

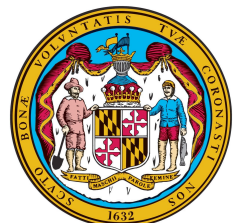


# PALMER STATE PARK LAND UNIT PLAN



Maryland Department of Natural Resources  
Maryland Park Service

June 2012



# Palmer State Park Land Unit Plan

Maryland Department of Natural Resources  
Maryland Park Service



Approval of the Palmer State Park Land Unit Plan has been granted on this  
25<sup>th</sup> day of July, 2012



John R. Griffin, Secretary  
Maryland Department of Natural Resources

## **Acknowledgements**

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### *Maryland Park Service*

Nita Settina, Superintendent  
Daryl Anthony, Central Region Manager  
Ross Kimmel, Park Historian, Retired  
Nicole Merrick, Park Manager  
Jonathan Neuendorff, Rocks and Susquehanna State Park Complex  
Arnold Norden, Chief of Resource Management  
Margit Pruett, Rocks and Susquehanna State Park Complex  
David Taylor, Manager, Rocks and Susquehanna State Park Complex, Retired  
Louisa Thompson, Planning Intern  
Lee Schnappinger, Natural Resources Planner

### *Land Acquisition and Planning*

Laura Bowne, Cadastral Planner  
Ann G. Carlson, Natural Resource Planner  
Shawn Clotworthy, Natural Resource Planner  
Kelly Collins, Natural Resource Planner  
Steve Goodmuth, Property Control Chief  
Margaret Lasher, Natural Resource Planner  
Charlie Mazurek, Historical Resource Planner  
John F. Wilson, Deputy Director

### *Engineering & Construction*

Michele Hurt, Regional Engineer

### *Fisheries Service*

Charlie Gougeon, Regional Fisheries Manager

### *Wildlife & Heritage Service*

Dave Brinker, Regional Ecologist  
Lori Byrne, Environmental Review Specialist  
Lynn Davidson, Conservation Technology Manager  
Ken D'Loughy, Regional Wildlife Manager  
Ron Norris, Natural Resources Biologist

### *Maryland Forest Service*

Michael Huneke, Forester  
Frank Lopez, Forester  
Wayne Merkel, Regional Forester

## **INTRODUCTION**

### **Location**

Palmer State Park is located in central Harford County, Maryland, south of Trappe Road and east of Route 1. Forge Hill Road bisects the Park. Palmer State Park (Palmer or Park hereinafter) is situated eleven miles west of Susquehanna State Park and fourteen miles east of Rocks State Park. Deer Creek flows through the park and provides a waterway connection to Rocks and Susquehanna State Parks.

### **Purpose**

Palmer State Park was deeded to the Maryland Department of Natural Resources (DNR hereinafter) by Gerald and Ruth Palmer to *“be used by the State of Maryland for the use, benefit and enjoyment of the citizens of the State of Maryland for park and recreational purposes.”* In addition, The *Department of Natural Resources Lands Strategic Plan for Recreation and Conservation* (DNR 1996) identifies Palmer State Park as a *“Buffer area and resource protection zone for Deer Creek.”*

### **Acquisition of Palmer State Park**

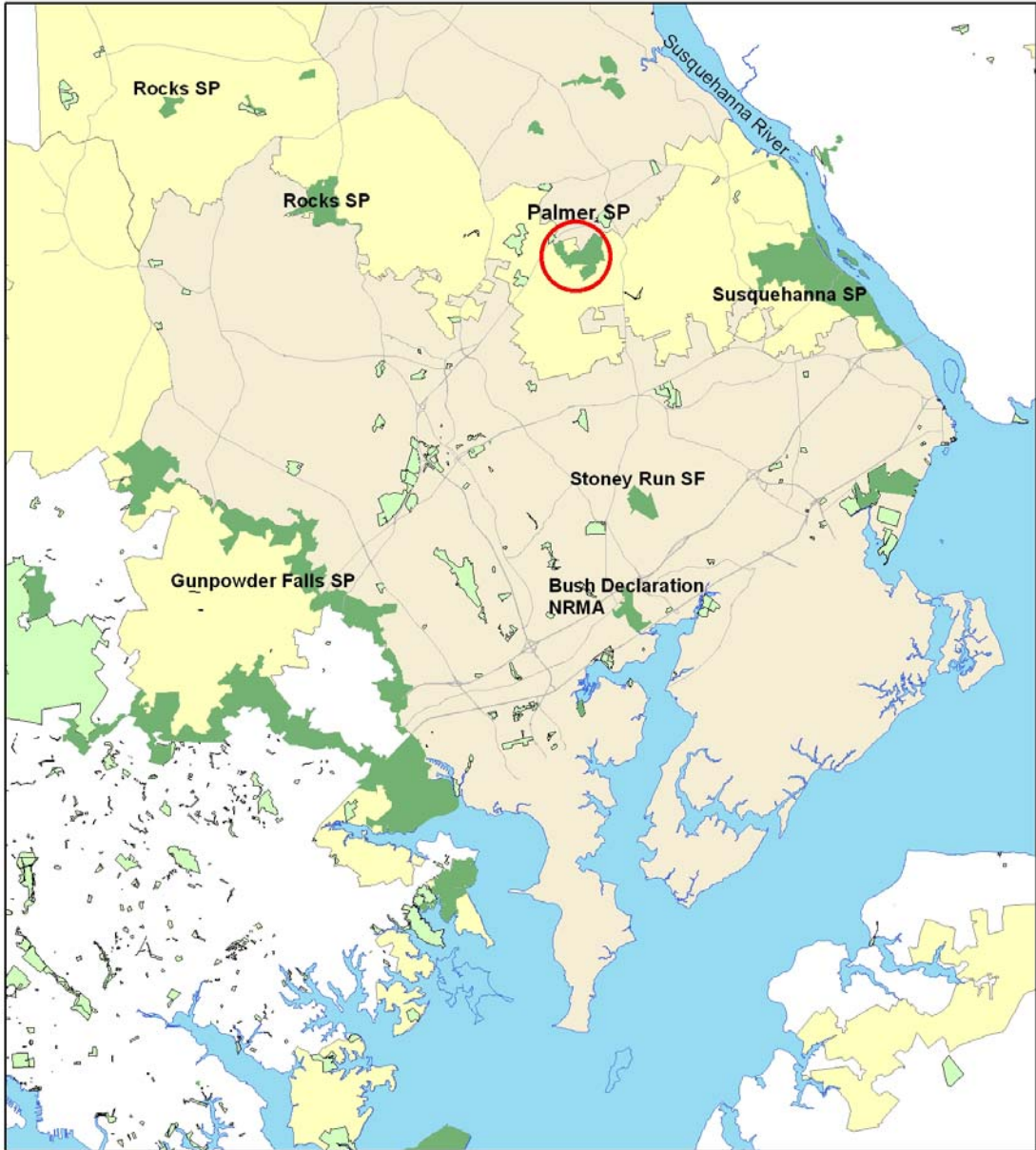
Palmer State Park was created through the acquisition of four contiguous parcels totaling 550 acres. The largest parcel was acquired in 1965 from Gerald and Ruth Palmer, who retained a life estate. As noted above, the Palmers deeded their 463-acre parcel to the State of Maryland specifically to create a public park. In 1982, DNR acquired 22 adjoining acres from Lewis Spriggs. In 1995, an additional 34 acres were acquired from the Harford Land Trust, and 36 acres were acquired in 2007 from Marion Davis.

## **REGIONAL SETTING AND SIGNIFICANCE**

### **Land Use Context**

The area of Harford County surrounding Palmer is dedicated to agricultural and low-density residential uses. The area is zoned agricultural, which allows one dwelling unit per 10 acres. According to 2002 land-use land cover data, the Maryland portion of the Deer Creek watershed, of which Palmer is a part, is 32% forest/brush, 54% agricultural and 14% developed.

Approximately 10,800 acres of Harford County (3%) are in use as public parkland. This includes state, county and municipal parks. In addition to Palmer, four other State land units (Bush Declaration Natural Resources Management Area, Rocks State Park, Susquehanna State Park, and Stoney Demonstration Forest) are located within Harford County, and the extensive Gunpowder Falls State Park straddles its southern boundary. Together these facilities make almost 20,000 acres of State land available in Harford County for recreation and natural resource management. County and municipal parkland is managed predominantly for active recreation.



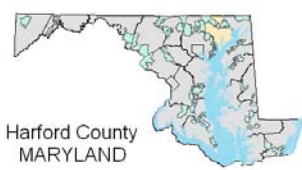
**Palmer State Park**

**Regional Location**



**Legend**

- DNR Lands
- Harford County
- PALMER SP
- County Park Land
- Rural Legacy Area
- Major Roads



This map was created for general planning purposes. It was compiled by Land Acquisition and Planning from data available at the time of analysis and may not match current conditions.

Harford County  
MARYLAND

## **Demographic Context**

Projected population increases in Harford County demonstrate a need for additional outdoor recreational opportunities and the preservation of natural habitat. In addition, population growth will create added development pressure on land around Palmer State Park.

Between 1990 and 2000, the population of Harford County increased by 20%. The average annual growth rate during that time was 1.8%, significantly greater than the overall state average annual growth rate of 1%. Population projections show an expected increase of 44,885 residents between 2005 and 2030. The number of households in the County is expected to increase by 27,255 during that same period.

Much of the County's future growth will result from Federal Base Realignment and Closure (BRAC) activities at the Aberdeen Proving Grounds. An estimated net increase of 8,200 on-post civilian, military and contractor positions will be added to the base by 2011. Current estimates place 6,533 new BRAC related households in Harford County between 2009 and 2015. The State, county and regional governments have all formed special planning and advisory committees to address BRAC related population increase.

The Park is within the Lower Deer Creek Rural Legacy Area. This is an area established to protect the lower Deer Creek watershed through the acquisition of easements from landowners to protect properties vulnerable to development, and to avoid reducing the amount of land available for farming, forestry, recreation and tourism.

## **Ecological Context**

Palmer State Park provides critical habitat for forest interior dwelling species and aquatic flora and fauna, and preserves the myriad of watershed and other ecological benefits that they provide. The original forests of Harford County have been fragmented, and what remains are core forest blocks connected by linear forest corridors. A Green Infrastructure Assessment performed by DNR identified the majority of Palmer as a hub (a large contiguous block of ecologically significant land). Forested corridors connect Palmer to other hubs to the north and south. These corridors protect stream segments and provide for the movement of wildlife between hubs. Deer Creek connects Palmer to hubs to the east and west. Some species of wildlife (frequently grouped as forest interior dwelling species or FIDS) require these hubs or core areas for survival. Other species need an interconnected network of habitat so they can move within home ranges to forage for food and to seek water, shelter, and nesting sites. Such species may also need connected habitat patches to move beyond home ranges for dispersal, breeding and migration. Because habitat connectivity is essential to the conservation of biodiversity, Palmer's role in the forested network as both a refuge and streamside corridor is vital to the persistence of local forest flora and fauna.

The waters of Deer Creek and the forest of Palmer State Park are interconnected. Like other forested areas in the watershed, Palmer is a positive contributor to water quality in Deer Creek. Forested areas absorb nutrients and slow the flow of water into streams which enhances water quality and reduces the frequency and volume of storm and melt water flow. They also serve as recharge areas for local aquifers that contribute clean, cool water to the creek. The undisturbed forests minimize sediment loading to the creek because forest vegetation stabilizes erodible stream banks, and the root mat and the humus layer on the forest floor prevent topsoil from washing into the creek. In addition, the overhanging forest canopy provides shade that maintains the lower water temperatures that favor native trout and many other aquatic species.

## **PHYSICAL DESCRIPTION**

### **Geology**

Palmer State Park is in the Piedmont Plateau Physiographic Province. This portion of Maryland consists of very ancient, hard, crystalline igneous and metamorphic rocks of Precambrian and early Paleozoic age. Immediately beneath the surface of Palmer State Park lies the Baltimore Gabbro Complex, which outcrops at a number of locations within the park. Its rocks impart slightly acidic conditions to soil and surface waters.

### **Topography**

Elevations within Palmer State Park range from 120 feet to 440 feet above mean sea level. Slopes within the Park vary from level to quite steep (zero to 45%). Approximately 37% of the Park exhibits slopes greater than 15 %.

### **Soils**

The soils of Palmer are of the Mantalto-Neshaminy-Aldino Association. These are deep, steep to nearly level, well drained and moderately well drained soils that are underlain by basic, semi-basic, or mixed basic and acidic rocks. Erosion and stoniness are major limitations to uses on these soils. Nine soil series are present in the Park (Aldino, Alluvial Land, Codorus, Glenelg, Legore, Manor, Montalto, Neshaminy, and Watchung), divided into 19 different soil types. Soils exhibit differing characteristics that affect the nature of development that should occur in an area, as well the nature of the flora and fauna that it supports. The Soil Survey of Harford County, published by the United States Department of Agriculture's Natural Resource Conservation Service (NRCS), describes the suitability of each soil type in terms of limitations for recreational development.

- Ninety-four percent (477 acres) of the surface area of the Park is covered by soil types rated very limited for playground development.
- Forty-six percent (235 acres) of the Park is covered by soil types rated very limited for both camp and picnic area development. An additional 52% (263 acres) is rated somewhat limited.
- Thirty-three percent (168 acres) of the surface area of the Park is covered by soil types rated very limited for path and trail development and an additional 36% (183 acres) is rated somewhat limited. Only 31% (155 acres) is rated not limited.

## **Water Resources**

Palmer State Park is in the Deer Creek Watershed, a tributary of the larger Chesapeake Bay Watershed. Deer Creek flows through Palmer State Park for approximately two miles. It is a freshwater creek with headwaters in southeastern Pennsylvania. Deer Creek discharges into the Susquehanna River approximately 11 miles downstream of Palmer State Park.

In the Deer Creek Watershed, maintaining healthy waters and improving water quality are vitally important for fish, wildlife and humans. For example, Deer Creek is one of the sources of water supply for the military base at Aberdeen Proving Ground, and the creek supports a diverse and important aquatic community. However, the wide variety of natural and anthropogenic activities and land uses in the watershed do affect water quality. As stated earlier, 32% of the Maryland portion of the watershed is forest/brush, 54% is in agriculture, while less than 14 percent is barren or developed. Agricultural land, if not properly managed, can contribute large amounts of nutrients (nitrogen and phosphorus) and sediment to receiving waters, while the impervious surfaces of developed areas limit the infiltration of rain and melt water, raise the temperature of runoff, change sheet flow to point discharges, and accelerate flow rates and volume. These actions result in bank erosion, sedimentation in still areas, and the degradation of in-stream habitat.

Over all, Deer Creek's water quality is very good. A survey by the Maryland Department of the Environment (2006) did, however, indicate that nutrient levels, especially nitrate/nitrite, are elevated. The source of these nutrients appears to be a combination of row crop and animal agriculture, and the presence of residential septic fields.

In 1973, the Maryland Legislature designated Deer Creek as a State Scenic River. The *Maryland Wild and Scenic Rivers Act* defines a scenic river as "possess[ing] outstanding scenic, geologic, ecologic, historic, recreational, agricultural, fish, wildlife, cultural, and other similar values. The policy of the State is to preserve and protect the natural values of these rivers, enhance their water quality, and fulfill vital conservation purposes by wise use of resources within their surrounding environment."

*A Guide to the Protection and Wise Use of Deer Creek* (the Guide), published by DNR in 1978, and in accordance with the aforementioned Act, outlines management techniques, conservation tools and protection strategies for Deer Creek. The Guide proposed the maintenance of the "wilderness character" and protection of the "historic sites" of Palmer State Park, and recommended access to the creek and a canoe-in/hike-in campground.

The 1998 Maryland Clean Water Action Plan developed a classification system for restoration and protection priorities. The Deer Creek watershed was classified as a Category 1 Priority Watershed (the highest State priority for restoration) and a Category 3 Watershed (protection is needed for identified resources). Category 1 Watersheds do not meet water quality goals and are in need of restoration. Category 3 Watersheds possess pristine or sensitive attributes that require an extra level of protection. Classification of watersheds as both Category 1 and 3 are not mutually exclusive because



watersheds vary along their length and the indicators differ between classifications. A Category 1 and 3 Watershed shows signs of stress and has experienced some degradation, but retains sensitive natural characteristics that should be protected. Deer Creek has the added distinction of being designated a "Select" Category 3 watershed, which indicates a more pristine or sensitive watershed deserving of an extra level of protection.

All Maryland waters are also assigned a "Designated Use" according to Maryland State Law under COMAR 26.08.02.08. The designated use is associated with a set of water quality criteria necessary to support that use. The portion of Deer Creek flowing through Palmer State Park, and any tributaries in the Park, are designated Use IV-P for recreational trout waters and public water supply. Deer Creek is one of the sources of water supply for the military base at Aberdeen Proving Ground.

On the Federal level, the *Clean Water Act* requires a statewide assessment of water quality. To comply with Section 303(d), 305(b) and 314 of the *Clean Water Act* the Maryland Department of the Environment prepared a list of "impaired" water bodies. Water bodies are listed as "impaired" if data indicate that pollutants/contaminants prevent the full array of identified use of the water body. The *2008 Draft 303(d) List* identified Deer Creek as being impaired. The impairment category is "biological" and the potential source is "unknown."

Because Deer Creek is a valuable resource that shows evidence of degradation, Harford County joined other public agencies in preparing a Watershed Restoration Action Strategy (WRAS). Completed in 2007, the Deer Creek WRAS identified management strategies and potential projects to meet water quality and habitat goals and objectives for agriculture, natural resources, development, education and outreach, and inter-jurisdictional coordination. Data from technical water quality and characterization studies were used to develop management strategies for protection and restoration. The management strategies deliberately target the highly degraded areas most in need of restoration, and high quality areas most in need of protection.

### **Vegetation**

Approximately 90% of Palmer was forested as of 2011. Two agricultural fields (40 acres) within the Park were afforested in 2011, save an area left for parking. That land use was established before the land was acquired by the State, and was continued as an interim use until planting. Prior to afforestation, agricultural management of these fields was conducted under a formal nutrient management plan and best management practices approved by the Maryland Department of Agriculture.

The forested slopes and floodplain contain blocks of unbroken forest habitat, which is an ideal environment for forest interior dwelling bird species (FIDS). These forested areas also provide numerous watershed and ecological benefits, and create links in streamside corridors used by wildlife moving through the area. In general, the herbaceous layer of the forest interior on the south side of Deer Creek is healthy and diverse. Invasion by exotic plants on that side of the creek is limited to trail edges. The understory on the north side of Deer Creek is browsed heavily by deer and the herbaceous and shrub layer is less well developed and not as diverse.

The original upland forest of Palmer State Park according to *The Vegetation Map of Maryland* (Brush, Lenk and Smith 1976), was categorized as Tulip Poplar Association. Today, the uplands are covered with a diverse and healthy mature second growth forest composed of tulip poplar, beech, pignut hickory, mockernut hickory, northern red oak, white oak, red maple, flowering dogwood, and black oak.

*The Vegetation Map of Maryland* categorized the original riparian forest as Sycamore-Green Ash-Box Elder-Silver Maple Association. Today, the riparian forest includes tulip poplar, green ash, silver maple, black walnut, red maple, black cherry, sassafras, black gum, pignut hickory, northern red oak, white and black oak. Within the Park, floodplains are generally narrow, but well vegetated with native species.

Where forested areas of Palmer State Park border agricultural fields, roads and residential property, thick stands of nonnative invasive plants have gained a foothold. These nonnative species also grow along trails in the southern region of the Park. Dense stands of multiflora rose, Oriental bittersweet, burning bush, and tree-of-heaven also occur along Deer Creek. Garlic mustard, Japanese barberry, Japanese stilt grass and mile-a-minute weed are also frequently encountered.

### **Wildlife**

Animal species present at Palmer are typical of those found throughout the Maryland Piedmont Province. The reptile and mammal community is diverse and abundant, offering rewarding opportunities for wildlife observation and study. The white-tailed deer population is large and beavers have re-populated Deer Creek. Both of these native species can have a pronounced effect on the local environment, deer from browsing and grazing on understory and herbaceous plants, and beaver from their well known dam building habits and propensity to feed on riparian forest trees.

The avian community is diverse and includes many forest interior dwelling species that breed successfully within the park. Bald eagles have been observed but no nests have been found.

### **Fisheries**

The portion of Deer Creek within Palmer State Park contains a very diverse and healthy freshwater fish community. The upstream portion of Deer Creek at Rocks State Park has been managed as a put-and-take spring and fall trout-fishery for many decades and hatchery reared rainbow trout are stocked there regularly. Brook trout are not currently stocked in Deer Creek in order to preserve the genetic integrity of the native/wild brook trout populations that exist in numerous tributaries to Deer Creek. Brown trout are not stocked in Deer Creek or its tributaries to minimize non-native competition with native brook trout populations.

Large numbers of hickory shad and river herring ascend Deer Creek annually to spawn between the months of March and May. Several dams or other blockages have been removed or modified in recent years to promote fish passage. The portion of Deer Creek within Palmer State Park includes an extremely scenic reach of river that is ideal for spawning shad.

Smallmouth bass are a very popular freshwater sport fish that inhabit much of the Deer Creek main stem. Smallmouth bass reproduce naturally throughout Deer Creek. The greatest angling opportunities for the species are found in the reach extending downstream from Rocks State Park to the mouth of Deer Creek. Palmer State Park contains some of the highest quality smallmouth bass habitat in all of Deer Creek.

### **Wetlands**

The National Wetland Inventory (NWI) identified 10 acres of wetlands within the Park. The majority are riverine, and include Deer Creek, while the rest are palustrine and include areas on the floodplain. Although not identified by the NWI, the park also contains a seasonal forested wetland complex south of the agricultural fields. A number of spring seeps are also present.

### **Rare and Threatened Species**

Palmer State Park supports a small population of Butternut (*Juglans cinerea*), a rare and locally distributed tree in Maryland. Butternut is susceptible to a fungal infection, butternut canker disease. This disease is causing rapid decline in the abundance of this tree. Other rare species known from the area surrounding Palmer include the flat-spike sedge and the bog turtle.

### **Cultural Resources**

In the later 1800s, this area was a center of industrial activity and two sites within Palmer State Park have been identified as having historic significance - the remains of Husband Flint Mill and the Deer Creek Iron Works. Palmer State Park is located within the Lower Deer Creek Valley Historic District.

The remains of the Husband Flint Mill sit on the north bank of Deer Creek less than a mile east of the Forge Hill Road Bridge. This mill was built in the early 1800s, rebuilt in 1909, then closed in the early 1920s. Using quartz quarried from the surrounding hills, the mill produced flint, a component of porcelain dishes and pottery. Deer Creek is not navigable this far up stream, therefore the flint had to be transported long distances to the railroad for distribution. After nearly a century in operation, this expense led to the closure of the mill. The two kilns used to heat the quartz were built into the hillside and are still standing, as is a chimney and part of the mill's office.

The Deer Creek Iron Works, once called the Lebanon Forge, was established in the middle 1800s on the north bank of Deer Creek less than a half mile east of the Forge Hill Road bridge. The foundation of this once thriving industrial complex, which closed in 1878, is still in place. A store and gristmill were also located near the furnace. Old Route 1 passed next to the Deer Creek Iron Works before crossing Deer Creek. The old bridge abutments remain.

## **PARK MANAGEMENT**

In accordance with the wishes of Gerald and Ruth Palmer, who deeded most of the land to the State, and *The Department of Natural Resources Lands Strategic Plan for Recreation and Conservation*, Palmer State Park will be managed to provide:

- appropriate resource-based, low-impact recreational opportunities,
- protection of the Deer Creek watershed and,
- protection of natural, cultural and historic resources.

### **Current Uses**

As a designated State Park, the public is welcome to enter and enjoy its scenic beauty and natural amenities. Fishing, tubing and other water access, hiking and nature study are popular pursuits.

### **Current Management**

Palmer is managed by the Maryland Park Service as part of the Rocks/ Susquehanna State Park complex.

## **MANAGEMENT ISSUES AND CONCERNS**

### **Dumping**

Dumping is a problem at Palmer State Park. The illegal dumping of garbage and bulk trash items along Forge Hill Road is commonplace. In 2003, more than 2000 tires and other bulk trash items, including intact automobiles, were removed from a site along Deer Creek adjacent to Forge Hill Road.

### **Erosion/Steep Slopes**

The nature of the soils on the steep slopes makes erosion a natural hazard, which is increased by disturbance of the soil surface.

### **Invasive Species**

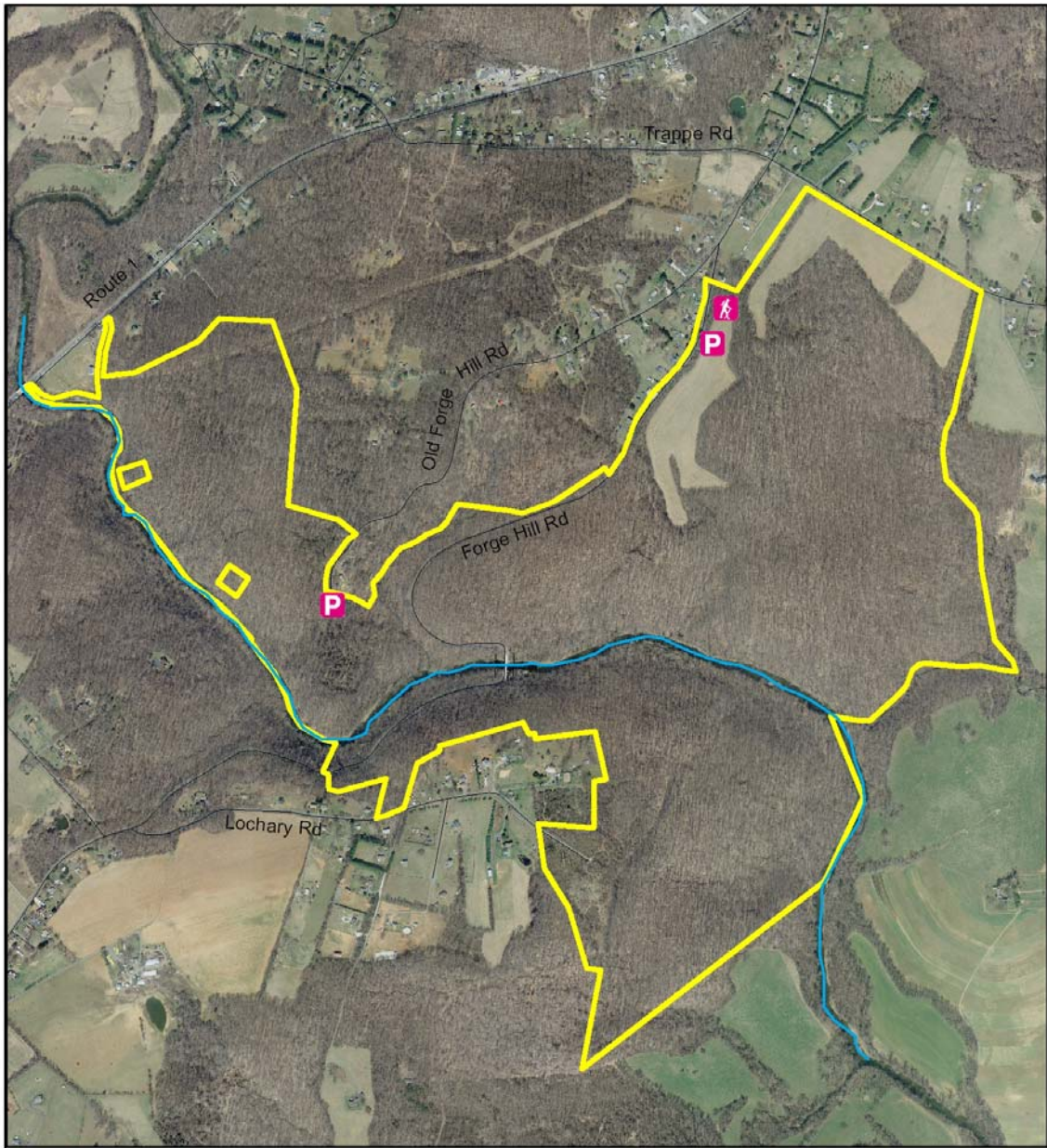
Dense stands of invasive plant species occur along field edges and the creek bank. Multiflora rose, wineberry, Japanese stilt grass and Japanese honeysuckle, all grow along the trails in the southern region of the park. At the end of Lochary Road, what was once pasture is now a large multiflora rose thicket.

### **Illegal Hunting**

Illegal hunting for white-tailed deer has occurred within Palmer State Park.

### **Unauthorized Trails**

Approximately 6.8 miles of trails that were not planned or constructed by DNR crisscross the park. These trails are wide, in some instances very steep, and some exhibit tire ruts resulting from the illegal use of motorized vehicles. Because the trails were not designed in a sustainable fashion, many are highly eroded, causing natural resource degradation and posing safety concerns.



**Existing Conditions & Proposed Improvements** **Palmer State Park**


**MARYLAND**  
 DEPARTMENT OF  
 NATURAL RESOURCES  
 Martin O'Malley, Governor  
 John R. Griffin, Secretary

This map was created for general planning purposes. It was compiled by Land Acquisition and Planning from data available at the time of analysis and may not match current conditions.



**Legend**

- PALMER SP
- Streams
- P Parking Lot
- P Trail Head



## **RECOMMENDATIONS**

The goal of this plan is to protect, enhance and interpret the natural, cultural and historic features of Palmer State Park, and to provide appropriate, low impact recreational opportunities for park visitors. The following recommendations are intended to achieve this goal.

### **Public Access**

Because Palmer State Park has a low carrying capacity, public access will be limited to activities with low environmental impact such as non-motorized trail based recreation, fishing, tubing, nature photography, nature study and bird watching. Due to the sensitivity of resources and soil limitations, the use of motorized vehicles by park visitors will be prohibited in the Park.

Limiting visitors to sustainable numbers will be accomplished through restrictions on parking. Motorists will be directed to a parking lot to be provided along Forge Hill Road in an area that was formerly an agricultural field. A small parking lot currently exists at the end of Old Forge Hill Road.

A trail plan will be developed to provide sustainable public access. Existing unauthorized trails will be reviewed and unsustainable segments will be closed and restored. All park trails will have natural surfaces and will incorporate best management practices intended to reduce or eliminate environmental impact.

A State Park brochure will be published and appropriate signage will be installed at the parking area/trailhead on Forge Hill Road to welcome visitors, provide useful information, and direct them to trails and points of interest.

### **Natural Resource Management**

Natural resource management at Palmer State Park will emphasize the protection of natural resources and conservation and enhancement of natural biological diversity. Focus will be placed on the protection of Deer Creek as outlined in the 1996 *Department of Natural Resources Lands Strategic Plan for Recreation and Conservation*, and in maintaining a healthy and naturally diverse forest cover. The riparian forest along Deer Creek will be protected, and attention will be given to enhancing or restoring riparian buffers.

A Forest Stewardship Plan will be prepared, with emphasis on forest health (invasives control, woody vine management, etc.). Timber harvest will not be included as part of the plan.

An Invasive Species Management Plan will be developed and implemented.

The areas previously leased for agricultural production were returned to native forest in 2011 thru the Governor's Forest Brigade Program.

## **Cultural Resource Management**

The remains of the Husband Flint Mill and the Deer Creek Iron Works will be retained and interpreted to explain their history and significance.

## **Land Acquisition**

DNR shall consider acquisition of additional lands adjacent to Palmer State Park to expand protection of contiguous forest within the Deer Creek watershed. Particular attention will be given to areas identified as significant by Maryland's Green Infrastructure Program.

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Maryland Park Service: 410-260-8186  
Toll free: 1-800-830-3974  
TTY users call via the MD Relay  
580 Taylor Avenue, E-3  
Annapolis, Maryland 21401  
[www.dnr.Maryland.gov](http://www.dnr.Maryland.gov)

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John R. Griffin, Secretary  
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