

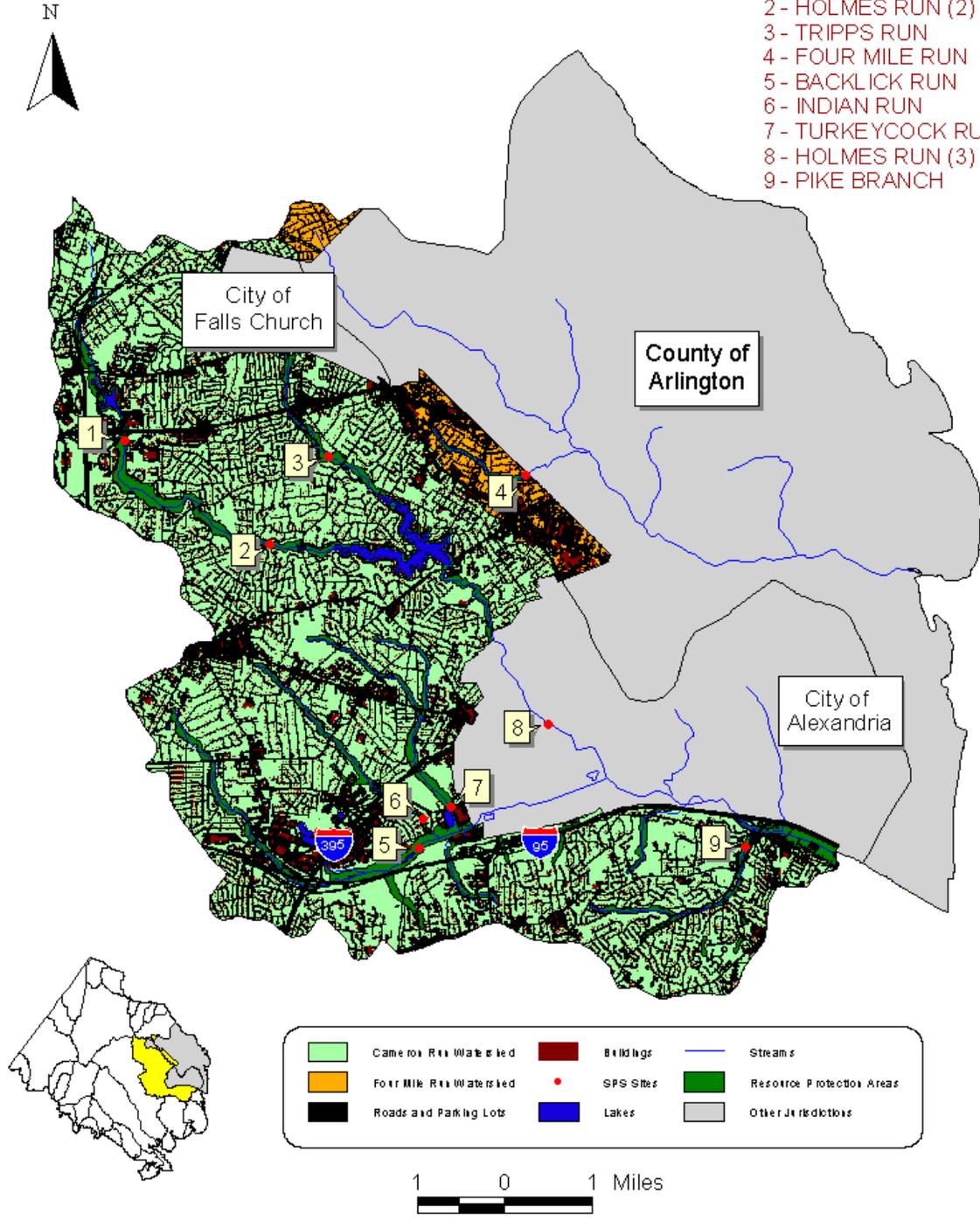
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CAMERON RUN AND FOUR MILE RUN WATERSHED SUMMARY

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Land Cover

- 1 - HOLMES RUN (1)
- 2 - HOLMES RUN (2)
- 3 - TRIPPS RUN
- 4 - FOUR MILE RUN
- 5 - BACKLICK RUN
- 6 - INDIAN RUN
- 7 - TURKEYCOCK RUN
- 8 - HOLMES RUN (3)
- 9 - PIKE BRANCH



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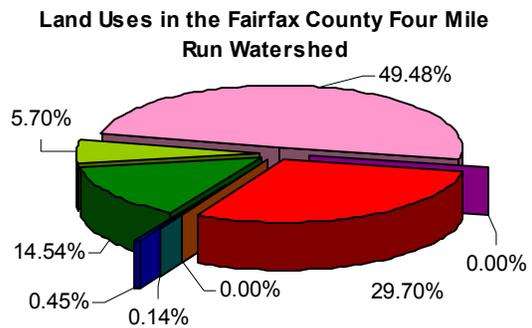
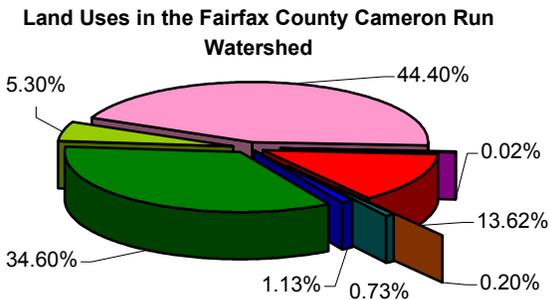
Watershed Description

The Cameron and Four Mile Run watersheds, located in the eastern portion of Fairfax County, extend over both the Piedmont Upland and Coastal Plain physiographic provinces. Although Cameron Run has a total area of approximately 42 square miles, only 31.5 square miles are within Fairfax County jurisdiction; the remaining area lies within either the cities of Alexandria and Falls Church, or Arlington County. Similarly, only two small areas of the Four Mile Run watershed fall within the borders of Fairfax County. The only impoundments within the region are found in the Cameron Run watershed: Lake Barcroft (137 acres), Fairview Lake (15 acres) and four regional ponds.

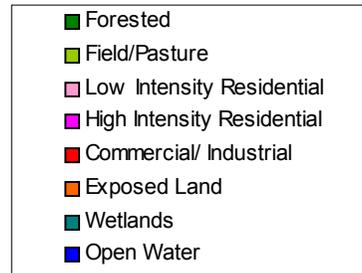


Poor habitat quality characterizes much of Four Mile Run.

Both of these watersheds are highly urbanized. All sites sampled had subwatershed imperviousness values exceeding 20%, with several of these over 30%. The Long Branch tributary of Four Mile Run, which flows through the highly developed area of Seven Corners and Bailey's Crossroads, had an imperviousness value of over 40%, the highest sampled in this study. The major land use category throughout the watersheds is residential, consisting largely of older, single family homes.



The Cameron Run watershed contains two large tributary systems that come together to form the Cameron Run mainstem. The northern part of the watershed is dominated by the first of these, Holmes Run, which drains the area between Tyson's Corner and the cities of Vienna and Falls Church. It flows south and east and crosses beneath four major road corridors before emptying



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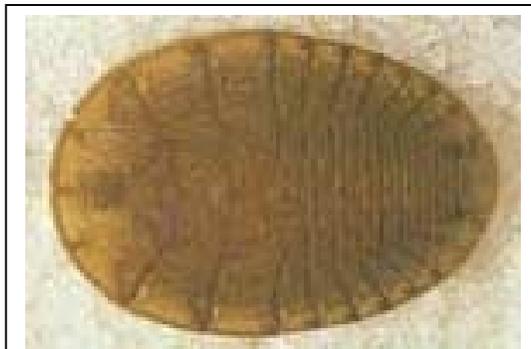
into Lake Barcroft. There its flow is combined with Tripps Run, a smaller but still substantial tributary originating in the City of Falls Church.



Backlick Run in the Cameron Run watershed suffers from extreme levels of deposition

The other major contributor of the Cameron Run system is Backlick Run, which begins in Annandale and closely parallels the Capital Beltway (I-495) for most of its length. Backlick Run increases with the addition of Indian Run and Turkeycock Run, both of which drain the high-density residential area around Annandale. After the confluence with Turkeycock Run, Backlick Run immediately enters the City of Alexandria and continues on to meet with Holmes Run.

With the merging of the two major systems, the Cameron Run mainstem begins its eastward flow, first traveling under I-495 and then picking up the input of Pike Branch and a variety of smaller tributaries before emptying into the Potomac River.



Water Penny

Family *Psephenidae*

Habitat Classification: clingers

Feeding Group: scrapers

Tolerance: moderate

These beetle larvae are very hard to spot. They tend to live on the underside of rocks in swiftly moving water. Their outer shell protects the larvae from predators and reduces the drag created by swiftly moving water. They will move slowly along the rocks in search of plant material to scrap off and eat.

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Blacknose Dace

Rhinichthys atratulus

Size: to 3 inches

Habitat: small/medium streams, varied substrates

Feeding Group: omnivorous

Tolerance: tolerant

Omnivorous feeding and adaptability to many different habitats allow this fish to survive under degraded conditions. In severely impacted streams, the Blacknose Dace is often the dominant, if not only, fish present.



Creek Chub

Semotilus atromaculatus

Size: to 8 inches

Habitat: small/medium creeks, various substrates

Feeding Group: generalist omnivore/predator

Tolerance: tolerant

Like the Blacknose Dace this species is highly tolerant of degraded habitat conditions. Creek Chub breed in the spring and can live up to 7 years. This species constructs nests typically in gravel and/or sand along runs and at the tail end of pools.



Mummichog

Fundulus heteroclitus

Size: to 3 inches

Habitat: brackish, seasonally in tidal fresh creeks

Feeding Group: omnivorous

Tolerance: moderate

The Mummichog is generally associated with estuarine habitats but will sometimes venture into fresh water. Spawning occurs between April and the end of August, with eggs being laid at levels where only a spring high tide can reach them. Clutch sizes range from 10 to 300 eggs.

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DATA SUMMARY

Stream Name and Site Code	Composite	Environmental Variables				Projected Percent Impervious Surfaces
	Site Condition Rating	Index of Biotic Integrity	Habitat Score	Fish Taxa Richness	Current Percent Impervious Surfaces	
1 Holmes Run 1 (CAHR01)	Poor	Poor	Poor	High	29.1	47
2 Holmes Run 2 (CAHR02)	Very Poor	Very Poor	Poor	Very Low	26.6	42
3 Tripps Run (CATR01)	Very Poor	Very Poor	Very Poor	Very Low	31.8	35
4 Four Mile Run (FMLO01)	Very Poor	Poor	Very Poor	Very Low	43.7	51
5 Backlick Run (CABA01)	Very Poor	Poor	Very Poor	Low	30.3	42
6 Indian Run (CAIR01)	Very Poor	Fair	Poor	Very Low	26.8	35
7 Turkeycock Run (CATK01)	Poor	Very Poor	Fair	Low	23.2	35
8 Holmes Run 3 (CAHR03)	Very Poor	Fair	Very Poor	Low	28.3	33
9 Pike Branch (CAPK01)	Very Poor	Fair	Very Poor	Very Low	25.0	32

Cameron Run and Four Mile Run Fish Species List

Common Name	Number of Sites Where Species Occurred (9 Total Sites)
Blacknose Dace	9
White Sucker	6
Creek Chub	5
Tessellated Darter	4
Bluegill	4
Yellow Bullhead	3
Satinfin Shiner	3
Swallowtail Shiner	3
Rosyside Dace	2
Redbreast Sunfish	2
Bluntnose Minnow	2
Largemouth Bass	2
Pumpkinseed	1
American Eel	1
Spotfin Shiner	1
Mummichog	1
Least Brook Lamprey	1
Green Sunfish	1
Golden Shiner	1
Black Crappie	1

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Watershed Condition Summary

The Cameron Run and Four Mile Run watersheds, both drainages containing some of the oldest and most highly developed areas in Fairfax County, have substantially degraded biological and habitat integrity.

Fish communities are of poor quality in both of these watersheds. The highest number of fish taxa found at any one site in the two watersheds was 13 with over half of the monitoring sites containing three or fewer taxa. Tolerant species dominated these communities.

Highly tolerant midges generally dominated benthic macroinvertebrate communities at all sites in both watersheds, and none contained a single representative of sensitive taxa indicative of higher quality conditions.

Many of the streams in this area are highly altered to accommodate large volumes of stormwater runoff. Examples of this include extensive areas of channelized or straightened stream reaches, many with banks stabilized by concrete, rip-rap, gabion baskets or a combination of all three. In some extreme cases, stream reaches were conveyed through a series of open cement channels and underground pipes. This high level of stream modification heavily influences the overall RBP habitat scores, which were poor to very poor throughout both watersheds.

Levels of imperviousness are very high in each of the two drainages. Nearly 44% of the small section of the Four Mile Run watershed contained within the County border is comprised of impervious cover, while levels seen in the Cameron Run drainage exceed 23% in every subwatershed. The overall composite ratings for sites in both areas are similarly extreme, with all areas scoring among the very lowest within Fairfax County.

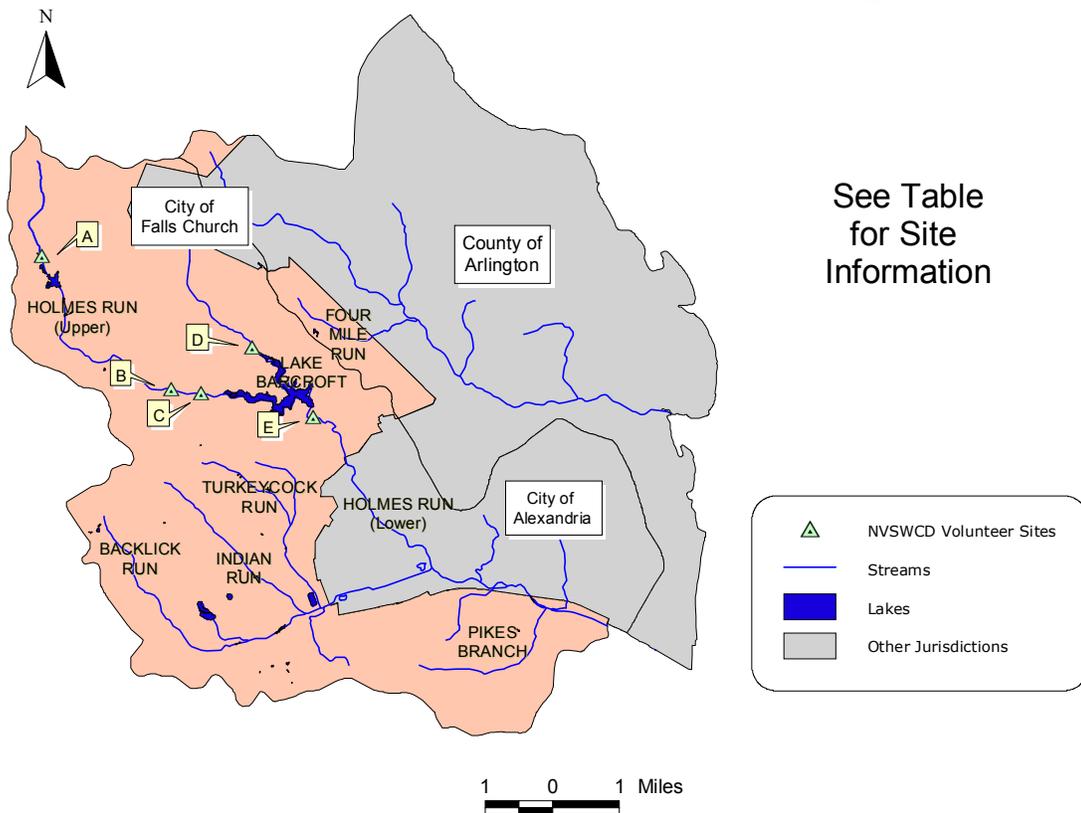
Conditions throughout both regions reflect the emphasis on treating streams solely as conveyances for stormwater discharge, an approach consistent with the period in which most of their communities were originally developed. In this light, the entire area can be viewed as being uniformly degraded from historic stormwater management approaches.

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Volunteer Data Summary

There are currently five active volunteer monitoring stations in the Cameron Run Watershed. The Northern Virginia Soil and Water Conservation District (NVSWCD) coordinates all of these sites. Three of these sites are sampled by the Lake Barcroft Watershed Improvement District (WID) as part of the agency's regular water quality monitoring activities.

Volunteer Monitoring

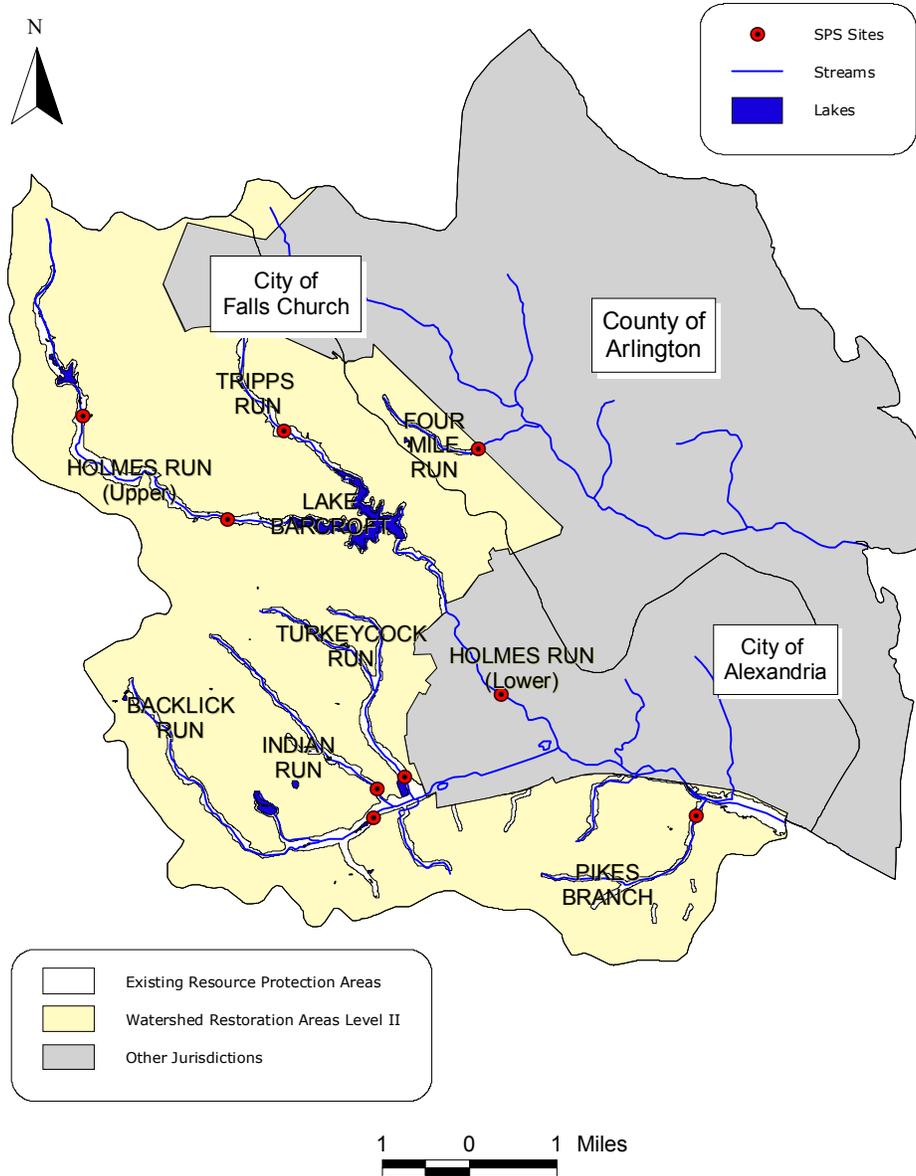


Results from volunteer monitoring within the watersheds support those of the SPS Study. With few exceptions, ratings were generally in the lower categories.

Letter Code	Site Code	# times sampled	Last sampled	WQR (SOS only)	Trends noted
A	CAM1	4	8/19/00	Poor	Varies from Fair - Poor
B	CAM2	4	8/15/00	Fair	Generally Poor
C	CAM3	7	7/1/00	Fair	Generally Fair - Good
D	CAM4	8	7/1/00	Fair	Generally Fair - Good
E	CAM5	8	7/1/00	Fair	Generally Poor

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Management



Management Category Description

All of the Cameron Run and Four Mile Run watersheds are classified as Watershed Restoration Level II Areas, reflecting the uniformly degraded condition of streams throughout both drainages. Due to the age and pattern of development in these watersheds, this area may be well suited to pilot projects related to retrofitting stormwater management facilities, promoting of citizen stewardship and education, promoting Low Impact Development (LID) techniques at infill development sites and

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other innovative techniques. This is particularly true in the smaller order tributaries and headwater areas which could most benefit from enhancement efforts; restoring these areas would provide not only localized benefits, but should lead to improvements in the downstream environment as well. In many cases, inter-jurisdictional cooperation with the Cities of Falls Church and Alexandria, and Arlington County will be needed.

OTHER INITIATIVES

Lake Barcroft Watershed Improvement District

Founded in 1973, the fee-based Lake Barcroft Watershed Improvement District (WID) has implemented a variety of watershed improvement projects in the region surrounding the impoundment. Revenues collected from homeowners within the community provide the foundation for a variety of projects including sediment removal from the lake or contributing waterways, trash removal, algae and aquatic vegetation control, benthic macroinvertebrate and fecal coliform monitoring, street sweeping, dam maintenance and other stormwater management, water quality and health-related activities.

City of Falls Church Monitoring

The City of Falls Church received a grant from the Chesapeake Bay Local Assistance Department to monitor the effect of BMPs within city limits. The City and Fairfax County are currently sharing data and discussing areas of mutual concern with an eye toward developing beneficial strategies of stream improvement that cross jurisdictional boundaries.

Arlington County Watershed Management Plan

Arlington County, under a grant from Virginia Department of Environmental Quality (DEQ), developed a Watershed Management Plan for the County. Examples of their recommendations include:

- Retrofitting BMPs
- Enforcing existing ordinances as strictly as possible for new developments
- Improving provisions of the Storm Water Detention Ordinance and Chesapeake Bay Preservation Ordinance
- Using NPDES to full extent
- Stabilizing badly eroded channels
- Restoring instream habitat
- Re-establishing riparian cover in accordance with the Chesapeake Bay Program
- Improving of stream aesthetics
- Restoring the most degraded stream reaches
- Continuing and improving public outreach programs