

# **BIOLOGICAL MONITORING REPORT #2**

Pre-construction Monitoring

# NORTHERN VIRGINIA STREAM RESTORATION BANK

Snakeden Branch Watershed (±21,000 LINEAR FEET)

FAIRFAX COUNTY, VIRGINIA



Prepared For:

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WSSI Project #20003 - Task D

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#### Biological Monitoring Report #2 Pre-construction Monitoring

#### Northern Virginia Stream Restoration Bank Snakeden Branch Watershed (+21,000 Linear Feet) WSSI #20003

October 24, 2008

#### I. <u>Executive Summary</u>

As set forth in the "Northern Virginia Stream Restoration Bank Banking Instrument" (Banking Instrument), approximately 21,000 linear feet of streams and drainage features within the Snakeden Branch Watershed will be stabilized and restored. This stream restoration project should result in a direct improvement of in-stream habitat and an indirect improvement in water quality.

Wetland Studies and Solutions, Inc. (WSSI) conducted pre-construction biological stream assessments along the Snakeden Branch Watershed portion of the Northern Virginia Stream Restoration Bank (NVSRB) in 2007 and 2008 pursuant to the maintenance and monitoring requirements defined in the NVSRB Banking Instrument, Section VI.B.2.(i). The purpose of this pre-construction monitoring is to determine the baseline conditions of the streams within the Snakeden Branch Watershed Portion of the NVSRB, against which future biological monitoring in the study area will be compared. This report summarizes the 2008 preconstruction monitoring.

Biological stream monitoring was conducted along nine permanent biological monitoring reaches using benthic macroinvertebrate and habitat data. Fieldwork was conducted of February 12 and 14, 2008, prior to the beginning of the construction on February 18, 2008. Benthic macroinvertebrate data was used to calculate a Stream Condition Index for Virginia Non-coastal Streams (VA-SCI) and habitat data was used to calculate the percentage of best possible habitat for each reach.

Our baseline habitat results indicate that habitat of the streams within the Snakeden Branch Watershed portion of the NVSRB in 2008 is "Poor" to "Fair", with habitat assessment scores of 142 (out of 200) or less. The low habitat assessment scores are due to the lack of epifaunal substrate/available cover for stream macrofauna, highly embedded epifaunal substrate, overwidened stream channels, bank instability, and lack of vegetation protection along the stream banks. The habitat conditions in 2008 are similar to the conditions observed for the 2007 pre-construction monitoring.

Baseline benthic macroinvertebrate results indicate that the benthic macroinvertebrate community of the streams within the Snakeden Branch watershed portion of the NVSRB in 2008 is in "Severe Stress", with VA-SCI scores below 35 (out of 100) for all streams assessed. The low VA-SCI scores are likely due to several confounding abiotic factors, including highly impervious land cover within the watershed, high nutrient, toxicant and sediment input from adjacent land use, channel alteration, high sediment deposition, bank instability, lack of vegetative protection along the stream banks, and lack of epifaunal substrate/available cover. These results are similar to the 2007 monitoring, where the benthic macroinvertebrate community at all nine reaches was also in "Severe Stress". However, since 2007, almost all of the VA-SCI scores have increased. The lower VA-SCI scores in 2007 may be attributed to natural variability in both abiotic and biotic conditions, as no restoration activities or other water quality enhancements occurred within the study area prior to the 2008 monitoring.

## II. Introduction

As set forth in the "Northern Virginia Stream Restoration Bank Banking Instrument" (Banking Instrument), dated February 17, 2006 and prepared by Wetland Studies and Solutions, Inc. (WSSI), Northern Virginia Stream Restoration, L.C. will restore approximately 14 miles of streams and upland buffers, within portions of the Snakeden Branch, Colvin Run, and The Glade watersheds in Reston, Virginia. As required in Section VI.B.2.(i) of the Banking Instrument, biological monitoring will be conducted within restored streams within these watersheds. These stream restoration activities should result in a direct improvement of in-stream habitat and an indirect improvement in water quality. Using benthic macroinvertebrate and habitat data, this second pre-construction monitoring report provides additional characterization of the baseline conditions of the streams within the Snakeden Branch Watershed portion of the NVSRB in 2008, against which future biological monitoring in the study area will be compared. With these data, and data from previous and subsequent monitoring reports, we propose to determine the effect of stream restoration on the condition of streams within the Snakeden Branch Watershed portion of the NVSRB<sup>1</sup>, as well as aid in the development of numerical success criteria for non-coastal stream restoration projects in Virginia.

# III. Project Area

The study area includes approximately 21,000 linear feet of stream along Snakeden Branch and several unnamed tributaries of Snakeden Branch, as well as the adjacent riparian corridor. The study area is located southeast of Reston Parkway (Route 602) and immediately northwest of Lake Audubon in Fairfax County, Virginia. <u>Exhibit 1</u> is a vicinity map that depicts the approximate location of the study area.

The study area is covered mostly by mixed-deciduous forest. Snakeden Branch flows in a southeasterly direction through the central portion of the study area. An asphalt recreational trail, which crosses Snakeden Branch multiple times, is located parallel to the stream and to several of its unnamed tributaries. The study area is gently to moderately sloping. The topography can be seen in the excerpt from the Vienna, Virginia-Maryland 1994 USGS topographical quadrangle map included as <u>Exhibit 2</u>, as well as in the background topography on the Biological Stream Monitoring Map (<u>Exhibit 3</u>).

The boundaries of jurisdictional wetlands and other waters of the U.S. located within the study area were delineated and survey-located by WSSI as described in the Snakeden Branch Reach 1 and Snakeden Branch Reach 2 delineation reports, dated February 14, 2005 and May 18, 2005, respectively. The U.S. Army Corps of Engineers verified the Snakeden Branch Reach 1 and Snakeden Branch Reach 2 delineation, with jurisdictional determinations (JD) dated May 17, 2006 (JD #05-R0601 and JD #05-R1495, respectively)<sup>2</sup>.

<sup>&</sup>lt;sup>1</sup> Note that monitoring reports for the Colvin Run and The Glade watershed portions of the NVSRB will be provided under separate cover.

 <sup>&</sup>lt;sup>2</sup> Note that for design purposes, Snakeden Branch Reach 1 and Snakeden Branch Reach 2 have been further divided into 17 manageable restoration reaches, as depicted on the NVSRB – Snakeden Branch plan sets, dated May 2007, August 2007, October 2007, November 2007, December 2007, July 2, 2008, and July 10, 2008). The biological monitoring reaches for this report are located within a portion of these 17 reaches. The locations of the biological monitoring reaches relative to these 17 reaches are depicted in Figure1 and described in Footnote 5.

# IV. Overall Methodology

Per maintenance and monitoring requirements defined in the Banking Instrument, Section VI.B.2.(i), biological stream assessment reaches are to be established for every 2000 linear feet of stream restoration along samplable streams at the NVSRB. Once established, these reaches are to be monitored prior to stream restoration, then in years 1, 5, and 10. The following methods are to be employed:

- Biological Reconnaissance (BioRecon), following guidance established in the U.S. Environmental Protection Agency's "Rapid Bioassessment Protocols for Use in Streams and Wadable Rivers" (EPA's RBP; Barbour et al. 1999)<sup>3</sup>.
- Biological stream assessment for Calculating the Stream Condition Index for Virginia Non-coastal Streams (VA-SCI), following guidance established in "A Stream Condition Index for Virginia Non-Coastal Streams" (Tetra Tech 2003) and "Using Probabilistic Monitoring Data to Validate the Non-Coastal Virginia Stream Condition Index" (DEQ 2006a)<sup>4</sup>.

# V. Biological Stream Monitoring

<u>Biological Stream Monitoring Methodology.</u> The biological stream monitoring consisted of two components: 1) Stream habitat assessment and 2) benthic macroinvertebrate assessment. The habitat assessment field work was conducted using guidance established in the DEQ standard operating procedures for stream habitat assessment (SOPs; DEQ 2006b) and the EPA's RBP for habitat (Barbour et al. 1999). The benthic macroinvertebrate assessment field work was conducted using guidance established in the SOPs for multi-habitat benthic macroinvertebrate sampling (DEQ 2006b).

WSSI assessed the nine permanent sampling reaches that were selected in Biological Monitoring Report #1 (Reach 1-A through 1-F, 2-A, 2-B, and 3-A). The locations of these nine sampling reaches relative to the 17 restoration design reaches are depicted in Figure 1, below<sup>5</sup>. As required by the SOPs, each reach is 300 linear feet. The approximate location of each reach is depicted on the Biological Stream Monitoring Map (Exhibit 3). Photographs of each reach are included on Exhibit 4. Benthic macroinvertebrate sampling and habitat assessment field work

<sup>&</sup>lt;sup>3</sup> Note that the BioRecon was used to aid in the selection of permanent monitoring reaches during the first year of pre-construction monitoring and is not required in subsequent monitoring years. The results of the BioRecon are described in "Biological Monitoring Report #1, Pre-construction Monitoring, Northern Virginia Stream Restoration Bank, Snakeden Branch Watershed", dated January 29, 2008.

<sup>&</sup>lt;sup>4</sup> This method is to be used in all monitoring years and is accompanied by a habitat assessment, following guidance established Virginia Department of Environmental Quality's (DEQ) standard operating procedures for stream habitat assessment (SOPs; DEQ 2006b) and the EPA's RBP for habitat (Barbour et al. 1999).

<sup>&</sup>lt;sup>5</sup> Note that the nine permanent monitoring reaches correspond with reaches of the NVSRB-Snakeden Branch plan sets, as follows: Reach 1-F corresponds with Reach 1 of the May 2007 plan set; Reach 1-E corresponds with Reach 2 of the August 2007 plan set; Reach 3-A corresponds with Reach 4 of the October 2007 plan set; Reaches 1-D and 1-C correspond with Reaches 5 and 7, respectively of the November 2007 plan set; Reaches 2-A and 2-B correspond with Reaches 13 and 15, respectively of the July 2, 2008 plan set; and Reaches 1-A and 1-B correspond with Reaches 12 and 17, respectively of the July 10, 2008 plan set.

was conducted by WSSI environmental scientists Sean D. Sipple, CT, PWS<sup>6</sup> and Taylor S. Sprenkle WPIT<sup>7</sup> on February 12 and 14, 2008, prior to the beginning of construction on February 18, 2008.



In accordance with the SOPs, habitat conditions were assessed by qualitatively rating ten habitat parameters, including Epifaunal Substrate/Available Cover, Pool Substrate Characterization, Pool Variability, Sediment Deposition, Channel Flow Status, Channel Alteration, Channel Sinuosity, Bank Stability, Vegetative Protection, and Riparian Vegetative Zone. The overall habitat quality of each reach was determined by calculating the percentage of

Professional Wetland Scientist #1730, Society of Wetlands Scientists Certification Program, Inc.; North American Benthological Society (NABS) Certified Level 2 Taxonomist: EPT Taxa (Ephemeroptera, Plecoptera, Trichoptera).

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<sup>&</sup>lt;sup>7</sup> Wetland Professional in Training, Society of Wetlands Scientists Certification Program, Inc.

the best possible score<sup>8</sup>, where the best possible score for each reach equals 200. The following formula was used to determine the percentage of best possible score for each reach:

Percentage of Best Possible Score = (Total Habitat Score)/(200)\*100

Each reach was then assigned a narrative rating according to the calculated percentage of best possible score, where "Excellent" is >90, "Good" is 75-88, "Fair" is 60-73, and "Poor" is <58. WSSI Habitat Assessment Field Data Sheets (developed from the EPA's RBP Habitat Assessment Field Data Sheets) for each reach are included as <u>Exhibit 5</u>.

To assess benthic macroinvertebrate condition, 60 linear feet of best-available habitat was sampled in each reach using a D-Framed Net. Habitat types sampled include cobble/gravel, snags/leafpacks, under-cut banks, root-wads, and submerged vegetation. Benthic field data was recorded on WSSI Benthic Macroinvertebrate Field Data Sheets (developed from the EPA's RBP Benthic Macroinvertebrate Field Data Sheets), which are included as <u>Exhibit 6</u>.

Benthic macroinvertebrate samples were processed and subsampled by WSSI staff using guidance from the SOPs. Specifically, a fixed-count method was used, where one hundred twenty organisms were randomly picked from a gridded (numbered) tray and the organisms were identified to the family level (if possible) using a dissecting microscope. Each individual (containing a head) found in a sample was recorded and enumerated on a WSSI Benthic Macroinvertebrate I.D. and Enumeration Bench Sheet (<u>Exhibit 7</u>).

Benthic macroinvertebrate data were analyzed by calculating the Stream Condition Index for Virginia Non-coastal Streams (VA-SCI), following guidance established in "A Stream Condition Index for Virginia Non-Coastal Streams" and "Using Probabilistic Monitoring Data to Validate the Non-Coastal Virginia Stream Condition Index". The VA-SCI is a multi-metric Index of Biotic Integrity developed for the DEQ to assess Streams of the Commonwealth. The VA-SCI uses seven biotic metrics and one biotic index including Total Taxa, EPT Taxa, Percent Ephemeroptera, Percent Plecoptera + Trichoptera (Excluding Hydropsychidae), Percent Scrapers, Percent Chironomidae, Percent Top Two Dominant Taxa, and Hilsenhoff Biotic Index. The individual metrics and index used are defined and described as follows:

- Total Taxa Richness. Total Taxa Richness represents the total number of taxa in a sample. Total Taxa Richness is expected to be relatively high in undisturbed streams and is expected to decrease in response to environmental disturbance. Total Taxa Richness can range from 0-22 for the VA-SCI.
- EPT Taxa Richness. EPT Taxa Richness represents the number of taxa from the aquatic insect orders Ephemeroptera, Plecoptera, and Trichoptera. EPT taxa are generally very sensitive to pollution. Total EPT Taxa Richness is expected to be relatively high in undisturbed streams, and it is expected to decrease in response to environmental disturbance. EPT Taxa Richness can range from 0-11 for the VA-SCI.
- Percent Ephemeroptera. The Percent Ephemeroptera represents the ratio of members of the aquatic insect order Ephemeroptera (mayflies) to the total number of individuals in a sample. Mayflies are generally very sensitive to pollution, thus Percent Ephemeroptera is

<sup>&</sup>lt;sup>8</sup> The SOPs indicate that overall habitat quality is determined by calculating the percent similarity to reference score. Since reference reaches were not available to assess, WSSI used the best possible score as the reference score.

expected to decrease in response to environmental disturbance. Percent Ephemeroptera can range from 0-61.3 for the VA-SCI.

- Percent Plecoptera + Trichoptera (Excluding Hydropsychidae). The Percent Plecoptera + Trichoptera (Excluding Hydropsychidae) represents the ratio of members of the aquatic insect orders Plecoptera (stoneflies) and Trichoptera (caddisflies) (excluding the those in the pollution tolerant family Hydropsychidae) to the total number of individuals in a sample. Percent Plecoptera + Trichoptera (Excluding Hydropsychidae) is expected to decrease in response to environmental disturbance. Percent Plecoptera + Trichoptera (Excluding Hydropsychidae) can range from 0-35.6 for the VA-SCI.
- Percent Scrapers. The Percent Scrapers represents the ratio of taxa adapted primarily for scraping food from a substrate to the total number of individuals in a sample. Percent Scrapers is expected to decrease in response to environmental disturbance. Percent Scrapers can range from 0-51.6 for the VA-SCI.
- Percent Chironomidae. The Percent Chironomidae represents the ratio of members of the aquatic insect family Chironomidae (non-biting midges) to the total number of individuals in a sample. Because chironomids are generally tolerant to pollution, Percent Chironomidae is expected to increase in response to environmental disturbance. Percent Chrionomidae can range from 0-100 for the VA-SCI.
- Percent Top Two Dominant. The Percent Top Two Dominant is the ratio of the top two most abundant taxa in a sample to the total number of individuals in a sample. Percent Top Two Dominant is expected to increase in response to environmental disturbance. Percent Top Two Dominant can range from 30.8-100 for the VA-SCI.
- Hilsenhoff Biotic Index (HBI). The Hilsenhoff Biotic Index is the abundance-weighted average tolerance of assemblage of organisms (Family taxonomic level). The HBI is expected to increase in response to environmental disturbance. The HBI can range from 3.2-10 for the VA-SCI.
- The VA-SCI was calculated by taking the weighted average of the individual metric (and index) scores, with an VA-SCI range of 0-100. The weighting is as follows:
  - Total Taxa: Score = 100 x (X/22), where X = Metric Value
  - EPT Taxa: Score =  $100 \times (X/11)$ , where X = Metric Value
  - Percent Ephemeroptera: Score =  $100 \times (X/61.3)$ , where X = Metric Value
  - Percent Plecoptera + Trichoptera less Hydropsychidae: Score =  $100 \times (X/35.6)$ , where X = Metric Value
  - Percent Scrapers: Score =  $100 \times (X/51.6)$ , where X = Metric Value
  - Percent Chironomidae: Score = 100 x [(100-X) (100-0)], where X = Metric Value
  - Percent Top 2 Dominant: Score = 100 x [(100-X) (100-30.8)], where X = Metric Value
  - Hilsenhoff Biotic Index: Score = 100 x [(100-X) (100-3.2)], where X = Metric Value

Each reach was then assigned a narrative rating according to the calculated VA-SCI, where "Excellent" is >73, "Good" is 60-72, "Stress" is 43-59, and "Severe Stress" is <42.

<u>Biological Stream Monitoring Results and Discussion.</u> Habitat results for 2008 show that all nine stream reaches (Reaches 1-A through 1-F, 2-A, 2-B, and 3-A) have either "Poor" or "Fair" habitat conditions (<u>Table 1</u>, below; <u>Exhibit 5</u>). Reach 1-E and 2-B have the best habitat, with habitat assessment scores of 142 out of 200 ("Fair") and 121 out of 200 ("Fair"), respectively. Reach 1-F and 3-A have the worst habitat, both having a habitat assessment score of 101 out of 200 ("Poor"). The low habitat assessment scores are due to the lack of epifaunal substrate/available cover for stream fauna, highly embedded epifaunal substrate, overwidened stream channels, bank instability, and lack of vegetation protection along the stream banks. The average habitat assessment score for all streams assessed within the Snakeden Branch Watershed portion of the NVSRB in 2008 is 111, which is 56 percent of the best possible score ("Poor").

Table 1. 2008 Snakeden Branch Watershed Total Habitat AssessmentScores								
REACH	Habitat Assessment Score	Percent Best Possible Score	Narrative Rating					
1-A	113	57	Poor					
1-B	103	52	Poor					
1-C	109	55	Poor					
1-D	106	53	Poor					
1-E	142	71	Fair					
1-F	101	51	Poor					
2-A	104	52	Poor					
2-B	121	61	Fair					
3-A	101	51	Poor					
Average	111	56	Poor					

The habitat conditions in 2008 are similar to the conditions observed for the 2007 preconstruction monitoring, as all reaches in 2007 had either "Poor" or "Fair" habitat assessment scores (<u>Figure 2</u>, below). The average habitat assessment score for all streams assessed within the Snakeden Branch Watershed portion of the NVSRB in 2007 was 117, which is 58 percent of the best possible score ("Fair").



Benthic macroinvertebrate results show that individuals from 24 taxa<sup>9</sup> were collected from all nine reaches collectively (<u>Table 2</u>, below; <u>Exhibit 7</u>) during the 2008 pre-construction benthic macroinvertebrate monitoring. These 24 taxa include ancylid, physid, and ramshorn snails (Families Ancylidae, Physidae, and Planorbidae, respectively); fingernail clams (Family Sphaeriidae); oligochaete, horsehair, ribbon, and flat worms (Families Tubificidae and Family #1, Phylum Nematomorpha, Phylum Nemertea, and Class Turbellaria, respectively); scuds (Family Crangonyctidae); aquatic sowbugs (Family Asellidae); crayfish (Family Cambaridae); non-biting midge, crane, aquatic longlegged, shore, and unknown fly larvae (Families Chironomidae, Tipulidae, Dolichopodidae, Ephydridae, and Diptera Family #1, respectively); common net-spinning and fingernet caddisfly larvae (Families Hydropsychidae and Philipotamidae, respectively); broadwinged and narrowwinged damselfly larvae (Families Calopterygidae and Coenagrionidae, respectively); green-eyed skimmer dragonfly larvae (Family Corduliidae); and water scavenger and crawling water beetles (Families Hydrophilidae and Haliplidae, respectively). Of all 24 taxa collected, non-biting midge larvae and oligochaete worms comprised the majority of individuals in each reach (<u>Table 2</u>, below).

Although 27 taxa are listed in <u>Table 2</u>, Diptera, Gastropoda, and Oligochaeta were not included as part of the total taxa collected within the study area, because individuals were too damaged to identify to the family-level.

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Tat	ole 2. 2	2008 Sn	akeder	n Branch	Watersh	ned Raw	Data			
	REACH									
ТАХА	1-A	1-B	1-C	1-D	1-E	1-F	2-A	2-B	3-A	Total
Ancylidae	-	-	-	1	4	-	-	-	-	5
Asellidae	-	1	-	-	1	-	-	-	-	2
Calopterygidae	1	1	-	-	1	-	-	-	-	3
Cambaridae	-	-	-	-	1	-	-	-	-	1
Chironomidae	53	51	32	19	42	5	3	89	4	298
Coenagrionidae	-	1	-	-	4	-	-	-	-	5
Corduliidae	-	-	-	-	-	-	1	-	-	1
Crangonyctidae	5	-	-	1	-	-	1	-	-	7
Diptera	1	-	-	-	-	-	-	-	-	1
Diptera Family #1	-	-	-	-	-	1	-	-	-	1
Dolichopodidae	1	-	-	-	-	1	-	-	-	2
Ephydridae	1	-	-	-	-	3	-	-	-	4
Gastropoda	-	-	-	1	-	-	-	-	-	1
Haliplidae	-	-	-	-	-	-	1	-	-	1
Hydrophilidae	-	-	-	-	-	1	-	-	-	1
Hydropsychidae	3	-	1	-	8	-	-	-	-	12
Nematomorpha	-	1	-	-	-	-	-	3	-	4
Nemertea	-	1	-	-	1	-	-	-	-	2
Oligochaeta	11	7	22	53	46	68	7	1	29	244
Oligochaeta Family #1	-	-	-	1	-	-	-	-	-	1
Philopotamidae	-	-	-	-	2	-	-	-	-	2
Physidae	-	11	-	4	-	-	1	3	1	20
Planorbidae	-	2	-	1	-	-	-	1	-	4
Sphaeriidae	4	6	-	5	-	-	7	5	64	91
Tipulidae	2	2	2	1	1	14	2	-	-	24
Tubificidae	-	2	-	13	7	11	2	-	10	45
Turbellaria	-	1	-	-	-	-	-	-	1	2
Total	82	87	57	100	118	104	25	102	109	784

The above data collected for each reach were used to calculate the biotic metrics as shown in <u>Table 3</u>, below. The VA-SCI requires that these metrics be weighted to determine the VA-SCI, as shown in <u>Table 4</u>, below. The results of our data analysis indicate that the benthic macroinvertebrate community at all nine stream reaches (Reaches 1-A through 1-F, 2-A, 2-B, and 3-A) is in "Severe Stress" in 2008 prior to stream restoration activities, based on their VA-SCI scores (<u>Table 4</u>, below). The highest VA-SCI score was observed at Reach 1-F (34.40) and the lowest VA-SCI score was observed at Reach 2-B (14.85). The average VA-SCI numerical score for all streams assessed within the Snakeden Branch Watershed portion of the NVSRB in 2008 is 27.46 ("Severe Stress").

	Table 3. 2008 Snakeden Branch Watershed Biotic Metric Scores										
Reach	Total Taxa	Total EPT Taxa	Percent Ephemeroptera	Percent Plecoptera + Trichoptera (Excluding Hydropsychidae)	Percent Scrapers	Percent Chironomidae	Percent Top Two Dominant	НВІ			
1-A	9	1	0.00	0.00	0.00	64.63	78.05	4.67			
1-B	12	0	0.00	0.00	14.94	58.62	71.26	5.79			
1-C	4	1	0.00	0.00	0.00	56.14	94.74	3.56			
1-D	9	0	0.00	0.00	6.00	19.00	72.00	3.32			
1-E	11	2	0.00	1.69	3.39	35.59	74.58	3.81			
1-F	7	0	0.00	0.00	0.00	4.81	78.85	2.00			
2-A	8	0	0.00	0.00	4.00	12.00	56.00	4.80			
2-B	6	0	0.00	0.00	3.92	87.25	92.16	5.93			
3-A	5	0	0.00	0.00	0.92	3.67	85.32	5.91			

Table 4	Table 4. 2008 Weighted Snakeden Branch Watershed Biotic Metrics and VA-SCI								
					REACH				
METRIC	1-A	1-B	1-C	1-D	1-E	1-F	2-A	2-B	3-A
Total Taxa	40.91	54.55	18.18	40.91	50.00	31.82	36.36	27.27	22.73
EPT Taxa	9.09	0.00	9.09	0.00	18.18	0.00	0.00	0.00	0.00
Percent Ephemeroptera	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Percent Plecoptera + Trichoptera (Excluding Hydropsychidae)	0.00	0.00	0.00	0.00	4.76	0.00	0.00	0.00	0.00
Percent Scrapers	0.00	28.96	0.00	11.63	6.57	0.00	7.75	7.60	1.78
Percent Chironomidae	35.37	41.38	43.86	81.00	64.41	95.19	88.00	12.75	96.33
Percent Top Two Dominant	31.72	41.53	7.61	40.46	36.74	30.57	63.58	11.33	21.21
HBI	78.37	61.87	94.69	98.24	91.10	117.65	76.47	59.83	60.17
VA-SCI Numerical Score	24.43	28.53	21.68	34.03	33.97	34.40	34.02	14.85	25.28
VA-SCI Narrative Score	Severe Stress	Severe Stress	Severe Stress	Severe Stress	Severe Stress	Severe Stress	Severe Stress	Severe Stress	Severe Stress
Average VA-SCI Numerical Score	27.46								
Average VA-SCI Narrative Score	Severe Stress								

These scores are the result of the low number of total taxa, low number of total EPT taxa, lack of Ephemeroptera taxa, low percentage of Plecoptera + Trichoptera (excluding Hydropsychidae taxa), low percentage of Scraper taxa, high percentage of Chironomidae, high percentage of top two dominant taxa, and high HBI found within the reaches assessed (<u>Table 4</u>).

These results are similar to the 2007 monitoring, where the benthic macroinvertebrate community at all nine reaches was also in "Severe Stress" (Figure 3, below). However, since 2007, almost all of the VA-SCI scores have increased. The lower VA-SCI scores in 2007 may be attributed to natural variability in both abiotic (e.g., amount of precipitation) and biotic conditions, rather than benthic macroinvertebrate recovery, as no restoration activities or other water quality enhancements have occurred within the study area prior to the 2008 monitoring.



Given the low habitat scores, it is not surprising that the VA-SCI scores are low as well. In general, biological diversity and habitat in streams are closely linked (Raven et al. 1998). Thus, the low VA-SCI scores are likely due to several confounding abiotic factors, including highly impervious land cover, high nutrient, toxicant and sediment input from adjacent land use, channel alteration, high sediment deposition, bank instability, lack of vegetative protection along the stream banks, and lack of epifaunal substrate/available cover.

An analysis of land use within the watershed of each stream reach indicates that each watershed is highly developed, with all reaches having greater than 20 percent impervious land cover (with a weighted watershed average of 38 percent), as depicted in the Land Cover Map (<u>Exhibit 8</u>), and <u>Table 5</u>, below. Reach 1-E has the highest imperviousness, with 50 percent impervious land cover. Reaches 2-A and 2-B have the lowest imperviousness, with 26 and 25 percent impervious land cover, respectively. It has been documented that increases in watershed imperviousness reduce macroinvertebrate diversity, such that when imperviousness exceeds 10

to 15 percent, macroinvertebrate diversity becomes low (Klein 1979). Runoff from the highly impervious land within these watersheds produces a high volume and velocity of flowing water and sediment in the stream channels during storm events. Because the streams we studied are laterally unstable (e.g., overwidened channel, lack of vegetative protection along the stream banks, and bank instability) and incised, these streams likely do not overflow their channel during bankfull flood events. As a result, epifaunal substrate/available cover within these streams becomes highly mobile and benthic macrofauna can not easily colonize the available substrate (Debrey and Lockwood 1990) or get buried and killed by high sediment deposition (Wood and Armitage 1997).

Table 5. Impervious Land Cover and VA-SCI for Each Reach								
REACH	VA-SCI							
1-A	863	38	24.43					
1-B	540	45	28.53					
1-C	386	46	21.68					
1-D	291	45	34.03					
1-E	77	50	33.97					
1-F	55	47	34.40					
2-A	256	26	34.02					
2-B	169	25	14.85					
3-A	75	49	25.28					

Nutrients, pesticides, and other chemical pollutants that enter the streams through runoff can also have a negative effect on the macroinvertebrate community (Wright et al 1995; O'Halloran et al. 1996; Kiffney and Clements 1994). Sources for such pollutants within the streams we assessed likely include residential lawns, roads, the Reston National Golf Course. waterfowl and faulty sewer lines. Evidence of nutrient pollution input into Snakeden Branch can be found in the DEQ Final 2006 305(b)/303(d) Water Quality Assessment Integrated Report (Integrated Report), dated October 30, 2006 and approved by the EPA on October 16, 2006. In this report the DEQ identified Snakeden Branch as an impaired water body, based on high numbers of Escherichia coli, which is an indicator of fecal bacterial contamination from urban/residential areas within the watershed (<u>Exhibit 9<sup>10</sup></u>; DEQ 2006c). High amounts of such pollutants into streams inevitably result in a shift in macroinvertebrate community composition, where pollution tolerant taxa such as non-biting midges and oligochaete worms out-compete pollution sensitive taxa such as EPT (Shueler 1994). Thus, it is not a surprise that our baseline benthic macroinvertebrate data show low VA-SCI scores and non-biting midges and oligochaete worms as the dominant taxa. However, because the proposed stream restoration should result in an improvement of in-stream habitat and water quality, there should also be an improvement in the benthic macroinvertebrate community over subsequent monitoring years.

10

<sup>&</sup>lt;u>Exhibit 10</u> contains an excerpt from Appendix A – List of Impaired (Category 3) Waters in 2006 from the The DEQ Final 2006 305(b)/303(d) Water Quality Assessment Integrated Report (Integrated Report), dated October 30, 2006 and approved by the EPA on October 16, 2006.

# VII. Conclusions

The above results indicate that the habitat of the streams within the Snakeden Branch watershed portion of the NVSRB is "Poor" to "Fair" and the benthic macroinvertebrate community of the streams are in "Severe Stress". The low VA-SCI and habitat scores are likely due to several confounding abiotic factors, including highly impervious land cover, high nutrient, toxicant and sediment input from adjacent land use, channel alteration, high sediment deposition, bank instability, lack of vegetative protection along the stream banks, and lack of epifaunal substrate/available cover.

#### VIII. Limitations

This study is based on examination of the conditions on the site at the time of our review and does not address conditions in the future. Such conditions may change over time and will be addressed in subsequent monitoring reports. Our biological monitoring report has been prepared in accordance with generally accepted guidelines for the conduct of such evaluations. We make no other warranties, either expressed or implied, and our report is not a recommendation to buy, sell or develop the property.

We offer no opinion and do not purport to opine on the possible application of various building codes, zoning ordinances, other land use or platting regulations, environmental or health laws and other similar statutes, laws, ordinances, code and regulations affecting the possible use and occupancy of the property for the purpose for which it is being used, except as specifically provided above. The opinions set forth above are rendered only and exclusively for the benefit of the addressees, the COE, the DEQ, and no other parties, successors or assigns. The foregoing opinions are based on applicable laws, ordinances, and regulations in effect as of the date hereof and should not be construed to be an opinion as to the matters set out herein should such laws, ordinances or regulations be modified, repealed or amended.

This document is solely for your benefit and is not to be quoted in whole or in part or otherwise referred to in any statement or document (except for purposes of identification) nor is it to be filed with any governmental agency or other person (other than the COE and DEQ), without the prior written consent of this firm, unless required by law.

WETLAND STUDIES AND SOLUTIONS, INC.

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USGS Quad Map Vienna, VA-MD 1994 Snakeden Branch WSSI #20003 Scale: 1'' = 2000'

Latitude: 38°55'59" N Longitude: 77°21'00" W Hydrologic Unit Code (HUC): 02070008 Stream Class: III Name of Watershed: Snakeden Branch





	Snakeden Branch Watershed Biotic Metric Scores										
Reach	Total Taxa	Total EPT Taxa	Percent Ephemeroptera	Percent Plecoptera + Trichoptera (Excluding Hydropsychidae)	Percent Scrapers	Percent Chironomidae	Percent Top Two Dominant	HBI			
1-A	9	1	0.00	0.00	0.00	64.63	78.05	4.67			
1-B	12	0	0.00	0.00	14.94	58.62	71.26	5.79			
1-C	4	1	0.00	0.00	0.00	56.14	94.74	3.56			
1-D	9	0	0.00	0.00	6.00	19.00	72.00	3.32			
1-E	11	2	0.00	1.69	3.39	35.59	74.58	3.81			
1-F	7	0	0.00	0.00	0.00	4.81	78.85	2.00			
2-A	8	0	0.00	0.00	4.00	12.00	56.00	4.80			
2-B	6	0	0.00	0.00	3.92	87.25	92.16	5.93			
3-A	5	0	0.00	0.00	0.92	3.67	85.32	5.91			







1. Looking northwest (upstream) at Reach 1-A of Snakeden Branch on the eastern portion of the study area.



2. Looking west (upstream) at Reach 1-B of Snakeden Branch on the eastern portion of the study area.



**3.** Looking northwest (upstream) at Reach 1-C of Snakeden Branch on the central portion of the study area.



4. Looking southwest (upstream) at Reach 1-D of Snakeden Branch on the central portion of the study area.



5. Looking northwest (upstream) at Reach 1-E of Snakeden Branch on the western portion of the study area.



6. Looking northwest (upstream) at Reach 1-F of Snakeden Branch on the western portion of the study area.



7. Looking northwest (upstream) at Reach 2-A of an unnamed tributary of Snakeden Branch on the eastern portion of the study area.



8. Looking northwest (upstream) at Reach 2-B of an unnamed tributary of Snakeden Branch on the eastern portion of the study area.



9. Looking west (upstream) at Reach 3-A, an unnamed tributary of Snakeden Branch on the western portion of the study area.

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R4/RE\*\* Stream Type R3 R3 R3 B3 B3 B Reach Length 2.700 300 300 300 300 300 300 Best Possible Percent of Score\*\*\* 57 55 55 55 53 51 51 51 51 51 51 SCORE TOTAL Total 106 103 142 113 101 121 101 Suboptimal Suboptimal Optimal Optimal Optimal EXHIBIT 5: HABITAT ASSESSMENT FIELD DATA SHEET - SUMMARY WORKSHEET Optimal Optimal Optimal Optimal ZONA\* Riparia Suboptimal Suboptimal Suboptimal Marginal Marginal Protection\* Poor Poor Poor Poor Poor Poor Vegetati Marginal Suboptimal Suboptimal Marginal Project Name and WSSI Number: Northern Virginia Stream Restoration Bank: Snakeden Branch (WSSI # 20003) Stability\* Poor Poor Poor Poor Poor Poor Bank Date: 2/12/08, 2/14/08 Suboptimal requency of Optimal Optimal Optimal Optimal Optimal Optimal Riffles HUC: 02070008 Suboptimal Marginal Condition Category Optimal Optimal Alteration Optimal Optimal Optimal Optimal Suboptimal Suboptimal Marginal Marginal Suboptimal Marginal Marginal Marginal Flow Status Marginal Stream ID: Snakeden Branch and Unnamed Tributaries to Snakeden Branch Suboptimal Marginal Marginal Marginal Marginal Marginal Marginal Marginal Marginal Deposition Prerestoration Suboptimal Suboptimal Suboptimal Optimal Optimal Optimal Optimal Optimal Optimal Optimal Velocity Suboptimal Suboptimal Marginal Marginal Marginal Marginal Marginal Marginal mhaddar DASS Suboptimal Suboptimal Marginal Marginal Marginal Marginal Marginal Marginal Marginal Substrate Evaluators: TSS/SDS Assessment Period: Assessment Reach -0-1-2-A 2-B 1-A 3-A Name Stream 2 Stream 3 Stream 1

\* The score for Bank Stability, Vegetation Protection and Riparian Zone combines the left and right bank scores.

\*\* The stream is characterized as non-perennial by Fairfax County and is thus either intermittent or ephemeral.

\*\*\* Percentage of Best Possible Score= (Total Habitat Score)/(200)\*100

Project #	Site	Cowardin		Date	Time
20002	NOVA Stream Bank	Do	River Basin	2/12/2009	10.0041
ZUUUS	NOVA Stream Dank	HUC		Locality	10.00AN
TCC	ene	02070009	Potomac	Editor County	
100/ Ref	3D3	DA (Acres)	Peach Longth (LE)	Painax Count	у
ne	AGII	D.A. (Acres)	Reach Length (LF)	Order	
I otitudo	A	803	Stream Nam	3	
Latitude	Z7901/01		Stream Nam	le pob	
30.00.00	77-2101		Snakeden brai	nch	
Habitat Daramatar	And the second second	Con	dition Category		
Habitat Parameter	Optimal	Suboptimal	Marginal	Poor	Score
1. Epifaunal Substrate/ Available Cover	Greater than 70% of substrate favorable for epifaunal colonization and fish cover; mix of snags, submerged logs, undercut banks, cobble, or other stable habitat and at stage to allow full colonization potential (i.e. snags/logs that are not new fall and not transient).	40-70% mix of stable habitat; well suited for full colonization potential; adequate habitat for maintainance of populations; presence of additional substrate in the form of newfall, but not yet prepared for colonization.	20-40% mix of stable habitat; habitat availability less than desirable; substrate frequently disturbed or removed.	Less than 20% stable habitat; lack of habitat is obvious; substrate unstable or lacking.	
Score	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	543210	7
2. Embeddedness	Gravel, cobble, and boulder particles are 0-25% surrounded by fine sediment. Layering of cobble provides diversity of niche space.	Gravel, cobble, and boulder particles are 25-50% surrounded by fine sediment.	Gravel, cobble, and boulder particles are 50-75% surrounded by fine sediment	Gravel, cobble, and boulder particles are more than 75% surrounded by fine sediment	
Score	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	543210	4
3. Velocity/Depth Regime	All four velocity/depth regimes present (slow-deep, slow- shallow, fast-deep, fast shallow)(slow is <0.3m/s, deep is >0.5 m)	Only 3 of the 4 regimes present (if fast-shallow is missing, score lower than if missing other regimes).	Only 2 of the 4 habitat regimes present (if fast-shallow or slow- shallow are missing, score low)	Dominated by 1 velocity/depth regime (usually slow-deep).	
Score	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	543210	12
4. Sediment Deposition	Little or no enlargement of islands or point bars and <5% of the bottom affected by sediment deposition.	Some new increase in bar formation, mostly from gravel, sand, or fine sediment; 5-30% of the bottom affected; slight deposition in pools.	Moderate deposition of new gravel, sand, or fine sediment on old and new bars; 30-50% of the bottom affected; sediment deposits at obstructions, constrictions, and bends; moderate deposition of pools prevalent.	Heavy deposits of fine material, increased bar development; more than 50% of the bottom changing frequently; pools almost absent due to substantial sediment deposition.	
Score	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	543210	8
5. Channel Flow status	Water reaches base of both lower banks, and minimal amount of channel substrate is exposed.	Water fills >75% of the availible channel; or <25% of channel substrate is exposed.	Water fills 25-75% of the availible channel, and/or riffle substrates are mostly exposed.	Very little water in channel and mostly present as standing pools.	
Score	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	543210	8
		Total Score			30

WSSI H	ABITAT ASSESSM	ENT FIELD DATA	SHEET-HIGH GRA	DIENT STREAMS	
Project #	Site	Cowardin		Date	Time
20003	NOVA Stream Bank	B3	River Basin	2/12/2008	10:00AM
Invest	igators	HUC		Locality	101007 001
TSS S	DS DW	02070008	Potomac	Eairfax County	V
Re	ach	D.A. (Acres)	Beach Length (LE)	Order	/
1	-A	863	300	3	
Latitude	Longitude	000	Stream Nam	e	
38°55'58"	77°21'01"		Snakeden Brar	ach	
00 00 00	11 2101		onakeden brai	icit	
Habitat Parameter		Con	dition Category		-7/2/
Habitat Farameter	Optimal	Suboptimal	Marginal	Poor	Score
6. Channel Alteration	Channelization or dredging absent or minimal; stream width normal pattern.	Some channelization present, usually in areas of bridge abutments; evidence of past channelization, i.e. dredging, may be present, but recent channelization is not present.	Channeliztion may be extensive; embankments or shoring structures present on both banks; and 40-80% of stream reach channelized and disrupted.	Banks shored with gabion or cement; over 80% of the stream reach channelized and disrupted. Instream habitat greatly altered or removed entirely.	
Score	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	543210	20
DUDIE	20 13 10 17 10	10 14 10 12 11	10 3 0 7 0	545210	20
7. Frequency of Riffles	Occurrence of riffles relatively frequent; ratio of distance between riffles divided by width of the stream :1<br (generally 5 to 7); variety of habitat is key. In streams where riffles are continuous, placement of boulders or other large, natural obstructions is important.	Cocurrence of riffles infrequent; distance between riffles divided by the width of the stream is between 7 to 15.	Occasional riffle or bend; bottom contours provide some habitat; distances between riffles divided by the width of the stream is between 15 to 25.	Generally all flat water or shallow riffles; poor habitat; distance between riffles divided by the width of the stream is a ratio of >25.	
Score	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	543210	18
8. Bank Stability (score each bank)	Banks stable; evidence of erosion or bank failure absent or minimal; little potential for future problems. <5% of bank affected.	Moderately stable; infrequent, small areas of erosion mostly healed over. 5-30% of bank in reach has areas of erosion.	Moderately unstable; 30-60% of bank reach has areas of erosion; high erosion potential during floods.	Unstable; many eroded areas; "raw" areas frequent along straight sections and bends; obvious bank sloughing; 60- 100% of bank has erosional scars.	
Score Left Bank	10 9	8 7 6	5 4 3	2 1 0	1
Score Right Bank	10 9	8 7 6	5 4 3	2 1 0	1
9. Vegetation Protection (score each bank) Note: Determine left or right side by facing downstream.	More than 90% of the streambank surfaces and immediate riparian zone covered by native vegetation, including trees, understory shrubs, or non-woody macrophytes; vegetation disruption through grazing or mowing minimal or not evident; almost all plants allowed to grow naturally.	70-90% of the streambank surfaces covered by native vegetation, but one class of plants is not well-represented; disruption evident but not affecting full plant growth potential to any great extent; more than one-half of the potential plant stubble height remaining.	50-70% of the streambank surfaces covered by vegetation; disruption obvious; patches of bare soil or closely cropped vegetation common; less than one-half of the potential plant stubble height remaining.	Less than 50% of the streambank surfaces covered by vegetation; disruption of streambank vegetation has been removed to 5 centimeters or less in average stubble height.	
Score Left Bank	10 9	8 7 6	5 4 3	2 1 0	9
Score Right Bank	10 9	8 7 6	5 4 3	2 1 0	8
10. Riparian Vegetative Zone Width (score each bank riparian zone)	Width of riparian zone >18 meters; human activities (i.e. parking lots, roadbeds, clear- cuts, lawns, or crops) have not impacted zone.	Width of riparian zone 12-18 meters; human activities have impacted zone only minimally.	Width of riparian zone 6-12 meters; human activities have impacted zone a great deal.	Width of riperian zone <6 meters; little or no riparian vegetation due to human activities,	
Score Left Bank	10 9	8 7 6	5 4 3	2 1 0	9
Score Right Bank	10 9	8 7 6	5 4 3	2 1 0	8
		Total Score			113
					110
		Page 2 of 2			



Deciset #	Clas	Concordin		Data	Time
Project #	Site	Cowardin	River Basin	Date	Time
20003	NOVA Stream Bank	H3		2/12/2008	12:00AN
Invest	igators	HUC	Potomac	Locality	
155/	SDS	02070008	Development (LE)	Fairfax Count	y
He	ach	D.A. (Acres)	Reach Length (LF)	Order	a the second
1	B	540	300	3	
Latitude	Longitude		Stream Nam	le	
38"55'58"	77*21.01*		Snakeden Bra	nch	
Habita Barran		Con	dition Category		
Habitat Parameter	Optimal	Suboptimal	Marginal	Poor	Score
1. Epifaunal Substrate/ Available Cover	Greater than 70% of substrate favorable for epifaunal colonization and fish cover, mix of snags, submerged logs, undercut banks, cobble, or other stable habitat and at stage to allow full colonization potential (i.e. snags/logs that are not new fall and not transient).	40-70% mix of stable habitat; well suited for full colonization potential; adequate habitat for maintainance of populations; presence of additional substrate in the form of newfall, but not yet prepared for colonization.	20-40% mix of stable habitat; habitat availability less than desirable; substrate frequently disturbed or removed.	Less than 20% stable habitat; lack of habitat is obvious; substrate unstable or lacking.	
Score	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	543210	4
2. Embeddedness	Gravel, cobble, and boulder particles are 0-25% surrounded by fine sediment. Layering of cobble provides diversity of niche space.	Gravel, cobble, and boulder particles are 25-50% surrounded by fine sediment.	Gravel, cobble, and boulder particles are 50-75% surrounded by fine sediment	Gravel, cobble, and boulder particles are more than 75% surrounded by fine sediment	
Score	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	543210	4
Velocity/Depth Regime	All four velocity/depth regimes present (slow-deep, slow- shallow, fast-deep, fast shallow)(slow is <0.3m/s, deep is >0.5 m)	Only 3 of the 4 regimes present (if fast-shallow is missing, score lower than if missing other regimes).	Only 2 of the 4 habitat regimes present (if fast-shallow or slow- shallow are missing, score low)	Dominated by 1 velocity/depth regime (usually slow-deep).	
Score	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	543210	11
4. Sediment Deposition	Little or no enlargement of Islands or point bars and <5% of the bottom affected by sediment deposition.	Some new increase in bar formation, mostly from gravel, sand, or fine sediment; 5-30% of the bottom affected; slight deposition in pools.	Moderate deposition of new gravel, sand, or line sediment on old and new bars; 30-50% of the bottom affected; sediment deposits at obstructions, constrictions, and bends; moderate deposition of pools prevalent.	Heavy deposits of fine material, increased bar development; more than 50% of the bottom changing frequently; pools almost absent due to substantial sediment deposition.	
Score	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	543210	4
5. Channel Flow status	Water reaches base of both lower banks, and minimal amount of channel substrate is exposed.	Water fills >75% of the availible channel; or <25% of channel substrate is exposed.	Water fills 25-75% of the availible channel, and/or riffle substrates are mostly exposed.	Very little water in channel and mostly present as standing pools.	
Score	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	543210	8
		Total Score			31
		101010000			01

WSSI H	ABITAT ASSESSM	ENT FIELD DATA	SHEET-HIGH GR	DIENT STREAMS	
Project #	Site	Cowardin	Diver Desir	Date	Time
20003	NOVA Stream Bank	R3	Hiver Basin	2/12/2008	12:00AM
Invest	igators	HUC	Potomao	Locality	
TSS S	DS DW	02070008	Polomac	Fairfax County	
Re	ach	D.A. (Acres)	Reach Length (LF)	Order	
1	-B	540	300	3	
Latitude	Longitude		Stream Nan	ne	
38°55'58"	77°21'01"		Snakeden Bra	inch	
Habitat Parameter		Con	dition Category		
	Optimal	Suboptimal	Marginal	Poor	Score
6. Channel Alteration	Channelization or dredging absent or minimal; stream width normal pattern.	Some channelization present, usually in areas of bridge abutments; evidence of past channelization, i.e. dredging, may be present, but recent channelization is not present.	Channeliztion may be extensive; embankments or shoring structures present on both banks; and 40-80% of stream reach channelized and disrupted.	Banks shored with gabion or cament; over 80% of the stream reach channelized and disrupted. Instream habitat greatly altered or removed entirely.	
Caoro	20 10 10 17 16	15 14 10 10 11	10 0 9 7 6	540040	10
SCOLA	20 19 10 17 10	13 14 13 12 11	10 3 8 7 8	543210	16
7. Frequency of Riffles	Occurrence of riffles relatively frequent; ratio of distance between riffles divided by width of the stream <7:1 (generally 5 to 7); variety of habitat is key. In streams where riffles are continuous, placement of boulders or other large, natural obstruction is important.	Occurrence of riffles infrequent; distance between riffles divided by the width of the stream is between 7 to 15.	Occasional riffle or bend; bottom contours provide some habitat; distances between riffles divided by the width of the stream is between 15 to 25.	Generally all flat water or shallow riffles; poor habitat; distance between riffles divided by the width of the stream is a ratio of >25.	
Score	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	543210	17
8. Bank Stability (score each bank)	Banks stable; evidence of erosion or bank failure absent or minimal; little potential for future problems. <5% of bank affected.	Moderately stable; infrequent, small areas of erosion mostly healed over. 5-30% of bank in reach has areas of erosion.	Moderately unstable; 30-60% of bank reach has areas of erosion; high erosion potential during floods.	Unstable; many eroded areas; "raw" areas frequent along straight sections and bends; obvious bank sloughing; 60- 100% of bank has erosional scars.	
Score Left Bank	10 9	8 7 6	5 4 3	2 1 0	2
Score Right Bank	10 9	8 7 6	5 4 3	2 1 0	2
9. Vegetation Protection (score each bank) Note: Determine left or right side by facing downstream.	More than 90% of the streambank surfaces and immediate riparian zone covered by native vegetation, including trees, understory shrubs, or non-woody macrophytes; vegetation disruption through grazing or mowing minimal or not evident; almost all plants allowed to grow naturaliv.	70-90% of the streambank surfaces covered by native vegetation, but one class of plants is not well-represented; disruption evident but not affecting full plant growth potential to any great extent; more than one-half of the potential plant stubble height remaining.	50-70% of the streambank surfaces covered by vegetation; disruption obvious; patches of bare soil or closely cropped vegetation common; less than one-half of the potential plant stubble height remaining.	Less than 50% of the streambank surfaces covered by vegetation; disruption of streambank vegetation is very high; vegetation has been removed to 5 centimeters or less in average stubble height.	
Score Left Bank	10 9	8 7 6	5 4 3	2 1 0	8
Score Right Bank	10 9	8 7 6	5 4 3	2 1 0	8
10. Riparian Vegetative Zone Width (score each bank riparian zone)	Width of riparian zone >18 meters; human activities (i.e. parking lots, roadbeds, clear- cuts, lawns, or crops) have not impacted zone.	Width of riparian zone 12-18 meters; human activities have impacted zone only minimally.	Width of riparian zone 6-12 meters; human activities have impacted zone a great deal.	Width of riperian zone <6 meters; little or no riparian vegetation due to human activities.	
Score Left Bank	10 9	8 7 6	5 4 3	2 1 0	0
Score Right Bank	10 9	8 7 6	5 4 3	2 1 0	10
evere night bank	10 0	Total Coord	0 4 0	6 I V	100
		Total Score	Carl Statistics		103
		Page 2 of 2			



Project #	Cito	Courselle	Contraction of the second second	Data	Time
Project #	Site	Cowardin	River Basin	Date	Time
20003	NOVA Stream Bank	H3		2/14/2008	9:30AN
Invest	gators	HUC	Potomac	Locality	
155/	SDS	02070008	D	Fairfax Count	У
Hei	ach	D.A. (Acres)	Heach Length (LF)	Order	-
1.	·C	386	300	3	
Latitude	Longitude		Stream Nam	ie	
38°55'58"	77*21.01*		Snakeden Bra	nch	
Hilling Designed	a second second	Con	dition Category		
Habitat Parameter	Optimal	Suboptimal	Marginal	Poor	Score
1. Epifaunal Substrate/ Available Cover	Greater than 70% of substrate favorable for epifaunal colonization and fish cover, mix of snags, submerged logs, undercut banks, cobble, or other stable habitat and at stage to allow full colonization potential (i.e. snags/logs that are not new fall and not transient).	40-70% mix of stable habitat; well suited for full colonization potential; adequate habitat for maintainance of populations; presence of additional substrate in the form of newfall, but not yet prepared for colonization.	20-40% mix of stable habitat; habitat availability less than desirable; substrate frequently disturbed or removed.	Less than 20% stable habitat; lack of habitat is obvious; substrate unstable or lacking.	
Score	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	543210	9
2. Embeddedness	Gravel, cobble, and boulder particles are 0-25% surrounded by fine sediment. Layering of cobble provides diversity of niche space.	Gravel, cobble, and boulder particles are 25-50% surrounded by fine sediment.	Gravel, cobble, and boulder particles are 50-75% surrounded by fine sediment	Gravel, cobble, and boulder particles are more than 75% surrounded by fine sediment	
Score	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	543210	6
Velocity/Depth Regime	All four velocity/depth regimes present (slow-deep, slow- shallow, fast-deep, fast shallow)(slow is <0.3m/s, deep is >0.5 m)	Only 3 of the 4 regimes present (if fast-shallow is missing, score lower than if missing other regimes).	Only 2 of the 4 habitat regimes present (if fast-shallow or slow- shallow are missing, score low)	Dominated by 1 velocity/depth regime (usually slow-deep).	
Score	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	543210	9
4. Sediment Deposition	Little or no enlargement of islands or point bars and <5% of the bottom affected by sediment deposition.	Some new increase in bar formation, mostly from gravel, sand, or fine sediment; 5-30% of the bottom affected; slight deposition in pools.	Moderate deposition of new gravel, sand, or fine sediment on old and new bars; 30-50% of the bottom affected; sediment deposits at obstructions, constrictions, and bends; moderate deposition of pools prevalent.	Heavy deposits of fine material, increased bar development; more than 50% of the bottom changing frequently; pools almost absent due to substantial sediment deposition.	
Score	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	543210	6
5. Channel Flow status	Water reaches base of both lower banks, and minimal amount of channel substrate is exposed.	Water fills >75% of the availible channel; or <25% of channel substrate is exposed.	Water fills 25-75% of the availible channel, and/or riffle substrates are mostly exposed.	Very little water in channel and mostly present as standing pools.	
Score	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	543210	8
		Total Score			38
		Total Good			50

WSSI H	ABITAT ASSESSM	ENT FIELD DATA	SHEET-HIGH GRA	DIENT STREAMS	
Project #	Site	Cowardin	Diver Decis	Date	Time
20003	NOVA Stream Bank	R3	River Basin	2/14/2008	9:30AM
Invest	igators	HUC	Potomac	Locality	
		02070008	Fotomac	Fairfax County	/
Re	ach	D.A. (Acres)	Reach Length (LF)	Order	
1	-C	386	300	3	
Latitude	Longitude		Stream Nam	ie	
38°55'58"	77°21'01"		Snakeden Bra	nch	
Habitat Daramatar		Con	dition Category		
<u>Habitat Parameter</u>	Optimal	Suboptimal	Marginal	Poor	Score
6. Channel Alteration	Channelization or dredging absent or minimal; stream width normal pattern.	Some channelization present, usually in areas of bridge abutments; evidence of past channelization, i.e. dredging, may be present, but recent channelization is not present.	Channeliztion may be extensive; embankments or shoring structures present on both banks; and 40-80% of stream reach channelized and disrupted.	Banks shored with gabion or cement; over 80% of the stream reach channelized and disrupted. Instream habitat greatly altered or removed entirely.	
Score	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	543210	18
00010	Occurrence of riffles relatively	10 14 10 12 11	10 3 0 7 0	340210	10
7. Frequency of Riffles	requent; ratio of sitance between riffles divided by width of the stream :1<br (generally 5 to 7); variety of habitat is key. In streams where riffles are continuous, placement of boulders or other large, natural obstruction is important.	Occurrence of riffies infrequent; distance between riffles divided by the width of the stream is between 7 to 15.	Occasional riffle or bend; bottom contours provide some habitat; distances between riffles divided by the width of the stream is between 15 to 25.	Generally all flat water or shallow riffles; poor habitat; distance between riffles divided by the width of the stream is a ratio of >25.	
Score	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	543210	14
8. Bank Stability (score each bank)	Banks stable; evidence of erosion or bank failure absent or minimal; little potential for future problems. <5% of bank affected.	Moderately stable; infrequent, small areas of erosion mostly healed over. 5-30% of bank in reach has areas of erosion.	Moderately unstable; 30-60% of bank reach has areas of erosion; high erosion potential during floods.	Unstable; many eroded areas; "raw" areas frequent along straight sections and bends; obvious bank sloughing; 60- 100% of bank has erosional scars.	
Score Left Bank	10 9	8 7 6	5 4 3	2 1 0	1
Score Right Bank	10 9	8 7 6	5 4 3	2 1 0	1
9. Vegetation Protection (score each bank) Note: Determine left or right side by facing downstream.	More than 90% of the streambank surfaces and immediate riparian zone covered by native vegetation, including trees, understory shrubs, or non-woody macrophytes; vegetation disruption through grazing or mowing minimal or not evident; almost all plants allowed to grow naturally.	70-90% of the streambank surfaces covered by native vegetation, but one class of plants is not well-represented; disruption evident but not affecting full plant growth potential to any great extent; more than one-half of the potential plant stubble height remaining.	50-70% of the streambank surfaces covered by vegetation; disruption obvious; patches of bare soil or closely cropped vegetation common; less than one-half of the potential plant stubble height remaining.	Less than 50% of the streambank surfaces covered by vegetation; disruption of streambank vegetation has been removed to 5 centimeters or less in average stubble height.	
Score Left Bank	10 9	8 7 6	5 4 3	2 1 0	9
Score Right Bank	10 9	8 7 6	5 4 3	2 1 0	9
10. Riparian Vegetative Zone Width (score each bank riparian zone)	Width of riparian zone >18 meters; human activities (i.e. parking lots, roadbeds, clear- cuts, lawns, or crops) have not impacted zone.	Width of riparlan zone 12-18 meters; human activities have impacted zone only minimally.	Width of riparian zone 6-12 meters; human activities have impacted zone a great deal.	Width of riperian zone <6 meters; little or no riparian vegetation due to human activities.	
Score Left Bank	10 9	8 7 6	5 4 3	2 1 0	9
Score Right Bank	10 9	8 7 6	5 4 3	2 1 0	10
		Total Score			109
	Ge	neral Comments: Ease	ment in reach.		

WSSI H/	ABITAT ASSESSM	ENT FIELD DATA	SHEET-HIGH GRA	DIENT STREAMS			
Project #	Site	Cowardin	Diver Desin	Date	Time		
20003	NOVA Stream Bank	R3	niver basin	2/14/2008	10:30AM		
Investigators		HUC	Potomac	Locality			
TSS/SDS		02070008	Fotomac	Fairfax County			
Reach		D.A. (Acres)	Reach Length (LF)	Order			
1-D		291	300	3			
Latitude	Longitude		Stream Nam	e			
38°55'58"	77°21'01"		Snakeden Branch				
Habitat Parameter	Condition Category						
	Optimal	Suboptimal	Marginal	Poor	Score		
1. Epifaunal Substrate/ Available Cover	Greater than 70% of substrate favorable for epifaunal colonization and fish cover, mix of snags, submerged logs, undercut banks, cobble, or other stable habitat and at stage to allow full colonization potential (i.e. snags/logs that are not new fall and not transient).	40-70% mix of stable habitat; well suited for full colonization potential; adequate habitat for maintainance of populations; presence of additional substrate in the form of newfall, but not yet prepared for colonization.	20-40% mix of stable habitat; habitat availability less than desirable; substrate frequently disturbed or removed.	Less than 20% stable habitat; lack of habitat is obvious; substrate unstable or lacking.			
Score	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	543210	8		
2. Embeddedness	Gravel, cobble, and boulder particles are 0-25% surrounded by fine sediment. Layering of cobble provides diversity of niche space.	Gravel, cobble, and boulder particles are 25-50% surrounded by fine sediment.	Gravel, cobble, and boulder particles are 50-75% surrounded by fine sediment	Gravel, cobble, and boulder particles are more than 75% surrounded by fine sediment			
Score	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	543210	6		
Velocity/Depth Regime	All four velocity/depth regimes present (slow-deep, slow- shallow, fast-deep, fast shallow)(slow is <0.3m/s, deep is >0.5 m)	Only 3 of the 4 regimes present (if fast-shallow is missing, score lower than if missing other regimes).	Only 2 of the 4 habitat regimes present (if fast-shallow or slow- shallow are missing, score low)	Dominated by 1 velocity/depth regime (usually slow-deep).			
Score	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	543210	11		
4. Sediment Deposition	Little or no enlargement of islands or point bars and <5% of the bottom affected by sediment deposition.	Some new increase in bar formation, mostly from gravel, sand, or fine sediment; 5-30% of the bottom affected; slight deposition in pools.	Moderate deposition of new gravel, sand, or line sediment on old and new bars; 30-50% of the bottom affected; sediment deposits at obstructions, constrictions, and bends; moderate deposition of pools prevalent.	Heavy deposits of fine material, increased bar development; more than 50% of the bottom changing frequently; pools almost absent due to substantial sediment deposition.			
Score	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	543210	6		
5. Channel Flow status	Water reaches base of both lower banks, and minimal amount of channel substrate is exposed.	Water fills >75% of the availible channel; or <25% of channel substrate is exposed.	Water fills 25-75% of the availible channel, and/or riffle substrates are mostly exposed.	Very little water in channel and mostly present as standing pools.			
Score	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	543210	8		
		Total Score			39		

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WSSI H	ABITAT ASSESSM	ENT FIELD DATA	SHEET-HIGH GR/	DIENT STREAMS	
Project #	Site	Cowardin	River Basin	Date	Time
20003	NOVA Stream Bank	R3		2/14/2008	10:30AM
Investigators		HUC	Potomac	Locality	
Decel		02070008	Deset Leasth (LE)	Fairfax County	
Heach		D.A. (Acres)	Heach Length (LF)	Order	and the second second
l atituda	-D	291	Stream Nam	3	
20°55'50"	77°21'01"		Stream Nan	ne	
30 33 30	112101		Shakeden Dra	Inch	
Habitat Parameter	0.11.1	Con	dition Category		
	Optimal	Suboptimal	Marginal	Poor	Score
6. Channel Alteration	Channelization or dredging absent or minimal; stream width normal pattern.	Some channelization present, usually in areas of bridge abutments; evidence of past channelization, i.e. dredging, may be present, but recent channelization is not present.	Channeliztion may be extensive; embankments or shoring structures present on both banks; and 40-80% of stream reach channelized and disrupted.	Banks shored with gabion or cement; over 80% of the stream reach channelized and disrupted. Instream habitat greatly altered or removed entirely.	
Score	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	543210	20
7. Frequency of Riffles	Occurrence of riffles relatively frequent; ratio of distance between riffles divided by width of the stream <7:1 (generally 5 to 7); variety of habitat is key. In streams where riffles are continuous, placement of boulders or other large, natural obstruction is important.	Occurrence of riffles infrequent; distance between riffles divided by the width of the stream is between 7 to 15.	Occasional riffle or bend; bottom contours provide some habitat; distances between riffles divided by the width of the stream is between 15 to 25.	Generally all flat water or shallow riffles; poor habitat; distance between riffles divided by the width of the stream is a ratio of >25.	20
Score	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	543210	12
8. Bank Stability (score each bank)	Banks stable; evidence of erosion or bank failure absent or minimal; little potential for future problems. <5% of bank affected.	Moderately stable; infrequent, small areas of erosion mostly healed over. 5-30% of bank in reach has areas of erosion.	Moderately unstable; 30-60% of bank reach has areas of erosion; high erosion potential during floods.	Unstable; many eroded areas; "raw" areas frequent along straight sections and bends; obvious bank sloughing; 60- 100% of bank has erosional scars.	
Score Left Bank	10 9	8 7 6	5 4 3	2 1 0	1
Score Right Bank	10 9	8 7 6	5 4 3	2 1 0	1
9. Vegetation Protection (score each bank) Note: Determine left or right side by facing downstream.	More than 90% of the streambank surfaces and immediate riparian zone covered by native vegetation, including trees, understory shrubs, or non-woody macrophytes; vegetation disruption through grazing or mowing minimal or not evident; almost all plants allowed to grow naturally.	70-90% of the streambank surfaces covered by native vegetation, but one class of plants is not well-represented; disruption evident but not affecting full plant growth potential to any great extent; more than one-half of the potential plant stubble height remaining.	50-70% of the streambank surfaces covered by vegetation; disruption obvious; patches of bare soil or closely cropped vegetation common; less than one-half of the potential plant stubble height remaining.	Less than 50% of the streambank surfaces covered by vegetation; disruption of streambank vegetation has very high; vegetation has been removed to 5 centimeters or less in average stubble height.	
Score Left Bank	10 9	8 7 6	5 4 3	2 1 0	9
Score Right Bank	10 9	8 7 6	5 4 3	2 1 0	9
10. Riparian Vegetative Zone Width (score each bank riparian zone)	Width of riparian zone >18 meters; human activities (i.e. parking lots, roadbeds, clear- cuts, lawns, or crops) have not impacted zone.	Width of riparian zone 12-18 meters; human activities have impacted zone only minimally.	Width of riparian zone 6-12 meters; human activities have impacted zone a great deal.	Width of riperian zone <6 meters; little or no riparian vegetation due to human activities.	
Score Left Bank	10 0	8 7 6	5 4 2	2 1 0	0
Score Bight Bank	10 9	8 7 6	5 4 3	2 1 0	6
esere right built	10 0	Total Score			100
					11.005


		CIT FIELD DATAS	SHEET-HIGH GRA	ADIENTSTREAMS		
Project #	Site	Cowardin	River Basin	Date	Time	
20003	NOVA Stream Bank	R3		2/14/2008	1:15PM	
Invest	igators	HUC	Potomac	Locality		
TSS/	SDS	02070008	, otornao	Fairfax Count	у	
Re	ach	D.A. (Acres)	Reach Length (LF)	Order		
1	E	77	300	3		
Latitude	Longitude		Stream Nam	1e		
38°55'58"	77°21'01"		Snakeden Bra	nch		
		Con	dition Category			
Habitat Parameter	Optimal	Suboptimal	Marginal	Poor	Score	
1. Epifaunal Substrate/ Available Cover	Greater than 70% of substrate favorable for epilaunal colonization and fish cover, mix of snags, submerged logs, undercut banks, cobble, or other stable habitat and at stage to allow full colonization potential (i.e. snags/logs that are not new fall and not transient).	40-70% mix of stable habitat; well suited for full colonization potential; adequate habitat for maintainance of populations; presence of additional substrate in the form of newfall, but not yet prepared for colonization.	20-40% mix of stable habitat; habitat availability less than desirable; substrate frequently disturbed or removed.	Less than 20% stable habitat; lack of habitat is obvious; substrate unstable or lacking.		
Score	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	543210	15	
2. Embeddedness	Gravel, cobble, and boulder particles are 0-25% surrounded by fine sediment. Layering of cobble provides diversity of niche space.	Gravel, cobble, and boulder particles are 25-50% surrounded by fine sediment.	Gravel, cobble, and boulder particles are 50-75% surrounded by fine sediment	Gravel, cobble, and boulder particles are more than 75% surrounded by fine sediment		
Score	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	543210	13	
Velocity/Depth Regime	All four velocity/depth regimes present (slow-deep, slow- shallow, fast-deep, fast shallow)(slow is <0.3m/s, deep is >0.5 m)	Only 3 of the 4 regimes present (if fast-shallow is missing, score lower than if missing other regimes).	Only 2 of the 4 habitat regimes present (if fast-shallow or slow- shallow are missing, score low)	Dominated by 1 velocity/depth regime (usually slow-deep).		
Score	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	543210	13	
4. Sediment Deposition	Little or no enlargement of islands or point bars and <5% of the bottom affected by sediment deposition.	Some new increase in bar formation, mostly from gravel, sand, or fine sediment; 5-30% of the bottom affected; slight deposition in pools.	Moderate deposition of new gravel, sand, or line sediment on old and new bars; 30-50% of the bottom affected; sediment deposits at obstructions, constrictions, and bends; moderate deposition of pools prevalent.	Heavy deposits of fine material, increased bar development; more than 50% of the bottom changing frequently; pools almost absent due to substantial sediment deposition.		
Score	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	543210	15	
5. Channel Flow status	Water reaches base of both lower banks, and minimal amount of channel substrate is exposed.	Water fills >75% of the availible channel; or <25% of channel substrate is exposed.	Water fills 25-75% of the availible channel, and/or riffle substrates are mostly exposed.	Very little water in channel and mostly present as standing pools.		
Score	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	543210	15	
		Total Score			71	

 -(Wetland)
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WSSI H/	ABITAT ASSESSM	ENT FIELD DATA	SHEET-HIGH GRA	DIENT STREAMS	
Project #	Site	Cowardin	River Basin	Date	Time
20003	NOVA Stream Bank	R3	niver basin	2/14/2008	1:15PM
Invest	igators	HUC	Potomac	Locality	
		02070008	i otomao	Fairfax County	/
Re	ach	D.A. (Acres)	Reach Length (LF)	Order	
1 adda.uda	-E	11	300	3	
Latitude	Longitude		10		
36 00 56	772101		Snakeden Bra	ncn	
Habitat Parameter	0.11.1	Con	dition Category		
	Optimai	Suboptimal	Marginal	Poor	Score
6. Channel Alteration	Channelization or dredging absent or minimal; stream width normal pattern.	Some channelization present, usually in areas of bridge abutments; evidence of past channelization, i.e. dredging, may be present, but recent channelization is not present.	Channeliztion may be extensive; embankments or shoring structures present on both banks; and 40-80% of stream reach channelized and disrupted.	Banks shored with gabion or cement; over 80% of the stream reach channelized and disrupted. Instream habitat greatly altered or removed entirely.	
Score	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	543210	6
00010	Occurrence of differ relatively	10 14 10 12 11	10 0 0 7 0	545210	0
7. Frequency of Riffles	frequent; ratio of distance between riffles divided by width of the stream <7:1 (generally 5 to 7); variety of habitat is key. In streams where riffles are continuous, placement of boulders or other large, natural obstruction is important.	Occurrence of riffles infrequent; distance between riffles divided by the width of the stream is between 7 to 15.	Occasional riffle or bend; bottom contours provide some habitat; distances between riffles divided by the width of the stream is between 15 to 25.	Generally all flat water or shallow riffles; poor habitat; distance between riffles divided by the width of the stream is a ratio of >25.	
Score	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	543210	16
8. Bank Stability (score each bank)	Banks stable; evidence of erosion or bank failure absent or minimal; little potential for future problems. <5% of bank affected.	Moderately stable; infrequent, small areas of erosion mostly healed over. 5-30% of bank in reach has areas of erosion.	Moderately unstable; 30-60% of bank reach has areas of erosion; high erosion potential during floods.	Unstable; many eroded areas; "raw" areas frequent along straight sections and bends; obvious bank sloughing; 60- 100% of bank has erosional scars.	
Score Left Bank	10 9	8 7 6	5 4 3	2 1 0	7
Score Right Bank	10 9	8 7 6	5 4 3	2 1 0	7
9. Vegetation Protection (score each bank) Note: Determine left or right side by facing downstream.	More than 90% of the streambank surfaces and immediate riparian zone covered by native vegetation, including trees, understory shrubs, or non-woody macrophytes; vegetation disruption through grazing or mowing minimal or not evident; almost all plants allowed to grow naturaliv.	70-90% of the streambank surfaces covered by native vegetation, but one class of plants is not well-represented; disruption evident but not affecting full plant growth potential to any great extent; more than one-half of the potential plant stubble height remaining.	50-70% of the streambank surfaces covered by vegetation; disruption obvious; patches of bare soil or closely cropped vegetation common; less than one-hall of the potential plant stubble height remaining.	Less than 50% of the streambank surfaces covered by vegetation; disruption of streambank vegetation is very high; vegetation has been removed to 5 centimeters or less in average stubble height.	
Score Left Bank	10 9	8 7 6	5 4 3	2 1 0	9
Score Right Bank	10 9	8 7 6	5 4 3	2 1 0	9
10. Riparian Vegetative Zone Width (score each bank riparian zone)	Width of riparian zone >18 meters; human activities (i.e. parking lots, roadbeds, clear- cuts, lawns, or crops) have not impacted zone.	Width of riparian zone 12-18 meters; human activities have impacted zone only minimally.	Width of riparian zone 6-12 meters; human activities have impacted zone a great deal.	Width of riperian zone <6 meters; little or no riparian vegetation due to human activities.	
Score Left Bank	10 9	8 7 6	5 4 3	2 1 0	9
Score Right Bank	10 9	8 7 6	5 4 3	2 1 0	9
a set of the second		Total Score		M N	142
					1 76-



D 1 4 4	0.1	Cowardin	SHEET-HIGH GHA	Data		
Project #	Site	Cowardin	River Basin	Date	Time	
20003	NOVA Stream Bank	H4		2/14/2008	2:15PM	
Invest	gators	HUC	Potomac	Locality		
TSS/	SDS	02070008		Fairfax Count	у	
Rea	ach	D.A. (Acres)	Reach Length (LF)	Order		
1.	F	55	300	3		
Latitude	Longitude		Stream Nam	10		
38°55'58"	77°21'01"		Snakeden Bra	nch		
		Con	dition Category			
Habitat Parameter	Optimal	Suboptimal	Marginal	Poor	Score	
1. Epifaunal Substrate/ Available Cover	Greater than 70% of substrate favorable for epifaunal colonization and fish cover; mix of snags, submerged logs, undercut banks, cobble, or other stable habitat and at stage to allow full colonization potential (i.e. snags/logs that are not new fall and not transient).	40-70% mix of stable habitat; well suited for full colonization potential; adequate habitat for maintainance of populations; presence of additional substrate in the form of newfall, but not yet prepared for colonization.	20-40% mix of stable habitat; habitat availability less than desirable; substrate frequently disturbed or removed.	Less than 20% stable habitat; lack of habitat is obvious; substrate unstable or lacking.		
Score	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	543210	5	
2. Embeddedness	Gravel, cobble, and boulder particles are 0-25% surrounded by fine sediment. Layering of cobble provides diversity of niche space.	Gravel, cobble, and boulder particles are 25-50% surrounded by fine sediment.	Gravel, cobble, and boulder particles are 50-75% surrounded by fine sediment	Gravel, cobble, and boulder particles are more than 75% surrounded by fine sediment		
Score	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	543210	5	
Velocity/Depth Regime	All four velocity/depth regimes present (slow-deep, slow- shallow, fast-deep, fast shallow)(slow is <0.3m/s, deep is >0.5 m)	Only 3 of the 4 regimes present (if fast-shallow is missing, score lower than if missing other regimes).	Oniy 2 of the 4 habitat regimes present (if fast-shallow or slow- shallow are missing, score low)	Dominated by 1 velocity/depth regime (usually slow-deep).		
Score	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	543210	9	
4. Sediment Deposition	Little or no enlargement of islands or point bars and <5% of the bottom affected by sediment deposition.	Some new increase in bar formation, mostly from gravel, sand, or fine sediment; 5-30% of the bottom affected; slight deposition in pools.	Moderate deposition of new gravel, sand, or fine sediment on old and new bars; 30-50% of the bottom affected; sediment deposits at obstructions, constrictions, and bends; moderate deposition of pools prevalent.	Heavy deposits of fine material, increased bar development; more than 50% of the bottom changing frequently; pools almost absent due to substantial sediment deposition.		
Score	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	543210	5	
5. Channel Flow status	Water reaches base of both lower banks, and minimal amount of channel substrate is exposed.	Water fills >75% of the available channel; or <25% of channel substrate is exposed.	Water fills 25-75% of the availible channel, and/or riffle substrates are mostly exposed.	Very little water in channel and mostly present as standing pools.		
Score	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	543210	6	
		Total Score			30	

WSSI H	ABITAT ASSESSM	ENT FIELD DATA	SHEET-HIGH GR/	DIENT STREAMS	
Project #	Site	Cowardin	River Recip	Date	Time
20003	NOVA Stream Bank	R4	niver basin	2/14/2008	2:15PM
Invest	igators	HUC	Potomac	Locality	
		02070008	Fotomac	Fairfax County	1
Re	ach	D.A. (Acres)	Reach Length (LF)	Order	
1	-F	55	300	3	
Latitude	Longitude		Stream Nan	ne	
38°55'58"	77°21'01"		Snakeden Bra	inch	
	1	Con	dision Cotomony		
Habitat Parameter	Optimal	Suboptimal	Marginal	Poor	Score
6. Channel Alteration	Channelization or dredging absent or minimal; stream width normal pattern.	Some channelization present, usually in areas of bridge abutments; evidence of past channelization, i.e. dredging, may be present, but recent channelization is not present.	Channeliztion may be extensive; embankments or shoring structures present on both banks; and 40-80% of stream reach channelized and disrupted.	Banks shored with gabion or cement; over 80% of the stream reach channelized and disrupted. Instream habitat greatly altered or removed entirely.	
Score	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	543210	17
7. Frequency of Riffles	Occurrence of riffles relatively frequent; ratio of distance between riffles divided by width of the stream <7:1 (generally 5 to 7); variety of habitat is key. In streams where riffles are continuous, placement of boulders or other large, natural obstruction is important.	Occurrence of riffles infrequent; distance between riffles divided by the width of the stream is between 7 to 15.	Occasional riffle or bend; bottom contours provide some habitat; distances between riffles divided by the width of the stream is between 15 to 25.	Generally all flat water or shallow riffles; poor habitat; distance between riffles divided by the width of the stream is a ratio of >25.	
Score	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	543210	12
8. Bank Stability (score each bank)	Banks stable; evidence of erosion or bank failure absent or minimal; little potential for future problems. <5% of bank affected.	Moderately stable; infrequent, small areas of erosion mostly healed over. 5-30% of bank in reach has areas of erosion.	Moderately unstable; 30-60% of bank reach has areas of erosion; high erosion potential during floods.	Unstable; many eroded areas; "raw" areas frequent along straight sections and bends; obvious bank sloughing; 60- 100% of bank has erosional scars.	
Score Left Bank	10 9	8 7 6	5 4 3	2 1 0	3
Score Right Bank	10 9	8 7 6	5 4 3	2 1 0	3
9. Vegetation Protection (score each bank) Note: Determine left or right side by facing downstream.	More than 90% of the streambank surfaces and immediate riparian zone covered by native vegetation, including trees, understory shrubs, or non-woody macrophytes; vegetation disruption through grazing or mowing minimal or not evident; almost all plants allowed to grow naturally.	70-90% of the streambank surfaces covered by native vegetation, but one class of plants is not well-represented; disruption evident but not affecting full plant growth potential to any great extent; more than one-half of the potential plant stubble height remaining.	50-70% of the streambank surfaces covered by vegetation; disruption obvious; patches of bare soil or closely cropped vegetation common; less than one-half of the potential plant stubble height remaining.	Less than 50% of the streambank surfaces covered by vegetation; disruption of streambank vegetation is very high; vegetation has been removed to 5 centimeters or less in average stubble height.	
Score Left Bank	10 9	8 7 6	5 4 3	2 1 0	9
Score Right Bank	10 9	8 7 6	5 4 3	2 1 0	9
10. Riparian Vegetative Zone Width (score each bank riparian zone)	Width of riparian zone >18 meters; human activities (i.e. parking lots, roadbeds, clear- cuts, lawns, or crops) have not impacted zone.	Width of riparian zone 12-18 meters; human activities have impacted zone only minimally.	Width of riparian zone 6-12 meters; human activities have impacted zone a great deal.	Width of riperian zone <6 meters; little or no riparian vegetation due to human activities.	
Score Left Bank	10 9	8 7 6	5 4 3	2 1 0	0
Score Right Bank	10 9	8 7 6	5 4 3	2 1 0	0
Source Hight Dank	10 9	Total Occurs	0 4 0	2 1 0	101
		Total Score			101
		Deere O of C			

Destant 4	01	Cowardia	Sheer-man any	DIENT STREAMS		
Project #	Site	Cowardin	River Basin	Date	Time	
20003	NOVA Stream Bank	H3	and a second second	2/12/2008	1:30PN	
Invest	Igators	HUC	Potomac	Locality		
TSS/	SDS	02070008		Fairfax Count	у	
Re	ach	D.A. (Acres)	Reach Length (LF)	Order		
2	-A	256	300	3		
Latitude	Longitude		Stream Nam	10		
38°55'58"	77°21'01"	Un	inamed Tributary to Sna	akeden Branch		
Habitat Deservator		Con	dition Category			
Habitat Parameter	Optimal	Suboptimal	Marginal	Poor	Score	
1. Epifaunal Substrate/ Available Cover	Greater than 70% of substrate favorable for epifaunal colonization and fish cover, mix of snags, submerged logs, underout banks, cobble, or other stable habitat and at stage to allow full colonization potential (i.e. snags/logs that are not new fall and not transient).	40-70% mix of stable habitat; well suited for full colonization potential; adequate habitat for maintainance of populations; presence of additional substrate in the form of newfall, but not yet prepared for colonization.	20-40% mix of stable habitat; habitat availability less than desirable; substrate frequently disturbed or removed.	Less than 20% stable habitat; lack of habitat is obvious; substrate unstable or lacking.		
Score	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	543210	3	
2. Embeddedness	Gravel, cobble, and boulder particles are 0-25% surrounded by fine sediment. Layering of cobble provides diversity of niche space.	Gravel, cobble, and boulder particles are 25-50% surrounded by fine sediment.	Gravel, cobble, and boulder particles are 50-75% surrounded by fine sediment	Gravel, cobble, and boulder particles are more than 75% surrounded by fine sediment		
Score	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	543210	4	
Velocity/Depth Regime	All four velocity/depth regimes present (slow-deep, slow- shallow, fast-deep, fast shallow)(slow is <0.3m/s, deep is >0.5 m)	Only 3 of the 4 regimes present (if fast-shallow is missing, score lower than if missing other regimes).	Only 2 of the 4 habitat regimes present (if fast-shallow or slow- shallow are missing, score low)	Dominated by 1 velocity/depth regime (usually slow-deep).		
Score	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	543210	14	
4. Sediment Deposition	Little or no enlargement of islands or point bars and <5% of the bottom affected by sediment deposition.	Some new increase in bar formation, mostly from gravel, sand, or fine sediment; 5-30% of the bottom affected; slight deposition in pools.	Moderate deposition of new gravel, sand, or line sediment on old and new bars; 30-50% of the bottom affected; sediment deposits at obstructions, constrictions, and bends; moderate deposition of pools prevalent.	Heavy deposits of fine material, increased bar development; more than 50% of the bottom changing frequently; pools almost absent due to substantial sediment deposition.		
Score	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	543210	5	
5. Channel Flow status	Water reaches base of both lower banks, and minimal amount of channel substrate is exposed.	Water fills >75% of the availible channel; or <25% of channel substrate is exposed.	Water fills 25-75% of the availible channel, and/or riffle substrates are mostly exposed.	Very little water in channel and mostly present as standing pools.		
Score	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	543210	6	
		Total Score			32	

WSSI H	ABITAT ASSESSM	ENT FIELD DATA	SHEET-HIGH GRA	DIENT STREAMS	
Project #	Site	Cowardin		Date	Time
20003	NOVA Stream Bank	B3	River Basin	2/12/2008	1:30PM
Invest	igators	HUC		Locality	
TSS S	DS DW	02070008	Potomac	Fairfax County	
Re	ach	D.A. (Acres)	Reach Length (LF)	Order	
2	-A	256	300	3	
Latitude	Longitude		Stream Nam	le	
38°55'58"	77°21'01"	Un	named Tributary to Sna	akeden Branch	
Habitat Parameter		Con	dition Category		
	Optimal	Suboptimal	Marginal	Poor	Score
6. Channel Alteration	Channelization or dredging absent or minimal; stream width normal pattern.	Some channelization present, usually in areas of bridge abutments; evidence of past channelization, i.e. dredging, may be present, but recent channelization is not present.	Channeliztion may be extensive; embankments or shoring structures present on both banks; and 40-80% of stream reach channelized and disrupted.	Banks shored with gabion or cement; over 80% of the stream reach channelized and disrupted. Instream habitat greatly altered or removed entirely.	
Score	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	543210	19
7. Frequency of Riffles	Occurrence of riffles relatively frequent; ratio of distance between riffles divided by width of the stream <7:1 (generally 5 to 7); variety of habitat is key. In streams where riffles are continuous, placement of boulders or other large, natural obstruction is important.	Occurrence of riffles infrequent; distance between riffles divided by the width of the stream is between 7 to 15.	Occasional tiffle or bend; bottom contours provide some habitat; distances between riffles divided by the width of the stream is between 15 to 25.	Generally all flat water or shallow riffles; poor habitat; distance between riffles divided by the width of the stream is a ratio of >25.	
Score	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	543210	16
8. Bank Stability (score each bank)	Banks stable; evidence of erosion or bank failure absent or minimal; little potential for future problems. <5% of bank affected.	Moderately stable; infrequent, small areas of erosion mostly healed over. 5-30% of bank in reach has areas of erosion.	Moderately unstable; 30-60% of bank reach has areas of erosion; high erosion potential during floods.	Unstable; many eroded areas; "raw" areas frequent along straight sections and bends; obvious bank sloughing; 60- 100% of bank has erosional scars.	
8. Bank Stability (score each bank) Score Left Bank	Banks stable; evidence of erosion or bank failure absent or minimal; little potential for future problems. <5% of bank affected.	Moderately stable; infrequent, small areas of erosion mostly healed over. 5-30% of bank in reach has areas of erosion.	Moderately unstable; 30-60% of bank reach has areas of erosion; high erosion potential during floods.	Unstable; many eroded areas; "raw" areas frequent along straight sections and bends; obvious bank sloughing; 60- 100% of bank has erosional scars. 2 1 0	1
8. Bank Stability (score each bank) Score Left Bank Score Right Bank	Banks stable; evidence of erosion or bank failure absent or minimal; little potential for future problems. <5% of bank affected. 10 9. 10 9	Moderately stable; infrequent, small areas of erosion mostly healed over. 5-30% of bank in reach has areas of erosion.	Moderately unstable; 30-60% of bank reach has areas of erosion; high erosion potential during floods.	Unstable; many eroded areas; "raw" areas frequent along straight sections and bends; obvious bank sloughing; 60- 100% of bank has erosional scars. 2 1 0 2 1 0	1
8. Bank Stability (score each bank) Score Left Bank Score Right Bank 9. Vegetation Protection (score each bank) Note: Determine left or right side by facing downstream.	Banks stable; evidence of erosion or bank failure absent or minimal; little potential for future problems. <5% of bank affected. 10 9 10 9 More than 90% of the streambank surfaces and immediate riparian zone covered by native vegetation, including trees, understory shrubs, or non-woody macrophytes; vegetation disruption through grazing or mowing minimal or not evident; almost all plants allowed to grow naturelly.	Moderately stable; infrequent, small areas of erosion mostly healed over, 5-30% of bank in reach has areas of erosion.	Moderately unstable; 30-60% of bank reach has areas of erosion; high erosion potential during floods.	Unstable; many eroded areas; "raw" areas frequent along straight sections and bends; obvious bank sloughing; 60- 100% of bank has erosional scars. 2 1 0 2 1 0 Less than 50% of the streambank surfaces covered by vegetation; disruption of streambank vegetation is very high; vegetation has been removed to 5 centimeters or less in average stubble height.	1
8. Bank Stability (score each bank) Score Left Bank Score Right Bank 9. Vegetation Protection (score each bank) Note: Determine left or right side by facing downstream. Score Left Bank	Banks stable; evidence of erosion or bank failure absent or minimal; little potential for future problems. <5% of bank affected. 10 9 10 9 More than 90% of the streambank surfaces and immediate riparian zone covered by native vegetation, including trees, understory shrubs, or non-woody macrophytes; vegetation disruption through grazing or mowing minimal or not evident; almost all plants allowed to grow naturally. 10 9	Moderately stable; infrequent, small areas of erosion mostly healed over. 5-30% of bank in reach has areas of erosion. 8 7 6 8 7 6 70-90% of the streambank surfaces covered by native vegetation, but one class of plants is not well-represented; disruption evident but not affecting full plant growth potential to any great extent; more than one-half of the potential plant stubble height remaining. 8 7 6	Moderately unstable; 30-60% of bank reach has areas of erosion; high erosion potential during floods. 5 4 3 5 4 3 50-70% of the streambank surfaces covered by vegetation; disruption obvious; patches of bare soil or closely cropped vegetation common; less than one-half of the potential plant stubble height remaining.	Unstable; many eroded areas; "raw" areas frequent along straight sections and bends; obvious bank sloughing; 60- 100% of bank has erosional scars. 2 1 0 2 1 0 Less than 50% of the streambank surfaces covered by vegetation; disruption of streambank vegetation is very high; vegetation has been removed to 5 centimeters or less in average stubble height. 2 1 0	1 1
8. Bank Stability (score each bank) Score Left Bank Score Right Bank 9. Vegetation Protection (score each bank) Note: Determine left or right side by facing downstream. Score Left Bank Score Right Bank	Banks stable; evidence of erosion or bank failure absent or minimal; little potential for future problems. <5% of bank affected. 10 9 10 9 More than 90% of the streambank surfaces and immediate riparian zone covered by native vegetation, including trees, understory shrubs, or non-woody macrophytes; vegetation disruption through grazing or mowing minimal or not evident; almost all plants allowed to grow naturally. 10 9 10 9	Moderately stable; infrequent, small areas of erosion mostly healed over, 5-30% of bank in reach has areas of erosion. 8 7 6 8 7 6 70-90% of the streambank surfaces covered by native vegetation, but one class of plants is not well-represented; disruption evident but not affecting full plant growth potential to any great extent; more than one-half of the potential plant stubble height remaining. 8 7 6 8 7 6	Moderately unstable; 30-60% of bank reach has areas of erosion; high erosion potential during floods. 5 4 3 5 4 3 50-70% of the streambank surfaces covered by vegetation; disruption obvious; patches of bare soil or closely cropped vegetation common; less than one-half of the potential plant stubble height remaining. 5 4 3 5 4 3	Unstable; many eroded areas; "raw" areas frequent along straight sections and bends; obvious bank sloughing; 60- 100% of bank has erosional scars. 2 1 0 2 1 0 Less than 50% of the streambank surfaces covered by vegetation; disruption of streambank vegetation is very high; vegetation has been removed to 5 centimeters or less in average stubble height. 2 1 0 2 1 0 2 1 0	1 1 9 9
8. Bank Stability (score each bank) Score Left Bank Score Right Bank 9. Vegetation Protection (score each bank) Note: Determine left or right side by facing downstream. Score Left Bank Score Right Bank Score Right Bank	Banks stable; evidence of erosion or bank failure absent or minimal; little potential for future problems. <5% of bank affected. 10 9 10 9 More than 90% of the streambank surfaces and immediate riparian zone covered by native vegetation, including trees, understory shrubs, or non-woody macrophytes; vegetation disruption through grazing or mowing minimal or not evident; almost all plants allowed to grow naturally. 10 9 10 9 10 9	Moderately stable; infrequent, small areas of erosion mostly healed over. 5-30% of bank in reach has areas of erosion. 8   7   6     8   7   6     7   6   7     70-90% of the streambank surfaces covered by native vegetation, but one class of plants is not well-represented; disruption evident but not affecting full plant growth potential to any great extent; more than one-half of the potential plant stubble height remaining.     8   7   6     8   7   6     8   7   6     8   7   6     8   7   6     8   7   6     8   7   6	Moderately unstable; 30-60% of bank reach has areas of erosion; high erosion potential during floods. 5   4   3     5   4   3     50-70% of the streambank surfaces covered by vegetation; disruption obvious; patches of bare soil or closely cropped vegetation common; leas than one-half of the potential plant stubble height remaining.     5   4   3     5   4   3     5   4   3     5   4   3     5   4   3     5   4   3     5   4   3     5   4   3     5   4   3	Unstable; many eroded areas; "raw" areas frequent along straight sections and bends; obvious bank sloughing: 60- 100% of bank has erosional scars. 2 1 0 2 1 0 Less than 50% of the streambank surfaces covered by vegetation; disruption of streambank vegetation is very high; vegetation has been removed to 5 centimeters or less in average stubble height. 2 1 0 2 1 0 Width of riperian zone <6 meters; little or no riparian vegetation due to human activities.	1 1 9 9
8. Bank Stability (score each bank) Score Left Bank Score Right Bank 9. Vegetation Protection (score each bank) Note: Determine left or right side by facing downstream. Score Left Bank Score Right Bank 10. Riparian Vegetative Zone Width (score each bank riparian zone) Score Left Bank	Banks stable; evidence of erosion or bank failure absent or minimal; little potential for future problems. <5% of bank affected. 10 9 10 9 More than 90% of the streambank surfaces and immediate iparian zone covered by native vegetation, including trees, understory shrubs, or non-woody macrophytes; vegetation disruption through grazing or mowing minimal or not evident; almost all plants allowed to grow naturally. 10 9 10 9 10 9	Moderately stable; infrequent, small areas of erosion mostly healed over. 5-30% of bank in reach has areas of erosion. 8   7   6     8   7   6     8   7   6     7   6   7     8   7   6     7   6   7     70-90% of the streambank surfaces covered by native vegetation, but one class of plants is not well-represented; disruption evident but not affecting full plant growth potential to any great extent; more than one-half of the potential plant stubble height remaining.     8   7   6     8   7   6     8   7   6     8   7   6	Moderately unstable; 30-60% of bank reach has areas of erosion; high erosion potential during floods. 5   4   3     50-70% of the streambank surfaces covered by vegetation; disruption obvious; patches of bare soil or closely cropped vegetation common; less than one-half of the potential plant stubble height remaining.     5   4   3     5   4   3     5   4   3     5   4   3     5   4   3     5   4   3     5   4   3     5   4   3     5   4   3     5   4   3	Unstable; many eroded areas; "raw" areas frequent along straight sections and bends; obvious bank sloughing: 60- 100% of bank has erosional scars. 2 1 0 2 1 0 Less than 50% of the streambank surfaces covered by vegetation; disruption of streambank vegetation is very high; vegetation has been removed to 5 centimeters or less in average stubble height. 2 1 0 2 1 0 Width of riperian zone <6 meters; little or no riparian vegetation due to human activities.	1 1 9 9
8. Bank Stability (score each bank) Score Left Bank Score Right Bank 9. Vegetation Protection (score each bank) Note: Determine left or right side by facing downstream. Score Left Bank Score Right Bank 10. Riparian Vegetative Zone Width (score each bank riparian zone) Score Left Bank Score Right Bank	Banks stable; evidence of erosion or bank failure absent or minimal; little potential for future problems. <5% of bank affected. 10 9 10 9 More than 90% of the streambank surfaces and immediate iparian zone covered by native vegetation, including trees, understory shrubs, or non-woody macrophytes; vegetation disruption through grazing or mowing minimal or not evident; atmost all plants allowed to grow naturally. 10 9 10 9 10 9 10 9 10 9 10 9 10 9	Moderately stable; infrequent, small areas of erosion mostly healed over. 5-30% of bank in reach has areas of erosion. 8   7   6     8   7   6     8   7   6     7   6   7     8   7   6     7   6   7     8   7   6     70-90% of the streambank surfaces covered by native vegetation, but one class of plants is not well-represented; disruption evident but not affecting full plant growth potential to any great extent; more than one-half of the potential plant stubble height remaining.     8   7   6     8   7   6     8   7   6     8   7   6     8   7   6     8   7   6     8   7   6     8   7   6     8   7   6     8   7   6     8   7   6     8   7   6     8   7   6     8   7   6     8   7   6     8   7   6	Moderately unstable; 30-60% of bank reach has areas of erosion; high erosion potential during floods. 5   4   3     50-70% of the streambank surfaces covered by vegetation; disruption obvious; patches of bare soil or closely cropped vegetation common; less than one-half of the potential plant stubble height remaining.     5   4   3     5   4   3     5   4   3     5   4   3     5   4   3     5   4   3     5   4   3     5   4   3     5   4   3     5   4   3     5   4   3	Unstable; many eroded areas; "raw" areas frequent along straight sections and bends; obvious bank sloughing: 60- 100% of bank has erosional scars. 2 1 0 2 1 0 Less than 50% of the streambank surfaces covered by vegetation; disruption of streambank vegetation is very high; vegetation has been removed to 5 centimeters or less in average stubble height. 2 1 0 2 1 0 2 1 0 Width of riperian zone <6 meters; little or no riparian vegetation due to human activities. 2 1 0 2 1 0	1 1 9 9 9 8
8. Bank Stability (score each bank) Score Left Bank Score Right Bank 9. Vegetation Protection (score each bank) Note: Determine left or right side by facing downstream. Score Left Bank Score Right Bank 10. Riparian Vegetative Zone Width (score each bank riparian zone) Score Left Bank Score Right Bank	Banks stable; evidence of erosion or bank failure absent or minimal; little potential for future problems. <5% of bank affected. 10 9 10 9 More than 90% of the streambank suffaces and immediate iparian zone covered by native vegetation, including trees, understory shrubs, or non-woody macrophytes; vegetation disruption through grazing or mowing minimal or not evident; atmost all plants allowed to grow naturally. 10 9 10 9 10 9 10 9 10 9	Moderately stable; infrequent, small areas of erosion mostly healed over. 5-30% of bank in reach has areas of erosion. 8   7   6     8   7   6     8   7   6     7   6   7     7   6   7     7   6   7     70-90% of the streambank surfaces covered by native vegetation, but one class of plants is not well-represented; disruption evident but not affecting full plant growth potential to any great extent; more than one-half of the potential plant stubble height remaining.     8   7   6     8   7   6     8   7   6     8   7   6     8   7   6     8   7   6     8   7   6     8   7   6     8   7   6     8   7   6     8   7   6     8   7   6     8   7   6     8   7   6     8   7   6     8   7   6     8   7   6	Moderately unstable; 30-60% of bank reach has areas of erosion; high erosion potential during floods. 5   4   3     50-70% of the streambank surfaces covered by vegetation; disruption obvious; patches of bare soil or closely cropped vegetation common; less than one-hall of the potential plant stubble height remaining.     5   4   3     5   4   3     5   4   3     5   4   3     5   4   3     5   4   3     5   4   3     5   4   3     5   4   3     5   4   3     5   4   3	Unstable; many eroded areas; "raw" areas frequent along straight sections and bends; obvious bank sloughing: 60- 100% of bank has erosional scars. 2 1 0 2 1 0 Less than 50% of the streambank surfaces covered by vegetation; disruption of streambank vegetation is very high; vegetation has been removed to 5 centimeters or less in average stubble height. 2 1 0 2 1 0 2 1 0 Width of riperian zone <6 meters; little or no riparian vegetation due to human activities. 2 1 0 2 1 0	1 1 9 9 9 8 104



Project #     Site     Cowardin     River Basin     Date     Investigators       Investigators     HUC     Potomac     Potomac     2/12/2008     2:0       Investigators     HUC     Potomac     Potomac     Locality     Fairfax County       Reach     D.A. (Acres)     Reach Length (LF)     Order     Code     3       2-8     169     300     3     3     3       38*5558"     77*21'01"     Unnamed Tributary to Snakeden Branch     Sociality     So	Destant #	01	Coursed's	SHEET-HIGH GHA	ADIENT STREAMS		
20003 INVEX Stream Bank R3 2112/2008 212/2008 2112/2008 2000 3   Reach Longitude 10.A. (Acres) Reach Length (LF) Order 3	Project #	Site	Cowardin	River Basin	Date	Time	
Investigators   HUC   Potomac   Locality     TSS/SDS   02070008   Reach   D.A. (Acres)   Reach Length (LF)   Order     2-8   169   300   3     38*5559"   77*21'01"   Unnamed Tributary to Snakeden Branch     Condition Category     Habitat Parameter   Optimal   Suboptimal   Marginal   Poor   Sci     1. Epifaunal   Graster fhan 70% of substrate   60-70% mix of stable habitation for epidurual acted for ful colonization and factor apidurual acted for ful colonization and factor apidurual acted for ful colonization and factor apidurual acted for ful colonization and factor and appendix for epidurual acted for ful colonization and factor apidurual acted for ful colonization and factor apidurual acted for ful colonization and factor apidurus acted for ful colonization apidurus acted for ful colonization apidurus acted for ful colonization and factor apidurus acted for ful colonization apidurus	20003	NOVA Stream Bank	R3	10000 - 444(0)	2/12/2008	2:00PM	
TSS/SDS 02070008 Fairback   Reach D.A. (Acres) Reach Length (LF) Order   2-B 169 300 3   Latitude Longitude Stream Name 3   38*5559" 77*2101" Unnamed Tributary to Snakeden Branch   Habitat Parameter Optimal Marginal Poor Sc   1. Epifaunal Graster fran 70% of substrate toronate for optiumal colonization and fair cover. Imatitation of adequate habitation of ange, submerging to a mage submerging to mage submerging to a mage submerging to a mage submerging to a m	Invest	gators	HUC	Potomac	Locality		
Reach     D.A. (Acres)     Reach Length (LF)     Order       2-B     169     300     3       38*5558*     77*21'01*     Unnamed Tributary to Snakeden Branch       Habitat Parameter     Condition Category     Unnamed Tributary to Snakeden Branch       Habitat Parameter     Condition Category     Poor     Sci       1. Epifaunal     Greater than 70% of substrate fragmanic domaske or plana, coble, or orbitation and fab cover, manual colonization and fab cover, manual substrate in the form of assessment and fab cover, manual substrate in the form of medical te colonization are of assessment and fab cover, manual colonization, and not cover are not merid and cot manual colonization.     20-40% mx of stable habitat; task chabitat cover, manual cover parallels are not manual cover parallels are more tacking, and task cover are not manual cover parallels, and cover task cover are not manual cover parallels are cover task cover task cover are not manual cover parallels, and cover task coveve	TSS/	SDS	02070008	. oronnao	Fairfax Count	у	
2-B   169   300   3     Latitude   Longitude   Stream Name     38*55'58*   77'21'01*   Unnamed Tributary to Snakeden Branch     Habitat Parameter   Optimal   Suboptimal   Marginal   Poor   Sci     1. Epifaunal   Creater than 70% of aubitate tworable or epitunea mix of snaps, submerged tops, or ther stable habitat and at service a law of lacobian or obtained potential (a. snaps/logs that are not new lial and or transient).   Suboptimal   Marginal   Poor   Sci     2. Embeddedness   Corver   20.19 18 17 16   15 14 13 12 11   10 9 8 7 6   5 4 3 2 1 0   Gravel, cobbie, and boulder particles are 0.25% surrounded by fine sediment. Layering of clobbi provides ababtw, tab. and as the state in the form transient).   Gravel, cobbie, and boulder particles are 0.25% surrounded by fine sediment. Layering of clobbi provides ababtw, tab. and boulder particles are 0.25% surrounded by fine sediment. Layering of clobbi provides ababtw, tab. and boulder particles are 0.25% surrounded by fine sediment. Layering of clobbi provides ababtw, tab. and boulder particles are 0.25% surrounded by fine sediment. Layering of clobbi provides ababtw, tab. and boulder particles are 0.25% surrounded by fine sediment. Layering of clobbi provides ababtw, tab. and boulder particles are 0.25%, surrounded by fine sediment. Layering of clobbi provides ababtw, tab. and com tab. and cob. ababtw, tab. and com tababtmather ababtw, tab.	Re	ach	D.A. (Acres)	Reach Length (LF)	Order		
Latitude     Longitude     Stream Name       38°56'58°     77°21'01"     Unnamed Tributary to Snakeden Branch       Habitat Parameter     Condition Category       1. Epifaunal     Greater than 70% of substrate colonization and fish cover, more stable habitat, concretation, and fish cover, metable habitat, transiend, but not systeme or addition stape to alkow full colonization particles are 0.25%, surrounded by fine sediment, far colonization, transiend, but not systeme or addition granticles are 0.25%, surrounded by fine sediment, stable nabitat, far singely for the particles are 0.25%, surrounded by fine sediment, substrate in the stable habitat, matheman or 0.25%, surrounded by fine sediment, stable fish and post for colonization,     Gravel, cobble, and boulder particles are 0.25%, surrounded by fine sediment, substrate in the stable habitat, matheman or 0.25%, surrounded by fine sediment, stable fish and post for colonization,     Gravel, cobble, and boulder particles are 0.25%, surrounded by fine sediment, substrate stable habitat, matheman of the sediment, substrate stable habitat, matheman of the stable habitat, surrounded by fine sediment, substrate stable habitat, grantel as a 0.5%, doe justom fine sediment, stable fish and colority, dop 3 of the 4 fabitat regime particle are doposition of new grave, sand, or fine sediment, stable water matheman and cobi of the bottom aftection, and but water matheman and cobi of the bottom aftection, sediment deposition, sediment deposition, sediment deposition, sediment deposition, sediment deposition, sediment deposition,	2.	-B	169	300	3		
38°55'58"   77°2'1'01"   Unnamed Tributary to Snakeden Branch     Habitat Parameter   Condition Category     Optimal   Suboptimal   Marginal   Poor   Sc     1. Epifaunal   Condition Category   Arrow   Suboptimal   Marginal   Poor   Sc     3. Epifaunal   Condition Category   Marginal   Poor   Sc     Substrate/ Available   Condition Category   Marginal   Poor   Sc     Substrate/ Available   Cover   Substrate history   Cover	Latitude	Longitude		Stream Nam	ne		
Habitat Parameter     Condition Category       Habitat Parameter     Optimal     Suboptimal     Marginal     Poor     Sci       1. Epifaunal     Graater than 70% of substrate favorable for optiaural colonization and file overa- punderoit barks, coble, or underoit barks, coble, and boulder gardicles are 0.25%, surrounded by fine sediment substrate in the form of markets are 0.25%, surrounded by fine sediment substrate in the form of particles are 0.57% surrounded by fine sediment shallow (at-dee, pat dwestly of niche space.     Gravel, coble, and boulder particles are 0.57% surrounded by fine sediment shallow (at-dee, pat dwestly of niche space.     Gravel, coble, and boulder particles are 0.57% surrounded by fine sediment shallow (at-dee, pat dwestly of niche space.     Gravel, coble, and boulder particles are 0.57% surrounded by fine sediment surrounded by fine sediment shallow (at-dee, pat dwestly of niche space.     Gravel, coble, and boulder particles are 0.57% surrounded by fine sediment surrounded by fine sediment shallow (at-dee, pat aballow (at-dee bott) sediment deposition     Only 2 of the 4 habitat regime present (if thas-thalinow of sub-tra	38°55'58"	77°21'01"	Un	named Tributary to Sna	akeden Branch		
Habitat Parameter     Optimal     Suboptimal     Marginal     Poor     Sci       1. Epifaunal Substrate/ Available Cover     Grater than 70% of substrate obstrate/ Available Cover     Grater than 70% of substrate obstrate/ Available colonization and fish cover, mit of snaps, submergid ogn, undereat banks, coble, or other stable habitat; tack of habitat is colonization potential (i.e. snaps/og httai substrate in the form of newfall, but not yet prepared as not new fall and not newfall, but not yet prepared are or kew fall and not newfall, but not yet prepared are or kew fall and not newfall, but not yet prepared are colonization patricies are 05-25% surrounded by fine sediment     20-40% mix of stable habitat; tack of habitat is colvous; substrate in the form of newfall, but not yet prepared for colonization newfall, but not yet prepared are colonization patricies are 05-25% surrounded by fine sediment     Less than 20% stable habitat; tack of habitat is colvous; substrate unstable of lacking.       Score     20 19 18 17 16     15 14 13 12 11     10 9 8 7 6     5 4 3 2 1 0     4       Velocity/Depth Regime     All four velocity/depth regimes phallow, fast-dee, nab stallow, fast-dee, nab stallow or oninargement of tash and the contaming of the sediment stallow or oninargement of tash and or oninargement of the bottom affected by softment deposition of tadeve paretras, and or fine sediment stands or onin task and cyf			Con	dition Category			
1. Epifaunal Substrate/ Available Cover   Greater than 70% of substrate tavorable for epilaunal soluctation and fish cover, mix of snage, submerged logs, other stable habitat and are not new fails and not ransient).   40.70% mix of stable habitat tavorable for colonization presence of additional substrate in the mod for colonization.   20.40% mix of stable habitat; additional bisitude or lucking.   Less than 20% stable habitat; additional substrate in the mod for colonization.     Score   20.19 18 17.16   15 14 13 12 11   10.9.8.7.6   5 4 3 2 1 0   24     Velocity/Depth Regime   Gravel, cobble, and boulder particles are 0.25% surrounded by fine sediment. Layering of cobble provides shallow, tasi-deep, fast habitation, tasi-deep, fast habitatis davitatis and dathabitation of habitation davitation, the botto	Habitat Parameter	Optimal	Suboptimal	Marginal	Poor	Score	
Score20 19 18 17 1615 14 13 12 1110 9 8 7 65 4 3 2 1 052. EmbeddednessGravel, cobble, and boulder particles are 0.5 2%, surrounded by fine sediment, Layering of cobble provides diversity of niche space.Gravel, cobble, and boulder particles are 25.0 % surrounded by fine sedimentGravel, cobble, and boulder particles are 25.0 % surrounded by fine sedimentGravel, cobble, and boulder particles are 25.0 % surrounded by fine sedimentGravel, cobble, and boulder particles are 25.0 % surrounded by fine sedimentGravel, cobble, and boulder particles are 25.0 % surrounded by fine sedimentGravel, cobble, and boulder particles are 25.0 % surrounded by fine sedimentGravel, cobble, and boulder particles are 25.0 % surrounded by fine sedimentGravel, cobble, and boulder particles are 25.0 % surrounded by fine sedimentGravel, cobble, and boulder particles are 25.0 % surrounded by fine sedimentGravel, cobble, and boulder particles are 25.0 % surrounded by fine sedimentGravel, cobble, and boulder particles are 25.0 % surrounded by fine sedimentGravel, cobble, and boulder particles are 25.0 % surrounded by fine sedimentGravel, cobble, and boulder particles are 25.0 % surrounded by fine sedimentGravel, cobble, and boulder particles are 25.0 % surrounded by fine sedimentGravel, cobble, and boulder particles are 25.0 % surrounded by fine sedimentGravel, coble, and boulder particles are 25.0 % of he about and subscrate is surrounded by fine sedimentGravel, coble, and boulder fraudowities are and	1. Epifaunal Substrate/ Available Cover	Greater than 70% of substrate favorable for epifaunal colorization and fish cover, mix of snags, submerged logs, undercut banks, cobble, or other stable habitat and at stage to allow full colonization potential (i.e. snags/logs that are not new fall and not transient).	40-70% mix of stable habitat; well suited for full colonization potential; adequate habitat for maintainance of populations; presence of additional substrate in the form of newfall, but not yet prepared for colonization.	20-40% mix of stable habitat; habitat availability less than desirable; substrate frequently disturbed or removed.	Less than 20% stable habitat; lack of habitat is obvious; substrate unstable or lacking.		
2. Embeddedness   Gravel, cobble, and boulder particles are 0-25%, surrounded by fine sediment. Layering of cobble provides diversity of niche space.   Gravel, cobble, and boulder particles are 50-75%, surrounded by fine sediment. Cayering of cobble provides diversity of niche space.   Gravel, cobble, and boulder particles are 50-75%, surrounded by fine sediment. Cayering of cobble provides diversity of niche space.   Gravel, cobble, and boulder particles are 50-75%, surrounded by fine sediment. Cayering of cobble provides diversity of niche space.   Gravel, cobble, and boulder particles are 50-75%, surrounded by fine sediment. Cayering of cobble provides diversity of niche space.   Gravel, cobble, and boulder particles are 50-75%, surrounded by fine sediment. Cayering of cobble provides diversity of niche space.   Gravel, cobble, and boulder particles are 50-75%, surrounded by fine sediment. Cayering of cobble provides diversity of niche space.   Gravel, cobble, and boulder particles are 50-75%, surrounded by fine sediment. Cayering of cobble provides diversity of niche space.   Gravel, cobble, and boulder particles are 50-75%, surrounded by fine sediment. Cayering of cobble provides diversity of niche space.   Gravel, cobble, and boulder particles are 50-75%, surrounded by fine sediment. Cayering of cobble provides diversity of niche space.   Gravel, cobble, and boulder particles are 50-75%, surrounded by fine sediment. Cayering of cobble provides diversity of niche space.   Gravel, cobble, and boulder particles are 50-75%, surrounded by fine sediment. Cayering of cobble provides diversity of niches diment. Cayering of cobble provides diversity of niches diment	Score	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	543210	9	
Score20 19 18 17 1615 14 13 12 1110 9 8 7 65 4 3 2 1 04Velocity/Depth RegimeAll four velocity/depth regimes present (lifoux-deep, slow- shallow, fast-deep is >0.5 m)Only 3 of the 4 regimes present (if fast-shallow is missing other regimes).Only 2 of the 4 habitat regimes present (if fast-shallow or slow shallow are missing, score lower than it missing other regimes).Deminated by 1 velocity/depth regime (usually slow-deep).Score20 19 18 17 1615 14 13 12 1110 9 8 7 65 4 3 2 1 014. Sediment DepositionLittle or no enlargement of isands or point bars and <5% of the bottom affected by sediment deposition.Some new increase in bar formation, mostly from gravel, sand, or fine sediment, 5-30% of the bottom affected; slight deposition in pools.Moderate deposition of new gravel, sand, or fine sediment, of the bottom affected; slight deposition in pools.Heavy deposits of fine material, increased bar development; more than 50% of the bottom changing frequently: pools almost absent due to substantial sediment deposition.Moderate deposition of new gravel, sand, or fine sediment, of the bottom affected; slight deposition in pools.Heavy deposits of fine material, increased bar development; more than 50% of the bottom changing frequently: pools almost absent due to substantial sediment deposition.Moderate deposition of the bottom affected; slight deposition in pools.5. Channel Flow statusWater reaches base of both lower banks, and minimal amount of channel substrate is exposed.Water fills >75% of the availible channel; or <25% of channel substrate is exposed.	2. Embeddedness	Gravel, cobble, and boulder particles are 0-25% surrounded by fine sediment. Layering of cobble provides diversity of niche space.	Gravel, cobble, and boulder particles are 25-50% surrounded by fine sediment.	Gravel, cobble, and boulder particles are 50-75% surrounded by fine sediment	Gravel, cobble, and boulder particles are more than 75% surrounded by fine sediment		
Velocity/Depth RegimeAll four velocity/depth regimes present (slow-deep, slow- shallow, fast-deep, fast shallow (sat-deep, fast- shallow) (sow is <0.5 m)Only 3 of the 4 regimes present (if fast-shallow is missing, score lower than it missing other regimes).Only 2 of the 4 habitat regimes present (if fast-shallow or slow- shallow are missing, score lowDominated by 1 velocity/depth regime (usually slow-deep).Score20 19 18 17 1615 14 13 12 1110 9 8 7 65 4 3 2 1 014. Sediment DepositionLittle or no enlargement of Islands or point bars and -5% of the bottom affected by sediment deposition.Some new increase in bar formation, mostly from gravel, sand, or fine sediment; 5.3% of the bottom affected by sediment deposition.Moderate deposition of new gravel, sand, or fine sediment; of the bottom affected; slight deposition in pools.Heavy deposits of fine material, increased bar development; more than 50% of the bottom changing frequently; pools almost abstructions, constrictions, and bends; moderate deposition9 8 7 65 4 3 2 1 0115. Channel Flow statusWater reaches base of both lower banks, and minimal amount of channel substrate exposed.Water fills >75% of the availible channel; or <25% of channel substrate is exposed.Water fills >75% of the availible channel, and/or iffle substrates are mostly exposed.Very little water in channel and mostly present as standing pools.115. Channel Flow status20 19 18 17 1615 14 13 12 1110 9 8 7 65 4 3 2 1 011	Score	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	543210	4	
Score20 19 18 17 1615 14 13 12 1110 9 8 7 65 4 3 2 1 014. Sediment DepositionLittle or no enlargement of islands or point bars and <5% of the bottom affected by sediment deposition.Some new increase in bar formation, mostly from gravel, sand, or fine sediment; 5-30% of the bottom affected; sediment depositionModerate deposition of new gravel, sand, or fine sediment; of the bottom affected; sediment depositionHeavy deposits of fine material, increased bar development; more than 50% of the bottom affected; sediment depositionHeavy deposits of fine material, increased bar development; more than 50% of the bottom affected; sediment depositionHeavy deposits of fine material, increased bar development; more than 50% of the bottom diffected; sediment depositionHeavy deposits of fine material, increased bar development; more than 50% of the bottom diffected; sediment depositionScore20 19 18 17 1615 14 13 12 1110 9 8 7 65 4 3 2 1 011Score20 19 18 17 1615 14 13 12 1110 9 8 7 65 4 3 2 1 011Score20 19 18 17 1615 14 13 12 1110 9 8 7 65 4 3 2 1 011	Velocity/Depth Regime	All four velocity/depth regimes present (slow-deep, slow- shallow, fast-deep, fast shallow)(slow is <0.3m/s, deep is >0.5 m)	Only 3 of the 4 regimes present (if fast-shallow is missing, score lower than if missing other regimes).	Only 2 of the 4 habitat regimes present (if fast-shallow or slow- shallow are missing, score low)	Dominated by 1 velocity/depth regime (usually slow-deep).		
4. Sediment Deposition   Little or no enlargement of islands or point bars and <5% of the bottom affected by sediment deposition.   Some new increase in bar formation, mostly from gravel, sand, or fine sediment; 5-30% of the bottom affected; sight deposition in pools.   Moderate deposition of new gravel, sand, or fine sediment on old and new bars; 30-50% of the bottom affected; sediment deposition, constrictions, and bends; moderate deposition of pools prevalent.   Heavy deposits of fine material, increased bar development; more than 50% of the bottom affected; sediment deposition, bends; moderate deposition of pools prevalent.   Heavy deposits of fine material, increased bar development; more than 50% of the bottom affacted; sediment deposition, bends; moderate deposition of pools prevalent.   Heavy deposits of fine material, increased bar development; more than 50% of the bottom affacted; sediment deposition, bends; moderate deposition of pools prevalent.     Score   20 19 18 17 16   15 14 13 12 11   10 9 8 7 6   5 4 3 2 1 0   11     Score   20 19 18 17 16   15 14 13 12 11   10 9 8 7 6   5 4 3 2 1 0   11	Score	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	543210	14	
Score     20 19 18 17 16     15 14 13 12 11     10 9 8 7 6     5 4 3 2 1 0     1       5. Channel Flow status     Water reaches base of both lower banks, and minimal amount of channel substrate is exposed.     Water fills >75% of the availible channel; or <25% of channel substrate is exposed.     Water fills 25-75% of the availible channel; and/or riffle substrates are mostly exposed.     Very little water in channel and mostly present as standing pools.     1       Score     20 19 18 17 16     15 14 13 12 11     10 9 8 7 6     5 4 3 2 1 0     1	4. Sediment Deposition	Little or no enlargement of islands or point bars and <5% of the bottom affected by sediment deposition.	Some new increase in bar formation, mostly from gravel, sand, or fine sediment; 5-30% of the bottom affected; slight deposition in pools.	Moderate deposition of new gravel, sand, or line sediment on old and new bars; 30-50% of the bottom affected; sediment deposits at obstructions, constrictions, and bends; moderate deposition of pools prevalent.	Heavy deposits of fine material, increased bar development; more than 50% of the bottom changing frequently; pools almost absent due to substantial sediment deposition.		
5. Channel Flow status   Water reaches base of both lower banks, and minimal amount of channel substrate is exposed.   Water fills >75% of the availible channel, or <25% of channel substrate is exposed.   Water fills 25-75% of the availible channel, and/or riffle substrates are mostly exposed.   Very little water in channel and mostly present as standing pools.     Score   20 19 18 17 16   15 14 13 12 11   10 9 8 7 6   5 4 3 2 1 0   1	Score	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	543210	10	
Score 20 19 18 17 16 15 14 13 12 11 10 9 8 7 6 5 4 3 2 1 0 1	5. Channel Flow status	Water reaches base of both lower banks, and minimal amount of channel substrate is exposed.	Water fills >75% of the availible channel; or <25% of channel substrate is exposed.	Water fills 25-75% of the availible channel, and/or riffle substrates are mostly exposed.	Very little water in channel and mostly present as standing pools.		
	Score	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	543210	10	
Total Score 4			Total Score			47	

	ADITAT ASSESSI	ENT FIELD DATA	SHEET-HIGH GRA	ADIENT STREAMS	
Project #	Site	Cowardin	Diver Persin	Date	Time
20003	NOVA Stream Bank	R3	niver basin	2/12/2008	2:00PM
Invest	igators	HUC	Potomac	Locality	
TSS S	DS DW	02070008	1 otomac	Fairfax County	
Re	ach	D.A. (Acres)	Reach Length (LF)	Order	
2	-B	169	300	3	
Latitude	Longitude		Stream Na	ne	
38°55'58"	77°21'01"	Un	named Tributary to Sn	akeden Branch	
		Con	dition Category		
Habitat Parameter	Optimal	Suboptimal	Marginal	Poor	Score
6. Channel Alteration	Channelization or dredging absent or minimal; stream width normal pattern.	Some channelization present, usually in areas of bridge abutments; evidence of past channelization, i.e. dredging, may be present, but recent channelization is not present.	Channeliztion may be extensive; embankments or shoring structures present on both banks; and 40-80% of stream reach channelized and disrupted.	Banks shored with gabion or cement; over 80% of the stream reach channelized and disrupted. Instream habitat greatly altered or removed entirely.	
Score	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	543210	16
	Occurrence of silling salations	1 1 1 1 1 1 1			10
7. Frequency of Riffles	frequent; ratio of distance between riffles divided by width of the stream <7:1 (generally 5 to 7); variety of habitat is key. In streams where riffles are continuous, placement of boulders or other large, natural obstruction is important.	Occurrence of riffles infrequent; distance between riffles divided by the width of the stream is between 7 to 15.	Occasional riffle or bend; bottom contours provide som habitat; distances between riffles divided by the width of the stream is between 15 to 25.	Generally all flat water or shallow riffles; poor habitat; distance between riffles divided by the width of the stream is a ratio of >25.	
Score	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	543210	19
8. Bank Stability (score each bank)	Banks stable; evidence of erosion or bank failure absent or minimal; little potential for future problems. <5% of bank affected.	Moderately stable; infrequent, small areas of erosion mostly healed over. 5-30% of bank in reach has areas of erosion.	Moderately unstable; 30-60% of bank reach has areas of erosion; high erosion potentia during floods.	Unstable; many eroded areas; "raw" areas frequent along straight sections and bends; obvious bank sloughing; 60- 100% of bank has erosional scars.	
Score Left Bank	10 9	8 7 6	5 4 3	2 1 0	2
Score Right Bank	10 9	8 7 6	5 4 3	2 1 0	2
9. Vegetation Protection (score each bank) Note: Determine left or right side by facing downstream.	More than 90% of the streambank surfaces and immediate riparian zone covered by native vegetation, including trees, understory shrubs, or non-woody macrophytes; vegetation disruption through grazing or mowing minimal or not evident; almost all plants allowed to grow naturally.	70-90% of the streambank surfaces covered by native vegetation, but one class of plants is not well-represented; disruption evident but not affecting full plant growth potential to any great extent; more than one-half of the potential plant stubble height remaining.	50-70% of the streambank surfaces covered by vegetation; disruption obvious patches of bare soil or closely cropped vegetation common; less than one-half of the potential plant stubble height remaining.	Less than 50% of the streambank surfaces covered by vegetation; disruption of streambank vegetation is very high; vegetation has been removed to 5 centimeters or less in average stubble height.	
Score Left Bank	10 9	8 7 6	5 4 3	2 1 0	9
Score Right Bank	10 9	8 7 6	5 4 3	2 1 0	8
10. Riparian Vegetative Zone Width (score each bank riparian zone)	Width of riparian zone >18 meters; human activities (i.e. parking lots, roadbeds, clear- cuts, lawns, or crops) have not impacted zone.	Width of riparlan zone 12-18 meters; human activities have impacted zone only minimally.	Width of riparian zone 6-12 meters; human activities have impacted zone a great deal.	Width of riperian zone <6 meters; little or no riparian vegetation due to human activities.	
Score Left Bank	10 9	8 7 6	5 4 3	2 1 0	9
Coold Lon Dank	10 0	8 7 6	5 4 3	2 1 0	9
Score Right Bank					
Score Right Bank	10 0	Total Score	0 4 0	2 1 0	101



Destruct	01	Cite Courselle	oneer man and	ADIENT STREAMS	
Project #	Site	Cowardin	River Basin	Date	Time
20003	NOVA Stream Bank	R3		2/14/2008	11:30AN
Invest	gators	HUC	HUC Potomac Locality		
TSS/	SDS	02070008		Fairfax Count	У
Rea	ach	D.A. (Acres)	Reach Length (LF)	Order	
3.	A	75	300	1	
Latitude	Longitude		Stream Nam	le	
38°55'58"	77°21'01"	21'01" Unnamed Tributary to Snakeden Branch			
Habitat Demonstra		Con	dition Category		-
Habitat Parameter	Optimal	Suboptimal	Marginal	Poor	Score
1. Epifaunal Substrate/ Available Cover	Greater than 70% of substrate favorable for epifaunal colonization and fish cover, mix of snags, submerged logs, undercut banks, cobble, or other stable habitat and at stage to allow full colonization potential (i.e. snags/logs that are not new fall and not transient).	40-70% mix of stable habitat; well suited for full colonization potential; adequate habitat for maintainance of populations; presence of additional substrate in the form of newfall, but not yet prepared for colonization.	20-40% mix of stable habitat; habitat availability less than desirable; substrate frequently disturbed or removed.	Less than 20% stable habitat; lack of habitat is obvious; substrate unstable or lacking,	
Score	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	543210	6
2. Embeddedness	Gravel, cobble, and boulder particles are 0-25% surrounded by fine sediment. Layering of cobble provides diversity of niche space.	Gravel, cobble, and boulder particles are 25-50% surrounded by fine sediment.	Gravel, cobble, and boulder particles are 50-75% surrounded by fine sediment	Gravel, cobble, and boulder particles are more than 75% surrounded by fine sediment	
Score	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	543210	5
Velocity/Depth Regime	All four velocity/depth regimes present (slow-deep, slow- shallow, fast-deep, fast shallow)(slow is <0.3m/s, deep is >0.5 m)	Only 3 of the 4 regimes present (if fast-shallow is missing, score lower than if missing other regimes).	Only 2 of the 4 habitat regimes present (if fast-shallow or slow- shallow are missing, score low)	Dominated by 1 velocity/depth regime (usually slow-deep).	
Score	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	543210	9
4. Sediment Deposition	Little or no enlargement of islands or point bars and <5% of the bottom affected by sediment deposition.	Some new increase in bar formation, mostly from gravel, sand, or fine sediment; 5-30% of the bottom affected; slight deposition in pools.	Moderate deposition of new gravel, sand, or line sediment on old and new bars; 30-50% of the bottom affected; sediment deposits at obstructions, constrictions, and bends; moderate deposition of pools prevalent.	Heavy deposits of fine material, increased bar development; more than 50% of the bottom changing frequently; pools almost absent due to substantial sediment deposition.	
Score	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	543210	6
5. Channel Flow status	Water reaches base of both lower banks, and minimal amount of channel substrate is exposed.	Water fills >75% of the availible channel; or <25% of channel substrate is exposed.	Water fills 25-75% of the availible channel, and/or riffle substrates are mostly exposed.	Very little water in channel and mostly present as standing pools.	
Score	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	543210	6
		Total Score			32

BITAT AGGLOGIN	ENT FIELD DATA	SHEET-HIGH GRA	DIENTSTREAMS	
Site	Cowardin	River Basin	Date	Time
NOVA Stream Bank	R3	THIEF BUSH	2/14/2008	11:30AM
gators	HUC	Potomac	Locality	
ah	02070008	Deach Lawath // E)	Fairfax County	/
A	D.A. (Acres)	Reach Length (LF)	Order	
A Longitude	75	Stream Nam	1	_
77°21'01"	Un	named Tributary to Sna	akeden Branch	
11 2101	011	namod modiary to one	anoderi bianon	
Optimal	Con Suboptimal	dition Category Marginal	Poor	Score
Channelization or dredging absent or minimal; stream width normal pattern.	Some channelization present, usually in areas of bridge abutments; evidence of past channelization, i.e. dredging, may be present, but recent channelization is not present.	Channeliztion may be extensive; embankments or shoring structures present on both banks; and 40-80% of stream reach channelized and disrupted.	Banks shored with gabion or cement; over 80% of the stream reach channelized and disrupted. Instream habitat greatly altered or removed entirely.	
20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	543210	18
Occurrence of riffles relatively frequent; ratio of distance between riffles divided by width of the stream <7:1 (generally 5 to 7); variety of habitat is key. In streams where riffles are continuous, placement of boulders or other large, natural obstruction is important.	Occurrence of riffles Infrequent; distance between riffles divided by the width of the stream is between 7 to 15.	Occasional riffle or bend; bottom contours provide some habitat; distances between riffles divided by the width of the stream is between 15 to 25.	Generally all flat water or shallow riffles; poor habitat; distance between riffles divided by the width of the stream is a ratio of >25.	
20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	543210	14
Banks stable; evidence of erosion or bank failure absent or minimal; little potential for future problems. <5% of bank affected.	Moderately stable; infrequent, small areas of erosion mostly healed over. 5-30% of bank in reach has areas of erosion.	Moderately unstable; 30-60% of bank reach has areas of erosion; high erosion potential during floods.	Unstable; many eroded areas; "raw" areas frequent along straight sections and bends; obvious bank sloughing; 60- 100% of bank has erosional scars.	
10 9	8 7 6	5 4 3	2 1 0	1
10 9	8 7 6	5 4 3	2 1 0	1
More than 90% of the streambank surfaces and immediate riparian zone covered by native vegetation, including trees, understory shrubs, or non-woody macrophytes; vegetation disruption through grazing or mowing minimal or not evident; atmost all plants allowed to grow naturally.	70-90% of the streambank surfaces covered by native vegetation, but one class of plants is not well-represented; disruption evident but not affecting full plant growth potential to any great extent; more than one-hall of the potential plant stubble height remaining.	50-70% of the streambank surfaces covered by vegetation; disruption obvious; patches of bare soil or closely cropped vegetation common; less than one-half of the potential plant stubble height remaining.	Less than 50% of the streambank surfaces covered by vegetation; disruption of streambank vegetation is very high; vegetation has been removed to 5 centimeters or less in average stubble height.	
10 9	8 7 6	5 4 3	2 1 0	9
10 9	8 7 6	5 4 3	2 1 0	9
Width of riparian zone >18 meters; human activities (i.e. parking lots, roadbeds, clear- cuts, lawns, or crops) have not impacted zone.	Width of riparian zone 12-18 meters; human activities have impacted zone only minimally.	Width of riparian zone 6-12 meters; human activities have impacted zone a great deal.	Width of riperian zone <6 meters; little or no riparian vegetation due to human activities.	
10 9	8 7 6	5 4 3	2 1 0	7
10 9	8 7 6	5 4 3	2 1 0	10
10 0				
	NOVA Stream Bank pators ch A Longitude 77°21'01" Optimal Channelization or dredging absent or minimal; stream width normal pattern. 20 19 18 17 16 Occurrence of riffles relatively frequent; ratio of distance between riffles divided by width of the stream <7:1 (generally 5 to 7); variety of habitat is key. In streams where riffles are continuous, placement of boulders or other large, natural obstruction is important. 20 19 18 17 16 Banks stable; evidence of erosion or bank failure absent or minimal; little potential for future problems. <5% of bank affected. 10 9 10 9 More than 90% of the streambank surfaces and immediate riparian zone covered by native vegetation, including trees, understory shrubs, or non-woody macrophytes; vegetation disruption through grazing or mowing minimal or not evident; aimost all plants allowed to grow naturally. 10 9 10 9 Width of riparian zone >18 meters; human activities (i.e. parking lots, roadbeds, clear- cuts, lawns, or crops) have not impacted zone. 10 9	SiteCowardinNOVA Stream BankR3gatorsHUC02070008chD.A. (Acres)A75Longitude77°21'01"77°21'01"UnConConOptimalSuboptimalChannelization or dredging absent or minimal; stream width normal pattern.Some channelization present, usualy in areas of bridge abuments; evidence of past channelization is not present.20 19 18 17 1615 14 13 12 11Occurrence of nffles relatively frequent; ratio of distance between riffles divided by width of the stream ar2.11 (generaly 5 to 7); variety of habitat is key. In streams phacement of boulders or other large, natural obstruction is important.Moderately stable; infrequent; areas of erosion or bark failure absent or minimal; lifte optential affected.Moderately stable; infrequent; areas of erosion mostly healed over. 5-30% of bank in reach has areas of erosion.10 98 7 610 970-90% of the stream-and erostion, but one class of plants is not well-spresented; disruption evident atmost alignen and rot or targe naturality of strubs, or non-woody marcophytes: vegetation, balled spins allowed to grow naturally.70-90% of the streambank streambank surfaces and immediate iparian zone onwing minimal or not evident atmost alignen salwed to grow naturally.10 98 7 6Width of riparian zone aros alignes allowed to grow naturally.Width of riparian zone 12-18 meters; human activities (i.e. parking lots, roadbeds, clear- cuts, lawns, or crops) have no impacted zone.Width of riparian zone 12-18	SiteCowardumRiver BasinNOVA Stream BankR3gatorsHUCPotomac02070008Reach Length (LF)A75300LongitudeStream Nam77*2101*Unnamed Tributary to SnCondition CategoryOptimalSuboptimalChannelization or drodging absent or minima; stream width normal pattern.Some channelization present, usually in areas of bridge abutenets evidence of path annelization is not present.Channelization or drodging absent or minima; stream width normal pattern.Some channelization present, usually in areas of bridge abutenets evidence of national path annelization is not present.20 19 18 17 1615 14 13 12 1110 9 8 7 6Cocurrence of rifles relatively frequent; rifle divided by the with of the stream r3.1 (general's to 7), vanity of habitat is key. In streams is between 7 to 15.gatives stable; evidence of arrise are continuous, placement of boulders or other small areas of erosion, path areas of bridge or minima; ittle potential for the stream r3.1 (solved or other areas of areas or areas or areas of areas or areas of areas or areas or areas or areas or areas or areas of areas or areas oreas or areas or a	Site     Covariant     River Basin     Date       gators     HUC     Potomac     2/14/2008       och     D.A. (Acres)     Reach Length (LF)     Order       A     75     300     1       Longitude     Stream Name     1     Channelization of the stream Name       77°21'01*     Unnamed Tributary to Snakeden Branch       Channelization of dreiging and the stream statute stream name channelization is not present usally in areas of bridge absent or minicuits stream statute stream statute channelization is not present channelization is not present     Channelization and the stream statute channelization is not present       20 19 18 17 16     15 14 13 12 11     10 9 8 7 6     5 4 3 2 1 0       Cocurrence of filles relatively to stream statute channelization is not present     Cocurrence of filles relatively the stream is between 716 is the

	N	SSI BEN	THIC M	ACROINVERTEBR	ATE FIELD	DATA SH	IEET	
Proje	ct #	Si	te	Cowardin	River Basin Date			Time
200	03	Snak	eden	R3	Potomac 2/12/2008			10:00AN
	Investi	gators		HUC		Lo	ocality	
	TSS/	SDS		2070008		Fairfa	ax County	
	Rea	ach		D.A. (Acres)	Reach Ler	igth (LF)	Orde	er
	1.	A		863	300	)	3	
Latit	ude	Long	itude		Stream	n Name		
38°55	5'58"	77°2	1'01"		Snakede	en Branch		
				Self-self-self-self-self-self-self-self-s				
		Habita	t Types (	Indicate Percentage o	f Each Habitat	Present)		
Cobble	30	Sand	80	Rootwads 5	Vegetated	Banks	0	
Large	Woody D	ebris	5	Undercut Banks	5	Lea	f Packs	5
IS AGE OF	010150103			States and States and States			A SUPPORT OF STREET	
				Sample Collecti	on		CENTRAL STREET	
Gear l	Jsed	How	Were Sa	mples Collected?	Number	of Jabs/K	icks Taken fro	m Each
D-Frame	x	Wat	ding	×		Н	abitat	
							Undercut	
Kick-Net		From	Bank		Cobble	10	Banks	4
		and the second					Submerged	
Other		From	Boat		Sand	0	Macro-phytes	0
					Rootwads	2	Leaf Packs	2
					Vegetated	-	Large Woody	
					Banks	0	Debris	2
				Oceanol Oceano				
				General Comme	nts		and the second second	
					uatic Biota		Contraction of the	
			Qu	alitative Listing of Aq	uatio biota			
Indica	ate Estimat	ed Abundar	Qu nce: 0=At	alitative Listing of Aq osent/Not Observed, 1=	Rare, 2=Com	non, 3=Ab	undant, 4=Dom	inant
Indica	ate Estimat	ed Abundar	<u>Qu</u> nce: 0=At	alitative Listing of Ag	=Rare, 2=Comn	non, 3=Ab	undant, 4=Dom	inant
Indica	ate Estimat	ed Abundar	Qu nce: 0=At	alitative Listing of Ag osent/Not Observed, 1=	Rare, 2=Comn	non, 3=Ab	undant, 4=Dom	inant 0



	W	SSI BEN	THIC M/	ACROINVE	RTEBRA	TE FIELD D	DATA SH	IEET			
Proje	ct #	Si	te	Cow	ardin	River B	asin	Date	Time		
200	03	Snak	eden	F	3	Potomac		2/12/2008	9:51 AM		
	Investi	gators		H	UC		Lo	cality			
	TSS/	SDS		207	8000		Fairfa	ax County			
S. C.D. C.L.	Rea	ach	1. 1. 1.	D.A. (	Acres)	Reach Len	gth (LF)	Orde	ər		
	1.	-B		540 300 3							
Latit	ude	Long	itude	Real Production	2 July 1	Stream	Name				
38°55	5'58"	77°2	1'01"			Snakede	n Branch				
Cobble	20	Habitat Sand	t <b>Types ( </b> 85	ndicate Perc	entage of	Each Habitat	Present) Banks	0			
Large	Woody D	ebris	0	Undercu	ut Banks	5	Lea	f Packs	5		
								ast states the st			
				Sample	Collectio	n					
Gear	Jsed	How	Were Sa	mples Collec	cted?	Number	of Jabs/K	icks Taken fro	m Each		
D-Frame	X	Wad	aing		X		H	abitat			
Kick-Not		From	Bank			Cobble	10	Banka	6		
NICK-IVEL		FIOIII	Darik			CODDIE	10	Submerged	0		
Other		From	Boat			Sand	0	Macro-phytes	0		
						Rootwads	1	Leaf Packs	3		
						Vegetated		Large Woody			
						Banks	0	Debris	0		
				Conoral	Common	10	-				
				General	Commen	15					
				Caught one	green frog	in net.					
			Qui	alitative Listi	ing of Agu	atic Biota	-	1.			
Indica	ate Estimat	ed Abundan	ice: 0=Ab	sent/Not Obs	served, 1=F	Rare, 2=Comm	on, 3=Ab	undant, 4=Dom	inant		
eriphyton				3	Slimes				0		
	Algae	THE STREET		0	Macroinve	rtebrates	States and		1		
ilamentous	Algae			-	Macroinvertebrates						

Wetland



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	۷	<b>VSSI BEN</b>	THIC M	ACROINV	ERTEBR	ATE FIELD	DATA SI	IEET	
Proje	ct #	Si	te	Cow	ardin	River B	asin	Date	Time
200	03	Snak	eden	F	73	Potom	ac	2/14/2008	9:30AN
	Investi	igators		Н	UC	Merchan Oblig	Lo	ocality	
	TSS/	SDS		207	0008		Fairfa	ax County	
and the second	Rea	ach		D.A. (	Acres)	Reach Leng	gth (LF)	Orde	r
1 - 414	]- 1-	-C	Iterate	3	86	300	Mana	3	
Latit	ude	Long	1101"		a service and the service of the ser	Stream	n Dropoh	and the second second	
30 50	150	112	101			Snakeue	II DIANCII		
		Habita	t Types (	Indicate Per	centage of	f Each Habitat	Present)	ALL LAND	
Cobble	40	Sand	70	Rootwads	1	Vegetated	Banks	0	
Submer	ged Macro	ophytes	0	Underc	ut Banks	1			
Large	Woody D	ebris	2	Leaf	Packs	5	Other	(bedrocks)	5
-				Samp	le Collectio	on	S		14400
Gear	Jsed	How	Were Sa	mples Colle	cted?	Number	of Jabs/K	icks Taken from	n Each
D-Frame	Х	Wad	ding		х		Н	abitat	
the second second								Undercut	
Kick-Net		From	Bank			Cobble	14	Banks	0
Other		Erom	Post			Cond	0	Submerged Macro-	0
Other		FIOIII	Dual			Bootwade	0	Loof Packs	5
						Vegetated	0	Large Woody	5
						Banks	0	Debris	1
						Danie		Dobilo	
		200221000		Genera	al Commer	nts	10000		
			<u>Q</u> 1	ualitative Lis	ting of Aqu	uatic Biota			
Indic	ate Estima	ited Abunda	nce: 0=A	bsent/Not Ob	oserved, 1=	Rare, 2=Comm	non, 3=Ab	undant, 4=Domir	nant
interio				2	Slimos				0
eriphyton				3	Sinnes				0
eriphyton	Algae			0	Macroinve	ertebrates	C. S.	wall should be a	1

\*

The loss	1	WSSI BEN	ITHIC M	ACROINV	ERTEBR	ATE FIELD	DATA SI	HEET	
Proje	ect #	Si	te	Cow	ardin	River B	asin	Date	Time
200	03	Snak	eden		73	Poton	nac	2/14/2008	10:30AN
	Invest	igators		H	UC		L	ocality	
	TSS	/SDS		2070008			Fairf	ax County	
and the second	Re	ach		D.A. (	Acres)	Reach Len	gth (LF)	Ord	er
	1	-D		2	:91	300	)	3	
Latit	ude	Long	itude	a name dano		Stream	n Name		24
38°55	58"	77°2	1'01"			Snaked	en Branch		
Cobble Submer	30 ged Macro	Sand	85 0	Rootwads Underc	1 ut Banks	Vegetated 10	Banks	0	
Large	woody D	ebris	1	Lear	Packs	3	Other	(bedrocks)	5
				Comm	la Callasti				
Gear	lead	How	Wara Sa	Samp	etod2	on			
D-Frame	x	War	dina	inples colle	y v	Number of	abs/Kick	Taken from F	ach Habit
Kick-Net	~	From	Bank		^	Cobble	10	Undercut Banks	7
Other		From	Boat			Sand	0	Submerged Macro-phytes	0
						Rootwads	0	Leaf Packs	2
						Vegetated Banks	0	Large Woody Debris	1
			15 3 14	Gener	al Comme	nts			1000
				Caught one	salamande	er in net.			
		Salar States	Qu	ualitative Lis	ting of Aq	uatic Biota			
	cate Estima	ated Abunda	nce: 0=A	bsent/Not Ol	oserved, 1=	Rare, 2=Comr	non, 3=Ab	undant, 4=Dom	inant
India									
India			1000	3	Slimes	3 Slimes			0
Indic eriphyton ilamentous	Algae			3	Slimes	ertebrates			0



	V	VSSI BEN	THIC M	ACROINVE	RTEBR/	ATE FIELD	DATA SH	IEET	
Proje	ct #	Si	te	Cow	ardin	River B	asin	Date	Time
200	03	Snak	eden	F	33	Potomac		2/14/2008	1:15PM
	Invest	igators	10	H	UC		Lo	ocality	1
	TSS	/SDS		207	8000		Fairfa	ax County	
- Section of the	Re	ach	1 heren	D.A. (	Acres)	Reach Len	gth (LF)	Orde	r
	1	-E		7	77	300		3	
Latit	ude	Long	itude		and the second	Stream	Name		
38°55	58"	77*2	1'01"			Snakede	n Branch		
		Habita	t Types (	Indicate Per	centage of	Each Habitat	Present)		
Cobble	40	Sand	70	Rootwads	1	Vegetated	Banks	5	
Submer	ged Macro	ophytes	0	Underc	ut Banks	0			
Large	Woody D	ebris	2	Leaf	Packs	5	Other	(bedrocks)	0
				Constant of the					
1.1.2.1.5.1.1			320 S.S.	Sampl	e Collectic	<u>n</u>			1000
Gear	Jsed	How	Were Sa	mples Collec	cted?	Number	of Jabs/K	icks Taken from	n Each
D-Frame	х	Wad	ding		Х		Н	abitat	
in the state				-		and the second		Undercut	
Kick-Net		From	Bank			Cobble	14	Banks	0
Other		From	Roat			Sand	0	Submerged Macro-obytes	0
Ourier		110111	Dual			Rootwads	0	Leaf Packs	3
						Vegetated	0	Large Woody	
						Banks	3	Debris	0
	Sen Contra		1. 1. 1. 1. 1						
		14111111	10120120	Genera	I Commen	ts			
				Caught 2 sa	llamanders	in net.			
			0	alitativa Liet		ustic Biota			
Indica	ate Estima	ted Abundar	nce: 0=Al	bsent/Not Ob	served, 1=	Rare, 2=Comm	ion, 3=Ab	undant, 4=Domi	nant
				3	Slimes				0
Periphyton						and the second sec	and the second sec		
Periphyton ilamentous	Algae		- 16 1 1 1 1 1	0	Macroinve	rtebrates			1



	V	<b>VSSI BEN</b>	THIC M	ACROINVE	ERTEBR	ATE FIELD D	ATA SH	IEET	
Proje	ct #	Si	te	Cow	ardin	River B	asin	Date	Time
200	03	Snak	eden	F	3	Potomac		2/14/2008	2:15PM
Contraction of the	Invest	igators	1. 1	H	UC		Lo	ocality	
	TSS/	SDS		207	8000		Fairfa	ax County	
and the second	Re	ach	- and and a	D.A. (	Acres)	Reach Leng	gth (LF)	Orde	r
I atit	1	-F	ltudo	5	5	300	Mana	3	
28°55	ude	7702	1'01"			Spakede	n Branch	the second s	and the second second
00 00	/00	112	101			Onakede	II Dianen	<b>Levice United</b>	
		Habita	t Types (	Indicate Per	centage of	Each Habitat	Present)		
Cobble	20	Sand	90	Rootwads	0	Vegetated	Banks	0	
Submer	ged Macro	ophytes	0	Underco	ut Banks	2			
Large	Woody D	ebris	0	Leaf	Packs	15	Other	(bedrocks)	5
				Cameral	- O - II - sti				
Goarl	load	How	Wara Ca	Sampi	e Collectio	Number	f labo/k	ieko Teken fran	Each
D-Frame	X	Wad	dina	inples collec	x	Number	H Jabs/K	abitat	Lach
o r ramo	~	· · · cat	anig	1	~			Undercut	
Kick-Net		From	Bank			Cobble	9	Banks	2
			No.			No. of the second second		Submerged	
Other		From	Boat			Sand	0	Macro-phytes	0
						Hootwads	0	Leaf Packs	9
						Vegetated	-	Large Woody	-
						Banks	0	Debris	0
				Genera	I Commer	nts			
			0.	unitativa Lint	ting of Agu	untin Diata			
			Gr	Mindive LIS	any of Aqu	alle blota			-
Indic	ate Estima	ted Abunda	nce: 0=A	bsent/Not Ob	served, 1=	Rare, 2=Comm	on, 3=Ab	undant, 4=Domin	nant
oriphytop				3	Slimes				0
Priphyton				Macroinvertebrates					
ilamentous	Algae			2	Macroinve	ertebrates			1

## 

	WS	SI BENT	HIC MA	CROINVER	TEBRAT	E FIELD DA	ATA SH	EET	
Proje	ect #	Si	te	Cow	ardin	River B	asin	Date	Time
200	03	Snak	eden	F	33	Potomac		2/12/2008	12:50 PN
	Investi	gators		HUC			Loc	ality	1.11
	TSS/	SDS		207	0008		Fairfax	County	
Sector March	Rea	ach		D.A. (	Acres)	Reach Len	gth (LF)	Orc	ler
	2-	A		2	56	300		3	
Latit	ude	Long	itude		ale and the	Stream I	Name	S. S. Line - seguin	
38°55	5'58"	77°2	1'01"			Snakeden	Branch		
		Habitat -	Types (In	dicate Perce	ntage of E	ach Habitat P	resent)		
Cobble	20	Sand	90	Rootwads	1	Vegetated	Banks	0	
Large	Woody D	ebris	1	Underc	ut Banks	3	Leaf	Packs	5
				Sandre Marsharet					
			(Lusia)	Sample	Collection		- Malland	National Contraction	
Gear	Used	How	Were Sa	mples Colle	cted?	Number of	Jabs/Kid	cks Taken fr	om Each
D-Frame	Х	Wad	ding	2	х		Ha	bitat	
Kick-Net		From	Bank			Cobble	11	Undercut Banks	3
Other		From	Boat			Sand	0	Submerged Macro-phytes	0
						Rootwads	1	Leaf Packs	4
						Vegetated Banks	0	Large Woody Debris	1
		-		General	Comments				
	In a la		Qual	itative Listin	g of Aqua	tic Biota		A S REAL PORT	
Indicate	e Estimated	d Abundanc	e: 0=Abs	ent/Not Obse	erved, 1=Ra	are, 2=Commo	n, 3=Abu	ndant, 4=Dor	ninant
Periphyton			1	3	Slimes				0
the state of the s			-	0	Magroinus	artobratos			1
ilamentous	s Algae			0	INACIOINVE	niepiales			-

Wetland

Int



		-		Studies and Soluti	ions, Inc.				
	Ws	SIBENT	IC MAG	CROINVER	FBRAT	E FIELD DA	TA SH	FET	
Proie	ect #	Si	te	Cowa	rdin	River B	asin	Date	Time
200	03	Snak	eden	R	3	Potorr	ac	2/12/2008	2:00 PM
	Invest	igators		HU	C		Loc	ality	
	TSS	/SDS		2070	008		Fairfax	County	
hand a	Re	ach	The last	D.A. (A	cres)	Reach Len	gth (LF)	Orc	ler
	2	-В		16	9	300	)	3	1
Latit	ude	Long	itude			Stream I	Name		
38°55	5'58"	77°2	1'01"			Snakeden	Branch		
Cobble	35	Habitat T Sand	vpes (Inc	dicate Percen Rootwads	tage of E	ach Habitat P Vegetated	resent) Banks		)
Large	e Woody L	ebris	1	Undercut	t Banks	3	Leaf	Packs	15
Gear D-Frame Kick-Net Other	Used X	How Wad From From	Were Sa ling Bank Boat	Sample Collect	ollection ied?	Number of Cobble Sand Rootwads Vegetated Banks	Jabs/Kid Ha 12 0	ks Taken fr bitat Undercut Banks Submerged Macro- phytes Leaf Packs Large Woody Debris	om Each 0 0 8
	and and			General Co	omments		000		
Indicate Periphyton Filamentous	e Estimate	d Abundance	Quali ə: 0=Abse	itative Listing ent/Not Obser	of Aquat ved, 1=Ra Slimes Macroinve	t <mark>ic Biota</mark> are, 2=Commo ertebrates	n, 3=Abu	ndant, 4=Dor	minant 0 1
Macrophyte	S	112		0	rish				0
				Page	1 of 1				



		-		Studies and Solu	ations, Inc.				
	V	VSSI BEN	THIC M	ACROINV	ERTEBR	ATE FIELD	DATA S	HEET	
Proje	ct #	Si	te	Cow	ardin	River B	asin	Date	Time
200	03	Snak	eden	F	73	Potor	nac	2/14/2008	11:30AM
	Invest	igators		H	UC		L	ocality	
	TSS/	SDS		207	0008		Fairf	ax County	
	Re	ach		D.A. (	Acres)	Reach Len	gth (LF)	Orde	r
	3	-A		7	75	300	)	1	
Latit	ude	Long	itude			Stream	n Name		And Street of
38°55	58"	77°2	1'01"			Snakede	en Branch		
Cobble	20	<u>Habita</u> Sand	<b>it Types (</b> 90	(Indicate Per	centage o	f Each Habitat	Present)	0	
Submer	ged Macro	ophytes	0	Underc	ut Banks	1			
Large	Woody D	ebris	0	Leaf	Packs	3	Other	(bedrocks)	2
		States and the		1					
	Salary Star	Survey and	1 Carlos	Samp	le Collecti	on	100		
Gear	Jsed	How	Were Sa	mples Colle	cted?		1 - 1 - 2 - 2 -	TO BE STORESS	10.51000
D-Frame	х	Wad	ding		х	Number of J	abs/Kick	s Taken from Ea	ch Habitat
Kick-Net		From	Bank			Cobble	17	Undercut Banks	1
Other		From	Boat			Sand	0	Submerged Macro- phytes	0
						Rootwads	0	Leaf Packs	2
						Vegetated Banks	0	Large Woody Debris	0
	1			Genera	al Comme	nts			
Indic Periphyton Filamentous	ate Estima	ted Abunda	<u>Qu</u> nce: 0=A	ualitative Lis bsent/Not Ot	ting of Aq oserved, 1= Slimes Macroinve	<u>uatic Biota</u> ⊧Rare, 2=Comn ertebrates	non, 3=Ab	oundant, 4=Domir	nant 0 1
Macrophyte	S	M. The		0	Fish				0
				Pa	ge 1 of 1				

## WSSI BENTHIC MACROINVERTEBRATE I.D. AND ENUMERATION BENCH SHEET\*

Site	WSSI #	Reach	Collectors	# Jars in Sample	Total No. Organisms Sorter
Snakeden Branch - Pre Con. Year 2	20003	1-A	SDS/TSS	1	121
Date ID'd	Date Sorted	Taxonomist	Sorter	# Grids in Subsample	Total No. Organisms ID'd
8/25/2008	8/18/2008	SDS	SDS	65	82
IVALVIA - Clams		Forcipornyia sp.		Synorthocladius sp.	
SPHAERIDAE		Probezzia sp.		Thienemanniella sp.	
Pisidium sp.	4	Sphaeromias sp. Stilobezzia sp.		Tvetenia sp.	
Musculium sp.		CHAOBORIDAE		Xylotopus sp.	
CORBICULIDAE		Chaborus sp.		Zalutschia sp.	
Corbicula fluminea sp.		CHIRONOMIDAE	53	Tanypodinae	
BRANCHIOBDELLIDA		Chironomini		Aliabesmyla sp.	
BRANCHIOBDELLIDAE		Chironomus sp.		Apsectrotanypus sp.	
TETRASTEMMATIDAE		Cryptochironomus sp.		Clinotanypus sp.	
CANTHERIDAE		Cryptotendipes sp.		Conchapelopia sp.	
CURCULIONIDAE		Dicrotendipes sp.		Krenopelopia sp.	
DRYOPIDAE		Einfeldia sp.		Labrundinia sp.	
Helichus sp.		Endochironomus sp.		Larsia sp.	
Agabus so		Gilyptotendipes sp.		Macropelopia sp.	
Hydroporous sp.		Microtendipes sp.		Paramerina sp.	
Coptotomus sp.		Nilothauma sp.		Pentaneura sp.	
Oreodytes sp.		Pagastiella sp.		Procladius sp.	
Dytiscus sp.		Paracladopelma sp.		Rheopelopia sp.	
ELMIDAE		Paratendipes sp.		Tanypus sp.	
Microcylloepus sp.		Phaenopsectra sp.		Thienemannimyia gp.	
Optioservus sp. Stepelmis sp		Polypedilum sp. Stepochiropomus sp.		Thienemannimyla sp.	
Promoresia sp.		Stictochironomus sp.		Zavrelimvia sp.	
Macronychus sp.		Tribelos sp.		CULICIDAE	
Dubiraphia sp.		Zavreliella sp.		Aedes	
Ancyronyx sp. Oulimnius sp.		Cladotapytarsus sp		Anopheles	
GYRINIDAE		Constempellina sp.		Culiseta	
Dineutus		Micropsectra sp.		Mansonia	
Gyrinus		Micropsectra/Tanysarsus complex		Orthopodomyia	
Halipus sp.		Rheotanytarsus sp.		Toxorhynchites	
HYDROPHILIDAE		Stempellina sp.		Uranotaenia	
Cymbiodyta sp.		Stempellinella sp.		Wyeomyia	
Berosus sp.		Sublettea sp.		DIXIDAE	
Helochares sp.		Zavrelia sp.		DOLICHOPODIDAE	1
Helophorus sp.		Diamesinae		EMPIDIDAE	
Hydrophilus sp.		Diamesa sp.		Chelifera sp.	
Tropistemus sp.		Pagastia sp.		Clinocera sp.	
Hydrobius sp.		Prodiamesa sp		Dolichocephala sp.	
Laccobius sp.		Sympotthastia sp.		EPHYDRIDAE	1
PSEPHENIDAE		Orthocladiinae		PELCORHYNCHIDAE	
Ectopria sp.		Brillia sp. Cardiocladius sp		Glutops sp. PSYCHODIDAE	
Dicranopselaphus sp.		Chaetocladius sp.		Pericoma sp.	
PTILODACTYLIDAE		Corynoneura sp.		Psycoda sp.	
Anchytarsus sp.		Cricotopus sp.		SIMULIDAE	
CRUSTACEA (Amphipoda- Scuds)		Diplocladius sp.		Prosimulium sp.	
CRANYONYCTIDAE	5	Eukiefferiella sp.		Cnephia sp.	
Stygonectes sp.		Heleniella sp.		Twinia sp.	
Synurella sp.		Heterotrissociadius sp.		Stegopterna sp.	
GAMMARIDAE		Limnophyes sp.		STRATIOMYIDAE	
Gammarus sp.		Lopescladius sp.		Oxycera sp.	
HValella sp		Mesosmittia sp.		Odontomyia sp.	
CRUSTACEA (Decopoda - Cravlish)		Nanocladius sp.		Chrysogaster sp.	
CAMBARIDAE		Orthocladinae A		Eristalis sp.	
PALAEMONIDAE		Orthocladius sp.		TABANIDAE	
ASELIDAE		Parachaetocladius sp.		Chrysops sp.	
Caecidotea sp.		Parametriocnemus sp.		TANYDERIDAE	
Lirceus sp.		Paraphaenocladius sp.		THAUMALEIDAE	
DIPTERA - True Flies	1	Parasmittia sp.		Thaumalea sp.	
Atherix sp		Paratricsociadius sp.		TIPULIDAE Antocha ap	2
BLEPHARICERIDAE		Psectrocladius sp.		Hexatoma sp.	
CECIDOMYIIDAE		Pseudorthocladius sp.		Leptotarsus sp.	
CERATOPOGNIDAE		Psilometriocnemus sp.		Molophilus sp.	
Bezzia sp.		Rheosmittia sp.		Psuedolimnophila an	
Ceratopogon sp.		Smittia sp.		Dicranota sp.	
Culicoides sp.		Stilocladius sp.		Limnophila sp.	
Dasyhelea sp.		Symposiocladius sp.		Ormosia sp.	

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nakeden Branch - Pre Con. ear 2 Date ID'd 8/25/2008 Pedicia sp. Limonia sp. Pilaria sp. Ericoptera sp.	20003 Date Sorted				
Padicia sp. Limonia sp. Plaria sp. Erioptera sp.	Date Sorted		ODOTOO		101
8/25/2008 Pedicia sp. Limonia sp. Pilaria sp. Erioptera sp.	porce controla	1-A Taxonomist	SDS/155	# Grids in Subsample	121 Total No. Organisms ID'd
Pedicin sp. Limonia sp. Pilaria sp. Erioptera sp.	8/18/2008	SDS	SDS	65	82
Pedicia sp. Limonia sp. Pilaria sp. Erioptera sp.	1	Address of the second			
Pilaria sp. Erioptera sp.		HIRUDINEA - Leeches		Paranemoura sp. Prostoia sp.	
Enoptera sp.		HOPLONEMERTEA - Ribbon Worms		Shipsa sp.	
Rhabdomastix sp.		Prostoma sp.		Alloperla sp.	
RICHOCERIDAE		LEPIDOPTERA - Moth Larvae		Haploperla sp.	
PHEMEROPTERA - Mayflies		Archanara sp.		Sweltsa sp. TAENIOPTERGIDAE	
AMELETIDAE		Bellura sp.		Strophopteryx sp.	
Ameletus sp. BAETIDAE		PYRALIDAE MEGALOPTERA - Dobscofilion		Taeniopteryx sp.	
Acentrella sp.		CORYDALIDAE		BRACHYCENTRIDAE	
Acerpenna sp.		Chauliodes sp.		Brachycentrus sp.	
Centroptilum sp.		Nigronia sp.		Heteroplectron sp.	
Diphetor sp.		SIALIDAE		DIPSEUDOPSIDAE	
BAETISCIDAE Baetisca sp.		NEMATODA - Roundworms		GLOSSOSOMATIDAE	
CAENIDAE		NEMATOMORPHA - Horsehair Worms		Glossosoma sp.	
Caenis sp. EPHEMERELLIDAE		ODONATA (Anispotera - Dragonflies) AESHNIDAE		Agapetus sp. HELICOPSYCHIDAE	
Dannella sp.		Anax sp.		Helicopsyche sp.	
Drunella sp. Enhemerella sp.		Basiaeshna sp. h		HYDROPSYCHIDAE Chaumalopsychesin	3
Eurylophella sp.		CORDULEGASTRIDAE		Diplectrona sp.	
Serratella sp.		Cordulegaster sp.		Hydropsyche sp.	
Ephemera sp.		GOMPHIDAE		Potamyia sp.	1
HEPTAGENIIDAE		Arigomphus sp.		HYDROPTILIDAE	
Epeorus sp. Leucrocuta sp.		Gomphus sp. Hagenius sp.		Hydroptila sp. Leucotrichia sp.	
Stenacron sp.		Lanthus sp.		Ochrotrichia sp.	
LEPTOPHLEBIDAE		LIBELLULIDAE		Lepidostoma sp.	
Leptophlebia sp.		MACROMIIDAE		LEPTOCERIDAE	
Habrophlebia sp. Habrophlebiodes sp.		Macromia sp. PETALUBIDAE		Triaenodes sp. Ceraclea sp.	
Paraleptophlebia sp.		ODONATA Zygoptera - Damselflies)		Oecetis sp.	
NEOEPHEMERIDAE		CALOPTERYGIDAE	1	LIMNEPHILIDAE	
Isonychia sp.		COENAGRIONIDAE		Hydatophylax sp.	
POLYMITARCYIDAE		Argia sp.		Ironoquia sp.	
SIPHLONEURIDAE		OLIGOCHAETA - Oligochaete Worms	11	MOLANNIDAE	
Siphlonurus sp.		LUMBRICINA		Molanna sp.	
Tricorythodes sp.		NAIDIDAE		Psilotreta sp.	
ASTROPODA - Snails		TUBIFICIDAE		PHILOPOTAMIDAE	
ANCYLIDAE Feriasa sp		POLYCHAETA - Polychaete Worms		Chimarra sp. Wormaldia sp.	
HYDROBIIDAE	1	AEOLOSOMATIDAE		PHRYGANEIDAE	
LYMNAEIDAE Fossaria sp.		Aeolosoma sp. PLECOPTERA - Stonefly Larvae		Ptilostomis sp. POLYCENTROPIDAE	
Stagnicola sp.		PERLIDAE		Cymellus sp.	
Pseudosuccinea sp. PHYSIDAE		Acroneuria sp. Beloneuria sp.		Polycentropus sp. PSYCHOMYIDAE	
Physella sp.		Eccoptura sp.		Lype sp.	
Menetus sp.		Perlesta sp.		RHYACOPHILIDAE	
Gyraulus sp.		Perlinella sp.		Ryacophila sp.	
PLEUROCERIDAE		Clioperla sp.		VENOIDAE Neophylax sp.	
Viviparus sp.		Diploperla sp.		TUBELLARIA - Flatworms	
APLOSCLERIDA SPONGILLIDAE		Isoperla sp.		PLANARIDAE	
EMIPTERA - True Bugs		PTERONARCYIDAE		DENDROCOELIDAE	
BELOSTOMATIDAE		Pteronarcys sp.			
Lethocerus sp.		Petroperta sp.			
CORIXIDAE		LEUCTRIDAE			
GERRIDAE		Zealuectra sp.		-	
Trepobates sp.		Paraleuctra sp.			
HEBRIDAE		CAPNIDAE Allocappia sp			
MESOVELIDAE		Paracapnia sp.			
NEPIDAE		NEMOURIDAE			
Ranatra sp.		Ostrocerca sp			
VELIIDAE		Nemoura sp.			

\* Taxa in grey are higher-level taxa (i.e., phylum, class, subclass order). Taxa in bold are either family or subfamily-level taxa.



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Site	WSSI #	Reach	Collectors	# Jars in Sample	Total No. Organisms Sorter
Snakeden Branch - Pre Con.		neadin	0011001010	# ouro in oumpre	renn rinn er germanne oer ter
Year 2	20003	1-B	SDS/TSS	1	121
Date ID'd	Date Sorted	Taxonomist	Sorter	# Grids in Subsample	Total No. Organisms ID'd
8/5/2008	8/1/2008	SDS	SDS	58	87
BIVALVIA - Clams		Forcipomyla sp.		Synorthocladius sp.	
SPHAERIDAE	6	Probezzia sp.		Thienemanniella sp.	
Pisidium sp.		Sphaeromias sp. Stilobezzia sp.		Unniella sp.	
Musculium sp.		CHAOBORIDAE		Xylotopus sp.	
CORBICULIDAE		Chaborus sp.		Zalutschia sp.	
Corbicula fluminea sp.		CHIRONOMIDAE	51	Tanypodinae	
BRANCHIORDELLIDA		Chironomini		Abiabesmya sp.	
BRANCHIOBDELLIDAE		Chironomus sp.		Apsectrotanypus sp.	
TETRASTEMMATIDAE		Cryptochironomus sp.		Clinotanypus sp.	
COLEOPTERA - Beetles		Cryptotendipes sp.		Conchapelopia sp.	
CURCULIONIDAE		Dicrotendines sp.		Krenopelopia sp.	
DRYOPIDAE		Einfeldia sp.		Labrundinia sp.	
Helichus sp.		Endochironomus sp.		Larsia sp.	
DYTISCIDAE		Glyptotendipes sp.		Macropelopia sp.	
Hydroporous sp.		Microtendipes sp.		Paramerina sp.	
Coptotomus sp.		Nilothauma sp.		Pentaneura sp.	
Oreodytes sp.		Pagastiella sp.		Procladius sp.	
Dytiscus sp.		Parachironomus sp.		Psectrotanypus sp.	
ELMIDAE		Paratendipes sp.		Tanypus sp.	
Microcylloepus sp.		Phaenopsectra sp.		Thienemannimyla gp.	
Optioservus sp.		Polypedilum sp.		Thienemannimyla sp.	
Steneimis sp. Promoresia sp.		Stenochironomus sp.		Zavralimvia sp.	
Macronychus sp.		Tribelos sp.		CULICIDAE	
Dubiraphia sp.		Zavreliella sp.		Aedes	
Ancyronyx sp.		Tanytarsini		Anopheles	
GYRINIDAE		Constempellina sp.		Culiseta	
Dineutus		Micropsectra sp.		Mansonia	
Gyrinus		Micropsectra/Tanysarsus complex		Orthopodomyia	
HALIPIDAE		Paratanytarsus sp.		Psorophora	
HYDROPHILIDAE		Stempellina sp.		Uranotaenia	
Cymbiodyta sp.		Stempellinella sp.		Wyeomyia	
Berosus sp.		Sublettea sp.		DIXIDAE	
Derallus sp.		Tanytarsus sp.		Dixa sp.	
Helophorus sp.		Diamesinae		EMPIDIDAE	
Hydrophilus sp.		Diamesa sp.		Chelifera sp.	
Hydrochus sp.		Pagastia sp.		Clinocera sp.	
Tropistemus sp.		Pothastia sp.		Hemerodromia sp.	
Laccobius sp.		Sympotthastia sp.		EPHYDRIDAE	
PSEPHENIDAE		Orthocladiinae		PELCORHYNCHIDAE	
Psephenus sp.		Brillia sp.		Giutops sp.	
Dicranopselanbus sp		Cardiocladius sp.		PSYCHODIDAE Pericoma en	
PTILODACTYLIDAE		Corynoneura sp.		Psycoda sp.	
Anchytarsus sp.		Cricotopus sp.		SIMULIDAE	
COPEPODA CRUSTACEA (Amphhodo, Soudo)		Cricotopus/Orthocladius sp.		Simulium sp.	
CRANYONYCTIDAE		Eukiefteriella sp.		Cnephia sp.	
Stygonectes sp.		Heleniella sp.		Twinia sp.	
Crangonyx sp.		Heterotrissociadius sp.		Stegopterna sp.	
GAMMARIDAE		Limnophyes sp.		STRATIOMYIDAE	
Gammarus sp.		Lopescladius sp.		Oxycera sp.	
HYALELLIDAE		Mesocricotopus sp.		Odontomyla sp.	
Hyalella sp.		Mesosmittia sp.		SYRPHIDAE	
CAMBABIDAE		Orthocladius sp.		Chrysogaster sp.	
PALAEMONIDAE		Orthocladius sp.		TABANIDAE	
CRUSTACEA (Isopoda- Sowbugs)		Parachaetocladius sp.		Chrysops sp.	
ASELIDAE	1	Parakiefferiella sp.		Tabanus sp.	
Lirceus sp.		Paranhaenocladius en		THAUMALEIDAE	
DIPTERA - True Flies		Parasmittia sp.		Thaumalea sp.	
ATHERICIDAE		Paratrichocladius sp.		TIPULIDAE	2
Atherix sp.		Paratrissociadius sp.		Antocha sp.	-
CECIDOMYIDAE		Pseudorthocladius sp.		Leptotarsus sp	
CERATOPOGNIDAE		Psilometriocnemus sp.		Molophilus sp.	
Alluaudomyia sp.		Rheocricotopus sp.		Tipula sp.	
Bezzia sp.		Rheosmittia sp.		Psuedolimnophila sp.	
Culicoides sp.		Stilocladius sp		Limponhila sp.	
Dasyhelea sp.		Symposiocladius sp.		Ormosia sp.	
And the second se		and the second		P.	
Snakeden Branch - Pre Con. Year 2 Date ID'd 8/5/2008 Padicia sp. Limonia sp. Piaria sp. Enoptera sp. Rhabdomastix sp. TRICHOCERIDAE TrichoCERIDAE TrichoCERIDAE AmeleETIDAE AmeleETIDAE Acertrolia sp. Acertrolia sp. Catrobium sp. Diphetor sp. BAETISCIDAE Baetisca sp. CAENIDAE Caenis sp. EPHEMERICLIDAE Baetisca sp. CAENIDAE Dannella sp. EPHEMERICLIDAE Ephemerella sp. EPHEMERICLE Ephemerella sp. E	20003 Date Sorted 8/1/2008	1-B Taxonomist SDS Microvelia sp. HIRUDINEA - Leeches HOPLONEMERTEA - Rabon Worms TETRASTEMMATIDAE Prostoma sp. LEPIDOPTERA - Molt Larvee NOCTUIDAE Archanara sp. Bellura sp. PYRALIDAE MEGALOPTERA - Dobsontliee Consuldes sp. Conydalus sp. Nigronia sp. SIALIDAE Sialis sp. NEMATODA - Roundworms NEMATOMORPHA - Horsehair Worms ODONATA (Anispotara - Dragonfliee) AESHIDAE Sialis sp. Basiseetina sp. Basiseetina sp. Basiseetina sp. Boyeria sp. CORDULEGASTRIDAE	SDS/TSS Sorter SDS	1         # Grids in Subsample         58         Paranemoura sp.         Prostola sp.         Shipaa sp.         CHLOPDERLIDAE         Alloperla sp.         Haptoperla sp.         Sweltsa ap.         TAENIOPTERGIDAE         Strophopteryx sp.         TRICHOPTERA - Caddiafiles         BRACHYCENTRIDAE         Brachycentrus sp.         CALAMOCERATIDAE         Heteropiectron sp.         DIPSEUDOPSIDAE         Phylocentropies sp.         GLOSSOSOMATIDAE         Glossosoma sp.         Agapetus sp.         MELICOPSYCHIDAE         Helicopsyche sp.	121 Total No. Organisms ID'd 87
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Year 2  Part 2	20003 Date Sorted 8/1/2008	1-B       Taxonomist       SDS       Microvelia sp.       HIRUDINEA - Leeches       HOPLONEMERTER - Rabon Worms       TETRASTEMMATIDAE       Prostoma sp.       LEPIDOPTERA - Moth Larvae       NOCTUIDAE       Archanara sp.       Bellura sp.       PYRALIDAE       MEGALOPTERA - Dobsonflies       CORYDALIDAE       Chaulidos sp.       Corydalus sp.       Nigronia sp.       Sialis sp.       NEMATODA - Roundworms       NEMATOMORPHA - Horsehair Worms       ODONATA (Anispotara - Dragonflies)       AESHNIDAE       Anax sp.       Basisseshna sp.       Bayeria sp.       CORDULEGASTRIDAE	SDS/TSS Sorter SDS	1 # Grids in Subsample 58 Paranemoura sp. Prostola sp. Shipsa sp. CHLOROPERLIDAE Alloperta sp. Sweltas ap. TAENIOPTERGIDAE Strophopterys sp. TRICHOPTERA - Caddiafiles BRACHYCENTRIDAE BRACHYCENTRIDAE BRACHYCENTRIDAE Heteropiectron sp. CALAMOCERATIDAE Heteropiectron sp. GLOSSOOMATIDAE GlossoSoma sp. Agapetus sp. HELLCOPSYCHIDAE Heticopsyche sp.	121 Total No. Organisms ID'd 87
Date ID 'G       8/5/2008       Pedicia sp.       Pidria sp.       Pidria sp.       Friptera sp.       Fhabdomastix sp.       TRICHOCERIDAE       TRICOPTERA - Mayfiles       AMELETIDAE       Ameletus sp.       BABTIDAE       Acerpenna sp.       Badtis sp.       Centroptilum sp.       Diphotor sp.       Battis sp.       Cantroptilum sp.       Diphotor sp.       Battis sp.       Cantroptilum sp.       Diphotor sp.       Battisca sp.       CAENIDAE       Dannella sp.       Caenis sp.       EPHEMERELLIDAE       Dannella sp.       Ephemerella sp.       EPHEMERIDAE       Ephornerolla sp.       EPHEMERIDAE       Ephonomena sp.       Leurophilobia sp.       Stenacron sp.       Stenacron sp.       Stenacron sp.       NEOEPHEMERIDAE       Leptophilobia sp.       PATABY       POLYMITACYIDAE       POLYMINTACYIDAE       POLYMINTACYIDAE       Polythildae       Polytholos sp.       STRICORYTHIDAE       Presudosucchee sp.       Pratiosa sp.       TricORYTHIDAE	8/1/2008	Iaxonomist       SDS       Microvelia sp.       HRUDINEA: Leeches       HOPLONEMERTEA: Ribbon Worms       TETRASTEMMATIDAE       Prostoma sp.       LEPIDOPTERA - Moth Larvae       NOCTUIDAE       Archanara sp.       Bellura sp.       PYRALIDAE       Chauliodes sp.       Conydalus sp.       Nigronia sp.       Stal.IDAE       Sialis sp.       NEMATODA - Roundworms       NEMATODA - Roundworms       NEMATOMORPHA: Horsehair Worms       ODONATA (Anispotera - Dragonflies)       AESHNIDAE       Anax sp.       Basissenna sp.       Boyeria sp.       CORDULEGASTRIDAE	Sorter SDS	# Grids in Subsample 58 Paranemoura sp. Prostola sp. Shipsa sp. CHLOROPERLIDAE Alloperla sp. Haploperla sp. TAEMOPTERGIDAE Strophopteryx sp. TRICHOPTERA - Caddiafiles BRACHYCENTRIDAE BRACHYCENTRIDAE BRACHYCENTRIDAE BRACHYCENTRIDAE BRACHYCENTRIDAE BRACHYCENTRIDAE BRACHYCENTRIDAE BRACHYCENTRIDAE BRACHYCENTRIDAE BRACHYCENTRIDAE BRACHYCENTRIDAE Glossosoma sp. Agapetus sp. Agapetus sp. HELICOPSYCHIDAE Helicopsyche sp.	Total No. Organisms ID'd 87
Pedicia sp. Pedicia sp. Pedicia sp. Pedicia sp. Pedicia sp. Pedicia sp. Pitaria sp. Erioptera sp. Phabdomastik sp. TRICOCERIDAE Trichocera sp. PHEMEROPTERA - Maytiles Ameletus sp. BAETIDAE Acentrolia sp. Baetis sp. Baetis sp. Baetis sp. Centroptium sp. Diphotor sp. Centroptium sp. Diphotor sp. Baetis sp. Centroptium sp. Diphotor sp. Centroptium sp. Diphotor sp. Stenacron sp. Stenacron sp. Stenacron sp. Stenacron sp. Stenacron sp. Stenacron sp. CeptPHEMENDAE Leptophiebia sp. Habrophiebia sp. PolyMITARCYIDAE Sipholorums sp. TRICORYTHIDAE Sipholorums sp. TRICORYTHIDAE Frissa sp. TRICORYTHIDAE Physilas Paudosucchee sp. Paudosucchee sp. Paudosucchee sp. Paudosucchee sp. Paudosucchee sp. Paudosucchee sp. Physilas p. PolyMalia sp. Physilas p. Paudosucchee sp.	8/1/2008	SDS       Microvelia sp.       HIRUDINEA - Leeches       HOPLONEMERTEA - Robon Worms       TETRASTEMMATIDAE       Prostoma sp.       LEPIDOPTERA - Moth Larvae       NOCTUIDAE       Archanara sp.       Bellura sp.       PYRALIDAE       Chauliodes sp.       CortyDALIDAE       Stall Sp.       Stall Sp.       Stalls sp.       NEMATODA - Roundworms       NEMATODA - Roundworms       NEMATODA - Roundworms       ODONATA (Anispotera - Dragonfilies)       AESHNDAE       Basiseshna sp.       Basiseshna sp.       Boyeria sp.       CORDULEGASTRIDAE	1	58       Paranemoura sp.       Prostola sp.       Shipsa sp.       CHLOROPERILDAE       Alloperfa sp.       Sweltsa ap.       TAENOPTERGIDAE       Strophopteryx sp.       Taeniopteryx sp.       TRICHOPTERA - Caddiafiles       BRACHYCENTRIDAE       Brachycentrus sp.       CALAMOCERATIDAE       Heteropiectron sp.       DIPSEUDOPSIDAE       Phylocentropus sp.       Glossosoma sp.       Agapetus sp.       Agapetus sp.       Heticopsyche sp.	87
Pedicia sp. Limonis sp. Pitaria sp. Frights as p. Frights		Microvelia sp. HIRUDINEA - Leeches HIRUDINEA - Leeches HOPLONEMERTEA - Ribbon Worms TETRASTEMMATIDAE Prostoma sp. LEPIDOPTERA - Moth Larvae NOCTUIDAE Archanara sp. Bellura sp. PYRALIDAE MEGALOPTERA - Dobsontlies CORYDALIDAE Chauliodes sp. Corydalus sp. Nigronia sp. SIALIDAE Sialls sp. NEMATODA - Roundworms NEMATODA - Roundworms NEMATODA - Roundworms NEMATODA - Roundworms ODONATA (Anispotera - Dragonfiles) AESHNIDAE Anax sp. Basiesehna sp. Boyeria sp. CORDULEGASTRIDAE	1	Paranemoura sp. Prostola sp. Shipas sp. CHLOROPERLIDAE Alloperta sp. Sweitsa ap. TAENIOPTERGIDAE Strophopteryx sp. TRICHOPTERA - Caddisfiles BRACHYCENTRIDAE BRACHYCENTRIDAE BRACHYCENTRIDAE BRACHYCENTRIDAE BRACHYCENTRIDAE Hoteropiectron sp. DIPSEUDOPSIDAE Phylocentropus sp. GLOSSOSOMATIDAE Glossosoma sp. Agapetus sp. HELICOPSYCHIDAE Helicopsyche sp.	
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Joint Water Sp.       Ephelmerin ap.       Epheorus ap.       Leucrocuta ap.       Stenacron ap.       PoltyBillable ap.       Habrophiebia sp.       Paraleptophiebia sp.       POLYMITARCYIDAE       Siphionurus sp.       Tricorythodes sp.       StastTROPOBA - Snails       ANCYLIDAE       Ferissa sp.       Staphicola sp.       PhysolinDAE       LYMAEIDAE       Prosadia sp.       Staphicola sp.       Physolia sp.       PLANORBIDAE       Manetus ap.		Condulagantar ep		Diplectrona sp.	
Ephemera ap. HEPTAGENIBAE Epeorus ap. Leucrocuta ap. Stenacron ap. Stenacron ap. Stenacron ap. Stenacron ap. ILEPTOPHLEBIDAE Leptophiobia ap. Habrophiobia ap. Paraleptophiobia sp. NEOEPHEMERIDAE OLIGONEURIDAE Isoroychia sp. POLYMITARCYIDAE POTAMANTHIDAE SiPHLONEURIDAE SiPHLONEURIDAE SipHonurus ap. TRICORYTHIDAE Tricorythodes sp. GASTRO/PODA - Snails ANCYLIDAE Ferisas ap. Stagnicola sp. Stagnicola sp. Stagnicola sp. Stagnicola sp. Playsella sp. PLANCRBIDAE Menetus ap.		CORDULIDAE		Parapysche sp.	
HEPTAGENIIDAE         Epeorus sp.         Laucrocuta sp.         Stenacron sp.         Stenacron sp.         Leptophlebia sp.         Habrophlebiolas sp.         Paraleptophlebiolas sp.         NEOEPHEMERIDAE         Isonychia sp.         POLYMITARCYIDAE         Siphlounus sp.         POLYMITARCYIDAE         Siphlounus sp.         TRICORYTHIDAE         Siphlounus sp.         Forisas sp.         HVDROBIBDAE         Lynokes sp.         PARAMENDAE         Siphlounus sp.         TRICORYTHIDAE         Siphlouse sp.         GASTROPODA - Snails         ANCYLIDAE         Forisas sp.         Stagnicola sp.         Phaudosuchea sp.         PHYSIDAE         Physiola sp.         PLANORBIDAE         Physiola sp.         PLANORBIDAE         Manetus sp.		GOMPHIDAE		Potamyia sp.	
Eperiors sp. Eperiors sp. Stenaeron sp. Stenaeron sp. LEPTOPHLEBIDAE Leptophlebia sp. Habrophlebia sp. Habrophlebia sp. Paraleptophlebia sp. Paraleptophlebia sp. Paraleptophlebia sp. Paraleptophlebia sp. PolVMITARCYDAE SIPHLONEURIDAE SIPHLONEURIDAE SIPHLONEURIDAE SIPHLONEURIDAE SASTROPODA - Snalls ANCYLIDAE Forissa sp. HYDROBIIDAE LYMAAEIDAE Forssaris sp. PhySiDAE Physiola sp. PhySiDAE Physiola sp. PhySiDAE Physiola sp. PhySiDAE Manetus sp.		Arigomphus sp.		HYDROPTILIDAE	
Stenacron sp.       Stenonoma sp.       Stenonoma sp.       Leptophlebia sp.       Habrophlebia sp.       Habrophlebia sp.       Paraleptophlebia sp.       Paraleptophlebia sp.       Paraleptophlebia sp.       Paraleptophlebia sp.       Paraleptophlebia sp.       Paraleptophlebia sp.       PortaleRIDAE       OLIGONEURIDAE       Isonychia sp.       POL'MITARCYIDAE       SIPHLONEURIDAE       Shehlonurus sp.       TRICORYTHIDAE       Tricorythodes sp.       ANCYLIDAE       Ferissa sp.       HYDROBIIDAE       LYMMAEIDAE       Stagnicola sp.       Pasudosucchea sp.       PHYSIDAE       Physella sp.       PLANORBIDAE       Menetus sp.		Hagenius sp.		Hydroptila sp.	
Stenonema sp.         LEPTOPHLEBIDAE         Leptophlebia sp.         Habrophlebids sp.         Paraleptophlebia sp.         Paraleptophlebia sp.         Paraleptophlebia sp.         Paraleptophlebia sp.         Portaleptophlebia sp.         POLGONEURIDAE         Bonychia sp.         POLYMITARCVIDAE         SiPHLONEURIDAE         SiPhlonums pp.         TRICORYTHIDAE         Tricorythodes sp.         ASTROPODA - Snails         ANCYLIDAE         Ferisse sp.         HYDROBIIDAE         Staphicola sp.         Paralesp.         Physelia sp.         Physelia sp.         PLANORBIDAE         Manetus sp.		Lanthus sp.		Ochrotrichia sp.	
LEPTOPHLEBIDAE Leptophiobia sp. Habrophiobia sp. Habrophiobia sp. NEOEPHEMERIDAE OLIGONEURIDAE Isonychia sp. POLYMITARCYIDAE POTAMANTHIDAE SipHLONEURIDAE SipHLONEURIDAE SipHLONEURIDAE SipHLONEURIDAE Tricorythodes sp. TRICORYTHIDAE Tricorythodes sp. SASTROPODA - Snails ANCYLIDAE Forissa sp. Stagnicola sp. Stagnicola sp. Stagnicola sp. Stagnicola sp. PhysiDAE Physiola Sp. PLANORBIDAE Manetus sp.		Stylogomphus sp.		LEPIDOSTOMATIDAE	
Abrophiebia sp. Habrophiebia sp. Parlegtophiebia sp. NEOEPHEMERIDAE OLIGONEURIDAE Isonychia sp. POLYMITARCYIDAE POTAMANTHIDAE SipHLONEURIDAE Siphlonurus sp. TRICORYTHIDAE Siphlonurus sp. TRICORYTHIDAE TROORYTHIDAE Forisas sp. GASTROPODA - Snails ANCYLIDAE Forisas sp. HYDROBIIDAE LYMNAEIDAE Fossaria sp. Stagnicola sp. Pheudosuchea sp. PHYSIDAE Physiolae Physiolae Physiolae Physiolae Physiolae Physiolae Physiolae Physiolae		LIBELLULIDAE		Lepidostoma sp.	
Habrophiebiodes sp. Paraieptophiebiodes sp. NEOEPHEMERIDAE Jsonychia sp. POLYMITARCYIDAE POLYMITARCYIDAE POLYMITARCYIDAE SiphLoNEURIDAE SiphLonurus sp. TRICORYTHIDAE Siphlonurus sp. GASTROPODA - Snails ANCYLIDAE Forisas sp. HYDROBIIDAE LYMAEIDAE Forisas sp. Stagnicola sp. PhysiDAE Physiola sp. PLANORBIDAE Manetus sp.		Macromia sp.		Triaenodes sp.	
Paraleptophiobia sp. Pacaleptophiobia sp. NECEPHEMERIDAE Bionychia sp. POLYMITACYIDAE POLYMITACYIDAE SIPHLONEURIDAE SiPHLONEURIDAE SiPHLONEURIDAE Siphionurus sp. TRICORYTHIDAE Tricorythodes sp. ANCYLIDAE Forissa sp. HYDROBIDAE LYMAEIDAE Fossaria sp. Stagnicola sp. Pseudosucchea sp. Physiola sp. Physiola sp. PLANORBIDAE Manetus sp.		PETALURIDAE		Ceraclea sp.	
NEUGRYTERRENAL Isonychia sp. POLYMITARCYIDAE POLYMITARCYIDAE SIPHLONEURIDAE SPHOnurus sp. TRICORYTHIDAE Tricorythodes sp. GASTROPODA - Snails ANCYLIDAE Ferissa sp. HYDROBIIDAE LYMNAEIDAE Posaufa sp. Stagnicola sp. Psaudosucchea sp. Physiola p. Physiola p. Phys		ODONATA Zygoptera - Damselflies)		Oecetis sp.	
Isonychia sp. POLYMITARCYIDAE POTAMANTHIDAE SIPHLONEURIDAE Siphlonurus sp. TRICORYTHIDAE Tricorythodes sp. GASTROPODA - Snails ANCYLIDAE Forissa sp. HYDROBIIDAE LYMNAEIDAE Fossaria sp. PHYBIDAE Physiola sp. PHYSIDAE Physiola sp. PLANORBIDAE Manetus sp.		Caloptervx sp.		Apatina sp.	
POLYMITARCYIDAE POTAMANTHIDAE SiPHLONEURIDAE Siphlonurus sp. TRICORYTHIDAE Tricorythodes sp. GASTROPODA - Snails ANCYLIDAE Ferissa sp. HYDROBIIDAE LYMNAEIDAE Fossaria sp. Stagnicola sp. Phaeudosuccinea sp. PHYSIDAE Physiola sp. PLANORBIDAE Manetus sp.		COENAGRIONIDAE	1	Hydatophylax sp.	
POTAMANTHIDAE POTAMANTHIDAE SiphLonucurias sp. TRICORYTHIDAE Thicorythodes sp. GASTROPODA - Snails ANCYLIDAE Ferisas sp. HYDROBIIDAE LYMNAEIDAE Fossaria sp. Stagnicola sp. PHYSIDAE Physela sp. PLANORBIDAE Manetus sp.		Argia sp.		Ironoquia sp.	
Siphlonurus sp. TRICORYTHIDAE TROORYDAGE Sp. GASTROPODA - Snails ANCYLIDAE Ferissa sp. HYDROBIIDAE LYMRAEIDAE Cossaria sp. Stagnicola sp. Pheudosucchea sp. PHYSIDAE Physiola sp. PLANORBIDAE Manetus sp.		OLIGOCHAETA - Oligochaete Worms	7	Pycnopsyche sp. MOLANNIDAE	
TRICORYTHIDAE Tricorythodes sp. ASSTROPODA - Snails ANCYLIDAE Ferisse sp. HYDROBIIDAE LYMNAEIDAE Fossaris sp. Stagnicola sp. Pseudosucchee sp. PHYSIDAE Physella sp. PLANORBIDAE Menetus sp.		LUMBRICINA		Molanna sp.	
Tricorythodes sp. SASTROPODA - Snails ANCYLIDAE Forissa sp. HYDROBIIDAE LYMNAEIDAE Posaria sp. Stagnicola sp. Pseudosuccinea sp. PhysiDAE PhysiBaE PhysiBaE PLANORBIDAE Manetus sp.		ENCHYTRAEIDAE		ODONTOCERIDAE	
ANCYLIDAE ANCYLIDAE Ferisas sp. HYDROBIIDAE LYMNAEIDAE Fossaria sp. Stagnicola sp. PHseudosucchea sp. PHysiliDAE Physella sp. PLANORBIDAE Manetus sp.		NAIDIDAE	0	Psilotreta sp.	
Ferissa sp. HYDROBIDAE LYMNAEIDAE Fossaria sp. Stagnicola sp. Pseudosuccinea sp. PHYSIDAE Physella sp. PLANORBIDAE Manetus sp.		LUMBRICULIDAE	6	Chimarra sp.	
HYDROBIDAE LYMNAEIDAE Fossaria sp. Stagnicola sp. Pheudosuccinea sp. PHYSIDAE Physiola sp. PLANORBIDAE Manetus sp.		POLYCHAETA - Polychaete Worms		Wormaldia sp.	
CYMAREDAE Fossaria sp. Stagnicola sp. Pheudosuccinea sp. PHYSIDAE Physiola sp. PLANORBIDAE Menetus sp.		AEOLOSOMATIDAE		PHRYGANEIDAE	
Staphicola sp. Peoudosuccinea sp. Peoudosuccinea sp. PHYSIDAE Physiola sp. PLANORBIDAE Menetus sp. Status sp.		Aeolosoma sp. PLECOPTERA - Stonefly Larvae		Ptilostomis sp. POLYCENTROPIDAE	
Pseudosuccinea sp. PHYSIDAE Physelia sp. PLANORBIDAE Menetus sp.		PERLIDAE		Cymellus sp.	
Physella sp. PLANORBIDAE Menetus sp.		Acroneuria sp.		Polycentropus sp.	
PLANORBIDAE Menetus sp.	11	Eccoptura sp.		Lype sp.	
Menetus sp.	2	Neoperla sp.		Psychomyla sp.	
		Perlesta sp.		RHYACOPHILIDAE	
PLEUROCERIDAE		Perlinella sp. PERLODIDAE		Hyacophila sp. UENOIDAE	
VIVIPARIDAE		Clioperla sp.		Neophylax sp.	
Viviparus sp.		Diploperla sp.		TUBELLARIA - Flatworms	1
HAPLOSCLERIDA		Isoperia sp.		PLANARIIDAE	
HEMIPTERA - True Bugs		PTERONARCYIDAE		NEMERTEA - Ribbon Worms	1
BELOSTOMATIDAE		Pteronarcys sp.			
Belostoma sp.		PELTOPERLIDAE			
CORIXIDAE		Peltoperla sp.		-	
GELASTOCORIDAE		Leuctra sp.			
GERRIDAE		Zealuectra sp.			
Trepobates sp.		Paraleuctra sp.			
HYDROMETRIDAE		Allocaphia sp.			
MESOVELIIDAE		Paracapnia sp.			
NEPIDAE		NEMOURIDAE			
Repata so		Amphinemura sp.		-	
VELIIDAE		Nemoura sp.			
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Studies and Solutions, Inc-

Qi4-	WOOL #	Death	Callestar	# Jasa in Comule	Total No. Organization Co. 1
Site Snakeden Branch - Pre Con	WSSI#	Heach	Collectors	# Jars in Sample	Total No. Organisms Sorted
Year 2	20003	1-C	SDS/TSS	1	63
Date ID'd	Date Sorted	Taxonomist	Sorter	# Grids in Subsample	Total No. Organisms ID'd
8/11/2008	8/6/2008	SDS	SDS	102	57
BIVALVIA - Clams		Forcipomvia sp.		Synorthocladius sp.	
SPHAERIDAE		Probezzia sp.		Thienemanniella sp.	
Sphaerium sp.		Sphaeromias sp.		Tvetenia sp.	
Pisidium sp. Musculium sp.		CHAOBOBIDAE		Viotopus sp	
CORBICULIDAE		Chaborus sp.		Zalutschia sp.	
Corbicula fluminea sp.		CHIRONOMIDAE	32	Tanypodinae	
UNIONIDAE		Chironominae		Ablabesmyia sp.	
BRANCHIOBDELLIDA		Chironomini Chironomus sp		Alotanypus sp.	
TETRASTEMMATIDAE		Cryptochironomus sp.		Clinotanypus sp.	
COLEOPTERA - Beetles		Cryptotendipes sp.		Conchapelopia sp.	
CANTHERIDAE		Demicryptochironomus sp.		Guttipelopia sp.	
DRYOPIDAE		Einfeldia sp.		Labrundinia sp.	
Helichus sp.		Endochironomus sp.		Larsia sp.	
DYTISCIDAE		Glyptotendipes sp.		Macropelopia sp.	
Agabus sp.		Kiefferulus sp. Microtendines sp.		Meropelopia sp.	
Coptotomus sp.		Nilothauma sp.		Pentaneura sp.	
Oreodytes sp.		Pagastiella sp.		Procladius sp.	
Laccomis sp.		Parachironomus sp.		Psectrotanypus sp.	
ELMIDAE		Paratendipes sp. h		Tanypus sp.	
Microcylloepus sp.		Phaenopsectra sp.		Thienemannimyia gp.	
Optioservus sp.		Polypedilum sp.		Thienemannimyia sp.	
Promoresia sp.		Stictochironomus sp.		Zavrelimvia sp.	
Macronychus sp.		Tribelos sp.		CULICIDAE	
Dubiraphia sp.		Zavreliella sp.		Aedes	
Ancyronyx sp. Oulimnius sp.		Ciadotanytarsus sp.		Culex	
GYRINIDAE		Constempellina sp.		Culiseta	
Dineutus		Micropsectra sp.		Mansonia	
Gyrinus HALIPIDAE		Micropsectra/Tanysarsus complex		Orthopodomyia	
Halipus sp.		Rheotanytarsus sp.		Toxorhynchites	
HYDROPHILIDAE		Stempellina sp.		Uranotaenia	
Cymbiodyta sp.		Stempellinella sp.		Wyeomyia	
Derosus sp. Derallus sp.		Tanvtarsus sp.		Dixa sp.	
Helochares sp.		Zavrelia sp.		DOLICHOPODIDAE	
Helophorus sp.		Diamesinae		EMPIDIDAE	
Hydrophilus sp. Hydrophus sp.		Diamesa sp. Pagastia sp		Clipocera sp.	
Tropistemus sp.		Potthastia sp.		Hemerodromia sp.	
Hydrobius sp.		Prodiamesa sp		Dolichocephala sp.	
DSEDHENIDAE		Sympothastia sp.		EPHYDRIDAE DELCORHYNCHIDAE	
Psephenus sp.		Brillia sp.		Glutops sp.	
Ectopria sp.		Cardiocladius sp.		PSYCHODIDAE	
Dicranopselaphus sp.		Chaetocladius sp.		Pericoma sp.	
Anchytarsus sp.		Cricotopus sp.		SIMULIDAE	
COPEPODA		Cricotopus/Orthocladius sp.		Simulium sp.	
CRUSTACEA (Amphipoda- Scuds)		Diplocladius sp.		Prosimulium sp.	
Stygonectes sp.		Heleniella sp.		Twinia sp.	
Crangonyx sp.		Heterotrissociadius sp.		Stegopterna sp.	
Synurella sp.		Hydrobaenus sp.		Ectemnia sp.	
Gammarus sp.		Lopescladius sp.		Oxycera sp.	
HYALELLIDAE		Mesocricotopus sp.		Odontomyia sp.	
Hyalella sp.		Mesosmittia sp.		SYRPHIDAE	
CAMBARIDAE		Orthocladius sp.		Chrysogaster sp. Fristalis sp.	
PALAEMONIDAE		Orthocladius sp.		TABANIDAE	
CRUSTACEA (Isopoda- Sowbugs)		Parachaetocladius sp.		Chrysops sp.	
ASELIDAE Caecidotes an		Parakiefferiella sp.		Tabanus sp.	
Lirceus sp.		Paraphaenocladius sp.		THAUMALEIDAE	
DIPTERA - True Flies		Parasmittia sp.		Thaumalea sp.	
ATHERICIDAE		Paratrichocladius sp.		TIPULIDAE	2
BLEPHARICERIDAE		Paratrissociadius sp. Psectrocladius sp.		Antocha sp. Hexatoma sp.	
CECIDOMYIIDAE		Pseudorthocladius sp.		Leptotarsus sp.	
CERATOPOGNIDAE		Psilometriocnemus sp.		Molophilus sp.	
Alluaudomyla sp. Bezzia sp.		Rheosmittia so		Tipula sp. Psuedolimnonhila an	
Ceratopogon sp.		Smittia sp.		Dicranota sp.	
Culicoides sp.		Stilocladius sp.		Limnophila sp.	
Dasyhelea sp.		Symposiocladius sp.		Ormosia sp.	
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Site	WSSI #	Reach	Collectors	# Jars in Sample	Total No. Organisms Sorted
Snakeden Branch - Pre Con.	20002	10	SDS/TES		60
Pear 2 Date ID'd	Date Sorted	Tayonomiet	SDS/155	# Gride in Subsample	Total No. Organieme ID'd
8/11/2008	8/6/2008	SDS	SDS	102	57
			000	TOE	
Pedicia sp.		Microvella sp.		Paranemoura sp. Prostais ep	
Pilaria sp.		HOPLONEMERTEA - Ribbon Worms		Shipsa sp.	
Erioptera sp.		TETRASTEMMATIDAE		CHLOROPERLIDAE	
TRICHOCERIDAE		Prostoma sp. LEPIDOPTEBA - Moth Larvae		Alloperia sp. Haploperia sp.	
Trichocera sp.		NOCTUIDAE		Sweltsa sp.	
EPHEMEROPTERA - Mayflies		Archanara sp.		TAENIOPTERGIDAE	
AMELETIDAE Ameletus en		Bellura sp.		Strophopteryx sp.	
BAETIDAE		MEGALOPTERA - Dabsonflies		TRICHOPTERA - Caddisflies	
Acentrella sp.		CORYDALIDAE		BRACHYCENTRIDAE	
Acerpenna sp.		Chauliodes sp.		Brachycentrus sp.	
Centroptilum sp.		Nigronia sp.		Heteroplectron sp.	
Diphetor sp.		SIALIDAE		DIPSEUDOPSIDAE	
BAETISCIDAE		Sialis sp.		Phylocentropus sp.	
CAENIDAE		NEMATOMORPHA - Horsehair Worms		Glossosoma sp.	
Caenis sp.		ODONATA (Anispotera - Dragonflies)		Agapetus sp.	
EPHEMERELLIDAE		AESHNIDAE		HELICOPSYCHIDAE	
Drunella sp.		Anax sp. Basiaeshna sp.		Helicopsyche sp. HYDROPSYCHIDAE	1
Ephemerella sp.		Boyeria sp.		Cheumatopsyche sp.	
Eurylophella sp.		CORDULEGASTRIDAE		Diplectrona sp.	
EPHEMERIDAE		Cordulegaster sp.		Parapysche sp.	
Ephemera sp.		GOMPHIDAE		Potamyia sp.	
HEPTAGENIIDAE		Arigomphus sp.		HYDROPTILIDAE	
Epeorus sp. Leucrocuta sp.		Gomphus sp. Hagenius sp.		Hydroptila sp.	
Stenacron sp.		Lanthus sp.		Ochrotnichia sp.	
Stenonema sp.		Stylogomphus sp.		LEPIDOSTOMATIDAE	
Leptophlebia sp.		MACROMIDAE		LEPIGOSIOMA Sp.	
Habrophlebia sp.		Macromia sp.		Triaenodes sp.	
Habrophlebiodes sp.		PETALURIDAE		Ceraclea sp.	
NEOEPHEMERIDAE		CALOPTERYGIDAE		LIMNEPHILIDAE	
OLIGONEURIDAE		Calopteryx sp.		Apatina sp.	
Isonychia sp.		COENAGRIONIDAE		Hydatophylax sp.	
POLYMITARCYIDAE		Argia sp.		Propopsyche sp	
SIPHLONEURIDAE		OLIGOCHAETA - Oligochaete Worms	22	MOLANNIDAE	
Siphlonurus sp.		LUMBRICINA		Molanna sp.	
TRICORYTHIDAE Tricorybodes sp		NAIDIDAE		ODONTOCERIDAE Pellotrete en	
GASTROPODA - Snalls		TUBIFICIDAE		PHILOPOTAMIDAE	
ANCYLIDAE		LUMBRICULIDAE		Chimarra sp.	
Ferissa sp. HYDROBIIDAE		AFOLOSOMATIDAE		Wormaldia sp.	
LYMNAEIDAE		Aeolosoma sp.		Ptilostomis sp.	
Fossaria sp. Stagnicola sp.		PLECOPTERA - Stonefly Larvae		POLYCENTROPIDAE	
Pseudosuccinea sp.		Acroneuria sp.		Polycentropus sp.	
PHYSIDAE		Beloneuria sp.		PSYCHOMYIDAE	
Physella sp. PLANORBIDAE		Eccoptura sp. Neoperia sp.		Lype sp. Psychomyla sp.	
Menetus sp.		Periesta sp.		RHYACOPHILIDAE	
Gyraulus sp.		Perlinella sp.	-	Ryacophila sp.	
VIVIPARIDAE		Clioperia sp.		VENOIDAE Neophylax sp.	
Viviparus sp.		Diploperla sp.		TUBELLARIA - Flatworms	
HAPLOSCLERIDA		Isoperla sp.		PLANARIIDAE	
HEMIPTERA - True Buds		PTERONARCVIDAE		DENDROCOELIDAE	
BELOSTOMATIDAE		Pteronaroys sp.			
Belostoma sp.		PELTOPERLIDAE			
CORIXIDAE		Peltoperla sp.			
GELASTOCORIDAE		Leuctra sp.			
GERRIDAE		Zealuectra sp.			
HEBRIDAE		CAPNIDAE			
HYDROMETRIDAE		Allocapnia sp.			
MESOVELIIDAE		Paracapnia sp.			
NEPIDAE Nepa sp.		Amphinemura sp			
Ranatra sp.		Ostrocerca sp			
VELIIDAE		Nemoura sp.			
		Page 2	? of 2		
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Site	WSSI #	Reach	Collectors	# Jars in Sample	Total No. Organisms Sorted
Snakeden Branch - Pre Con.	20002	1.0	ene/ree		100
Date ID'd	Date Sorted	Taxonomist	Sorter	# Gride in Subsample	Total No. Organisms ID'd
8/15/2008	8/15/2008	SDS	SDS	18	100
	011012000		000		100
SPHAERIDAE	5	Probezzia sp.		Synorthocladius sp. Thienemanniella sp.	
Sphaerium sp.		Sphaeromias sp.		Tvetenia sp.	
Pisidium sp.		Stilobezzia sp.		Unniella sp.	
CORBICULIDAE		Chaborus sp		Zalutschia sp.	
Corbicula fluminea sp.		CHIRONOMIDAE	19	Tanypodinae	
UNIONIDAE		Chironominae		Ablabesmyia sp.	
BRANCHIOBDELLIDA		Chironomini		Alotanypus sp.	
TETRASTEMMATIDAE		Cryptochironomus sp.		Clipotanypus sp.	
COLEOPTERA - Beetles		Cryptotendipes sp. *		Conchapelopia sp.	
CANTHERIDAE		Demicryptochironomus sp.		Guttipelopia sp.	
CURCULIONIDAE		Dicrotendipes sp.		Krenopelopia sp.	
Helichus sp.		Endochironomus sp.		Labrundinia sp.	
DYTISCIDAE		Glyptotendipes sp.		Macropelopia sp.	
Agabus sp.		Kiefferulus sp.		Meropelopia sp.	
Hydroporous sp.		Microtendipes sp.		Paramerina sp.	
Oreodytes sp.		Pagastiella sp.		Procladius sp.	
Laccomis sp.		Parachironomus sp.		Psectrotanypus sp.	
Dytiscus sp.		Paracladopelma sp.		Rheopelopia sp.	
Microcylloapus sp		Phaenopsectra sp		Thiepernappimyla op	
Optioservus sp.		Polypedilum sp.		Thienemannimyia gp.	
Stenelmis sp.		Stenochironomus sp.		Trissopelopia sp.	
Promoresia sp.		Stictochironomus sp.		Zavrelimyia sp.	
Dubiraphia sp.		Zavreliella sp		Aedes	
Ancyronyx sp.		Tanytarsini		Anopheles	
Oulimnius sp.		Cladotanytarsus sp.		Culex	
GYRINIDAE		Constempellina sp.		Culiseta	
Gyrinus		Micropsectra/Tanysarsus complex		Orthopodomvia	
HALIPIDAE		Paratanytarsus sp.		Psorophora	
Halipus sp.		Rheotanytarsus sp.		Toxorhynchites	
Ormbiodute en		Stempellina sp.		Uranotaenia	
Berosus sp.		Sublettea sp.		DIXIDAE	
Derallus sp.		Tanytarsus sp.		Dixa sp.	
Helochares sp.		Zavrelia sp.		DOLICHOPODIDAE	
Helophorus sp.		Diamesinae Diamesa sp		Chelifera en	
Hydrochus sp.		Pagastia sp.		Clinocera sp.	
Tropisternus sp.		Potthastia sp.		Hemerodromia sp.	
Hydrobius sp.		Prodiamesa sp Sympothastis ep		Dolichocephala sp.	
PSEPHENIDAE		Orthocladiinae		PELCORHYNCHIDAE	
Psephenus sp.		Brillia sp.		Glutops sp.	
Ectopria sp.		Cardiocladius sp.		PSYCHODIDAE	
Dicranopselaphus sp.		Chaetocladius sp.		Pericoma sp.	
Anchytarsus sp.		Cricotopus sp.		SIMULIDAE	
COPEPODA		Cricotopus/Orthocladius sp.		Simulium sp.	
CRUSTACEA (Amphipoda- Scuds)		Diplocladius sp.		Prosimulium sp.	
Stygonectes sp.	1	Euklemenella sp. Helenjella sp.		Twinia sp.	
Crangonyx sp.		Heterotrissocladius sp.		Stegopterna sp.	
Synurella sp.		Hydrobaenus sp.		Ectemnia sp.	
Gammarus sp.		Limnophyes sp.		STRATIOMYIDAE	
HYALELLIDAE		Mesocricotopus sp.		Odontomyla sp.	
Hyalella sp.		Mesosmittia sp.		SYRPHIDAE	
CRUSTACEA (Decopoda - Crayfish)		Nanocladius sp.		Chrysogaster sp.	
CAMBARIDAE PALAEMONIDAE		Orthocladinae A		Eristalis sp.	
CRUSTACEA (Isopoda- Sowbugs)		Parachaetocladius sp.		Chrysops sp.	
ASELIDAE		Parakiefferiella sp.		Tabanus sp.	
Caecidotea sp.		Parametriocnemus sp.		TANYDERIDAE	
DIPTERA - True Files		Parasmittia sp.		Thaumalea sp.	
ATHERICIDAE		Paratrichocladius sp.		TIPULIDAE	1
Atherix sp.		Paratrissocladius sp.		Antocha sp.	
BLEPHARICERIDAE		Psectrocladius sp.		Hexatoma sp.	
CERATOPOGNIDAE		Psilometriocnemus sp.		Molophilus sp.	
Alluaudomyia sp.		Rheocricotopus sp.		Tipula sp.	
Bezzia sp.		Rheosmittia sp.		Psuedolimnophila sp.	
Culicoides an		Smittia sp. Stilocladius sp.		Limpophila sp.	
Dasyhelea sp.		Symposiocladius sp.		Ormosia sp.	
		and			
		Page 1	of 2		

 -(Wetland)
Studies and Solutions, Inc.

1

Site	WSSI #	Reach	Collectors	# Jars in Sample	Total No. Organisms Sorted
Snakeden Branch - Pre Con.					
Year 2 Date ID'd	20003	1-D Taxonomiet	SDS/TSS	# Cride in Subcomple	122
8/15/2008	8/15/2008	SDS	SDS	# Grids in Subsample	100 100
			000		100
Pedicia sp. Limonia sp.		Microvelia sp. HIRUDINEA - Leeches		Paranemoura sp. Prostoja sp.	
Pilaria sp.		HOPLONEMERTEA - Ribbon Worms		Shipsa sp.	
Enoptera sp. Rhabdomastix sp.		Prostoma sp.		Alloperla sp.	
TRICHOCERIDAE		LEPIDOPTERA - Moth Larvae		Haploperla sp.	
EPHEMEROPTERA - Mayflies		Archanara sp.		TAENIOPTERGIDAE	
AMELETIDAE		Bellura sp.		Strophopteryx sp.	
BAETIDAE		MEGALOPTERA - Dobsonflies		Taeniopteryx sp. TRICHOPTERA - Caddisflies	
Acentrella sp.		CORYDALIDAE		BRACHYCENTRIDAE	
Acerpenna sp. Baetis sp.		Chauliodes sp. Corydalus sp.		CALAMOCERATIDAE	
Centroptilum sp.		Nigronia sp.		Heteroplectron sp.	
BAETISCIDAE		Sialis sp.		Phylocentropus sp.	
Baetisca sp.		NEMATODA - Roundworms		GLOSSOSOMATIDAE	
Caenis sp.		ODONATA (Anispotera - Dragonflies)		Giossosoma sp. Adapetus sp.	
EPHEMERELLIDAE		AESHNIDAE		HELICOPSYCHIDAE	
Dannella sp. Drunella sp.		Anax sp. Basiaeshna sp.		Helicopsyche sp. HYDROPSYCHIDAE	
Ephemerella sp.		Boyeria sp.		Cheumatopsyche sp.	
Serratella sp.		Condulegaster sp.		Hydropsyche sp.	
EPHEMERIDAE		CORDULIDAE		Parapysche sp.	
HEPTAGENIIDAE		Arigomphus sp.		HYDROPTILIDAE	
Epeorus sp.		Gomphus sp.		Hydroptila sp.	
Stenacron sp.		Lanthus sp.		Ochrotrichia sp.	
Stenonema sp.		Stylogomphus sp.		LEPIDOSTOMATIDAE	
Leptophlebia sp.		MACROMIDAE		LEPTOCERIDAE	
Habrophlebia sp.		Macromia sp.		Triaenodes sp.	
Paraleptophlebia sp.		ODONATA Zygoptera - Damselflies)		Oecetis sp.	
NEOEPHEMERIDAE		CALOPTERYGIDAE		LIMNEPHILIDAE	
Isonychia sp.		COENAGRIONIDAE		Hydatophylax sp.	
POLYMITARCYIDAE		Argia sp.		Ironoquia sp.	
SIPHLONEURIDAE		OLIGOCHAETA - Oligochaete Worms	53	MOLANNIDAE	
Siphlonurus sp.		FAMILY #1	1	Molanna sp.	
Tricorythodes sp.		NAIDIDAE		Psilotreta sp.	
GASTROPODA - Snalls	1	TUBIFICIDAE	13	PHILOPOTAMIDAE	
Ferissa sp.	1	POLYCHAETA - Polychaete Worms		Chimarra sp. Wormaldia sp.	
HYDROBIDAE		AEOLOSOMATIDAE		PHRYGANEIDAE	
Fossaria sp.		PLECOPTERA - Stonefly Larvae		POLYCENTROPIDAE	
Stagnicola sp. Pseudosuccinea sp.		PERLIDAE Acroneuria sp.		Cymellus sp. Polycentropus sp.	
PHYSIDAE	4	Beloneuria sp.		PSYCHOMYIDAE	
Physella sp. PLANORBIDAE	1	Eccoptura sp. Neoperla sp.		Lype sp. Psychomyla sp.	
Menetus sp.		Perlesta sp.		RHYACOPHILIDAE	
Gyraulus sp. PLEUROCERIDAE		Perlinella sp. PERLODIDAE		Ryacophila sp. UENOIDAE	
VIVIPARIDAE		Clioperla sp.		Neophylax sp.	
Viviparus sp. HAPLOSCLERIDA	-	Diploperla sp.		TUBELLARIA - Flatworms PLANARIIDAE	
SPONGILLIDAE		Cultus sp.		DENDROCOELIDAE	
HEMIPTERA - True Bugs		PTERONARCYIDAE			
Belostoma sp.		PELTOPERLIDAE			
Lethocerus sp. CORIXIDAE		Peltoperia sp.			
GELASTOCORIDAE		Leuctra sp.			
GERRIDAE Trepobates en		Zealuectra sp.		-	
HEBRIDAE		CAPNIDAE			
HYDROMETRIDAE		Allocapnia sp.			
NEPIDAE		NEMOURIDAE			
Nepa sp.		Amphinemura sp.			
VELIDAE		Nemoura sp.			



WSSI	BENTHIC MA	CROINVERTEBRATE I	.D. AND ENUM	ERATION BENCH SHE	ET*
Site	WSSI #	Reach	Collectors	# Jars in Sample	Total No. Organisms Sorted
Snakeden Branch - Pre Con.	20003	1-E	SDS/TSS	1	121
Date ID'd	Date Sorted	Taxonomist	Sorter	# Grids in Subsample	Total No. Organisms ID'd
7/22/2008	7/21/2008	SDS	SDS	29	118
BIVALVIA - Clams		Eorcipomvia sp		Synorthooladius an	
SPHAERIDAE		Probezzia sp.		Thienemanniella sp.	
Sphaerium sp.		Sphaeromias sp.		Tvetenia sp.	
Pisidium sp. Musculium sp.		Stilobezzia sp.		Unniella sp. Vulotopus ap	
CORBICULIDAE		Chaborus sp.		Zalutschia sp.	
Corbicula fluminea sp.		CHIRONOMIDAE	42	Tanypodinae	
UNIONIDAE		Chironominae		Ablabesmyia sp.	
BRANCHIOBDELLIDA		Chironomus sp		Alotanypus sp.	
TETRASTEMMATIDAE		Cryptochironomus sp.		Clinotanypus sp.	
COLEOPTERA - Beetles		Cryptotendipes sp."		Conchapelopia sp.	
CURCULIONIDAE		Demicryptochironomus sp. Dicrotandipes sp.		Krepopelopia sp.	
DRYOPIDAE		Einfeldia sp.		Labrundinia sp.	
Helichus sp.		Endochironomus sp.		Larsia sp.	
Agabus ap		Glyptotendipes sp.		Macropelopia sp.	
Hydroporous sp.		Microtendipes sp.		Paramerina sp.	
Coptotomus sp.		Nilothauma sp.		Pentaneura sp.	
Oreodytes sp.		Pagastiella sp.		Procladius sp.	
Dytiscus sp.		Paracladopelma sp.		Rheopelopia sp.	
ELMIDAE		Paratendipes sp.		Tanypus sp.	
Microcylloepus sp.		Phaenopsectra sp.		Thienemannimyia gp.	
Stenelmis sp.		Stenochironomus sp.		Trissopelopia sp.	
Promoresia sp.		Stictochironomus sp.		Zavrelimyia sp.	
Macronychus sp.		Tribelos sp.		CULICIDAE	
Ancyronyx sp.		Zavrenena sp. Tanytarsini		Anopheles	
Oulimnius sp.		Cladotanytarsus sp.		Culex	
GYRINIDAE		Constempellina sp.		Culiseta	
Gyrinus		Micropsectra sp. Micropsectra/Tanvsarsus complex		Orthopodomvia	
HALIPIDAE		Paratanytarsus sp.		Psorophora	
Halipus sp.		Rheotanytarsus ap.		Toxorhynchites	
Cymbiodyta sp.		Stempellinal sp.		Uranotaenia Wyeomyja	
Berosus sp.		Sublettea sp.		DIXIDAE	
Derallus sp.		Tanytarsus sp.		Dixa sp.	
Helophorus sp.		Zavrelia sp. Diamasinae		DOLICHOPODIDAE	
Hydrophilus sp.	13	Diamesa ap.		Chelifera sp.	
Hydrochus sp.		Pagastia sp.		Clinocera sp.	
Hydrobius sp.		Potthastia sp. Prodiamasa sp.		Hemerodromia sp.	
Laccobius sp.		Sympotthastia sp.		EPHYDRIDAE	
PSEPHENIDAE		Orthocladiinae		PELCORHYNCHIDAE	
Psephenus sp. Ectopria sp.		Brillia sp.		Glutops sp.	
Dicranopselaphus sp.		Chaetocladius sp.		Pericoma sp.	
PTILODACTYLIDAE		Corynoneura sp.		Psycoda sp.	
Anchytarsus sp.		Cricotopus sp.		SIMULIDAE	
CRUSTACEA (Amphipoda- Scuda)		Diplocladius sp.		Prosimulium sp.	
CRANYONYCTIDAE		Eukiefferiella sp.		Cnephia sp.	
Stygonecles sp. Crangonyx sp.		Heleniella sp.		Twinia sp. Stegopterna sp.	
Synurella sp.		Hydrobaenus sp.		Ectemnia sp.	
GAMMARIDAE	1	Limnophyes sp.		STRATIOMYIDAE	
HYALELLIDAE		Lopesciadius sp. Mesocricotopus sp.		Odontomvia sp	
Hyalella sp.		Mesosmittia sp.		SYRPHIDAE	
CRUSTACEA (Decopoda - Craylish)		Nanocladius ap.		Chrysogaster sp.	
CAMBARIDAE		Orthocladinae A		Eristalis sp.	
CRUSTACEA (Isopoda- Sowbugs)		Parachaetocladius sp.		Chrysops sp.	
ASELIDAE	1	Parakiefferiella sp.		Tabanus sp.	
Caecidotea sp.		Parametriocnemus sp.		TANYDERIDAE	
DIPTERA - True Flies		Parasmittia sp.		Thaumalea sp.	
ATHERICIDAE		Paratrichocladius sp.		TIPULIDAE	1
Atherix sp.		Paratrissociadius sp.		Antocha sp.	
CECIDOMYIIDAE		Pseudorthocladius sp.		Leptotarsus sp	
CERATOPOGNIDAE		Psilometriocnemus sp.		Molophilus sp.	
Alluaudomyla sp.		Rheocricotopus sp.		Tipula sp.	
Ceratopogon sp.		Smittia sp.		Psuedolimnophila sp.	
Culicoides sp.		Stilocladius sp.		Limnophila sp.	
Dasyhelea sp.		Symposiocladius sp.		Ormosia sp.	
		Dage	1 01 2		
		rage	1012		

Site	WSSI #	Reach	Collectors	# Jars in Sample	Total No. Organisms Sorte
Snakeden Branch - Pre Con.	20002	15	PDP/TPP		101
ear 2 Data ID'd	20003	Taxonomist	SDS/155	# Cride in Subcomple	121 Total No. Organisms (Did
Date ID d	Z/01/0000	Taxonomist	Sorter	# Grids in Subsample	Total No. Organisms ID d
112212008	1/21/2000	505	303	29	118
Pedicia sp.		Microvelia sp.		Paranemoura sp.	
Limonia sp.		HIRUDINEA - Leeches		Prostoia sp.	
Pilana sp.		TETRASTEMMATIDAE		CHI OBOPERI IDAE	
Bhabdomastix ap.		Prostoma sp.		Alloperla sp.	
TRICHOCERIDAE		LEPIDOPTERA - Moth Larvae		Haploperla sp.	
Trichocera sp.		NOCTUIDAE		Sweltsa sp.	
PHEMEROPTERA - Mayllies		Archanara sp.		TAENIOPTERGIDAE	
AMELETIDAE		Bellura sp.		Strophopteryx sp.	
Ameletus sp.		MEGALOPTERA Dobsonillas		TRICHOPTERA - Caddistilias	
Acentrella sp.		CORYDALIDAE		BRACHYCENTRIDAE	
Acerpenna sp.		Chauliodes sp.		Brachycentrus sp.	
Baetis sp.		Corydalus sp.		CALAMOCERATIDAE	
Centroptilum sp.		Nigronia sp.		Heteroplectron sp.	
Diphetor sp.		SIALIDAE		DIPSEUDOPSIDAE	
Baetisca sp		NEMATODA - Boundworms		Phylocentropus sp.	
CAENIDAE		NEMATOMORPHA - Horsehair Worms		Giossosoma sp.	
Caenis sp.		ODONATA (Anispotera - Dragonfiles)		Agapetus sp.	
EPHEMERELLIDAE		AESHNIDAE		HELICOPSYCHIDAE	
Dannella sp.		Anax sp.		Helicopsyche sp.	
Drunella sp.		Basiaeshna sp.		HYDROPSYCHIDAE	8
Epnemerella sp.		CORDULEGASTRIDAE		Diplectropa sp.	
Serratella sp.		Cordulegaster sp.		Hydropsyche sp.	
EPHEMERIDAE		CORDULIIDAE		Parapysche sp.	
Ephemera sp.		GOMPHIDAE		Potamyia sp.	
HEPTAGENIIDAE		Arigomphus sp.		HYDROPTILIDAE	
Epeorus sp.		Gomphus sp.		Hydroptila sp.	
Stenacron sp.		Lanthus sp.		Cebrotrichia sp.	
Stenonema sp.		Stylogomphus sp.		LEPIDOSTOMATIDAE	
LEPTOPHLEBIDAE		LIBELLULIDAE		Lepidostoma sp.	
Leptophlebia sp.		MACROMIDAE		LEPTOCERIDAE	
Habrophlebia sp.		Macromia sp.		Triaenodes sp.	
Habrophlebiodes sp.		PETALURIDAE		Ceraclea sp.	
NEOEPHEMERIDAE		CALOPTERYGIDAE	1	LIMNEPHILIDAE	
OLIGONEURIDAE		Calopteryx sp.		Apatina sp.	
Isonychia sp.		COENAGRIONIDAE	4	Hydatophylax sp.	
POLYMITARCYIDAE		Argia sp.		Ironoquia sp.	
POTAMANTHIDAE		LESTIDAE		Pycnopsyche sp.	
SIPHLONEURIDAE		OLIGOCHAETA - Oligochaete Worms	46	MOLANNIDAE	
TRICOBYTHIDAE		ENCHYTRAEIDAE		ODONTOCERIDAE	
Tricorythodes sp.		NAIDIDAE		Psilotreta sp.	
ASTROPODA - Snails		TUBIFICIDAE	7	PHILOPOTAMIDAE	2
ANCYLIDAE	4	LUMBRICULIDAE		Chimarra sp.	
Ferissa sp.		POLYCHAETA - Polychaete Worms		Wormaldia sp.	
I YMNAEIDAE		AEOLOSOMATIDAE		PHRYGANEIDAE	
Fossaria sp.		PLECOPTERA - Stonefly Larvae		POLYCENTROPIDAE	
Stagnicola sp.		PERLIDAE		Cymellus sp.	
Pseudosuccinea sp.		Acroneuria sp.		Polycentropus sp.	
Physella sp		Eccopture ep		PSYCHOMYIDAE	
PLANORBIDAE		Neoperla sp.		Psychomyia sp.	
Menetus sp.		Perlesta sp.		RHYACOPHILIDAE	(
Gyraulus sp.		Perlinella sp.		Ryacophila sp.	1
PLEUROCERIDAE		PERLODIDAE		UENOIDAE	
VIVIPARIDAE		Clioperia sp.		Neophylax sp.	
VMparus sp.		Dipioperta sp.		PLANABIDAE	
SPONGILLIDAE		Cultus sp.		DENDROCOELIDAE	
EMIPTERA - True Bugs		PTERONARCYIDAE		NEMERTEA - Ribbon Worms	1
BELOSTOMATIDAE		Pteronarcys sp.			
Belostoma sp.		PELTOPERLIDAE			
Lethocerus sp.		Pettoperla sp.			
GELASTOCOBIDAE		LEUCTHIDAE			
GERRIDAE		Zealuectra sp.			
Trepobates sp.		Paraleuctra sp.			
HEBRIDAE		CAPNIDAE			
HYDROMETRIDAE		Allocapnia sp.			
MESOVELIDAE		Paracapnia sp.			
Nepto an		Amphipamura sp			
Ranatra sp.		Ostrocerca sp			
VELIIDAE		Nemoura sp.			
		Page 2	of 2		

Site	WSSI #	Beach	Collectors	# Jars in Sample	Total No. Organisms Sorted
Snakeden Branch - Pre Con.		Ticach	0011001010	i ouro in oumpro	Fold from or guillonic contest
Year 2	20003	1-F	SDS/TSS	1	125
Date ID'd	Date Sorted	laxonomist	Sorter	# Grids in Subsample	Total No. Organisms ID'd
8/25/2008	6/13/2008	JDF/SDS	JDF/SDS	66	104
BIVALVIA - Clams		Forcipomyla sp.		Synorthocladius sp.	
Sphaerium sp.		Sphaeromias sp.		Tvetenia sp.	
Pisidium sp.		Stilobezzia sp.		Unniella sp.	
Musculium sp.		CHAOBORIDAE		Xylotopus sp.	
Corbicula fluminea sp.		Chaborus sp. CHIRONOMIDAE	5	Zalutschia sp. Tanypodinae	
UNIONIDAE		Chironominae		Ablabesmyia sp.	
BRANCHIOBDELLIDA		Chironomini		Alotanypus sp.	
BRANCHIOBDELLIDAE		Chironomus sp.		Apsectrotanypus sp.	
COLEOPTERA - Beetles		Cryptochironomus sp.		Clinotanypus sp.	
CANTHERIDAE		Demicryptochironomus sp.		Guttipelopia sp.	
CURCULIONIDAE		Dicrotendipes sp.		Krenopelopia sp.	
DRYOPIDAE		Einfeldia sp.		Labrundinia sp.	
DYTISCIDAE		Glyptotendipes sp.		Larsta sp. Macropelopia sp	
Agabus sp.		Kiefferulus sp.		Meropelopia sp.	
Hydroporous sp.		Microtendipes sp.		Paramerina sp.	
Oreodytes sp.		Nilothauma sp. Pagastiella sp.		Pentaneura sp. Procladius en	
Laccomis sp.		Parachironomus sp.		Psectrotanypus sp.	
Dytiscus sp.		Paracladopelma sp.		Rheopelopia sp.	
ELMIDAE Micropulaerus en		Paratendipes sp.		Tanypus sp.	
Optioservus sp.		Phaenopsectra sp. Polypedilum sp.		Thienemannimyla gp.	
Stenelmis sp.		Stenochironomus sp.		Trissopelopia sp.	
Promoresia sp.		Stictochironomus sp.		Zavrelimyia sp.	
Macronychus sp. Dubiranbia sp.		Tribelos sp. Zeuralialle en		CULICIDAE	
Ancyronyx sp.		Tanytarsini		Anopheles	
Oulimnius sp.		Cladotanytarsus sp.		Culex	
GYRINIDAE		Constempellina sp.		Culiseta	
Gvrinus		Micropsectra sp. Micropsectra/Tanysarsus complex		Orthopodomvia	
HALIPIDAE		Paratanytarsus sp.		Psorophora	
Halipus sp.		Rheotanytarsus sp.		Toxorhynchites	
Cymbiodyta en	1	Stempellina sp.		Uranotaenia	
Berosus sp.		Sublettea sp.		DIXIDAE	
Derallus sp.		Tanytarsus sp.		Dixa sp.	
Helochares sp.		Zavrelia sp.		DOLICHOPODIDAE	1
Helophorus sp.		Diamesinae Diamasa sp		Chelfera sp	
Hydrochus sp.		Pagastia sp.		Clinocera sp.	
Tropisternus sp.		Potthastia sp.		Hemerodromia sp.	
Laccobius sp.		Prodiamesa sp Sympothastia sp		EPHYDRIDAE	9
PSEPHENIDAE		Orthocladinae		PELCORHYNCHIDAE	
Psephenus sp.		Brillia sp.		Glutops sp.	
Ectopria sp.		Cardiocladius sp.		PSYCHODIDAE	
PTILODACTYLIDAE		Corvnoneura sp.		Percoma sp. Psycoda sp.	
Anchytarsus sp.		Cricotopus sp.		SIMULIDAE	
COPEPODA		Cricotopus/Orthocladius sp.		Simulium sp.	
CRANYONYCTIDAE		Eukiefferiella sp.		Chephia sp.	
Stygonectes sp.		Heleniella sp.		Twinia sp.	
Crangonyx sp.		Heterotrissocladius sp.		Stegopterna sp.	
Synurella sp.		Hydrobaenus sp.		Ectemnia sp.	
Gammarus sp.		Lopescladius sp.		Oxycera sp.	
HYALELLIDAE		Mesocricotopus sp.		Odontomyla sp.	
Hyalella sp.		Mesosmittia sp.		SYRPHIDAE	
CAMBARIDAE		Orthocladius sp.		Eristalis sp	
PALAEMONIDAE		Orthocladius sp.		TABANIDAE	
CRUSTACEA (Isopoda- Sowbugs)		Parachaetocladius sp.		Chrysops sp.	
ASELIDAE Caacidotea sp		Parakiefferiella sp.		Tabanus sp.	
Lirceus sp.		Paraphaenocladius sp.		THAUMALEIDAE	
DIPTERA - True Flies	1	Parasmittia sp.		Thaumalea sp.	
ATHERICIDAE		Paratrichocladius sp.		TIPULIDAE	14
BLEPHARICERIDAE		Paratrissociadius sp. Psectrocladius sp.		Antocha sp. Hexatoma sp.	
CECIDOMYIIDAE		Pseudorthocladius sp.		Leptotarsus sp.	
CERATOPOGNIDAE		Psilometriocnemus sp.		Molophilus sp.	
Alluaudomyla sp. Bezzia sp.		Rheocricotopus sp.		Tipula sp. Reuedolimpophile an	
Ceratopogon sp.		Smittia sp.		Dicranota sp.	
Culicoides sp.		Stilocladius sp.		Limnophila sp.	
Dasyhelea sp.		Symposiocladius sp.		Ormosia sp.	

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Site	WSSI #	Reach	Collectors	# Jars in Sample	Total No. Organisms Sorted
Snakeden Branch - Pre Con.	20002	1.5	PDP/TPP		105
Date ID'd	Date Sorted	Taxonomist	Sorter	# Gride in Subsample	Total No. Organisms ID'd
8/25/2008	8/13/2008	JDF/SDS	JDE/SDS	66	104
012012000			0011000		101
Pedicia sp. Limonia sp.		Microvelia sp. HIRUDINEA - Leeches		Paranemoura sp. Prostoja sp.	
Pilaria sp.		HOPLONEMERTEA - Ribbon Worms		Shipsa sp.	
Erioptera sp. Bhabdomastix sp.		TETRASTEMMATIDAE Prostome en		CHLOROPERLIDAE	
TRICHOCERIDAE		LEPIDOPTERA - Moth Larvae		Haploperla sp.	
Trichocera sp.		NOCTUIDAE		Sweltsa sp.	
AMELETIDAE		Archanara sp. Bellura sp.		Strophoptervx sp.	
Ameletus sp.		PYRALIDAE		Taeniopteryx sp.	
BAETIDAE		MEGALOPTERA - Dobsonflies		TRICHOPTERA - Caddisflies	
Acerpenna sp.		Chauliodes sp.		Brachycentrus sp.	
Baetis sp.		Corydalus sp.		CALAMOCERATIDAE	
Diphetor sp.		Nigronia sp. SIALIDAE		DIPSEUDOPSIDAE	
BAETISCIDAE		Sialis sp.		Phylocentropus sp.	
Baetisca sp.		NEMATODA - Roundworms		GLOSSOSOMATIDAE	
Caenis sp.		ODONATA (Anispotera - Dragonflies)		Agapetus sp.	
EPHEMERELLIDAE		AESHNIDAE		HELICOPSYCHIDAE	
Dannella sp. Drunella sp.		Anax sp. Rasiaeshna sp.		Helicopsyche sp. HYDBOPSYCHIDAE	
Ephemerella sp.		Boyeria sp.		Cheumatopsyche sp.	
Eurylophella sp.		CORDULEGASTRIDAE		Diplectrona sp.	
EPHEMERIDAE		CORDULIDAE		Parapysche sp.	
Ephemera sp.		GOMPHIDAE		Potamyia sp.	
Epeorus sp.		Arigomphus sp.		HYDROPTILIDAE Hydroptila so	
Leucrocuta sp.		Hagenius sp.		Leucotrichia sp.	
Stenacron sp.		Lanthus sp.		Ochrotrichia sp.	
LEPTOPHLEBIDAE		LIBELLULIDAE		Lepidostoma sp.	
Leptophlebia sp.		MACROMIDAE		LEPTOCERIDAE	
Habrophlebia sp. Habrophlebiodes sp.		Macromia sp.  PETALURIDAE		Triaenodes sp. Ceracles sp.	
Paraleptophlebia sp.		ODONATA Zygoptera - Damselflies)		Oecetis sp.	
NEOEPHEMERIDAE		CALOPTERYGIDAE		LIMNEPHILIDAE	
Isonychia sp.		COENAGRIONIDAE		Hydatophylax sp.	
POLYMITARCYIDAE		Argia sp.		Ironoquia sp.	
SIPHLONEURIDAE		OLIGOCHAFTA - Oligochaete Worms	68	Pycnopsyche sp. MOLANNIDAE	
Siphlonurus sp.		LUMBRICINA		Molanna sp.	
TRICORYTHIDAE		ENCHYTRAEIDAE		ODONTOCERIDAE	
GASTROPODA - Snails		TUBIFICIDAE	11	PHILOPOTAMIDAE	
ANCYLIDAE		LUMBRICULIDAE		Chimarra sp.	
Perissa sp. HYDROBIIDAE		AEOLOSOMATIDAE		PHRYGANEIDAE	
LYMNAEIDAE		Aeolosoma sp.		Ptilostomis sp.	
Fossana sp. Stagnicola sp.		PLECOPTERA - Stonefly Larvae PERLIDAE		Cymellus sp.	
Pseudosuccinea sp.		Acroneuría sp.		Polycentropus sp.	
PHYSIDAE Physella sp.		Beloneuria sp. Eccoptura sp.		PSYCHOMYIDAE	
PLANORBIDAE		Neoperla sp.		Psychomyia sp.	
Menetus sp.		Perlesta sp.		RHYACOPHILIDAE	
PLEUROCERIDAE		PERLODIDAE		UENOIDAE	
VIVIPARIDAE		Clioperla sp.		Neophylax sp.	
VMparus sp. HAPLOSCLERIDA		Diploperta sp.		TUBELLARIA - Flatworms	
SPONGILLIDAE		Cultus sp.		DENDROCOELIDAE	
HEMIPTERA - True Bugs		PTERONARCYIDAE			
Belostoma sp.		Pteronarcys sp. PELTOPERLIDAE			
Lethocerus sp.		Peltoperla sp.			
GELASTOCORIDAE		LEUCTRIDAE Leuctra sp.			
GERRIDAE		Zealuectra sp.			
Trepobates sp.		Paraleuctra sp.			
HYDROMETRIDAE		Allocapnia sp.			
MESOVELIDAE		Paracapnia sp.			
NePIDAE Nepa sp		NEMOURIDAE Amphinemura so			
Ranatra sp.		Ostrocerca sp			
VELIIDAE		Nemoura sp.			
		Page 2	of 2		
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### WSSI BENTHIC MACROINVERTEBRATE I.D. AND ENUMERATION BENCH SHEET\* Site WSSI # Reach Collectors Total No. Organisms Sorted # Jars in Sample Snakeden Branch - Pre Con 20003 2-A SDS/TSS Year 2 36 # Grids in Subsample Date ID'd **Date Sorted** Taxonomist Sorter Total No. Organisms ID'd 8/13/2008 SDS 8/13/2008 SDS 102 25 BIVALVIA - Clams SPHAERIDAE Forcipornyia sp. Probezzia sp. Synorthocladius sp. Thienemanniella sp. Sphaerium sp. Pisidium sp. Musculium sp. Tvetenia sp. Unniella sp. Sphaeromias sp CHAOBORIDAE Xylotopus sp. Zalutschia sp. Tanypodinae CORBICULIDAE Chaborus sp. CHIRONOMIDAE Corbicula fluminea sp UNIONIDAE Ablabesmyia sp. Chironomin Chironomini BRANCHIOBDELLIDA Alotanypus sp. BRANCHIOBDELLIDAE Chironomus sp. Apsectrotanypus sp TETRASTEMMATIDAE Cryptochironomus sp Clinotanypus sp. COLEOPTERA - Beetles Cryptotendipes sp. Conchapelopia sp CANTHERIDA Demicryptochironomus sp Guttipelopia sp. CURCULIONIDAE Dicrotendipes sp. Krenopelopia sp. DRYOPIDAE Einfeldia sp. Labrundinia sp. Endochironomus sp. Helichus sp. DYTISCIDAE Larsia sp. Macropelopia sp Glyptotendipes sp. Kiefferulus sp. Agabus sp. Meropelopia sp. Microtendipes sp. Hydroporous sp. Paramerina sp. Coptotomus sp. Oreodytes sp. Nilothauma sp. Pagastiella sp. Pentaneura sp. Procladius sp. Laccomis sp. Parachironomus sp. Psectrotanypus sp Paracladopelma sp. Paratendipes sp. Rheopelopia sp. Dytiscus sp. ELMIDAE Tanypus sp. Phaenopsectra sp. Polypedilum sp. Thienemannimyia gp. Thienemannimyia sp. Microcylloepus sp Optioservus sp. Stenelmis sp Stenochironomus sp Trissopelopia sp Promoresia sp. Macronychus sp. Stictochironomus sp. Tribelos sp. Zavrelimyia sp. CULICIDAE Dubiraphia sp Zavreliella sp. Tanytarsini Aedes Anopheles Ancyronyx sp Cladotanytarsus sp Constempellina sp. Culex Culiseta Oulimnius sp GYRINIDAE Micropsectra sp. Micropsectra/Tanysarsus complex Dineutus Mansonia Gyrinus HALIPIDAE Orthopodomyia Paratanytarsus sp. Psorophora Rheotanytarsus sp Toxorhynchites Halipus sp. HYDROPHILIDAE Stempellina sp. Uranotaenia Wyeomyia DIXIDAE Cymbiodyta sp. Berosus sp. Stempellinella sp Sublettea sp. us sp. ea sp Derallus sp Tanytarsus sp Dixa sp. DOLICHOPODIDAE Zavrelia sp. Diamesinae Helochares sp EMPIDIDAE Helophorus sp. Hydrophilus sp. Diamesa sp. Chelifera sp Hydrochus sp. Pagastia sp. Potthastia sp Clinocera sp. Hemerodrom Tropistemus sp ia sp Hydrobius sp. Prodiamesa sp Dolichocepha EPHYDRIDAE ala sp Laccobius sp Sympotthastia sp Orthocladiinae PELCORHYNCHIDAE PSEPHENIDAE Brillia sp. Psephenus sp. Glutops sp Cardiocladius sp. PSYCHODIDAE Ectopria sp. Pericoma sp. Psycoda sp. Dicranopselaphus sp. PTILODACTYLIDAE Chaetocladius sp. Corynoneura sp. SIMULIDAE Anchytarsus sp. COPEPODA Cricotopus sp. Cricotopus/Orthocladius sp. Diplocladius sp. Simulium sp. Prosimulium sp CRUSTACEA (Amphipoda- Scuda) CRANYONYCTIDAE Eukiefferiella sp. Cnephia sp. Stygonectes sp. Crangonyx sp. Heleniella sp. Heterotrissocladius sp. Twinia sp. Stegopterna sp. Hydrobaenus sp. Synurel Ectemnia sp. STRATIOMYIDAE GAMMARIDAE Limnophyes sp. Gammarus sp. HYALELLIDAE Lopescladius sp. Oxycera sp. Mesocricotopus sp. Odon Mesosmittia sp. SYRPHIDAE Hyalella sp. CRUSTACEA (Decopoda - Crayfish) Nanocladius sp. Orthocladinae A Chrysogaster sp CAMBARIDAE sp TABANIDAE Orthocladius sp. CRUSTACEA (Isopoda- Sowbugs) Parachaetocladius sp. Chrysops sp. ASELIDAE Parakiefferiella sp. Caecidotea sp Parametriocnemus sp TANYDERIDAE Lirceus sp. DIPTERA - True Flies ATHERICIDAE THAUMALEIDAE Paraphaenocladius sp Parasmittia sp. Thaumalea sp. TIPULIDAE Paratrichocladius sp. Atherix sp. BLEPHARICERIDAE Paratrissocladius sp. Antocha sp. Hexatoma sp. Psectrocladius sp. Leptotarsus sp Molophilus sp. CECIDOMYIIDAE Pseudorthocladius sp CERATOPOGNIDAE Psilometriocnemus sp. Tipula sp. Psuedolimnophila sp Alluaudomyia sp. Rheocricotopus sp Bezzia sp Rheosmittia sp. Ceratopogon sp. Dicranota sp. Smittia sp. Culicoides sp Stilocladius sp. Limnophila sp. Dasyhelea sp. Symposiocladius sp Ormosia sp

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Snakeden Branch - Pre Con. Year 2 Date ID'd B/13/2008 Pedicia sp. Limonia sp. Pilaria sp. Erioptera sp. Rhabdomastix sp. Trichocera sp. PIRCHOCERIDAE Trichocera sp. PIRCHOCERIDAE Trichocera sp. PIELEROPTERA - Mayfilies MAELETIDAE Anel tIDAE Anel tIDAE Acentrolia sp. Centroptium sp. Diphetor sp. Baetisca sp. CatIDAE Baetisca sp. CatIDAE Baetisca sp. CAENDAE Cationae Baetisca sp. CAENDAE Dannella sp. Drunella sp. EPHEMERELLIDAE Dannella sp. EPHEMERELLIDAE Dannella sp. EPHEMERELLIDAE Dannella sp. EPHEMERIDAE Ephemeren sp. HEPTAGENIDAE Ephemeren sp. HEPTAGENIDAE Ephemeren sp. Leprophila sp. Stenorema sp. Leptophilabia sp. Heptophilabia sp. Acentrophilabia sp. Habrophilabia sp. Habrophilabia sp. Habrophilabia sp.	20003 2-A Date Sorted Taxonomist 8/13/2008 SDS Microvelia sp. HIRUDINEA - Leeches HOPLONEMERTEA - Ribbon Worms TETRASTEMMATIDAE Prosforma sp. LEPIDOPTERA - Moth Larvae NOCTUDAE Archanara sp.	SDS/TSS Sorter SDS	1 # Grids in Subsample 102 Paranemoura sp. Prostoia sp. Shipsa sp.	36 Total No. Organisms ID'd 25
Barts       Date ID'd       8/13/2008       Pedicia sp.       Limonia sp.       Plaria sp.       Frioptera sp.       Rhabdomastix sp.       TrichOCERIDAE       TrichOCERIDAE       TrichOCERIDAE       Areletus sp.       BartiDAE       Acentrolia sp.       Baetis sp.       Catnopilum sp.       Diphetor sp.       BAETISCIDAE       Baetis sp.       Caentropilum sp.       Diphetor sp.       BAETISCIDAE       Baetisca sp.       CAENIDAE       Caenis sp.       EPHEMERELLIDAE       Dannella sp.       Serratelia sp.       Serratelia sp.       Ephemores ap.       Betrescuta sp.       Ephemores ap.       Ephemores ap.       Epheromes ap.       Epheromes ap.       Epheromes ap.       ILeucrocuta ap.       Stenonema sp.       Leytophilebia sp.       Habrophilebia sp.       Habrophilebia sp.       Habrophilebia sp.       Habrophilebia sp.	20003 22-A Taxonomist B/13/2008 SDS Microvelia sp. HIRUDINEA - Leeches HOPLONEMERTEA - Ribbon Worms TETRASTEMMATIDAE Prostorma sp. LEPIDOPTERA - Moth Larvae NOCTUDAE Archanara sp.	SDS	# Grids in Subsample 102 Paranemoura sp. Prostoia sp. Shipsa sp.	Total No. Organisms ID'd 25
BATI3/2008  Pedicla sp. Limonia sp. Plania sp. Plania sp. Plania sp. Plania sp. Priemera sp. Rhabdomastix sp. Trichocera sp. PriEMERDPTERA Mayfiles AMELETIDAE Acentrella sp. BaETISCIDAE Baetisc sp. CAENIDAE CAENIDAE CAENIDAE CAENIDAE CAENIDAE Dannella sp. BEPHEMERELLIDAE Dannella sp. EPHEMERELLIDAE Dannella sp. EPHEMERELLIDAE Dannella sp. EPHEMERELLIDAE Dannella sp. Serratella sp. Serratella sp. Serratella sp. Stenacorna sp. EPHEMERIDAE Ephemare sp. HEPTOAENIDAE Ephemare sp. HEPTOAENIDAENIDAENIDAENIDAENIDAENIDAENIDAENID	Bits Softed         Factorion           8/13/2008         SDS           Microvela sp.         HIRUDINEA - Leeches           HOPLONEMERTEA - Ribbon Worms         TETRASTEMMATIDAE           Prostorma sp.         LEPIDOPTERA - Moth Larvas           NOCTUDIAE         Archanara sp.	SDS	Paranemoura sp. Prostoia sp. Shipsa sp.	25
Padicla sp. Plaria sp. Planator sp. Plaria sp. Planet s	Microvelia sp. HIRUDINEA - Laeches HOPLONEMERTEA - Ribbon Worms TETRASTEMMATIQAE Prostorma sp. LEPIDOPTERA - Moth Larvae NOCTUDIAE Archanara sp.		Paranemoura sp. Prostola sp. Shipsa sp.	
Pedicia sp. Limonia sp. Pedicia sp. Limonia sp. Plaria sp. Fiotpera sp. Fiotpera sp. FRICHOCERIDAE Trichocera sp. PHEMEROPTERA - Mayflies Ameletus sp. Ameletus sp. Ameletus sp. BAETIDAE Acentrelia sp. Centroptilum sp. Diphetor sp. BAETISCIDAE Baetisca sp. Centroptilum sp. Diphetor sp. BAETISCIDAE Caenis sp. EPHEMERELLIDAE Caenis sp. EPHEMERELLIDAE Dannella sp. Drunella sp. Ephemerala sp. Ephemerals sp. Ephemerals sp. Ephemera sp. Leurocuta sp. Stenacron sp. Taralextophilebia sp. Habrophilebia sp. Habrophilebia sp. Habrophilebia sp.	Microvelia sp. HIRUDINEA - Leaches HOPLONEMERTEA - Ribbon Worms TETRASTEMMATIQAE Prostoma sp. LEPIDOPTERA - Moth Larvae NOCTUDIAE Archanara sp.		Paranemoura sp. Prostola sp. Shipsa sp.	
Lmonis sp. Planis sp. PricHOECERIDAE Trichocers sp. PHEMEROPTERA - Mayflies AMELETIDAE Ameletus sp. Acentrelia sp. Acentrelia sp. Acentroptium sp. Diphetor sp. Baetis sp. Catroptium sp. Diphetor sp. Baetis sp. CAENIDAE CAENIDAE CAENIDAE CAENIDAE EPHEMERELLIDAE Drunelia sp. Ephemerala sp. Ephemerala sp. EPHEMERIDAE Ephemera sp. Leurocuta sp. Stenacron sp. Paraleotobiebia sp. Habrophiebia sp.	HIRUDINEA - Leeches HOPLONEMERTEA - Ribbon Worms TETRASTEMMATIDAE Prostorna sp. LEPIDOPTERA - Moth Larvae NOCTUIDAE Archanara sp.		Prostola sp. Shipsa sp.	
Transop. Fransop. Fra	TETRASTEMMATIDAE Prostorna sp. LEPIDOPTERA - Moth Larvae NOCTUIDAE Archanara sp.		ompsa sp.	
Rhabdomasik sp.         TRICHOCERIDAE         TRICHOCERIDAE         TRICHOCERIDAE         PHEMEROPTERA - Mayflies         AMELETIDAE         AMELETIDAE         BAETIDAE         Acentrolla sp.         Baetis sp.         Centroptium sp.         Diphetor sp.         BAETISCIDAE         Baetisca sp.         CAENIDAE         Caenis sp.         EPHEMERELLIDAE         Drunolla sp.         Ephemerella sp.         Ephemerella sp.         Ephemerella sp.         Ephemerella sp.         Ephemerella sp.         Stenacron sp.	Prostorna sp. LEPIDOPTERA - Moth Larvae NOCTUIDAE Archanar sp.		CHLOROPERLIDAE	
TRICHOCERIDAE Trichocera sp. Trichocera sp. PHEMERFOPTERA - Mayflies Ameletus sp. Ameletus sp. BAETIDAE Acerpenna sp. Baetis sp. Centroptium sp. Diphetor sp. BAETISCIDAE Baetisca sp. CAENIDAE Caenis sp. EPHEMERFILLIDAE Dannella sp. Drunella sp. Ephermerella sp. Ephermerella sp. Ephermerella sp. EPHEMERFIDAE Ephermerella sp. Ephermerella sp. EPHEMERIDAE Ephermerella sp. Ephermer	LEPIDOPTERA - Moth Larvae NOCTUIDAE Archanara so.		Alloperta sp.	
Trichocera sp. PHEMEROPTERA - Mayflies AMELETIDAE Ameletus sp. BAETIDAE Acentrelia sp. Aceptenna sp. Baetis sp. Centroptilum sp. Diphetor sp. BAETISCIDAE Baetiss sp. CAENIDAE CAENIDAE CAENIDAE CAENIDAE CAENIDAE CAENIDAE Drunelia sp. Drunelia sp. Drunelia sp. Drunelia sp. Ephemerelia sp. Elephemere sp. Leucrocuta sp. Stenorema sp. Leptophiebia sp. Leptophiebia sp. Habrophiebia sp. Habrophiebia sp.	Archanara sp.		Haploperla sp.	
PHEMEROPTERA Maylines AMELETIDAE AMELETIDAE Ameletus sp. BAETIDAE Acentrelia sp. Centroptilum sp. Diphetor sp. Baetisca sp. CAENIDAE Baetisca sp. CAENIDAE Baetisca sp. CAENIDAE CAenis sp. EPHEMERELLIDAE Dannella sp. Ephemerelia sp. Serratelia sp. Serratelia sp. EPHEMERIDAE Ephemere sp. HEPTAGENIDAE Epheorus sp. IEPPEOPHLEBIDAE Legtophiebia sp. Stenonema sp. HEPTAGENIDAE Legtophiebia sp. HEPTOPHLEBIDAE Legtophiebia sp. Habrophiebia sp. Habrophiebia sp. Habrophiebia sp.	Archanara sp.		Sweltsa sp.	
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Acontrolla sp. Acerpenna sp. Baatis sp. Centroptilum ap. Diphotor sp. BAETIDAE Baetiss sp. CAENIDAE Caenis sp. EPHEMERIELLIDAE Drunella sp. Drunella sp. Ephemerella sp. Ephemerella sp. EPHEMERIDAE Ephemera sp. Leurocuta sp. Stenacron sp. Leuroptila sp. Leuropti	Beilura sp.		Tappiontenyx sp.	
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Acerpenna ap. Acerpenna ap. Baetts sp. Centroptilum sp. Diphetor sp. BAETISCIDAE Baettsca sp. CAENIDAE Caents sp. EPHEMERFIELLIDAE Dannella sp. Ephemorella sp. EPHEMERIDAE Ephemore sp. HEPTAGENIDAE Ephemore sp. Leptoptila sp. Stenactor sp. Stenactor sp. Stenactor sp. Leptophiebla sp. Habrophiebla sp. Habrophiebla sp. Habrophiebla sp.	CORYDALIDAE		BRACHYCENTRIDAE	
Baetis sp. Centroptium sp. Diphetor sp. BAETISCIDAE Baetisca sp. CAENIDAE Caenis sp. CAENIDAE Dannella sp. EPHEMERELLIDAE Dannella sp. Eurylophella sp. Eurylophella sp. Eurylophella sp. EPHEMERIDAE Ephemera sp. HEPTAGENIDAE Ephemera sp. Leurocuta sp. Stenacron sp. Stenacron sp. Stenacron sp. Leurophelbia sp. Habrophlebia sp. Habrophlebia sp. Habrophlebia sp.	Chauliodes sp.		Brachycentrus sp.	
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Bastisca sp.       CAENIDAE       CAENIDAE       CAENIDAE       Dannella sp.       EPHEMERELLIDAE       Dannella sp.       Ephemorella sp.       Eurylophella sp.       Serratella sp.       EPHEMERIDAE       Ephemore sp.       HEPTAGENIDAE       Epeorus sp.       Leucrocuta sp.       Stenacron sp.       Stenorema sp.       Leptophilebia sp.       Habrophilebia sp.       Habrophilebia sp.       Habrophilebia sp.       Paralendcohlebia sp.	Sialis en		Phylocentronus en	
CAENIDAE Caonis sp. Caenis sp. EPHEMERFELLIDAE Dannella sp. Drunolla sp. Eurytophella sp. Serratella sp. EPHEMERIDAE Ephemera sp. HEPTAGENIDAE Epeorus sp. Stenacron sp. Stenacron sp. Stenacron sp. Stenacron sp. Heptophiebia sp. Habrophiebia sp. Habrophiebia sp. Habrophiebia sp.	NEMATODA - Roundworms	1	GLOSSOSOMATIDAE	
Caenis sp. EPHEMERELLIDAE Dannella sp. Drunella sp. Ephemerella sp. Eurylophella sp. EPHEMERIDAE Ephemera sp. HEPTAGENIDAE Epeorus sp. Istencoreuta sp. Stencoreuta sp. LeucropHlebla sp. Leptophelbla sp. Habrophlebla sp. Habrophlebla sp.	NEMATOMORPHA - Horsehair Worm	1	Glossosoma sp.	
EPHEMERFELLIDAE EPHEMERFELLIDAE Dannella sp. Drunella sp. Epharmorella sp. Serratella sp. EPHEMERIDAE Ephermore sp. HEPTAGENIDAE Epeorus sp. Leucrocuta sp. Stenacron sp. Stenacron sp. LEPTOPHLEBIDAE Leptophiebia sp. Habrophiebia sp. Habrophiebia sp.	ODONATA (Anispotera - Dragonflies)		Agapetus sp.	
Leannelta sp. Ephemerella sp. Ephemerella sp. Eurytophella sp. EPHEMERIDAE Ephemera sp. HEPTAGENIDAE Epeorus sp. Leucrocuta sp. Stenonema sp. Stenonema sp. Leptophiebla sp. Habrophiebla sp. Habrophiebla sp.	AESHNIDAE		HELICOPSYCHIDAE	
Enhemerella ap. Eurytophella ap. Serratella ap. EPHEMERIDAE EPHEMERIDAE Ephermera ap. HEPTAGENIBAE Epeorus ap. Stenacron ap. Stenacron ap. Stenorema ap. Leptophiebia ap. Habrophiebia ap. Habrophiebia ap. Habrophiebia ap.	Anax sp.	-	Helicopsyche sp.	
Eurylophella sp. Serratella sp. EPHEMERIDAE EphemeniDAE Ephermena sp. HEPTAGENIDAE Epeorus sp. Leucroouta sp. Stenacron sp. Stenacron sp. LeptOPHLEBIDAE Leptophiebia sp. Habrophiebia sp. Habrophiebia sp. Paraleatochiebia sp.	Bovaria sp.		Cheumatopsyche sp	
Serratella sp. EPHEMERIDAE Ephemora sp. HEPTAGENIDAE Epeorus sp. Leucrocuta sp. Stenacron sp. Stenacron sp. LEPTOPHLEBIDAE Leptophiebia sp. Habrophiebia sp. Habrophiebia sp.	CORDULEGASTRIDAE		Diplectrona sp.	
EPHEMERIDAE Ephemera sp. HEPTAGENIIDAE Epeorus sp. Leucrocuta sp. Stenacron sp. Stenaron sp. LEPTOPHLEBIDAE Leptophiebia sp. Habrophiebia sp. Habrophiebia sp.	Cordulegaster sp.		Hydropsyche sp.	
Ephemera sp. HEPTAGENIDAE Epeorus sp. Leucrocuta sp. Stenacron sp. Stenonema sp. LEPTOPHLEBIDAE Leptophlebia sp. Habrophlebia sp. Habrophlebia sp.	CORDULIDAE	1	Parapysche sp.	
HEP TAGENIDAE       Epecrus sp.       Leucrocuta sp.       Stenacron sp.       Stenonema sp.       LeptOPHLEBIDAE       Laptophiebia sp.       Habrophiebides sp.       Paralendorbiebia sp.	GOMPHIDAE		Potamyia sp.	
Leurorouta ap. Stenacron ap. Stenacron ap. LEPTOPHLEBIDAE Leptophlebia ap. Habrophlebia ap. Habrophlebia ap. Paratentophlebia ap.	Angomphus sp.		HYDROPTILIDAE	
Stenacron sp. Stenonema sp. LEPTOPHLEBIDAE Leptophiebia sp. Habrophiebia sp. Habrophiebia sp. Paraleotophiebia sp.	Hagenius sp.		Leucotrichia sp.	-
Steronema sp. LEPTOPHLEBIDAE Leptophiebia sp. Habrophiebia dp. Habrophiebiodes sp. Paraleotophiebia sp.	Lanthus sp.		Ochrotrichia sp.	
LEPTOPHLEBIDAE Leptophlebia sp. Habrophlebia sp. Habrophlebiodes sp. Paraleotophlebia sp.	Stylogomphus sp.		LEPIDOSTOMATIDAE	
Habrophlebia sp. Habrophlebia sp. Paralentophlebia sp.	LIBELLULIDAE		Lepidostoma sp.	
Habrophlebiodes sp. Paraleotophlebia sp.	MACROMIDAE		LEPTOCERIDAE	
Paraleptophlebia sp.	PETALURIDAE		Ceraclea sp.	
a sea car o prove prove a car a cape a	ODONATA Zygoptera - Damsetties)		Oecetis sp.	
NEOEPHEMERIDAE	CALOPTERYGIDAE		LIMNEPHILIDAE	
OLIGONEURIDAE	Calopteryx sp.		Apatina sp.	
Isonychia sp.	COENAGRIONIDAE		Hydatophylax sp.	
POLYMITARCYIDAE	Argia sp.		Ironoquia sp.	
SIPHLONEURIDAE	OLIGOCHAFTA - Oligochaete Worms	7	MOLANNIDAE	
Siphlonurus sp.	LUMBRICINA		Molanna sp.	
TRICORYTHIDAE	ENCHYTRAEIDAE		ODONTOCERIDAE	
Tricorythodes sp.	NAIDIDAE		Psilotreta sp.	
ASTROPODA - Snails	TUBIFICIDAE	2	PHILOPOTAMIDAE	
ANCYLIDAE Earless en	LUMBRICULIDAE		Chimarra sp.	
HYDROBIDAE	AEOLOSOMATIDAE		PHRYGANEIDAE	-
LYMNAEIDAE	Aeolosoma sp.		Ptilostomis sp.	
Fossaria sp.	PLECOPTERA - Stonefly Larvae		POLYCENTROPIDAE	
Stagnicola sp.	Acropauria ep		Cymellus sp.	
PHYSIDAE	1 Beloneuria sp.		PSYCHOMYIDAE	
Physella sp.	Eccoptura sp.		Lype sp.	
PLANORBIDAE	Neoperla sp.		Psychomyia sp.	
Menetus sp.	Perlesta sp.		RHYACOPHILIDAE	
PLEUROCERIDAE	PERLODIDAE		Hyacophila sp.	
VIVIPARIDAE	Clioperla sp.		Neophylax sp.	
Viviparus sp.	Diploperta sp.		TUBELLARIA - Flatworms	
IAPLOSCLERIDA	Isoperla sp.		PLANARIIDAE	
SPONGILLIDAE	Cultus sp.		DENDROCOELIDAE	
RELOSTONATIONS	PTERONARCYIDAE			
Belostoma so	Pteronarcys sp.			
Lethocerus sp.	Peltoperta sp			
CORIXIDAE	LEUCTRIDAE			
GELASTOCORIDAE	Leuctra sp.			
GERRIDAE	Zealuectra sp.			
Trepobates sp.	Paraleuctra sp.			
HYDROMETRIDAE	GAPNIDAE			
MESOVELIIDAE	Paracaphia sp.			
NEPIDAE	NEMOURIDAE			
Nepa sp.	Amphinemura sp.			
Ranatra sp.	0			1
VELIIDAE	Ostrocerca sp			
	Ostrocerca sp Nemoura sp.			
	Ostrocerca sp Nemoura sp.			
	Ostrocerca ap Nemoura sp.			-



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	Waal#	Heach	Collectors	# Jars in Sample	Total No. Organisms Sorted
Snakeden Branch - Pre Con.	10011	nedon	Concercions	# oars in sample	Total ito, organisms consu
/ear 2	20003	2-B	SDS/TSS	1	121
Date ID'd	Date Sorted	Taxonomist	Sorter	# Grids in Subsample	Total No. Organisms ID'd
8/12/2008	0/12/2008	505	505	30	102
SPHAERIDAE	5	Forcipomyla sp. Probezzia sp.		Synorthocladius sp.	
Sphaerium sp.	9	Sphaeromias sp.		Tvetenia sp.	
Pisidium sp.		Stilobezzia sp.		Unniella sp.	
CORBICULIDAE		Chaborus sp.		Zalutschia sp.	
Corbicula fluminea sp.		CHIRONOMIDAE	89	Tanypodinae	
BRANCHIOBDELLIDA		Chironominae		Ablabesmyia sp. Alotanyous sp.	
BRANCHIOBDELLIDAE		Chironomus sp.		Apsectrotanypus sp.	
COLEOPTERA - Beetlas		Cryptochironomus sp.		Clinotanypus sp.	
CANTHERIDAE		Demicryptochironomus sp.		Guttipelopia sp.	
CURCULIONIDAE		Dicrotendipes sp.		Krenopelopia sp.	
Helichus sp.		Endochironomus sp.		Larsia sp.	
DYTISCIDAE		Glyptotendipes sp.		Macropelopia sp.	
Hydroporous sp.		Microtendipes sp.		Paramerina sp.	
Coptotomus sp.		Nilothauma sp.		Pentaneura sp.	
Laccomis sp.		Parachironomus sp.		Procladus sp. Psectrotanypus sp.	
Dytiscus sp.		Paraciadopelma sp.		Rheopelopia sp.	
Microcylloepus sp.		Paratendipes sp		Thienemannimyia gp.	
Optioservus sp.		Polypedilum sp.		Thienemannimyia sp.	
Promoresia sp.		Stenochironomus sp. Stictochironomus sp.		Zavrelimvia sp.	
Macronychus sp.		Tribelos sp.		CULICIDAE	
Ancyronyx sp.		Zavreliella sp. Tanytarsini		Aedes	
Oulimnius sp.		Cladotanytarsus sp.		Culex	
GYRINIDAE Dineutus		Constempellina sp. Micropsectra sp.		Culiseta	
Gyrinus		Micropsectra/Tanysarsus complex		Orthopodomyia	
HALIPIDAE Halipus sp.		Paratanytarsus sp. Bheotanytarsus sp.		Psorophora	
HYDROPHILIDAE		Stempellina sp.		Uranotaenia	
Cymbiodyta sp. Barosus sp.		Stempellinella sp.		Wyeomyia	
Derallus sp.		Tanytarsus sp.		Dixa sp.	
Helochares sp.		Zavrelia sp.		DOLICHOPODIDAE	
Hydrophilus sp.		Diamesa sp.		Chelifera sp.	
Hydrochus sp.		Pagastia sp.		Clinocera sp.	
Hydrobius sp.		Prodiamesa sp		Dolichocephala sp.	
Laccobius sp.		Sympothastia sp.		EPHYDRIDAE	
Psephenus sp.		Brillia sp.		Glutops sp.	
Ectopria sp.		Cardiocladius sp.		PSYCHODIDAE	
PTILODACTYLIDAE		Chaetocladius sp. Corynoneura sp.		Percoma sp. Psycoda sp.	
Anchytarsus sp.		Cricotopus sp.		SIMULIDAE	
RUSTACEA (Amphipoda- Scuds)		Cricotopus/Orthocladius sp. Diplocladius sp.		Simulium sp. Prosimulium sp.	
CRANYONYCTIDAE		Eukiefferiella sp.		Cnephia sp.	
Crangonyx sp.		Heterotrissocladius sp.		I winia sp. Stegopterna sp.	
Synurella sp.		Hydrobaenus sp.		Ectemnia sp.	
GAMMARIDAE Gammarus sp.		Limnophyes sp.		Ovvcera sp	
HYALELLIDAE		Mesocricotopus sp.		Odontomyia sp.	
Hyalella sp. BUSTACEA (Deconoda - Cravlish)		Mesosmittia sp.		SYRPHIDAE Choreographer en	
CAMBARIDAE		Orthocladinae A		Eristalis sp.	
PALAEMONIDAE		Orthocladius sp.		TABANIDAE	
ASELIDAE		Parakiefferiella sp.		Tabanus sp.	
Caecidotea sp.		Parametriocnemus sp.		TANYDERIDAE	
IPTERA - True Flies		Parasmittia sp.		Thaumalea sp.	
ATHERICIDAE		Paratrichocladius sp.		TIPULIDAE	
Atherix sp. BLEPHARICERIDAE		Paratrissociadius sp. Psectrocladius sp.		Antocha sp. Hexatoma sp.	
CECIDOMYIIDAE		Pseudorthocladius sp.		Leptotarsus sp.	
CERATOPOGNIDAE Alluaudomvia sp.		Psilometriocnemus sp.		Molophilus sp. Tipula sp.	
Bezzia sp.		Rheosmittia sp.		Psuedolimnophila sp.	
Ceratopogon sp. Culicoides sp		Smittia sp. Stilocladius en		Dicranota sp.	
Dasyhelea sp.		Symposiocladius sp.		Ormosia sp.	
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Site	WSSI #	Reach	Collectors	# Jars in Sample	Total No. Organisms Sorted
Snakeden Branch - Pre Con. Year 2	20003	2-B	SDS/TSS	1	121
Date ID'd	Date Sorted	Taxonomist	Sorter	# Grids in Subsample	Total No. Organisms ID'd
8/12/2008	8/12/2008	SDS	SDS	30	102
Badiola an		Missouslia en		Parananaura an	
Limonia sp.		HIRUDINEA - Leeches		Prostoia sp.	
Pilaria sp.		HOPLONEMERTEA - Ribbon Worms		Shipsa sp.	
Rhabdomastix sp.		Prostoma sp.		Alloperia sp.	
TRICHOCERIDAE		LEPIDOPTERA - Moth Larvae		Haploperla sp.	
Trichocera sp. EPHEMEROPTERA - Mayflins		Archanara an		Sweltsa sp. TAENIOPTERCIDAE	
AMELETIDAE		Bellura sp.		Strophopteryx sp.	
Ameletus sp.		PYRALIDAE		Taenlopteryx sp.	
Acentrella sp.		CORYDALIDAE		TRICHOPTEHA - Caddisflies BRACHYCENTRIDAE	
Acerpenna sp.		Chauliodes sp.		Brachycentrus sp.	
Baetis sp.		Corydalus sp.		CALAMOCERATIDAE	
Diphetor sp.		SIALIDAE		DIPSEUDOPSIDAE	
BAETISCIDAE		Sialis sp.		Phylocentropus sp.	
CAENIDAE		NEMATODA - Houndworms NEMATOMORPHA - Horsehair Worms	3	GLOSSOSOMATIDAE Glossosoma sp	
Caenis sp.		ODONATA (Anispotera - Dragonflies)		Agapetus sp.	
EPHEMERELLIDAE		AESHNIDAE		HELICOPSYCHIDAE	
Dannella sp. Drunella sp.		Basiaeshna sp.		Helicopsyche sp. HYDROPSYCHIDAE	
Ephemerella sp.		Boyeria sp.		Cheumatopsyche sp.	
Eurylophella sp. Serratella sp.		CORDULEGASTRIDAE Cordulegaster sp		Diplectrona.sp.	
EPHEMERIDAE		CORDULIDAE		Parapysche sp.	
Ephemera sp.		GOMPHIDAE		Potamyia sp.	
Epeorus sp.		Gomphus sp.		Hydroptila sp.	
Leucrocuta sp.		Hagenius sp.		Leucotrichia sp.	
Stenacron sp. Stenonema sp.		Lanthus sp. Stylogomphus sp.		Ochrotrichia sp.	
LEPTOPHLEBIDAE		LIBELLULIDAE		Lepidostoma sp.	
Leptophlebia sp.		MACROMIIDAE		LEPTOCERIDAE	
Habrophlebiodes sp.		PETALURIDAE		Ceraclea sp.	
Paraleptophlebia sp.		ODONATA Zygoptera - Damselfiles)		Oecetis sp.	
OLIGONEURIDAE		CALOPTERYGIDAE Calontary sp		LIMNEPHILIDAE	
Isonychia sp.		COENAGRIONIDAE		Hydatophylax sp.	
POLYMITARCYIDAE		Argia sp.		Ironoquia sp.	
SIPHLONEURIDAE		OLIGOCHAETA - Oligochaete Worms	1	Pycnopsyche sp. MOLANNIDAE	
Siphlonurus sp.		LUMBRICINA		Molanna sp.	
TRICORYTHIDAE		ENCHYTRAEIDAE		ODONTOCERIDAE Dellotroto on	
GASTROPODA - Snails		TUBIFICIDAE		PHILOPOTAMIDAE	
ANCYLIDAE		LUMBRICULIDAE		Chimarra sp.	
Ferissa sp. HYDROBIIDAE		POLYCHAETA - Polychaete Worms AEOLOSOMATIDAE		Wormaldia sp. PHRYGANEIDAE	
LYMNAEIDAE		Aeolosoma sp.		Ptilostomis sp.	
Fossaria sp. Stagnicola sp.		PLECOPTERA - Stonelly Larvae PERLIDAE		POLYCENTROPIDAE Cymellus sp	
Pseudosuccinea sp.		Acroneuria sp.		Polycentropus sp.	
PHYSIDAE Physelle ep	3	Beloneuria sp.		PSYCHOMYIDAE	
PLANORBIDAE	1	Neoperia sp.		Psychomyla sp.	
Menetus sp.		Perlesta sp.		RHYACOPHILIDAE	
PLEUROCERIDAE		Peninella sp. PERLODIDAE		UENOIDAE	
VIVIPARIDAE		Clioperla sp.		Neophylax sp.	
Viviparus sp. HAPLOSCI ERIDA		Diploperta sp.		TUBELLARIA - Flatworms	
SPONGILLIDAE		Cultus sp.		DENDROCOELIDAE	
HEMIPTERA - True Bugs		PTERONARCYIDAE			
Belostoma sp.		Pteronarcys sp. PELTOPERLIDAE			
Lethocerus sp.		Peltoperla sp.			
CORIXIDAE		LEUCTRIDAE			
GERRIDAE		Zealuectra sp.			
Trepobates sp.		Paraleuctra sp.			
HEBRIDAE		CAPNIDAE Allocappia sp			
MESOVELIIDAE		Paracapnia sp.			
NEPIDAE		NEMOURIDAE			
Nepa sp. Ranatra sp.		Amphinemura sp. Ostrocerca sp		-	
VELIIDAE		Nemoura sp.			
		Page 2	of 2		

Site	WSSI #	Reach	Collectors	# Jars in Sample	Total No. Organisms Sorte
Snakeden Branch - Pre Con.	20003	3-4	SDS/TSS	1	120
Date ID'd	Date Sorted	Taxonomist	Sorter	# Grids in Subsample	Total No. Organisms ID'd
7/23/2008	7/22/2008	SDS	SDS	35	109
NALVIA Class		Producer de car	000		100
SPHAERIDAE	64	Probezzia sp		Synorthocladius sp.	
Sphaerium sp.		Sphaeromias sp.		Tvetenia sp.	
Pisidium sp.		Stilobezzia sp.		Unniella sp.	
Musculium sp.		CHAOBORIDAE		Xylotopus sp.	
Corbicula fluminea sp.		Chaborus sp.	4	Zalutschia sp.	
UNIONIDAE		Chironominae		Ablabesmyia sp.	
RANCHIOBDELLIDA		Chironomini		Alotanypus sp.	
BRANCHIOBDELLIDAE		Chironomus sp.		Apsectrotanypus sp.	
TETRASTEMMATIDAE		Cryptochironomus sp.		Clinotanypus sp.	
CANTHERIDAE		Demicroptochironomus sp.		Guttinelopia sp.	
CURCULIONIDAE		Dicrotendipes sp.		Krenopelopia sp.	
DRYOPIDAE		Einfeldia sp.		Labrundinia sp.	
Helichus sp.		Endochironomus sp.		Larsia sp.	
Agebus ep		Glyptotendipes sp.		Macropelopia sp.	
Agabus sp. Hydroporous sp		Kienerulus sp. Microtendines sp.		Meropelopia sp.	
Coptotomus sp.		Nilothauma sp.		Pentaneura sp.	
Oreodytes sp.		Pagastiella sp.		Procladius sp.	
Laccomis sp.		Parachironomus sp.		Psectrotanypus sp.	
ELMIDAE		Paratendipes so		Tanyous so	
Microcylioepus sp.		Phaenopsectra sp.		Thienemannimyla op.	
Optioservus sp.		Polypedilum sp.		Thienemannimyia sp.	
Stenelmis sp.		Stenochironomus sp.		Trissopelopia sp.	
Promoresia sp. Macropychus sp		Stictochironomus sp.		Zavrelimyia sp.	
Dubiraphia sp.		Zavrelielle sp		Aedes	
Ancyronyx sp.		Tanytarsini		Anopheles	
Oulimnius sp.		Cladotanytarsus sp.		Culex	
GYRINIDAE		Constempellina sp.		Culiseta	
Overlouis		Micropsectra sp.		Mansonia	
HALIPIDAE		Paratanytarsus sp.		Psorophora	
Halipus sp.		Rheotanytarsus sp.		Toxorhynchites	
HYDROPHILIDAE		Stempellina sp.		Uranotaenia	
Cymbiodyta sp.		Stempellinella sp.		Wyeomyia	
Derallus so		Sublettea sp.		DIXIDAE	
Helochares sp.		Zavrelia sp.		DOLICHOPODIDAE	
Helophorus sp.		Diamesinae		EMPIDIDAE	
Hydrophilus sp.		Diamesa sp.	1999 - Contra - Contr	Chelifera sp.	
Hydrochus sp.		Pagastia sp.		Clinocera sp.	
Hydrobius sp.		Protinastia sp. Prodiamesa sp		Dolichocenhala sp.	
Laccobius sp.		Sympotthastia sp.		EPHYDRIDAE	
PSEPHENIDAE		Orthocladiinae		PELCORHYNCHIDAE	
Psephenus sp.		Brillia sp.		Glutops sp.	
Ectopria sp.		Cardiocladius sp.		PSYCHODIDAE	
PTILODACTYLIDAE		Corvoneura sp.		Percona sp.	
Anchytarsus sp.		Cricotopus sp.		SIMULIDAE	
OPEPODA		Cricotopus/Orthocladius sp.		Simulium sp.	
CRANKONVCTIONS		Diplocladius sp.		Prosimulium sp.	
Stygonectes sp		Eukieneriella sp.		Unephia sp.	
Crangonyx sp.		Heterotrissocladius sp.		Stegopterna sp.	
Synurella sp.		Hydrobaenus sp.		Ectemnia sp.	
GAMMARIDAE		Limnophyes sp.		STRATIOMYIDAE	
Gammarus sp.		Lopescladius sp.		Oxycera sp.	
Hvalella sp.		Mesosmittia sp.		SYRPHIDAE	
RUSTACEA (Decopoda - Crayfish)		Nanocladius sp.		Chrysogaster sp.	
CAMBARIDAE		Orthocladinae A		Eristalis sp.	
PALAEMONIDAE		Orthocladius sp.		TABANIDAE	
ASELIDAE		Parachaetocladius sp.		Chrysops sp.	
Caecidotea so.		Parametriocnemus en		TANYDEBIDAE	
Lirceus sp.		Paraphaenocladius sp.		THAUMALEIDAE	
IPTERA - True Flies		Parasmittia sp.		Thaumalea sp.	
ATHERICIDAE		Paratrichocladius sp.		TIPULIDAE	
Atherix sp.		Paratrissocladius sp.		Antocha sp.	
CECIDOMYIDAE		Pseudorthocladius sp.		Leototarsus so	
CERATOPOGNIDAE		Psilometriocnemus sp.		Molophilus sp.	
Alluaudomyia sp.		Rheocricotopus sp.		Tipula sp.	
Bezzia sp.		Rheosmittia sp.		Psuedolimnophila sp.	
Ceratopogon sp.		Smittia sp.		Dicranota sp.	
Dasyhelea so		Sumposionladius en		Comosia sp.	
standing als		symposionadas sp.		Omose sp.	

Snakeden Branch - Pre Con. Year 2 Date ID'd 7/23/2008 Pedicia sp. Limonia sp. Plaria sp. Erioptera sp. Rhabdomastik sp. TRICHOCERIDAE TRICHOCERIDAE Ameletus sp. BAETIDAE Ameletus sp. BAETIDAE Acerpenna sp. Baetis sp. Cantroptium sp. Diphetor sp. BAETISCIDAE Baetis ca sp. CAENIDAE Caenis sp. CAENIDAE Daneila sp. CAENIDAE Daneila sp. CAENIDAE Daneila sp. CHEMERELLIDAE Daneila sp. EPHEMERELLIDAE Daneila sp. EPHEMERELLIDAE Daneila sp. EPHEMERELLIDAE Daneila sp. EPHEMERELLIDAE Daneila sp. EPHEMERELLIDAE Daneila sp. EPHEMERELLIDAE Daneila sp. EPHEMERELLIDAE Daneila sp. EHEMERELLIDAE Daneila sp. EHEMERELLIDAE Daneila sp. EHEMERELLIDAE Daneila sp. EHEMERELLIDAE Ephemera sp. EHEMERIDAE	20003 Date Sorted 7/22/2008	3-A Taxonomist SDS Microvelia sp. HIRUDINEA - Leeches HOPLONEMERTEA - Rabon Woms TETRASTERMATIDAE Prostoma sp. LEPIDOPTERA - Moth Larvee NOCTUIDAE Archanara sp. Bellura sp. PYRALIDAE Chauliddes sp. Corydalus sp. Nigronia sp. SIALIDAE Stalis sp. SIALIDAE Stalis sp. NEMATODA - Roundworms NEMATODA - Roundworms NEMATODA - Roundworms NEMATODA - Horsehair Worms	SDS/TSS Sorter SDS	1 # Grids in Subsample 35 Paranemoura sp. Prostola sp. Shipsa sp. CHLOROPERLIDAE Alloperta sp. Haploperta sp. Sweltsa sp. TAENIOPTERGIDAE Strophopteryx sp. TAENIOPTERA-Caddiellies BRACHYCENTRIDAE Brachycentrus sp. CALMOCERATIDAE Heteropiectron sp. CALMOCERATIDAE Heteropiectron sp.	120 Total No. Organisms ID'd 109
The arrow of the second sec	Date Sorted 7/22/2008	Taxonomist       SDS       Microvelia sp.       HIRUDINEA - Leeches       MOPLONEMERTEA - Rabon Worms       TETRASTERMATIDAE       Prostoma sp.       LEPIDOPTERA - Moth Larvae       NOCTUIDAE       Archanara sp.       Bellura ap.       PYRALIDAE       CORYDALIDAE       Chaulidoes sp.       Corgdalus sp.       Nigronia sp.       Sialis sp.       Sialis sp.       NEMATODA - Roundworms       NEMATODA - Roundworms	Sorter SDS	# Grids in Subsample 35 Paranemoura sp. Prostola sp. Shipsa sp. CHLOROPERLIDAE Alloperta sp. TAENIOPTERGIDAE Strophopteryx sp. TAENIOPTERGIDAE Strophopteryx sp. TRICHOPTERA - Caddieffiles BRACHYCENTRIDAE Brachycentrus sp. CALMOCERATIDAE Heterophoctron sp. DEPSEUDOPSIDAE	Total No. Organisms ID'd 109
7/23/2008       Pedicia sp.       Limonia sp.       Plaria sp.       Erioptera sp.       Rhabdomastix sp.       TRICHOCERIDAE       TRICHOCERIDAE       TRICHOCERS sp.       PHEMEROPTERA - Mayfilies       Ameletribae       Ameletribae       Camerolia sp.       BAETIDAE       Cantroptium sp.       Diphetor sp.       Baetisca sp.       CAENIDAE       Dannella sp.       Caening sp.       EPHEMERELLIDAE       Dannella sp.       Ephemerella sp.       Ephemerella sp.       Ephemerella sp.       Ephemerella sp.       Ephemerella sp.       Europhyla sp.       Ephemerella sp.       Epherella       Epherella       Epherella	7/22/2008	SDS Microvelia sp. MiRUDINEA - Leaches MIRUDINEA - Leaches MOPLONEMERTEA - Rabon Worms TETRASTEMMATIDAE Prostoma sp. LEPIDOPTERA - Moth Larvee NOCTUIDAE Archanara sp. Bellura sp. Bellura sp. CORYDALIDAE Chauliddes sp. Corydalus sp. Nigronia sp. SIALIDAE Stalis sp. SIALIDAE Stalis sp. NEMATODA - Roundworms NEMATODA - Roundworms NEMATODA - Horsehair Worms	SDS	35 Paranemoura sp. Prostola sp. Shipsa sp. CHLOROPERLIDAE Alloperta sp. Swettaa sp. TAENIOPTERGIDAE Strophopteryx sp. TRICHOPTERA - Caddiafiles BRACHYCENTRIDAE Brachycentrus sp. CALAMOCERATIDAE Heteropiectron sp. DEPSEUDOPSIDAE	109
Pedicia sp. Limonia sp. Pilaria sp. Erioptera sp. Rhabdomastik sp. TRICHOCERIDAE TRICHOCERIDAE TRICHOCERIDAE TRICHOCERIDAE Ameletus sp. BAETIDAE Acentrolia sp. Cateroptium sp. Diphetor sp. BAETISCIDAE Baetisca sp. CAENIDAE Caenis sp. CAENIDAE Dannelia sp. CAENIDAE Dannelia sp. Drunelia sp. EPHEMERELLIDAE Dannelia sp. EPHEMERIDAE Ephemera sp. EPHEMERIDAE		Microvelia sp. Microvelia sp. HIRUDINEA - Leaches MOPLONEMERTEA - Ribbon Worms TETRASTEMMATIDAE Prostoma sp. LEPIDOPTERA - Molti Larvee NOCTUIDAE Archanara sp. Bellura sp. PYRALIDAE MEGALOPTERA - Dobsonflies CORYDALIDAE Chauliodes sp. Condalus sp. Nigronia sp. SiALIDAE Sialis sp. NEMATODA - Roundworms NEMATODA - Roundworms		Paranemoura sp. Prostola sp. Shipsa sp. CHLOROPERLIDAE Alloperla sp. Haploperla sp. Sweltaa sp. TAENOPTERGIDAE Strophopteryx sp. TRICHOPTERA - Caddiefiles BRACHYCENTRIDAE Brachycentrus sp. CALAMOCERATIDAE Heteropiectron sp. DIPSEUDOPSIDAE	
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Dannella sp. Drunella sp. Ephemerella sp. Eurytophella sp. Serratella sp. EPHEMERIDAE Ephemera sp. HEPTACENIDAE		AESHNIDAE		HELICOPSYCHIDAE	
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HEPTAGENIDAE		CORDULIDAE		Parapysche sp.	-
		Arigomphus sp.		HYDROPTILIDAE	
Epeorus sp.		Gomphus sp.		Hydroptila sp.	
Leucrocuta sp.		Hagenius sp.		Leucotrichia sp.	-
Stenacron sp. Stenonema sp.		Stylogomphus sp.		LEPIDOSTOMATIDAE	
LEPTOPHLEBIDAE		LIBELLULIDAE		Lepidostoma sp.	
Leptophlebia sp.		MACROMIDAE		LEPTOCERIDAE	
Habrophlebia sp. Habrophlebiodes sp.		Macromia sp.		Triaenodes sp.	
Paraleptophlebia sp.		ODONATA Zygoptera - Damselflies)		Oecetis sp.	
NEOEPHEMERIDAE		CALOPTERYGIDAE		LIMNEPHILIDAE	
OLIGONEURIDAE		Calopteryx sp.		Apatina sp.	
POLYMITARCYIDAE		Argia so		Iropoguja sp.	
POTAMANTHIDAE		LESTIDAE		Pycnopsyche sp.	
SIPHLONEURIDAE		OLIGOCHAETA - Oligochaete Worms	29	MOLANNIDAE	
Siphionurus sp.		LUMBRICINA		Molanna sp.	
Tricorythodes sp.		NAIDIDAE		Psilotreta sp	
ASTROPODA - Snails		TUBIFICIDAE	10	PHILOPOTAMIDAE	
ANCYLIDAE		LUMBRICULIDAE		Chimarra sp.	
Ferissa sp. HVDBOBIIDAE		POLYCHAETA - Polychaete Worms		Wormaldia sp.	
LYMNAEIDAE		Aeolosoma sp.		Ptilostomis sp.	
Fossaria sp.		PLECOPTERA - Stonefly Larvae		POLYCENTROPIDAE	
Stagnicola sp. Pseudosuccinea sp.		Acropauria sp		Cymellus sp. Polycentropus sp.	
PHYSIDAE	1	Beloneuria sp.		PSYCHOMYIDAE	
Physella sp.		Eccoptura sp.		Lype sp.	
Menetus sp.		Neoperla sp.		Psychomyla sp.	
Gyraulus sp.		Perlinella sp.		Ryacophila sp.	
PLEUROCERIDAE		PERLODIDAE		UENOIDAE	
VIVIPARIDAE		Clioperla sp.		Neophylax sp.	
APLOSCLERIDA		lsoperla sp.		PLANABIDAE	1
SPONGILLIDAE		Cultus sp.		DENDROCOELIDAE	
EMIPTERA - True Bugs		PTERONARCYIDAE			
BELOSTOMATIDAE		Pteronarcys sp.			
Lethocerus sp.		Peltoperta sp		-	
CORIXIDAE		LEUCTRIDAE			
GELASTOCORIDAE		Leuctra sp.			
Tranchates an		Zealuectra sp.			
HEBRIDAE		CAPNIDAE			
HYDROMETRIDAE		Allocapnia sp.			
MESOVELIIDAE		Paracaphia sp.			
Nepa sp.		Amphinemura so		-	
Ranatra sp.		Ostrocerca sp			
VELIIDAE		Nemoura sp.			
		Pane 2 n	f 2		





















Stream	Impervious	Total
ID	Percent	Acres
1A	38%	863
1B	45%	540
1C	46%	386
1D	45%	291
1E	50%	77
1F	47%	55
2A	26%	256
2B	25%	169
ЗA	49%	75
SITE	INAGE BOUN	IDARIES
IMP	ERVIOUS ARE	EAS
PER	VIOUS AREA	S

# Land Cover Map

**Snakeden Branch** Scale as Noted



Unit ID	Waterbody Name	City / County	Assessment Unit Description
Potomac and Shem	indoah River Basins		
TMDL Watershed Name:		Shenandoah River, Sou	th Fork
TMDL Group ID.	00403		
/AV-B35R_SSF01A00	South Fork Shenandoah River	ROCKINGHAM CO	South Fork Shenandoah River from its confluence with Big Run downstream to its confluence with Naked Creek.
VA Overall AU Category: 5A Use Recreation	Impairment 15.17 MILES T Fecal Coliform Sources: Sou	MDL Group ID First Listed on 303(d) TMDL Schedul 00403 2002 2010 rce Unknown	e Impairment Specific Comments and/or Impairment Specific VA Category
AV-B37R_SSF01A00	S.F. Shenandoah River	PAGE CO ROCKINGHAM CO	South Fork Shenandoah River from its confluence with Naked Creek downstream to its confluence with Stoney Run just above the Route 340 bridge at Alma.
VA Overall AU Category: 5A Use Recreation	Impairment 18.28 MILES T Fecal Coliform Sources: Sou	MDL Group ID First Listed on 303(d) TMDL Schedul 00403 2002 2010 rce Unknown	e Impairment Specific Comments and/or Impairment Specific VA Category
AV-B38R_SSF01A00	South Fork Shenandoah River	PAGE CO	South Fork Shenandoah River from its confluence with Stoney Run just above the Route 340 bridge at Alma downstream to its confluence with Hawkshill Creek.
VA Overall AU Category: 5A Use Recreation	Impairment 16.09 MILES T Fecal Coliform Sources: Sou	MDL Group ID First Listed on 303(d) TMDL Schedul 00403 2002 2010 rce Unknown	e Impairment Specific Comments and/or Impairment Specific VA Category
TMDL Watershed Name:		Snakeden Branch	
TMDL Group ID.	60019		
/AN-A11R_SNA01A02	Snakeden Branch	FAIRFAX CO	Segment begins at the confluence with an unnamed tributary to Snakeder Branch, approximately 0.4 rivermile downstream from the Twin Branches Road bridge, and continues downstream until the confluence with Difficult Run.
VA Overall AU Category: 5A Use	Impairment 0.79 MILES T	MDL Group ID First Listed on 303(d) TMDL Schedul	e Impairment Specific Comments and/or Impairment Specific VA Category
Recreation	Escherichia coli	60019 <b>2006 2018</b>	Sufficient exceedances of the instantaneous E.coli bacteria criterion (2 of 8 samples 25.0%) were recorded at DEQ's ambient water quality monitoring station (1ASNA000.21) at the Route 677 bridge to assess this stream segment as not supporting of the recreation use goal for the 2006 water quality assessment.
	Sources: Sou	rce Unknown	