

**Herpetofaunal Survey of Pere Marquette
State Park and Vicinity**

Final Report

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May 1, 1997**

Introduction

Pere Marquette State Park is located in Jersey County on the northern bank of the confluents of the Illinois and Mississippi rivers. It is situated in the only driftless portion of the county in the Upper Mississippi Border Division (IDOC, 1978). Pere Marquette State Park has a variety of natural features, including small hill prairies, freshwater springs and creeks, caves, sinkhole ponds, mesic uplands, ravines, limestone and sandstone outcrops, and Illinois River floodplains (IDOC, 1978). The Illinois River floodplains are separated from the upland habitat at Pere Marquette State Park by Route 100. Initial land acquisition to form Pere Marquette State Park occurred in May 1932 with the purchase of 1,511 acres. Originally, the area was named Piasa Bluff State Park but was changed to Pere Marquette State Park, to recognize Father Marquette's connection with the early history of the area (IDOC, 1978). Currently, the park comprises 7,901 acres (IDOC, 1994). Of the 104 species of reptiles and amphibians that occur in Illinois (Brandon and Ballard, 1995), Smith (1961) showed 50 of them to occur in Pere Marquette State Park. A park-wide reptile and amphibian survey has never been conducted and many vouchers do not exist.

Objectives

1. Record all reptiles and amphibians encountered in Pere Marquette State Park and its vicinity;
2. Salvage road-killed reptiles and amphibians, including state-listed species, from roads and highways in Pere Marquette State Park and its vicinity, for preservation and deposition into Southern Illinois University at Carbondale herpetology collection;
3. Locate and examine two reported *Hemidactylium scutatum* (Smith, 1974) sites in Pere Marquette State Park to confirm the continuing presence of this state threatened species;
4. If located, describe the habitat in detail and search for additional *H. scutatum* sites;

5. Search for and identify any potential *Crotalus horridus* den sites, and report them to the Illinois Department of Natural Resources, Division of Natural Heritage;
6. Plot previous voucher localities and localities found by this survey onto detailed maps.

Methods

General herpetofauna will be examined by standard methods, including:

1. Visual encounter surveys;
2. Survey of breeding sites;
3. Night driving;
4. Dipnetting and seining for larvae and tadpoles.

The reported localities and other potential *Hemidactylium scutatum* sites were located on a topographic quadrangle map and visited. One to seven specimens of all other species encountered, except those listed by the state as endangered or threatened, were recorded in a field notebook, photographed, preserved and deposited in the Southern Illinois University at Carbondale Herpetology Collection. Road-killed specimens were salvaged, preserved, reported to the Illinois Department of Natural Resources, and deposited in the SIUC Herpetology Collection. A map illustrating the study area was prepared (Figure 1).

Results

Species Accounts

Scientific and standardized common names, and authors of species and subspecies names used in the following species accounts, follow Collins (1990) with the exception of the southern leopard frog (*Rana sphenoccephala*), which is discussed under that species.

Family Plethodontidae

Eurycea longicauda (Green, 1818)

Longtail Salamander

Sixteen specimens were found in March, April, and September. Of those sixteen, seven were collected and preserved. Four were larvae, two were collected at a pool at springhead (13 April), and two approximately 20 feet downstream from another springhead (1 September). A total of three adults were collected under debris in the same spring as larvae collected on (14 March, 13 April). Two adults were collected on the walls of a spring box with a burst pipe (1 September). Seven more adults were observed during the above mentioned visits, two at the spring box on 1 September, and five at spring head on 13 April.

Smith (1961) identified the Jersey County *Eurycea longicauda* populations as *E. l. longicauda* X *E. l. melanopleura* intergrades, but evaluating his determination is beyond the scope of this paper.

Family Bufonidae

Bufo americanus Holbrook, 1836

American Toad

A total of four individuals were observed throughout the park in April, May, and June. One individual was found on Rt. 100 while night driving (1 June). Another individual was found in a creek bed among tall grasses. Tadpoles were found in a small puddle (2 ft x 2 ft) in a rock parking lot with two adult roadkills on the perimeter of the puddle. Numerous egg strings were found at the head of a small spring which emptied into a dry creek bed (21 April).

Smith (1961) identified the Jersey County *Bufo americanus* populations as *B. a. americanus* X *B. a. charlesmithi* intergrades.

Family Hylidae

Hyla versicolor LeConte, 1825

Gray Treefrog

Only one specimen of this species was collected, a large female crossing an oil and chipped road with grassy shoulders and woodlands to the north of the park (3 May). Individuals too numerous to count were heard calling in the trees while driving south on Rt. 100 from Rosedale to Grafton (1 June).

Pseudacris crucifer crucifer (Wied-Neuweid, 1838)

Northern Spring Peeper

One individual was observed and collected moving among leaf litter around debris from dilapidated houses (14 May). No male was heard calling in the park, but a more vigorous survey in the floodplain may produce better results.

Family Ranidae

Rana catesbeiana Shaw, 1802

Bullfrog

Two specimens were observed at one locality in a large roadside, spring-fed pool (14 May). The pool was very clear and the frogs would hide in leaves and vegetation at the bottom of the pool when disturbed. One specimen was collected at this locality.

Rana clamitans melanota (Rafinesque, 1820)

Green Frog

This species was found in four localities throughout the study area. One specimen was found on Rt. 100 during night driving (1 June). It was crossing over towards the bluffs. Another individual was collected in a spring-fed pool along with *R. catesbeiana* (14 May). Three green frogs (one adult and two juveniles) were observed, one collected, in the bottom of a spring box with a burst pipe (1 September). The last specimen found

and collected was at the base of large rock at night, after a heavy rain and considerable flooding, with a spring exiting near the base of a rock (3 May). All of the individuals observed were near a small pool or body of water and often quickly jumped into the water.

Rana palustris LeConte, 1825

Pickerel Frog

On March 14, four individuals were collected and preserved. One specimen was a large gravid female found under a rock about 10 feet downstream from the springhead. The other two were found immediately around the spring head. Habitat included many rocks and leaf litter in the bottom of the creek. The water temperature was 6 degrees Celsius. No other individual was found at this locality. The location is approximately 200 yards from the river floodplain. This floodplain contains many "ponds" which are present year round, except during the flood season. A breeding population has been observed in Kidd Lake Marsh Natural Area (Monroe County), with adults being found on bluff road adjacent to Kidd Lake Marsh Natural Area from early March to mid May (Brandon and Ballard, 1991). The adults may move to these floodplain ponds to breed and then move back after the breeding season, as they did at Kidd Lake Marsh. Although, no roadkills were found, a more thorough search of the floodplain may yield juveniles or tadpoles.

Rana sphenocephala Cope, 1886

Southern Leopard Frog

Only three individuals were observed in Pere Marquette State Park. The first, which was collected, was found in a creek among heavy water grasses. The individual was very lethargic (12 March). The air temperature was 24.1 degrees Celsius and the water temperature was 8 degrees Celsius. This creek is not a spring fed creek and had a silt layer covering the leaves at the bottom of 2 cm in most places. Another individual was

observed in a roadside ditch covered in grass with very little water (18 May). On 5 August one DOR (dead on road) was found on Rt. 100 just east of the main ranger station. No male was ever heard calling while in the park.

Smith (1961) identified southern Illinois populations as *Rana pipiens sphencephala*. Prior to 1972, all North American leopard frogs were considered to be the same species, *Rana pipiens*. Brown and Brown (1972a) and Brown (1973), however, showed that the *Rana pipiens* complex consists of up to five sibling species, three of which occur in Illinois. While these three were not named, they were referred to as the western call type, eastern call type, and northern call type. Mecham et. al. (1973:2) suggested that the eastern call type, referable to as *Rana sphencephala*, be recognized as a species separate from *Rana pipiens*. Pace (1974) discovered an older available name, *Rana utricularia*. Brown et. al. (1976) petitioned the International Commission on Zoological Nomenclature (ICZN) to conserve the species name *sphencephala* by suppressing *utricularia*, and the ICZN (1992) ruled to give the specific name *sphencephala* precedence over *utricularia*.

Family Chelydridae

Chelydra serpentina serpentina (Linnaeus, 1758)

Common Snapping Turtle

The remains of one adult was found near a boat ramp parking lot east of Fowler Lake (22 July). The carcass was desiccated and appeared to have been killed.

Family Kinosternidae

Sternotherus odoratus (Latreille, 1802)

Common Musk Turtle

The shell of one adult was found on a pile of plywood and boards (remains of a duckblind) floating at the east edge of Fowler Lake (22 July).

Family Emydidae

Chrysemys picta (Schneider, 1783)

Painted Turtle

Four hatchlings (two DOR) were found crossing Rt. 100 from the bluffs heading west towards Eagle Lake (18 May). An attempt to locate the nest was unsuccessful. Day driving along Rt. 100, from Rosedale to Grafton, to spot basking turtles during heavy flooding of the river yielded 4 individuals (2 June). These individuals were found basking on logs, usually no more than 50 feet from the highway, among *Trachemys scripta* individuals. One male was captured while crawling through mud in the parking lot east of Fowler Lake (22 July).

Terrapene carolina carolina (Linnaeus, 1758)

Eastern Box Turtle

Three individuals were found in or around Pere Marquette State Park. A shell was found buried in the dirt, on a road leading out of a grassy field (14 March). One male was found on the path to Goat Cliff Hill Prairie (18 May). One female was found crossing a road between two pastures at the north end of the park (11 August). Both turtles had four toes on the hind foot and characteristics of eastern box turtles, with no influence of three-toed box turtles (*T. c. triunguis*)

Trachemys scripta elegans (Weid, 1838)

Red-eared Slider

Twenty individuals were observed basking on logs near Rt. 100 from Rosedale to Grafton (2 June) during flooding, which rose water levels even with the road surface. Three females were observed crossing the road, and were heading away from the flooded river east to the other side of the road. Another individual was observed basking on a log in a water filled ditch on the north side of Stump Lake access road (22 July).

Family Phrynosomatidae

Sceloporus undulatus hyacinthinus (Green, 1818)

Northern Fence Lizard

One male was collected at the base of a wooden platform at McAdams Peak Hill Prairie (18 May). The individual was actively sunning on the dried grass. Another male was observed at the base of a tree near the woodland/prairie edge of Twin Mounds Hill Prairie near an individual *Eumeces* spp. (18 May). A large individual was observed six feet up a large tree near the pavilion of Twin Mounds Hill Prairie (5 August).

Family Scincidae

Eumeces fasciatus (Linnaeus, 1758)

Five-lined Skink

One adult female was collected under a piece of tin near dilapidated houses and pieces of metal trash (14 May)

Eumeces laticeps (Schneider, 1801)

Broadhead Skink

A DOR male was collected near the park (29 September). Identification was based on labial scale count, *E. fasciatus* has four and *E. laticeps* has five (Conant and Collins, 1991), and the swollen orange jaws of males.

Eumeces spp. Wiegmann, 1834

Skinks

Three juvenile individuals were observed. These were fast moving and not captured for identification. One was at the base of a tree, one under a rotting log, and the other was on a dirt path and darted into a hole. Juveniles of *Eumeces fasciatus* and *Eumeces laticeps* are morphologically similar and positive identification could not be made.

Family Teiidae

Cnemidophorus sexlineatus (Linnaeus, 1766)

Six-lined Racerunner

Two individuals were collected from the same locality on different days. Both were on the path leading down from the rock platform of Twin Mounds Hill Prairie. The first individual collected was in the grass next to the path (14 May). The second was on the path early in the morning and was very slow moving (18 May). One male was observed 20 feet east of the pavilion in the grass near the path at McAdams Peak Hill Prairie (1 September).

Family Colubridae

Coluber constrictor Linnaeus, 1758

Racer

One male was collected on the path to Goat Cliff Hill Prairie (14 May). The individual was kept in captivity for 2 months and it ate small mice until it was preserved. One road kill was observed on an oil and chipped road with deep ravines on both sides of the shoulders (3 May). It was not collected.

There is some confusion as to the current status of one of the two subspecies of *Coluber constrictor* found in Illinois. Conant and Collins (1991) refer to what formerly was called *C. c. flaviventris* in Illinois as *C. c. foxii* (Smith had considered *C. c. foxii* a junior synonym of *C. c. flaviventris*), yet Collins (1990) failed to list *C. c. foxii* as a valid subspecies. Therefore, Jersey County populations could be considered as either *C. c. foxii* or *C. c. flaviventris*, depending on which nomenclature is used.

Diadophis punctatus (Linnaeus, 1766)

Ringneck Snake

Three individuals were observed, one collected. All were found under large heavy rubber mats that had been stationary for quite a while (14 May).

Smith (1961) identified the Jersey County *Diadophis punctatus* populations as *D. p. edwardsi* X *D. p. arnyi* intergrades.

Elaphe obsoleta obsoleta (Say, 1823)

Black Rat Snake

One large individual was observed on the top of a bluff with many rocky outcroppings and crevices (14 May). The snake vibrated its tail and took a defensive posture until we had passed. A male was collected as it was crossing Rt. 100 early in the morning (19 May). It had just come out of a floodplain pond south of the road (the snake was covered with duckweed) and was on the edge of the road heading north. The snake was fed large mice, and kept in captivity for several months. It was later released in the exact spot as collected. One DOR specimen was collected on an oil and chipped road at the top of a large hill (22 July).

Lampropeltis triangulum sypila (Cope, 1888)

Red Milk Snake

Two individuals were collected at the same locality. The first, a male was collected under a large rubber mat (14 May). The second was not sexed and was collected under the same mat (18 May). The rubber mats were in a large patch of periwinkle (*Vinca minor*) and surrounded by dilapidated houses and other trash.

Nerodia erythrogaster flavigaster (Conant, 1949)

Yellowbelly Water Snake

Only one individual was observed in the brush surrounding a duckblind in Fowler Lake (22 July). The snake was in the water, possibly due to the water temperature (24.0 degrees Celsius) being warmer than the air temperature (19.0 degrees Celsius).

Nerodia rhombifer rhombifer (Hallowell, 1852)

Diamondback Water Snake

Two individuals were observed (22 July) with one gravid female being collected. Both were in the water around brush surrounding duckblinds in Fowler Lake. The water

temperature (24.0 degrees Celsius) was warmer than the air temperature (19.0 degrees Celsius).

Nerodia sipedon (Linnaeus, 1758)

Northern Water Snake

One individual was observed around a duckblind in Fowler Lake (22 July). A Three DOR's were found. One adult was found where flood waters had risen onto the road in the middle of the town of Grafton after the flood waters had receded (18 May). Another adult was found on Rt. 100 immediately in front of the Pere Marquette Illinois Youth Center (29 September). One adult DOR was collected at the base of the bluffs on Rt. 100 one mile south of Rosedale (4 May). Smith (1961) identified the Jersey County *Nerodia sipedon* populations as *N. s. sipedon* X *N. s. pleuralis* intergrades.

Storeria dekayi wrightorum Trapido, 1944

Midland Brown Snake

One specimen was collected northeast of the parks' boundary. The DOR was collected off an oil and chipped road with grassy shoulders about 100 feet wide (5 August).

Thamnophis sirtalis sirtalis (Linnaeus, 1758)

Eastern Garter Snake

This species was the most commonly observed snake in or around Pere Marquette State Park. Eight individuals were collected or observed. The first adult was collected in leaf litter up from a spring fed creek (14 March). The second was collected in leaf litter 20 yards from the base of a large bluff (14 March). One juvenile was observed under a small log in the water of a spring fed creek along with two *Eurycea longicauda* (21 April). An adult was observed crossing a road into heavy grass (1 September). Two DOR's were collected in Grafton (29 September). A DOR was observed on Rt. 100 directly in front of Pere Marquette Lodge (14 May). A male DOR

was collected on an oil and chipped road at Rosedale between a corn field and a spring fed creek (11 August).

Family Crotalidae

Agkistrodon contortrix (Linnaeus, 1766)

Copperhead

One DOR was collected just north of the park on an oil and chipped road. The individual was heading into a wooded area of the park from an open field (23 August). The specimen was a very dark coppery red color. This observation is the opposite of what Smith (1961) said, "... the sample from west-central Illinois exhibits more *contortrix* characters than the sample from extreme southwestern Illinois." The *contortrix* characters being paler hues and crossband patterns.

Smith (1961) identified the Jersey County *Agkistrodon contortrix* populations as *A. c. contortrix* X *A. c. mokeson* intergrades.

Discussion

A total of 98.75 person hours were spent in the field on this project, of which, 51.75 person hours were incurred by me. This figure represents only actual time in the field and not commuting time.

The reported *Hemidactylium scutatum* sites were searched extensively throughout the year with no specimens found. These salamanders appear to be very seasonal in their habits (Brandon and Ballard, 1991) but could still occur at Pere Marquette State Park. Suitable habitat, behind the Pere Marquette Illinois Youth Center, was searched for *Crotalus horridus* during the spring and fall seasons. Many local stories of rattlesnake sightings and killings were encountered during this survey but no specimen was found. Much suitable habitat for this secretive animal remains unsearched. An intensive survey of

Pere Marquette State Park concentrating only on *C. horridus* could serve to evaluate the status of this state threatened snake in the park.

Certain families of reptiles and amphibians are not represented due to the methods used to conduct this survey. A survey using drift fences, funnel traps, turtle traps, listening devices for calling frogs, and less time constraints may yield a more productive survey. Due to the high number of state endangered and threatened species that have and could be found in Pere Marquette State Park (*Crotalus horridus*, *Hemidactylium scutatum*, *Elaphe guttata emoryi*) and the excellent habitat available, a larger scale survey is definitely warranted. Also needed as a part of the survey is an evaluation of habitat availability and utilization by the reptiles and amphibians of Pere Marquette State Park.

Acknowledgments

Dr. Ronald A. Brandon reviewed this manuscript and has provided guidance many times. I am very grateful to him for his perseverance and confidence in me. Scott R. Ballard, Natural Heritage Biologist Illinois Department of Natural Resources, reviewed this manuscript, provided field assistance and helped with permits and state funding. His assistance with information on the reptiles and amphibians of Illinois proved invaluable to the continuation of this project. Michael Redmer assisted with information on reptiles and amphibians found in Pere Marquette State Park, field work, and photographs. Special thanks to the Illinois Department of Natural Resources, Natural Heritage Division, and the Illinois Wildlife Preservation Fund who provided the money to fund this project.

Many people assisted with field work and gave of themselves unselfishly to help; included among these were David E. Heafner, Sue Ann Crull, Howard Crull, and Ava Crull. Dr. Christopher Phillips, Illinois Natural History Survey, provided information on Jersey County records and identification of ambiguous records. Glen Kruse, Endangered Species Program Manager for the Illinois Department of Natural Resources Division of Natural Heritage, issued a state permit for the possession of endangered and threatened species and the salvage of endangered and threatened species. W. E. McClain, Illinois

Department of Natural Resources Natural Areas Project Manager issued a permit for collecting and research in Illinois state parks, forests, and conservation areas. Kirby Cottrell, Director, Office of Resource Conservation, issued a state scientific permit. Randy R. Heidorn of the Nature Preserves Commission provided a state special use permit to collect on the Pere Marquette Nature Preserve. Special thanks to Dick Niemeyer, site superintendant, Pere Marquette State Park, for assistance with permits and information about park policy and visits.

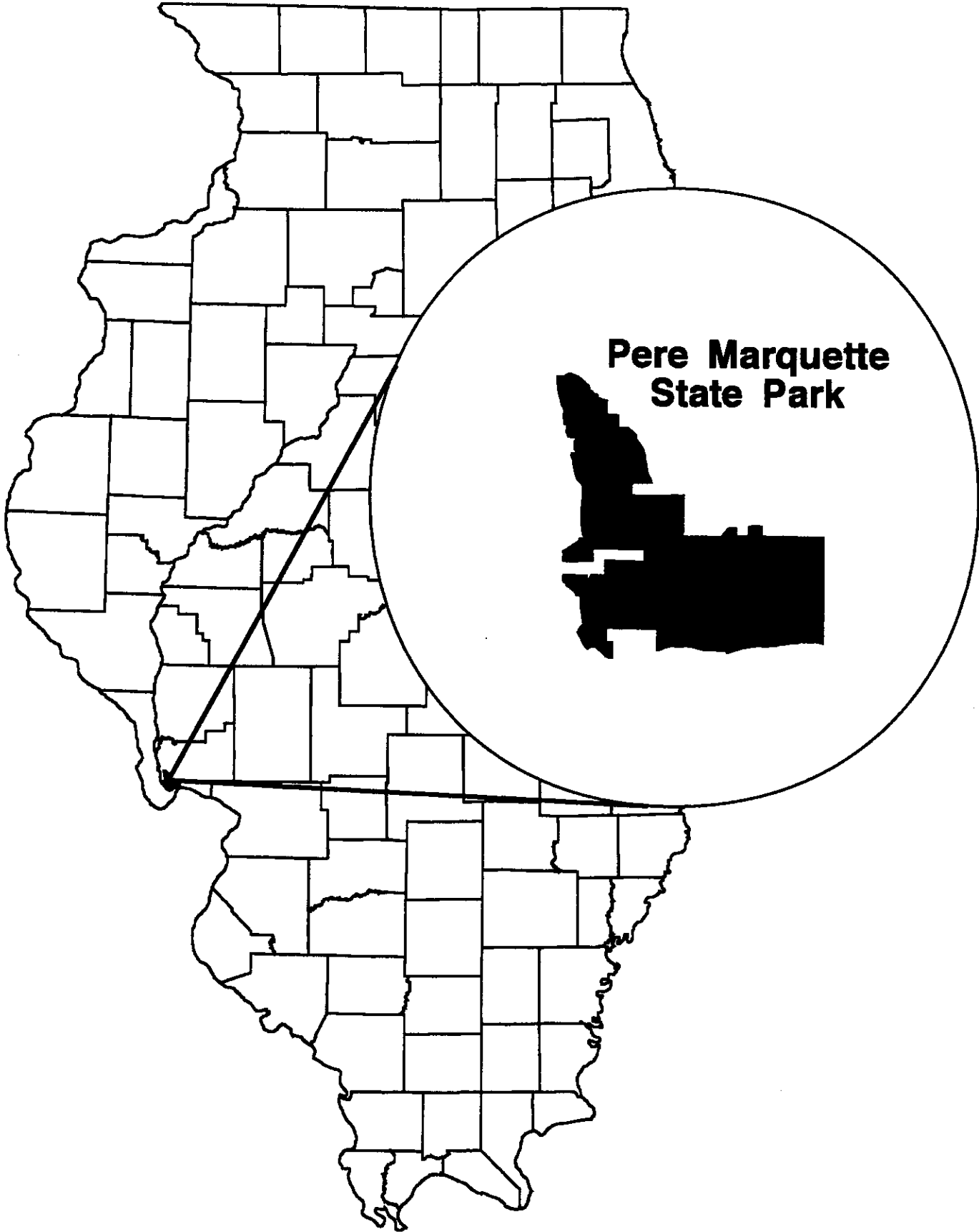
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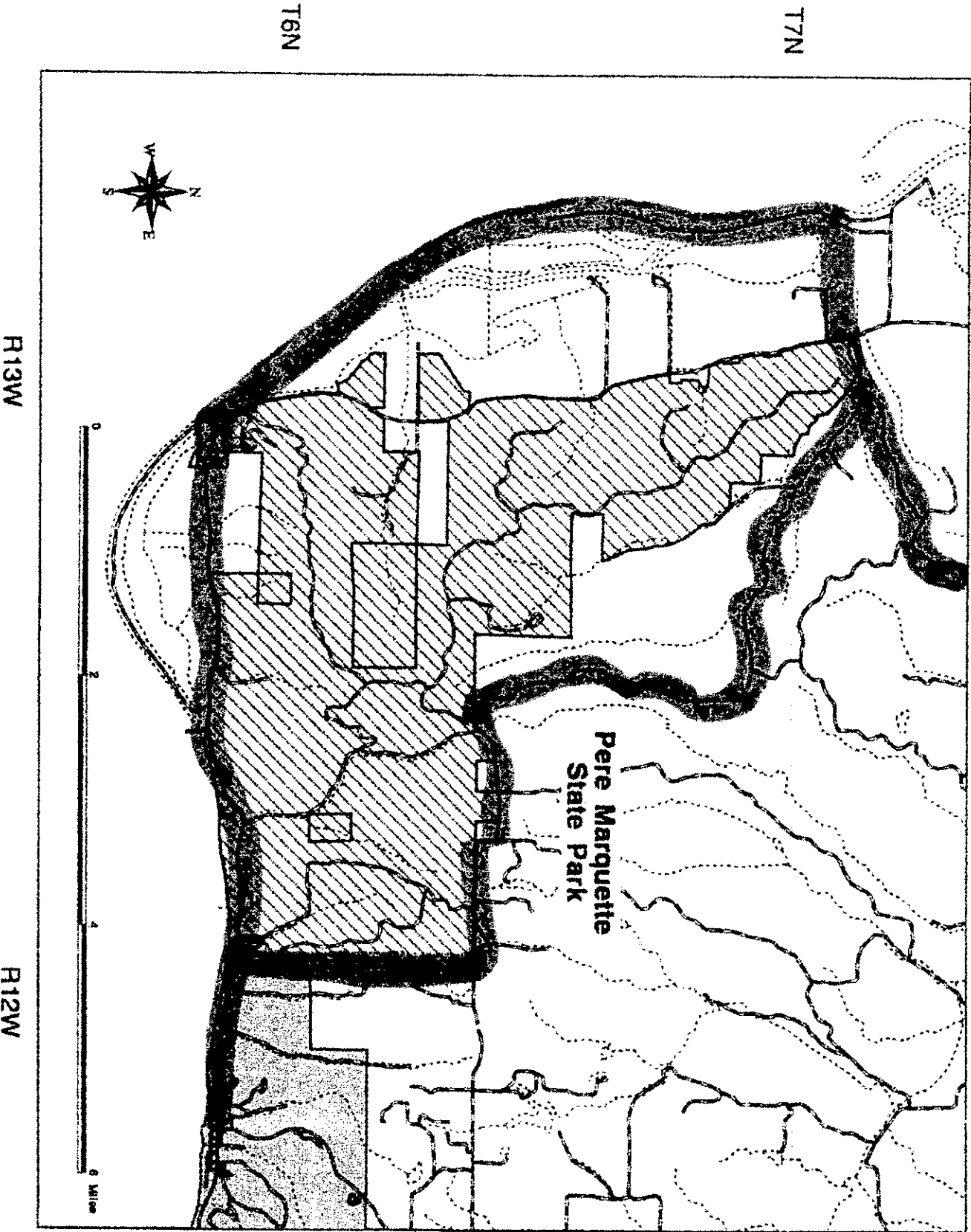
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**Pere Marquette
State Park**

Figure 1. Area inside of gray outline is considered study area

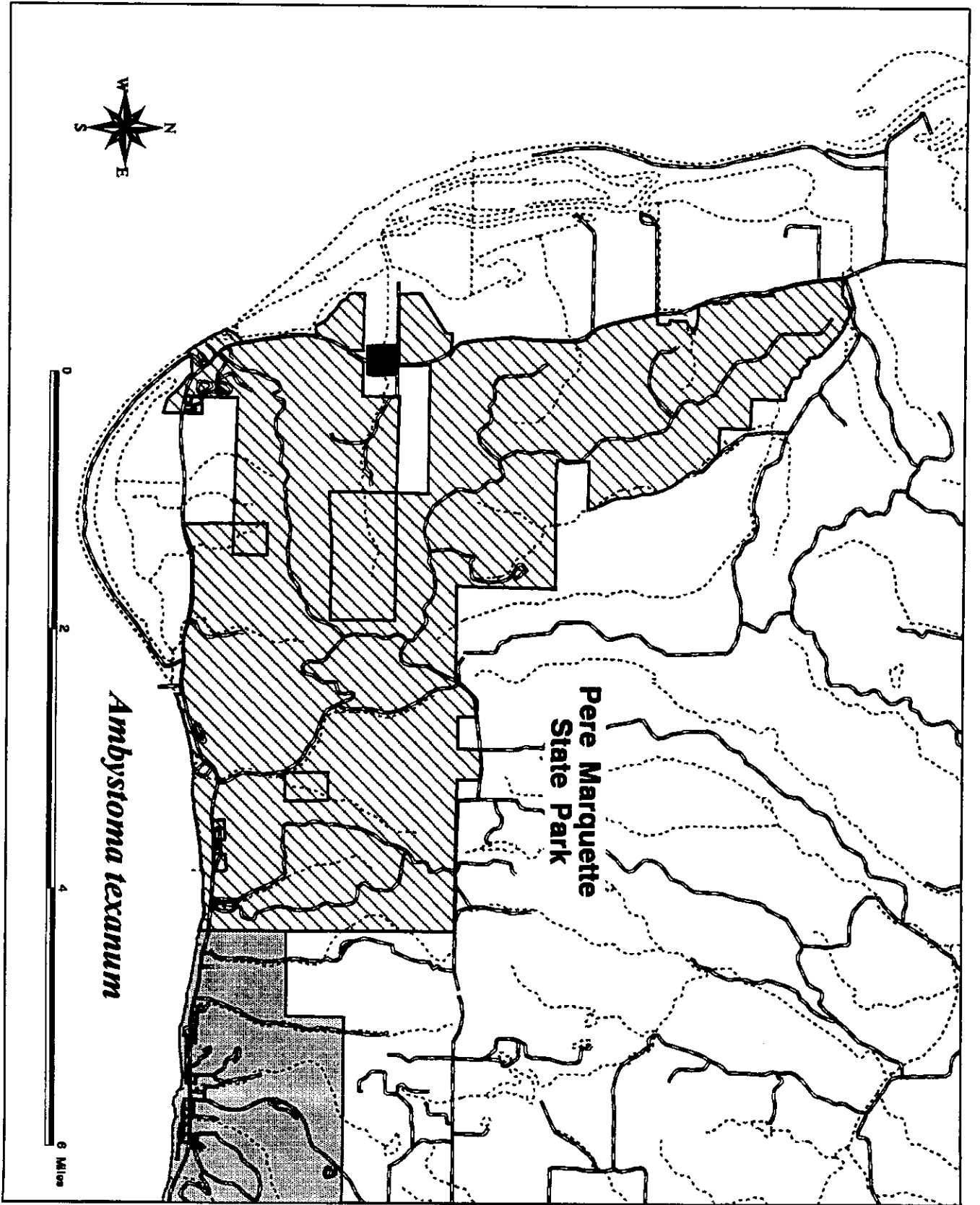


The following is a legend for the locality maps:

- Black dots represent localities found by this survey;
- ▲ Black triangles represent previous records with exact locality data;
- Black squares represent previous records with obscure locality data.

T7N

T6N



Ambystoma texanum

Pere Marquette
State Park

R13W

R12W

T7N

T6N

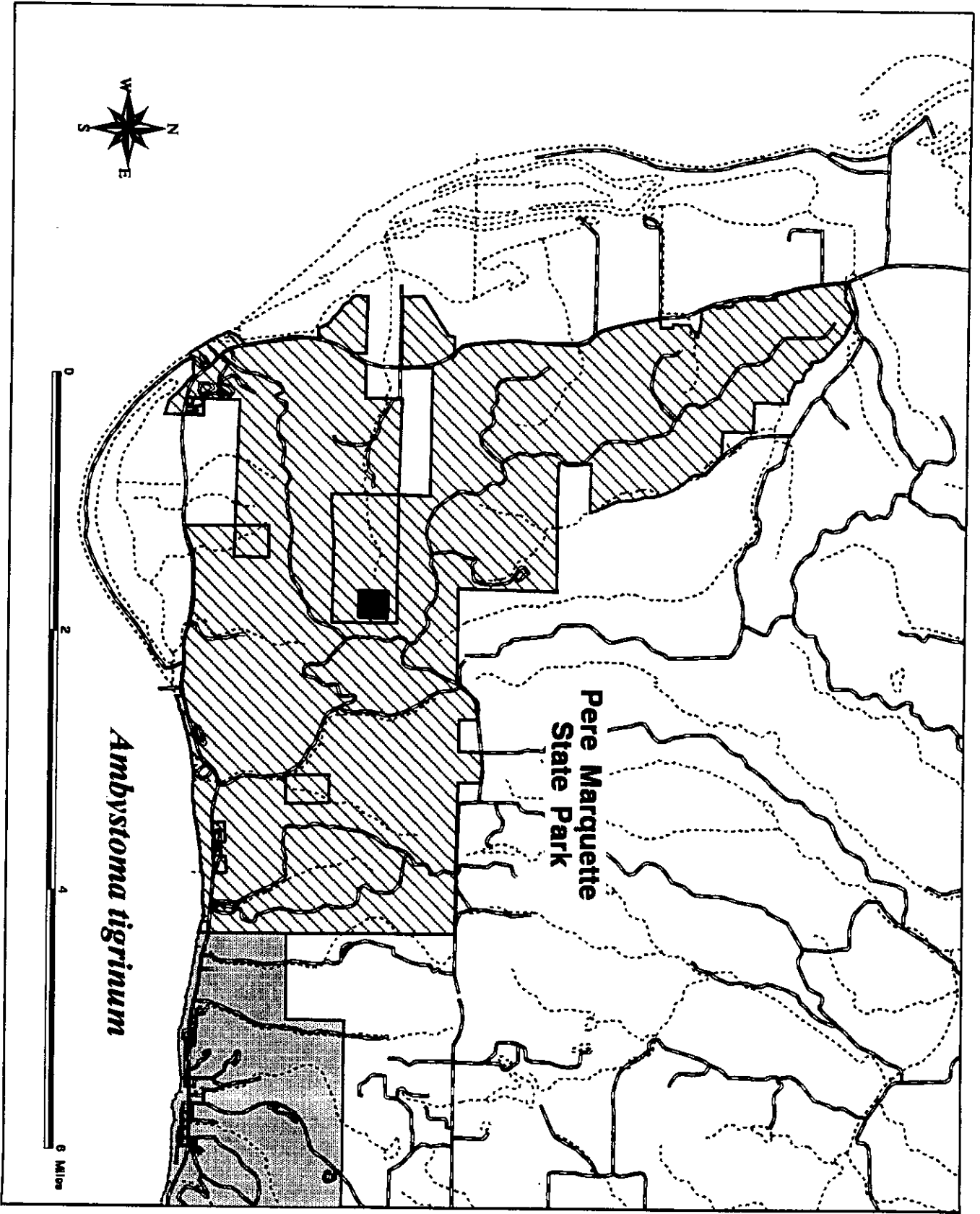


Ambystoma tigrinum

Pere Marquette
State Park

R13W

R12W

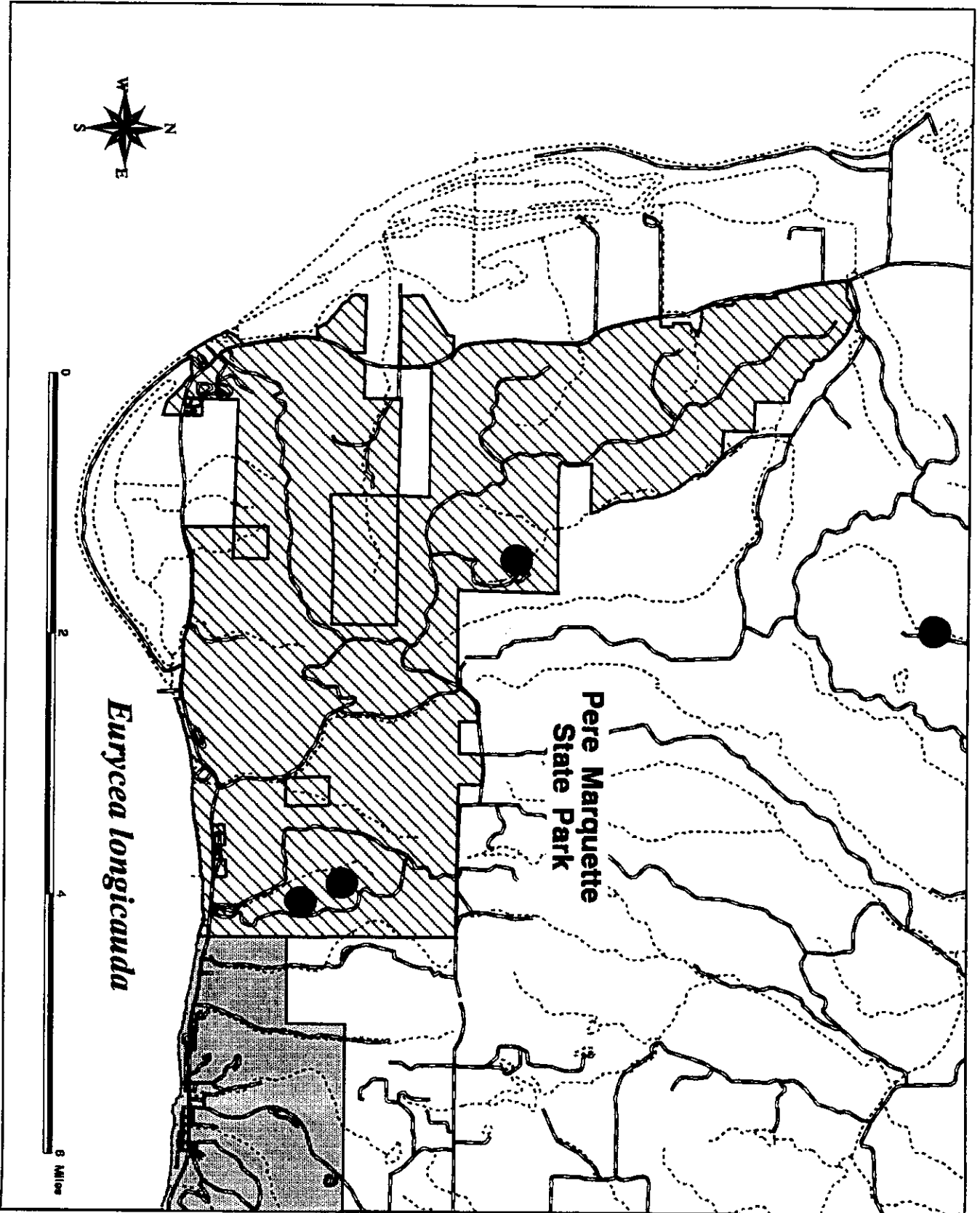


T7N

T6N

R13W

R12W



T7N

T6N

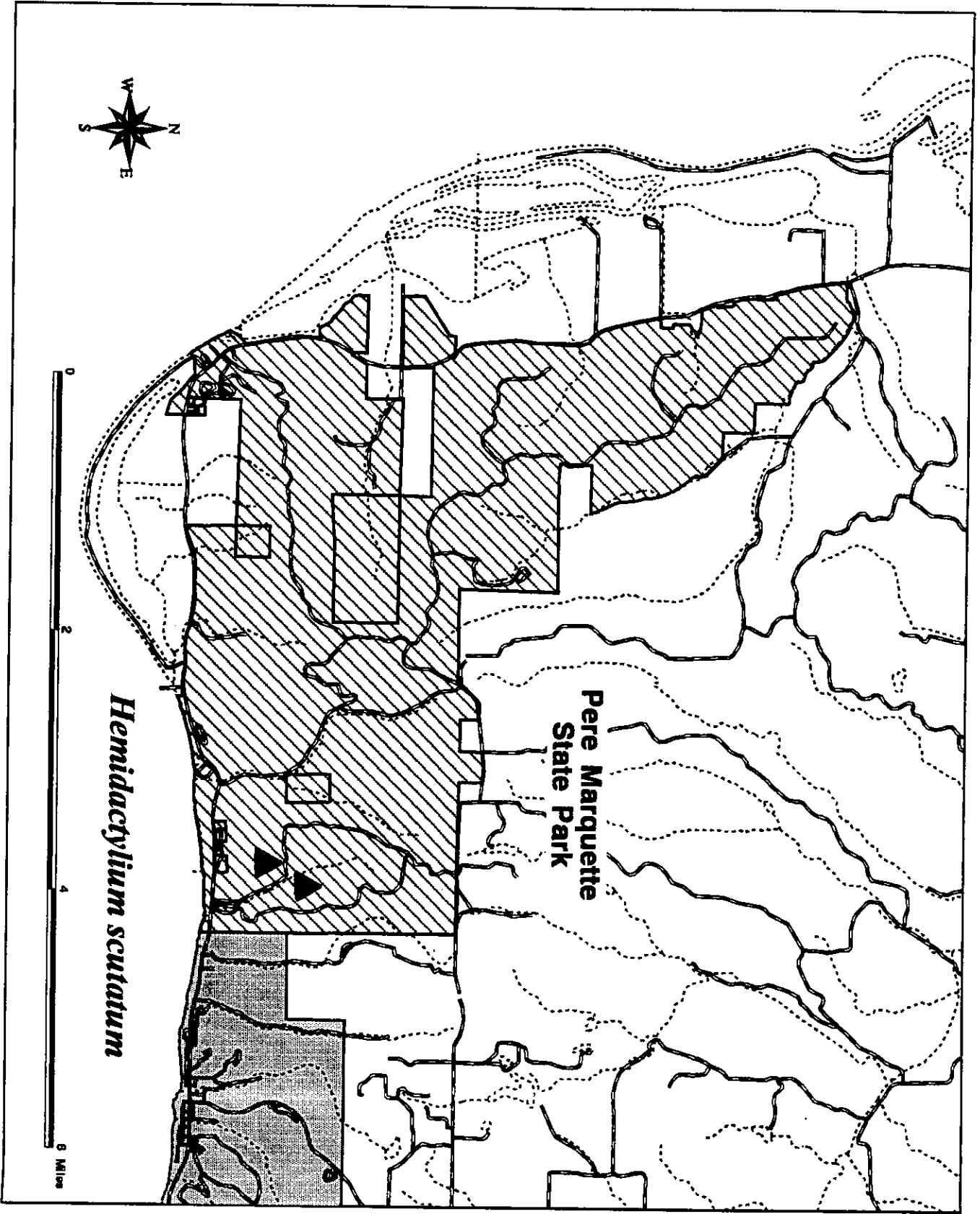


R13W

R12W

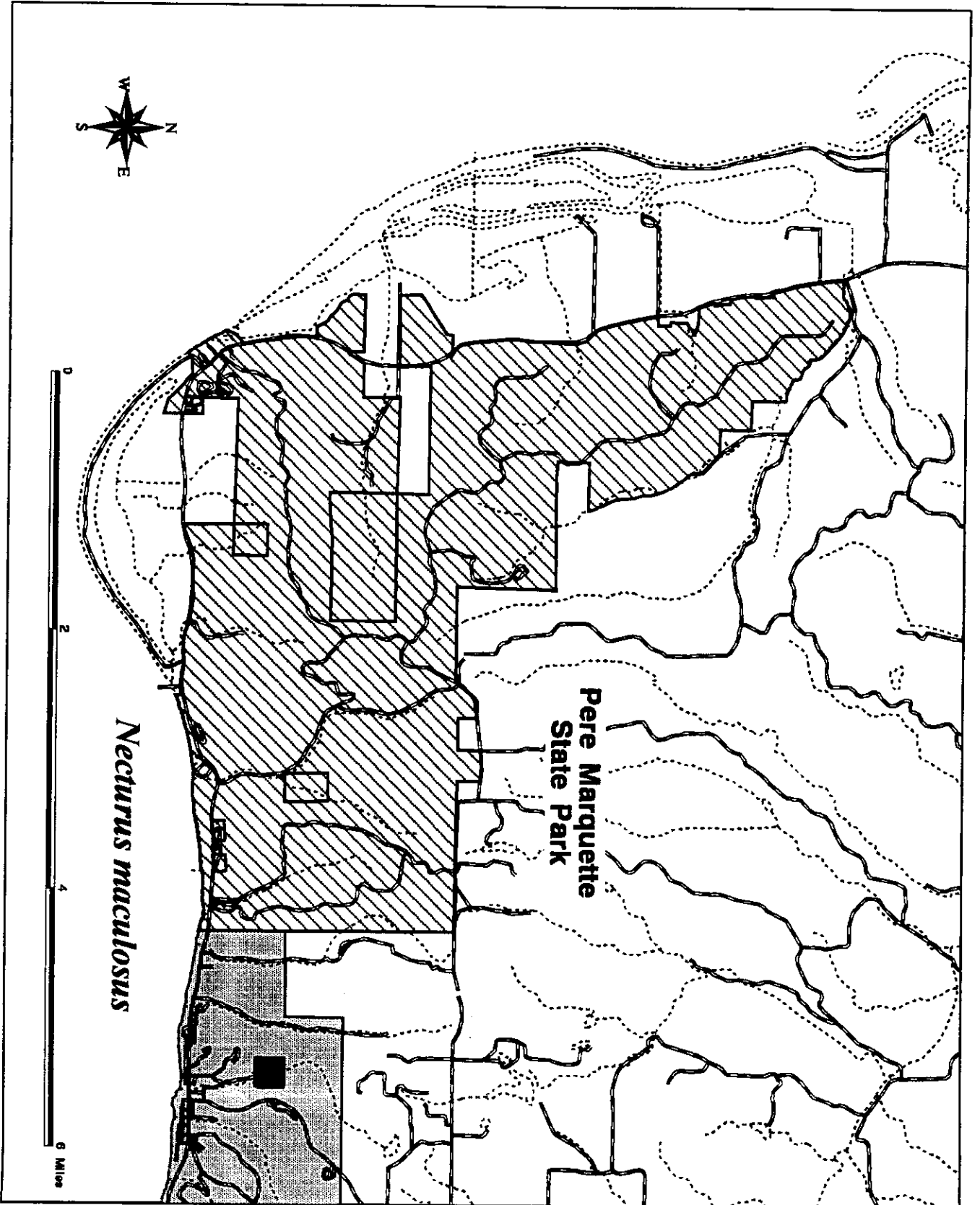
Pere Marquette
State Park

Hemidactylium scutatum



T7N

T6N



R13W

R12W

Necturus maculosus

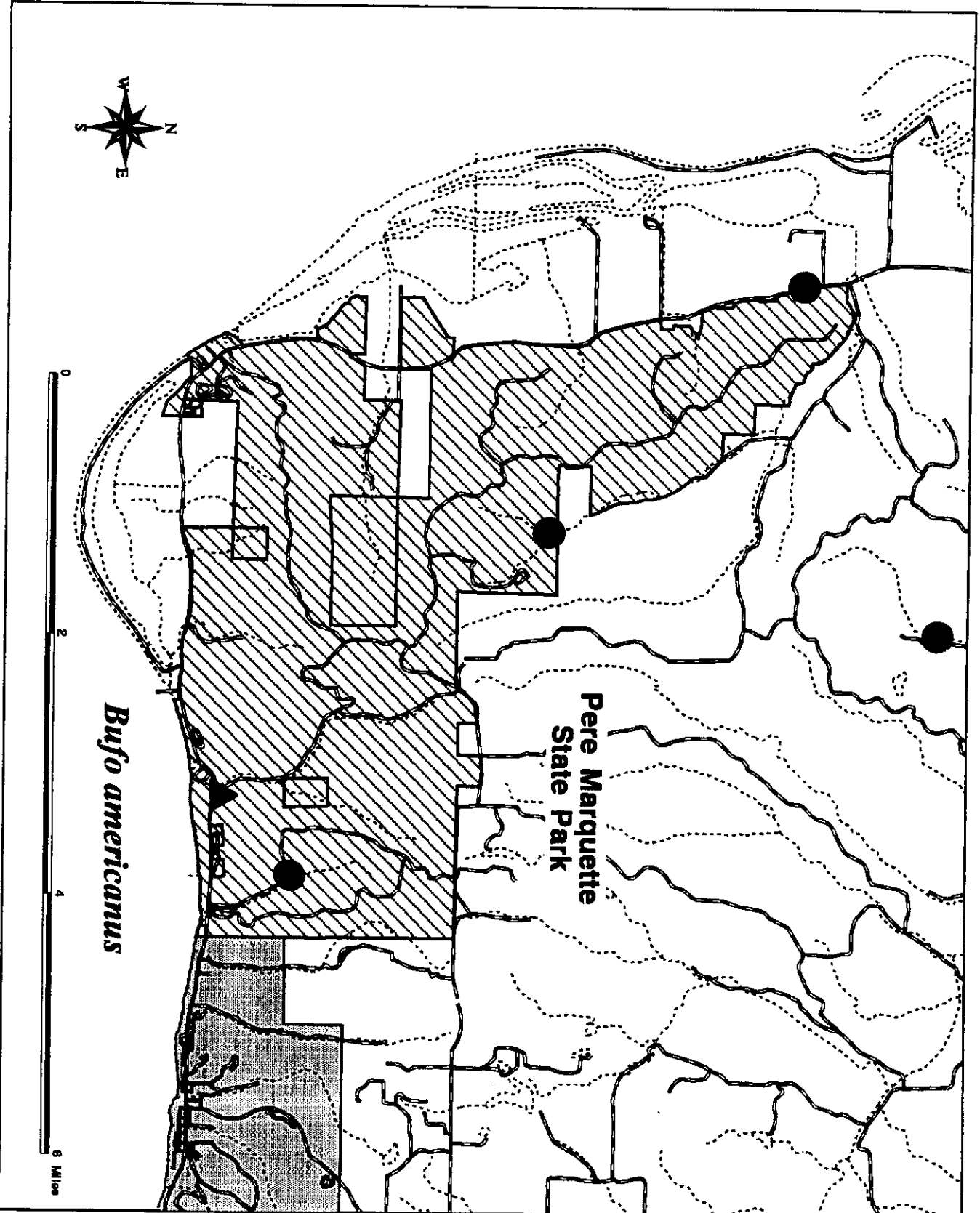
Pere Marquette
State Park

T7N

T6N

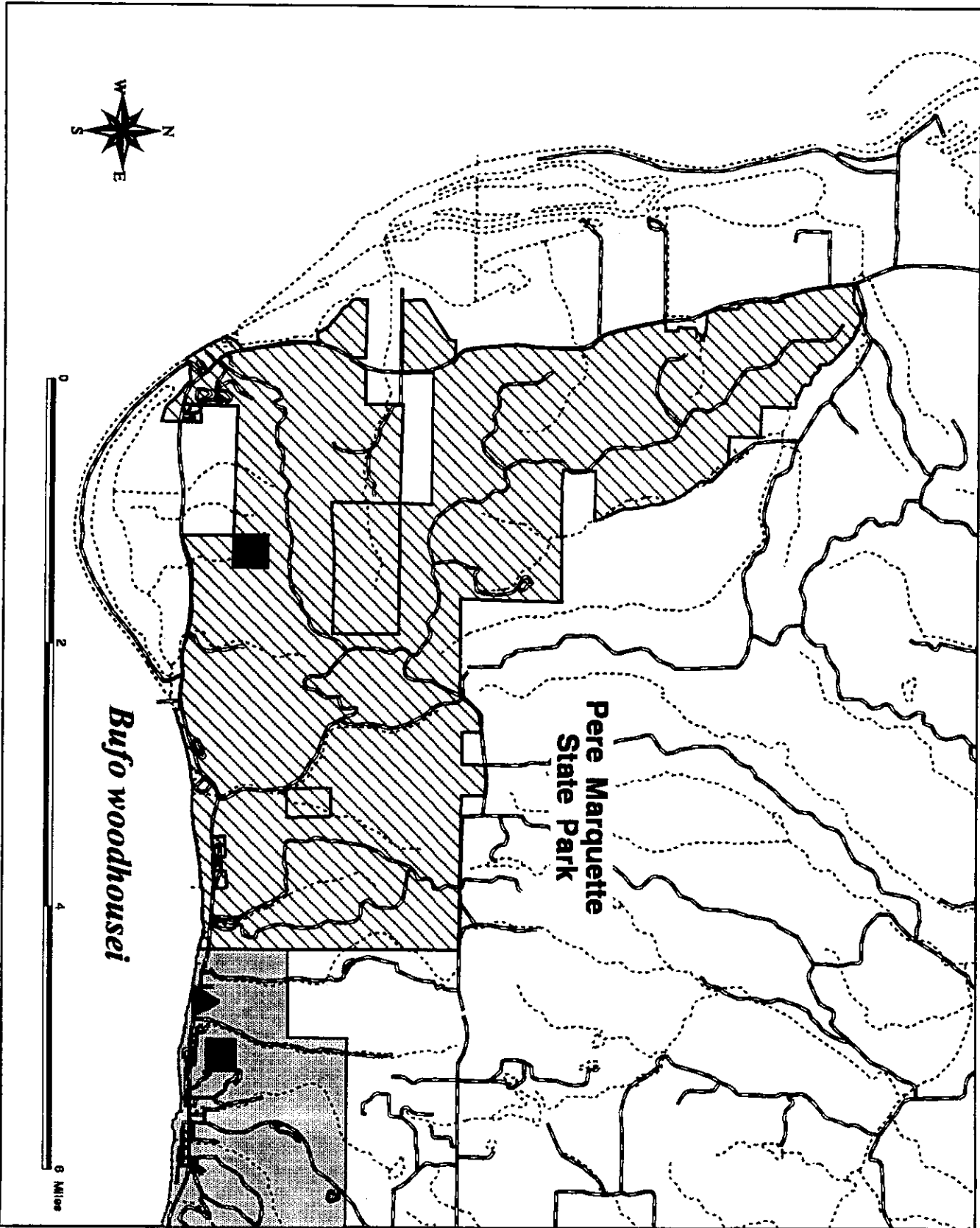
R13W

R12W



T7N

T6N



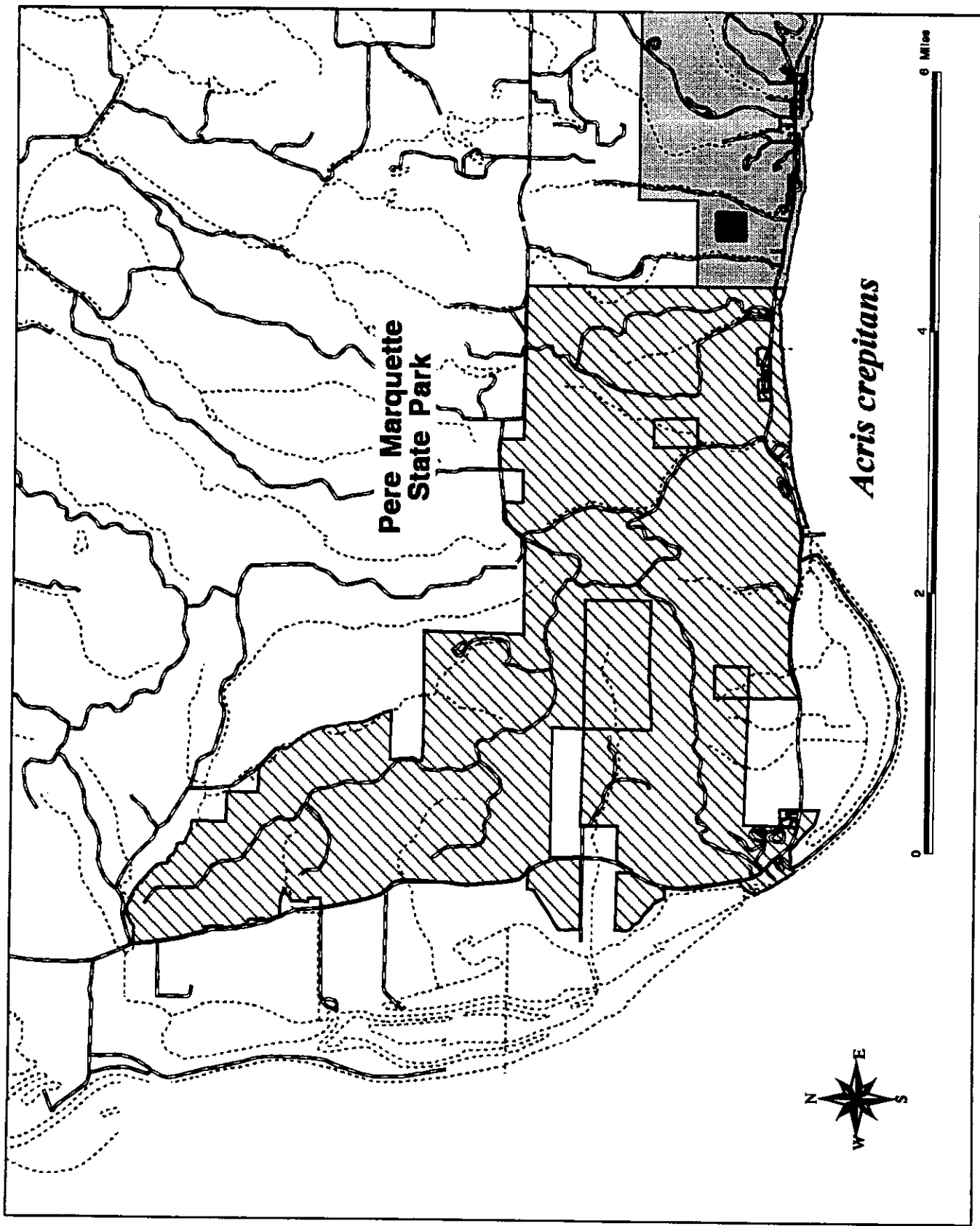
R13W

R12W



Bufo woodhousei

Pere Marquette
State Park



T7N

T6N

R13W

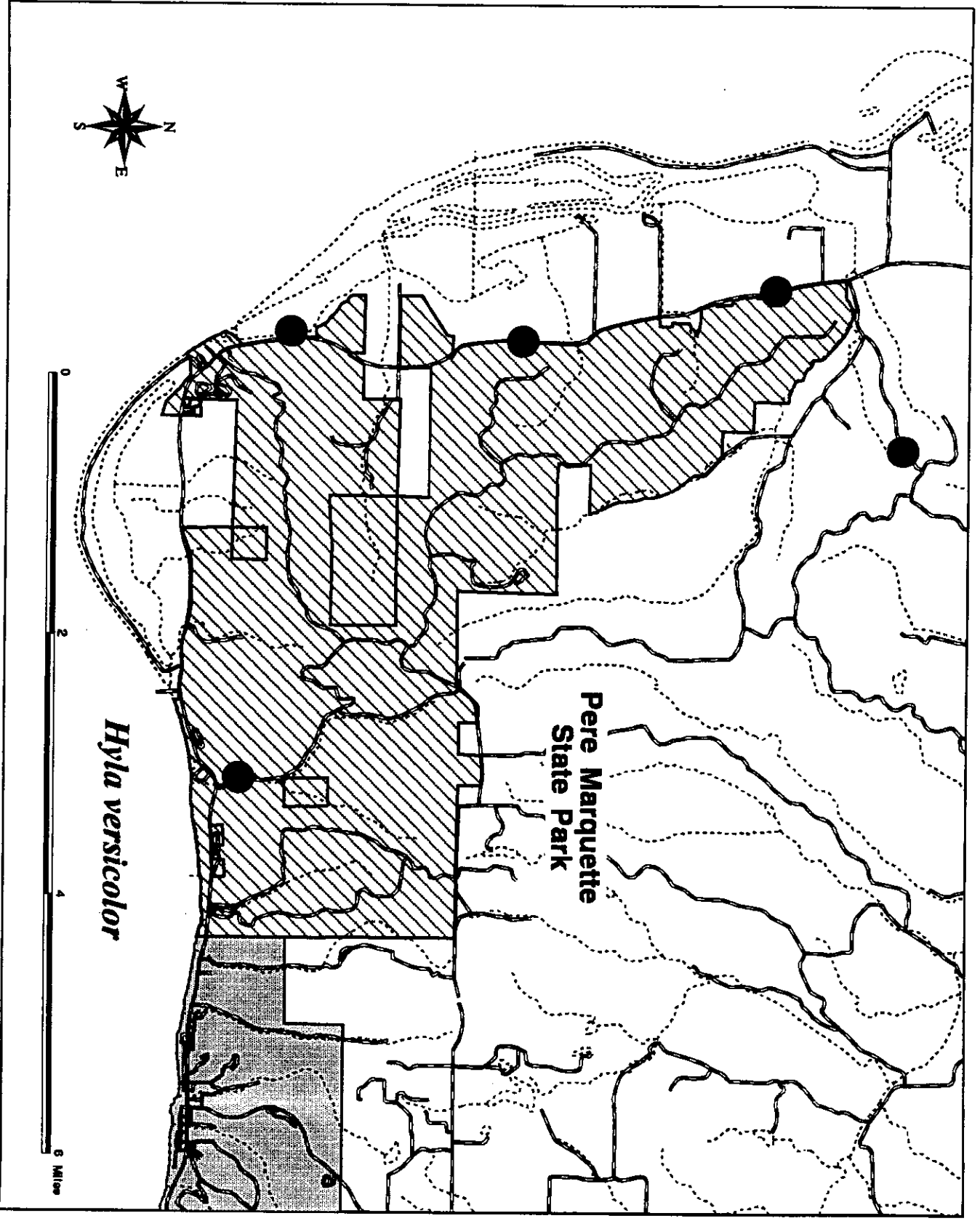
R12W

T7N

T6N

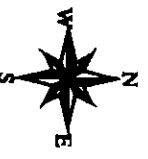
R13W

R12W



T7N

T6N



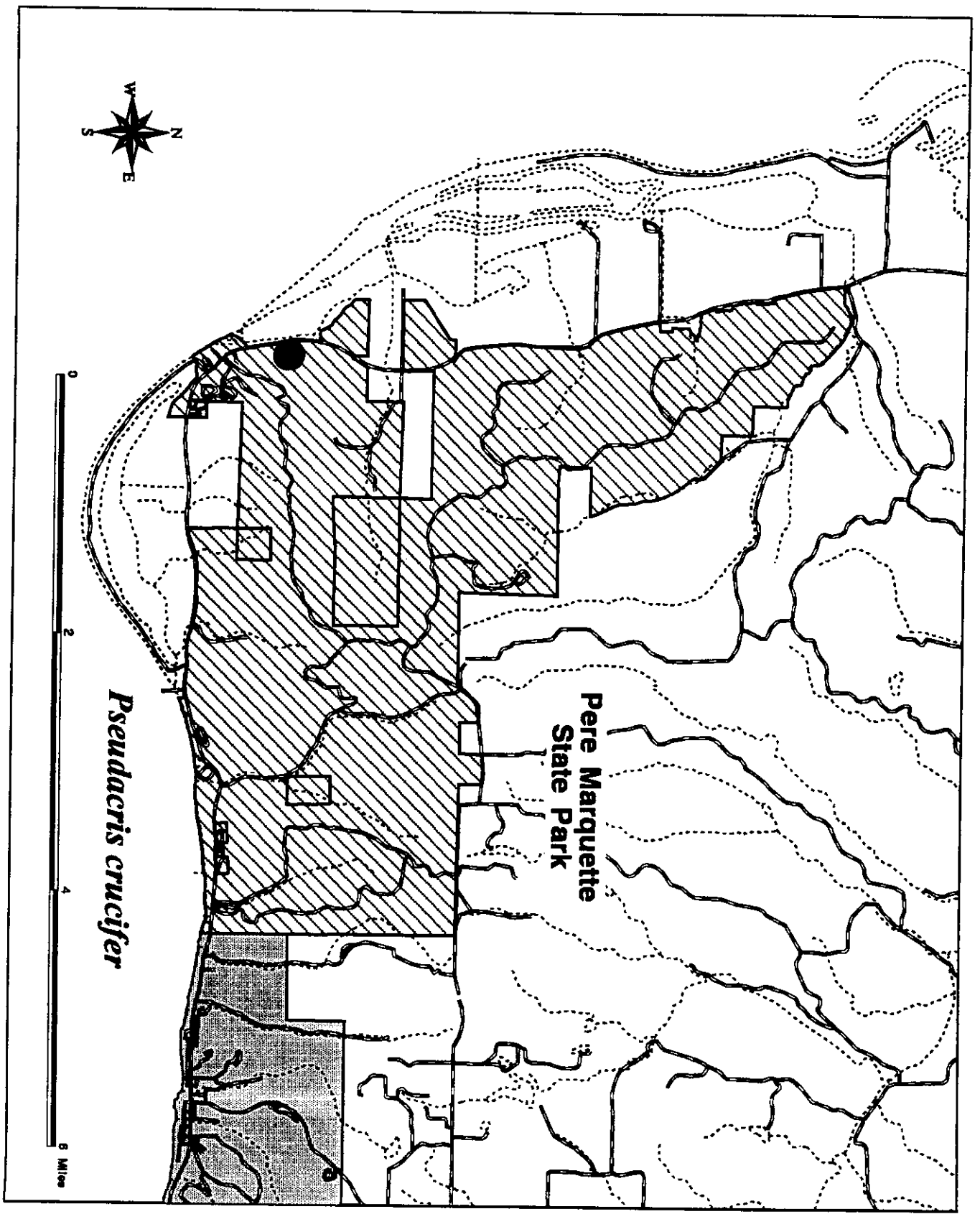
R13W

R12W



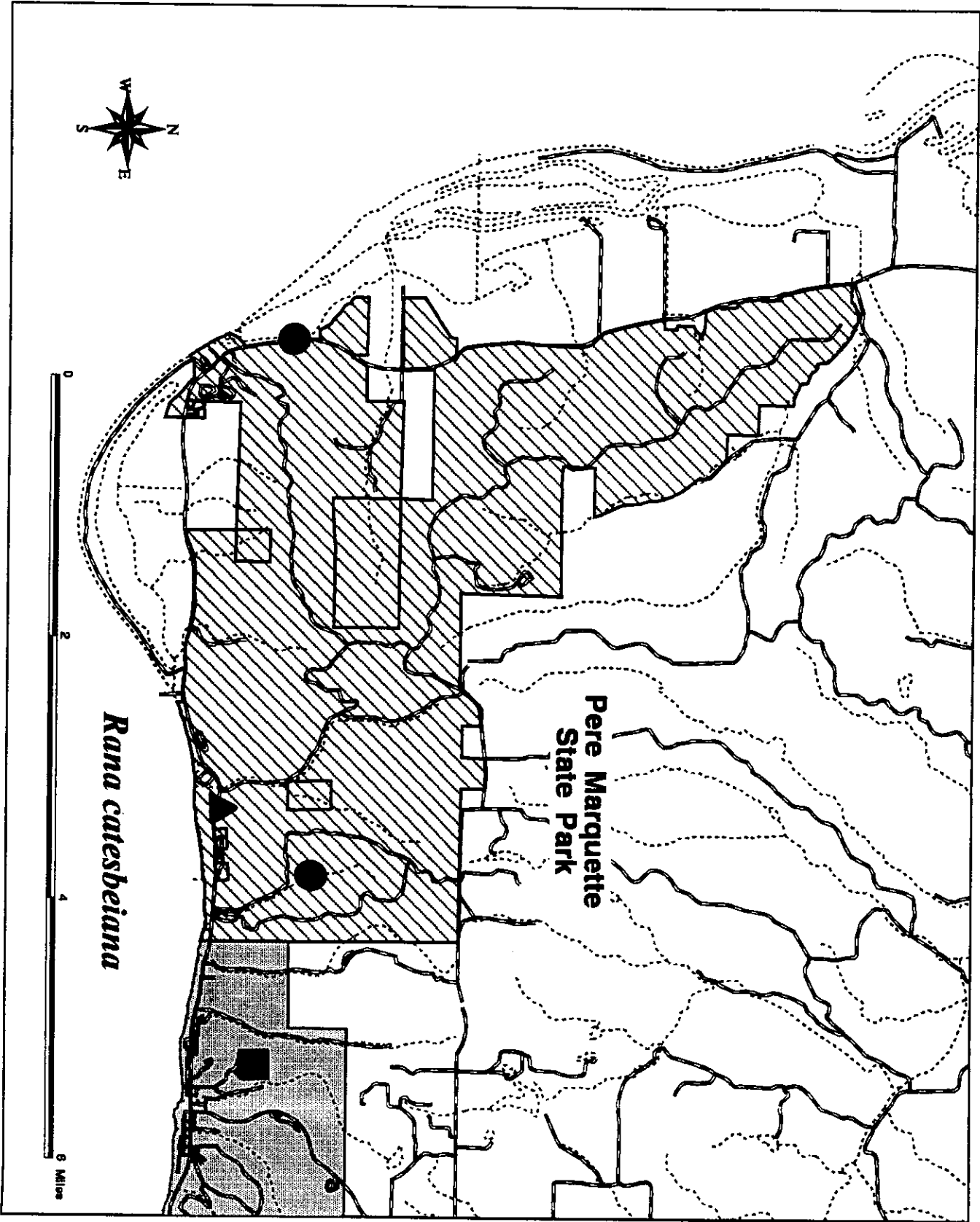
Pseudacris crucifer

Pere Marquette
State Park



T7N

T6N



Rana catesbeiana

Pere Marquette
State Park

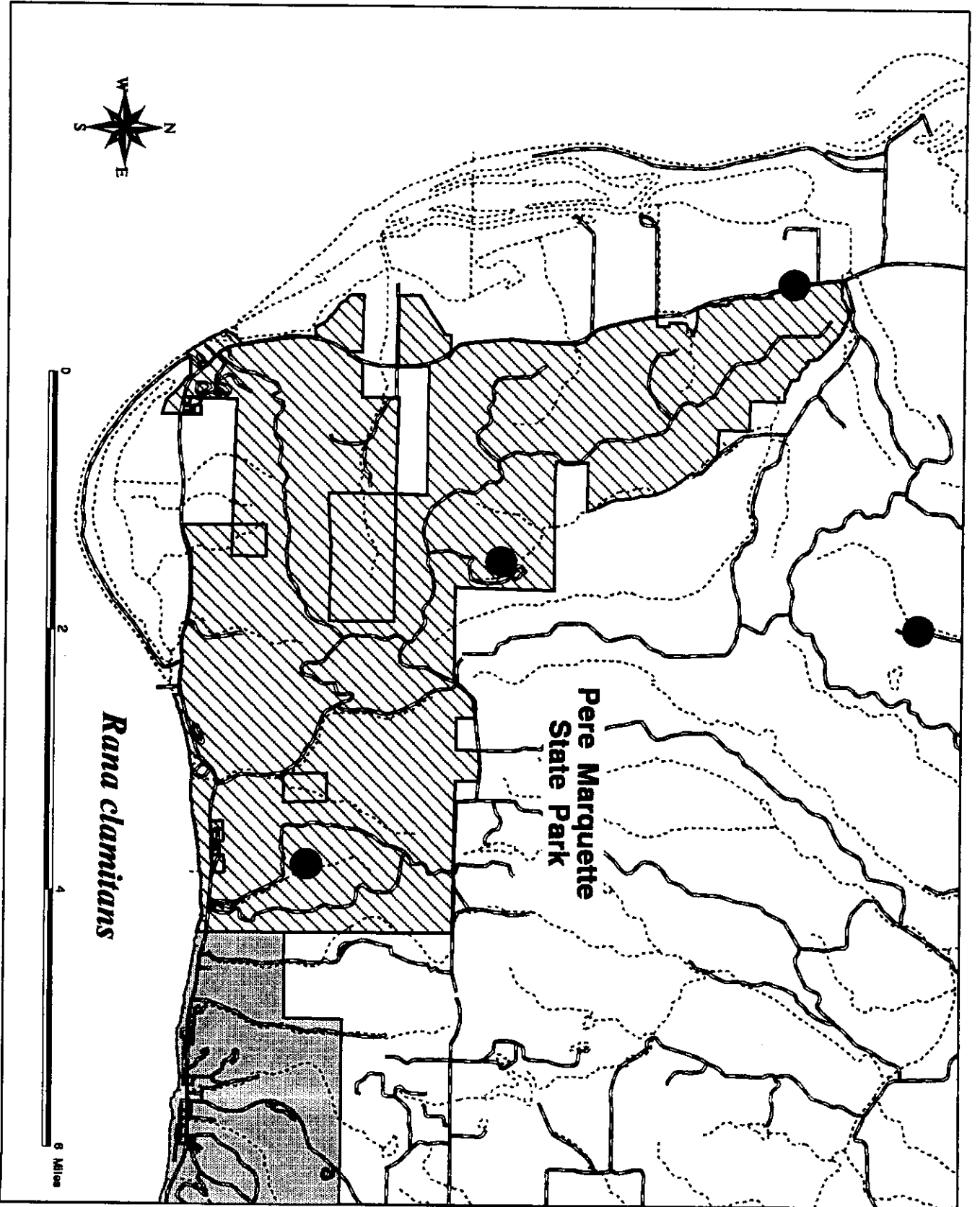


R13W

R12W

T7N

T6N



R13W

Ranunculus lanuginosus

Pere Marquette
State Park

R12W

6 Miles

T7N

T6N



R13W

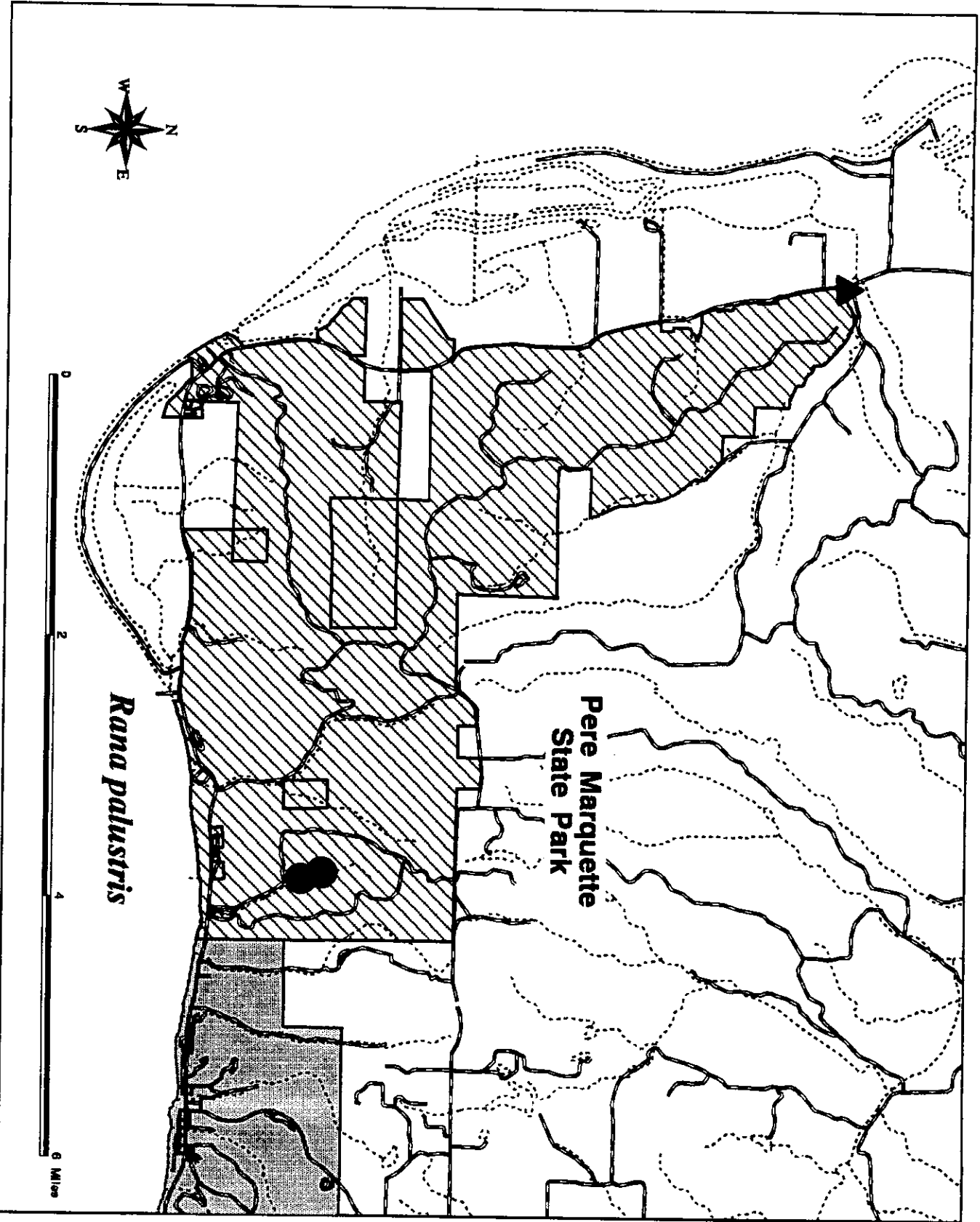
R12W



0 Miles

Rana palustris

Pere Marquette
State Park



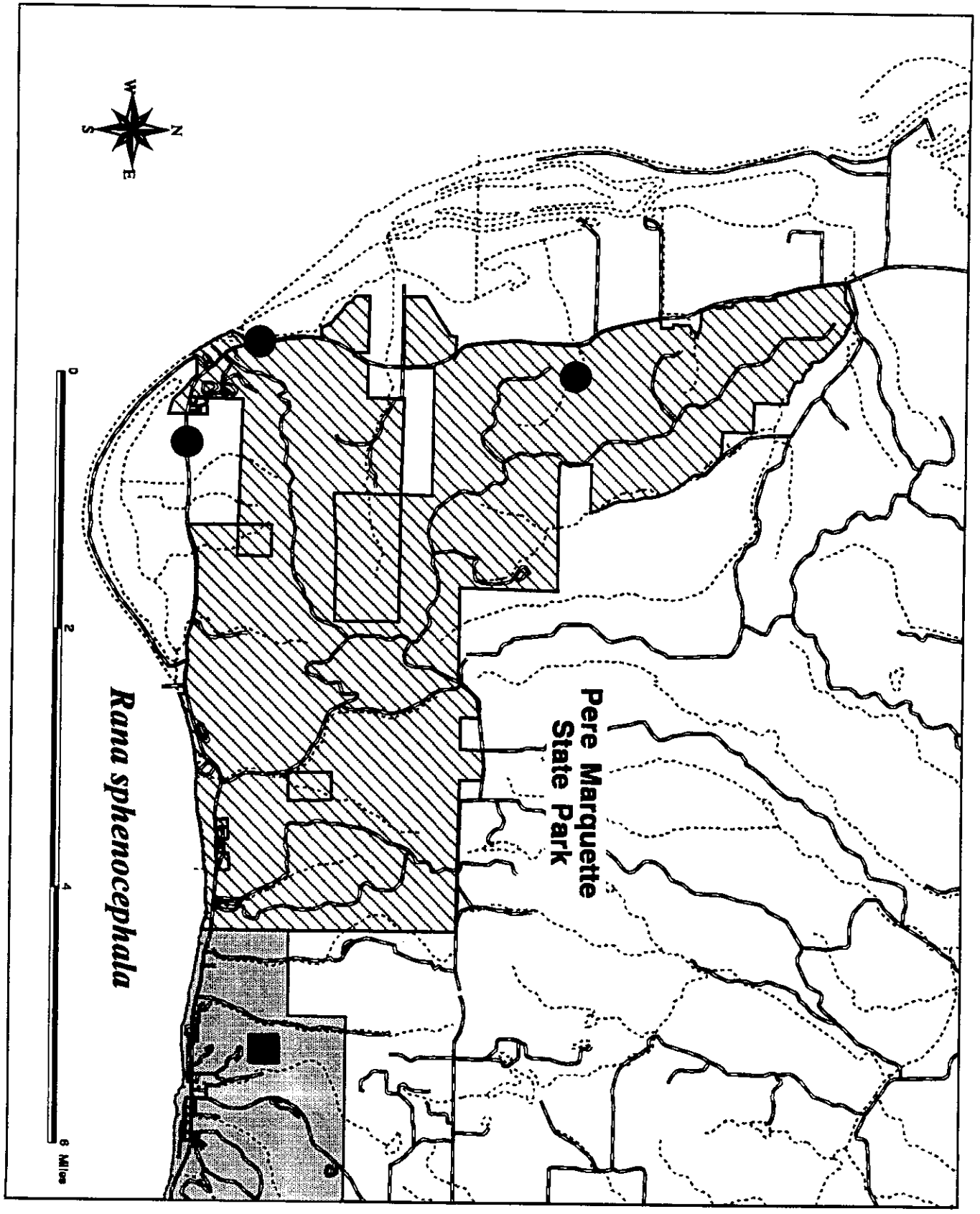
T7N

T6N



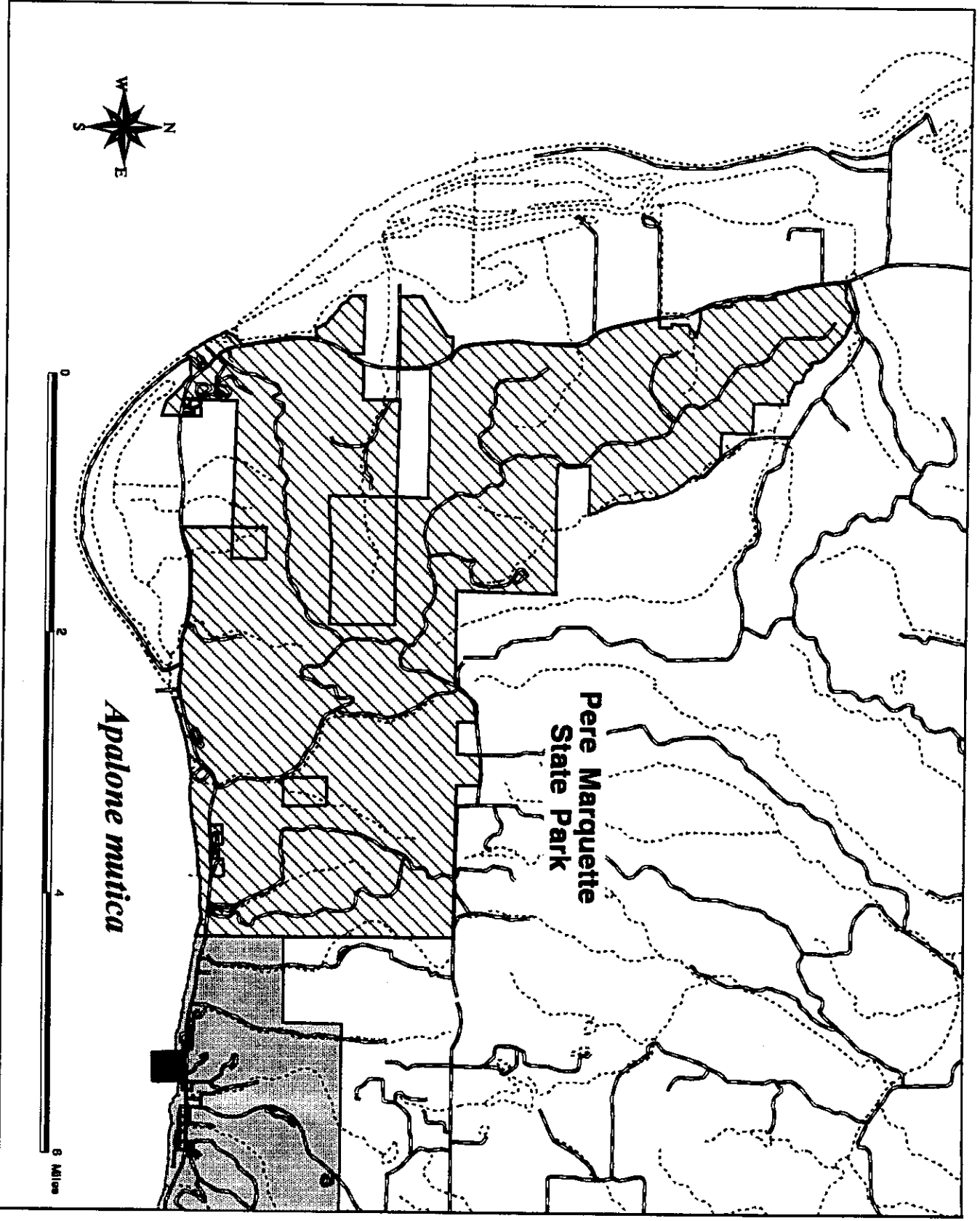
R13W

R12W



T7N

T6N

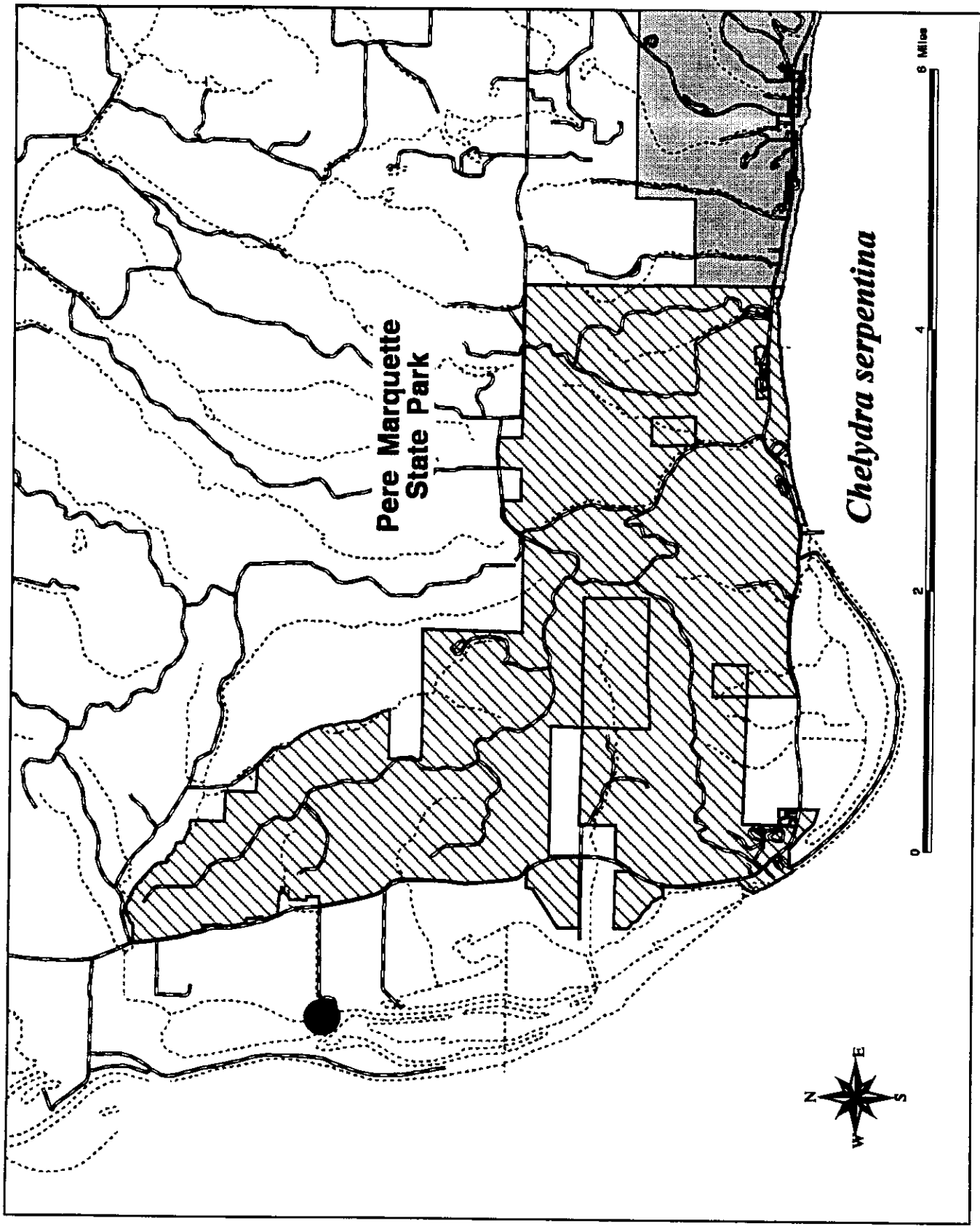


Apalone munitica

Pere Marquette
State Park

R13W

R12W



T7N

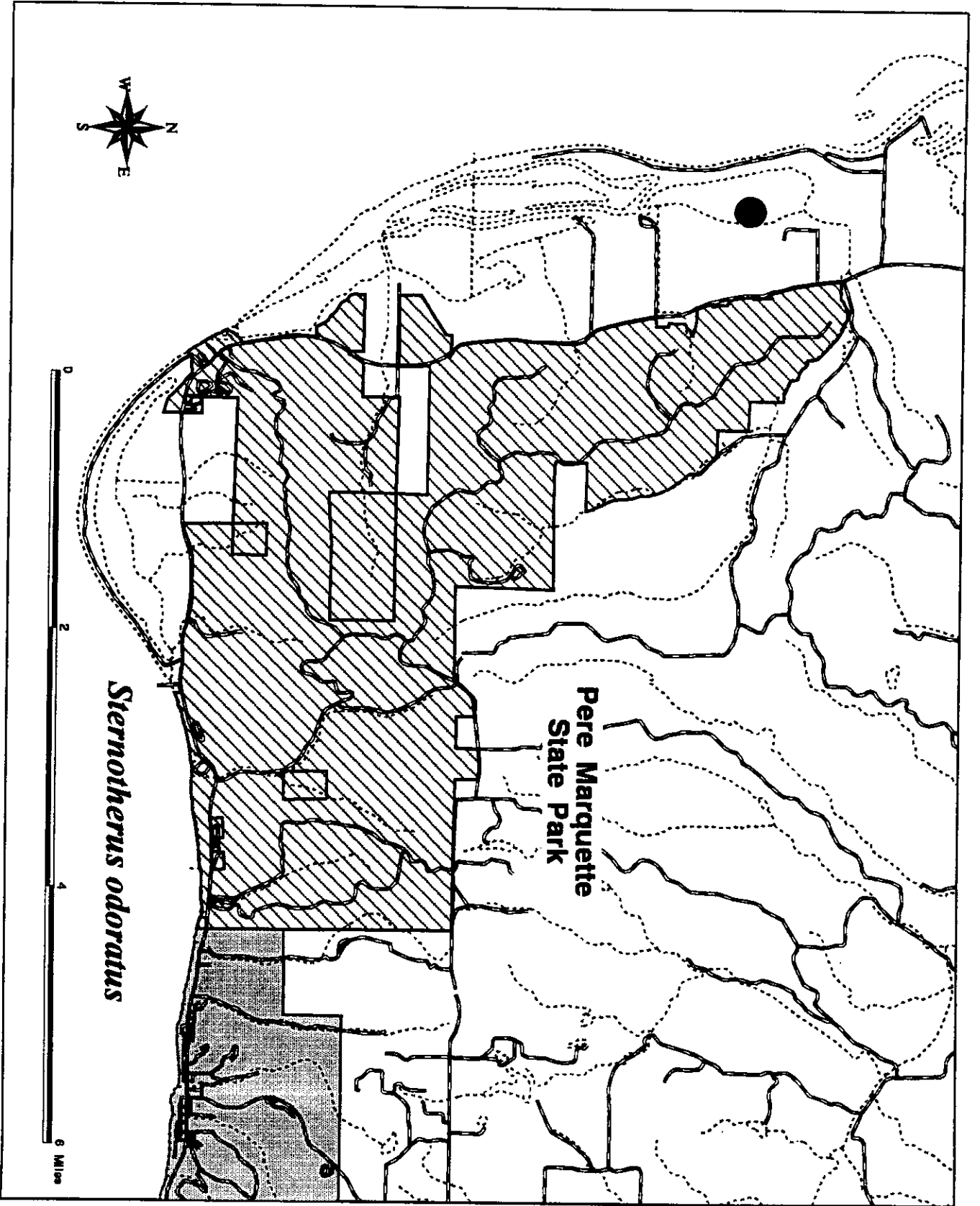
T6N

R13W

R12W

T7N

T6N



Pere Marquette
State Park

Sternotherus odoratus



R13W

R12W

T7N

T6N



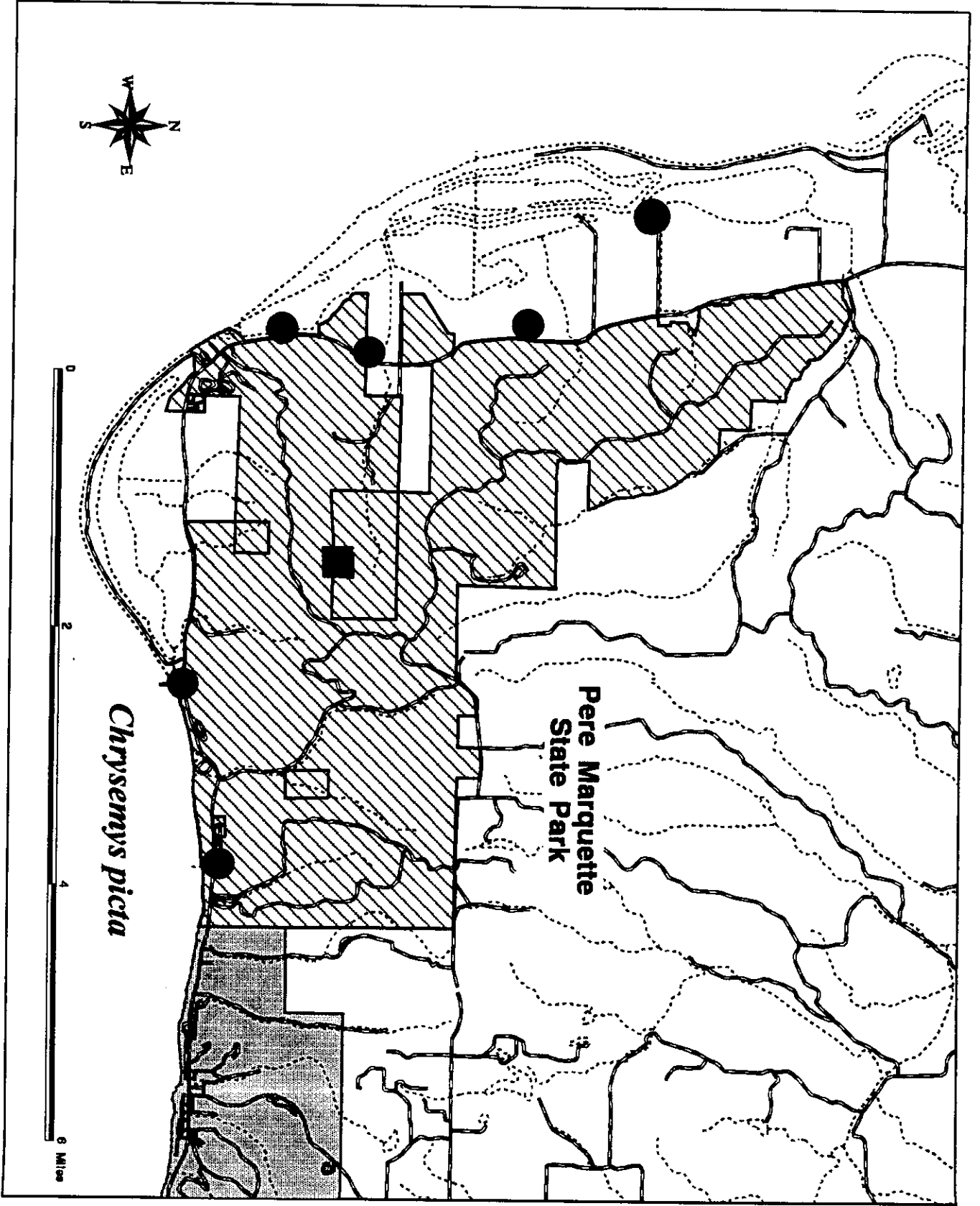
R13W

R12W



Chrysemys picta

Pere Marquette
State Park



T7N

T6N

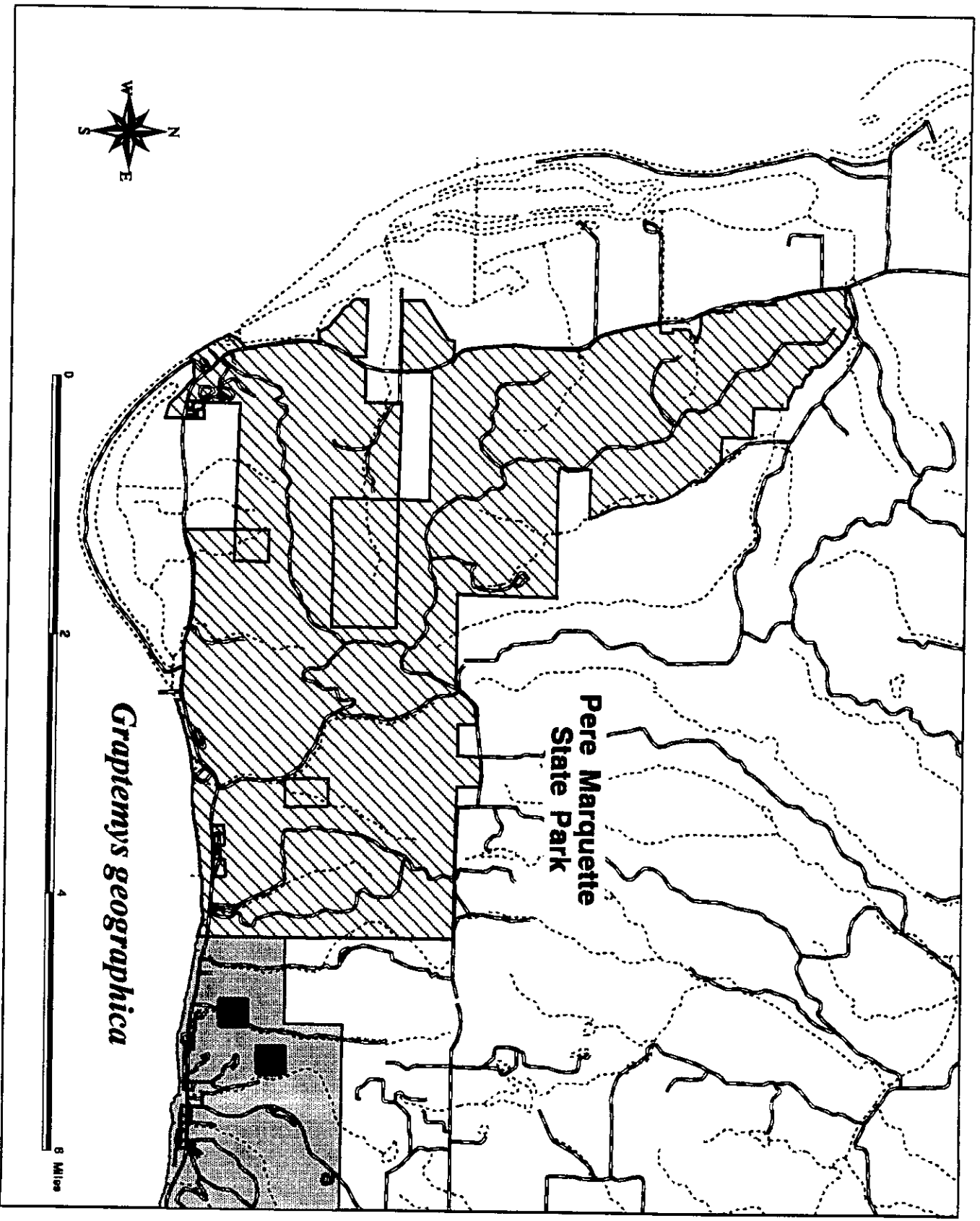


Graptemys geographica

Pere Marquette
State Park

R13W

R12W



T7N

T6N

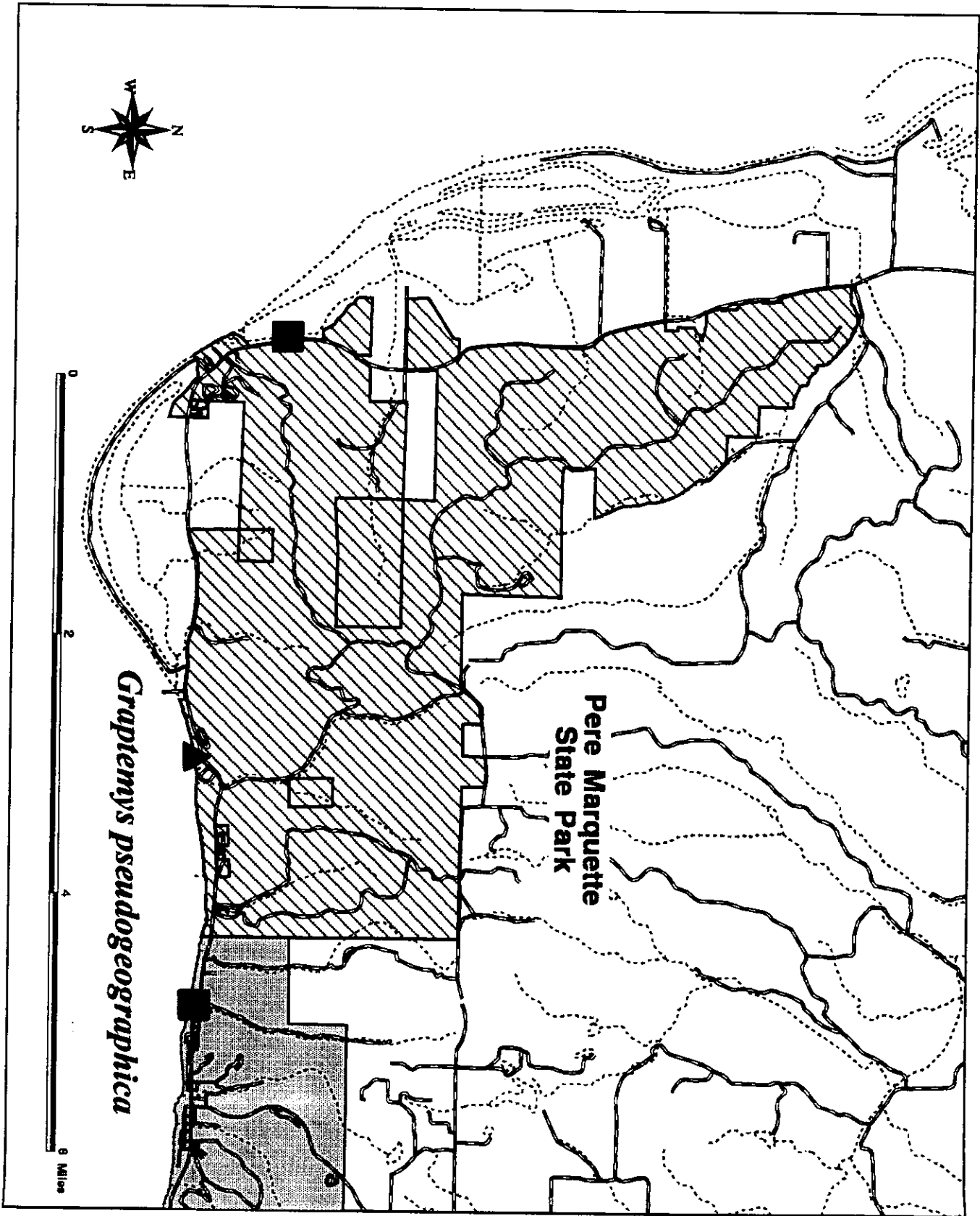


Graptemys pseudogeographica

Pere Marquette
State Park

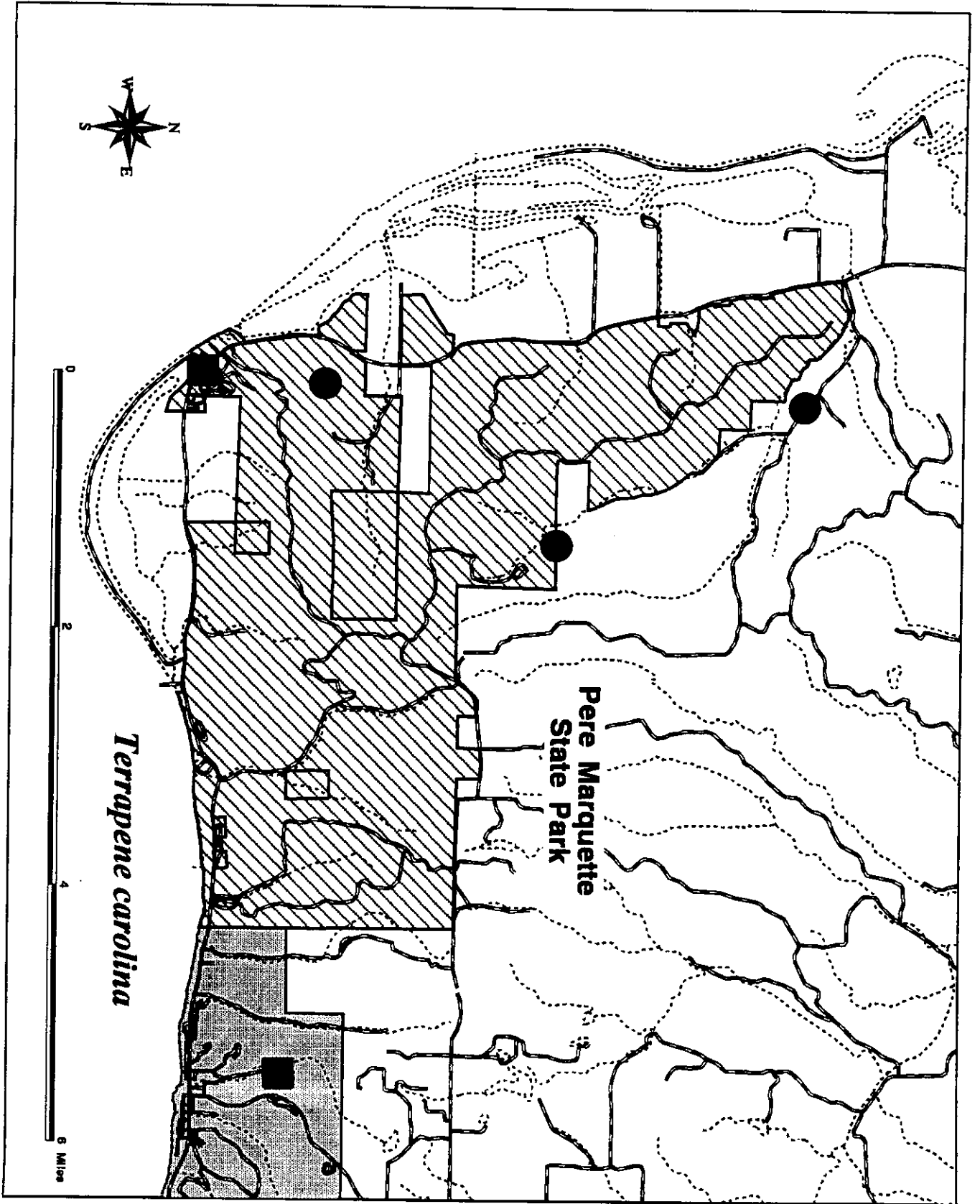
R13W

R12W



T7N

T6N



Pere Marquette
State Park

Terrapene carolina

R13W

R12W

5 Miles

T7N

T6N



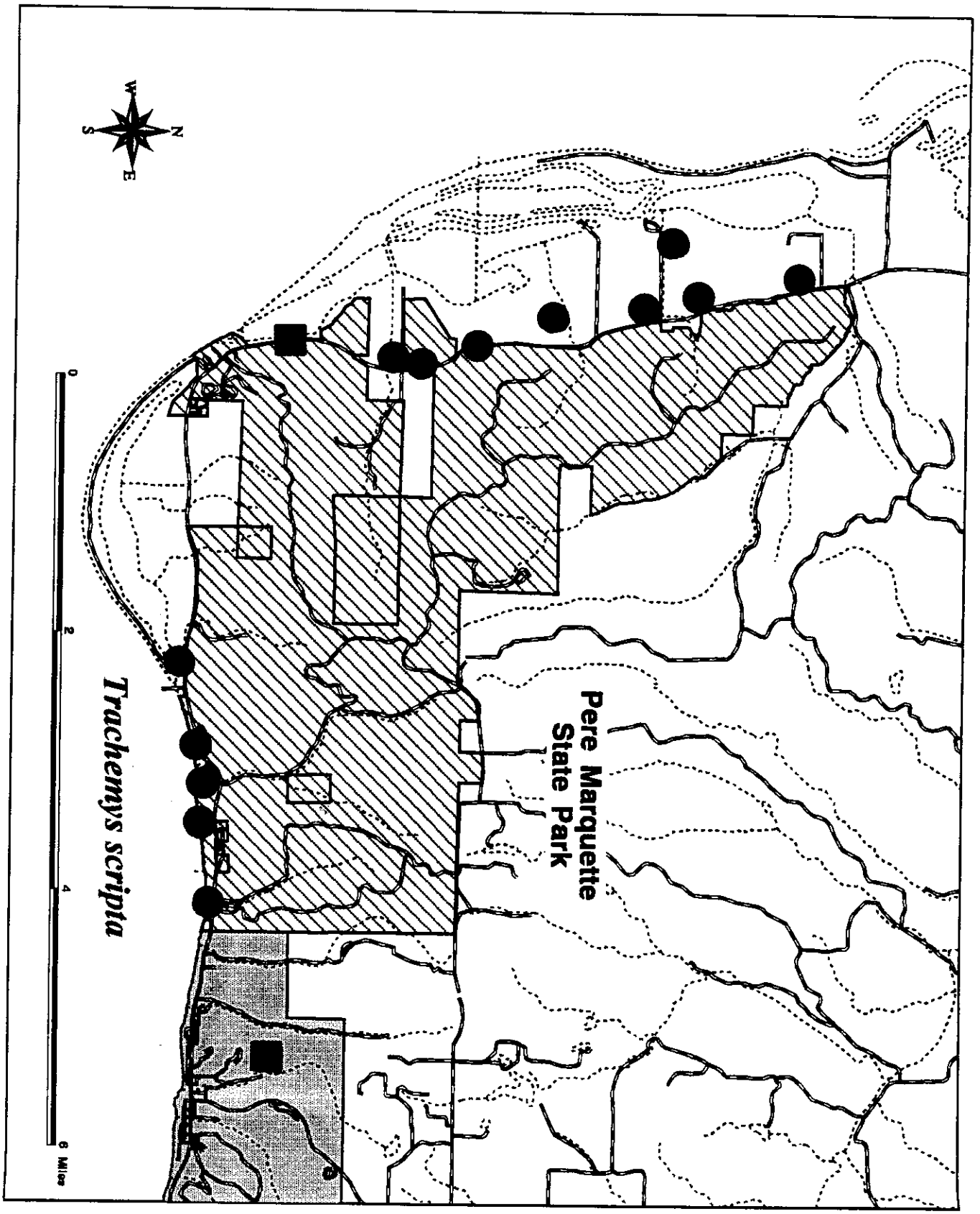
R13W

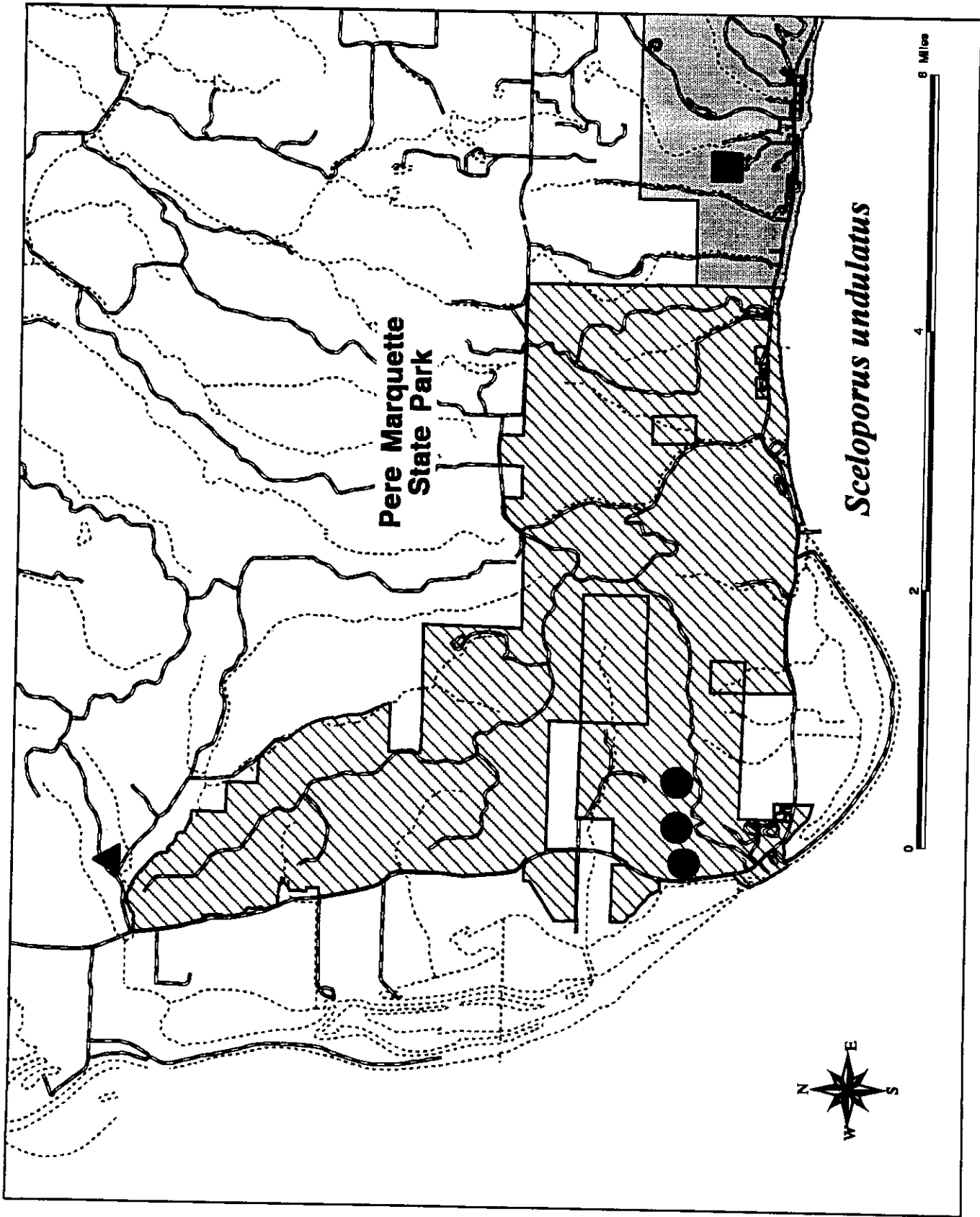
R12W



Trachemys scripta

Pere Marquette
State Park





T7N

T6N



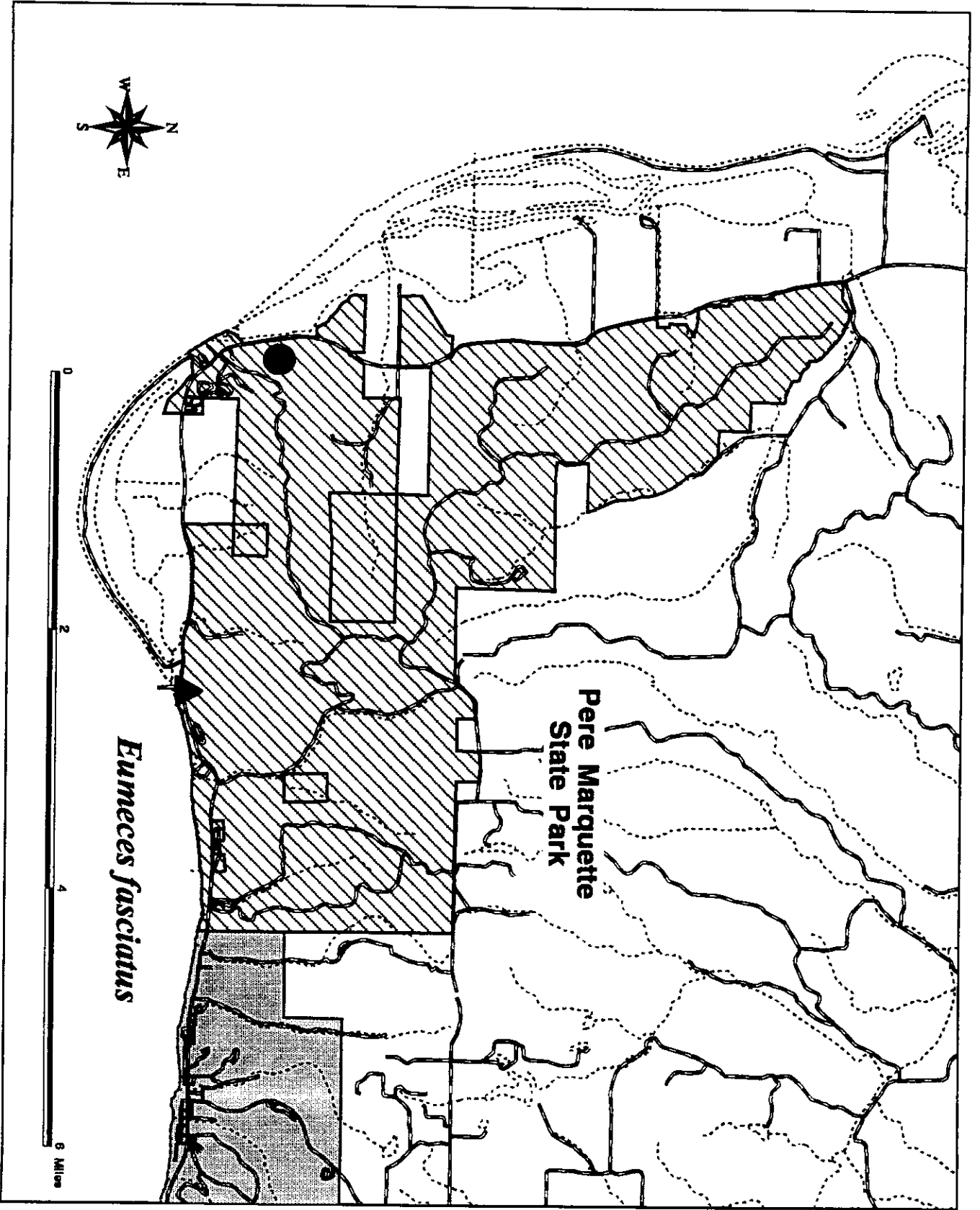
R13W

R12W



Pere Marquette
State Park

Eumeces fasciatus



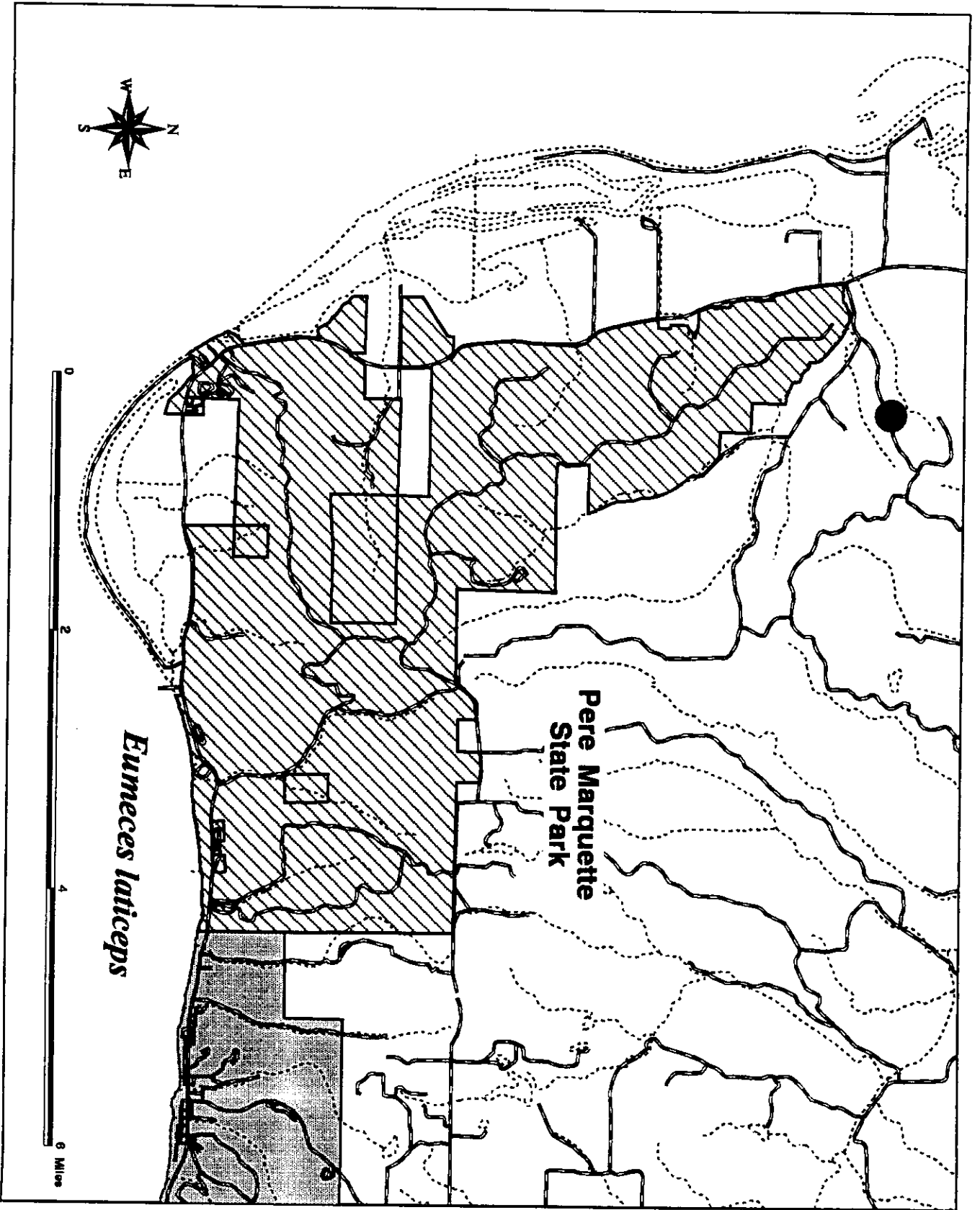
T7N

T6N



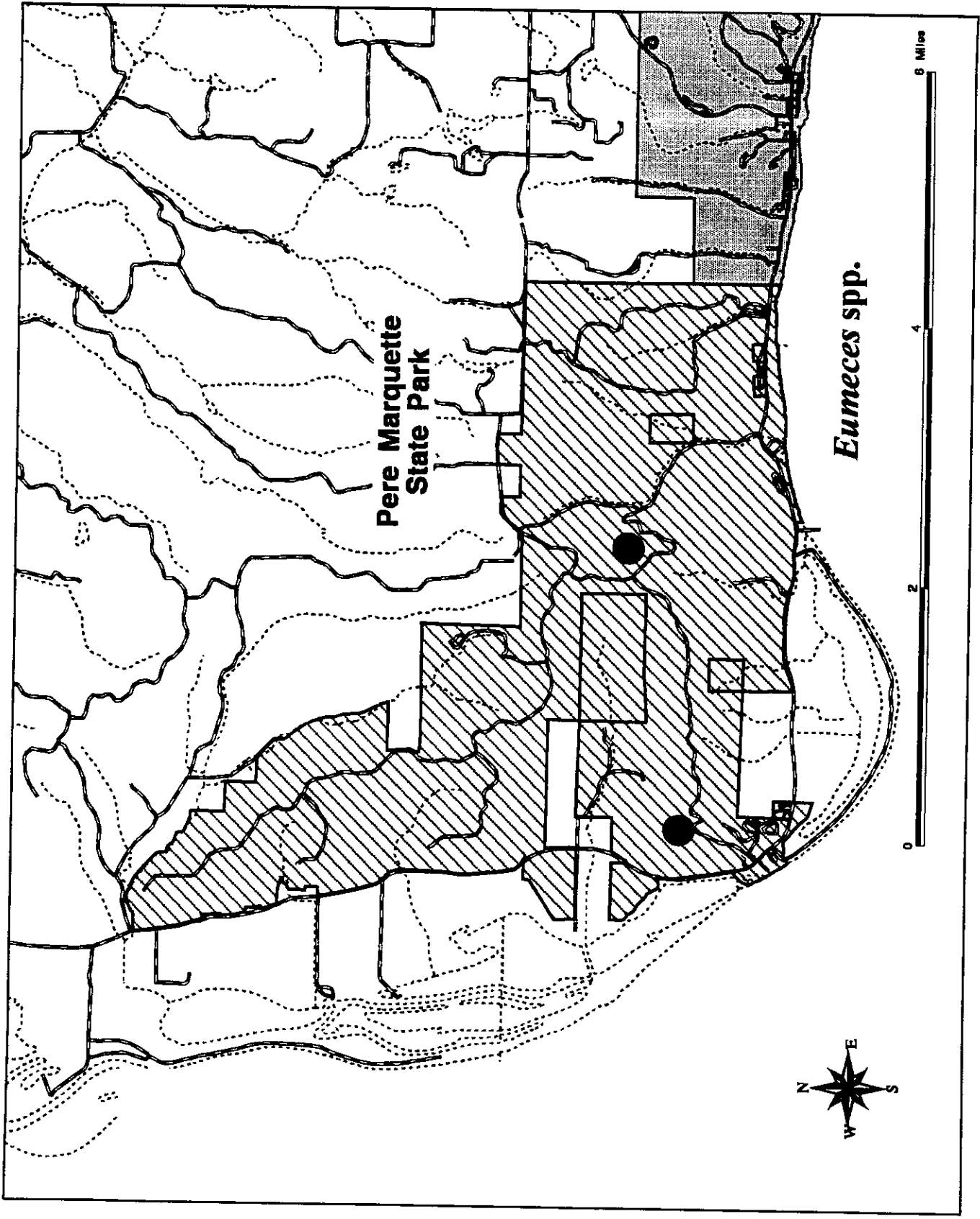
R13W

R12W



Pere Marquette
State Park

Euneces laticeps



T7N

T6N

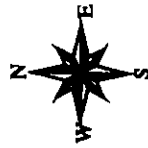
R13W

R12W

Pere Marquette
State Park

Eumeces spp.

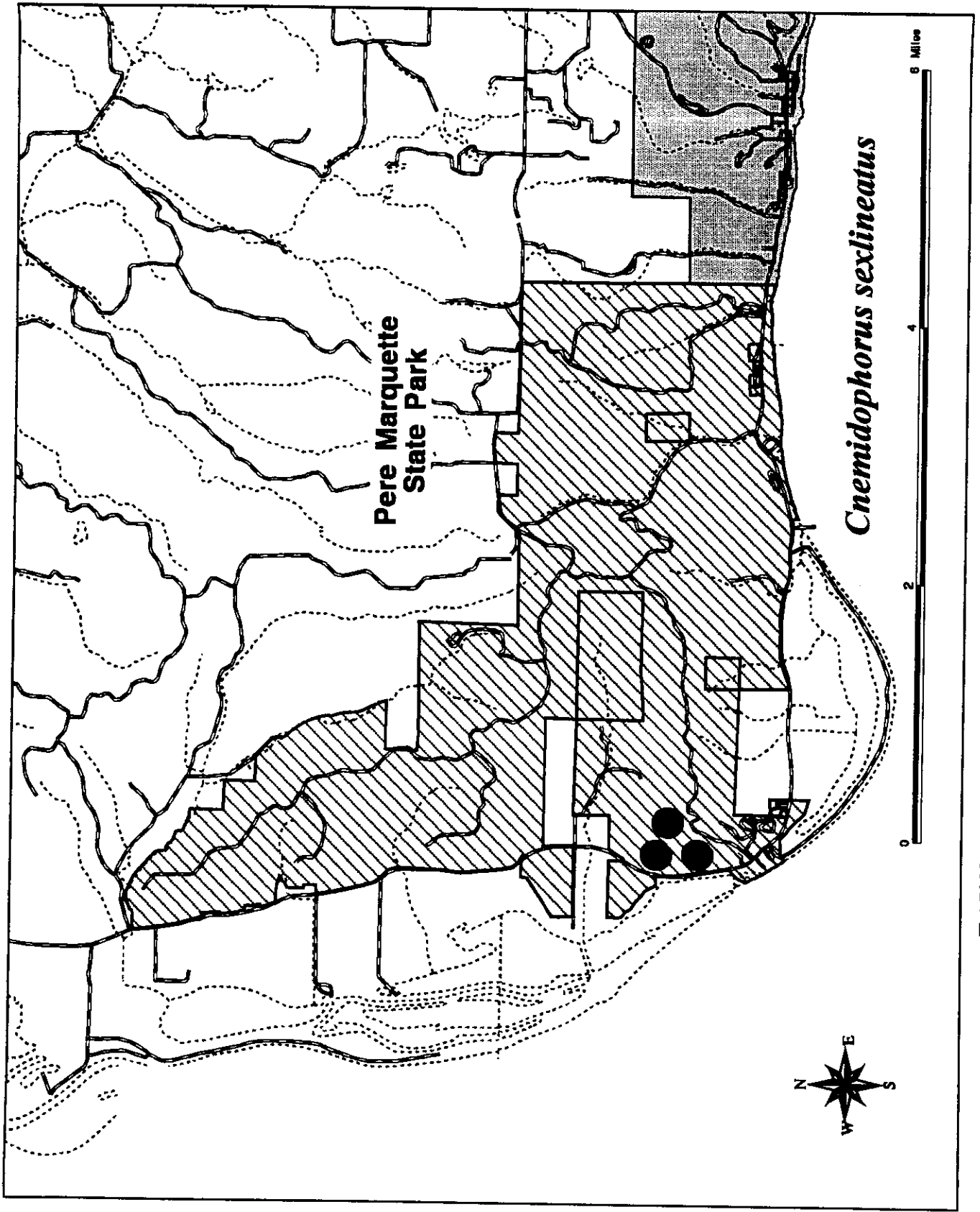
6 Miles



0

2

4



T7N

T6N

R13W

R12W

T7N

T6N



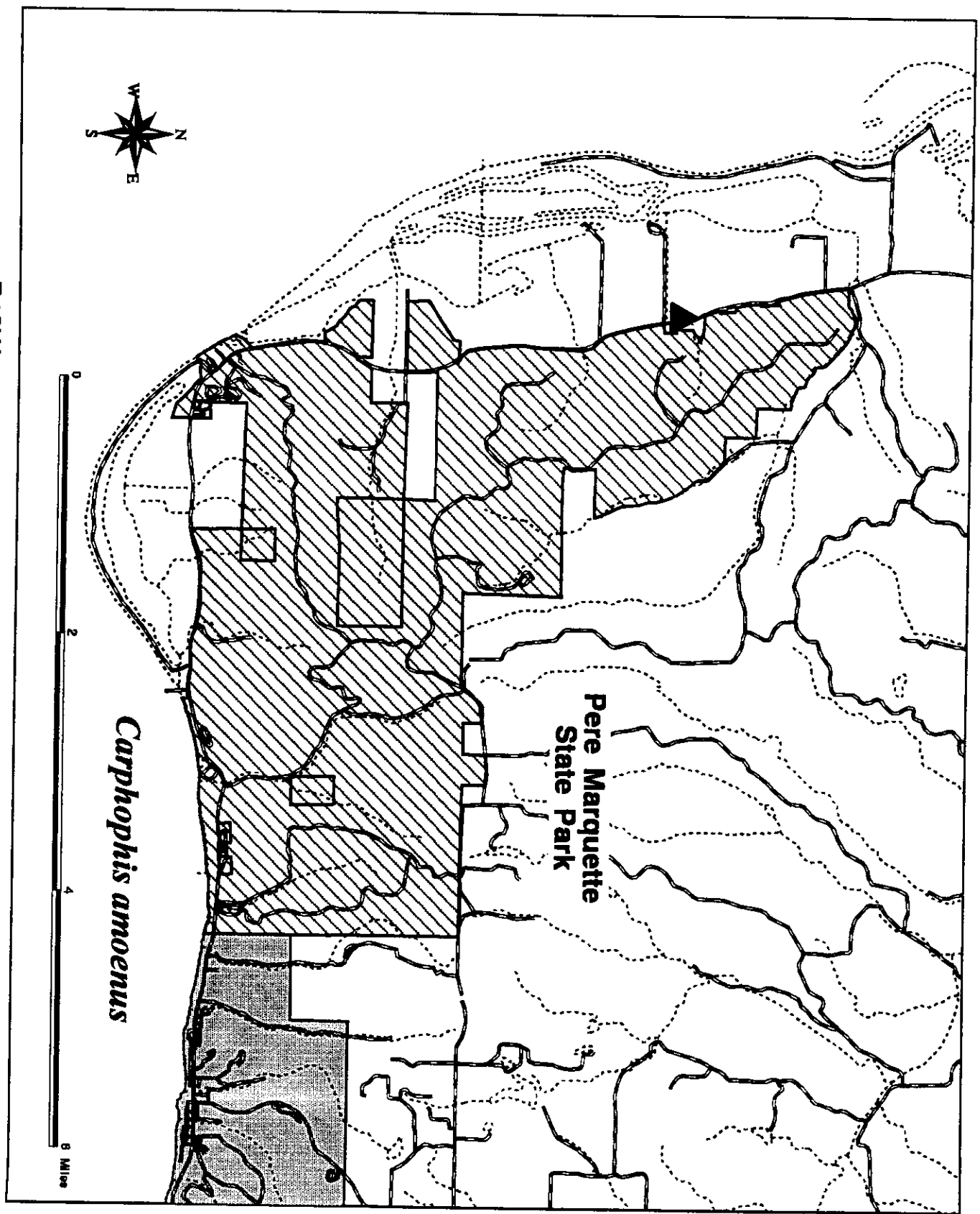
R13W

R12W



Carphophis amoenus

Pere Marquette
State Park



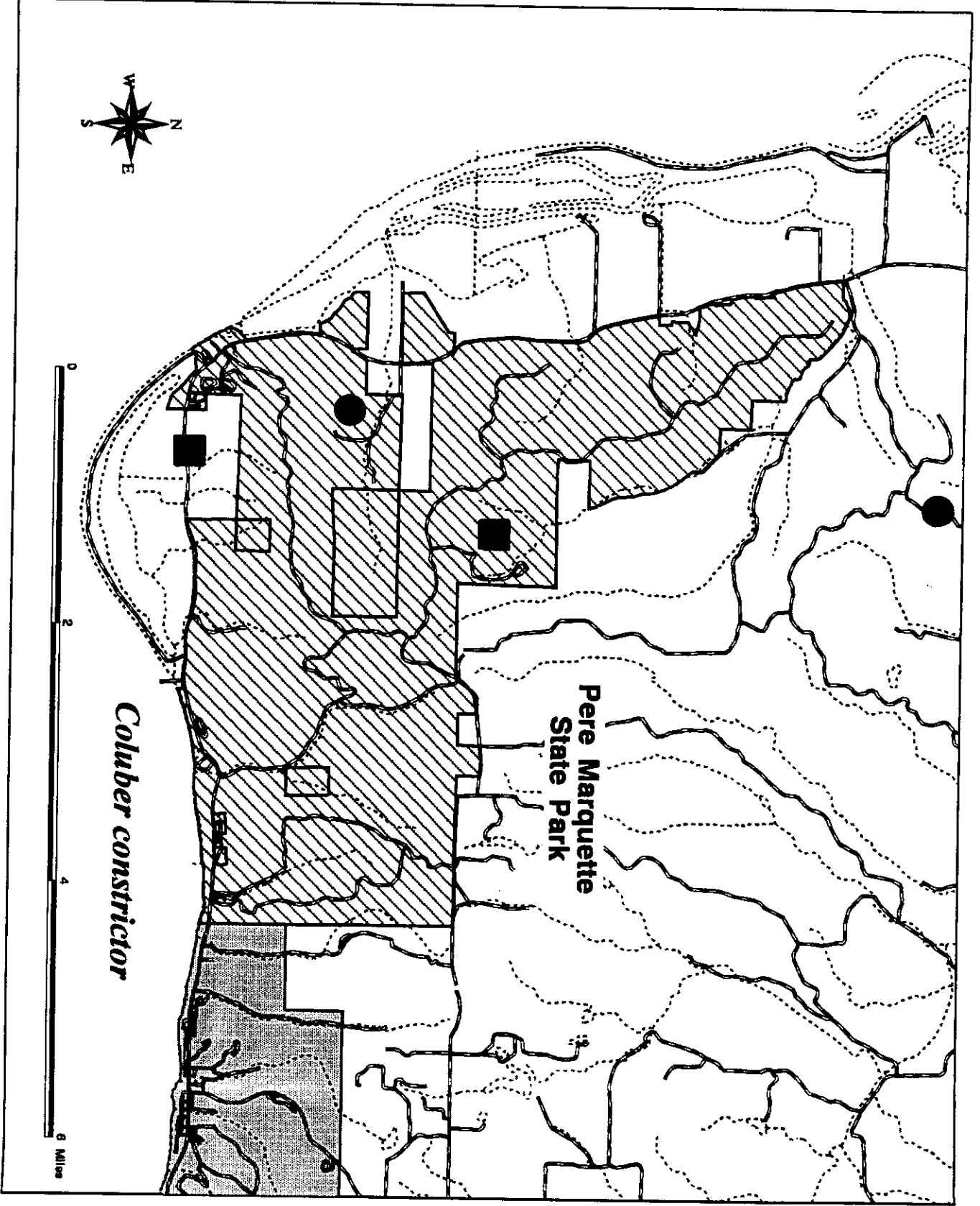
T7N

T6N



R13W

R12W



T7N

T6N



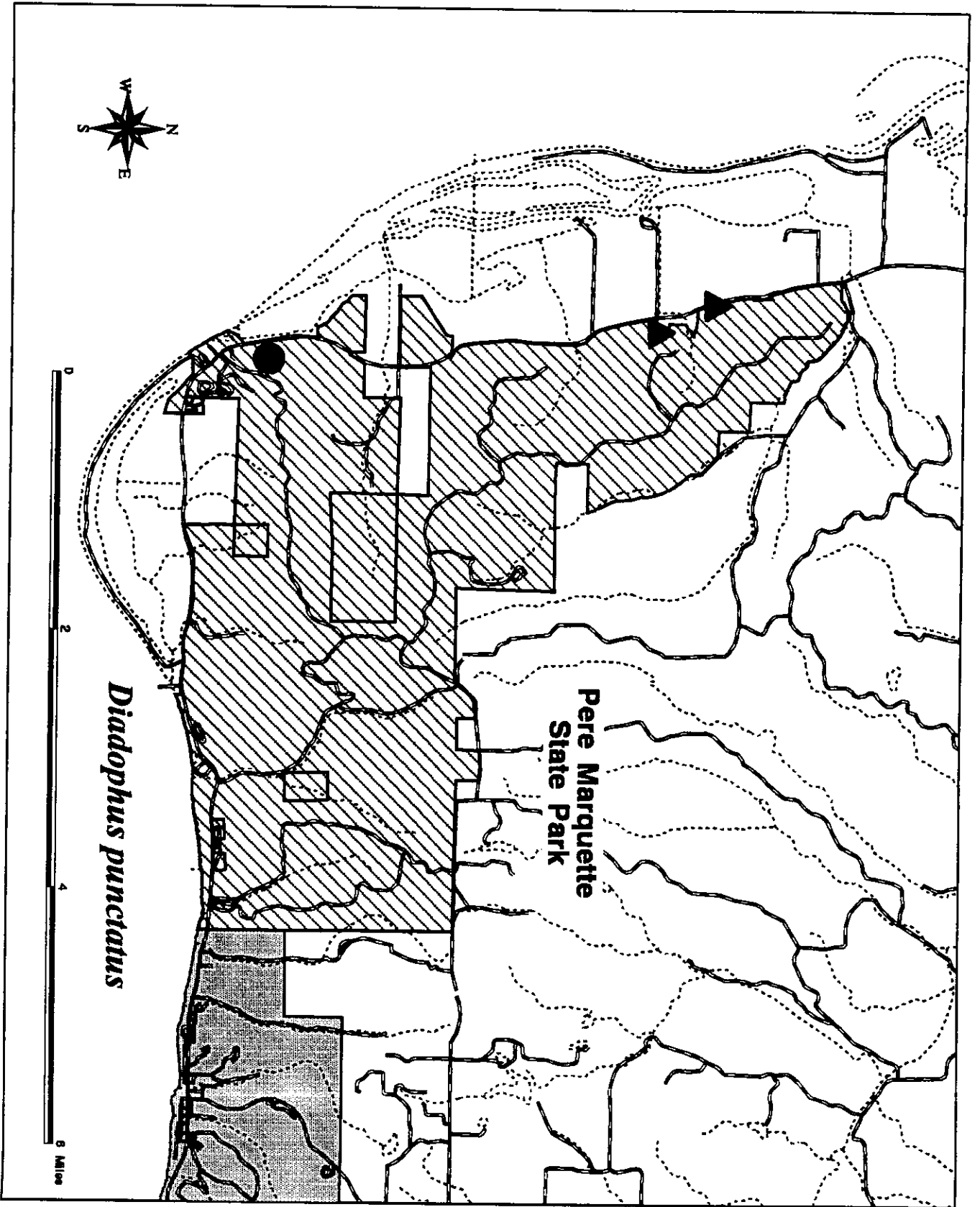
R13W

R12W



Diadophus punctatus

Pere Marquette
State Park



T7N

T6N



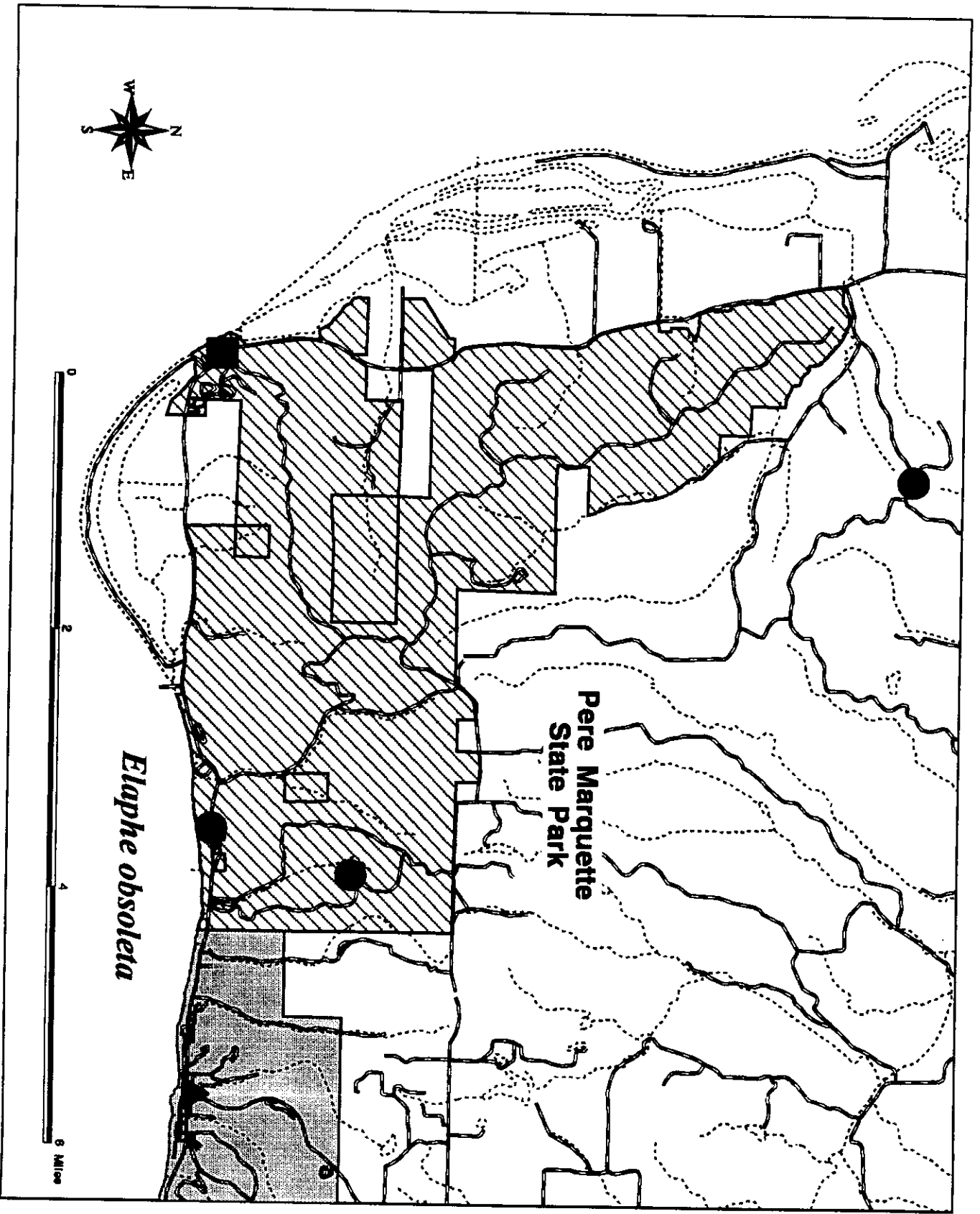
R13W

R12W



Elaphe obsoleta

Pere Marquette
State Park



T7N

T6N



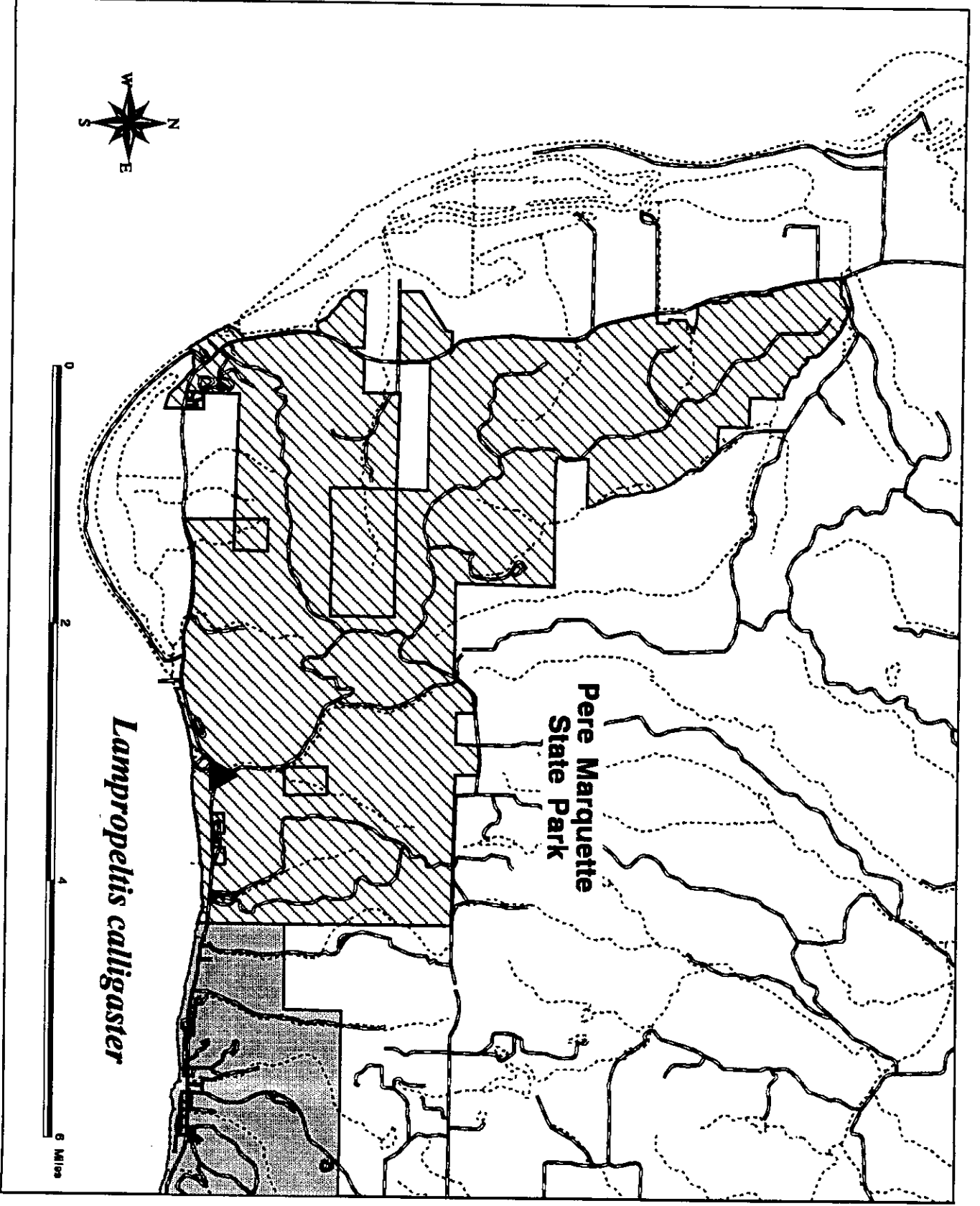
R13W

R12W



Lampropeltis calligaster

Pere Marquette
State Park



T7N

T6N



R13W

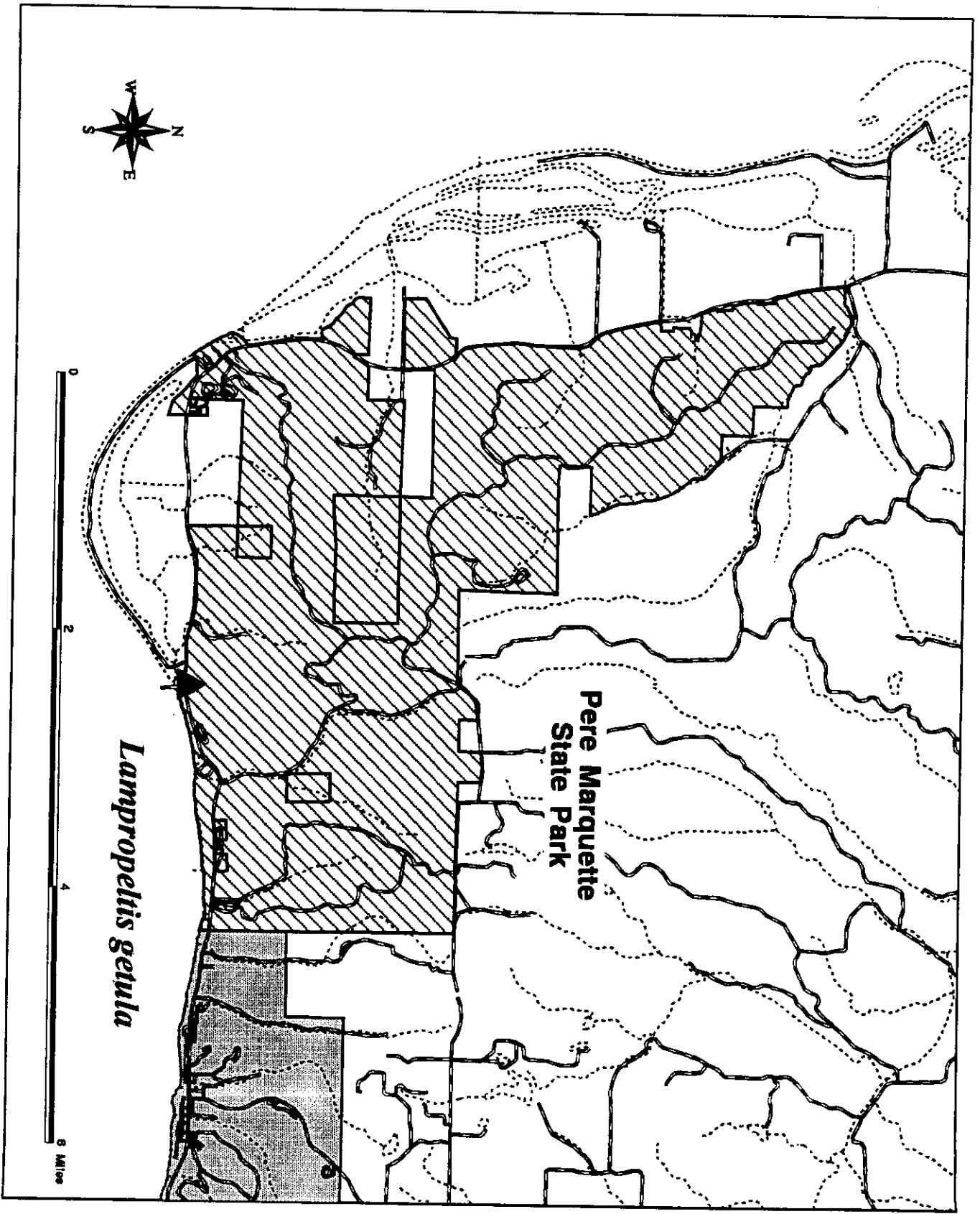
R12W



6 Miles

Lampropeltis getula

Pere Marquette
State Park



T7N

T6N



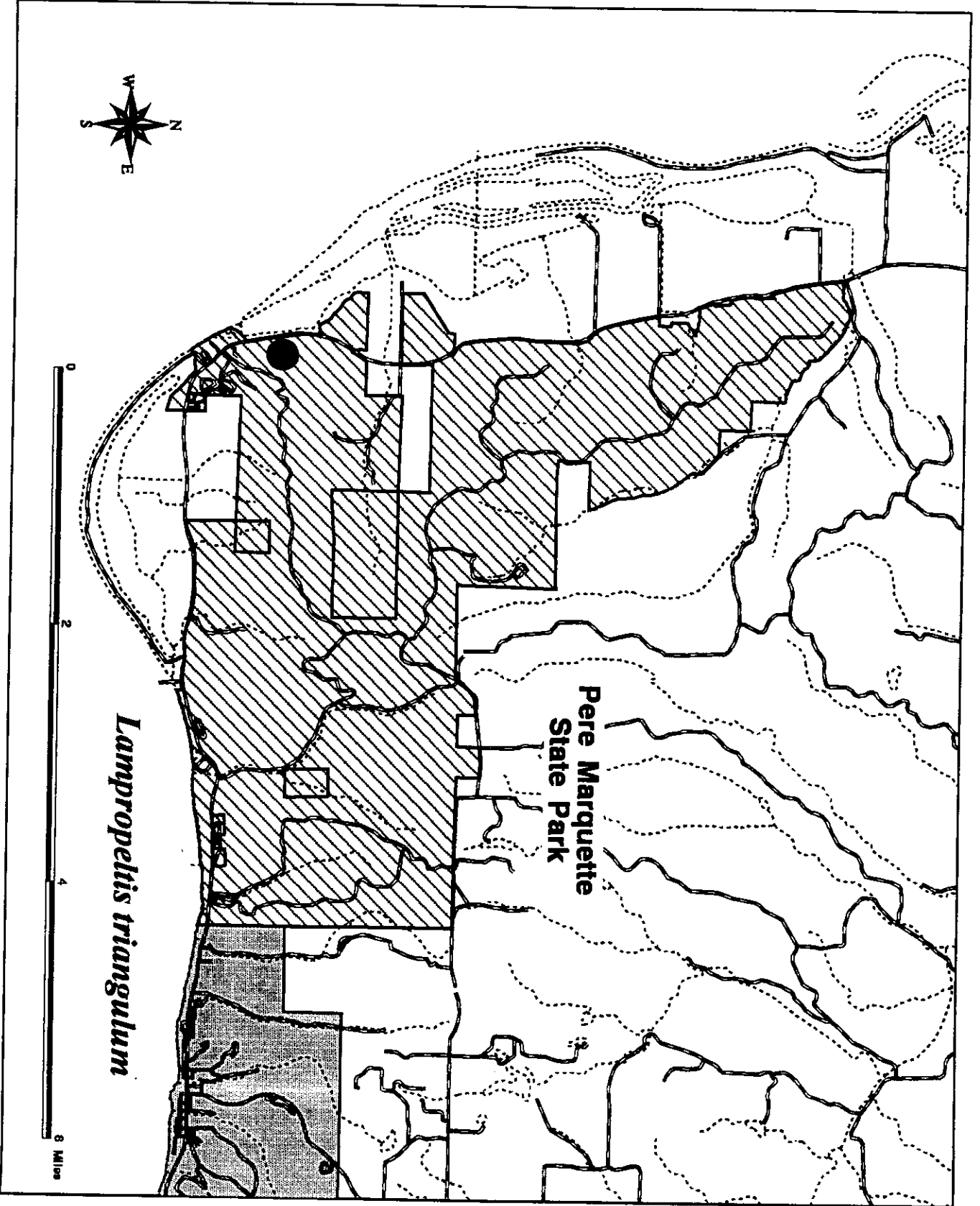
R13W

R12W



Lamprolpetis triangulum

Pere Marquette
State Park



T7N

T6N



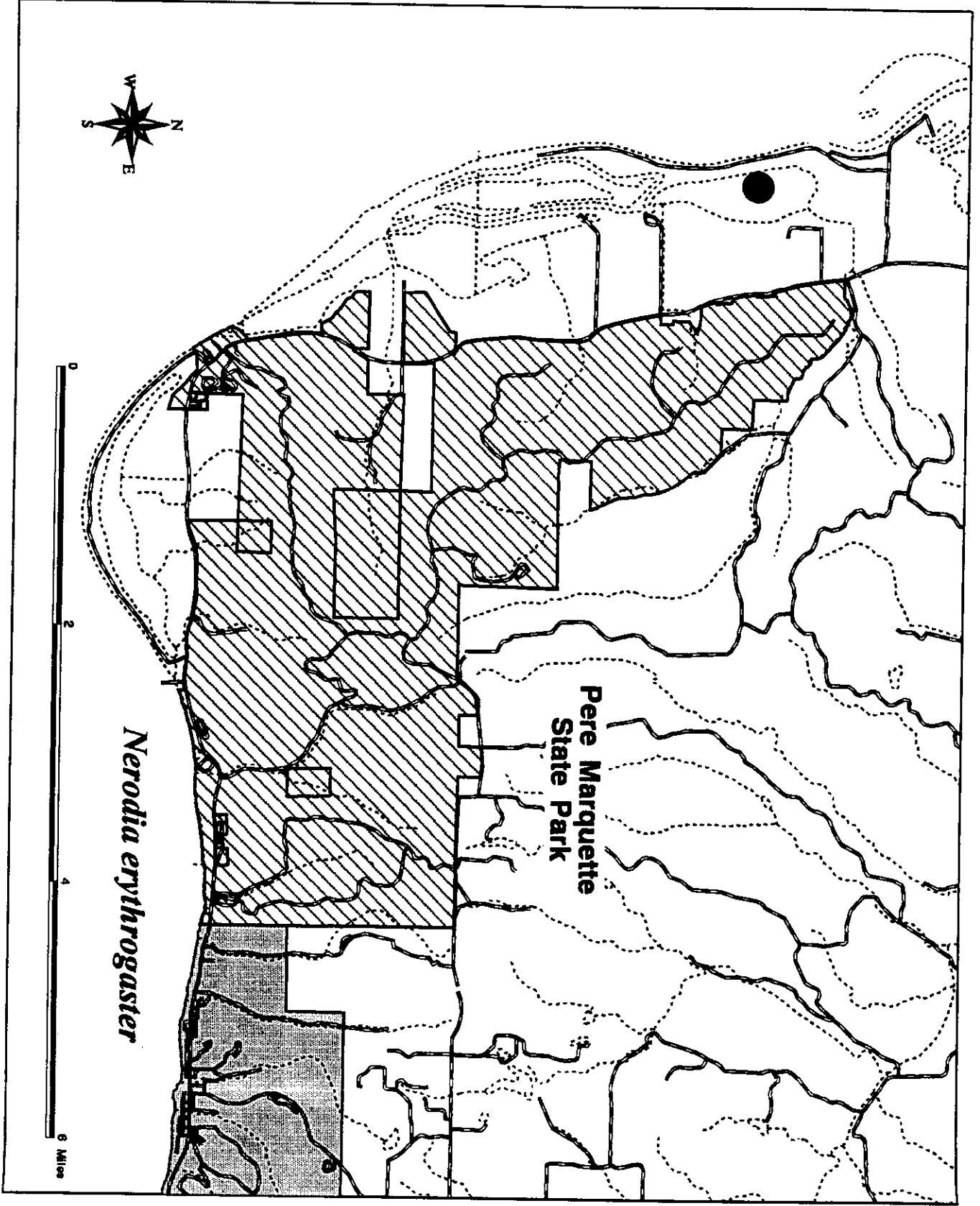
R13W

R12W



Pere Marquette
State Park

Nerodia erythrogaster



T7N

T6N



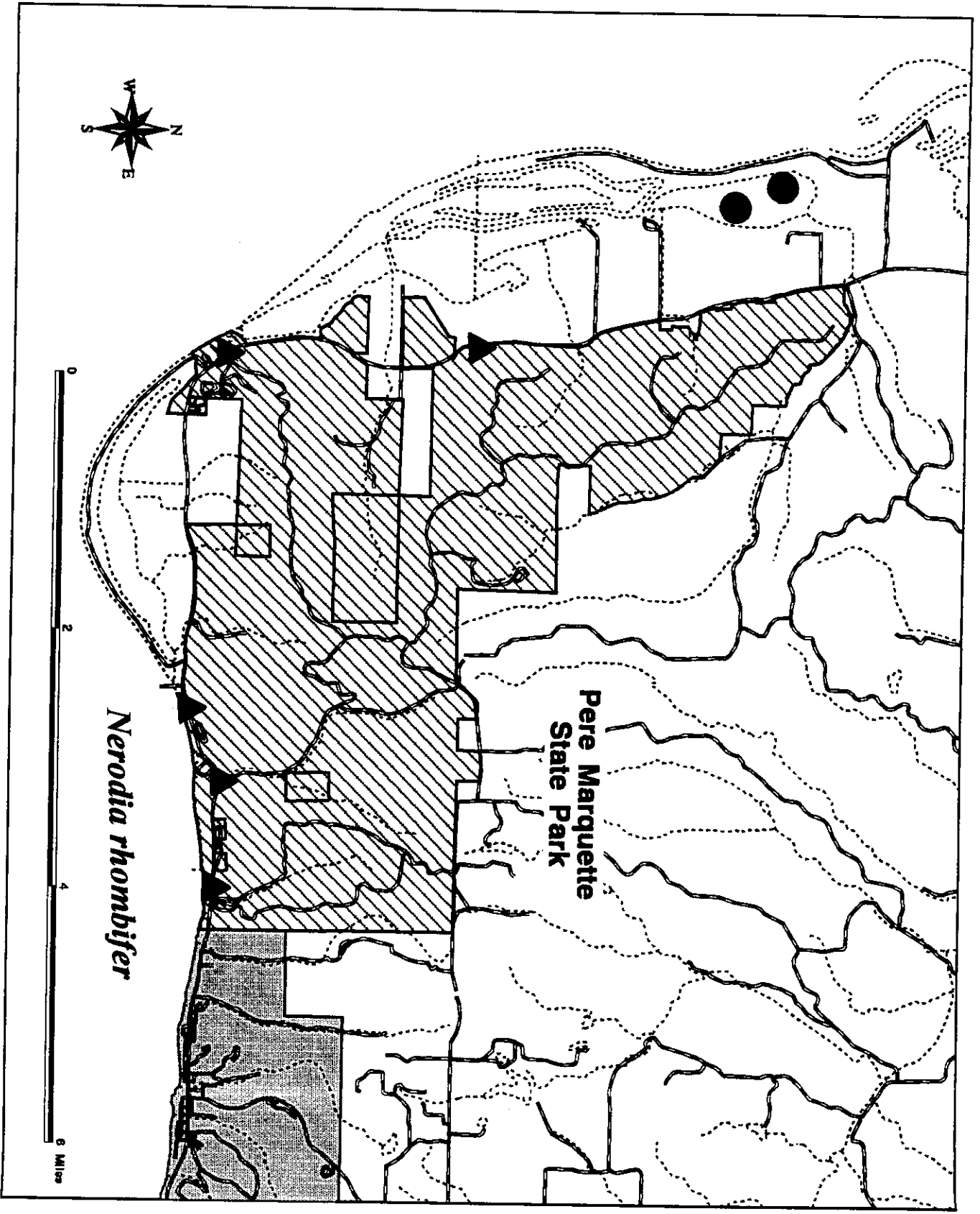
R13W

R12W



Nerodia rhombifer

Pere Marquette
State Park



T7N

T6N

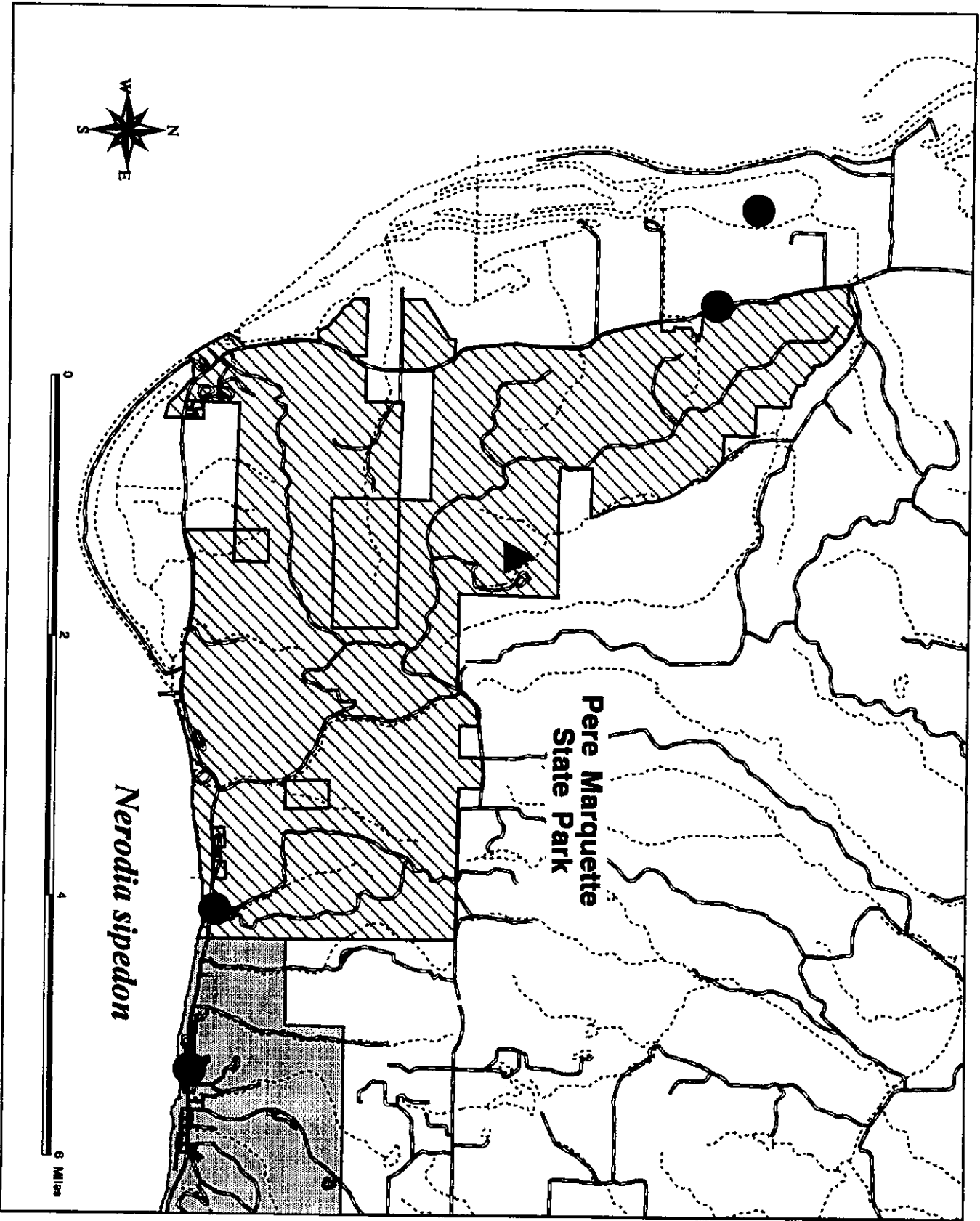


R13W

R12W

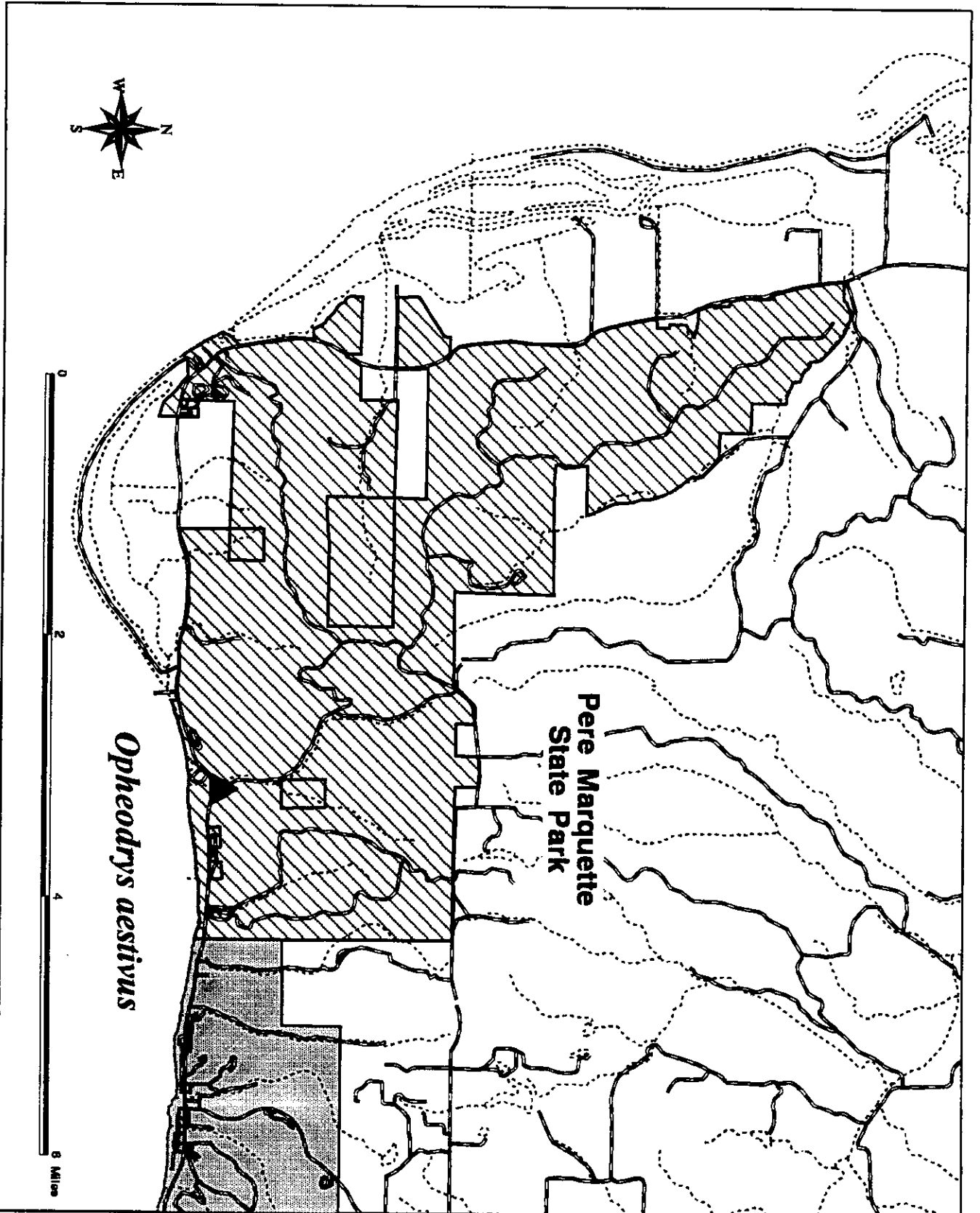
Nerodia sipedon

Pere Marquette
State Park



T7N

T6N



R13W

R12W

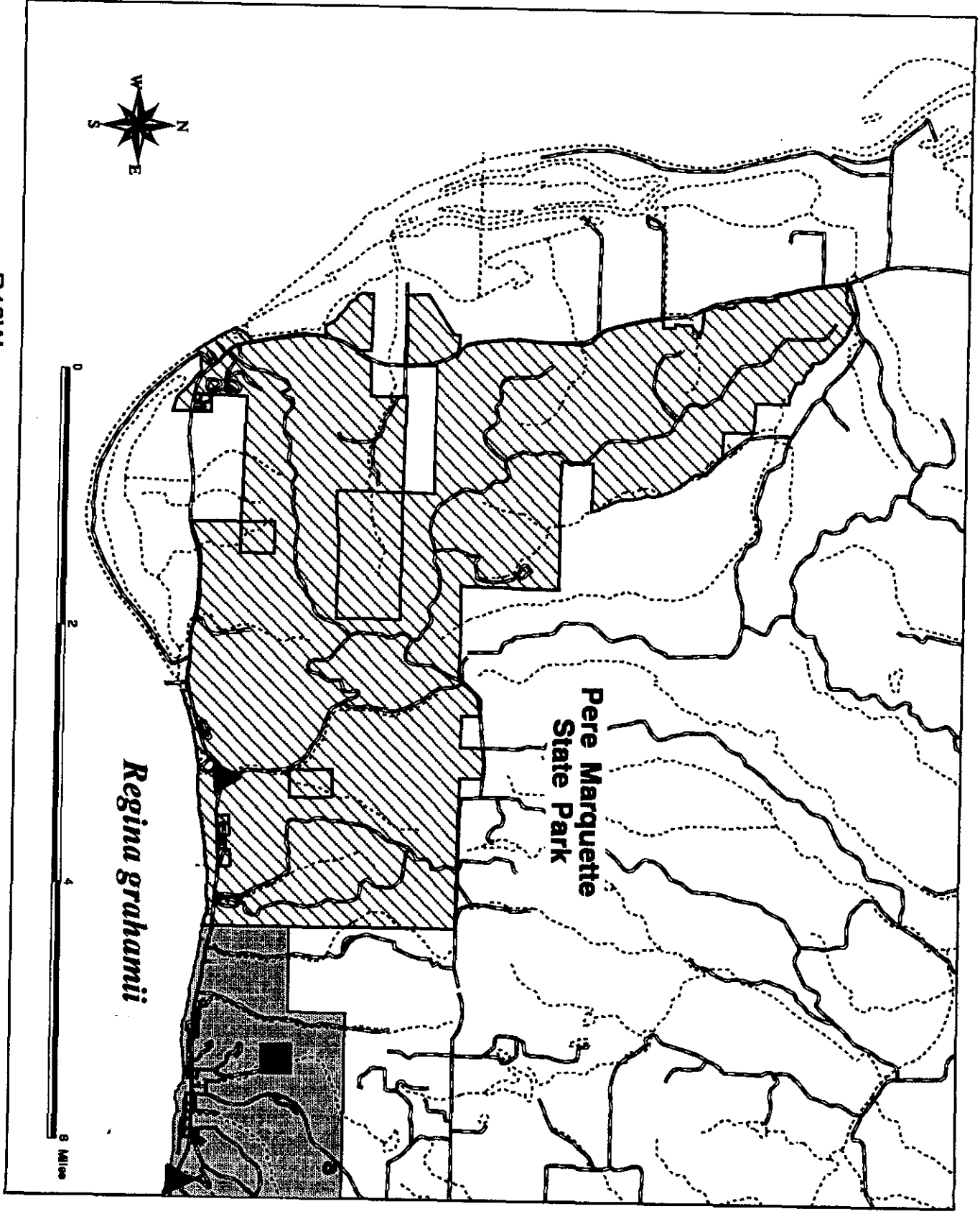
T7N

T6N



R13W

R12W



**Pere Marquette
State Park**

Regina grahamii

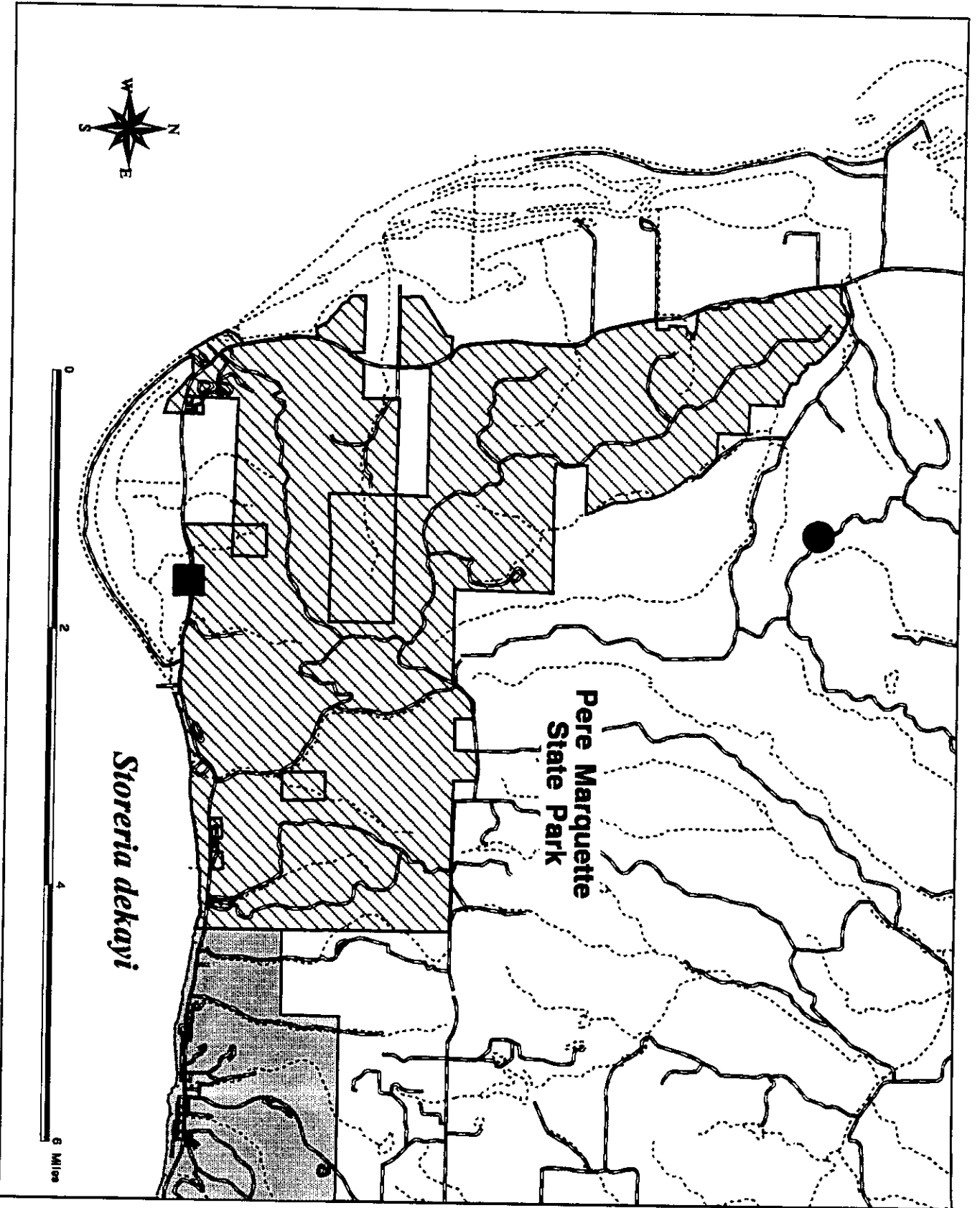
T7N

T6N



R13W

R12W



T7N

T6N

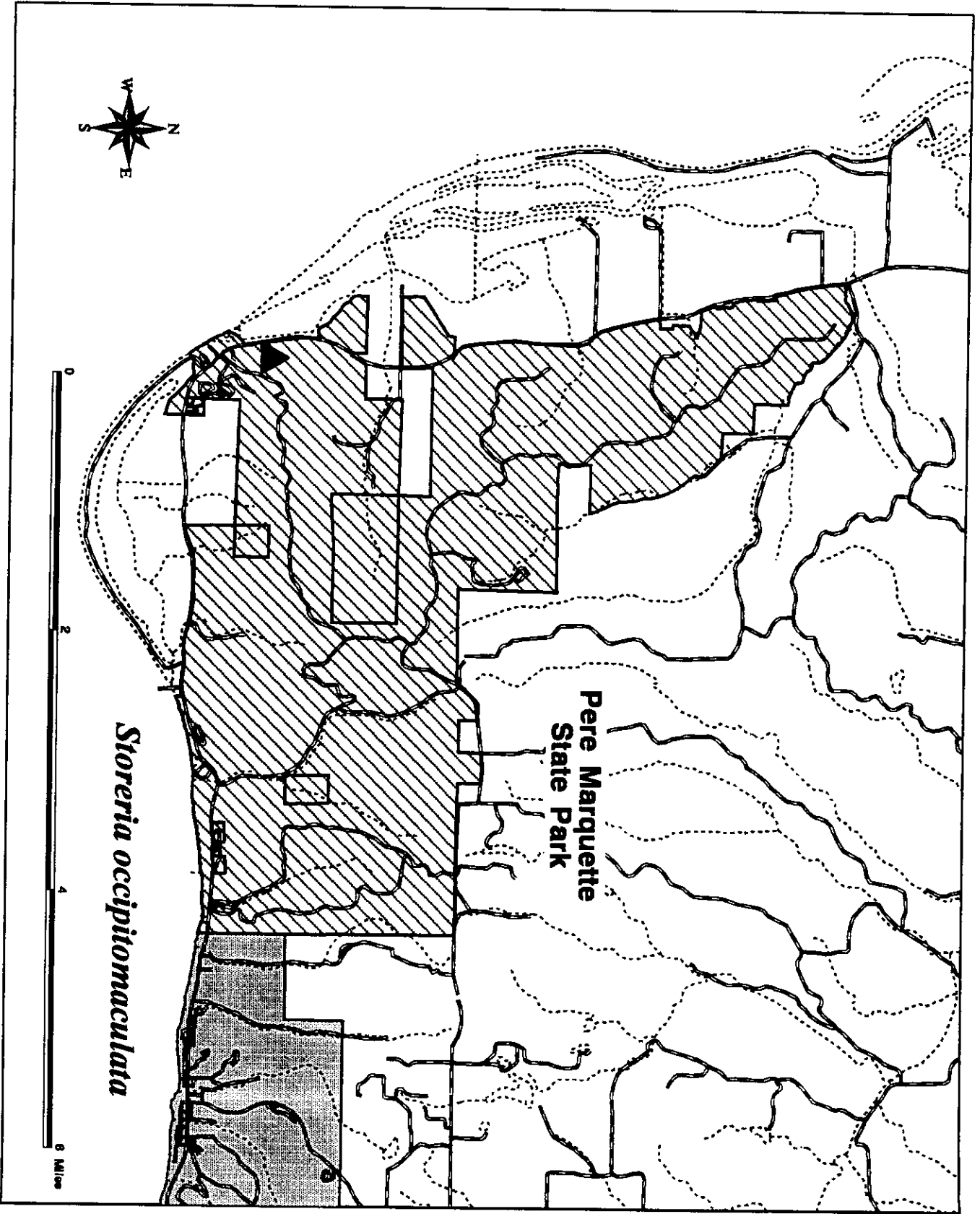


R13W

R12W

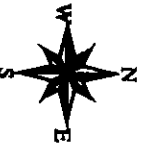
Pere Marquette
State Park

Storeria occipitomaculata



T7N

T6N



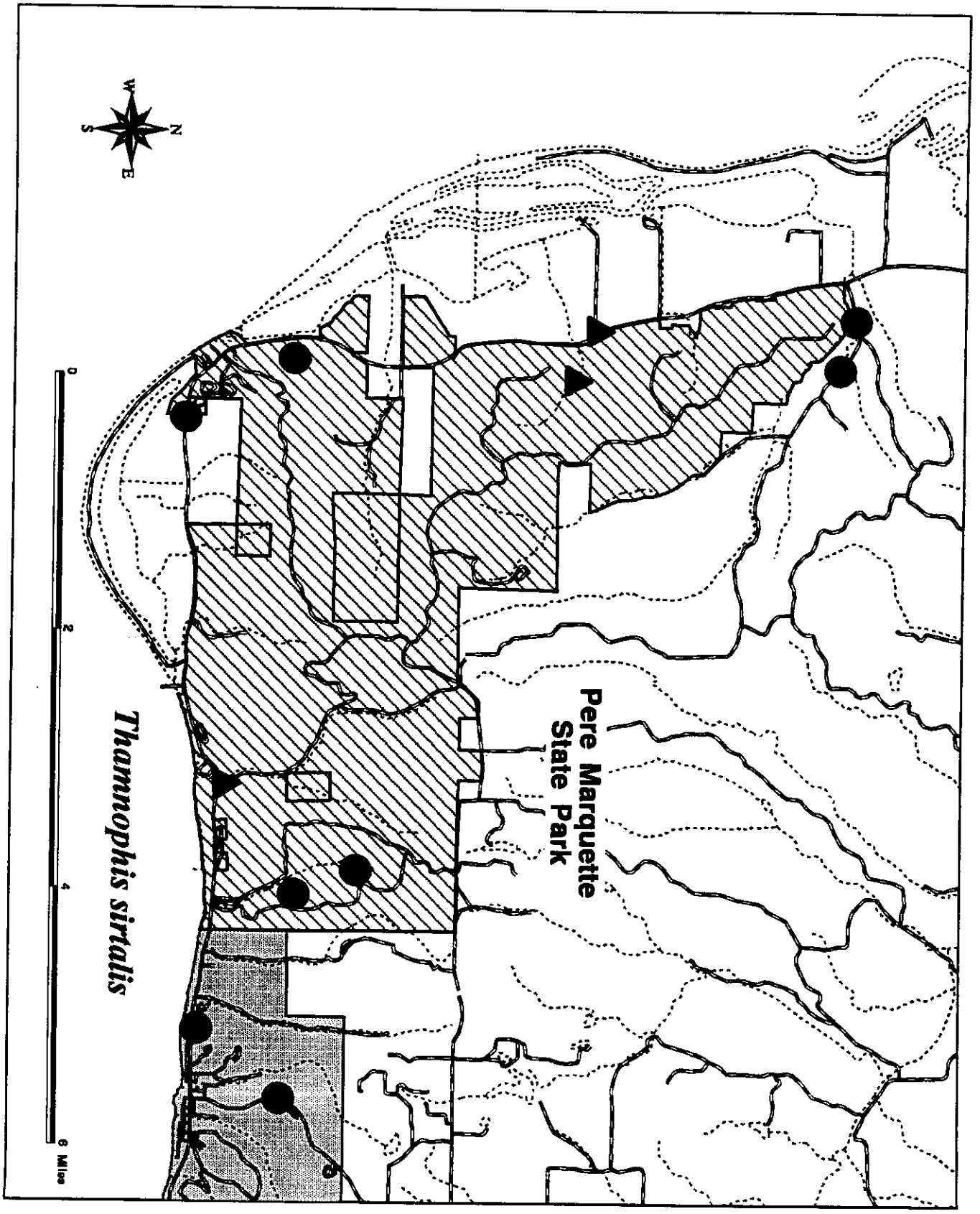
R13W

R12W



Thamnophis sirtalis

Pere Marquette
State Park



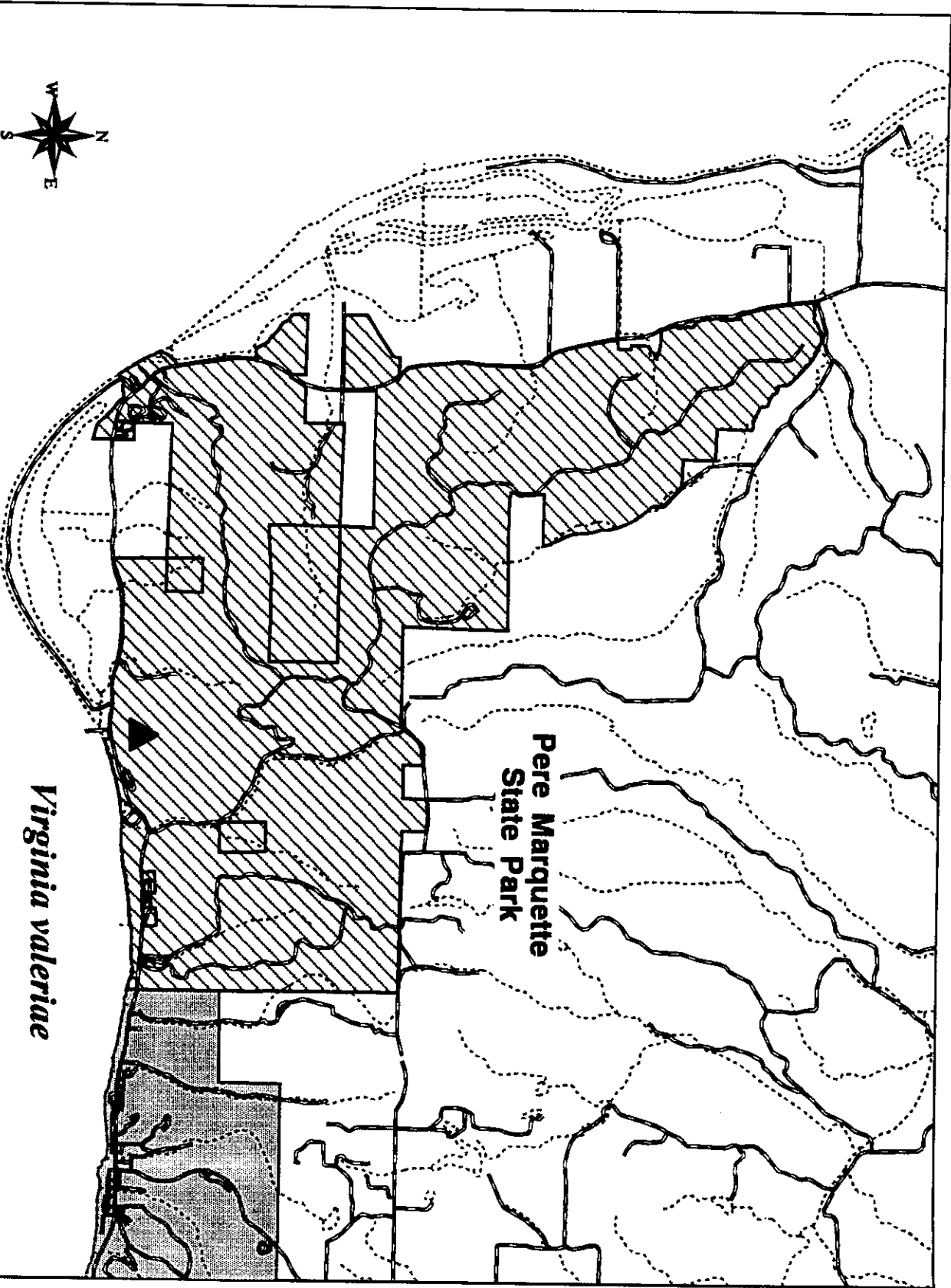
T7N

T6N



R13W

R12W



**Pere Marquette
State Park**

Virginia valeriae

T7N

T6N



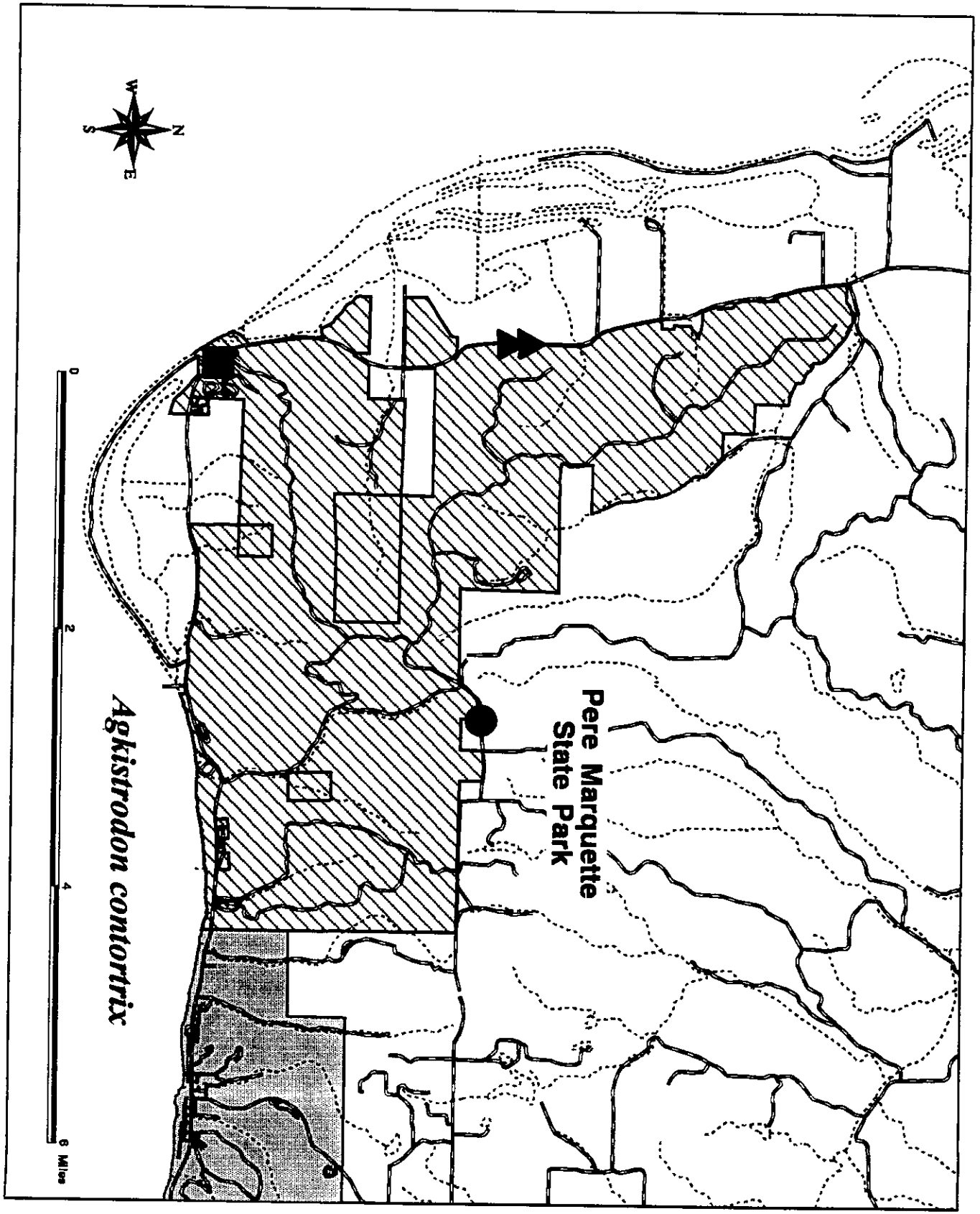
R13W

R12W



Agkistrodon contortrix

Pere Marquette
State Park



T7N

T6N



R13W

R12W

Crotalus horridus

Pere Marquette
State Park

