



# **Monmouth County Park System Deer Management Program Annual Report**

**April 2010**

Prepared by the Monmouth County Park System – April 20, 2010

As Adopted May 10, 2010

Monmouth County Board of Recreation Commissioners #R-10-5-10=167



**Monmouth County Park System**  
**DEER MANAGEMENT PROGRAM ANNUAL REPORT**  
**to the Board of Recreation Commissioners**  
**April 20, 2010**

The Board approved the 2009/2010 Deer Management Program on June 22, 2009. This annual report has been prepared to advise the Board regarding the administration of this program, its effectiveness, and the need for changes to the program as designed.

Fifteen park areas were hunted a total of 8806 hunter days and 435 deer were reported as harvested.

Twelve of the fifteen park areas were classified as Category 1 areas, defined as those areas that, within the portions designated for hunting, are largely undeveloped with limited public use. The other three areas were classified as Category 2 areas, defined as those areas with regular public visitation that are closed to outdoor public use during the time they are available to hunting.

**Program Administration**

The Monmouth County Park System issued a total of 828 2009/2010 hunting access permits to hunters licensed by New Jersey to deer hunt. Of those 828 hunters, 55% were Monmouth County residents. Permits were issued in person at three park areas. All permitted hunters received a copy of the Park System's Rules and Regulations, Supplemental Rules and Regulations governing deer hunting (R-08-5-19=202), administrative procedures for deer hunting, and maps of the areas open for hunting.

The number of permitted hunters was 13% less (133) than the 2008/2009 season, before the establishment of a \$20 application processing fee, but more than two of the five previous seasons. The \$16,560 collected between September 2009 and February 2010 was deposited in the Park System Trust Account to offset program expenses.

Hunting within the Park System is subject to the rules and regulations of both NJ Fish and Wildlife and the Park System. State rules prohibit hunting within 450 feet of a building or structure and do not allow hunting in public parks on Sunday. Additional rules imposed by the Park System require that only licensed hunters over the age of 18 be issued permits, require that all hunting be from elevated tree stands, and extend the 450 foot safety zone to include primary and secondary school property.

Park managers met with local enforcement authorities in advance of the hunting season to review the program. Staff were also responsible for administration of the registration system, periodic spot-checks of parking areas and hunting activity, and addressing any issues that arose. All field staff in the affected areas were issued orange hats and vests to wear while working within hunting areas and received training related to the hunting program, enforcement of the program rules, and posting of hunting area signage. As the regulated hunting seasons run from ½ hour before sunrise to ½ hour after sunset, shift hours at affected park areas were adjusted.

A record of all occurrences and incidents related to the Deer Management Program was maintained and distributed to affected park areas on a weekly basis. Occurrences included such minor rule infractions as failure to display a vehicle identification tag, unmarked tree stands, and having a tree stand in place too early or too late in the season. A total of 53 occurrences were recorded over the course of the season. Incidents include major rule infractions as well as reports of theft and vandalism. A total of 15 incidents were recorded during the season. Six of these involved stolen and vandalized tree stands or other hunting equipment. Others included such rule infractions as tree stand in a safety zone, excessive cutting of trees, hunting in an area closed to hunting. A total of 5 permits were revoked either for a single major infraction or for repeated violations of a minor nature. Park staff continue to be vigilant in monitoring hunting activity and enforcing rules.

It should be noted that none of the reported incidents or occurrences involved conflicts between hunters and trail users, although trails in Category 1 parks remained open throughout the hunting season for the second year. By permitting shared use of these areas, the deer population was reduced without unnecessarily displacing those trail users comfortable with this practice.

Written notice of the deer management program was mailed in advance of the scheduled hunting season to 1502 neighbors, defined as those within 200 feet of a park with area open for hunting. Only 6 neighbors, less than 1 percent, contacted the Park System as a result of that mailing.

There were no on-site protests this season and media coverage was light. An on-line petition against bow hunting organized by PETA (People for the Ethical Treatment of Animals) generated 340 e-mails opposing the deer management program as of February 22, 2010; 86 of the petitioners were identifiable as being from Monmouth County.

Comments on the program were solicited from staff via employee questionnaires and were received from permitted hunters via the End-of-Season Harvest Reports. Frequently repeated suggestions for increasing the harvest included reinstating baiting and earn-a-buck in the Category 2 parks, limiting the number of hunters, and limiting the number of tree stands.

In September 2008 a resident of Wall Township filed a civil complaint seeking a temporary injunction to stop hunting at Shark River Park in Wall on the basis that a local ordinance prohibits the discharge of firearms. The Township was not a party to the complaint. This injunction was denied in Superior Court on September 29, 2008 and on appeal on October 10. The County then sought and received a motion for summary judgment on February 20, 2009, thus dismissing the matter. Judge Uhrmacher's ruling concluded that the State Legislature explicitly gave the County full control of the land managed by the Park System and that "a municipal ordinance cannot operate to prohibit a deer hunt undertaken on a County park, even though that County park may be within its borders." The resident filed an appeal of this decision and the Appellate Court issued a decision January 25, 2010 affirming the motion judge's ruling granting summary judgment. The Appellate Court looked to the Board of Recreation Commissioner's statutory authority in finding that the "State scheme is sufficiently comprehensive to preclude municipal regulation." The resident has recently asked the Supreme Court of New Jersey to hear a further appeal. While municipal ordinances regulating the discharge of firearms are not applicable to County park lands, the opinions and concerns of municipal officials are considered in the design and implementation of the Deer Management Program.

### **Program Effectiveness**

Hunters who were issued Park System hunting access permits for the 2009/2010 deer-hunting season were required to submit an end-of-season report as a condition of the permit. The purpose of the end-of-season report is to gather harvest data for the Park System's Deer Management Program. The penalty for failing to submit an end-of-season report by the established deadline is ineligibility for a 2010/2011 permit.

Self-addressed, postage paid End-of-Season Harvest Report forms were mailed to each of the 828 permitted hunters on February 1 with a March 1, 2010 return date. A second reminder was sent to those hunters who did not respond by that date. As of March 19, 2010, 802 hunters, or 97% of those permitted, had submitted a report.

Key information contained in the 802 responses included the following:

- 87% of permitted hunters actually hunted in a Monmouth County park during the 2009/2010 deer hunting season
- 26% of the permitted hunters harvested at least one deer
- A total of 435 deer were harvested at the fifteen park areas open during the 2009/2010 season.
  - 261 or 60% of the deer harvested were female
  - 33% were harvested by crossbow, permitted for the first time in NJ this season
  - 58% were harvested by other bow and arrow
  - No deer were harvested by muzzleloader (Category 2 parks only)
  - 9% were harvested by shotgun (Category 2 parks only)

It is assumed that the total population reduction achieved by the hunt exceeds the number of deer harvested because of the lost reproductive capacity of each female deer harvested. Assuming, conservatively, that 50% of the females harvested would have produced 1 to 3 fawns this season, the harvest of 261 does would be indicative of a total population reduction ranging from approximately 565 to 825.

The recorded harvest data for the 2009/2010 deer hunting season is summarized in the attached table (Table 1).

The harvest numbers were up from last season at nine of the fifteen park areas. All three Category 2 parks saw declines: Clayton Park from 13 to 4; Hartshorne Woods Park from 38 to 17; and Thompson Park from 28 to 19. Three Category 1 parks saw declines: Huber Woods Park from 18 to 16; Shark River Park from 50 to 39; and Turkey Swamp Park from 74 to 56.

The objective of the Park System's Deer Management Program is to retain a healthy native forest community by reducing deer populations to a maximum of 10 per square mile and maintaining populations at that level. This is a long-term management goal, not something that can be achieved in a few years. Several indicators are monitored to evaluate progress towards this goal:

Deer Population Counts - Counting deer is made difficult by their mobility and the fact that they spend a good deal of time under cover and cannot be reliably seen or counted. Regardless, the Park System staff has initiated efforts to establish estimates of deer density within select park areas. Counts have not been performed in every park open for hunting for two principal reasons: 1) aerial counts are ineffective in parks where forest cover and the presence of many evergreens obscure visibility, and 2)

spotlight counts can only be performed within areas of a park with a drivable route adjacent to edge habitat.

Each winter since 2003 at least one aerial survey was conducted when the visual contrast offered by snow cover was used to facilitate deer counts from the helicopter operated by the County Shade Tree Commission. In 2010 four park areas were surveyed on one of two dates (February 8 or 18) and two parks, Thompson and Holmdel, were surveyed on both days. The results (see Attachment D) show a general reduction in the number of deer counted, with one exception, Thompson Park, which showed little change in the count. The 2010 counts continue to support a conclusion that the population remains above the 10 deer per square mile density considered the maximum for retaining a healthy shrub layer. It can be assumed that, as only deer visible from the helicopter are counted, the survey results represent an under count of actual deer densities; this is particularly true where the presence of forest cover and evergreens obscure visibility and when weather conditions prompt the deer to bed down in dense cover. Research by others suggests that the percentage of deer counted by helicopter can range from as low as 36% of the total population in the absence of snow cover to as high as 78.5% in a oak-hickory forest with snow cover.

Spotlight counts were conducted at six park areas in April and May of 2007, 2008 and 2009. Additional counts are scheduled for April and May 2010. The 2009 counts yielded estimated densities ranging from 14 to 172 per square mile. Again, as the routes do not include the parks' entire edge habitat and as only deer visible from the route at the time of the inspection are counted, the spotlight surveys always yield an estimate lower than actual deer densities. Research by others suggests that as many as 50 percent of the deer present may not be observed by a spotlight count.

Information about and data from the Park System aerial surveys and spotlight surveys is included as Attachment D.

It will be difficult to evaluate the effectiveness of the program on deer populations until more hunting seasons have been completed and reliable counts recorded over more years. Multiple consecutive years of consistently lower count numbers in conjunction with improved forest health must be seen to conclude that the program is achieving its objective.

Forest Health Conditions - Two related studies initiated by the Park System provide for a reliable and consistent assessment of vegetative health, enabling the impact of deer on forest composition and structure to be assessed in a quantifiable way over time. Park System staff have constructed 9 deer exclosure sites at 7 park areas since 2003 as part of a Deer Exclosure Study (Clayton Park, Hartshorne Woods Park, Holmdel Park, Shark River Park, Tatum Park, Thompson Park and Turkey Swamp Park). The exclosures provide a physical barrier to access by deer while allowing access by small mammals, insects, and birds. The plant species in plots within the 30-foot by 30-foot exclosures are compared to those in plots outside the exclosures. In 2009 five of the 9 exclosures were evaluated for percent cover and species composition. Two of the exclosures at Holmdel and Shark River Parks were newly installed in 2008 and thus show results from a single growing season; both show trends toward increased percent cover and species richness inside the exclosure. The other three sampled in 2009, Thompson, Hartshorne Woods, and Turkey Swamp Parks, were selected because of past results which continued to indicate significant increases in percent

cover and species richness inside the enclosure. Thompson Park continues to show the most significant differences with 90% cover inside compared to 7% outside.

The second study, the Forest Health and Composition Study, was initiated in 2006. Species of trees, saplings, shrubs, vines and herbaceous plants as well as height and percent of vegetative cover have been sampled in 267 plots in 14 parks. By comparing the mature trees present to the quantity of saplings and seedling trees, the extent of degradation can be indexed and mapped and it can be determined whether deer browsing pressure may be limiting forest regeneration. Over time, this information will enable the Park System to evaluate whether conditions are improving or worsening.

It is too early in both the Park System's efforts to manage deer populations and to formally monitor forest health, to judge the impact of the program on forest health. Experience at the Watchung Reservation in Union County, New Jersey suggests that it can take 12 years of active deer management before natural forest regeneration is observed. The data collected to date does support the conclusion that browsing pressure is still too high at the current level of deer population. In at least one of the enclosure areas it is apparent that the forest can recover much diversity and structure when deer browse is reduced or eliminated.

There is continued concern that the current program does not reach prime areas of quality forest at Holmdel Park, Huber Woods Park, Manasquan Reservoir, Shark River Park and Tatum Park where only a small portion of the forested area has been hunted in order to minimize the impact on park visitors and neighbors. Several other parks with areas of quality forest, Bel-Aire Golf Course, Dorbrook Recreation Area, and Hominy Hill Golf Course have not be included in the program to date. Changes to the program will be needed in the future to address this issue.

Harvest Numbers - Over time, if the program is in fact reducing the number of deer in the areas open for hunting, the year-to-year harvest numbers should begin to flatten and then decrease and/or require an increased level of effort. Because we continue to refine the program from season to season, adding areas, modifying boundaries, adjusting hunting types and schedules, it is not possible to make direct comparisons for most areas. Harvest numbers within the parks are also greatly influenced by the presence or absence of hunting on the property surrounding each park. More years of data are needed to reasonably determine whether changes in harvests and level of effort are indicative of changes in population or are the result of other factors.

Notable changes in harvest numbers from prior seasons include the following:  
Ramanessin Section of Holmdel Park – Converted from a Category 2 park with a 6-day gun season to a Category 1 park with bow hunting from October through February, this park saw an increase in harvest from 27 in 2008/2009 to 46 in 2010/2011. As expected the change had minimal impact on park visitors and neighbors, both of which are few in number, and reduced the labor commitment from that required to close the park for a six full days as a Category 2 park.  
Clayton Park – Total harvest in 2009/2010 was only 4 deer compared to 13 the prior season. A single hunter participated at Clayton this season compared to 18 the prior season. Staff believes that the following program changes contributed to that decline: 1) a reduction in number of hunting days from 6 the prior three years to 3 days this season; 2) the imposition of an antlerless only rule this season; and 3) the institution of

a prohibition on baiting. Competition with other area hunting opportunities is also an issue at Clayton.

Hartshorne Woods Park – Total harvest in 2009/2010 was 16 deer compared to 38 the prior season. Staff believes that the imposition of an antlerless only rule and the institution of a prohibition on baiting this season may have contributed to this decline. Rangers have reported seeing fewer deer. Bow hunters on adjacent private properties, who reported harvesting approximately 45 deer this season, are also helping to reduce the overall deer population in this area.

Thompson Park – Total harvest in 2009/2010 was 19 deer compared to 29 the prior season. Staff believes that the imposition of an antlerless only rule and the institution of a prohibition on baiting this season may have contributed to this decline. There were also reports that neighbors put out bait piles during the hunting days to lure deer out of the park.



## **Proposed Changes**

The Deer Management Program as approved by the Board on June 22, 2009 (#R-09-6-22=286) can continue without further action by the Board.

### **Recommended Program Changes for 2010/2011 – Public Hunting**

The staff is not recommending that any additional park areas be opened for public hunting during the 2010/2011 season. Some adjustments to hunting area boundaries will be made based on field experience, comments received, and additional park land acquired.

Under the administrative authority granted to the Secretary-Director by the Board by its June 22, 2009 action, these additional changes to the public hunting portion of the program are proposed to begin with the 2010/2011 hunting season.

- Convert Clayton Park from Category 2 to Category 1 open for bow hunting only. A longer season (November through January) of bow hunting will keep continuous pressure on the deer and avoid direct competition for hunters with other public and private properties in the area open for gun hunting. This change is expected to have minimal impact on either neighbors, which are few in number, or park visitors of which there are roughly 5100 between November and the end of January. As in other Category 1 parks, trails will remain open. A similar change at Holmdel Park this last season was successful. An assessment of the impact of this change on hunter participation and harvest numbers at Clayton Park will be made at the end of the 2010/2011 season and the possibility exists that the area may revert to Category 2 in future seasons.
- Eliminate the restriction on antlered deer at the Category 2 parks. Hunter participation was down by approximately 40% at Hartshorne Woods Park compared to the 2008/2009 season when an earn-a-buck provision was in place. It is hoped that allowing the harvest of antlered deer in conformance with applicable State regulations will result in an increase in participation and yield a greater harvest.
- Eliminate the ban on baiting in Category 2 areas. At the staff's recommendation, this ban had been imposed for the 2009/2010 season; the thinking had been that, due to the short seasons (3 to 6 days) in Category 2 areas, the increased foot traffic related to baiting immediately prior to the hunt might be pushing deer out of the area and negatively impacting harvest numbers. What we found was that without baiting, there was too little deer movement during the short season.

A complete list of the areas to be open for hunting and the hunting seasons for 2010/2011 is provided in Attachment A. Maps of these areas are included as Attachment B; these maps are for illustrative purposes only and may be revised to adjust the limits of hunting.

**ATTACHMENT A**

**MONMOUTH COUNTY PARK SYSTEM  
2010/2011 - AREAS TO BE OPEN FOR DEER HUNTING**

*(Dates are for illustrative purposes only and may change)*

<b>CATEGORY 1 PARKS.</b> Within designated areas, access throughout the deer hunting season or for a portion of the season, as permitted by New Jersey Fish and Wildlife. <b>Bow hunting only all areas.</b>			
<b>PARK NAME</b>	<b>NJ DEER MGMT. ZONE</b>	<b>NJ REGULATION SET NUMBER</b>	<b>DATES</b>
<b>Big Brook Park</b>	50	8	<i>Oct. 2, 2010 – Feb. 19, 2011 Bow only</i>
<b>Charleston Springs Golf Course</b>	15	8	<i>Oct. 2, 2010 – Feb. 19, 2011 Bow only See maps – portions of park do not open to hunting until Dec. 27, 2010</i>
<b>Clayton Park</b>	17	6	<i>Nov. 1, 2010 – Jan. 31, 2011 Bow only</i>
<b>Crosswicks Creek Greenway</b>	17	6	<i>Oct. 2, 2010 - Jan. 31, 2011 Bow only</i>
<b>Holmdel Park Ramanessin Section</b>	50	8	<i>Oct. 2, 2010 – Feb. 19, 2011 Bow only</i>
<b>Howell Park Golf Course</b>	16	4	<i>Oct. 2, 2010 – Jan. 31, 2011 Bow only See maps – portions of park do not open to hunting until Dec. 27, 2010</i>
<b>Huber Woods Park</b>	50	8	<i>Nov. 1, 2010 – Feb. 19, 2011 Bow only</i>
<b>Manasquan Reservoir</b>	16	4	<i>Oct. 2, 2010 - Jan. 31, 2011 Bow only</i>
<b>Perrineville Lake Park</b>	15	8	<i>Oct. 2, 2010 – Feb. 19, 2011 Bow only</i>
<b>Shark River Park</b>	51	8	<i>Oct. 2, 2010 – Feb. 19, 2011 Bow only</i>
<b>Tatum Park</b>	50	8	<i>Oct. 2, 2010 – Feb. 19, 2011 Bow only</i>
<b>Turkey Swamp Park</b>	16	4	<i>Oct. 2, 2010 - Jan. 31, 2011 Bow only See maps – portions of park do not open to hunting until Nov. 8, 2010 and Dec. 1, 2010</i>
<b>Yellow Brook Tract</b>	16	4	<i>Oct. 2, 2010 - Jan. 31, 2011 Bow only</i>

<b>CATEGORY 2 PARKS.</b> Within designated areas, for a portion of the shotgun, muzzleloader, and/or bow deer hunting seasons, as permitted by New Jersey Fish and Wildlife. Hours of discharge may be limited. All other outdoor public use prohibited during hours of discharge.			
<b>PARK NAME</b>	<b>DEER MGMT. ZONE</b>	<b>REGULATION SET NUMBER</b>	<b>DATES</b>
<b>Hartshorne Woods Park</b>	50	8	<i>Until 11am Jan. 11, 13, 18, 20, 25, and 27, 2011</i>
<b>Thompson Park</b>	50	8	<i>Until 11am Dec. 1-3, 2010 and Jan. 10, 12, and 14, 2011</i>

**Unless noted otherwise, discharge is permitted from ½ hour before sunrise to ½ hour after sunset.**



**ATTACHMENT B**

**MONMOUTH COUNTY PARK SYSTEM  
MAPS OF AREAS TO BE OPEN FOR DEER HUNTING**

[Note: Maps are for illustrative purposes only and are subject to change]



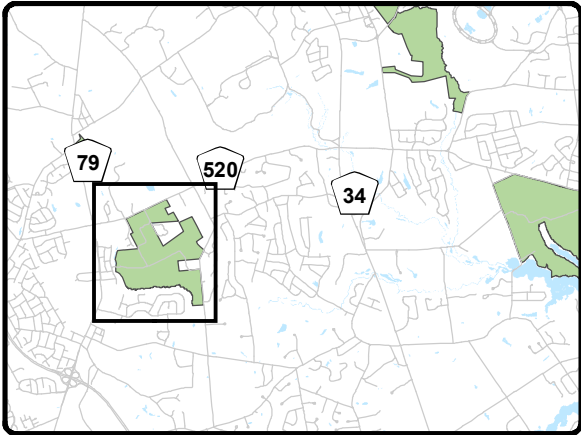


# Big Brook Park

Marlboro Township  
Category 1 - Bow Only

Monmouth County Park System  
Deer Hunting Area  
Hunting Access Permit Required

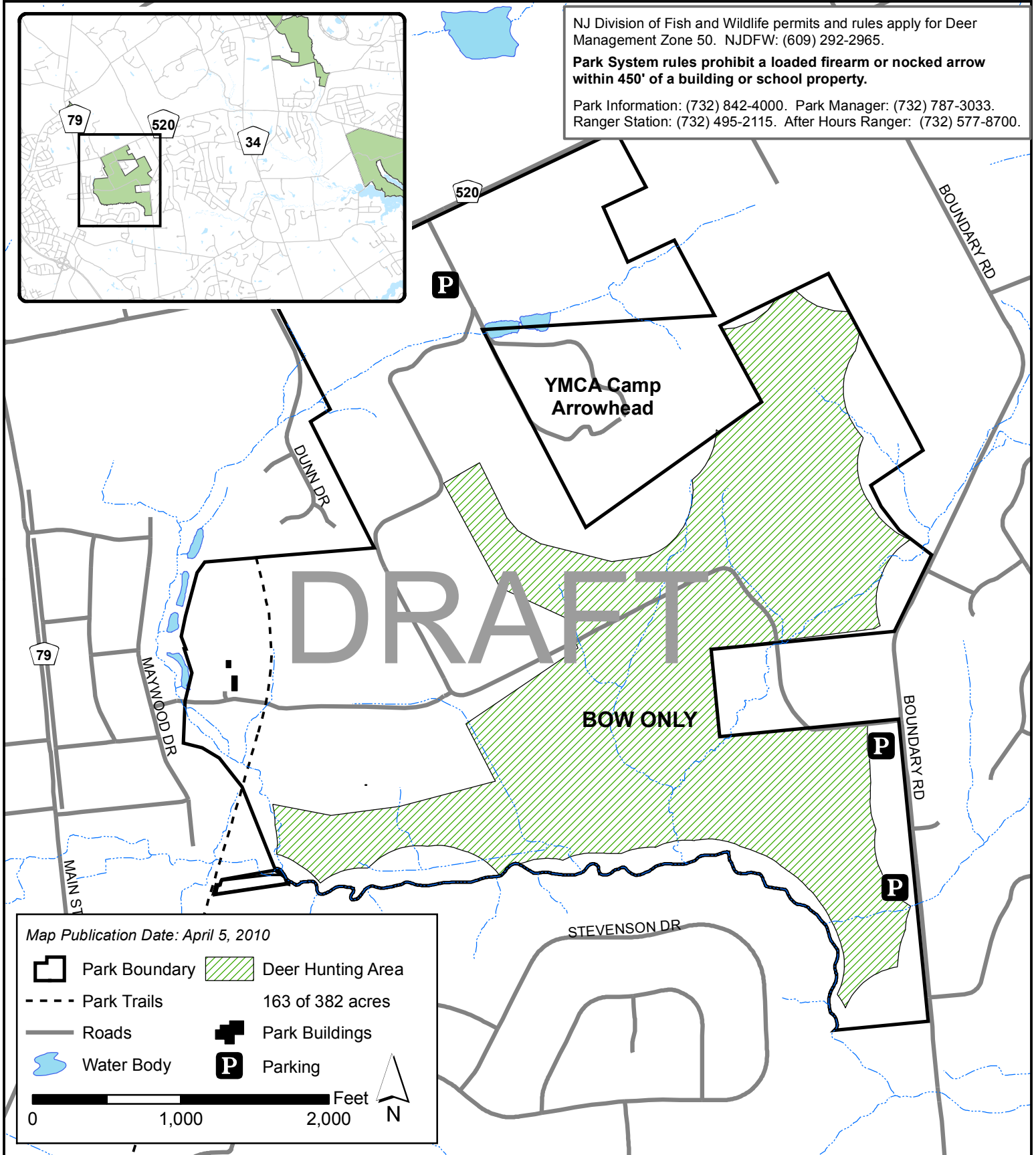
NJ Division of Fish and Wildlife  
Regulation Set #8, Zone 50  
October 2, 2010 - February 19, 2011



NJ Division of Fish and Wildlife permits and rules apply for Deer Management Zone 50. NJDFW: (609) 292-2965.

**Park System rules prohibit a loaded firearm or nocked arrow within 450' of a building or school property.**

Park Information: (732) 842-4000. Park Manager: (732) 787-3033.  
Ranger Station: (732) 495-2115. After Hours Ranger: (732) 577-8700.



Map Publication Date: April 5, 2010

- Park Boundary
- Deer Hunting Area
- Park Trails
- Roads
- Water Body
- Park Buildings
- Parking

163 of 382 acres

0 1,000 2,000 Feet



Note: Parking in designated lots ONLY. Trails will remain open.



# Charleston Springs Golf Course

Monmouth County Park System  
Deer Hunting Area  
Hunting Access Permit Required

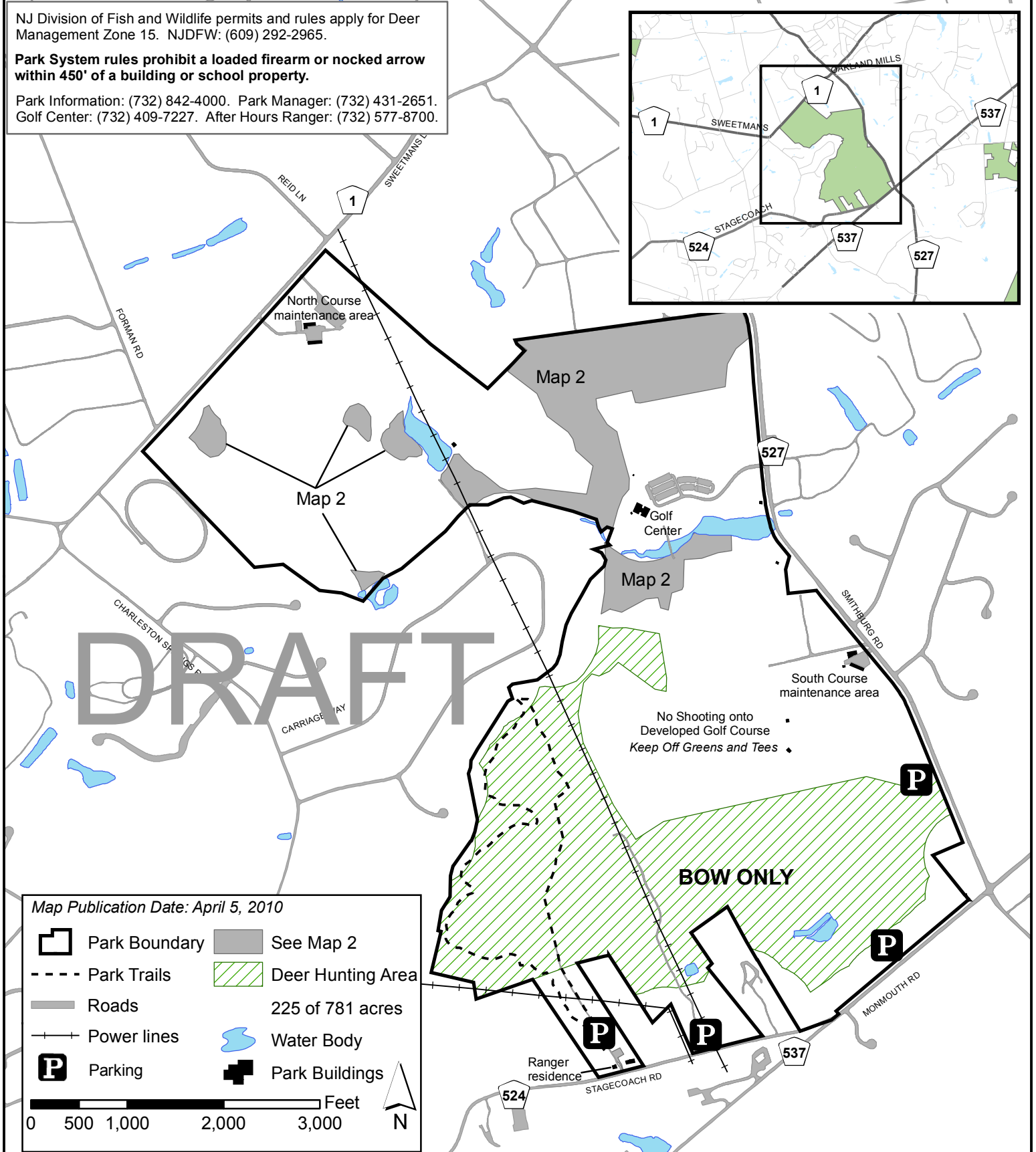
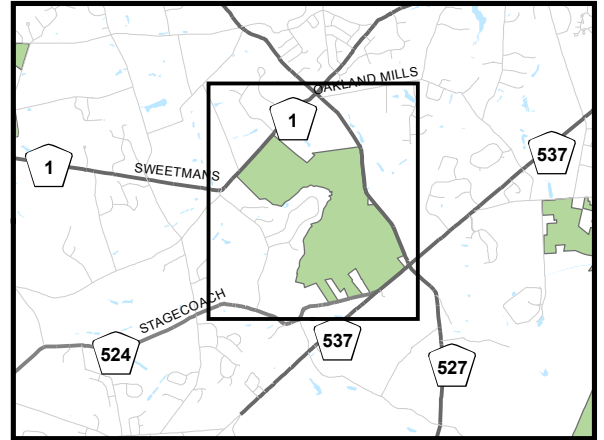
Millstone Township  
Category 1 - Bow Only

NJ Division of Fish and Wildlife  
Regulation Set #8, Zone 15  
October 2 - December 24, 2010  
See Map 2 for additional dates

NJ Division of Fish and Wildlife permits and rules apply for Deer Management Zone 15. NJDFW: (609) 292-2965.

**Park System rules prohibit a loaded firearm or nocked arrow within 450' of a building or school property.**

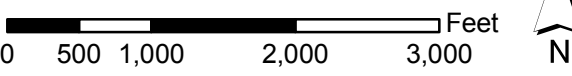
Park Information: (732) 842-4000. Park Manager: (732) 431-2651.  
Golf Center: (732) 409-7227. After Hours Ranger: (732) 577-8700.



**DRAFT**

Map Publication Date: April 5, 2010

- Park Boundary
- Park Trails
- Roads
- Power lines
- Parking
- See Map 2
- Deer Hunting Area
- 225 of 781 acres
- Water Body
- Park Buildings



Note: Parking in Designated Lots ONLY. Trails will remain open.



# Charleston Springs Golf Course

Monmouth County Park System  
Deer Hunting Area  
Hunting Access Permit Required

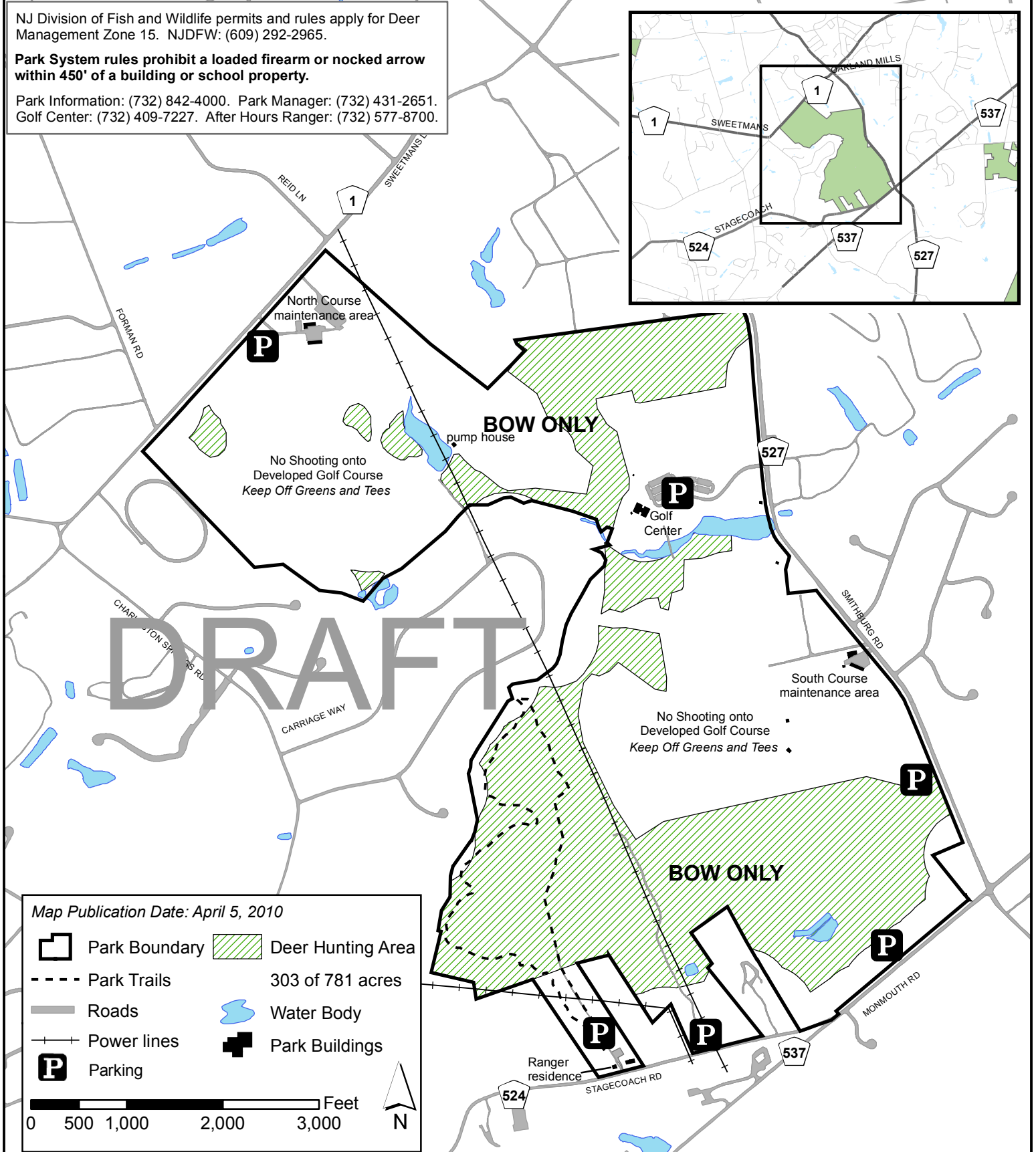
Millstone Township  
Category 1 - Bow Only

NJ Division of Fish and Wildlife  
Regulation Set #8, Zone 15  
December 27, 2010 - February 19, 2011  
See Map 1 for additional dates

NJ Division of Fish and Wildlife permits and rules apply for Deer Management Zone 15. NJDFW: (609) 292-2965.

**Park System rules prohibit a loaded firearm or nocked arrow within 450' of a building or school property.**

Park Information: (732) 842-4000. Park Manager: (732) 431-2651.  
Golf Center: (732) 409-7227. After Hours Ranger: (732) 577-8700.



Map Publication Date: April 5, 2010

- Park Boundary
- Deer Hunting Area
- Park Trails
- Ranger residence
- Roads
- Water Body
- Power lines
- Park Buildings
- Parking

303 of 781 acres

0 500 1,000 2,000 3,000 Feet



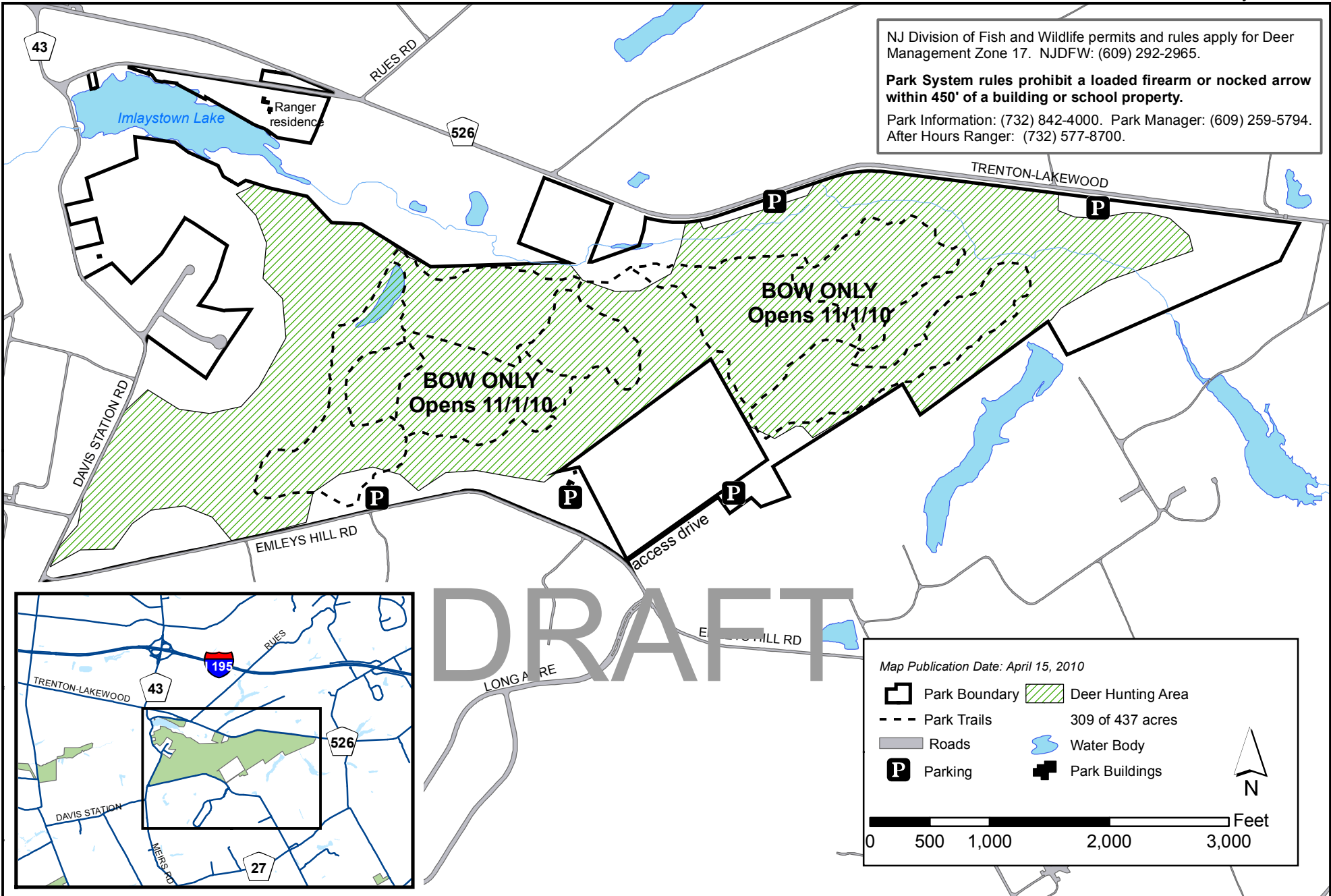
Note: Parking in Designated Lots ONLY. Trails will remain open.

Map 2 of 2



# Clayton Park

Upper Freehold Township  
Category 1 - Bow Only



NJ Division of Fish and Wildlife permits and rules apply for Deer Management Zone 17. NJDFW: (609) 292-2965.  
**Park System rules prohibit a loaded firearm or nocked arrow within 450' of a building or school property.**  
Park Information: (732) 842-4000. Park Manager: (609) 259-5794.  
After Hours Ranger: (732) 577-8700.

Note: Parking in designated parking lots only. Trails will remain open.

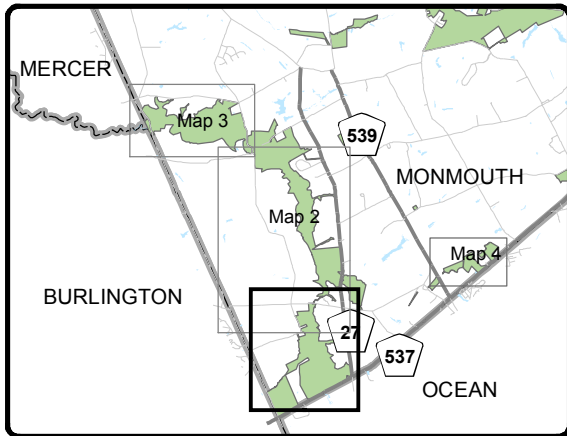


# Crosswicks Creek Greenway Upper Reach

Monmouth County Park System  
Deer Hunting Area  
Hunting Access Permit Required

Upper Freehold Township  
Category 1 - Bow Only

NJ Division of Fish and Wildlife  
Regulation Set #6, Zone 17  
October 2, 2010 - January 31, 2011

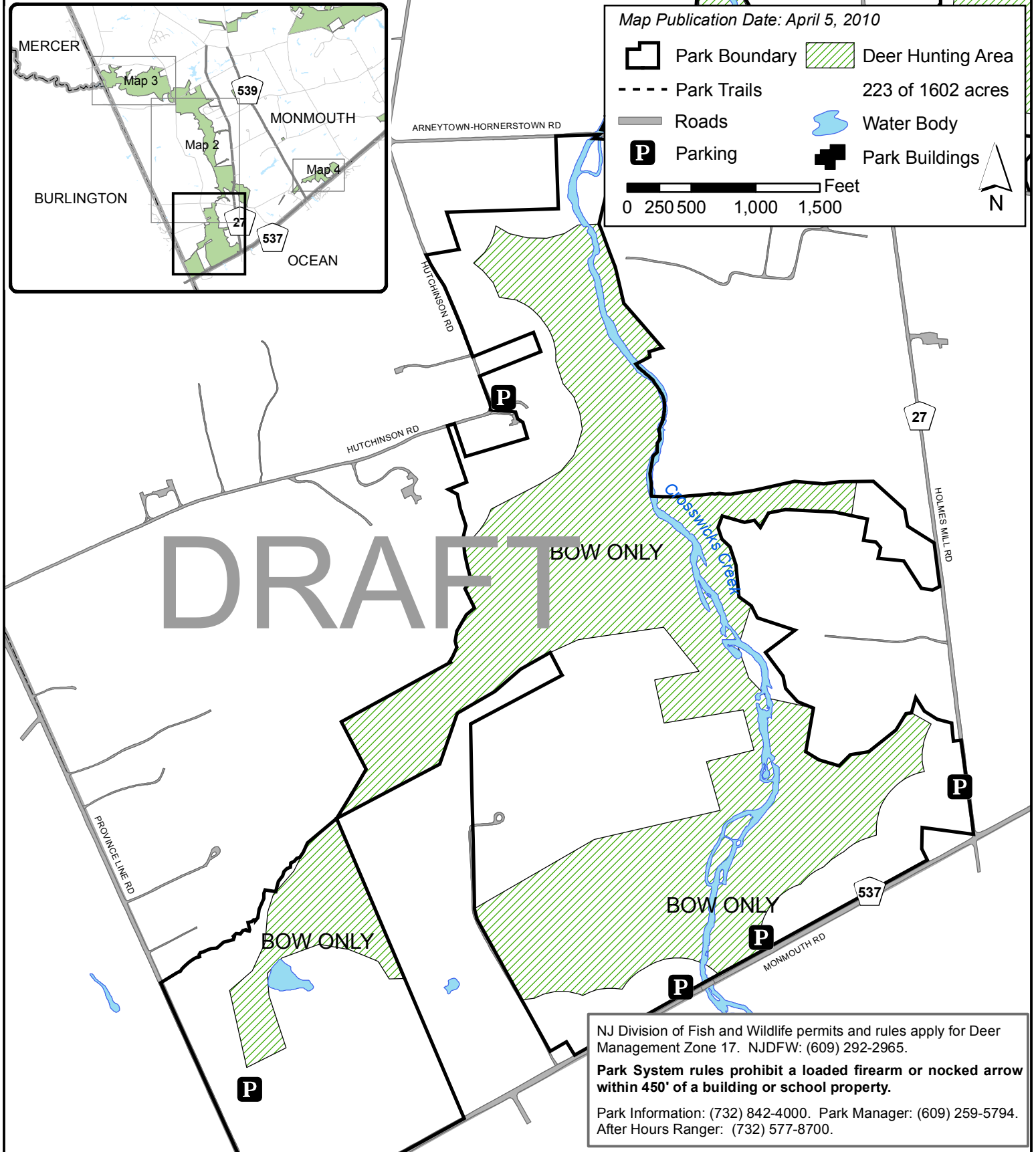


Map Publication Date: April 5, 2010

	Park Boundary		Deer Hunting Area
	Park Trails		223 of 1602 acres
	Roads		Water Body
	Parking		Park Buildings

0 250 500 1,000 1,500 Feet

N



NJ Division of Fish and Wildlife permits and rules apply for Deer Management Zone 17. NJDFW: (609) 292-2965.

**Park System rules prohibit a loaded firearm or nocked arrow within 450' of a building or school property.**

Park Information: (732) 842-4000. Park Manager: (609) 259-5794.  
After Hours Ranger: (732) 577-8700.

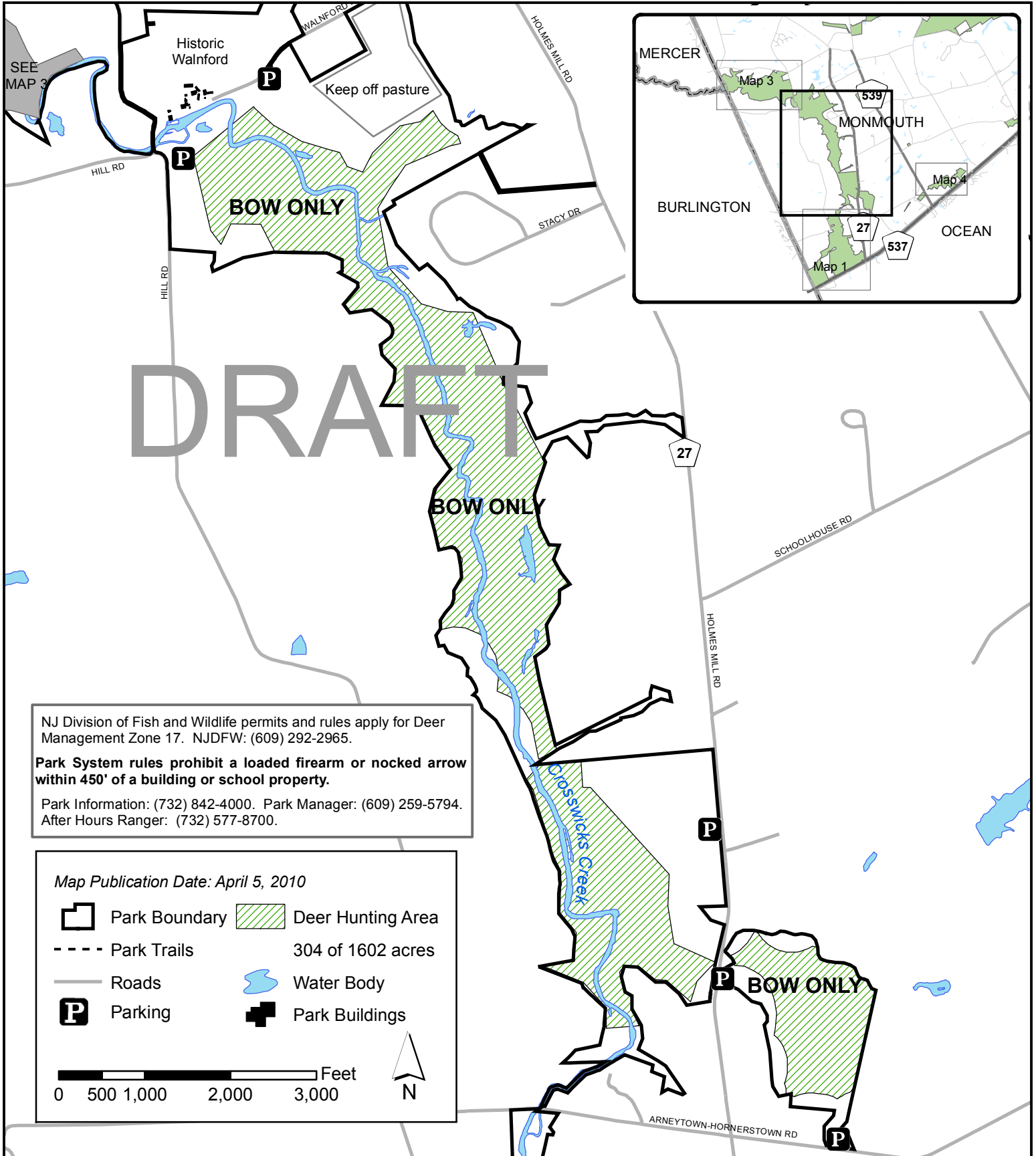


# Crosswicks Creek Greenway Middle Reach

Monmouth County Park System  
Deer Hunting Area  
Hunting Access Permit Required

Upper Freehold Township  
Category 1 - Bow Only

NJ Division of Fish and Wildlife  
Regulation Set #6, Zone 17  
October 2, 2010 - January 31, 2011





# Crosswicks Creek Greenway

## Lower Reach Upper Freehold Township Category 1 - Bow Only

NJ Division of Fish and Wildlife  
Regulation Set #6, Zone 17  
October 2, 2010 - January 31, 2011

Monmouth County Park System  
Deer Hunting Area  
Hunting Access Permit Required

NJ Division of Fish and Wildlife permits and rules apply for Deer Management Zone 17. NJDFW: (609) 292-2965.  
**Park System rules prohibit a loaded firearm or nocked arrow within 450' of a building or school property.**  
Park Information: (732) 842-4000. Park Manager: (609) 259-5794. After Hours Ranger: (732) 577-8700.

Map Publication Date: April 5, 2010

- Park Boundary
- Deer Hunting Area
- Park Trails
- Roads
- Parking
- Water Body
- Park Buildings

195 of 1602 acres

0 500 1,000 2,000 3,000 Feet



# DRAFT

BOW ONLY

Crosswicks Creek

POLHEMUSTOWN RD

WALNFORD RD

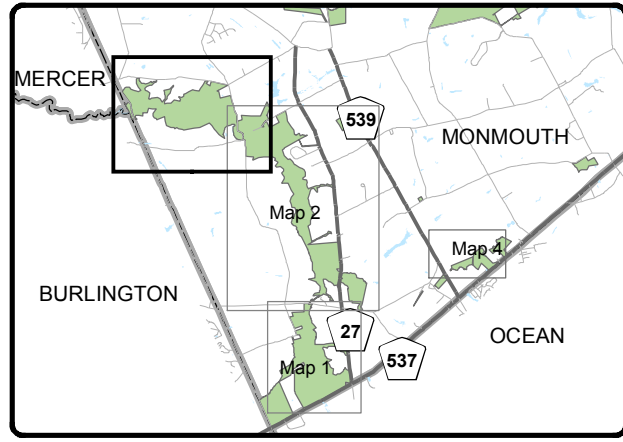
Ranger residence  
Ranger station

Historic Wainford

WALNFORD RD

HILL RD

SEE MAP 2





# Crosswicks Creek Greenway

## Lahaway Creek Tract

Upper Freehold Township  
Category 1 - Bow Only

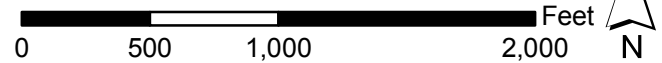
Monmouth County Park System  
Deer Hunting Area  
Hunting Access Permit Required

NJ Division of Fish and Wildlife  
Regulation Set #6, Zone 17  
October 2, 2010 - January 31, 2011

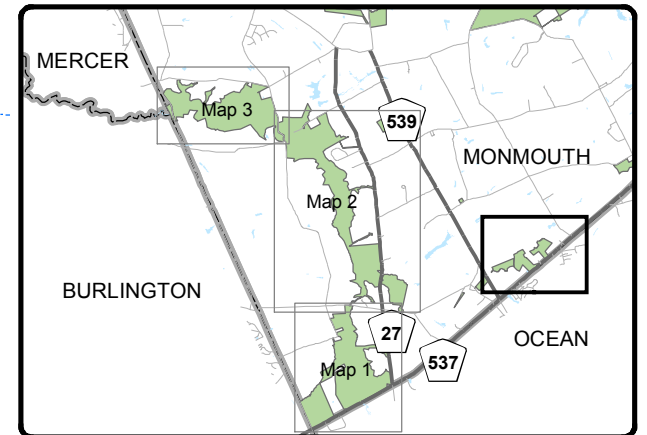
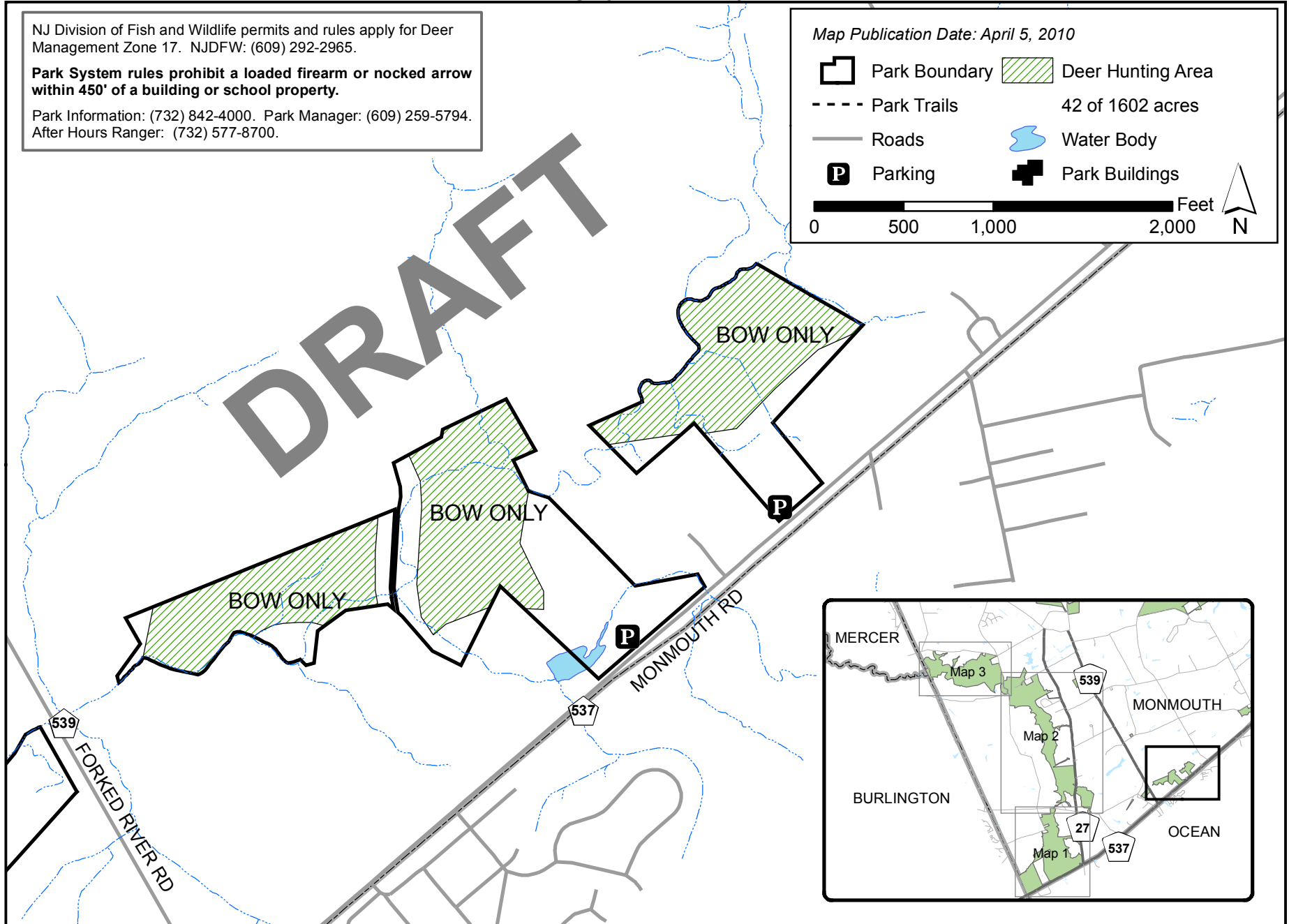
NJ Division of Fish and Wildlife permits and rules apply for Deer Management Zone 17. NJDFW: (609) 292-2965.  
**Park System rules prohibit a loaded firearm or nocked arrow within 450' of a building or school property.**  
Park Information: (732) 842-4000. Park Manager: (609) 259-5794. After Hours Ranger: (732) 577-8700.

Map Publication Date: April 5, 2010

- Park Boundary
- Deer Hunting Area
- Park Trails 42 of 1602 acres
- Roads
- Water Body
- Parking
- Park Buildings



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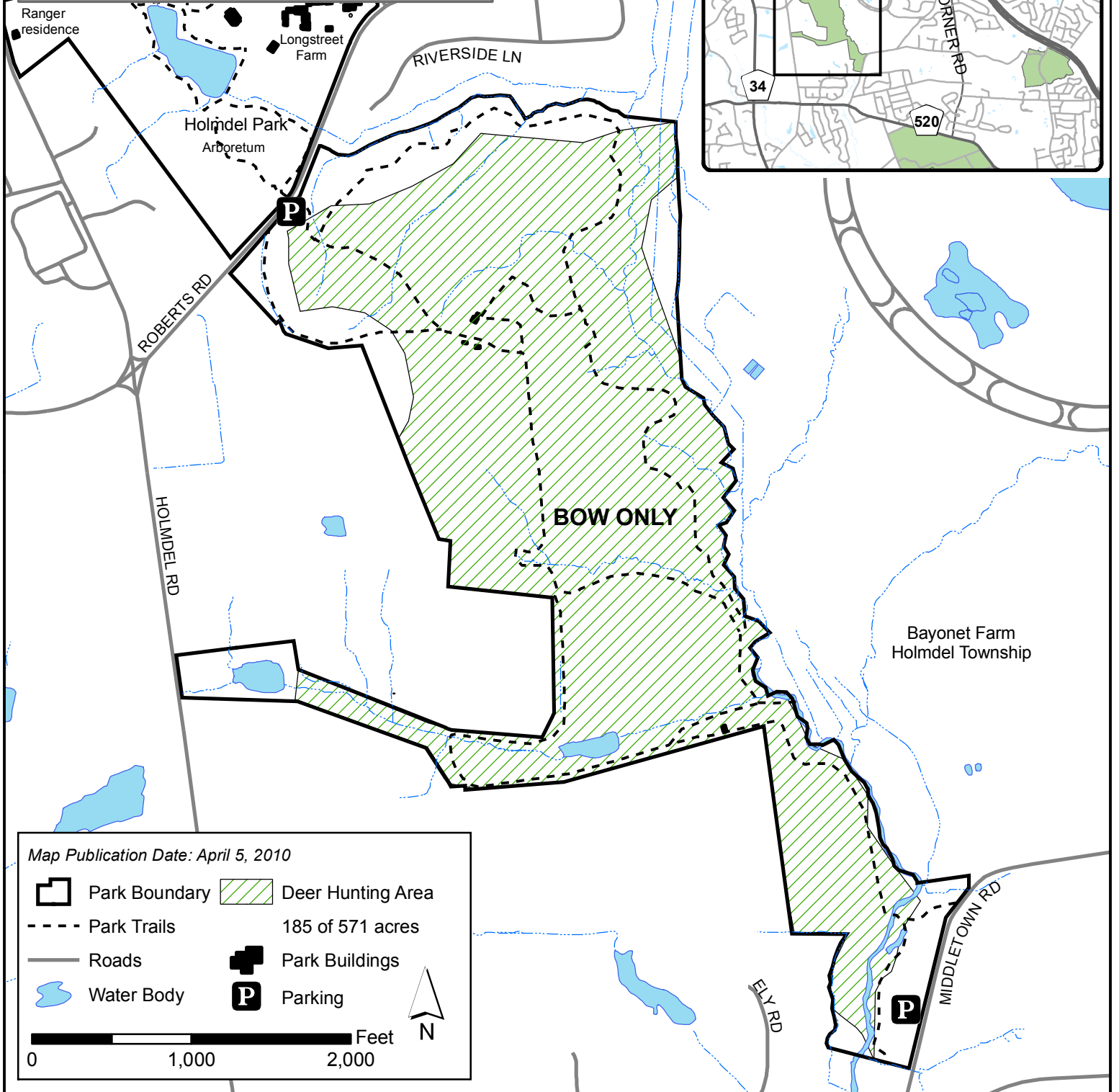
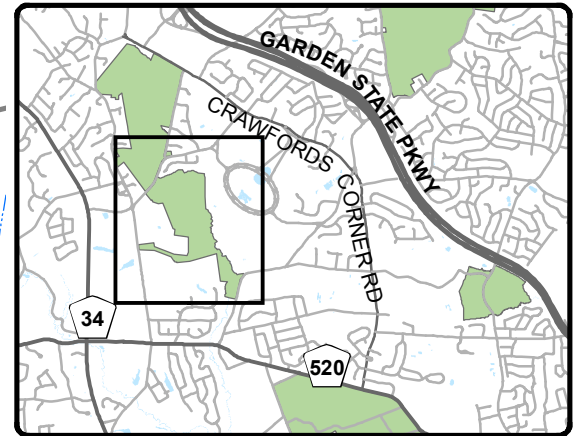
# Holmdel Park Ramanessin Section

Monmouth County Park System  
Deer Hunting Area  
Hunting Access Permit Required

Holmdel Township  
Category 1 - Bow Only

NJ Division of Fish and Wildlife  
Regulation Set #8, Zone 50  
October 2, 2010 - February 19, 2011

NJ Division of Fish and Wildlife permits and rules apply for Deer Management Zone 50. NJDFW: (609) 292-2965.  
**Park System rules prohibit a loaded firearm or nocked arrow within 450' of a building or school property.**  
Park Information: (732) 842-4000. Park Manager: (732) 946-9562.  
After Hours Ranger: (732) 577-8700.



Map Publication Date: April 5, 2010

- Park Boundary
- Deer Hunting Area
- Park Trails
- Park Buildings
- Roads
- Parking
- Water Body

185 of 571 acres

0 1,000 2,000 Feet



Note: Parking in designated lots only. Trails will remain open.



# Howell Park Golf Course

Howell Township  
Category 1 - Bow Only

NJ Division of Fish and Wildlife  
Regulation Set #4, Zone 16  
October 2, 2010 - December 24, 2010  
See Map 2 for additional dates

Monmouth County Park System  
Deer Hunting Area  
Hunting Access Permit Required

NJ Division of Fish and Wildlife permits and rules apply for Deer Management Zone 16. NJDFW: (609) 292-2965.

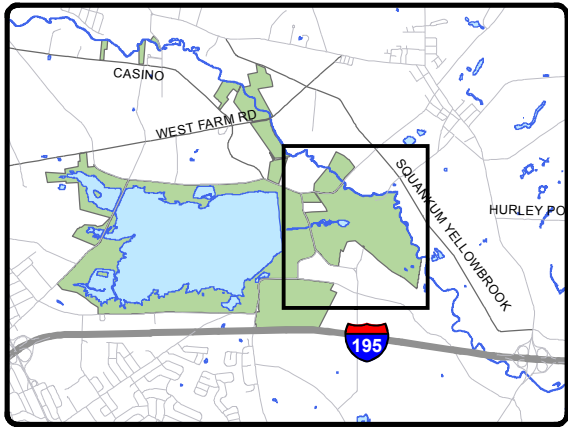
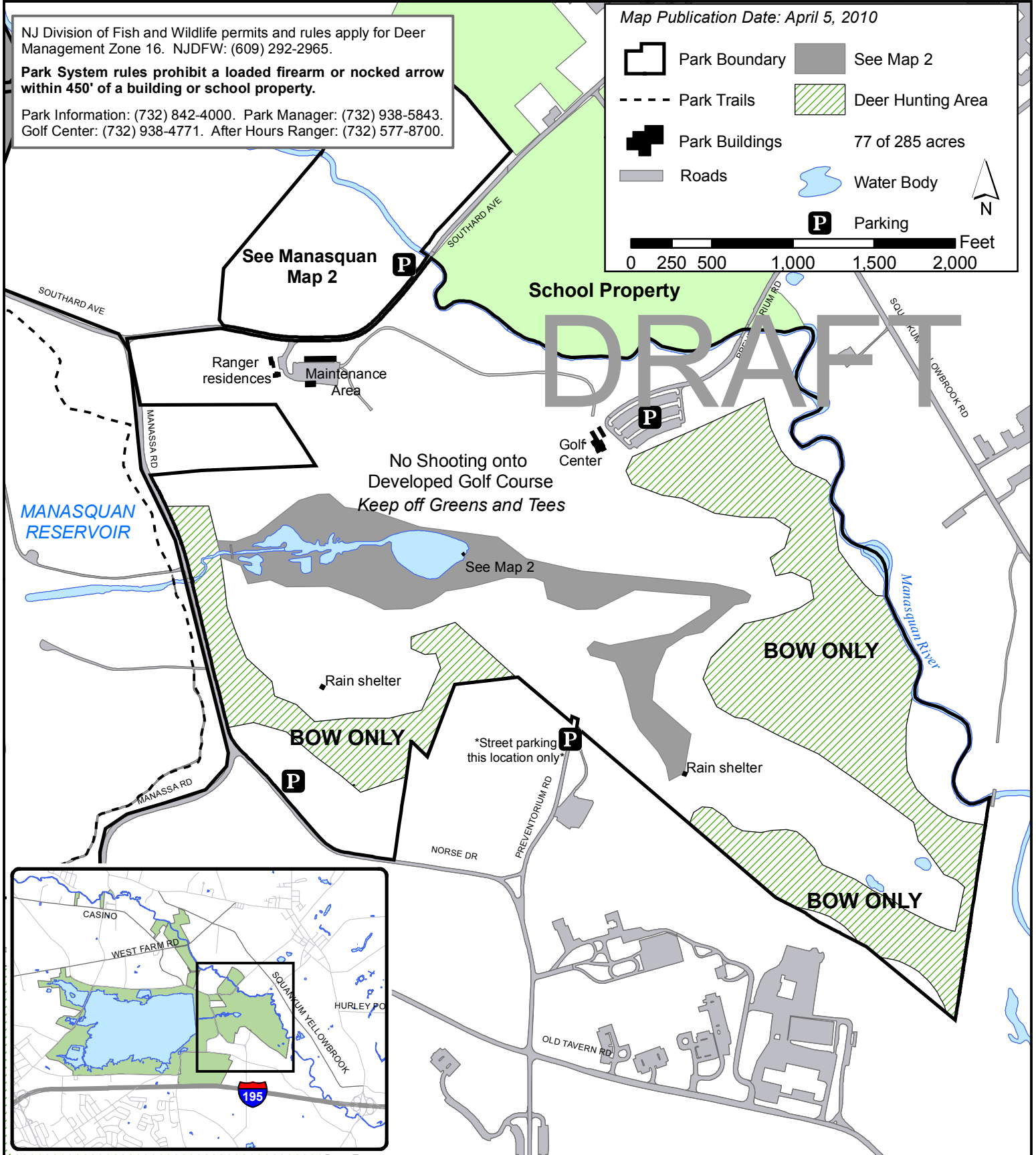
**Park System rules prohibit a loaded firearm or nocked arrow within 450' of a building or school property.**

Park Information: (732) 842-4000. Park Manager: (732) 938-5843. Golf Center: (732) 938-4771. After Hours Ranger: (732) 577-8700.

Map Publication Date: April 5, 2010

	Park Boundary		See Map 2
	Park Trails		Deer Hunting Area
	Park Buildings		77 of 285 acres
	Roads		Water Body
	Parking		N

0 250 500 1,000 1,500 2,000 Feet



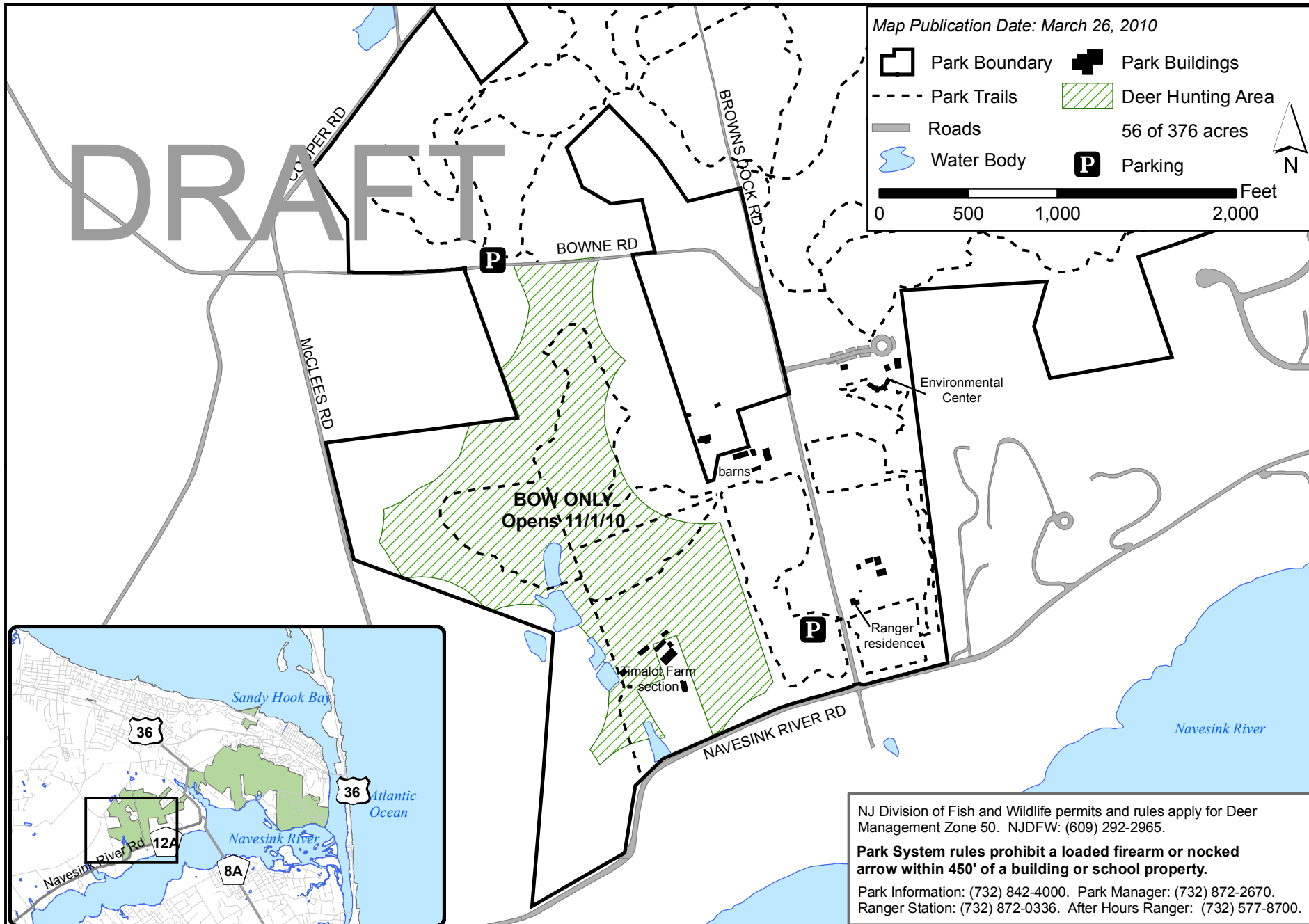
Note: Parking in designated lots only.





# Huber Woods Park

Middletown Township  
 Category 1 - Bow Only



Note: Parking in designated lots only. Trails will remain open.

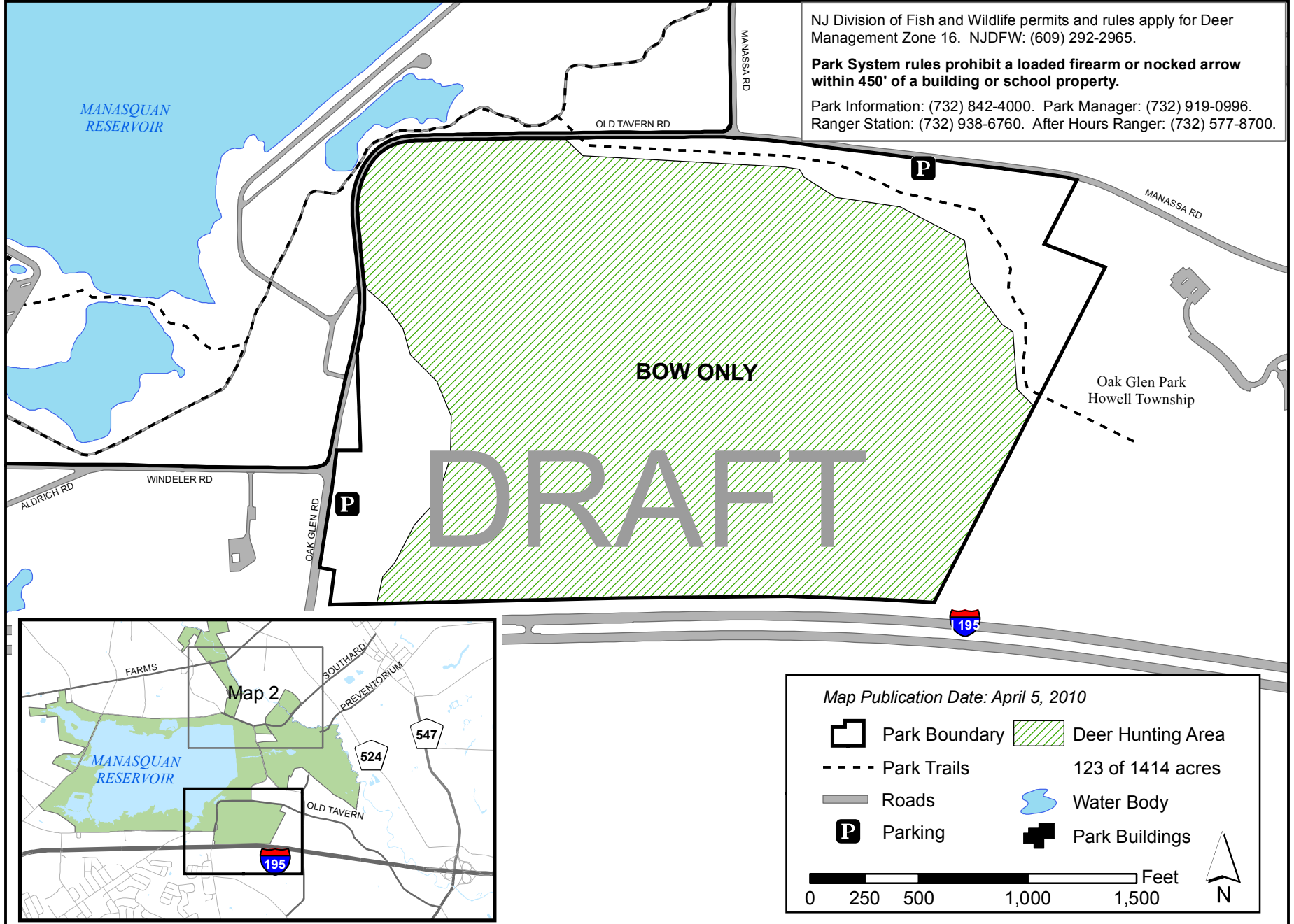


# Manasquan Reservoir Bear Swamp Tract

Howell Township  
Category 1 - Bow Only

Monmouth County Park System  
Deer Hunting Area  
Hunting Access Permit Required

NJ Division of Fish and Wildlife  
Regulation Set #4, Zone 16  
October 2, 2010 to January 31, 2011



NJ Division of Fish and Wildlife permits and rules apply for Deer Management Zone 16. NJDFW: (609) 292-2965.

**Park System rules prohibit a loaded firearm or nocked arrow within 450' of a building or school property.**

Park Information: (732) 842-4000. Park Manager: (732) 919-0996.  
Ranger Station: (732) 938-6760. After Hours Ranger: (732) 577-8700.

Note: Parking in Designated Lots Only. Trails will remain open.



# Manasquan Reservoir

## North Tract

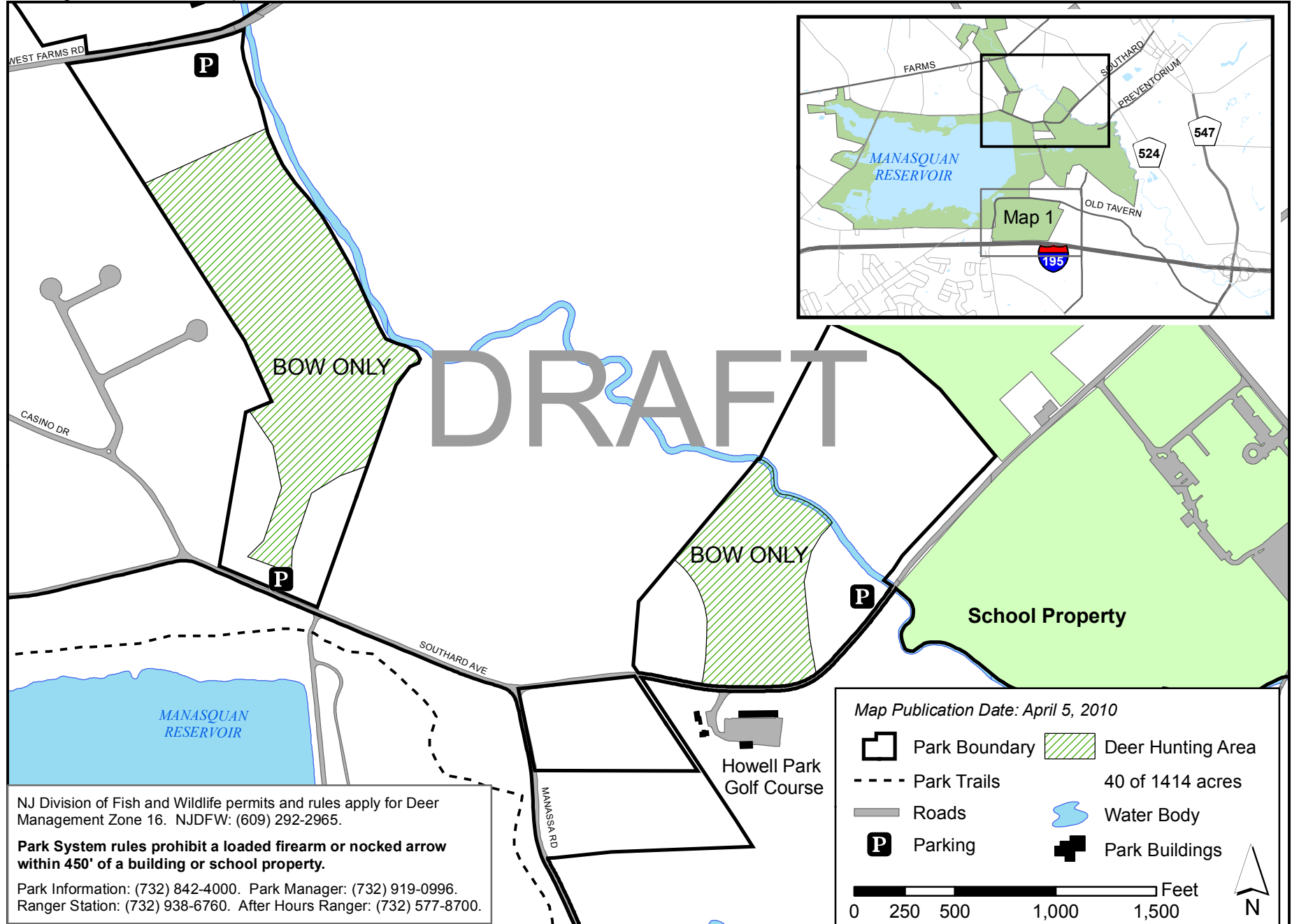
Howell Township

Category 1 - Bow Only

NJ Division of Fish and Wildlife  
Regulation Set #4, Zone 16

October 2, 2010 to January 31, 2011

Monmouth County Park System  
Deer Hunting Area  
Hunting Access Permit Required



NJ Division of Fish and Wildlife permits and rules apply for Deer Management Zone 16. NJDFW: (609) 292-2965.

**Park System rules prohibit a loaded firearm or nocked arrow within 450' of a building or school property.**

Park Information: (732) 842-4000. Park Manager: (732) 919-0996.  
Ranger Station: (732) 938-6760. After Hours Ranger: (732) 577-8700.

Note: Parking in Designated Lots Only. Trails will remain open.

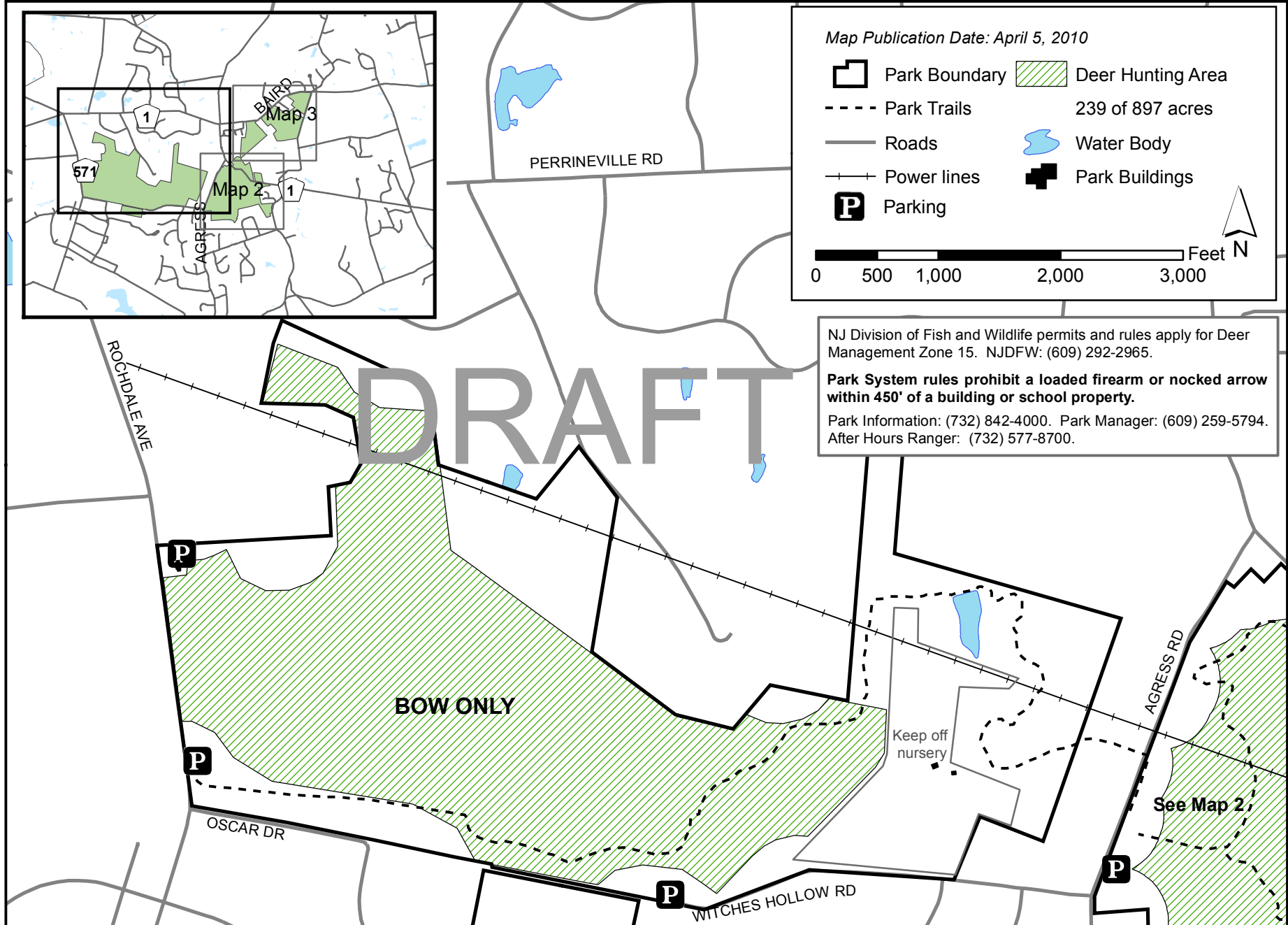


# Perrineville Lake Park Rochdale Ave Section

Roosevelt & Millstone Township  
Category 1 - Bow Only

Monmouth County Park System  
Deer Hunting Area  
Hunting Access Permit Required

NJ Division of Fish and Wildlife  
Regulation Set #8, Zone 15  
October 2, 2010 - February 19, 2011



NJ Division of Fish and Wildlife permits and rules apply for Deer Management Zone 15. NJDFW: (609) 292-2965.  
**Park System rules prohibit a loaded firearm or nocked arrow within 450' of a building or school property.**  
 Park Information: (732) 842-4000. Park Manager: (609) 259-5794.  
 After Hours Ranger: (732) 577-8700.

Note: Parking in designated lots only. Trails will remain open.



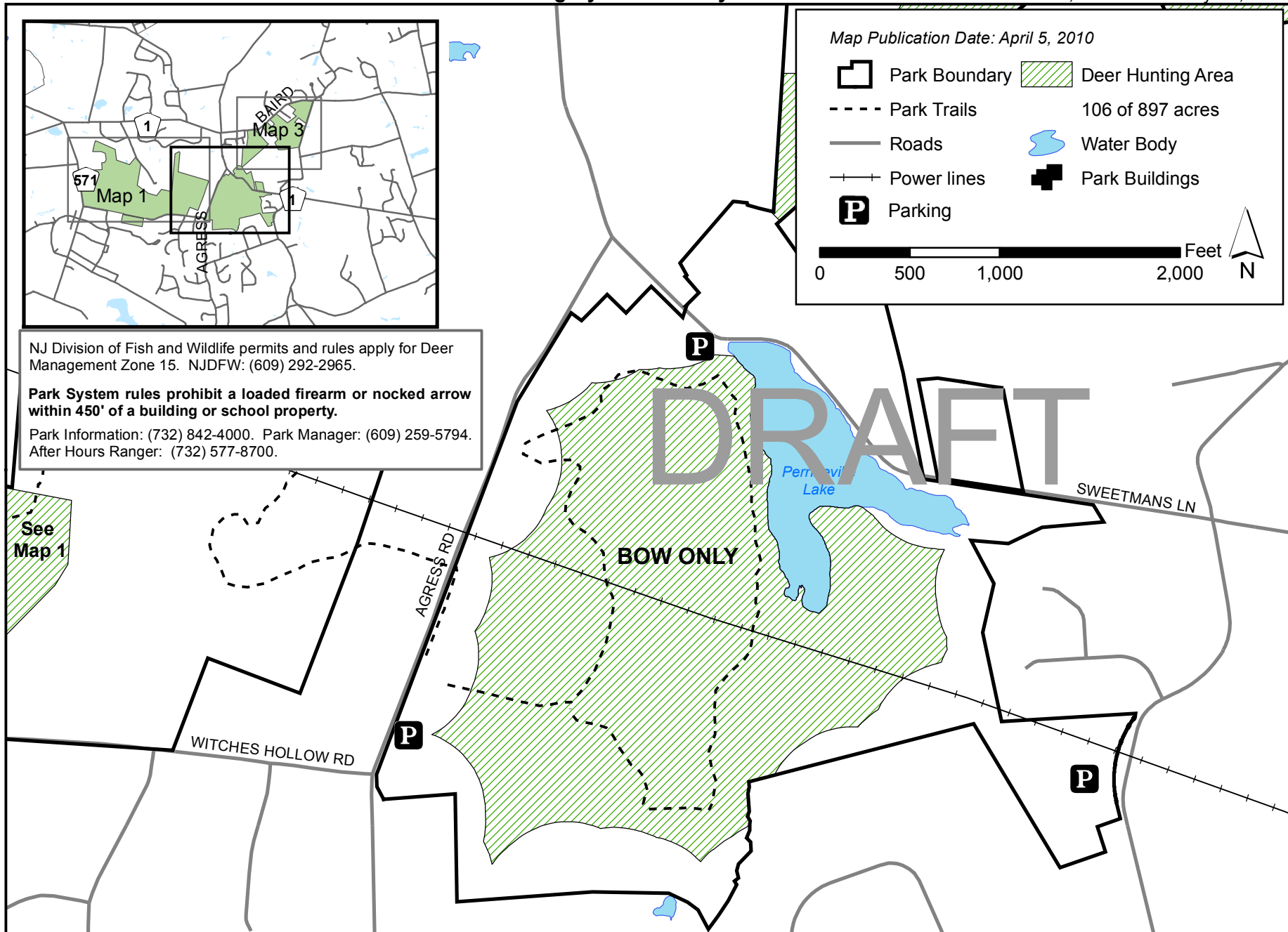
# Perrineville Lake Park

## Agress Road Section

Millstone Township  
Category 1 - Bow Only

Monmouth County Park System  
Deer Hunting Area  
Hunting Access Permit Required

NJ Division of Fish and Wildlife  
Regulation Set #8, Zone 15  
October 2, 2010 - February 19, 2011



NJ Division of Fish and Wildlife permits and rules apply for Deer Management Zone 15. NJDFW: (609) 292-2965.

**Park System rules prohibit a loaded firearm or nocked arrow within 450' of a building or school property.**

Park Information: (732) 842-4000. Park Manager: (609) 259-5794. After Hours Ranger: (732) 577-8700.

See Map 1

Note: Parking in designated lots only. Trails will remain open.

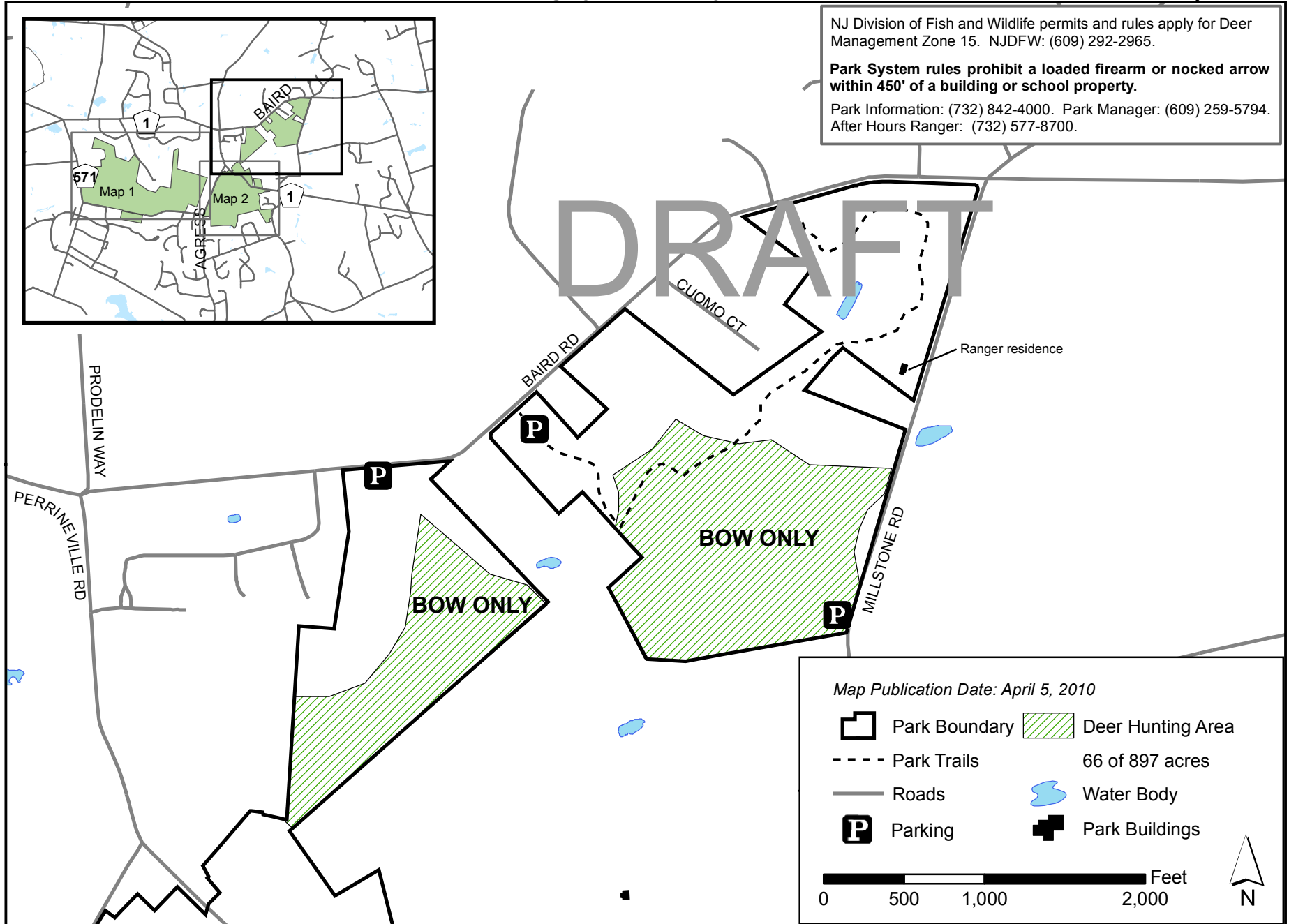


# Perrineville Lake Park Baird Road Section Millstone Township Category 1 - Bow Only

NJ Division of Fish and Wildlife permits and rules apply for Deer Management Zone 15. NJDFW: (609) 292-2965.

**Park System rules prohibit a loaded firearm or nocked arrow within 450' of a building or school property.**

Park Information: (732) 842-4000. Park Manager: (609) 259-5794.  
After Hours Ranger: (732) 577-8700.



Note: Parking in designated lots only. Trails will remain open.



# Shark River Park

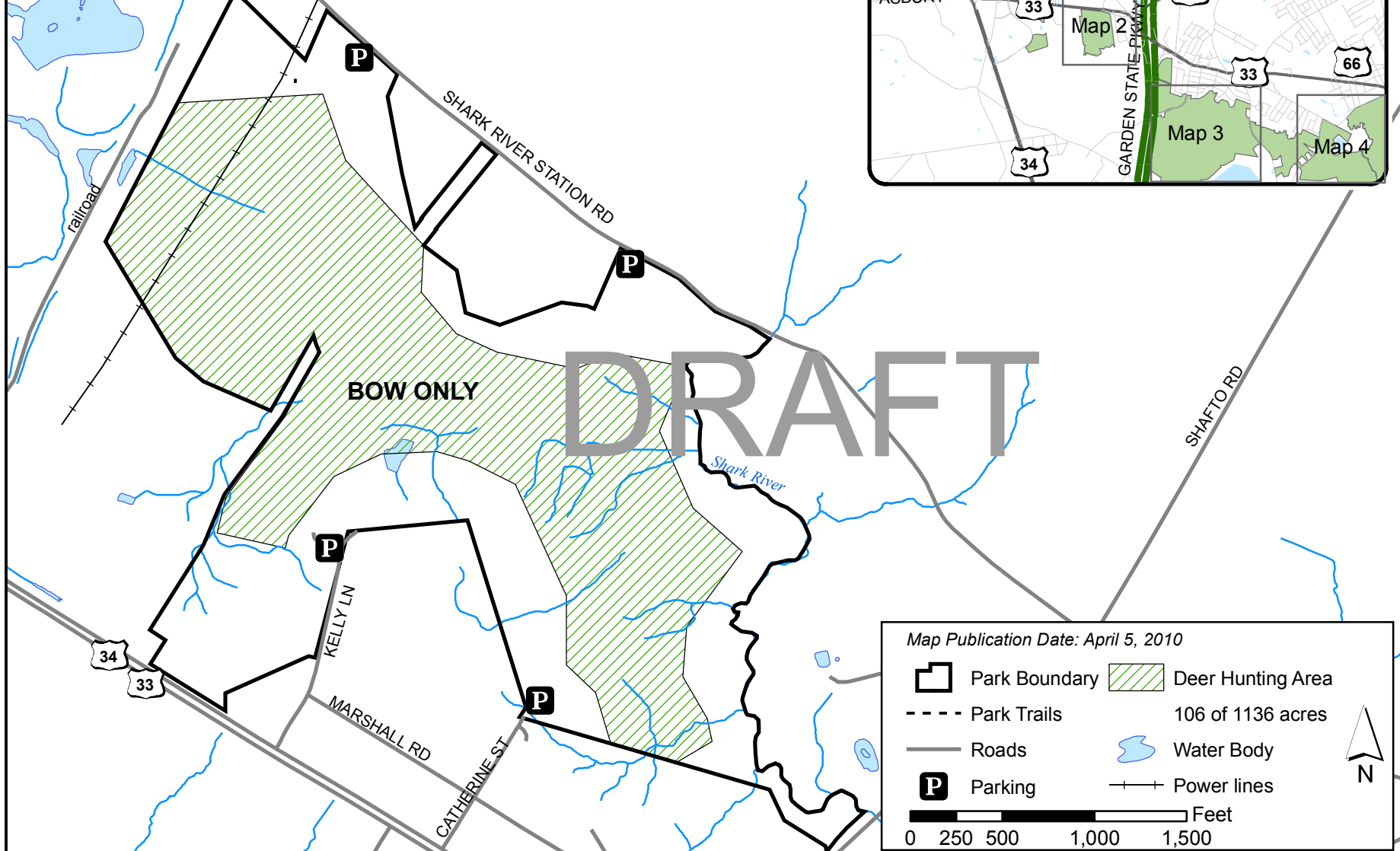
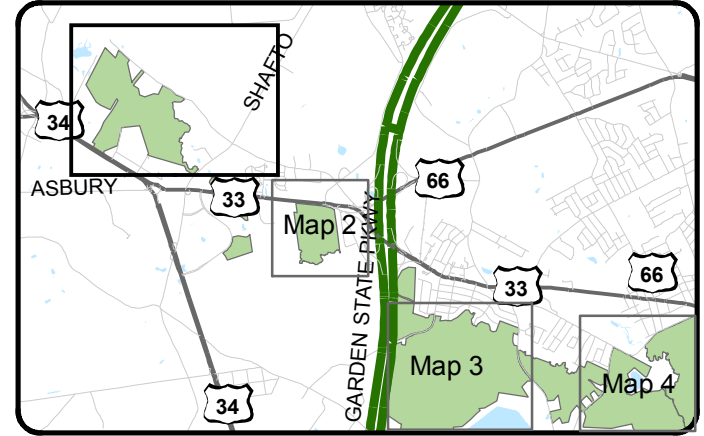
## Shark River Station Tract

Wall Township  
Category 1 - Bow Only

Monmouth County Park System  
Deer Hunting Area  
Hunting Access Permit Required

NJ Division of Fish and Wildlife  
Regulation Set #8, Zone 51  
October 2, 2010 to February 19, 2011

NJ Division of Fish and Wildlife permits and rules apply for Deer Management Zone 51. NJDFW: (609) 292-2965.  
**Park System rules prohibit a loaded firearm or nocked arrow within 450' of a building or school property.**  
Park Information: (732) 842-4000. Park Manager: (732) 919-7544.  
Ranger Station: (732) 922-4080. After Hours Ranger: (732) 577-8700.



Map Publication Date: April 5, 2010

	Park Boundary		Deer Hunting Area
	Park Trails		106 of 1136 acres
	Roads		Water Body
	Parking		Power lines

0 250 500 1,000 1,500 Feet

Note: Parking in designated lots only.



# Shark River Park

## Rt. 33 Tract

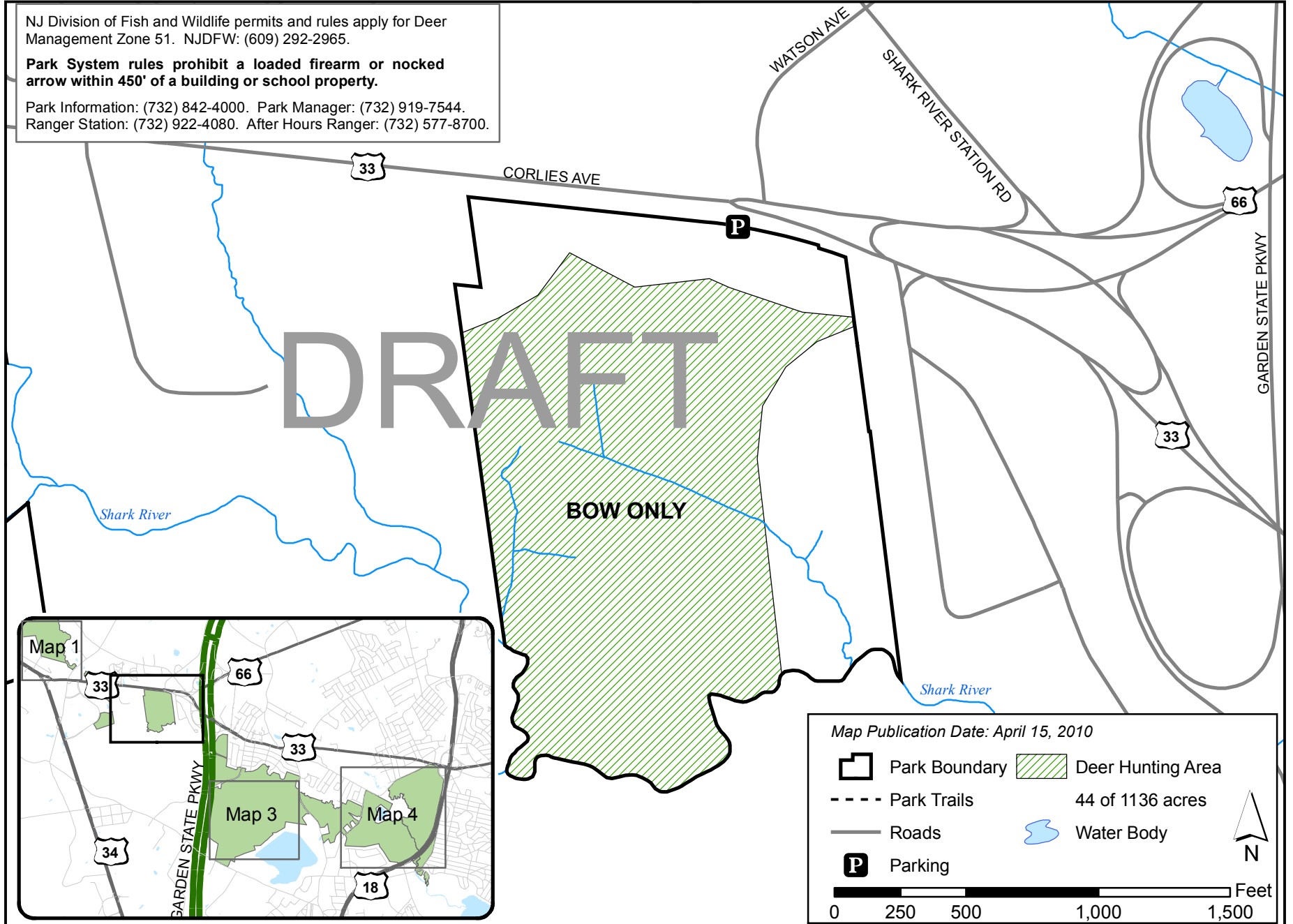
### Borough of Tinton Falls

#### Category 1 - Bow Only

Monmouth County Park System  
Deer Hunting Area  
Hunting Access Permit Required

NJ Division of Fish and Wildlife  
Regulation Set #8, Zone 51  
October 2, 2010 to February 19, 2011

NJ Division of Fish and Wildlife permits and rules apply for Deer Management Zone 51. NJDFW: (609) 292-2965.  
**Park System rules prohibit a loaded firearm or nocked arrow within 450' of a building or school property.**  
Park Information: (732) 842-4000. Park Manager: (732) 919-7544.  
Ranger Station: (732) 922-4080. After Hours Ranger: (732) 577-8700.



DRAFT

BOW ONLY

Map Publication Date: April 15, 2010

	Park Boundary		Deer Hunting Area
	Park Trails		44 of 1136 acres
	Roads		Water Body
	Parking		

0 250 500 1,000 1,500 Feet

Note: Parking in designated lots only.

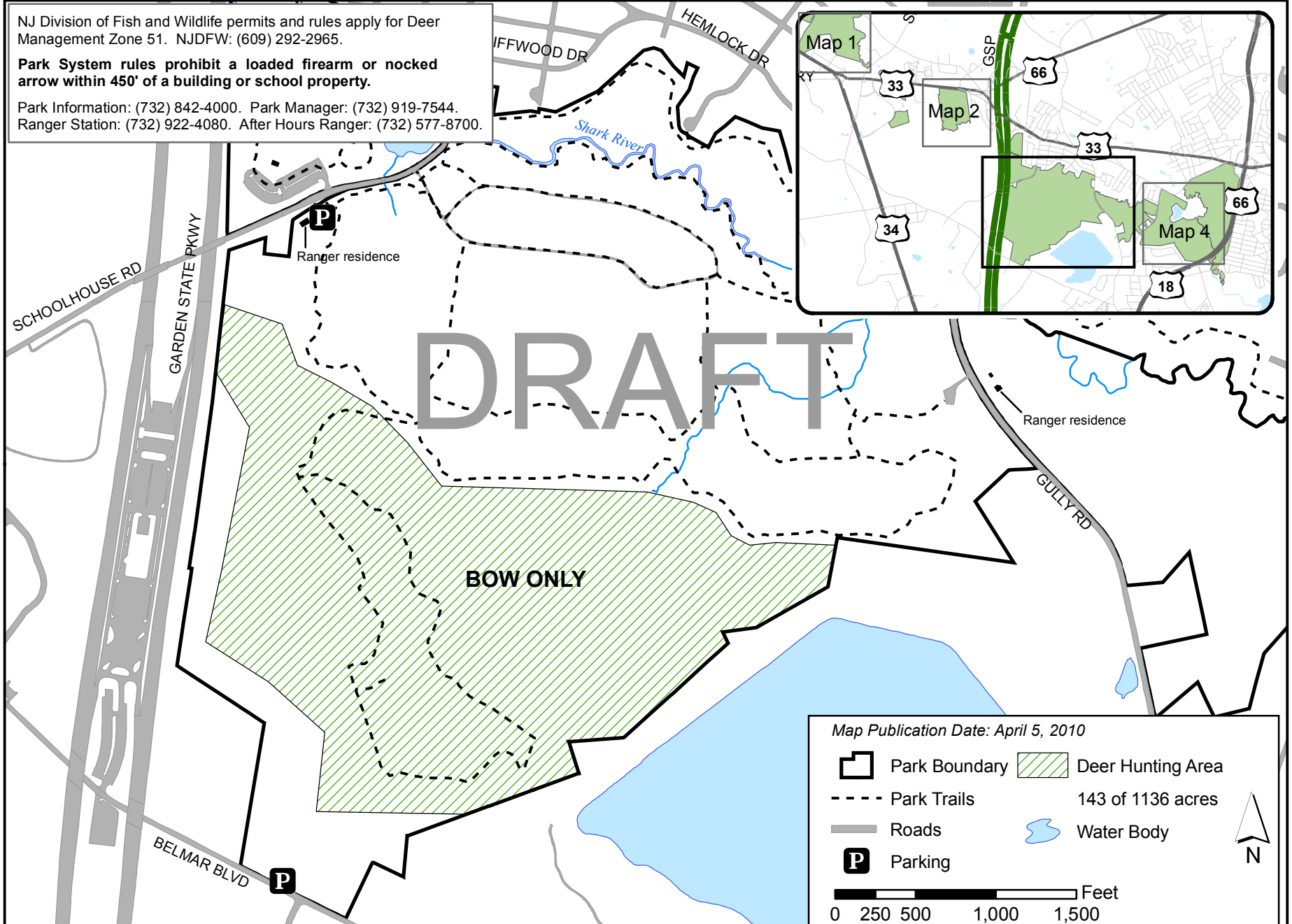


# Shark River Park Belmar Blvd. Tract Wall Township Category 1 - Bow Only

Monmouth County Park System  
Deer Hunting Area  
Hunting Access Permit Required

NJ Division of Fish and Wildlife  
Regulation Set #8, Zone 51  
October 2, 2010 to February 19, 2011

NJ Division of Fish and Wildlife permits and rules apply for Deer Management Zone 51. NJDFW: (609) 292-2965.  
**Park System rules prohibit a loaded firearm or nocked arrow within 450' of a building or school property.**  
Park Information: (732) 842-4000. Park Manager: (732) 919-7544.  
Ranger Station: (732) 922-4080. After Hours Ranger: (732) 577-8700.



Map Publication Date: April 5, 2010

	Park Boundary		Deer Hunting Area
	Park Trails		143 of 1136 acres
	Roads		Water Body
	Parking		

0 250 500 1,000 1,500 Feet

N

Note: Parking in designated lots only. Trails will remain open.



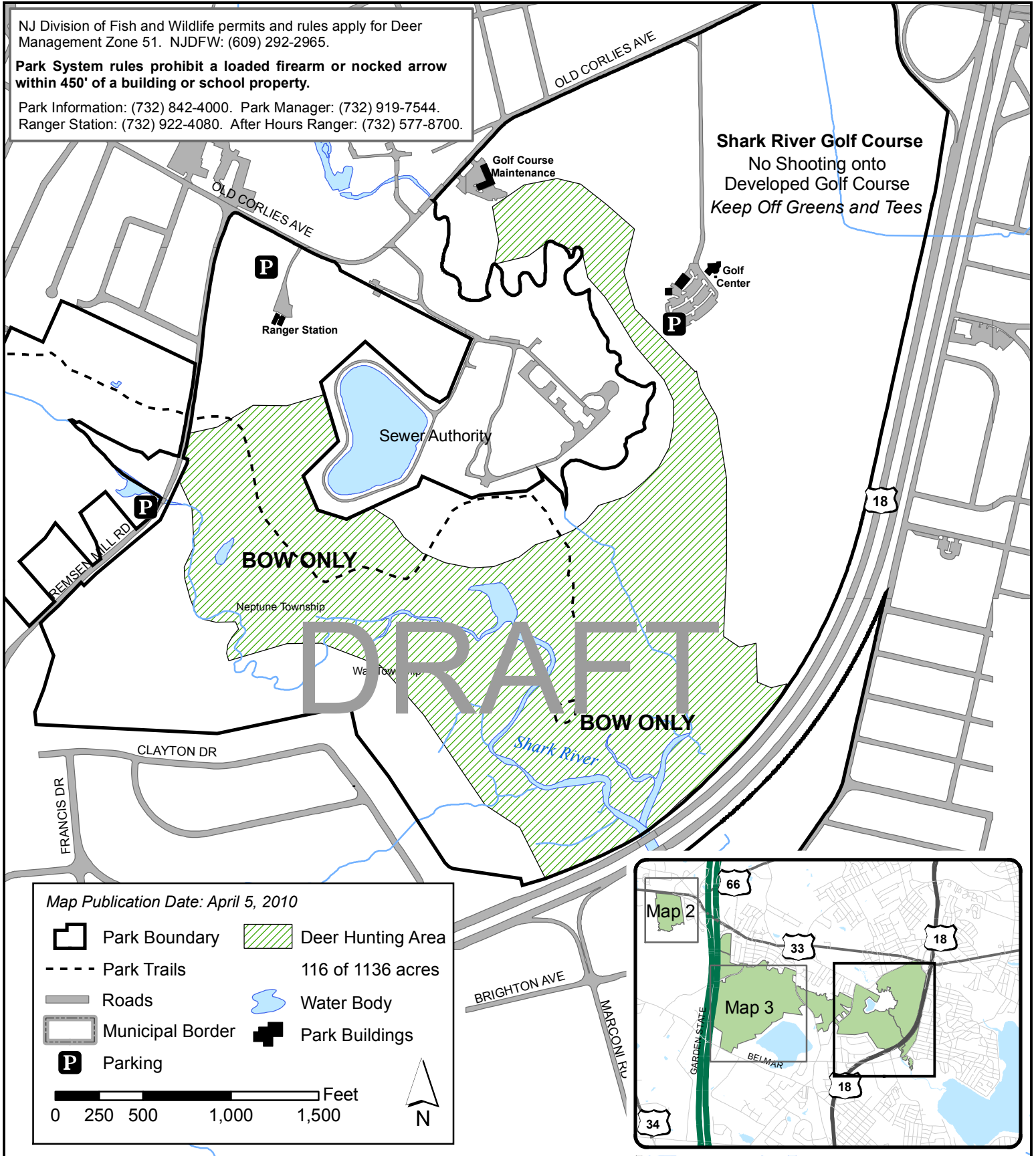
# Shark River Park East of Remsen Mill Road

Neptune and Wall Townships  
Category 1 - Bow Only

NJ Division of Fish and Wildlife  
Regulation Set #8, Zone 51  
October 2, 2010 - February 19, 2011

Monmouth County Park System  
Deer Hunting Area  
Hunting Access Permit Required

NJ Division of Fish and Wildlife permits and rules apply for Deer Management Zone 51. NJDFW: (609) 292-2965.  
**Park System rules prohibit a loaded firearm or nocked arrow within 450' of a building or school property.**  
Park Information: (732) 842-4000. Park Manager: (732) 919-7544.  
Ranger Station: (732) 922-4080. After Hours Ranger: (732) 577-8700.

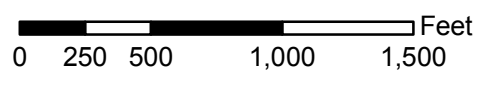


**Shark River Golf Course**  
No Shooting onto  
Developed Golf Course  
Keep Off Greens and Tees

**DRAFT**

Map Publication Date: April 5, 2010

- Park Boundary
- Deer Hunting Area
- Park Trails
- Roads
- Municipal Border
- Parking
- Water Body
- Park Buildings



Note: Parking in designated lots only. Trails will remain open.



# Tatum Park

Middletown Township  
Category 1 - Bow Only

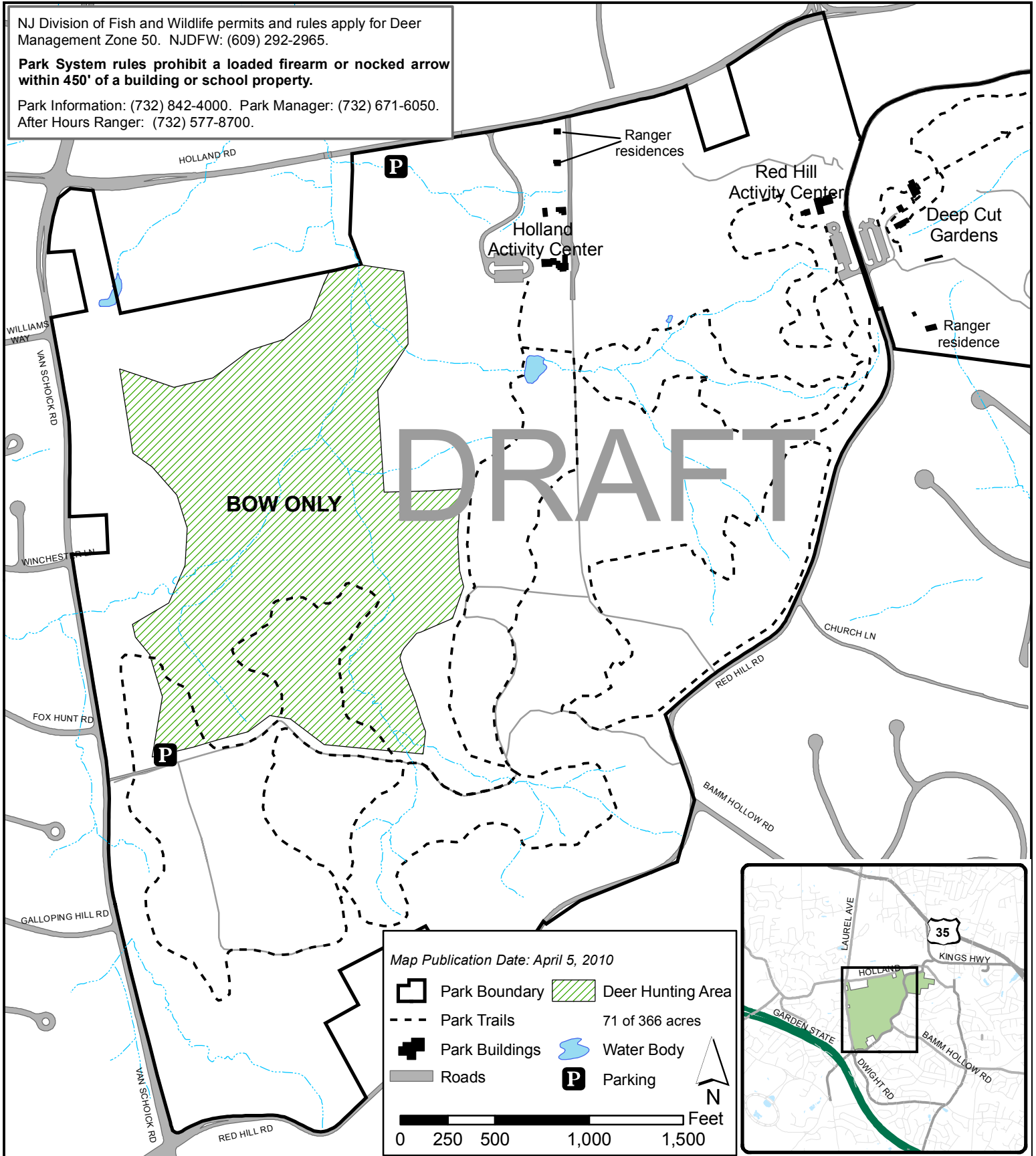
NJ Division of Fish and Wildlife  
Regulation Set #8, Zone 50  
October 2, 2010 - February 19, 2011

Monmouth County Park System  
Deer Hunting Area  
Hunting Access Permit Required

NJ Division of Fish and Wildlife permits and rules apply for Deer Management Zone 50. NJDFW: (609) 292-2965.

**Park System rules prohibit a loaded firearm or nocked arrow within 450' of a building or school property.**

Park Information: (732) 842-4000. Park Manager: (732) 671-6050.  
After Hours Ranger: (732) 577-8700.



Note: Parking in designated lots only. Trails will remain open.



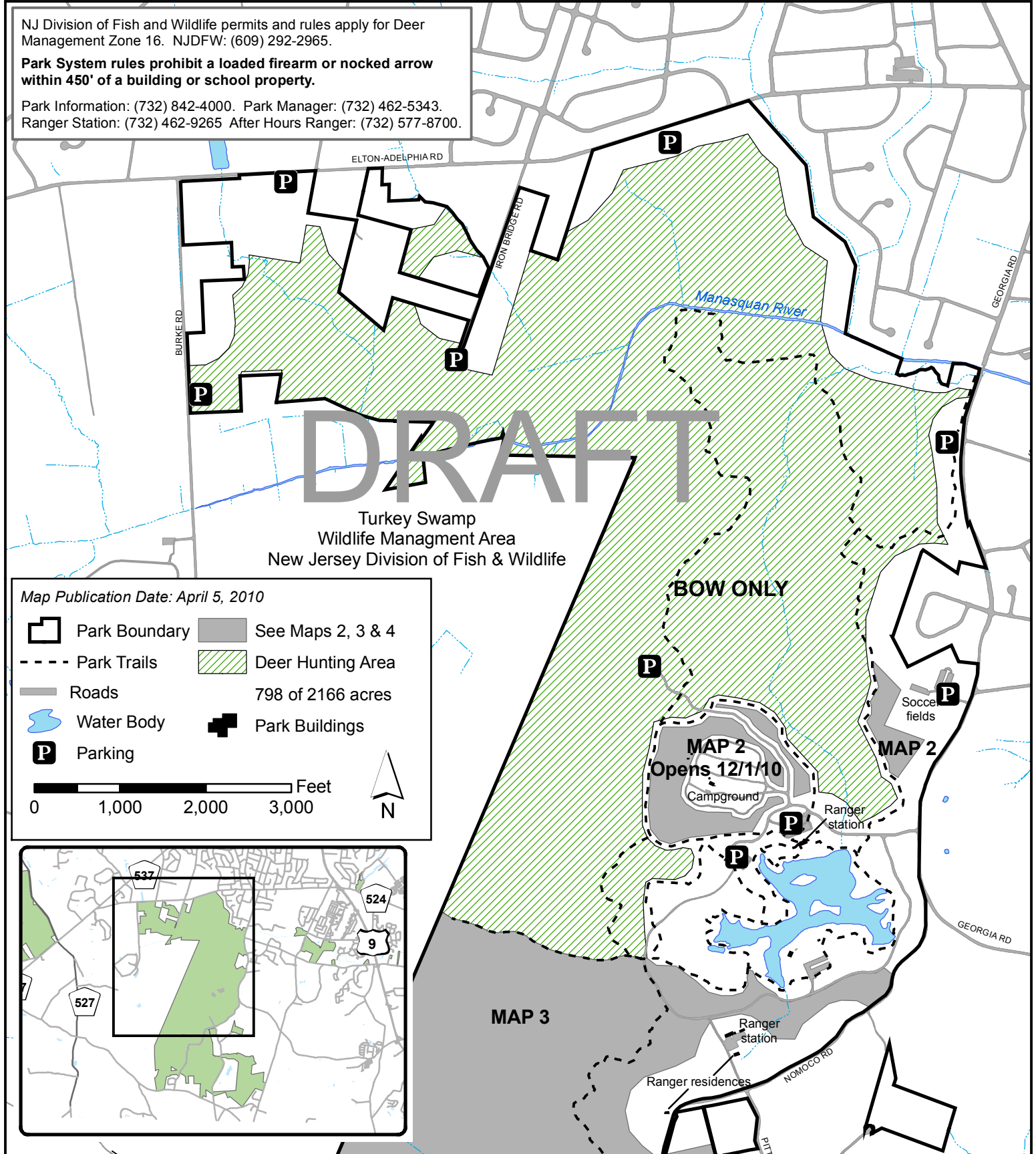
# Turkey Swamp Park North Section

Freehold Township  
Category 1 - Bow Only

Monmouth County Park System  
Deer Hunting Area  
Hunting Access Permit Required

NJ Division of Fish and Wildlife  
Regulation Set #4, Zone 16  
October 2, 2010 - November 30, 2010  
See Map 2 for additional dates

NJ Division of Fish and Wildlife permits and rules apply for Deer Management Zone 16. NJDFW: (609) 292-2965.  
**Park System rules prohibit a loaded firearm or nocked arrow within 450' of a building or school property.**  
Park Information: (732) 842-4000. Park Manager: (732) 462-5343.  
Ranger Station: (732) 462-9265 After Hours Ranger: (732) 577-8700.



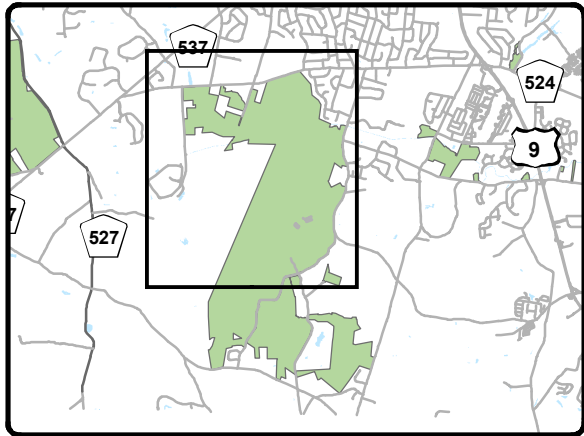
**DRAFT**

Turkey Swamp  
Wildlife Management Area  
New Jersey Division of Fish & Wildlife

Map Publication Date: April 5, 2010

- Park Boundary
- Park Trails
- Roads
- Water Body
- Parking
- See Maps 2, 3 & 4
- Deer Hunting Area
- 798 of 2166 acres
- Park Buildings

0 1,000 2,000 3,000 Feet



Note: Trails will remain open. Hunters accessing state lands must have guns and crossbows cased and may not have a nocked arrow while passing through county lands.



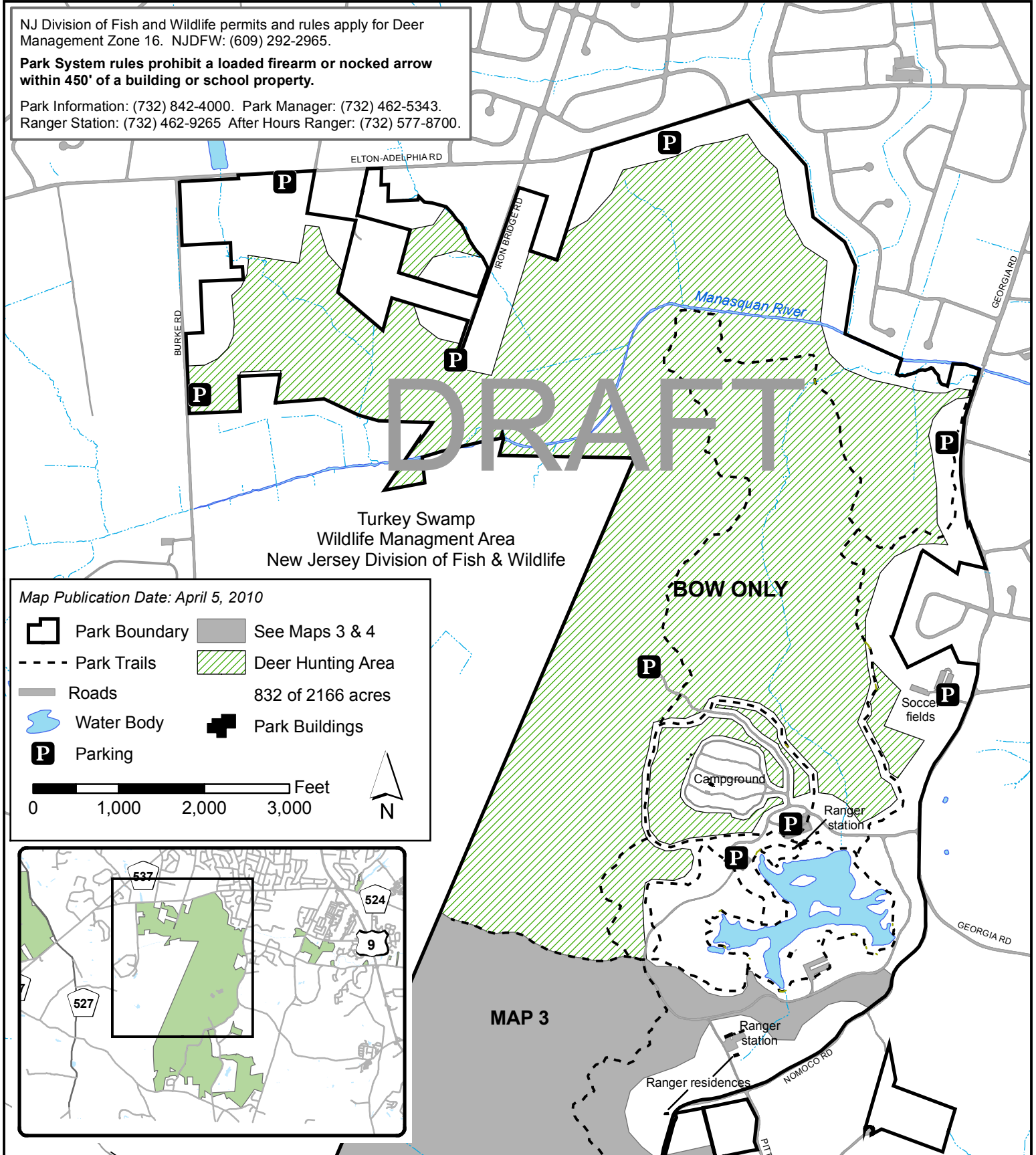
# Turkey Swamp Park North Section

Freehold Township  
Category 1 - Bow Only

Monmouth County Park System  
Deer Hunting Area  
Hunting Access Permit Required

NJ Division of Fish and Wildlife  
Regulation Set #4, Zone 16  
December 1, 2010 - January 31, 2011  
See Map 1 for additional dates

NJ Division of Fish and Wildlife permits and rules apply for Deer Management Zone 16. NJDFW: (609) 292-2965.  
**Park System rules prohibit a loaded firearm or nocked arrow within 450' of a building or school property.**  
Park Information: (732) 842-4000. Park Manager: (732) 462-5343.  
Ranger Station: (732) 462-9265 After Hours Ranger: (732) 577-8700.



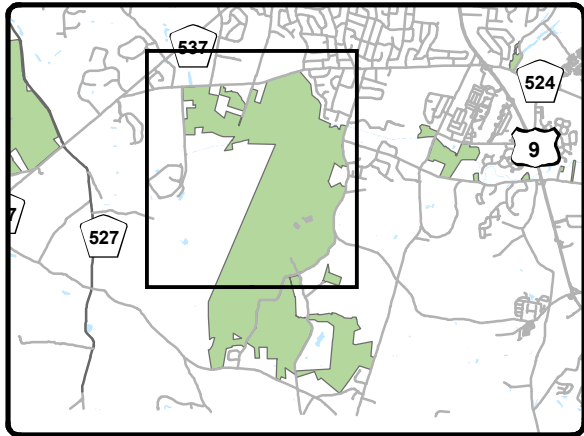
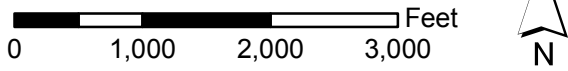
DRAFT

Turkey Swamp  
Wildlife Management Area  
New Jersey Division of Fish & Wildlife

BOW ONLY

Map Publication Date: April 5, 2010

- Park Boundary
- Park Trails
- Roads
- Water Body
- Parking
- See Maps 3 & 4
- Deer Hunting Area
- 832 of 2166 acres
- Park Buildings



Note: Trails will remain open. Hunters accessing state lands must have guns and crossbows cased and may not have a nocked arrow while passing through county lands.



# Turkey Swamp Park South Section

Monmouth County Park System  
Deer Hunting Area  
Hunting Access Permit Required

Freehold Township  
Category 1 - Bow Only

NJ Division of Fish and Wildlife  
Regulation Set #4, Zone 16  
October 2, 2010 - January 31, 2011

Map Publication Date: April 5, 2010

- Park Boundary
- Park Trails
- Roads
- Water Body
- Parking
- See Maps 1, 2 & 4
- Deer Hunting Area  
573 of 2166 acres
- Park Buildings

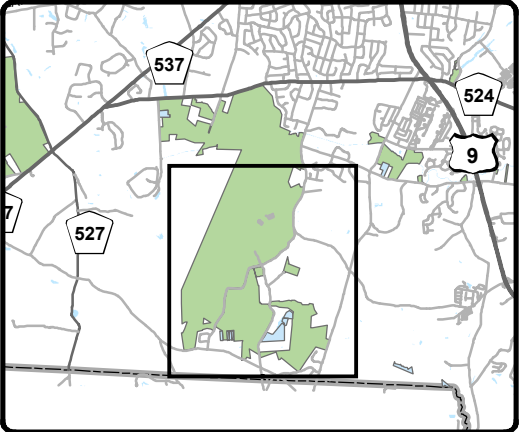
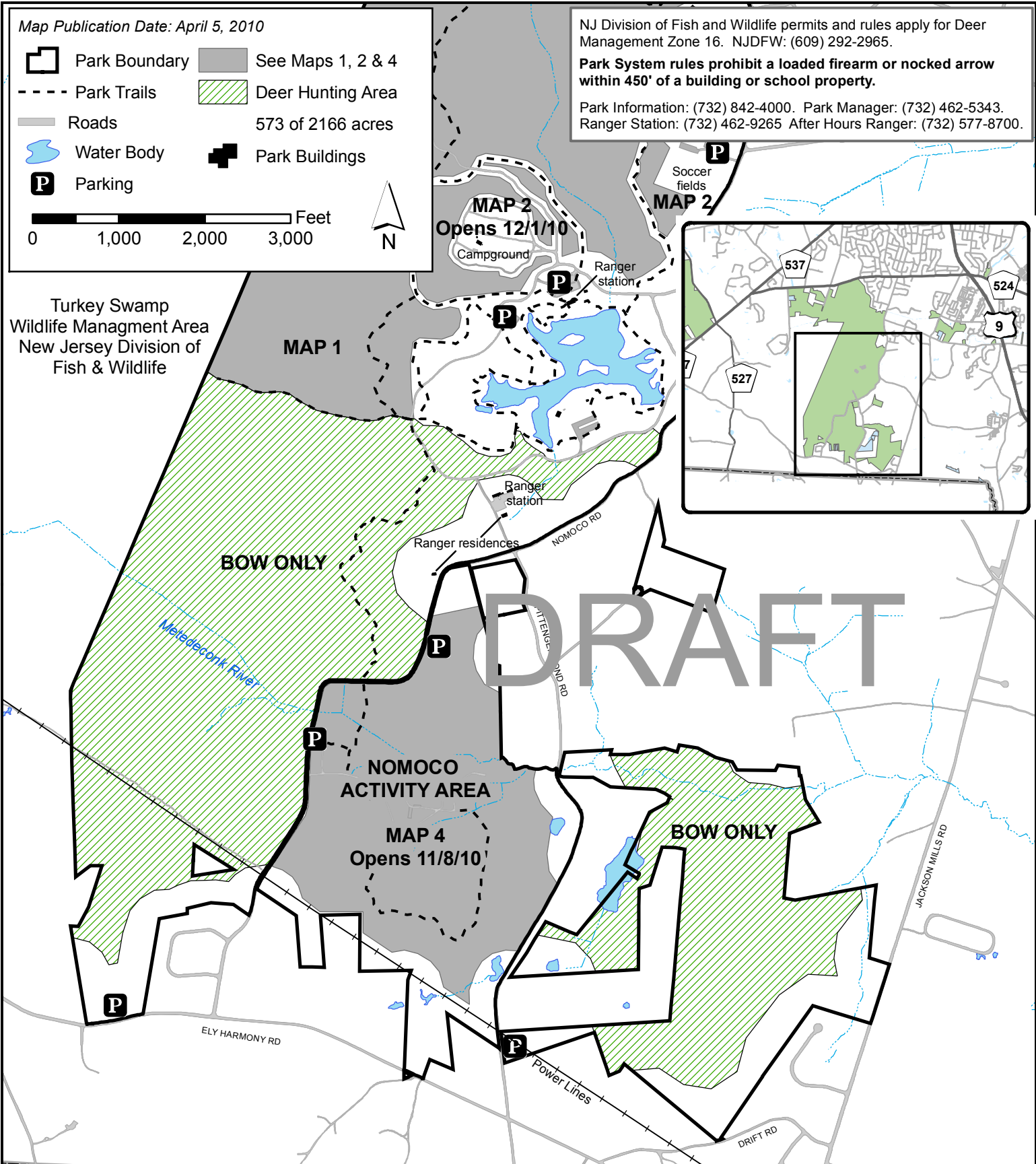
NJ Division of Fish and Wildlife permits and rules apply for Deer Management Zone 16. NJDFW: (609) 292-2965.

**Park System rules prohibit a loaded firearm or nocked arrow within 450' of a building or school property.**

Park Information: (732) 842-4000. Park Manager: (732) 462-5343.  
Ranger Station: (732) 462-9265 After Hours Ranger: (732) 577-8700.



Turkey Swamp  
Wildlife Management Area  
New Jersey Division of  
Fish & Wildlife



DRAFT

Note: Trails will remain open. Hunters accessing state lands must have guns and crossbows cased and may not have a nocked arrow while passing through county lands.



# Turkey Swamp Park Nomoco Activity Area

Monmouth County Park System  
Deer Hunting Area  
Hunting Access Permit Required

Freehold Township  
Category 1 - Bow Only

NJ Division of Fish and Wildlife  
Regulation Set #4, Zone 16  
November 8, 2010 - January 31, 2011

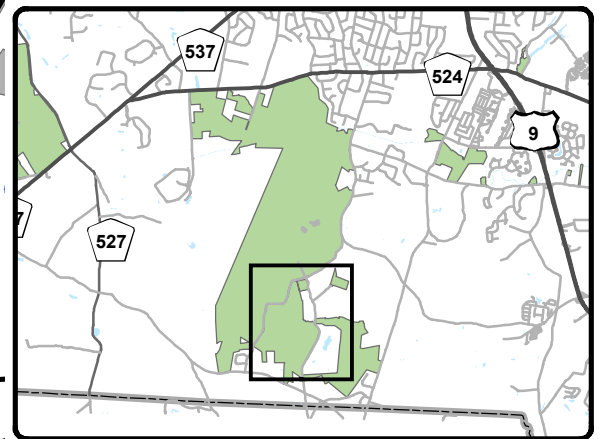
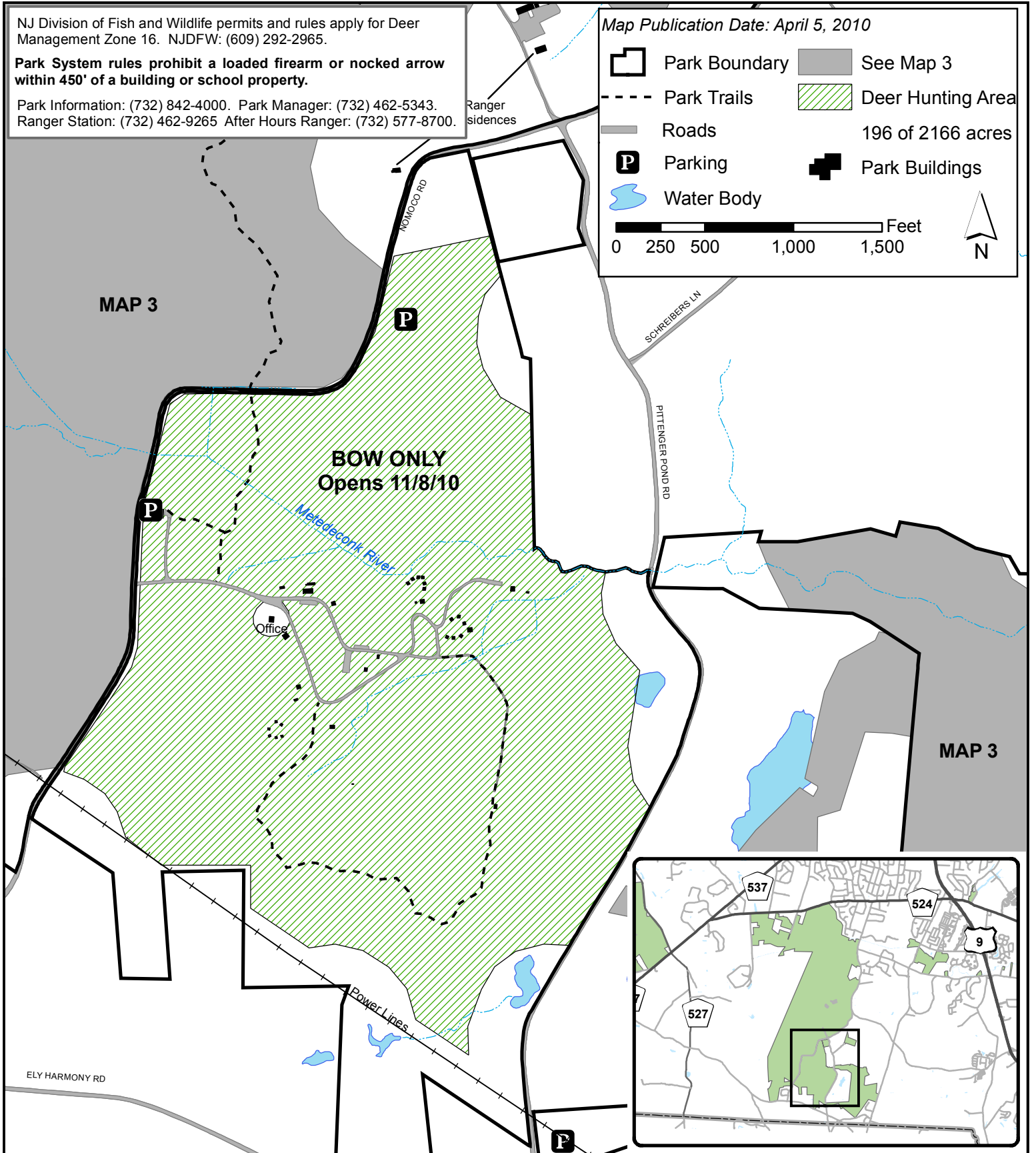
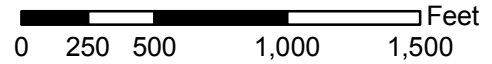
NJ Division of Fish and Wildlife permits and rules apply for Deer Management Zone 16. NJDFW: (609) 292-2965.

**Park System rules prohibit a loaded firearm or nocked arrow within 450' of a building or school property.**

Park Information: (732) 842-4000. Park Manager: (732) 462-5343.  
Ranger Station: (732) 462-9265 After Hours Ranger: (732) 577-8700.

Map Publication Date: April 5, 2010

- Park Boundary
- Park Trails
- Roads
- Parking
- Water Body
- See Map 3
- Deer Hunting Area  
196 of 2166 acres
- Park Buildings



Note: Trails will remain open. Hunters accessing state lands must have guns and crossbows cased and may not have a nocked arrow while passing through county lands.

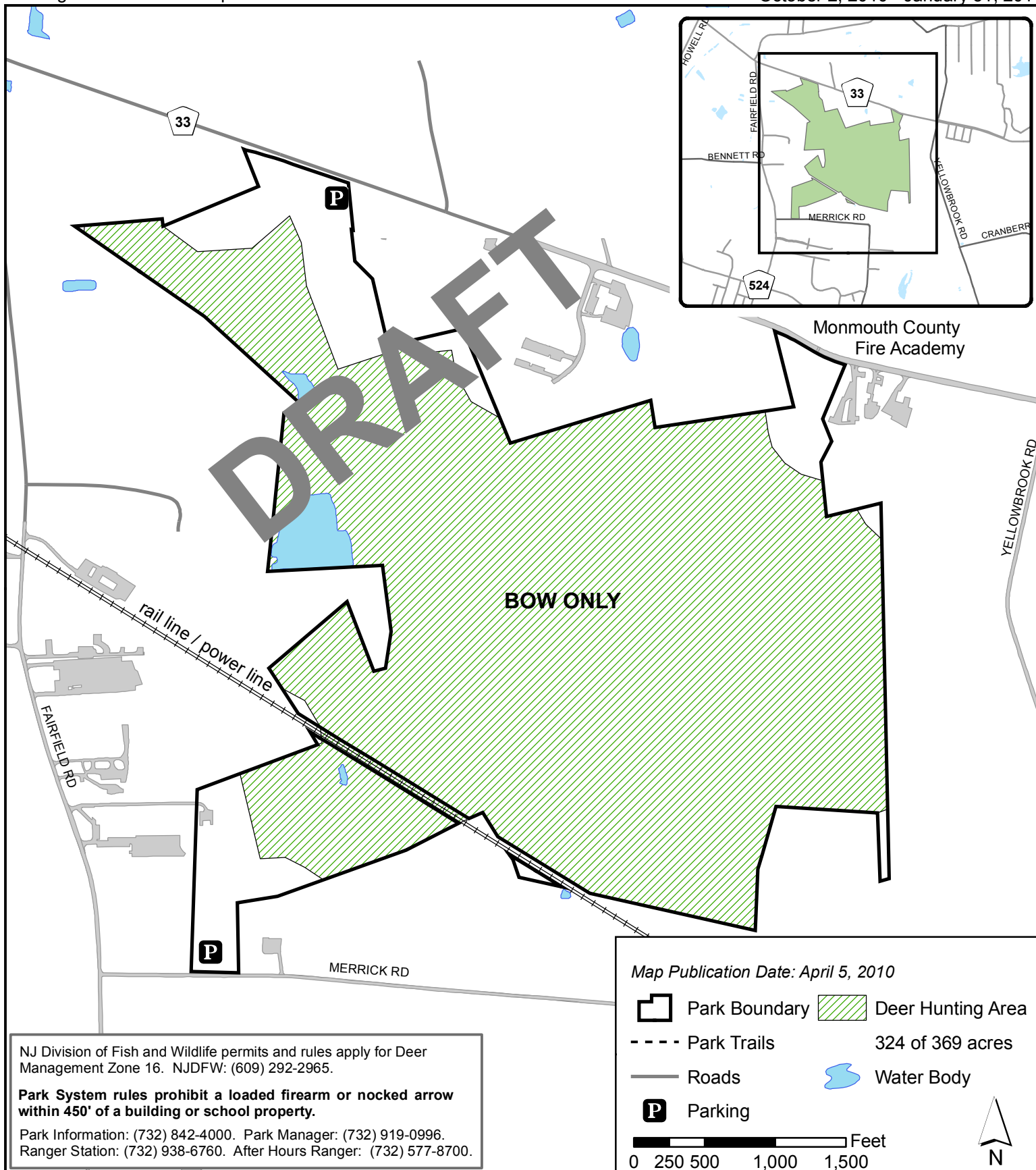


# Yellow Brook Tract

Howell Township  
Category 1 - Bow Only

Monmouth County Park System  
Deer Hunting Area  
Hunting Access Permit Required

NJ Division of Fish and Wildlife  
Regulation Set #4, Zone 16  
October 2, 2010 - January 31, 2011



NJ Division of Fish and Wildlife permits and rules apply for Deer Management Zone 16. NJDFW: (609) 292-2965.

**Park System rules prohibit a loaded firearm or nocked arrow within 450' of a building or school property.**

Park Information: (732) 842-4000. Park Manager: (732) 919-0996.  
Ranger Station: (732) 938-6760. After Hours Ranger: (732) 577-8700.

Map Publication Date: April 5, 2010

	Park Boundary		Deer Hunting Area
	Park Trails		324 of 369 acres
	Roads		Water Body
	Parking		

0 250 500 1,000 1,500 Feet

N



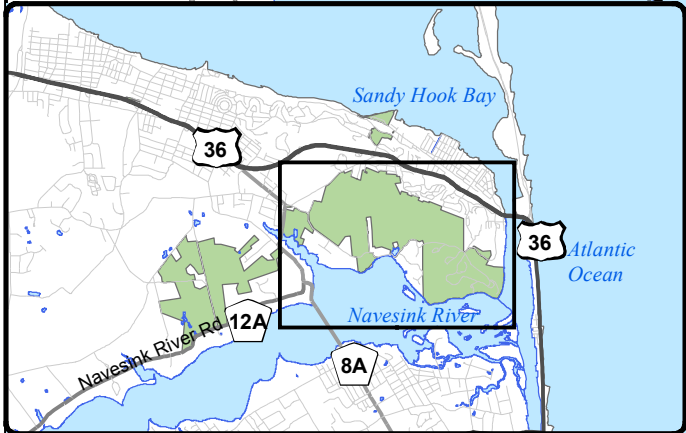
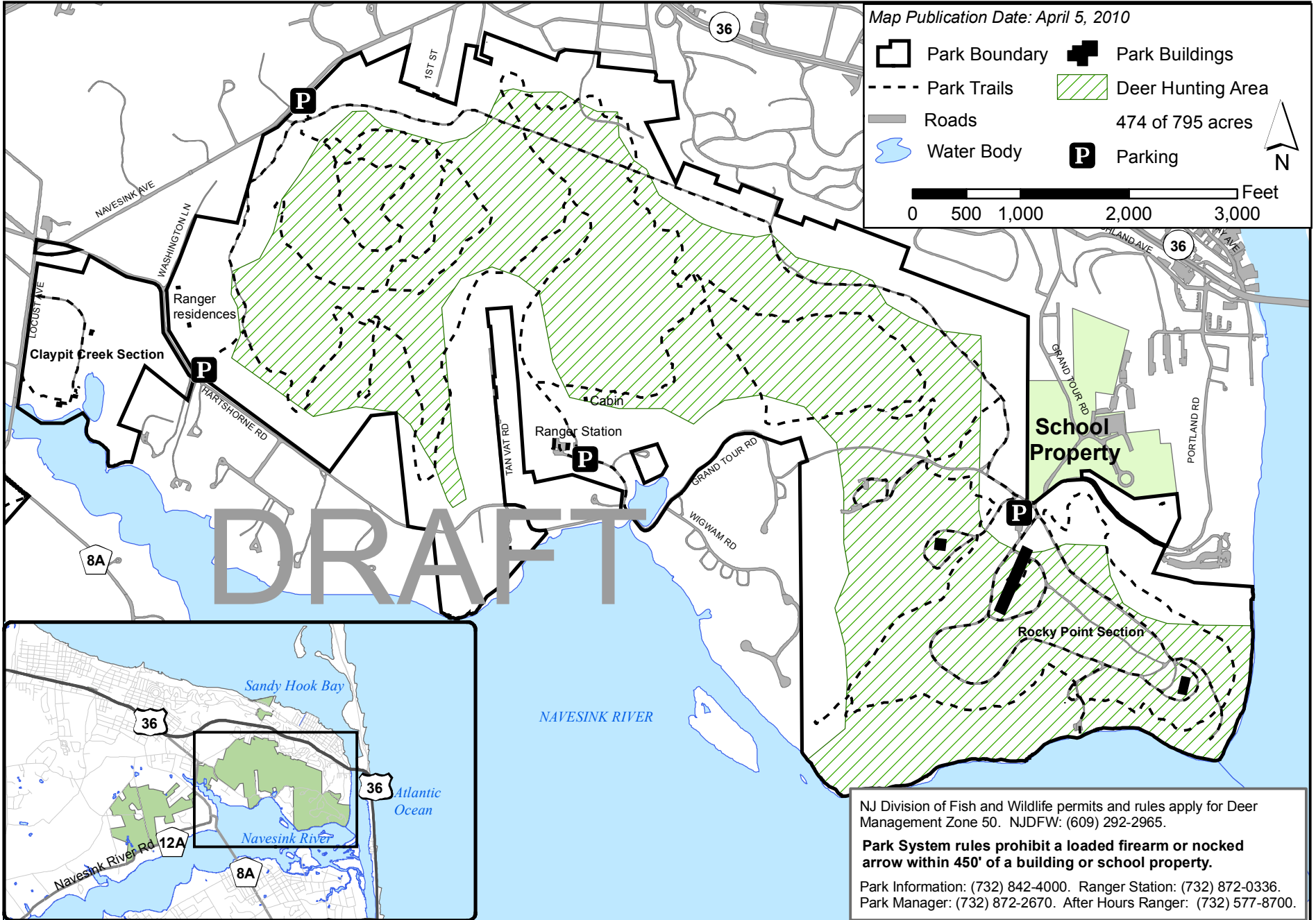
# Hartshorne Woods Park

Middletown Township  
 Category 2

Map Publication Date: April 5, 2010

	Park Boundary		Park Buildings
	Park Trails		Deer Hunting Area
	Roads		474 of 795 acres
	Water Body		Parking

0 500 1,000 2,000 3,000 Feet



NJ Division of Fish and Wildlife permits and rules apply for Deer Management Zone 50. NJDFW: (609) 292-2965.  
**Park System rules prohibit a loaded firearm or nocked arrow within 450' of a building or school property.**  
 Park Information: (732) 842-4000. Ranger Station: (732) 872-0336.  
 Park Manager: (732) 872-2670. After Hours Ranger: (732) 577-8700.

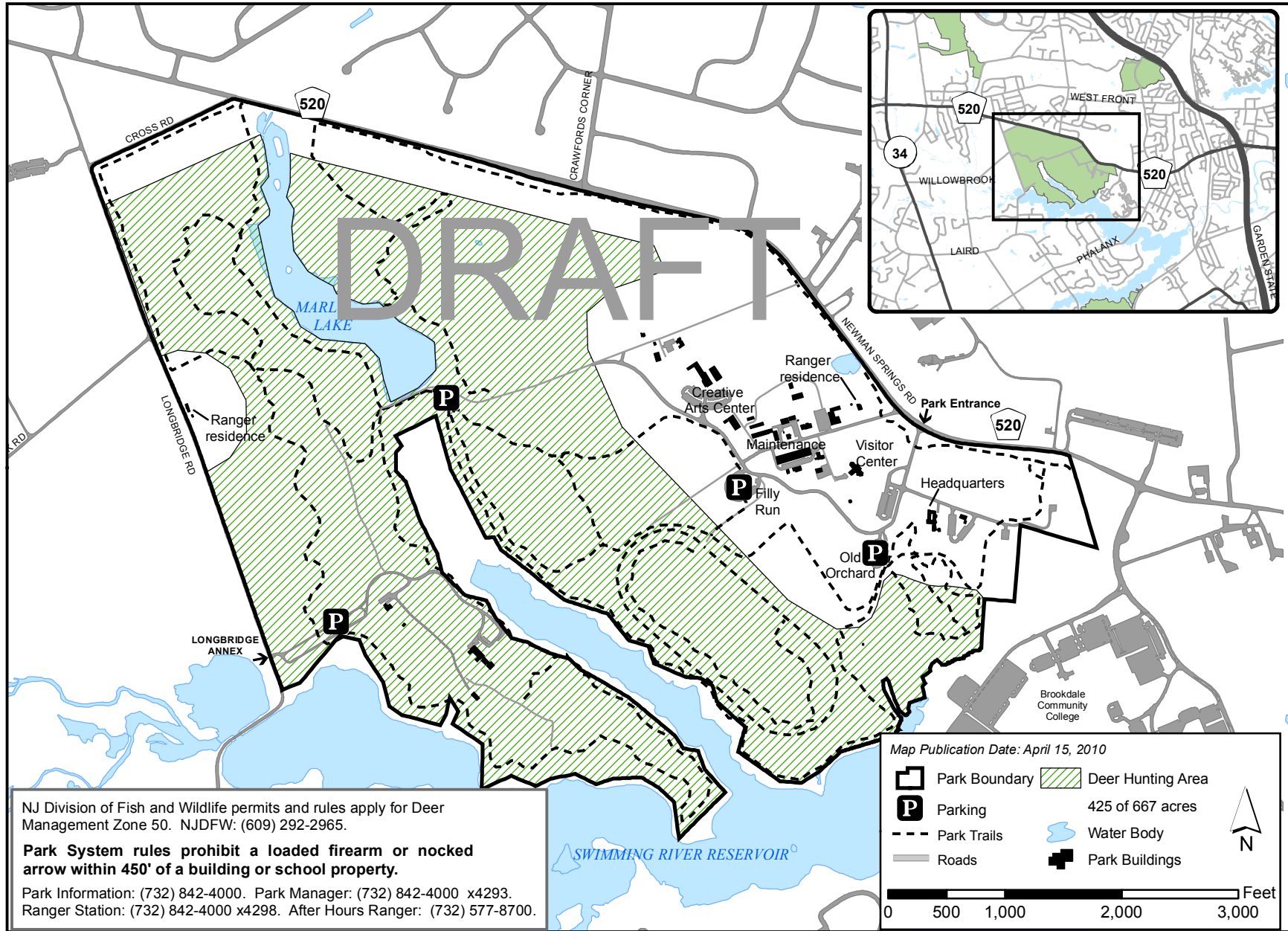
*Note: Hunting until 11:00AM. Closed to other public outdoor use until 12:00PM on dates indicated above. All hunter access and parking through designated parking lots only. Field dressing of harvested deer shall only occur within 50' of parking areas designated by MCPS or off-site. Firearms and bow and arrows may be discharged across marked trails.*

Map 1 of 1



# Thompson Park

Holmdel / Middletown Township  
 Category 2



NJ Division of Fish and Wildlife permits and rules apply for Deer Management Zone 50. NJDFW: (609) 292-2965.

**Park System rules prohibit a loaded firearm or nocked arrow within 450' of a building or school property.**

Park Information: (732) 842-4000. Park Manager: (732) 842-4000 x4293.  
 Ranger Station: (732) 842-4000 x4298. After Hours Ranger: (732) 577-8700.

*Note: Hunting until 11:00AM. Closed to other public outdoor use until 12:00PM on dates indicated above. All hunter access and parking through designated parking lots only. Field dressing of harvested deer shall only occur within 50' of parking areas designated by MCPS or off-site. Firearms and bow and arrows may be discharged across marked trails.*



## ATTACHMENT C

### **MONMOUTH COUNTY PARK SYSTEM DEER MANAGEMENT PROGRAM BACKGROUND INFORMATION 3/30/10**

#### **Current Board of Recreation Commissioners Policy**

The rules and regulations governing the public's use of County park and recreation areas as adopted by the Monmouth County Board of Recreation Commissioners (Resolution No. R-04-7-6=210) permit hunting in areas specifically opened for that purpose by order of the Board. The exact language of the relevant rules is provided below.

16. *No person shall discharge any weapon or firearms within or into a County Park or Recreation Area. Firearms shall not be carried nor had in possession unless unloaded in both barrel and magazine, except that this regulation shall not apply in portions of a County Park or Recreation Area which are open to hunting by order of the Board of Recreation Commissioners during such open periods. A bow with a nocked arrow is prohibited except in portions of a County Park or Recreation Area open to hunting and in other locations designated and posted for archery.*
17. *No person shall molest, trap, capture, hold, remove, injure or kill any animal, or disturb its habitat within a County Park or Recreation Area, except in portions of a County Park or Recreation Area open to hunting and/or fishing. The use of portions of a County Park or Recreation Area open to hunting and/or fishing is subject to NJ State statutes and Division of Fish and Wildlife laws and regulations. Hunting shall be subject to guidelines and permitting requirements promulgated by the Director of County Parks and Recreation. The release of wild or domestic animals in a County Park or Recreation Area is prohibited.*

The Board of Recreation Commissioners first approved the opening of park areas for deer hunting beginning with the State of New Jersey's 2004/2005 season. The program has continued and expanded through the 2009/2010 season by subsequent action of the Board.

#### **Objectives of the Deer Management Program**

As a conservation and recreation agency, the Park System acquires and manages land both for resource protection and recreation opportunities. Little, if any, of Monmouth County's natural environment is unaffected by the past and present actions of the people who live and work here. Responsible land stewardship and resource protection require that wildlife and its habitat be managed for the benefit of all animals and plants. Where the dominance or behavior of a particular species threatens the well being of others, active intervention is required. The growth and density of the State's deer population and its consumption of both the native plant materials that are vital to a healthy forest and as food and shelter to birds and small mammals, constitute a problem requiring active intervention. Although deer and other wildlife are not its property, as the third largest landowner and manager in Monmouth County (after the Federal and State governments), the Park

System is the guardian of critical natural resources for current and future generations and has a responsibility to manage the deer populations within County parklands.

### **Deer Overabundance and Ecological Damage**

As steward and protector of natural resources within the County parklands, the **consequence of concern** to the Park System regarding deer overabundance is **ecological damage**. Deer, one species, can have a significant negative impact on the abundance, growth, regeneration, and diversity of 700-800 native plant and animal species. In areas of overabundant deer population, deer consume ground cover and shrubs, affecting birds and other animals that rely on this vegetation; their populations decrease and may eventually disappear locally. In the absence of native ground cover, aggressive exotic plants, many introduced as ornamentals, begin to take over the forest floor, limiting the chances for the native plants and dependent birds and animals to recover. Deer also browse young saplings, precluding the natural regeneration of forests. A study released by the New Jersey Audubon Society in March 2005 cites over-abundant white-tailed deer as one of five “alien disruptions” threatening the integrity of New Jersey’s natural ecosystems and requiring direct management intervention. Changes in the forest composition from deer damage are clearly visible at many county park sites, threatening natural resources that were intended to be preserved by the County’s acquisition of the land. Because these changes happen over a period of time, the general public may not be aware of the ecological damage. Still, as stewards of public land, ecological damage is an issue that is of special interest to the Park System.

**Why there is a problem** – As open areas throughout Monmouth County and New Jersey are developed, the deer population has concentrated on the remaining green space; public parklands, corporate parks, farms, and suburban subdivisions. Because development has increased the edge habitats (woods bordering fields and lawns) where deer prefer to graze or browse, the deer population, although displaced, is thriving. Pockets of wetlands and buffer areas scattered throughout developed areas are prime deer bedding habitat, escape cover, and travel corridors. The reduction of land area open to hunting resulting from development also contributes to the increase in deer populations. Suburban development, corporate office parks, other large private property, and public parks where hunting is not permitted, serve as refuges, allowing unmanaged and, therefore, unchecked growth of the deer population. Forested areas, agricultural fields, and residential and corporate landscapes provide an abundant year-round food supply to support the deer population. As these patterns are repeated, the deer population will continue to increase and the problems associated with deer will escalate and spread to additional locations. Annual population growth of 40% is typical in the absence of any management strategy. New Jersey Fish and Wildlife estimates the current statewide deer population at 150,000, roughly equivalent to an average deer density of 30 per square mile of deer range, although the populations are not evenly distributed. The maximum density tolerable for native timber species is 20-25 deer per square mile. To retain an existing healthy shrub layer, the maximum density should not exceed 10 deer per square mile.

### **Management Options**

The authority and responsibility for managing deer in New Jersey has been given by legislative action to the New Jersey Fish and Game Council and the State Division of Fish and Wildlife. The Council is responsible for establishing seasons, bag limits, the number of permits to be issued, and the methods for hunting. The Division is responsible for the scientific information that serves as the basis for the Council’s actions.

**The options discussed here are limited to those that have the potential to reduce the ecological impacts of deer**, as this is the consequence of concern of the Monmouth

County Park System. Techniques to reduce ticks on deer, to discourage deer from crossing roads, and other strategies not related to ecological impacts are not included. Likewise, hunting of coyotes, turkeys, and other wildlife that do not consume or damage forest resources is outside the scope of the Park System's Deer Management Program.

### **Non-Lethal Options**

**Reproductive Controls** – The availability of efficient and effective reproductive controls was investigated prior to the first year of the Deer Management Program and the progress of active research and experimental efforts is monitored on an on-going basis.

The reproductive controls for deer currently being investigated for deer by the scientific community include:

- Sterilization – surgical sterilization offers a one-time permanent approach to controlling population growth, but it involves the capture and sedation of each deer, requiring significant effort and resulting in high stress to the animal. Scientific studies are investigating gene-therapy and chemotherapy as possible alternatives to surgical sterilization.
- Contraception – administered to does orally or by vaccination post fertilization, contraception agents terminate pregnancy. Annual administration is required. Compounds delivered late in a pregnancy may require up to 48 hours to take effect, causing significant stress to the animal.
- Immunocontraceptives – administered to male or female deer orally or by vaccination prior to fertilization to interfere with that natural process.

In the past year, the U.S. Food and Drug Administration (FDA) has granted regulatory approval for the use of the immunocontraceptive vaccine, GonaCon™, for use as a contraceptive device for female white-tailed deer over 1 year old. GonaCon is a restricted-use pesticide. At the present time only USDA Wildlife Services or state wildlife management agency personnel are permitted to use the vaccine and they must be properly certified.

Fertility control in deer is a rapidly advancing technology that continues to have successes and failures as it is evaluated for use both in New Jersey and elsewhere. Implementing deer contraceptive techniques, including gaining access to the animals, and applying the precise dosage at the proper time and in the required frequency has proven to be technically challenging and labor intensive in research trials within contained sites, and can be expected to be more so with free ranging populations. As research has progressed questions persist regarding the methods and effectiveness of delivering the contraceptive including the longevity of treatment and the percentage of the population requiring treatment. Feeding stations, capturing and sedating animals, dart applications, and surgery have limitations of effectiveness and result in trauma to the animal. Specific concerns pertaining to oral contraception include the logistics of daily bait distribution and treatments, dosage control, and ingestion by non-target wildlife, domestic animals, or children. Intramuscular administration typically requires individual deer to be injected with an initial dose or doses of a reproductive inhibitor that would either make the doe infertile or cause her to abort her fetus, or render the buck sterile, followed by an annual dose. Newer formulations of these compounds may effectively prevent conception for two to four years, but eventually retreatment is required and the location and recapture of previously treated deer has proven difficult in experimental programs. Because deer are a food animal, the use of most experimental products requires that the treated deer be tagged as "Not for Human Consumption." Additional concerns exist with regulatory issues, effects on deer social structure, the impact on the overall long-term health of the deer population and public health considerations, and its cost effectiveness.

As stated in the March 2005 New Jersey Audubon Society study, Forest Health and Ecological Integrity Stressors and Solutions Concept White Paper, “reproductive control agents have been demonstrated on individual animals but an efficient, cost-effective means of delivering large-scale population control of deer is not yet available.” The high reproductive output of deer, their high survival rate, and the size of the range of non-contained populations are problematic for effective reproductive control. The majority of the research trials involve small insular deer populations on islands or within fenced areas; positive research trials may not necessarily transfer to free range populations such as those within the County Park System. The not-for-profit group SpayVac-for-Wildlife suggests that a minimum of 80 percent of all does would need to be treated in order for the immunocontraceptive to be effective at limiting population growth. The target rate for immunocontraceptive effectiveness is 90 percent of does treated; in a two-year study at the Giralda Farms Corporate Center in Madison, NJ, a 70 percent rate of effectiveness was achieved the first year (of 51 adult does treated with GonaCon®, 30 percent produced fawns after one year) and a 55 percent rate of effectiveness after the second year (45 percent of does treated produced fawns after two years).

While fertility control agents may in the future become practical as an element of the Park System’s Deer Management Program, they are unlikely to ever serve as the sole management tool given the number of sites managed by the Park System and the fact that the deer are free ranging. To meet resource restoration objectives, an initial population reduction by mortality would be necessary both to bring the high population numbers down to a level that could reasonably be treated and also to compensate for the fact that a deer fertility program has no short-term effect on population. The Park System will continue to monitor progress in the development of reproductive controls suitable to its deer population.

**Trap and Translocation** – There are private contractors who capture and relocate deer to game farms, private refuges, or where permitted, in the wild. The sites that accept relocated deer may sell or butcher any offspring, and those relocated to game farms are eventually killed. Releasing them into the wild requires the consent of the property owner or manager. While some other states permit release of deer into the wild, State law in New Jersey prohibits it and most other states now ban the importation of deer because of the concern for chronic wasting disease. Baiting and trapping is less effective when other sources of food are readily available. Relocation does not guarantee the survival of the deer. Studies have found that 50 percent of relocated deer die within one year; many deaths are related to the stress of relocation.

**Fencing** – Rutgers University’s Center for Wildlife Damage Control at the Snyder Research Farm in Pittstown has conducted field experiments on the effectiveness of various fences in controlling deer access. They recommend a fence at least 8 to 10 feet in height. Access points need to be gated, limiting the practicality of this option in most park settings with numerous formal and informal access points. It is often necessary to conduct a hunt or relocation program in conjunction with fencing to eliminate resident deer from the fenced area. The Park System spent over \$180,000 to fence the 52-acre Deep Cut Gardens, one of the County’s smallest parks and home to a valuable horticultural collection, including decorative fencing and a gate along the public road frontage and a 10 foot high fence consisting of 8 foot high galvanized wire mesh topped by four strings of high tensile galvanized wire along the remainder of the property boundary. At the Arboretum at Holmdel Park, where the Monmouth County Shade Tree Commission’s expensive collection of specimen trees, shrubs, and woody plants was suffering extensive damage from deer browsing, the Park System spent roughly \$147,000 to install similar fencing around a 12-acre area. Fencing was the selected deer control option at these

areas because of the zero deer damage tolerance of the valuable plant collections that are the fundamental purpose of the facilities. However, because of the cost of fencing, the large size of most park properties, and the negative impact of fencing on public and neighbor access to park properties, fencing is not a practical option for protecting most parks from deer damage.

**Repellents** – There are a number of commercially available repellents that can be applied to plant materials to discourage deer from eating them. Treatment of a large number of plants can be labor-prohibitive, as most repellents must be applied by hand spraying. Treatment of select plants tends to force deer to other less desirable but equally edible plants. The effectiveness of the repellents currently on the market is compromised by rainfall, requiring frequent reapplication. Repellents may be a viable solution in a residential setting, but this is not a practical option for protecting large sites and forested areas from deer damage.

**Change of crops and plant materials** – Certain crops are less vulnerable to deer damage; for example, deer tend to eat the seed heads of corn plants, precluding their germination, but will eat some soy beans while leaving the bulk of the plant and beans intact. Likewise, certain ornamental plant materials are more or less appealing to deer. For example, deer devour Hosta, but leave Stephanandra untouched. Avoiding the cultivation of their favorite plants and crops can reduce deer damage, but it also reduces the diversity of plant materials available for enjoyment by park visitors and for nourishment and shelter by other small mammals and birds. If the plants most desirable to deer are eliminated from the landscape, they will consume the less desirable plants that are available. Changing to less vulnerable plant materials may be a suitable strategy for small properties and decorative plantings, but this is not a practical option for protecting large sites, forested areas, and native plants from deer damage.

**Harassment** – Harassment in the form of noise or physical intimidation can provide short-term relief and is an effective strategy for moving deer from targeted areas such as airport runways. Site conditions such as thick woods, bodies of water or wet areas may make this difficult, and it cannot be attempted where there is a risk of inadvertently forcing the deer onto a public roadway. Deer will return to the site once the harassment ceases and, in some cases, will adapt to the harassment over time, rendering it ineffectual.

## **Lethal Options**

**Regulated hunting** – There were 52,783 deer harvested during the State’s 2009-2010 deer hunting seasons; 3837 were harvested in Monmouth County. The Division of Fish and Wildlife makes annual adjustments to the seasons in order for recreational hunting to be a more effective means of controlling deer populations. Examples of such adjustments include additional hunting days, increasing the number of permits available, allowing the harvesting of two deer at a time under certain conditions, expansion of the “earn-a-buck” program whereby hunters are required to harvest an antlerless deer before harvesting an antlered deer, and limiting hunters to no more than one antlered male deer per permit per season throughout the state. The Division warns that these changes alone are of little value if hunters are denied access to deer herds. They identify the following factors as limitations to the effectiveness of recreational hunting in controlling deer populations: development patterns, establishment of parks where hunting is prohibited, regulations that severely restrict or preclude hunting, and landowner decisions not to allow hunting.

**Controlled or limited hunting** – A controlled or limited hunt is a form of regulated hunting that is conducted within the framework of the basic rules and regulations of the State, but with additional controls or limitations in place. Examples of limitations include allowing hunting on fewer dates than permitted by the state, permitting only select types of hunting (e.g. bow hunting only), limiting who may hunt and/or the number of hunters, and pre-screening prospective hunters.

**Community-Based Deer Management Program** – State law authorizes the issuance of special deer management permits to municipalities, airports, and County Boards of Agriculture with documented problems, either where conditions preclude regulated hunting or where a more aggressive harvest is required. Examples of techniques that may be part of a Community-Based Deer Management Program include capture and euthanization, the use of high-power rifles and silencers, hunting at night, out-of-season hunting, and harvest limits different from those established by the Division of Fish and Wildlife. The Park System, a County agency, is not eligible to apply directly for a permit under this program, but could ask a municipality to be the permittee where conditions satisfy the program criteria that either regulated hunting is not possible or a more aggressive harvest is required.

**Permit to shoot** – State law authorizes the Division of Fish and Wildlife to issue a permit-to-shoot or depredation permit to owners or lessees of agricultural land experiencing crop damage. These permits may be used throughout the calendar year. The permit includes a list of individuals permitted to hunt under the permit. Golf courses, gardens and other park landscapes managed by the Park System do not constitute crops for the purpose of these permits.

## **Hunting in New Jersey**

**Who hunts** - Hunting is a legal form of recreation. State records indicated that in 2009 there were an estimated 85,000 hunters licensed in the State of New Jersey.

The State of New Jersey requires all hunters to be licensed and, since 1955, the licensing of new hunters has been conditioned on their successful completion of an approved hunter education program. The purpose of the Hunter Education Program is to promote responsible, ethical hunter conduct; emphasize the importance of wildlife management, laws and regulations; and to encourage safe handling of hunting equipment. Hunters must also demonstrate field proficiency prior to licensing.

**Where they hunt** - The State Division of Fish and Wildlife manages over 325,000 acres of Wildlife Management Areas; those in Monmouth County open for deer hunting are Turkey Swamp Wildlife Management Area in Freehold Township, Assunpink Wildlife Management Area in Millstone and Upper Freehold Townships, and Manasquan Wildlife Management Area in Wall Township. A portion of State license fees is used for land acquisition; the Division added approximately 2,000 acres to the Wildlife Management Area system in 2009.

In total over 750,000 acres of public land in New Jersey is open to deer hunting. Other public lands open to deer hunting include State parks and forests, including Allaire State Park in Howell and Wall Townships and Monmouth Battlefield State Park in Manalapan and Freehold Townships; a number of federally owned properties including Earle Naval Weapons Station in Colts Neck, Howell, and Tinton Falls; and several parks and open space areas managed by the Atlantic County, Morris County, Mercer County and Hunterdon County Park Systems and the Townships of Holmdel and Millstone.

Historically, private lands have been a major component of hunting lands. This supply of land will continue to shrink as more land is either developed or preserved as parks where hunting is prohibited. Of the roughly 7180 acres acquired by the Monmouth County Park System since 1990, it is estimated that as many as 6210 acres may have been hunted under prior ownership.

Firearms and bows cannot be discharged across roads. Loaded firearms and bows with arrows in position to be discharged are prohibited within 450 feet of any structure or school property except with written permission of the property owner. Proposed State legislation would reduce the safety zone for bow hunting from an elevated tree stand to 150 feet.

**When they hunt** – Deer hunting seasons are regulated by the State Division of Fish and Wildlife and vary from year to year and by zone. As a rule, they are organized by hunting type, i.e. bow, muzzleloader, shotgun. The zones wholly or partially in Monmouth County include Zones 15, 16, 17, 39, 40, 50, 51, and 64. Generally speaking, the 2009/2010 seasons were as follows:

- Fall Bow - early September through late October; variable by zone
- Permit Bow (special permit required in addition to license) – late October through the end of December; variable by zone
- Six-day Firearm– early December
- Permit Muzzleloader (special permit required in addition to license) - late November/early December through early January/mid February; variable by zone
- Permit Shotgun (special permit required in addition to license) – late November/mid-December through mid-late January/mid February; very variable by zone
- Winter Bow – January through mid-February; variable by zone



**ATTACHMENT D**

**MONMOUTH COUNTY PARK SYSTEM  
AERIAL DEER SURVEY RESULTS  
3/30/10**

- Helicopter counts are performed with the assistance of the Monmouth County Shade Tree Commission. A park manager serves as the spotter/counter.
- There is no schedule for helicopter counts. Counts are taken when there is snow cover for maximum visibility, when the helicopter and pilot are available for this purpose, and when weather conditions permit the helicopter to fly. Therefore, the number of counts and parks included varies from year to year.
- The methodology employed is not claimed to be scientifically valid, but a reasonable attempt to estimate deer densities within park areas.
- It is assumed that, as only deer visible from the helicopter are counted, the survey results represent an under count of actual deer densities. This is particularly true in those parks where forest cover and the presence of many evergreens obscure visibility (these areas are marked as OV).
- Because deer herds travel across property boundaries, in some instances deer were counted both within park boundaries and on adjacent properties (column labeled “Deer in Area”).

<b>Park</b>	<b>Date</b>	<b>Deer in Park</b>	<b>Deer per Square Mile</b>	<b>Deer in Area</b>
<b>Big Brook Park</b> Marlboro 378 acres/ .59 sq. miles	2/21/03	110	186	
	2/02/04	>125	212	
	1/31/07	>95	161	
	2/25/08	71	120	
	2/8/10	42	71	56
<b>Charleston Springs Golf Course</b> Millstone 743 acres/ 1.16 sq. miles	2/26/03	130	112	
	1/30/04	>124	107	
	2/02/04	>120	103	
	1/25/05 (See note 1)			85
	Partial (.41acres) 2/18/10 (See note 4)	15	37	18
<b>South Course only</b> 200 acres/ .31 sq. miles	2/20/03	70	226	
	1/29/07	31	100	
<b>Clayton Park</b> Upper Freehold 311 acres/ .49 sq. miles (OV)	2/02/04	30	61	
	1/29/07	11	22	
<b>Hartshorne Woods Park</b> Middletown 736 acres/ 1.15 sq. miles (OV)	2/21/03	24	21	
	2/6/09	15	13	14

Park	Date	Deer in Park	Deer per Square Mile	Deer in Area
<b>Durand Tract</b> Freehold 90 acres/ .14 sq. miles	2/26/03	46	329	
<b>Holmdel Park</b> Holmdel				
<b>Main section</b> 346 acres/ .54 sq. miles (OV)	2/20/03	15	28	
	12/8/05	6	11	11
	1/16/09	47	87	4
	2/6/09	44	81	
	2/8/10	25	46	14
	2/18/10	16	30	
<b>Ramanessin section</b> 226 acres/ .35 sq. miles	2/20/03	20	57	27
	2/21/03	43	123	
	1/30/04	19	54	
	12/8/05	47	134	64
	1/29/07	51	145	
	2/25/08	42	120	
	1/16/09	49	140	78
	2/6/09	1	3	9
	2/8/10	0		54
	2/18/10	19	54	
<b>Howell Park Golf Course</b> Howell 308 acres/ .48 sq. miles	2/26/03	33	69	
	2/18/10	15	31	14
<b>Huber Woods Park</b> Middletown 258 acres/ .40 sq. miles (OV)	2/20/03	11	28	
	2/21/03	38	95	
	1/16/09	12	30	7
<b>Manasquan Reservoir Bear Swamp section</b> Howell 122 acres/ .19 sq. miles (OV)	1/30/04	9	47	
<b>Shark River Park</b> Wall/Neptune/Tinton Falls 915 acres/ 1.43 sq. miles (OV)	1/30/04	30	21	
<b>Tatum Park</b> Middletown 368 acres/ .58 sq. miles (OV)	2/20/03	13	22	19
	1/25/05 (See note 1)	30	52	45-50
	1/31/07	6	10	16
	1/16/09	23	40	25
	2/6/09	24	41	
	2/18/10	15	26	13

Park	Date	Deer in Park	Deer per Square Mile	Deer in Area
<b>Thompson Park</b> Middletown/Holmdel 665 acres/ 1.04 sq. miles	2/13/03	70	67	100
	1/30/04	52	50	73
	2/02/04	56	54	80
	1/25/05 (See note 1)	33	32	65-75
	12/8/05	70	67	78
	2/21/06 (See note 2)	19	18	34
	1/29/07	18	17	35
	1/31/07 (See note 3)	26	25	43
	2/25/08	8	8	
	1/16/09	12	12	18
	2/6/09	6	6	
	2/8/10	14	13	34
	2/18/10	6	6	13

Notes:

1. Deep snow cover at the time of the 1/25/05 flight may have yielded an under count of actual deer as deer were likely bedded down in dense cover.
2. Assignment of the counter to a rear seat of the helicopter for the 2/21/06 flight may have yielded an undercount of actual deer.
3. Flight excluded Longbridge Annex section of park due to insufficient fuel; likely resulted in an undercount.
4. High winds precluded a complete survey of the golf course, likely resulting in an undercount.

**MONMOUTH COUNTY PARK SYSTEM  
SPOTLIGHT DEER SURVEY RESULTS  
3/30/10**

- Spotlight deer survey counts are performed by park staff driving a designated route and searching for deer perpendicular to the route using a spot light.
- Spotlight counts can only be performed within areas of a park with a drivable route. Wet conditions may temporarily render some routes impassable.
- The spotlight surveys are conducted between mid-April and mid-May when deer are moving around, but before full leaf-out interferes with visibility.
- Each route is surveyed for three to four weeks.
- Surveys begin ½ hour after sunset when the deer are likely to be feeding at forest/field edges; surveys taken earlier in the day are likely to yield under counts.
- Surveys are cancelled in the event of rain as rain disrupts feeding patterns and would yield an under count.
- The methodology employed is not claimed to be scientifically valid, but is commonly used in the conservation world and is a reasonable attempt to estimate deer densities within park areas.
- It is assumed that, as only deer visible from the route are counted, the survey results represent an under count of actual deer densities.

Park	2004		2005		2006		2007		2008		2009		
<b>Big Brook Park</b> Marlboro 382 acres/ 0.6 sq miles							4/8	89	4/22	108	4/23	75	
							4/12	84	4/24	119	4/27	91	
							4/16	79	5/1	121	5/18	103	
							4/24	83					
							5/9	87					
							<b>high:</b>	<b>89</b> <b>148/sq</b> <b>mi</b>	<b>high:</b>	<b>121</b> <b>202/sq</b> <b>mi</b>	<b>high:</b>	<b>103</b> <b>172/sq</b> <b>mi</b>	
<b>Hartshorne Woods</b> Park Middletown 787 acres/ 1.23 sq miles	5/5	52	4/23	31			4/11	30	4/30	12	4/21	***8	
	5/6	32	4/26	26			4/16	24	5/1	2	4/23	***0	
	5/11	32	4/29	32			4/20	24	5/8	18	4/28	17	
	5/13	33	5/11	25			4/23	*** 17	5/13	15	5/5	0	
			5/13	18			4/27	15			5/7	8	
			6/29	* 17			4/30	*** 27					
							5/2	19					
							5/4	*** 26					
		<b>high:</b>	<b>52</b> <b>42/sq</b> <b>mi</b>	<b>high:</b>	<b>32</b> <b>26/sq</b> <b>mi</b>			<b>high:</b>	<b>30</b> <b>24/sq</b> <b>mi</b>	<b>high:</b>	<b>18</b> <b>15/sq</b> <b>mi</b>	<b>high:</b>	<b>17</b> <b>14/sq</b> <b>mi</b>
<b>Holmdel Park - Ramanessin</b> <b>section</b> Holmdel 227 acres/ 0.35 sq miles							4/10	36	4/30	73	4/23	44	
							4/14	41	5/1	67	4/28	45	
							4/24	36	5/7	73	4/29	21	
							5/2	37	5/8	62	4/30	44	
							5/3	38	5/14	77	5/12	31	
							5/10	** 0			5/13	53	
							5/14	18					
							<b>high:</b>	<b>41</b> <b>115/sq</b> <b>mi</b>	<b>high:</b>	<b>77</b> <b>220/sq</b> <b>mi</b>	<b>high:</b>	<b>53</b> <b>151/sq</b> <b>mi</b>	

Park	2004		2005		2006		2007		2008		2009	
Huber Woods Park Middletown 355 acres/ 0.55 sq miles							4/11	7	4/30	4	4/21	***10
							4/16	*** 9	5/1	8	4/23	***0
							4/20	*** 16	5/8	19	4/28	15
							4/23	*** 6	5/13	6	5/5	3
							4/27	5			5/7	9
							4/30	*** 8				
							5/2	*** 7				
							5/4	*** 7				
							<b>high: 16</b>	<b>high: 19</b>	<b>high: 15</b>			
							<b>29/sq mi</b>	<b>35/sq mi</b>	<b>27/sq mi</b>			
Tatum Park Middletown 368 acres/ 0.58 sq miles			4/29	38	4/20	14	4/11	32	4/26	10	4/21	11
			4/30	40	4/21	20	4/17	16	5/1	21	4/23	14
			5/5	21	4/27	22	4/24	11	5/5	11	4/25	17
			5/6	21	4/28	9	5/1	25	5/13	10	4/27	10
					5/1	7	5/9	16	5/14	20	4/29	21
					5/2	11			5/19	10	5/1	7
					5/3	17					5/3	10
					5/4	16					5/5	13
					5/5	16					5/7	16
					5/6	16						
					5/7	7						
					5/10	32						
					<b>high: 40</b>	<b>high: 32</b>	<b>high: 32</b>	<b>high: 21</b>	<b>high: 21</b>			
					<b>69/sq mi</b>	<b>55/sq mi</b>	<b>55/sq mi</b>	<b>36/sq mi</b>	<b>36/sq mi</b>			
	Thompson Park Middletown/Holmdel 665 acres/ 1.04 sq miles	5/4	35			5/9	48	4/9	44	4/30	18	4/14
5/5		16			5/10	48	4/10	48	5/1	39	4/23	53
5/6		38			5/13	38	4/11	44	5/2	25	4/29	58
5/7		25					4/12	41	5/14	17	5/7	32
5/8		42					4/13	11	5/15	35		
5/9		20					4/20	19				
5/10		51					4/25	*** 2				
5/11		27					4/26	9				
5/12		34										
5/13		22										
5/14		36										
							<b>high: 48</b>	<b>high: 48</b>	<b>high: 39</b>	<b>high: 58</b>		
							<b>46/sq mi</b>	<b>46/sq mi</b>	<b>38/sq mi</b>	<b>56/sq mi</b>		

\* out of date range

\*\* am count

\*\*\* before sunset