

French and Pickering Creeks

Watershed Conservation Plan

Executive Summary



2005



Green Valleys Association



FRENCH AND PICKERING CREEKS
CONSERVATION TRUST



EXECUTIVE SUMMARY

“A watershed is all the land area that drains to a given body of water.”– Center for Watershed Protection

Here in the French and Pickering Creeks watersheds of northern Chester County, and everywhere on Earth, water is the lifeblood of the land. The watersheds include a land area of nearly 70,000 acres, the underlying groundwater aquifers, and an extensive network of streams and wetlands that drain to the Schuylkill River near Phoenixville. The streams supply drinking water to hundreds of thousands of residents dependent on public water systems on the Pickering Creek, French Creek, and the Schuylkill River, while thousands of local residents rely on groundwater for their wells. Groundwater in northern Chester County is limited by dense bedrock and its withdrawal is regulated as part of the Groundwater Protected Area established by the Delaware River Basin Commission. The French and Pickering Creeks watersheds are known to support some of the highest quality streams, wetlands, and groundwater in the Philadelphia region. The waters of French Creek are regulated as an Exceptional Value by the Pennsylvania Department of Environmental Protection, the highest designation available, while the Pickering Creek is protected as High Quality. The resilience of this clean water supply in a rapidly urbanizing region is testimony to the careful stewardship of land and water by hundreds of landowners, 17 municipalities, 2 counties, and multiple state agencies and a growing number of environmental organizations.

Yet the French and Pickering Creeks watersheds continue to face mounting development pressure from expanding population centers such as Pottstown and Phoenixville, and along the major road corridors of Route 100, Route 23, and the Morgantown exit of the Pennsylvania Turnpike. As has been demonstrated in watersheds throughout the region, sprawling development has the potential to irreversibly degrade surface and ground water of the French and Pickering Creeks watersheds and the quality and quantity of water they provide. To address this threat, the French and Pickering Creeks Conservation Trust, the Green Valleys Association, and the Delaware Riverkeeper Network have formed a conservation partnership to evaluate local stream conditions and prioritize the lowest quality sites as candidates for **restoring** stream health, and also the highest quality sites as candidate sites for **protecting** stream health. The Conservation Plan was produced with the financial assistance provided to the French and Pickering Creeks Conservation Trust by a grant from the National Fish and Wildlife Foundation’s Delaware Estuary Grants Program.

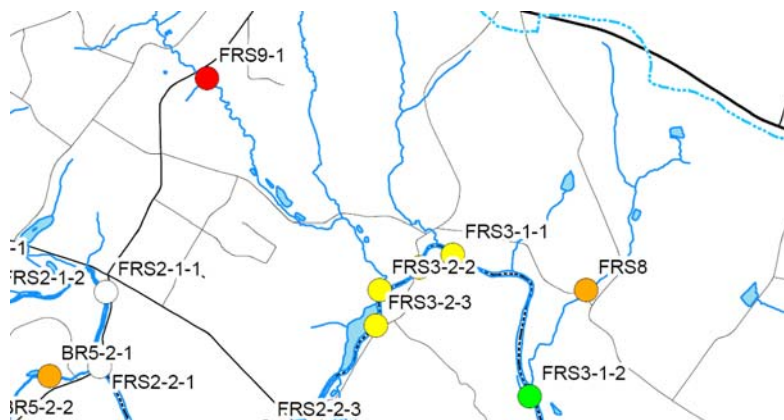
A major portion of the Plan is devoted to a Restoration Action Plan which includes restoration and management recommendations for municipalities and landowners up and down the French Creek and the Pickering Creek and their tributaries. Restoration of streams and wetlands has been a focus of the Green Valleys Association for many years. The Plan will form the basis for the continued work of the project team on a *French and Pickering Creeks Landscape Conservation Plan* to strategically guide land conservation activities in the future.

Overview of Stream Assessment

The three organizations have prepared this French and Pickering Creeks Watershed Conservation Plan (the Plan) to serve as a guidebook for landowners, municipalities, conservation groups, and citizens interested in taking concrete steps to enhance the long-term health of the French and Pickering Creeks watersheds and identify priorities for protection and restoration of streamside lands (or riparian areas).

The focus of this Plan is an Integrated Stream Assessment conducted by 7 volunteers in June and July of 2005. The watersheds were divided into 5 main areas based in part on geographic location and land use differences: French Creek – Big Woods Headwaters, French Creek South and Lower French Creek, Birch Run, Pickering Creek Headwaters, and Lower Pickering Creek. Volunteers assessed, rated, and photographed physical stream conditions and streamside vegetation at 128 different reaches (or stream segments), with 80 assessments along the French Creek and 48 along Pickering Creek and their tributaries, totaling 14 miles of stream. Volunteers used Delaware Riverkeeper Network’s Integrated Assessment (provided in Appendix) to assess and rank habitat and stream stability (or riparian condition) at each site. Habitat conditions were each given a score from 1 to 10 in five categories including: riparian width, riparian condition, available cover, fish barriers, and pool variability. Stability conditions were evaluated by scoring (1 to 10): bank erosion, bank vegetation protection, bank angle, trees leaning, and channel alteration. Each stream reach assessed was given a Habitat Score and a Stability Score, which were combined for a Total Score.

The field data were then compiled and added to the Geographic Information System (GIS) database, and the Total Scores for the 128 stream reaches were classified, mapped and ranked as either having “Excellent”, “Good”, “Fair”, or “Poor” ecological conditions. For each site, the GIS was used to evaluate adjacent and upstream land use and natural habitat, the size and protected status of tax parcel to determine priority areas for stream restoration and protection.



Sample Map of Assessed and Ranked Stream Reaches. Colors represent the physical quality of stream reaches, with green for Excellent, yellow for Good, orange for Fair, and red for Poor. Codes represent stream name and location of reach.

Summary of Findings

The French and Pickering Creeks watersheds are in a historically forested and agricultural landscape facing increasing development impacts. Accordingly, all stream reaches surveyed were degraded at some level (minor, intermediate, or severe). However, most reaches provide “Fair” to “Good” quality for habitat value and stability, and a number are severely eroded or highly unstable and are scattered throughout the study area. Few reaches rank as Excellent.

Streamside land use and management directly affects the stability and habitat value of each stream reach. In general, Excellent conditions corresponded with most natural reaches with extensive streamside woodlands and wetlands, while Poor conditions were most often associated with reaches suffering from extensive erosion from developed areas, roads, or where lawn or agriculture extended right up to the streambank with no natural buffer.

Aquatic Habitat

Habitat for fish and other aquatic life is inhibited in many areas by conditions resulting from conventional development patterns and agricultural practices:

- siltation;
- culverts for road and driveway crossings can create fish passage barriers during low flow conditions;
- the lack of large, woody debris such as logs and branches, and;
- the lack of different sized pools and riffles.
- Several ponds created by dammed streams and are reducing stream quality and habitat value, while other ponds adjacent to stream were withdrawing water from streams even during low-flow drought periods.

Riparian Habitat

Streamside lands face a number of stresses, but benefit stream quality and aquatic life, and provide habitat for terrestrial plants and animals. Conditions impairing stream health include:

- Invasive plants (multiflora rose, Japanese stiltgrass, Japanese honeysuckle, garlic mustard, mile-a-minute vine) were found throughout both watersheds, from headwaters to the confluence with the Schuylkill River, reducing the biodiversity and habitat quality of otherwise healthy natural areas.
- Many landowners have set aside areas for a riparian buffer at least the width of the stream channel, but these areas are not actively managed for invasive species or ecological enhancement.
- Many riparian buffers lack native shrubs and diverse ground cover, suggesting heavy browsing from high deer populations is reducing habitat value and stream stability.

Stream Stability

Minor to moderate erosion was observed along most reaches throughout both watersheds, often where riparian buffers or streambank vegetation are lacking, or where channel modifications or former dams are causing unnatural streamflow patterns. Many of the instability problems were related to streamside management practices (for example, property owners clearing shrub and groundlayer vegetation to improve stream views or access). Severe bank erosion problems -- such as 4 or 6-foot high vertical banks with soil washing away with every flood -- were not observed in either watershed, and most of the severe erosion areas that were encountered are localized. Some landowners have resorted to bank armoring with stone or concrete rip-rap, which exacerbates erosion problems downstream and changes stream habitat.

Top Priority Candidate Sites for Restoration

Headwaters streams – those originating from a source such as a spring or a pond at the very upper reaches of the watershed – are also known as “first order” and “second order” streams, and are among the most sensitive to degradation from land use activities and are therefore the highest priorities for restoration. Many of these streams are small and on private land and were not surveyed but are a high priority for future field surveys. Surveyed stream reaches in the French and Pickering Creeks watersheds considered to be Top Priority Candidates for Restoration are those with both “Poor” Habitat Scores and “Poor” Stability or Riparian Condition. 36 sites have “Poor” Total Scores, with 20 in the French Creek and 16 in the Pickering. These are often sites with active soil erosion or lacking streambank vegetation and are on the “Stream Reach Ranking and Priority Lands map in red dots. Associated parcels recommended for restoration activities are shown with a red outline and pink shading.

The project team has identified 63 High Priority Sites for Restoration in the French and Pickering Creek watersheds, with a total of 66 properties identified in which these sites are located. Of these, 14 sites are rated as Priority 1 due to the size of the property (generally over 25 acres), the extent of stream frontage (500 feet or significantly higher), and the Poor condition of the assessed reach. 27 sites are rated as Priority 2 due to their smaller size (as low as 5 acres), shorter amount of stream frontage (>500 feet), and/or Fair assessment. Priority 3 sites, totaling 22, are rated lower due to their small size (< 5 acres), or their protected status, or short stream frontage (< 500 feet).

The more urbanized Lower French and Lower Pickering Creeks have the greatest concentrations of High Priority restoration sites. The Lower French Creek has the highest number of Priority 1 restoration sites out of all areas in both watersheds. These areas suffer from high percentages of paved surfaces and rooftops (impervious cover) that generates substantial stormwater runoff, and also receive higher flood volumes and sediment loads from upstream areas. The lack of streamside forests is a key factor in the degraded nature of these sites.

- The French Creek/Big Woods area includes six (6) High Priority sites on six (6) properties, with no Priority 1 sites, five (5) Priority 2 sites, and one (1) Priority 3 site.
- The French Creek South area includes five (5) High Priority sites on five (5) properties, including one (1) Priority 1 site and four (4) Priority 2 sites.
- The Lower French Creek area includes twenty-one (21) High Priority sites on twenty-six (26) properties, with seven (7) Priority 1 sites, four (4) Priority 2 sites, and ten (10) Priority 3 sites.
- The Pickering Creek Headwaters area includes five (5) High Priority sites on five (5) properties, with one (1) Priority 1 site, one (1) Priority 2 site, and two (2) Priority 3 sites.
- The Birch Run area includes 6 High Priority sites on 6 properties, with two (2) Priority 1 sites, two (2) Priority 2 sites, and two (2) Priority 3 sites.
- The Lower Pickering Agricultural/Suburban area includes twenty-one (21) High Priority sites on 18 properties, with three (3) Priority 1 sites, eleven (11) Priority 2 sites, and seven (7) Priority 3 sites.

Strategies for restoring streams to healthier habitat conditions and increased stability may include:

- Streambank restoration (bioengineering – regrading banks to a gentler slope, stabilizing with biodegradable materials, establishing native plants)
- In-stream structures (fish habitat such as vanes, pools, riffles)
- Streambank fencing (fencing livestock out of streams, adding crossings, water access)
- Riparian buffer plantings (planting native floodplain trees and shrubs to reestablish forest cover)
- Regional deer management programs

Top Priority Candidates for Protection:

Headwaters streams flowing through intact forests and wetlands are among the highest priorities for protection. Stream reaches in the French and Pickering Creeks watersheds considered to be Top Priority Candidates for Protection are those with both “Excellent” Habitat Scores and “Excellent” Stability or Riparian Condition.

The project team has identified a **preliminary** list of 21 High Priority Sites for Conservation in the French and Pickering Creek watersheds, with a total of 37 properties identified in which these sites are located. Selected properties are generally located in close proximity to sampling stations for Excellent or Good stream reaches. 21 are located along the Pickering Creek and its tributaries, while 16 are located on the main stem or tributaries of French Creek. Of these, 11 sites are rated as Priority 1 due to the size of the associated properties (generally 25 acres or greater), the extent of stream frontage (500 feet or significantly higher), the Excellent or Good condition of the assessed reach, and their close proximity to Protected lands. 6 sites are rated as Priority 2 due to the relatively smaller size of the associated properties (<25 acres), shorter

amount of stream frontage (>500 feet), isolation from Protected lands, or a combination of these factors. Priority 3 sites, totaling 4, are rated lower due to the small size of their properties (5 - 25 acres), their isolation from Protected lands, or short stream frontage (< 500 feet), or a combination of these factors.

It should be noted that this list is preliminary and centered on streamfront properties. These sites and properties are limited to those visited during the stream assessment, and do not represent a broader survey of streamside or watershed-wide sites or properties. It will provide the basis for a more thorough analysis and ranking as part of the *French and Pickering Creeks Landscape Conservation Plan*.

Recommended Actions

Action 1 Present data to conservation partners such as land trusts and municipalities. Collect information regarding their conservation and restoration priorities.

Tasks: Schedule meetings in Winter/Spring 2005/2006 with Northern Federation, Hopewell Big Woods Partnership, West Vincent Land Trust, West Pikeland Land Trust, Aqua Pennsylvania Water Company.

Action 2 Conduct outreach campaign to landowners of High Priority properties for restoration and conservation.

Tasks: Draft and mail letter in Winter/Spring 2005/2006 to Priority 1 properties for both conservation and restoration, explaining the importance of their land to health of the watershed and offering to schedule a meeting to discuss options and funding potential. Work with conservation partners as necessary.

Action 3 Establish one restoration demonstration project (such as streambank fencing or riparian buffer planting) for each of the 6 subwatershed areas. Publicize results and share with funders as an example of plan implementation and measurable results.

Action 4 Establish one conservation demonstration project (conservation easement, open space within conservation subdivision, park acquisition) within each of the 6 subwatershed areas. Publicize results and share with funders as an example of plan implementation and measurable results.

Conclusion

This Executive Summary provides an overview of the recommended actions of the *French and Pickering Creeks Watershed Conservation Plan*. These Actions recognize that the communities of northern Chester County have reached an important crossroads – now is the time to address the impacts of development that have degraded streams, wetlands and aquifers of the watershed. The Plan offers a valuable road map for guiding restoration of stream corridors in a way that

preserves, restores and maintains key land areas and the waters that sustain life for the people, plants and animals that inhabit the watersheds. It also provides an important avenue for funding specific watershed conservation and restoration projects.

For more information, please contact:

French and Pickering Creeks Conservation Trust

Coventry House

3340 Coventryville Road

Pottstown, Pennsylvania 19460

Phone: (610) 469-0150

Fax: (610) 469-6459

www.frenchandpickering.org