Veteran’s Memorial Park
Natural Areas Stewardship Report
NOVEMBER 2009

Location: Upper Moreland Township, Montgomery County

Size: 24 acres

General Description of Natural Areas
The Veteran’s Memorial Park is located in Upper Moreland Township at 220 Mineral Avenue, east of York Road (see 2005 Aerial Photography with property boundaries, page 2). David Steckel and Andrea Stevens of Natural Lands Trust conducted a field inspection of the 24-acre parcel on November 3, 2009 and were accompanied by Patrick Stasio, Director of Parks and Recreation in Upper Moreland. Photographs of the natural features on the site were taken at that time.

Veteran’s Memorial Park provides open space for active and passive recreational opportunities for community residents within a heavily suburbanized landscape of residential and commercial uses. The “back” or northeastern half of the property is forested and was purchased by the Township from Montgomery County in 1998. The “front” or southwestern half of the site is...
1. 2005 Aerial Photography received from DVRPC.
2. Parcel boundaries and roads received from Montgomery County.

Disclaimer: This map is not a survey. The information imparted with this map is meant to assist Natural Lands Trust, Inc. describe the placement of certain retained, reserved, or excluded rights and to calculate acreage figures. Property boundaries, while approximate, were established using the best available information, which may have included surveys, tax maps, field mapping using GPS, and/or orthophotos. Natural Lands Trust, Inc. makes no representation as to the accuracy of said property lines (or any other line), and no liability is assumed by reason of reliance thereon. Use of this map for other than its intended purpose requires the written consent of Natural Lands Trust, Inc.

Tax Parcel ID: 590019858009 and 590004381006 (+/- 20.74 Acres)

Upper Moreland Township, Montgomery County, Pennsylvania
used as an active recreation area and was acquired by the township in 1974 from the War Memorial Association. Active recreational facilities include a roller hockey rink, basketball court, rest rooms, a parking area, a tot lot, and a paved perimeter walking path (~1/3 mile). A newly paved spur trail (~1/2 mile) connects to the perimeter walking path and provides access to the forested area. The forest and the creek in the northeastern half of the site are the focus of this Natural Areas Stewardship Report.

Historical aerial photography of the property indicates the northeastern forested area was largely open land in 1942 through at least 1958, and then succeeded to forest again by 1971. The southwestern half of the site was forested in 1942 and cleared in its central area by 1958 (see 1942, 1958, and 1971 Aerial Photography). The Mineral Springs Hotel was located on the property in the 1850’s and served as an upscale vacation resort for Philadelphia residents.
Plant Resources

The general plant communities on the property are described below. Invasive species are noted in **bold**.

The front ~10 acres of the site include active recreational facilities, a parking area, landscaped edges, a war memorial, a tot lot, and lawn areas. A creek flows along the western edge of this section of the park and is lined with widely spaced silver maple (*Acer saccharinum*) and box-elder (*Acer negundo*).
The banks of the creek have become invaded with porcelain-berry (*Ampelopsis brevipedunculata*) which outcompetes most other vegetation in this habitat. In some areas, the porcelain-berry spreads into the adjacent uplands.

The southern part of the forested area (the “back” half of the property) is made up of a mature red oak – mixed hardwood forest. The canopy of this forest is characterized by red oak (*Quercus rubra*), black oak (*Quercus velutina*), white oak (*Quercus alba*), and red maple (*Acer rubrum*). Spicebush (*Lindera benzoin*) is common in the shrub layer, with occasional maple-leaved viburnum (*Viburnum acerifolium*), multiflora rose (*Rosa multiflora*), and infrequent winged euonymus (*Euonymus alatus*). We came across several Norway maple (*Acer platanoides*) trees and prominent vines (page 6) include Japanese honeysuckle (*Lonicera japonica*), oriental bittersweet (*Celastrus orbiculatus*), English ivy (*Hedera helix*), wisteria (*Wisteria* sp.), poison-ivy (*Toxicodendron radicans*), grape (*Vitis* sp.), and sweet autumn clematis (*Clematis terniflora*).

Moving north through the forest, the red oak – mixed hardwood forest shifts to a young red maple palustrine forest in the creek floodplain and a young mixed hardwood forest in the upland areas away
Norway maple seedling in forest

English ivy growing up tree trunks in active recreation area

Oriental bittersweet and other vines along forest edge
from the creek. The red maple palustrine forest is dominated by red maple and red ash (Fraxinus pennsylvanica) with subdominant black-gum (Nyssa sylvatica), silver maple, pin oak (Quercus palustris), and box-elder (Acer negundo). The shrub layer contains black cherry (Prunus serotina), multiflora rose, silky dogwood (Cornus amomum), common privet (Ligustrum vulgare), blackberries (Rubus sp.), as well as vines similar to those found in the red oak – mixed hardwood forest. Jewelweed (Impatiens sp.) and very infrequent sensitive fern (Onoclea sensibilis) were noted along the forest floor in wetter areas and patches of Japanese knotweed (Fallopia japonica) occur along the creek.
Mixed hardwood forest
The **mixed hardwood forest** (page 8) canopy includes tuliptree (*Liriodendron tulipifera*), red ash, American beech (*Fagus grandifolia*), with scattered groves of bigtooth aspen (*Populus grandidentata*) and an occasional princess-tree (*Paulownia tomentosa*). The shrub layer in the mixed hardwood forest includes **multiflora rose** and patches of **Japanese knotweed** near the paved trail through the forest. **Common reed** (*Phragmites australis*) has invaded a wet area near the railroad track along the southeastern property boundary and **garlic mustard** (*Alliaria petiolata*) is common in gaps and along edges where light is more available.

**Water Resources**

Veteran’s Memorial Park falls within the Pennypack Creek Watershed. A first order tributary of the Pennypack Creek flows near the park’s northwestern boundary from southwest to northeast. Surface water runoff from the Willow Grove Mall empties into this tributary and reportedly causes significant increases in streamflow through the park during rain events. Springs on the property were historically used by visitors of the Mineral Springs Hotel.

**Current Use and Stewardship**

Veteran’s Memorial Park provides both active recreational uses (roller hockey, basketball) and passive recreational uses (walking) for the community. Current stewardship priorities for the site include protecting the natural habitats of the forested and riparian areas, continuing to provide a destination for active and passive recreation for the community, and enhancing environmental education opportunities.

**Stewardship Issues, Opportunities and Recommendations**

The following stewardship issues and opportunities were observed during the site visit to the Veteran’s Memorial Park on November 3, 2009. They are described in the context of four stewardship goals for the natural areas:

1. to maintain a safe and enjoyable environment for passive and active recreational uses;
2. to protect and enhance plant communities to support local and migratory wildlife;
3. to enhance the buffer in open areas between the park and the railroad tracks; and
4. to offer environmental education opportunities where appropriate.

We have provided a summary of issues and opportunities for stewardship on the site that are followed by general recommendations to address the issue or fulfill the opportunity.

**Invasive Plants**

A ubiquitous problem encountered in the stewardship of natural lands in southeastern Pennsylvania – and increasingly recognized as a threat worldwide – is the presence of invasive plant species. An invasive species is one that rapidly spreads and outcompetes multiple native species, chiefly because of the absence of predators, pathogens, and herbivores that keep it in check in its native range. Most invasive plants are particularly well adapted to colonize disturbed areas. In southeastern Pennsylvania, disturbance from human activities, particularly sprawl, coupled with the rich horticultural history of the southeastern counties, has afforded numerous invasive species the
opportunity to become well established throughout the region. Even though the occasional immigration of new species into plant communities is a normal process, the current high rate of introduction – fueled by the planting of exotic (non-native) species for horticulture, wildlife management, and erosion control – is threatening the integrity of native plant communities and lowering native biodiversity. Not only do invasive plants alter the makeup of the plant communities on a site, but they also may affect soil chemistry and hydrology and are usually less beneficial to wildlife than the native plants they replace, contributing further to the loss of biodiversity.

The history of disturbance on the site has created the conditions (forest “edges” with high availability of light) to facilitate the establishment of several invasive species throughout the park’s forested communities and along the creek. **Oriental bittersweet** is commonly seen climbing into trees. This vine can smother potential canopy trees and prevent them from reaching the canopy to replace trees felled by old age, windthrow, or pathogens. Other prominent invasive species on the site include **Norway maple**, **Japanese honeysuckle**, **Japanese knotweed**, **porcelain-berry**, and **multiflora rose**.
RECOMMENDATIONS

Since the diversity of native species in a system is vital to providing suitable habitat for resident and migratory wildlife, as well as providing an enjoyable environment for the residents of Upper Moreland Township, we suggest the following measures to control invasive plant species on the property. In general, it is best to address invasive plant control with a top-down (starting in the canopy and working down through understory, shrub, and groundcover layers), least-first strategy (starting in the least impacted areas). The “Invasive Vegetation Management” section of the Natural Lands Trust Stewardship Handbook for Natural Lands in Southeastern Pennsylvania (2008) provides guidelines for monitoring and controlling invasive plants typical of the southeastern Pennsylvania landscape. The following invasive control recommendations for the Veteran’s Memorial Park are presented in general order of priority:

1) Cut vines climbing into canopy trees. Oriental bittersweet vines should be cut and the stump treated with a systemic herbicide (e.g., glyphosate), if possible. Because grape vines are beneficial for native wildlife, only cut these vines when they are compromising the structural integrity of native trees. Cut stumps of grape vines can be left to resprout. Care should be taken not to cut poison ivy vines unless they are close enough to paths to warrant removal to limit public exposure. Poison ivy is a native species that benefits wildlife and it rarely becomes large enough to compromise canopy trees.

2) Control Norway maple using a basal bark application of Garlon 4 herbicide and basal oil. We recommend using a 20–30% mix of Garlon 4 in basal oil applied in a band around the base of the trunk, avoiding runoff. Depending on the season, it may take time for this treatment to work; for example, a winter application may result in leaf out in the spring, followed by defoliation. Once the trees are dead they can be cut down (if they create a potential hazard for visitors) without stimulating suckering or left as a snags for wildlife habitat.

3) Control Japanese knotweed particularly along the creek by cutting stems and treating resprouts with a foliar application of 2% Rodeo and 0.5% non-ionic surfactant. In sensitive wetland areas such as near the creek, only herbicides approved for aquatic use (e.g., Rodeo) should be applied.

4) Control porcelain-berry along the creek in the same way as Japanese knotweed (see above). In areas away from the water, a triclopyr-based herbicide (Garlon 3A) applied to the cut stump is more effective.

5) Control Japanese honeysuckle in the forest using a foliar treatment of glyphosate herbicide. This is particularly effective on warm days in late fall and winter months when the leaves of this species remain green and nearby native (non-target) species are dormant and will not be affected by the treatment.

6) Improve the integrity of the forest shrub layer by controlling the invasive multiflora rose particularly closer to the creek. This species can be cut to the stump and a glyphosate herbicide (e.g., Rodeo near the creek) can be applied to the cut stump. Alternatively, after cutting, multiflora rose can be left to resprout and the young foliage treated with a glyphosate herbicide. The entire plant can be excavated and pulled out, although soil disturbance should be kept to a minimum to prevent further establishment of invasive species.

7) Control the small population of common reed near the railroad tracks. Plants can be managed by (a) cutting in the fall for at least two sequential years then removing cut materials from the site; and/or (b) cutting and injecting individual culms (stems) with Rodeo.

8) In gaps where invasive shrubs and trees have been removed, replant with native species to improve wildlife habitat value and protect exposed slopes from erosion. Consult the “Native Plant Materials” section of the Natural Lands Trust Stewardship Handbook for Natural Lands in Southeastern Pennsylvania (2008) for a list of native species that are appropriate for the natural areas in the park.
Any volunteer or contractor used for invasive plant control should be able to distinguish native species from invasive species (e.g., Norway maple vs. native maple species and porcelain-berry vs. grape).

**Water Quality and Streambank Stabilization**

Riparian forests provide many benefits to streams and wetland systems including:

1. buffering adjoining land uses that may generate run-off and cause erosion,
2. anchoring streamside soils and absorbing nutrients that contribute to water quality degradation,
3. shading surface waters and providing habitat for a greater diversity of native aquatic species, and
4. depositing twigs and limbs that offer structures and shelters for a variety of fishes and aquatic organisms.

Impacts to the riparian forests in Veteran’s Memorial Park should be carefully managed to enhance the wetland system and to realize the many wildlife benefits and ecosystem services these forests provide.

Stream channels can be restored to a state that reduces bank erosion and reaches a new equilibrium. Often, the reason why streams experience accelerated bank erosion and in-stream habitat loss is because of poor stormwater management from upstream land use. This constraint should always be considered in order to set realistic expectations of success from a stream restoration project. If there is a high proportion of impervious cover upstream, with few opportunities to better manage runoff using Best Management Practices or through redesign and redevelopment, the potential for stream restoration to a natural state is limited. In such a case, it may make more sense to stabilize a stream in its existing degraded state in the short term and attempt incremental improvements over the long term.

Despite periodic high water inputs from upstream impervious surfaces, the streambanks within Veteran’s Memorial Park are generally stable. We did observe two areas of concern within the natural area where undercutting of the bank is active (near or perhaps beyond the northeast border) and an area on the west side of the creek where structures are located near the edge of the streambank and would be compromised if any future erosion occurred.

**RECOMMENDATIONS**

- Restore forest gaps or open areas along the creeks on the property and stabilize soils by planting native trees and shrubs. Planted trees can be more widely spaced in the active recreation area if more of a “park-like” aesthetic is preferred.
- Determine whether the point of active erosion is within the park boundary. If confirmed, contact the Montgomery County Conservation District for recommendations on addressing this issue.
- Monitor the stream throughout the property. If active erosion starts in any area, contact the Conservation District. Given the high inputs from upstream, it may be necessary to “armor” the base of these areas with large rocks or a combination of rocks and bioengineering techniques.
- Consider increasing the width of the riparian forest natural habitat in the active recreation area to extend into the existing lawn and enhance the benefits of a vegetated buffer. Native trees that would be appropriate and also provide aesthetic appeal for the community along these edges include redbud, shadbush, and flowering dogwood. Using species that already exist at the site are most suitable for planting as a riparian buffer, and include silky dogwood, silver maple, red maple, and black gum. Another option is to convert part of the buffer to a native meadow either through planting of meadow species (native grasses and wildflowers) or by limiting mowing along the creek to once or twice a year. Recommendations for native plant species suitable for a riparian buffer are included in the “Native Plant Materials” section of the Natural Lands Trust Stewardship Handbook for Natural Lands in Southeastern Pennsylvania (2008). Planted trees should ideally be one- to two-inch caliper in size to ensure high survival rates. Protect newly planted trees from deer browse using tree shelters for plants less than 6 feet in height. For trees over 6 feet in height, tree wraps will protect trees from buck rubbing.
Forest Regeneration

Deer overabundance is a problem that affects most natural areas in our region. Deer impact forest health by consuming seeds (particularly acorns) and browsing on seedlings, shrubs, and herbaceous plants. As population density increases, this activity can adversely affect populations of other wildlife species, especially songbirds, through a decrease in plant species and structural diversity within the forest.

Currently, deer overbrowsing is having a moderate impact on the forest regeneration in Veteran’s Memorial Park. Shrub and groundcover layers are well browsed and spicebush is becoming prominent, suggesting a more abundant deer population (deer generally avoid spicebush).

Statewide, the deer density now averages almost 40 deer per forested square mile, four to eight times the desired density of 5–10 per square mile that is needed to sustain a high diversity of native forest species, including herbaceous plants. Deer densities at this level threaten the perpetuation of forest communities, which depend on the ongoing establishment of tree seedlings and saplings in sufficient numbers to occupy the gaps that are created by periodic natural or human disturbance. The habitat value of forests is greatest where there is an extensive unbroken canopy of mature trees with a diversity of native understory species that includes shrubs and herbaceous plants.

Recommendations

- Consider installing fenced deer exclusion areas (10m x 10m) to provide a visual comparison of areas where deer access is restricted for the purpose of educating visitors about the impact of deer overbrowsing (see fencing options at www.bennersgardens.com). This may help to gain public support for future initiatives to control deer in the park.

Hazards and Debris

Parts of the loop trail in the active recreation area in Veteran’s Memorial Park and the entire spur trail through the forest are bordered by trees. Some of the trees along the new trail will likely decline over the next few years as a result of the root disturbance and re-grading associated with construction of the trail. The township is responsible for the monitoring and removal of hazard trees (trees that due to structural defects could fall in part or whole on a “target” such as a road, residence, or person). The township should initiate an annual monitoring program for trees along these trails to identify potential hazard situations. See the “Hazard Tree Monitoring Program” section in the Natural Lands Trust Stewardship Handbook for Natural Lands in Southeastern Pennsylvania (2008) for information about procedures for monitoring hazard trees.

Removing debris from the property should continue to be a priority at the park. Debris often becomes an “attractive nuisance” for youngsters and is unsightly. Accumulated debris may also encourage the use of the park’s forest as a convenient dump site for nearby residents.

Recommendations

- Monitor high use areas for hazard trees by foot once each year and following severe storms. This is particularly important along the newly paved spur trail where roots have been compromised and will likely impact tree health (page 14). Ideally, a certified arborist should complete this task and address any identified hazards through pruning or removal. Alternatively, the township could have a member of the maintenance staff trained to identify and safely address hazard trees. Contact Natural Lands Trust for a list of training options in the region.

- Remove debris from the forest and creek areas and annually inspect park boundaries for additional debris (page 14).
Cinder blocks and other debris in creek

Tree near spur trail where roots have likely been impacted by change in grade (filling of excavated material over roots).
• Mark the boundaries of the property (or at least the corners) with signs to discourage dumping of debris. Signs can be small (3 ¾” x 3 ¾”, 0.12 gauge aluminum diamond shape signs can be purchased through Voss signs: www.vosssigns.com) and should indicate township ownership.

Wildlife Enhancement

An additional opportunity for enhancing wildlife habitat on the property is described below.

RECOMMENDATIONS

• Consider installing nest boxes for wood duck in the riparian corridor through the park. See attached articles on this subject – “Building and Placing Nesting Structures” and “Breaking out of the Box.”

Railroad Buffer

The Township is interested in establishing a buffer for visual and safety purposes along an open area adjacent to the railroad tracks in the park. Evergreens such as Eastern red-cedar, arbor-vitae (in narrow areas), blue spruce, and Norway spruce would be appropriate species for this use. White pine would not be an effective visual screen because it loses branches on the lower part of the trunk as it ages. American holly, although slow-growing, could also provide an effective visual buffer and its hard-pointed leaves would discourage free-ranging visitors from investigating the railroad tracks.

Environmental Education

Veteran’s Memorial Park is readily accessible to the Willow Grove suburban population center and provides a natural forest habitat for community residents in a densely populated area. The forest and stream corridor offer a unique opportunity to educate the public about forest and stream ecology and the importance and many benefits of a healthy ecosystem. In addition, the cultural history of the site would provide educational interest to park visitors.

RECOMMENDATIONS

• Implement plans to install an interpretive loop trail through the forested area with visible access to the riparian corridor. Possible educational topics include forest ecology and health, changes in water quality and quantity in the stream corridor resulting from upstream runoff, the “mineral” springs on the site, and the history of the Mineral Springs Hotel.

Area along railroad track where buffering is recommended for safety and aesthetic purposes.