but looked healthy, although disrupted by the easement. Slash pine, water oak, and wax myrtle lightly shaded the stream. Fish were common, and aquatic macrophytes and periphyton were present but rare.

Habitat Characterization

The habitat suitable for benthic macroinvertebrates included leaf packs, roots of vegetation living on the banks, snags of fallen tree branches, and a small amount of aquatic vegetation. An adequate amount of habitat was available, erosion was not evident, and habitat smothering by silt or sand was very slight. Japanese climbing fern, an invasive exotic plant, was present on the banks. Of 160 possible points for the Habitat Assessment, Little Hatchet Creek at NE 53rd Avenue received 116 points, placing it in the high suboptimal range.

Benthic Macroinvertebrates

Little Hatchet Creek at NE 53rd Avenue contained a few benthic macroinvertebrates but not many were sensitive to pollution. Dragonfly, blackfly, and midge larvae were present. Amphipods, crayfish, snails, worms, and beetles were also present. The two most abundant taxa were midges and ostracods. No mayflies (Ephemeroptera) or caddisflies (Trichoptera) were found. Little Hatchet Creek did not pass any of the biometrics used to categorize creeks, placing it in the impaired category.

Discussion

Little Hatchet Creek at NE 53rd Avenue may run dry at times, and if so, will not support species that need continuously flowing water. The creek was dry until approximately eight weeks before sample collection. This coupled with the very low level of dissolved oxygen (DO) may have contributed to the biological impairment. Human disturbance may also contribute to the poor benthic macroinvertebrate community.

Little Hatchet Creek North Branch (LHTNB) BioRecon Summary

Newnans Lake Watershed

Introduction

The North Branch of Little Hatchet Creek is located in the Newnans Lake Watershed and flows from west of SR 24 (NE Waldo Road) southeast to Newnans Lake in Alachua County. The sampling site was located in the Airport Industrial Park past the Archery Range east of SR 24 and north of SR 222. The watershed contains pine plantation, natural forest, residential neighborhoods, a golf course, a power plant, the airport, and an industrial park upstream of the sampling site. The creek also receives discharge from a small wastewater treatment plant. Little Hatchet Creek at North Branch was sampled on February 6, 2003.

Physical and Chemical Characterization

Little Hatchet Creek was an average of 2.75 meters wide and 0.1 meter deep. Non-point source pollution was not evident at the site. The water velocity was good, an average of 0.3 meters per second. The water was clear but tea-colored (tanic), with no unnatural odors or oils present. Temperature, pH, and dissolved oxygen were all within normal ranges. The riparian zone was vegetated with native and some non-native plants that lightly shaded the stream. Fish and aquatic macrophytes were present but rare.

Habitat Characterization

The habitat suitable for benthic macroinvertebrates included roots of vegetation living on the banks, snags of fallen tree branches, and leaf packs. Erosion was evident and some of the habitat was sand-smothered. The riparian zone was greater that 18 meters wide, but invasive exotic plants were present on the banks. Of 160 possible points for the Habitat Assessment, Little Hatchet Creek received 106 points, placing it in the high suboptimal range.

Benthic Macroinvertebrates

Little Hatchet Creek contained a variety of benthic macroinvertebrates including damselfly, mayfly, blackfly, cranefly, caddisfly, and midge larvae. Amphipods, clams, worms, and beetles were also present. Midges and odonates were the most abundant macroinvertebrates present. Little Hatchet Creek passed all three biometrics used to categorize creeks, placing it in the healthy category.

Discussion

In spite of the variety of potential pollution sources in the watershed and a suboptimal Habitat Assessment, Little Hatchet Creek was able to handle the human disturbance without much detriment to the benthic macroinvertebrate population. The large riparian zone, a fair amount of natural land use upstream, as well as high dissolved oxygen and good water velocity help to maximize the habitability of the available substrate for the aquatic life.

Little Hatchet Creek West Branch at SR 26 (LHTW26) BioRecon Summary

Newnans Lake Watershed

Introduction

Little Hatchet Creek is located in the Newnans Lake Watershed and flows from west of SR 24 (NE Waldo Road) southeast to Newnans Lake in Alachua County. This sampling site on the western branch leading to Newnans Lake was located on the north side of SR 26 between NE 27th Avenue and SR 222. Natural forest, silviculture, industrial land use with small areas of residential neighborhoods, agricultural, pasture, and institutional lands are located upstream of the site. This site had been dry until 8 weeks prior to sampling. Little Hatchet Creek West on SR26 was sampled on August 2, 2001.

Physical and Chemical Characterization

Little Hatchet Creek at this site was an average of 1.5 meters wide and 0.3 meter deep. The creek had a firm sand bottom with organic debris and low banks within a cypress swamp. Non-point source pollution nearby may come from NE 53rd Avenue. The water velocity was slow, an average of 0.07 meters per second. The water was clear but with a strong tea color (very tannic) with no unnatural odors or oils present. The bottom sediment had a sulfur odor due to decomposing leaves. Temperature and pH were normal, but dissolved oxygen was very low at 1.0 mg/L. Mosquito fish and mosquitoes were very abundant, and aquatic macrophytes and periphyton were present.

Habitat Characterization

The habitat suitable for benthic macroinvertebrates included snags of fallen tree branches, roots of vegetation living on the banks, aquatic vegetation, and a small amount of leaf packs. A marginal amount of habitat was available. Erosion was not evident and habitat smothering by silt or sand was very slight. The riparian zone included native vegetation with no exotics noted and the cypress trees were quite large; however, some trees a few meters from the creek had been recently cut. Of 160 possible points for the Habitat Assessment, Little Hatchet Creek West at SR 26 received 125 points, placing it in the optimal range.

Benthic Macroinvertebrates

Little Hatchet Creek West at SR 26 contained a small number of benthic macroinvertebrates, and few were sensitive to pollution. Dragonfly, blackfly, and midge larvae were present. Larval midges (chironomidae), larval blackflies (simulium sp.), and ostracods were the most abundant macroinvertebrates present. Beetles and odanates were rare. No mayflies (Ephemeroptera) or caddisflies (Trichoptera) were present. Crayfish, snails, and worms were also present. At this site, Little Hatchet Creek did not pass any of the biometrics used to categorize creeks, placing it in the impaired category.

Discussion

Little Hatchet Creek West at SR 26 runs dry at times and did not support species that need continuously flowing water. Black water streams typically have low dissolved oxygen levels, but dissolved oxygen levels at this site were extremely low and cannot be tolerated by sensitive benthic macroinvertebrates. The macroinvertebrate sampling should be done again when the creek has been flowing for more than four months.

Little Monteocha Creek at CR 340 (LMONT)
BioRecon Summary

Santa Fe River Tributaries

Introduction

Little Monteocha Creek, a Santa Fe River tributary, lies west of the town of Monteocha in Alachua County. It flows in a northerly direction from where it joins Monteocha Creek and then flows into the Santa Fe River. The sampling site was located south of CR 340 (156th Avenue). Upstream of the site, the watershed contains mainly silvicultural, agricultural, and natural areas. An aerial photograph shows a pond upstream of the creek. Little Monteocha Creek was sampled on October 15, 2003.

Physical and Chemical Characterization

Little Monteocha Creek is an ephemeral creek that had been flowing for at least five months when it was sampled. It was shaded with native plants, and non-point source pollution appeared to be minimal. The riparian zone was a wide floodplain. The water velocity was optimal. The water was very darkly colored (tanic) with no unnatural odors or oils present. Water temperature was normal at 21 degrees C, but pH was quite acidic at 4.41 S.U. Dissolved oxygen was low at only 4.23 mg/L and specific conductivity was also low at only 73 µS/cm. These chemical results indicate that rainwater primarily feeds the creek with very little influence from groundwater. Fish, aquatic macrophytes, and periphyton were present. Iron and sulfur bacteria were absent.

Habitat Characterization

The habitat suitable for benthic macroinvertebrates included snags of fallen tree branches, leaf packs, roots of vegetation living on the banks, and aquatic macrophytes. The riparian zone was greater that 18 meters wide and consisted of native plants. Other than CR 340 near the downstream segment, human disturbance appeared to be minimal. Of 160 possible points for the Habitat Assessment, Little Monteocha Creek received 146 points, placing it in the optimal range.

Benthic Macroinvertebrates

Little Monteocha Creek contained few benthic macroinvertebrates. Blackflies were the dominant species. Many amphipods and pollution tolerant caddisflies, a dragonfly larva, midge larvae, worms, isopods, limpets, and beetles were also present. Mayflies (Ephemeroptera) were absent. The BioRecon results showed Little Monteocha Creek to be impaired. This site had poor diversity, with the third lowest total taxa of all the sites evaluated in this study.

Discussion

Little Monteocha Creek did not appear to be impacted by human disturbance at the site; however, the pond upstream and previous drought conditions may be affecting it. The creek had good water velocity and habitat present for macroinvertebrates. If the stream was frequently dry during part of the year, long-lived taxa would find it difficult to survive. Low dissolved oxygen (DO) and low pH are sometimes naturally occurring in very darkly colored streams, and will exclude some of those sensitive invertebrates needing higher DO or pH levels. Low conductivity indicates a paucity of ions, such as calcium and magnesium, required for making shells of mollusks such as clams. Nutrients and pesticides may be coming from the agricultural runoff and may warrant testing if the creek continues to flow.

Mill Creek at Old Bellamy Road (MILLOBR)
BioRecon Summary

North Central Region

Introduction

Mill Creek lies in the North Central Region and is located near the City of Alachua. It is northeast of US 441 and I-75 and flows in a southwesterly direction into the Alachua Sink near US 441. The sampling site was located upstream of scenic Old Bellamy Road, which winds through agricultural and pastureland. Native vegetation bordered the creek banks. The creek was sampled on October 28, 2002.

Physical and Chemical Characterization

Mill Creek is a second-order stream, averaging 1.2 meters wide and 0.08 meters deep. Non-point source pollution was not evident at the site. The velocity was a bit slow, averaging 0.16 meters per second. The water was clear but lightly tea-colored (tanic), with no unnatural odors or oils present. Temperature, pH, dissolved oxygen, and conductivity were all within normal ranges. The riparian zone was vegetated with native plants that moderately shaded the stream. No invasive exotic plants were present on either bank. Fish were common, and aquatic macrophytes were present but rare.

Habitat Characterization

The habitat suitable for benthic macroinvertebrates included roots of vegetation living on the banks, snags of fallen tree branches, and leaf packs. Much of the habitat was silt-smothered, and the water velocity was below optimal. However, it appeared relatively undisturbed and the quality of the riparian zone was very good. Of 160 possible points for the Habitat Assessment, Mill Creek received 127 points, placing it in the optimal range.

Benthic Macroinvertebrates

Mill Creek had an abundance of a variety of benthic macroinvertebrates present including damselfly, dragonfly, mayfly, blackfly, caddisfly, and midge larvae. Amphipods, worms, hemipterans, and a variety of beetles were also present. The two most abundant macroinvertebrates were the odonate (damselfly) *Calopteryx sp.* and the mayfly (Ephemeroptera) *Stenonerna sp.* Mill Creek passed all three biometrics used to categorize creeks, placing it in the healthy category.

Discussion

Mill Creek has a healthy macroinvertebrate population, even with a marginal score in substrate availability. The lack of artificial channelization, and the high quality and quantity of natural riparian buffer have a positive impact on in-stream habitat. The neutral pH, adequate dissolved oxygen, and cool water temperature also support a diverse macroinvertebrate population.

Millhopper Creek at NW 39th Way (MHC) BioRecon Summary

Hogtown Creek Watershed

Introduction

Millhopper Creek is a small tributary to Possum Creek in northwestern Gainesville, in the Hogtown Creek Watershed. The sampling site was located east of NW 43rd Street and north of NW 39th Avenue on NW 39th Way in a residential neighborhood. Residential areas accounted for 50% of the land-use in its watershed, while 40% was forest/natural and 10% was commercial. Millhopper Creek was sampled on May 24, 2001, when the water was very low but flowing.

Physical and Chemical Characterization

Millhopper Creek was an average of 0.5 meters wide and 0.04 meters deep. The steep banks were moderately eroded in places. Non-point source pollution may run off from the residential yards along the creek and from NW 43rd Street. The water was too low to get an accurate velocity reading, but was clear and colorless. No unnatural odors or oils were observed in the water or sediments. Temperature, pH, and conductivity were all within normal ranges, but the dissolved oxygen was a bit low at 4.4 mg/L. The riparian zone was vegetated with a variety of mainly native plants such as magnolia, ironwood, cherry, ash, and water oak that moderately shaded the stream. Fish and aquatic macrophytes were present, and iron/sulfur bacteria and periphyton were absent.

Habitat Characterization

The habitat suitable for benthic macroinvertebrates included roots of vegetation living on the banks, snags of fallen tree branches, leaf packs, rock rubble, and a few aquatic plants. Erosion was evident, and some of the habitat was sand and silt-smothered. The riparian zone was disturbed and only about six meters wide in some areas. English ivy and lantana were present on the banks; however, natives such as lizard tail, spiderwort, and Virginia willow also lived there. Of 160 possible points for the Habitat Assessment, Millhopper Creek received 107 points, placing it in the suboptimal range.

Benthic Macroinvertebrates

Millhopper Creek contained a variety of benthic macroinvertebrates including damselfly, dragonfly, mayfly, dobsonfly, caddisfly, and midge larvae. Snails, clams, worms, crayfish, and a variety of beetles were also present. The trichoptera (caddisfly) *Cheumatophsche* sp was the dominant taxa. Abundant taxa included midge larvae, gastropods, and beetles. Millhopper Creek passed all three biometrics used to categorize creeks, placing it in the healthy category.

Discussion

Millhopper Creek has a healthy macroinvertebrate population with a total taxa of 26, only Hatchet Creek at CR225 near NE 90th Place and Lake Forest Creek east of SE 43rd Street had more diverse in-stream macroinvertebrate assemblages. Florida Index and EPT Index were at the lowest acceptable target numbers for the healthy category. Evidence of moderate erosion and sand smothering negatively affected the Habitat Assessment score for this site.

Monterrey Creek (MONT43) BioRecon Summary

Hogtown Creek Watershed

Introduction

Monterrey Creek, located in the Hogtown Creek Watershed, is a small tributary to Possum Creek in northwestern Gainesville. The sampling site was located west and upstream of NW 43rd Street and south of NW 39th Avenue. Residential neighborhoods accounted for 95% of the land use in its watershed. Monterrey creek was sampled on October 25, 2002.

Physical and Chemical Characterization

Monterrey Creek averaged 1.1 meters wide and 0.07 meters deep. The banks were stabilized by riprap in some areas, but it seems to have mostly recovered from previous channelization. Non-point source pollution at the site was likely from the residential yards along the creek. The water velocity was fairly good at 0.25 meters per seconds. The water was clear but tea-colored (tanic), with no unnatural odors or oils present. Temperature, pH, dissolved oxygen, and conductivity were all within normal ranges. The riparian zone was vegetated with native and non-native plants that lightly shaded the stream. Fish were common, and aquatic macrophytes and iron/sulfur bacteria were present but rare.

Habitat Characterization

The habitat suitable for benthic macroinvertebrates included roots of vegetation living on the banks, snags of fallen tree branches, and leaf packs. Erosion was evident and much of the habitat was sand-smothered. The channel contained sand islands and shallow pools. The riparian zone was quite disturbed and only about five meters wide in some areas. Invasive exotic plants such as taro and ginger lilies were present on the banks and islands. Of 160 possible points for the Habitat Assessment, Monterrey Creek received 92 points, placing it in the suboptimal range.

Benthic Macroinvertebrates

Monterrey Creek contained a variety of benthic macroinvertebrates including damselfly, mayfly, blackfly, cranefly, caddisfly, and midge larvae. Amphipods, limpets, clams, worms, crayfish, and beetles were also present. Monterrey Creek passed two of the three biometrics (total taxa and FL Index) used to categorize creeks, placing it in the suspect category.

Discussion

Monterrey Creek needed to contain two more sensitive mayfly or caddisfly species to pass the bioassessment. Human disturbance close to the creek bed and in the watershed is most likely the cause of the negative impact apparent in the macroinvertebrate environment.

Pareners Branch (PARBR) BioRecon Summary

Santa Fe River Tributaries

Introduction

Pareners Branch, a tributary of the Santa Fe River, is located in rural northern Alachua County. It flows northwest toward the Santa Fe River, and then sinks underground to re-emerge briefly at O'Leno State Park. The sampling site was located near the headwaters, just northwest of the corner of CR 241 and CR 236. The creek was tea-colored (tanic) and slowly moved through native vegetation surrounded by slash pine silviculture along the 100 meter site. Water oak, swamp chestnut oak, white ash, and sweetgum dominated the canopy. The creek was sampled on April 23, 2003.

Physical and Chemical Characterization

Pareners Branch averaged 0.2 meters deep and one meter wide. The velocity was very slow except in a few riffle segments. The water was tea-colored and slightly turbid. Sulfur odor from decomposing leaves was present in some sediment. Fish and periphyton were common, and macrophytes were present above the water line. No iron/sulfur bacteria were present. Temperature, pH, dissolved oxygen, and conductivity were all within normal ranges in the riffle areas. Possible pollution sources included silviculture and runoff from CR 241 and CR 236. No invasive exotic plants were present on either bank.

Habitat Characterization

The habitat suitable for benthic macroinvertebrates included snags (logs), leaf packs, small rocks washed downstream from a nearby culvert, and roots. A few macrophytes grew above the water line. The water velocity in most of the reach was very slow and silt smothered the habitat in the channelized portion of the stream. However, riffle areas offered higher velocities and dissolved oxygen. Small areas of erosion were noted. The presence of silviculture within 18 meters of the creek, silt, and channelization lowered the habitat score. Of 160 possible points for the Habitat Assessment, Pareners Branch received 97 points, placing it in the suboptimal range.

Benthic Macroinvertebrates

Pareners Branch had a variety of taxa, including two species of caddisfly present in large quantities. Other macroinvertebrates present included mayflies, several beetles, midges, worms, amphipods, and damselflies. Pareners Branch passed all three biometrics placing it in the healthy category.

Discussion

Pareners Branch has a narrow but healthy native plant buffer that apparently protects it from nearby silviculture. The channelized portion did not contain healthy habitat. The sampling was performed in the sinuous portions of the creek.

Poe Springs Run (POESP) BioRecon Summary

Santa Fe Springs Region

Introduction

Poe Springs Run lies west of the City of High Springs in northern Alachua County, in the Santa Fe Springs Region, and flows northwest to the Santa Fe River. The sampling site was located at Poe Springs Park. Silviculture, pastureland, natural forest, and residential land lie upstream of the site. Poe Springs Run was sampled on July 19, 2001.

Physical and Chemical Characterization

Poe Springs Run averaged 13 meters wide and 0.3 meters deep. The site location was 20 meters shorter than the 100 meters normally used in a BioRecon. The right bank was altered with a concrete structure and the left bank was low with cypress trees and other wetland plants. The water velocity was good, about 0.25 meters per second. Temperature and pH were within normal ranges, but dissolved oxygen was low. It ranged from 0.6 mg/L near the spring, 2.0 mg/L near the plants, and 6.6 mg/L at the Santa Fe River. The sediment had a sulfur smell. The water was clear with no odor or surface oils. Periphyton and aquatic vegetation were abundant, but fish were rare. Native trees lightly shaded the run. Non-point source pollution may drain in from the park.

Habitat Characterization

The habitat suitable for benthic macroinvertebrates included floating aquatic vegetation, such as duckweed, water lettuce, and water penny. The eelgrass was coated with blue-green algae. Lime rock and fallen tree branches also provided habitat. A sufficient amount of habitat was present, but silt and algae smothered much of it. The riparian zone was greater than 18 meters wide. Of 160 possible points for the Habitat Assessment, Poe Springs Run received 115 points, placing it in the high suboptimal range.

Benthic Macroinvertebrates

Poe Springs Run contained dragonfly, mayfly, soldierfly, and midge larvae. Worms, leeches, mites, shrimp, amphipods, isopods, crayfish, and snails were also present. Poe Springs did not pass any of the three biometrics used to categorize creeks, placing it in the impaired category.

Discussion

Poe Springs had a poor macroinvertebrate population. There was a wide variety of snails and crustaceans, but species sensitive to pollution were missing. Water quality may be affecting the population in natural and unnatural ways. The dissolved oxygen was naturally low, as the water is coming from underground where it does not come in contact with the air. The spring run was short also. The smothering of the eelgrass and other habitat with algae and silt may indicate high nutrient levels in the water. Infiltration of nutrients from septic tanks and pastureland may also be influencing the groundwater that feeds the spring.

Possum Creek at NW 53rd Ave (POS53) BioRecon Summary

Hogtown Creek Watershed

Introduction

Possum Creek lies in the Hogtown Creek Watershed in northwest Gainesville. It flows in a southeasterly direction from north of NW 53rd Avenue to south of NW 8th Avenue, where it joins Hogtown Creek. The sampling site was located south of NW 53rd Avenue at Possum Creek Park. Upstream of the site, the watershed contains mainly residential neighborhoods, with small amounts of field, natural, commercial, and industrial land use areas. Possum Creek at NW 53rd Avenue was sampled on November 12, 2000.

Physical and Chemical Characterization

Possum Creek was an average of 1.2 meters wide and 0.1 meter deep. The banks were low with a slight amount of erosion. The creek was lightly shaded with mainly native plants, although Chinese tallow was observed. Non-point source pollution was likely from NW 53rd Avenue, a nearby shopping center, and an electricity transfer station. The water velocity was low, and the water was clear with no unnatural odors or oils present. Temperature, pH, and dissolved oxygen were all within normal ranges. Fish and aquatic macrophytes were present. Neither periphyton nor iron and sulfur bacteria were present.

Habitat Characterization

The habitat suitable for benthic macroinvertebrates included snags of fallen tree branches, leaf packs, roots of vegetation living on the banks, aquatic plants, and rock rubble. Slight erosion was evident, and a small amount of sand smothered the habitat. The riparian zone was greater than 18 meters wide. Of 160 possible points for the Habitat Assessment, Possum Creek received 133 points, placing it in the optimal range.

Benthic Macroinvertebrates

Possum Creek contained a variety of benthic macroinvertebrates including dragonfly, damselfly, mayfly, dobsonfly, fishfly, cranefly, caddisfly, and midge larvae. Amphipods, worms, and beetles were also present. Possum Creek passed two out of three biometrics used to categorize creeks, placing it in the suspect category.

Discussion

Possum Creek appeared to have a healthy habitat at this location with the exceptions of amount of substrate for the macroinvertebrates and the slow water velocity. If the creek were sampled again in an area with more substrate, it may very well pass. With only one more type of mayfly or caddisfly, it would be placed in the healthy category. Based on the macroinvertebrates observed, water quality does not seem to be a cause for concern.

Possum Creek at NW 8th Ave (POS8) BioRecon Summary

Hogtown Creek Watershed

Introduction

Possum Creek lies in the Hogtown Creek Watershed, in northwest Gainesville. It flows in a southeasterly direction from north of NW 53rd Avenue to south of NW 8th Avenue, where it joins Hogtown Creek. The sampling site was located north of NW 8th Avenue and east of Westside Park. Upstream of the site, the watershed contains mainly residential neighborhoods, with small amounts of natural and commercial land use areas. Possum Creek at NW 8th Avenue was sampled on December 5, 2000.

Physical and Chemical Characterization

Possum Creek at NW 8th Avenue showed signs of human impact with eroded banks, sanitary sewer pipes, and even a manhole in the middle of the creek. It was shaded with native plants, but some non-native invasive plants grew in the understory. Non-point source pollution was likely from residential areas; however, the riparian zone here was a wide floodplain. The water velocity was optimal, and the water was clear with no unnatural odors or oils present. Temperature, pH, and dissolved oxygen were all within normal ranges. Fish and periphyton were present. Iron and sulfur bacteria and aquatic macrophytes were absent.

Habitat Characterization

The habitat suitable for benthic macroinvertebrates included snags of fallen tree branches, leaf packs, roots of vegetation living on the banks, and rock rubble. Erosion was evident and sand smothered some of the habitat. The riparian zone was greater than 18 meters wide. Of 160 possible points for the Habitat Assessment, Possum Creek received 128 points, placing it in the optimal range.

Benthic Macroinvertebrates

Possum Creek contained a variety of benthic macroinvertebrates including dragonfly, damselfly, mayfly, dobsonfly, blackfly, cranefly, caddisfly, and midge larvae. Isopods, crayfish, Asian clams, and beetles were also present. Possum Creek passed all three of the biometrics used to categorize creeks, placing it in the healthy category.

Discussion

Possum Creek at NW 8th Avenue appeared to have a healthy habitat even in the presence of sanitary sewer pipes and non-native plants. Habitat diversity does not seem to be a cause for concern.

Rattlesnake Creek (RATTSN) BioRecon Summary

Hogtown Creek Watershed

Introduction

Rattlesnake Creek lies in the Hogtown Creek Watershed, in northwest Gainesville. It flows in a westerly direction from NW 8th Avenue and NW 8th Street almost to NW 22nd Street where it joins Hogtown Creek. The sampling site was located north of NW 8th Avenue upstream of the confluence with Hogtown Creek. Approximately 85% of the land use in the basin upstream of the site was composed of residential neighborhoods, with commercial areas making up the remainder. The terrain was hilly by Florida standards. Rattlesnake Creek was sampled on April 24, 2001.

Physical and Chemical Characterization

Rattlesnake Creek was an average of one meter wide and about 0.05 meters deep as it approached Hogtown Creek. It showed signs of human impact upstream, with steep eroded banks exposing clay outcroppings and invasive exotic landscape plants present. The water appears to rise quickly, almost one meter during storms. Non-point source pollution was likely from residential areas and from NW 8th Avenue and NW 13th Street. The water velocity was good; the water was clear with no unnatural odors but there was a sheen on the surface in low velocity areas. The sediment had a sulfur odor. Temperature, pH, and dissolved oxygen were all within normal ranges. Fish and periphyton were present and iron bacteria were common.

Habitat Characterization

The habitat suitable for benthic macroinvertebrates included a suboptimal amount of snags of fallen tree branches, leaf packs, roots of vegetation living on the banks, and rock rubble. Erosion was evident, and sand and silt lightly smothered some of the habitat. The riparian zone was mainly comprised of residential backyards. Of 160 possible points for the Habitat Assessment, Rattlesnake Creek received 104 points, placing it in the suboptimal range.

Benthic Macroinvertebrates

Rattlesnake Creek contained a variety of benthic macroinvertebrates including dragonfly, damselfly, blackfly, cranefly, caddisfly, and midge larvae. Isopods, crayfish, clams, snails, worms, leeches, and small water striders were also present. Rattlesnake Creek passed one out of three biometrics used to categorize creeks, placing it in the suspect category. Mayflies and sensitive groups of caddisflies were missing from the macroinvertebrate community.

Discussion

Rattlesnake Creek was impacted by human disturbance, which has negatively affected the macroinvertebrate population. Pollution from runoff may be a cause for concern, but high flows during storm events may also be washing out macroinvertebrates that would otherwise tolerate the conditions.

Ridgeview Creek (RIDGEV) BioRecon Summary

Hogtown Creek Watershed

Introduction

Ridgeview Creek is a small tributary to Possum Creek in northwest Gainesville that is located in the Hogtown Creek Watershed. The creek flows from NW 31st Avenue south to NW 16th Avenue, where it converges with Possum Creek. The sampling site was located on NW 26th Way. Residential areas accounted for 80% of the land-use in its watershed, while 10% was forest/natural and 10% was commercial. Ridgeview Creek was sampled on June 12, 2001.

Physical and Chemical Characterization

Ridgeview Creek was an average of 1.25 meters wide and 0.2 meters deep at this 100 meter reach. The banks were slightly eroded in places. Non-point source pollution may run off from the residential yards along the creek. The water velocity was good, about 0.2 meters per second. The water was clear and colorless with no unnatural odors or oils present in the water column or in the sediments. Dissolved oxygen was good and pH was within the normal range. The riparian zone was vegetated with a variety of trees such as swamp chestnut oak, black gum, Florida maple, ironwood, cherry, ash, and sweet gum which moderately shaded the stream. Fish were common and iron/sulfur bacteria, aquatic plants, and periphyton were absent.

Habitat Characterization

The habitat suitable for benthic macroinvertebrates included roots of vegetation living on the banks, snags of fallen tree branches, rock rubble, and leaf packs. Some of the habitat was sand and silt-smothered. The riparian zone was disturbed on part of one bank; it was only about five meters wide and contained a few coral ardesia; camphor, air potato, and lantana plants. The remainder of the riparian zone was comprised of native plants. Of 160 possible points for the Habitat Assessment, Ridgeview Creek received 118 points, placing it in the high suboptimal range.

Benthic Macroinvertebrates

Ridgeview Creek contained a variety of benthic macroinvertebrates including damselfly, dragonfly, mayfly, caddisfly, cranefly, and midge larvae. Clams, mites, crayfish, amphipods, small water striders, and a variety of beetles were also present. Ridgeview Creek passed two of three biometrics used to categorize creeks, placing it in the suspect category. Two more sensitive macroinvertebrates would have placed it in the healthy category.

Discussion

Ridgeview Creek has a rather healthy macroinvertebrate population and ecosystem. The optimal to suboptimal riparian vegetation quality, lack of artificial channelization, and the water velocity contributed to the in-stream biological health.

Springstead Creek (SPRST) BioRecon Summary

Hogtown Creek Watershed

Introduction

Springstead Creek lies in the northern part of Gainesville in the Hogtown Creek Watershed. It flows in a westerly direction from North Main Street and NE 34th Place and under US 441, where it joins Hogtown Creek. The sampling site was located at NW 34th Avenue and NW 5th Street. The land use in the basin upstream of the site was composed mainly of residential, commercial, and industrial areas, with a small amount of forest and pasture. Industrial facilities that formerly treated wood with creosote and historically made charcoal and naval stores were within a short distance of the site. A washed out silt fence was present at the upstream end of the 100 meter site and a stormwater pipe leading from a parking area discharged into the creek. Springstead Creek was sampled on June 21, 2001.

Physical and Chemical Characterization

Springstead Creek was a sand-bottomed stream, averaging 2.75 meters wide and about 0.2 meters deep. The water appears to rise 1 meter during storms. Non-point source pollution was likely from residential, commercial, and industrial areas. The water velocity was excellent. The water was slightly turbid (probably from the 0.8" of rain the previous night) and lightly tea-colored (tanic), with no unnatural odors or oils. The sediment had a tar-like odor in places. Dissolved oxygen and pH were within normal ranges. Fish and periphyton were present.

Habitat Characterization

The habitat suitable for benthic macroinvertebrates included a small amount of snags of fallen tree branches, roots of vegetation living on the banks, and rock rubble. Leaf pack habitat should have been found in this moderately shaded stream, but are perhaps, washed away during storms. Erosion was heavy with bare gullies present, and sand smothered some of the habitat. The riparian zone was made up of residential backyards and fields. Of 160 possible points for the Habitat Assessment, Springstead Creek received 103 points, placing it in the suboptimal range.

Benthic Macroinvertebrates

Springstead Creek contained dragonfly, mayfly, damselfly, caddisfly, and midge larvae. Isopods, amphipods, snails, worms, beetles, and small water striders were also present. However, Springstead Creek did not pass any of the three biometrics used to categorize creeks, placing it in the impaired category.

Discussion

Springstead Creek was impacted by human disturbance, which has negatively affected the macroinvertebrate population. Pollution from runoff may be a cause for concern. The high flows during storm events may also be washing out macroinvertebrates that would otherwise tolerate the conditions. The heavy in-steam erosion and sand smothering may have affected the macroinvertebrate population.

Sweetwater Branch at SE 2nd Place (SWBSE2) BioRecon Summary

Paynes Prairie Watershed

Introduction

Sweetwater Branch originates in the center of the city of Gainesville and is located in the Paynes Prairie Watershed. It flows in a southeasterly direction from North Main Street and NW 16th Avenue under Main Street and south through commercial, residential, and industrial areas. A wastewater treatment plant discharges into Sweetwater Branch near Williston Road. The creek eventually flows into Paynes Prairie and Alachua Sink. The sampling site was located downstream of SE 2nd Place in a public park area in downtown Gainesville. The land use in the watershed surrounding the site was about 60% residential and 35% commercial, with a small amount of forest and field. Sweetwater Branch at SE 2nd Place was sampled on February 21, 2001.

Physical and Chemical Characterization

Sweetwater Branch at this site was a sand-bottomed stream, averaging 1.25 meters wide and about 0.1 meters deep. Non-point source pollution was likely from residential and commercial areas. The water velocity was fair at 0.12 meters per second. The water was clear and colorless with no unnatural odors or oils, but the sediment smelled like coal and had an oily residue. Dissolved oxygen, temperature, specific conductivity, and pH were within normal ranges. Fish and periphyton were common, and there were a few aquatic plants in the creek.

Habitat Characterization

The habitat suitable for benthic macroinvertebrates included a suboptimal amount of leaf packs, roots of vegetation living on the banks, and snags of fallen tree branches. Erosion was moderate; and sand and silt smothered some of the habitat. The riparian zone was less than five meters wide with camphor, sugarberry, and sweetgum trees that lightly shaded the creek. Exotic Japanese climbing fern, taro, and Mexican petunia grew on the banks. Hydrilla grew in the water, and a dead crayfish, frog, and siren were floating on the water. Of 160 possible points for the Habitat Assessment, Sweetwater Branch at this site received 80 points, placing it in the suboptimal range.

Benthic Macroinvertebrates

Sweetwater Branch at SE 2nd Place contained damselfly and midge larvae, native and exotic snails, crayfish, worms, and beetles. Sweetwater Branch at SE 2nd Place did not pass any of the three biometrics used to categorize creeks, placing it in the impaired category.

Discussion

Sweetwater Branch at SE 2nd Place was impacted by human disturbance, which has negatively affected the macroinvertebrate population. Pollution from runoff, and lack of a naturally vegetated riparian zone were probable causes of the suboptimal Habitat Assessment score. High flows during storm events may also be washing out some macroinvertebrates that would otherwise tolerate the conditions at this site.

Sweetwater Branch at SE 4th Street (SWBSE4) BioRecon Summary

Paynes Prairie Watershed

Introduction

Sweetwater Branch originates in the center of the city of Gainesville and is located in the Paynes Prairie Watershed. It flows in a southeasterly direction from North Main Street and NW 16th Avenue under Main Street and south through commercial, residential and industrial areas. A wastewater treatment plant discharges into Sweetwater Branch near Williston Road. Sweetwater Branch eventually flows into Paynes Prairie and Alachua Sink. The sampling site was located upstream of SE 4th Street in a residential area close to an old industrial area. The land use in the watershed surrounding the site was about 60% residential, 33% commercial, and 4% industrial with a small amount of forest. Sweetwater Branch at SE 4th Street was sampled on February 21, 2001.

Physical and Chemical Characterization

Sweetwater Branch was a sand-bottomed stream, averaging 2 meters wide and about 0.1 meters deep. Non-point source pollution was likely from residential, commercial, and industrial areas. The water velocity was fair at 0.12 meters per second, and the water was clear and colorless. There were no unnatural odors or oils in the water or in the sediment. Dissolved oxygen, temperature, specific conductivity, and pH were within normal ranges. Fish and periphyton were common, and there were a few aquatic plants in the creek.

Habitat Characterization

The habitat suitable for benthic macroinvertebrates included a small amount of leaf packs, roots of vegetation living on the banks, snags of fallen tree branches, and rock rubble. Erosion was moderate; and sand and silt smothered some of the habitat. The riparian zone was about 10 meters wide with native trees, palms, exotic ligustrum, and Mexican petunia on the banks. Of 160 possible points for the Habitat Assessment, this segment of Sweetwater Branch received 101 points, placing it in the suboptimal range.

Benthic Macroinvertebrates

Sweetwater Branch at SE 4th Street contained damselfly, dragonfly, midge, cranefly, caddisfly, and blackfly larvae, exotic snails, crayfish, worms, and beetles. Sweetwater Branch at SE 4th Street did not pass any of the three biometrics used to categorize creeks, placing it in the impaired category.

Discussion

Sweetwater Branch at SE 4th Street was impacted by human disturbance, which has negatively affected the macroinvertebrate population. Pollution from runoff and lack of a naturally vegetated riparian zone were probable causes of the suboptimal Habitat Assessment score. High flows during storm events may also be washing out some macroinvertebrates that would otherwise tolerate the conditions at this site.

Sweetwater Branch at Paynes Prairie (SWBPP)
BioRecon Summary

Paynes Prairie Watershed

Introduction

Sweetwater Branch originates in the center of the city of Gainesville. Located in the Paynes Prairie Watershed, it flows in a southeasterly direction from North Main Street and NW 16th Avenue under Main Street and south through commercial, residential, and industrial areas. A wastewater treatment plant discharges into Sweetwater Branch near Williston Road. Sweetwater Branch finally flows into Paynes Prairie and then Alachua Sink. The sampling site was located in Paynes Prairie State Preserve in a wooded area. The land use in the watershed upstream of the site was about 60% residential, 20% commercial, 14% forest/natural, and 4% industrial. Sweetwater Branch at Paynes Prairie was sampled on May 2, 2001.

Physical and Chemical Characterization

Sweetwater Branch at Paynes Prairie was sand-bottomed, sinuous, and braided. The creek averaged three meters wide and about 0.3 meters deep. Non-point source pollution was likely from residential, commercial, and industrial areas. The GRU Main Street wastewater treatment plant discharges into the creek less than one mile above the site. The water velocity was excellent at 0.5 meters per second. The water was clear and colorless with a chlorine (disinfection byproducts) odor possibly related to the final dechlorination of the wastewater effluent. The sediment had a rusty odor. No oils were observed on the water or in the sediment. Dissolved oxygen and temperature were within normal ranges. Elderberry, red maple, box elder, and exotic Chinese tallow were the dominant trees that lightly shaded the creek. Fish, periphyton, and aquatic plants, such as taro, were common in the creek.

Habitat Characterization

The habitat suitable for benthic macroinvertebrates included an abundance of roots of vegetation living on the banks, aquatic vegetation, snags of fallen tree branches, and leaf packs. Heavy erosion upstream and runoff from roads and parking lots in the basin has resulted in large amounts of sand deposition in the prairie, creating the braided channel. Sand and silt smothered much of the habitat. The riparian zone was very wide in the state preserve. However, the prairie was plagued with exotic plants that washed in from upstream. The understory contained air potato and Mexican petunia, both spread rapidly and are difficult to control. Of 160 possible points for the Habitat Assessment, Sweetwater Branch at Paynes Prairie received 112 points, placing it in the suboptimal range.

Benthic Macroinvertebrates

Sweetwater Branch at Paynes Prairie contained damselfly, dragonfly, midge, dobsonfly, moth, and caddisfly larvae. Exotic snails, crayfish, worms, and beetles were also found at this site. At this location, the creek passed one of the three biometrics used to categorize creeks, placing it in the suspect category.

Discussion

Sweetwater Branch was impacted by human disturbance, which has negatively affected the macroinvertebrate population. Pollution from runoff and discharge by the wastewater treatment plant were likely causes. High flows during storm events deposit sand and silt that cover habitat and wash away some macroinvertebrates that would otherwise tolerate the conditions at this site.

Three Lakes Creek (3LAKE) BioRecon Summary

Hogtown Creek Watershed

Introduction

Three Lakes Creek is a small tributary to Possum Creek located in the Hogtown Creek Watershed in Gainesville. The creek flows from northeast of NW 39th Avenue (SR 222) and NW 34th Street southwest under Glen Springs Road and NW 34th Street, where it converges with Possum Creek. The sampling site was located on the upstream side of Glen Springs Road. Residential areas account for 80% of the land-use in its watershed, while 20% is forest/natural. Three Lakes Creek was sampled on May 31, 2001.

Physical and Chemical Characterization

Three Lakes Creek was a sand-bottomed stream with outcroppings of clay and limestone; it averaged one meter wide and 0.1 meter deep in this 100 meter reach. The banks were moderately eroded in places. Non-point source pollution may run off from the residential areas draining into the creek. The water velocity was good, about 0.2 meters per second. The water was clear and colorless. No unnatural odors or oils were present in the water or in the sediments. Dissolved oxygen was a bit low, and pH and temperature were within the normal range. The riparian zone was greater than 18 meters wide and vegetated with a variety of trees such as water oak and sweet gum which moderately shaded the stream. Fish were common and iron/sulfur bacteria, aquatic plants, and periphyton were absent.

Habitat Characterization

The habitat suitable for benthic macroinvertebrates included roots of vegetation living on the banks, snags of fallen tree branches, and rock rubble. Leaf packs should have been found in this moderate to heavily shaded stream, but may have washed downstream during storms prior to the sampling event. Some of the habitat was sand-smothered. The riparian vegetation was composed of native plants. Of 160 possible points for the Habitat Assessment, Three Lakes Creek received 119 points, placing it in the high suboptimal range.

Benthic Macroinvertebrates

Three Lakes Creek contained a variety of benthic macroinvertebrates including damselfly, dragonfly, mayfly, caddisfly, cranefly, blackfly, dobsonfly, and midge larvae. Snails, crayfish, amphipods, small water striders, and beetles were also present. Three Lakes Creek passed two of three biometrics used to categorize creeks, placing it in the suspect category. Two more sensitive macroinvertebrates would have placed it in the healthy category.

Discussion

Three Lakes Creek has a rather healthy macroinvertebrate population. Pollution, based on taxa diversity and number, does not appear to be a concern. The sinuous nature of the steam and the optimal water velocity likely contributed to the diverse macroinvertebrate population.

Townsend Branch (TWNSBR) BioRecon Summary

North Central Region

Introduction

Townsend Branch is located in rural northern Alachua County in the North Central Region. It drains into Mill Creek and then into Mill Creek Sink near US 441 in Alachua. The sampling site was just southwest of the corner of CR 241 and CR 236. The change in elevation in this 100 meter reach of the creek produced a few tiny waterfalls containing rocks. Occasionally, this creek dries to isolated pools. However, the water had been flowing for over four months at the time of sampling. The creek was sampled on April 23, 2003.

Physical and Chemical Characterization

Townsend Branch was narrow and shallow, averaging 0.1 meters deep and 0.8 meters in width. The velocity was very slow except in riffle and waterfall segments. The water was tea colored (tanic) and slightly turbid with no unnatural odors or oils present. Fish were common, and macrophytes and periphyton were rare. No iron/sulfur bacteria were present. Temperature, pH, dissolved oxygen, and conductivity were all within normal ranges in the riffle areas. Possible pollution sources included runoff from pastures and CR 241. The riparian zone was slightly disturbed 12 meters from the left bank. Both banks were vegetated with native plants. No invasive exotic plants were observed.

Habitat Characterization

The habitat suitable for benthic macroinvertebrates included rocks, snags (logs), and a few leaf packs. Roots were above the water line and unavailable to the benthic macroinvertebrates, as the water level had dropped in recent weeks. The water velocity was slow in most of the creek, and silt smothered some habitat; however the rocky waterfall areas and riffles offered good habitat and better water velocity. The creek in this section had not been channelized, and only small areas of erosion were noted. Magnolia, sweetgum, water oak, spruce pine, ironwood, and hickory trees dominated the riparian zone. Of 160 possible points for the Habitat Assessment, Townsend Branch received 125 points, placing it in the optimal range.

Benthic Macroinvertebrates

Two species of caddisflies and blackflies were present in large quantities in Townsend Branch. Other species present included mayflies, several beetles, midges, worms, amphipods, one species of dragonfly, and one damselfly. Of the three biometrics used to categorize creeks, Townsend Branch passed two, placing it in the suspect category. One more species of sensitive taxa present would have qualified the site as healthy.

Discussion

For such a relatively undisturbed area, Townsend Branch was lacking in macroinvertebrates. The causes for this seem to be naturally occurring. The creek was occasionally dry for part of the year, which excludes long-lived species that require water for extended periods of time. Also, much of the habitat was unavailable due to recent falling water levels and may have caused some species to move away, resulting in lower numbers.

Tumblin Creek at P.K. Yonge Developmental Research School (TUMPKY) BioRecon Summary

Paynes Prairie Watershed

Introduction

Tumblin Creek originates in the center of the city of Gainesville and is located in the Paynes Prairie Watershed. It flows in a southwesterly direction from NW 5th Avenue near Shands at Alachua General Hospital under US 441 to Bivens Arm. The sampling site was located at P.K. Yonge School near SW Depot Avenue and SW 9th Street. The land use in the watershed surrounding the site was about 80% residential and 17% commercial with a small percentage of industrial land use. Tumblin Creek was sampled on April 4, 2000.

Physical and Chemical Characterization

Tumblin Creek was a concrete debris and sandy-bottomed creek, averaging one meter wide and about 0.2 meters deep. The water rises up to 0.75 meters during storms. Non-point source pollution was likely from residential, commercial, and industrial areas. The water velocity was low at 0.07 meters per second. The water was slightly turbid due to light rain earlier in the day and light yellow with no unnatural odors or oils. Temperature, dissolved oxygen, specific conductivity, and pH were within normal ranges. Fish and aquatic macrophytes were rare; periphyton and iron bacteria were common.

Habitat Characterization

The habitat suitable for benthic macroinvertebrates included leaf packs, roots of vegetation living on the banks, and rock rubble. Erosion was moderate; sand and silt smothered some of the habitat. Stormwater drains led to the creek in three places, and a weir was constructed across the sampling site with riprap on the sides. The riparian zone was school grounds with mowed grass and concrete walkways. Palm, cherry laurel, and camphor trees lightly shaded the stream, and only about one meter of vegetation looked natural on either side. Mexican petunia was common growing along the banks and in the water. Of 160 possible points for the Habitat Assessment, Tumblin Creek received 89 points, placing it in the low suboptimal range.

Benthic Macroinvertebrates

Tumblin Creek contained damselfly, midge, and cranefly larvae. Snails, crayfish, worms, leeches, and beetles were also present. Tumblin Creek did not pass any of the three biometrics used to categorize creeks, placing it in the impaired category.

Discussion

Tumblin Creek was impacted by human disturbance, which has negatively affected the macroinvertebrate population. Pollution from runoff and lack of a naturally vegetated riparian zone were probable causes of the low Habitat Assessment score. High flows during storm events may also be washing out some macroinvertebrates that would otherwise tolerate the conditions at this site.

Turkey Creek (TRKCR) BioRecon Summary

North Central Region

Introduction

Turkey Creek is a black water creek located in Alachua County between Gainesville and Alachua, just west of US 441, in the North Central Region. The sampling site was in the Turkey Creek subdivision near Creek Drive and NW 105 Ave. Turkey Creek flows west into Sanchez Prairie and ultimately discharges to the subsurface in San Felasco State Preserve. A wide variety of land uses including pasture, residential, pine plantation, a golf course, and a coal-fired electric plant are located within the watershed. The creek was sampled on March 27, 2003.

Physical and Chemical Characterization

Turkey Creek was an average of 2.8 meters wide and 0.13 meters deep. The velocity was fair, averaging 0.2 meters per second. The water was clear but tea colored (tanic) with no unnatural odors or oils present. Fish and macrophytes were common, and periphyton and iron/sulfur bacteria were present but rare. Temperature, pH, dissolved oxygen, and conductivity were all within normal ranges. Potential for non-point source pollution, through runoff from residential yards and streets, was observed near the sampling site. The riparian zone at the site varied on each side of the creek. The left bank was residential and the right bank was vegetated with native plants. No invasive exotic plants were observed.

Habitat Characterization

The habitat suitable for benthic macroinvertebrates included small amounts of native macrophytes such as lizard tail and golden club. Roots of vegetation living on the banks and snags of fallen tree branches provided an adequate amount of habitat. Leaf packs were present in very small amounts; some may have been washed away by recent heavy rains or covered by sand from eroding banks. Elderberry, sugarberry, Virginia tea, water oak, and sweetgum lightly shaded the creek. Evidence of bank erosion and sand smothering was noted. Of 160 possible points for the Habitat Assessment, Turkey Creek received 90 points, placing it in the suboptimal range.

Benthic Macroinvertebrates

Turkey Creek had an abundant variety of benthic macroinvertebrates present including damselfly, dragonfly, mayfly, blackfly, caddisfly, cranefly, midge, and dobsonfly larvae. Snails and clams, amphipods, worms, and a variety of beetles were also present. Turkey Creek passed two of the three biometrics used to categorize creeks, placing it in the suspect category. One more species of caddisfly or mayfly would have qualified it as healthy.

Discussion

Turkey Creek was impacted by human activity slightly impairing the habitat for benthic macroinvertebrates. The water quality parameters measured were within acceptable ranges. Runoff from roads, roofs, and driveways carrying sand and small amounts of non-point source pollutants eroded the banks, washed away leaf packs, and deposited sand in the creek. However, as the creek flows through natural forested areas on its way to San Felasco, it may recover from the slight impact of human activity, provided flows and pollutant sources are not increased in the future.