

## Chapter 4. Management Direction

### Refuge Management Policies and Guidelines

#### Compatibility Determinations

Federal law, regulation and policy provide the direction and planning framework to protect the National Wildlife Refuge System (Refuge System) from incompatible or harmful human activities and to insure that current and future Americans can enjoy Refuge System lands and waters. The National Wildlife Refuge System Administration Act of 1966, as amended by the National Wildlife Refuge System Improvement Act of 1997 (Refuge Improvement Act), is the key legislation on managing public uses and compatibility.

Before activities or uses are allowed on a National Wildlife Refuge, the uses must be found to be a "compatible use." A compatible use is a use, "...that will not materially interfere with or detract from the fulfillment of the mission of the Refuge System or the purposes of the refuge." "Wildlife-dependent recreational uses may be authorized on a refuge when they are compatible and not inconsistent with public safety. Except for consideration of consistency with State laws and regulations as provided for in section (m), no other determinations or findings are required to be made by the refuge official under this Act or the Refuge Recreation Act for wildlife-dependent recreation to occur." (Refuge Improvement Act)

A number of compatibility determinations have been prepared over the years covering a variety of uses currently taking place on Edwin B. Forsythe National Wildlife Refuge (Forsythe Refuge). These compatibility determinations remain in effect and are being re-certified as part of this effort to prepare a Comprehensive Conservation Plan (CCP) for the Refuge.

#### Pre-acquisition Compatibility Determinations

A pre-acquisition compatibility determination assesses the compatibility of an existing priority general public use during the period from the time we first acquires a parcel of land to when a formal long-term management plan for the parcel is prepared and adopted. Pre-acquisition compatibility determinations for Forsythe Refuge have been completed for the six priority general public uses of the System listed in the Refuge Improvement Act, hunting, fishing, wildlife observation and photography, environmental education and interpretation. (See Table 1.) The pre-acquisition compatibility determination for Forsythe Refuge may be found in Appendix F. The Act defines these six priority general public uses as "wildlife-dependent recreation" and "wildlife-dependent recreational use."

The pre-acquisition compatibility determinations for Forsythe Refuge cover the existing priority general public uses occurring within the Land Protection Focus Areas (Focus Areas) described in this CCP. (See **Land Protection Focus Areas** on page 33 and Maps 3a, b, c, and d beginning on page 51.) These Focus Areas are lands that have been added to the approved Refuge acquisition boundary.

Several of the six priority general public uses occur on lands within these Focus Areas. The current levels of hunting, fishing, wildlife observation and photography, environmental education and interpretation taking place on these lands do not seem to be negatively impacting fish, wildlife, or plant resources.

Current levels of the six priority general public uses occurring within these Focus Areas would be compatible with the mission of the Refuge System and the purposes for which Forsythe Refuge was established. The Focus Areas have little estuarine habitat important to the Atlantic Brant, black ducks or rails, or important estuarine feeding and resting habitat for ducks or brant. The Refuges would allow the

Table 1. *Pre-acquisition Compatibility for Wildlife-dependent Recreational Activities at Forsythe Refuge.*

Wildlife-dependent Recreational Activities	Existing Use?	Compatible Use?	Use Allowed?
Hunting	Yes	Yes	Yes
Fishing from bank	Yes	Yes	Yes
Fishing from boat	Yes	Yes	Yes
Wildlife Observation	Yes	Yes	Yes
Wildlife Photography	Yes	Yes	Yes
Environmental Education	No	Yes	Yes
Interpretation	No	Yes	Yes

current levels of hunting, fishing, wildlife observation and wildlife photography to continue in the interim. We would monitor impacts of these uses and adjust levels and locations as appropriate through the adoption of long-term management plans.

Walking, hiking and bicycling done for exercise and enjoyment of the outdoors occur on lands within these Focus Areas. To eliminate conflicts between user groups, we would terminate bicycling on property within the Focus Areas as soon as the Service acquired and posted a property within these areas. Walking and hiking would be allowed to continue at their current levels in the interim. We would monitor impacts of these uses and adjust levels and locations as appropriate through the adoption of long-term management plans.

All terrain vehicle (ATV), dirt bike, and mountain bike riding occurs on some lands in these Focus Areas. These activities negatively impact physical and biological resources, and are therefore not compatible with the purposes for which Forsythe Refuge was established. To eliminate negative impacts, we would terminate these activities on property within the Focus Areas as soon as the Service acquired and posted a property within these areas.

### **Potential Land Protection Methods**

We will focus our land protection efforts on lands adjacent to Service-owned lands within existing Refuge boundaries, and also to larger contiguous tracts. Funding for land acquisition will come from the Land and Water Conservation Fund and the Migratory Bird Conservation Fund. Known hazardous waste sites or contaminated areas will be excluded from consideration. All land transactions are subject to contaminant surveys.

The Service's land acquisition policy is to obtain the minimum interest necessary to satisfy Refuge objectives. Conservation easements can sometimes be used in this context, when they can be shown to be a cost-effective method of protection. In general, any conservation easement must preclude destruction or degradation of habitat, and allow Refuge staff to adequately manage uses of the area for the benefit of wildlife. Because development rights must be included, the cost of purchasing conservation easements often approaches that of fee title purchase, thus rendering this method less practical. Nevertheless, donations of easements or voluntary deed restrictions prohibiting habitat destruction would be encouraged. In addition, the Service could negotiate management agreements with local and State agencies, and accept conservation easements on upland tracts.

## **Land Acquisition Areas**

We have identified 3,348 acres for acquisition to provide long-term protection to the numerous species of shorebirds, neotropical migratory landbirds, waterfowl, long-legged waders, raptors, finfish and shellfish, and threatened and endangered species. (See Maps 3a, b, c, and d beginning on page 51 and Appendix M on page 165.) Our objectives are to protect:

- Known sites of threatened or endangered species and communities;
- Areas important to the ecological health of lands already owned (ensure intact ecosystem processes, such as, protecting the quality and quantity of water for wetlands, providing habitat corridors between existing conservation lands, or sufficient size of contiguous areas to protect viable populations);
- Areas important for priority wildlife species (e.g., critical stopover habitat for migrating birds);
- Areas identified as priority sites for protection by other conservation organizations;
- Areas still viable for conservation protection (i.e., not already developed).

## **Property Taxes, Refuge Revenue Sharing, Relocation, and Landowner Rights**

The Refuge Revenue Sharing Act of June 15, 1935, as amended, provides annual payments to taxing authorities, based on acreage and value of Refuge lands located within their jurisdiction. In 2000, the Service paid, \$106,651 to Ocean County communities, \$8,049 to Burlington County communities, and \$74,335 to Atlantic County communities.

Money for these payments comes from the sale of oil and gas leases, timber sales, grazing fees, and the sale of other Refuge System resources and from Congressional appropriations. The Congressional appropriations are intended to make up the difference between the net receipts from the Refuge Revenue Sharing Fund and the total amount due to local taxing authorities. The actual Refuge Revenue Sharing Payment does vary from year to year, because Congress may or may not appropriate sufficient funds to make full payment. The actual payments made in 2000 were 57.9% of full payment.

The Refuge Revenue Sharing Payments are based on one of three different formulas, whichever results in the highest payment to the local taxing authority. In New Jersey, the payments are based on three-quarters of one percent of the appraised fair market value. The purchase price of a property is considered its fair market value until the property is reappraised. The Service reappraises the value of Refuge lands every five years.

On wetlands and formerly farmland-assessed properties in New Jersey, the full entitlement Refuge Revenue Sharing Payments sometimes exceed the real estate tax. However, Refuge Revenue Sharing payments are more often less than the real estate tax.

The fact that Refuges put little demand on the infrastructure of a municipality, must be considered in assessing the financial impact on the municipality. For example, there is no extra demand placed on the school system, roads, utilities, police and fire protection, etc. There is a substantial body of literature that shows that development, especially residential development, actually costs a community more in schools, roads, sewers and other services than the tax revenue generated by the development (Land Trust Alliance, 1994).

The Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970, as amended, provides certain relocation benefits to home owners, businessmen, and farm operators who are displaced as a result of Federal land acquisition. The law provides benefits to eligible owners and tenants for reimbursement of reasonable moving expenses, replacement of housing payments under certain conditions, relocation assistance services, and reimbursement of certain expenses incurred in selling real property to the Government.

The owner of land adjacent to Refuge land or within an approved Refuge acquisition boundary or a Refuge Focus Area, retains any and all the rights, privileges, and responsibilities of private land ownership. This includes the right of access, hunting, vehicle use, control of trespass, right to sell to any party, and the obligation to pay real estate taxes. The Refuge controls uses only on the properties it owns.

### **Ecosystem Services**

Refuge lands provide substantial value to society through ecosystem services. These services (e.g., nutrient cycling, erosion control and sediment retention, water supply) represent benefits human populations derive, directly or indirectly, from ecosystem functions. Ecosystem services consist of the flow of material and energy from natural capital stocks (i.e., vegetation, minerals, the atmosphere) which combine with manufactured and human capital services to produce human welfare. Ecosystem services and the natural capital stocks that produce them are critical to the functioning of the earth's life support system. Appendix G lists 17 ecosystem services, the related ecosystem functions, and examples of how society benefits from them.

### **Accessibility**

Forsythe Refuge will operate its programs or activities so that when viewed in its entirety, it is readily accessible to and useable by disabled persons. The Rehabilitation Act of 1973, as amended, requires that programs and facilities be, to the highest degree feasible, readily accessible to and useable by all persons who have a disability.

### **Protection and Management of Cultural Resources**

The Service has a legal responsibility to consider the effects its actions have on archeological and historic resources. In implementing this CCP, the Service will comply with Section 106 of the National Historic Preservation Act before conducting any ground disturbing activities. Compliance may require any or all of the following: State Historic Preservation Records survey, literature survey, or field survey.

## **The Comprehensive Conservation Plan**

### **Summary Statement**

Under this CCP, all lands above mean high tide in the Holgate Unit of the Brigantine Wilderness Area are closed to motor vehicle use year-round in compliance with the provisions of the Wilderness Act. We are also initiating efforts to establish a seasonal boat concession to ferry anglers and other Refuge visitors to the southern tip of the Holgate Peninsula.

We will seek to increase Refuge staffing and funding levels and initiate new wildlife population, habitat, and ecosystem management activities; provide new compatible wildlife-dependent recreational opportunities; increase our land protection efforts; and construct new office and visitor facilities to support the goals and objectives of the Refuge.

We will place special emphasis on the six priority general public uses defined in the Refuge Improvement Act, i.e., hunting, fishing, wildlife observation and photography, environmental education and interpretation. Public use surveys, along with wildlife and habitat monitoring, will help us estimate the volume and impacts of public use, and adapt our management strategies for that use.

## **Refuge Goals, Objectives and Strategies**

This section presents long-term guidance for the Refuge in the form of goals, objectives and strategies. Refuge goals are qualitative statements that define what the Refuge must be to satisfy the Refuge purposes, legal mandates, and the needs of citizens and agencies having a vital interest in what and how the Refuge performs. These goals highlight specific elements of our vision statement which will be emphasized in future management. Objectives provide quantitative bench marks that indicate progress toward achieving Refuge purposes and goals. Strategies are specific actions or projects that will lead to the accomplishment of our objectives.

### **Goal 1. Protect and enhance Federal trust resources and other species and habitats of special concern.**

Objective 1. Continue managing the Refuge to support 25 nesting pairs of piping plovers at Holgate and 25 nesting pairs at Little Beach Island (total of 50 nesting pairs).

Strategies

- a. Continue closing all of the Holgate Peninsula and Little Beach Island, above and below the mean high tide line, to all public access during the piping plover breeding season (April through August). The piping plover is Federally-listed as threatened and State-listed as endangered. The southern tip of the Holgate may also be closed beyond September 1, to protect late-nesting black skimmers.
- b. Protect and monitor the piping plover (Federally listed threatened species).
- c. Continue management activities including:
  - identifying nests;
  - establishing exclosures to protect nests;
  - trapping mammalian predators in piping plover areas (e.g., raccoon, red fox and feral cats) (Map 4d on page 58);
  - monitoring plover numbers on a regular basis.

Objective 2. Manage the Refuge to protect the swamp pink, a Federally listed threatened species.

Strategies

- a. Protect and monitor the swamp pink.
- b. Implement management techniques to improve habitat quality or increase population size or vigor.

Objective 3. Expand our efforts to protect other endangered and threatened species on the Refuge.

Strategies

- a. Survey all Refuge lands for currently and potentially occurring threatened and endangered species (Federal and State-listed).

- b. Protect and manage any newly discovered occurrences to maintain or expand those populations.
- c. Conduct a feasibility assessment for sites where a listed species does not currently occur, but could potentially be restored. Attempt to restore species at restoration sites with a reasonable chance for success.

Objective 4. Manage the Brigantine Wilderness Area so as to protect and preserve its wilderness values. (See Map 2 on page 4.)

- Strategies
- a. By October 1, 2002, close all lands above mean high tide in the Holgate Unit to motor vehicle (also referred to as off-road vehicles or ORVs) use year-round.
  - b. Seasonal motor vehicle use (September through March) would continue under State law, only in the adjacent State-owned riparian lands, below mean high tide. The riparian lands are not part of the Refuge or the Wilderness Area.
  - c. Given the fact that the mean high tide line is difficult to identify on the ground, we will use the berm crest and/or wet sand/dry sand lines, which are more readily identifiable, as proxies on the beach at the Holgate Unit for the Wilderness boundary. All motorized vehicles will need to stay below the berm crest and wet sand/dry sand lines while they are on the Holgate Unit to avoid violating the Brigantine Wilderness Area. Educational efforts to familiarize anglers and refuge visitors with this new policy will be implemented beginning October 1, 2002.
  - d. Encourage greater use of the Wilderness Area by other Refuge visitors, in appropriate seasons and locations, through guided tours or Refuge special use permits. Restrict access to highly sensitive areas.
  - e. Scrutinize all planned management actions to determine if they are necessary to protect wilderness resources and determine the "minimum tool" needed to carry them out. We would not use a tool simply because it is the most comfortable, convenient, or least expensive.
  - f. Continue National Atmospheric Monitoring Program (NADP) and Interagency Monitoring of Protected Visual Environments (IMPROVE) monitoring programs. In addition, we would add air-borne mercury monitoring in partnership with the New Jersey Department of Environmental Protection (NJDEP), and provide technical assistance to local communities on air quality issues and Class I air space.
  - g. Develop a detailed step-down Wilderness Management Plan for the existing Brigantine Wilderness Area by 2005.
  - h. By 2010 conduct a Wilderness Review of all lands acquired since 1972 to determine what additional lands, if any, should be recommended for designation as part of the National Wilderness Preservation System.

Objective 5. Inventory, map and monitor Refuge wildlife and habitats.

- Strategies
- a. Conduct comprehensive baseline flora and fauna surveys of plants, invertebrates, fish, amphibians, reptiles, birds, and mammals.

- b. From the baseline surveys (including song bird point counts, frog call surveys, and Monitoring Avian Production and Survivorship banding stations), establish a long-term monitoring program (e.g., sample a group for five years, every 15 years).
- c. Implement species monitoring before and after major habitat management projects, and expand use of Geography Information Systems (GIS) to document and model species and habitat.
- d. Develop a computer archive of data and publications to ensure access to information for staff, partners, and the public.
- e. Use the results of baseline surveys, project evaluation surveys, and monitoring to develop, evaluate, and revise management objectives for wildlife populations, habitat, and public use.
- f. Set aside Little Beach Island and adjacent salt marshes as a representative natural barrier island complex. A study would be undertaken to determine what species should be represented on the Island, yet are absent because of past human disturbance. Those plant and animal species would then be restored so that the Island could act as a colonizing source to New Jersey's other barrier islands. Research would also be conducted to determine the impact of beach use on beach/dune dynamics, comparing Holgate and Little Beach Island.
- g. Encourage research not only by identifying needs, but in co-developing research proposals and pursuing funding through Service and non-Service sources. New research would include the:
  - impact of mosquito control techniques, such as pesticide applications and Open Marsh Water Management (OMWM), on habitat and wildlife;
  - impact of different kinds and levels of public use on habitat and wildlife;
  - impact of public use on the dynamics of beach and shoreline environment;
  - impact of watershed development on water quality/quantity and wetland resources;
  - impact of restoring pre-colonial ecology of the southern New Jersey coastal landscape (e.g., role of fire, plant and animal community composition);
  - assessment of ecological integrity of the landscape based upon proposed land protection and management.

Objective 6. Expand efforts to protect and enhance other species and habitats of special concern.

Strategies a. Provide technical assistance to local communities and partners, on wildlife-related issues (e.g., wildlife and habitat monitoring; contaminant spill planning/response).

- b. Initiate efforts to restore colonial nesting birds to barrier and bay islands. Initiate research, if necessary, to determine limiting factors to successful restoration of bird colonies.
- c. Initiate efforts to identify and manage critical habitat on the Refuge for interjurisdictional fish. This would be covered in a step-down Wildlife Population Management Plan.
- d. Continue current trapping efforts under contract and Refuge special use permits (Maps 4a, b, c and d, beginning on page 55) to:
  - protect Refuge infrastructure (e.g., muskrats that burrow in Refuge dikes);
  - maintain furbearer populations at levels consistent with objectives for Refuge and surrounding habitat would be continued.
- e. Expand public trapping opportunities for raccoon, fox, muskrat, coyote and beaver, under Refuge special use permits (Maps 4a, b, and c beginning on page 55), to better manage furbearer populations in the:
  - Reedy Creek area in Brick Township;
  - Stouts Creek area in Lacey Township;
  - Four Mile Branch Bogs area in Stafford Township.

**Goal 2. Maintain and/or restore natural ecological communities to promote healthy, functioning ecosystems.**

Objective 1. Complete the revision of the step-down Habitat Management Plan for the Refuge by 2002.

- Strategies
- a. Use existing preliminary habitat prescriptions for all currently owned Refuge lands as the basis for the step-down plan. These prescriptions were developed to provide habitat management objectives that characterize a desired physiognomic condition (major vegetative structure, e.g., forest, grassland, brush, marsh) and hydrologic regime (e.g., upland, tidal wetland, non-tidal wetland). (See Maps 5a, b, c and d beginning on page 59.)
  - b. Consider habitat requirements for endangered or other high priority trust resources (e.g., piping plover) and ecological communities with special emphasis (e.g., Atlantic white cedar swamps) in establishing site specific prescriptions.
  - c. Implement the following guiding principles in developing specific habitat prescriptions:
    - restore salt marshes to pre-grid-ditched hydrology;
    - maximize grasslands or fields for open land character;

- maximize forests for interior character;
- maintain scrub/shrub between forest and grassland to create soft boundaries;
- buffer sensitive areas;
- use only native plant species and local genotypes in restoration projects;
- favor low maintenance habitat strategies, taking advantage of driving systems processes;
- use pre-colonial baseline to define native species, community composition, and landscape configuration;
- use natural regeneration to convert or restore habitat types, unless there are no seed sources, there are threats from exotic species, or physical stabilization is required.

d. Develop and implement a private lands habitat restoration plan in cooperation with other agencies and organizations that have private lands programs, such as the Service's Ecological Services Division, and the U.S. Department of Agriculture's Natural Resource Conservation Service and Forest Service.

- Objective 2. Manage 27,956 acres as Salt Marsh by maintaining 5,547 acres of existing pristine unditched marsh that is part of the Brigantine Wilderness Area, restoring 22,388 acres of parallel grid-ditched marsh to pre-ditching hydrology, and restoring 12 acres of Dredged Lagoon, three acres of Developed land, and two acres of Upland Brush.
- Objective 3. Manage 5,659 acres of Upland Forest by maintaining 4,841 acres of existing Upland Forest, converting 733 acres from Upland Brush and 30 acres from Crop-Pasture by allowing them to regrow, and restoring 49 acres of Developed land, three acres of Dredged Lagoon, and a three acre Sand-Gravel Pit.
- Objective 4. Maintain 1,685 acres of existing marsh in the Brigantine and Barnegat Impoundment Systems. Actively manipulate water levels and flow throughout the year to produce mud flats, deep water (with submerged aquatic vegetation), moist soil (with annual wetland plants), and salt marsh. Obtain additional resources needed to replace obsolete water control structures and continue rehabilitation of the dikes.
- Objective 5. Maintain 589 acres as barrier island Dune-Beach habitat; the actual acreage would vary based on the highly dynamic shoreline changes. Most of the acreage lies within the Brigantine Wilderness Area (Holgate Unit and Little Beach Island), and, with the exception of control for exotic species, would be left largely to natural processes. Create 11 acres of barrier island Dune-Beach habitat from a Dredge Spoil site.
- Objective 6. Maintain 581 acres of existing Wetland Forests and restore 2 acres from a Sand-Gravel Pit. Additional research may support Atlantic White Cedar restoration in current Wetland Forest sites.

- Objective 7. Maintain 197 acres of existing Wetland/Bog Brush, generally in a complex with Cedar Swamp Forests. Restore one 36 acre site, Cedar Run Bog, a former diked cranberry bog, to its pre-diked shoreline and open fish passage.
- Objective 8. Manage 196 acres of early succession Brushy Uplands by maintaining 112 acres in a brushy state through use of mechanical or fire techniques, converting 34 acres of Crop-Pasture or Developed Land to brush by allowing it to regrow, and setting back 50 acres of Upland Forest to a brushy state.
- Objective 9. Manage 178 acres of Grassland habitat (native grasses and forbs) by restoring 139 acres of Developed Lands (includes dikes of impoundments), 24 acres of Crop-Pasture, 15 acres of Dredge Spoil Site, and 15 acres of Upland Brush. Actively restore areas currently covered with grasses and forbs that are dominated by exotic and invasive species, to native species.
- Objective 10. Maintain 118 acres in salt marshes and bays of the estuary as Forest Island, and rehabilitate 93 acres of Dredge Spoil sites.
- Objective 11. Maintain 96 acres as Open Fresh Water, with a priority to remove any fish passage obstructions. Monitor non-Refuge navigable waters for water quality and fish and wildlife use in cooperation with the State.
- Objective 12. Maintain 45 acres of existing Fresh Non-tidal Marsh.
- Objective 13. Maintain 24 acres of existing Pitch-Pine Lowland Forest.
- Objective 14. Maintain 239 acres of existing Cedar Swamp Forest and restore 20 acres of Sand-Gravel Pit.
- Objective 15. Seventeen acres associated with offices and other Refuge facilities would remain Developed Land. Landscape these areas with native plants to support Refuge activities and reduce negative impacts on wildlife.
- Objective 16. Maintain 15 acres of existing Dredged Lagoon unless further study indicates that it could be converted to another cover type, such as Salt Marsh, in a legal and ecologically sound manner.
- Objective 17. Complete the revision of the step-down Fire Management Plan and Burn Prescriptions in 2001 and apply prescribed fire to all of the upland habitats.
- Strategies
- a. Upland Forest - burn once every 8-15 years to reduce hazardous fuel, overstory stand density, and understory density, increase heath or grass/forb density, and control invasive species.
  - b. Upland Brush - burn once every 5-15 years to reduce hazardous fuel, set back succession, and control invasive species.
  - c. Grassland - burn once every 1-3 years to reduce hazardous fuel, set back succession (woody growth), and control invasive species.
  - d. Refine burn frequency and prescriptions through research and monitoring.

Objective 18. Develop and implement an Integrated Pest Management (IPM) program with control strategies for phragmites and at least six other problem species by 2003.

- Strategies
- a. Continue a combination of herbicide use, prescribed burning, mowing and water level management to remove approximately 150 acres of phragmites per year in Refuge impoundments.
  - b. Survey invasive and overabundant species on the Refuge.
  - c. Establish a monitoring program, in concert with habitat monitoring, to assess progress and identify additional problem species.
  - d. Research alternative methods of controlling certain species.
  - e. Offer technical assistance and support on invasive species control efforts on nearby public and private lands.
  - f. Continue public hunting to control populations of snow geese and resident Canada geese. Continue nest disruption efforts on the Refuge to limit production of resident Canada geese. Continue these activities until further planning prescribes other actions.

Objective 19. Reduce use of pesticides on the Refuge.

- Strategies
- a. Continue current levels of pesticide use for phragmites and mosquito control, which largely follow an Integrated Pest Management (IPM) approach, until acceptable substitutes are identified.
  - b. Complete renegotiation of the Cooperative Agreement with county mosquito control agencies and the State regarding mosquito control activities on the Refuge.
  - c. Aggressively pursue alternatives to pesticide use.
  - d. Offer technical assistance on IPM strategies to local communities for controlling common problem species.

**Goal 3. Establish a land protection program to support species, habitat and ecosystem goals.**

Objective 1. Acquire the remaining 12,300 acres of privately owned land within the currently approved 56,600 acre Refuge acquisition boundary. The approved Refuge acquisition area includes the 535-acre New Jersey Division of Fish and Wildlife's Forked River State Game Farm in Lacey Township. (See Maps 3a, b, c and d beginning on page 51.)

- Strategies
- a. Continue buying from willing sellers and focusing our land acquisition efforts on developable upland properties first.
  - b. Obtain the \$19.7 million in funding needed to acquire the remaining 12,300 acres of land within the approved Refuge acquisition area (average cost of \$1,600 per acre). (The average annual Land and Water Conservation appropriation for this Refuge, based on the five-year period, FY-1995/1999, is \$1,700,000.)

- c. Maintain the present level of participation in off-Refuge land use planning efforts with governmental and private partners (e.g., the Barnegat Bay National Estuary Program and the Jacques Cousteau National Estuarine Research Reserve).

Objective 2. Work to protect 3,348 acres of wildlife habitat essential to the long-term ecological integrity of the Refuge. (See Maps 3a, b, c and d beginning on page 51 and Appendix M on page 165.)

- Strategies
- a. Acquire 3,348 acres, which were defined in cooperation with the State, local municipalities and our conservation partners.
  - b. Obtain the \$11 million in funding needed to acquire all 3,348 acres (average cost of \$3,300 per acre). (This would require increasing the average annual Land and Water Conservation Fund appropriation for Forsythe Refuge by about \$800,000 for the next fifteen years. For the five-year period, FY-1995/1999, the average annual Land and Water Conservation funding for this Refuge was about \$1.7 million.)
  - c. Expand our land planning efforts with municipalities, counties, and the State.
  - d. Expand our efforts to work with public and private landowners to implement wildlife habitat protection and restoration off Service-owned land.

**Goal 4. Provide opportunities for high-quality compatible, wildlife-dependent public use.**

Objective 1. Continue to provide compatible deer hunting opportunities, by permit, in the following Deer Management Zones (DMZs) ( Maps 6a, b, and c beginning on page 63.):

- a. DMZ 56 in Atlantic County, south of Stoney Hill Road (20 permits for shotgun season);
- b. DMZ 57 in Atlantic County, north of Stoney Hill Road (35 permits for shotgun season, 35 permits for bow season, and 35 permits for muzzle loader season);
- c. DMZ 58 in Burlington and Ocean Counties (50 permits for shotgun season, 35 permits for bow season, and 40 permits for muzzle loader season).

Objective 2. Expand compatible big game hunting opportunities on the Refuge by 2003. (See Maps 6a, b, and c beginning on page 63.)

- Strategies
- a. Initiate a universally accessible hunt in DMZ 56 during the permit shotgun or permit muzzle loader seasons.
  - b. Expand deer hunting opportunities in DMZ 58 to include:
    - Forked River Game Farm, Lacey Township;
    - Former AT&T property, Lacey Township;

- Selected properties east of US Route 9, Eagleswood, Stafford, and Barnegat Townships;
  - Middle Branch of Forked River, Lacey Township (permit bow season only);
  - Cedar Run Creek between the Garden State Parkway and Route 9, in Stafford Township (permit bow season only).
- c. Weigh the following factors in expanding big game hunting opportunities:
- the size and configuration of new Refuge-owned properties;
  - the availability of public access;
  - safety considerations including the State mandated 450-foot safety zone around buildings and playgrounds.
- d. Reduce big game hunting activities if we determine that incompatible levels of use are occurring.

Objective 3. Provide compatible game hunting opportunities on the Refuge by 2005.

- Strategies
- a. Initiate the Refuge's first upland game hunting opportunities in the Oak Island Unit of the Brigantine Division, Bass River Township, Ocean County. (See Map 7 on page 66.)
  - b. Establish a parking and sign-in area at the old McDonald house site, located on Route 9 in New Gretna.
  - c. Weigh the following factors in expanding upland game hunting opportunities:
    - the size and configuration of new Refuge-owned properties;
    - the availability of public access;
    - safety considerations including the State mandated 450-foot safety zone around buildings and playgrounds.
  - d. Reduce upland game hunting activities if we determine that incompatible levels of use are occurring.

Objective 4. Continue to provide compatible migratory bird hunting opportunities on the Refuge.

- Strategies
- a. Continue current waterfowl, rail and moorhen hunting opportunities in designated hunt units on about 40% of Refuge lands. (See Maps 8a, b, c, and d beginning on page 67.)
  - b. Continue to allow migratory game bird hunting in salt marshes that are in designated migratory game bird hunt units within the Brigantine Wilderness Area.

- c. Make the following changes in current migratory game bird hunting opportunities:
  - allow foot access to Brigantine Division Unit 5, Little Egg Harbor Township;
  - allow jump shooting in Barnegat Division Unit A, from Jeremy Point in Little Egg Harbor Township to Cedar Run Creek in Eagleswood Township;
  - eliminate foot access and jump shooting in part of Barnegat Division Unit A from Cedar Run Creek in Eagleswood Township, to Beach Haven West in Stafford Township;
  - allow jump shooting and eliminate site requirements in the Barnegat Division Unit C, Clam Island.
- d. Make detailed maps of the migratory game bird hunting units available at Refuge headquarters.

Objective 5. Expand compatible migratory game bird hunting opportunities on the Refuge by 2003.

Strategies

- a. Open additional areas for waterfowl hunting within the following areas (Maps 8a, b, c and d beginning on page 67):
  - Reedy Creek in Brick Township;
  - Stouts Creek property in Lacey Township;
  - Forked River Game Farm in Lacey Township;
  - Former AT&T property, in Lacey Township;
  - Cedar Run Creek, between Route 9 and the Garden State Parkway, in Stafford Township.
- b. Weigh the following factors in expanding migratory game bird hunting opportunities
  - the size and configuration of new Refuge-owned properties;
  - the availability of public access;
  - safety considerations including the State mandated 450-foot safety zone around buildings and playgrounds.
- c. Reduce migratory bird hunting activities if we determine that incompatible levels of use are occurring.

Objective 6. Continue to provide compatible fishing opportunities on the Refuge. (See Maps 9a and b beginning on page 71.)

- Strategies
- a. Operate the boat launching ramp and car parking at Scotts Landing (Atlantic County, Galloway Township).
  - b. Provide freshwater fishing opportunities at Lilly Lake (Atlantic County, Galloway Township), including bank fishing from the south shore and boat fishing. Boats may not have internal combustion engines.
  - c. Upgrade saltwater fishing and crabbing opportunities at:
    - Cedar Creek, Stafford Avenue, Stafford Township, Ocean County;
    - Cedar Run, Cedar Run Dock Road, Eagleswood Township, Ocean County;
    - Parker Run, Dock Street, Little Egg Harbor Township, Ocean County.
  - d. Motorized vehicles are not permitted beyond designated parking areas at any of these locations.

Objective 7. Expand compatible fishing opportunities on the Refuge. (See Maps 9a and b beginning on page 71.)

- Strategies
- a. Provide the following new fishing opportunities:
    - universally accessible saltwater fishing and crabbing opportunities on the Mullica River (Atlantic County, City of Port Republic) off U. S. Route 9 by 2005;
    - upgrade the saltwater fishing & crabbing opportunities at Cedar Creek, Cedar Run Creek and Parker Run by 2006;
    - a universally accessible freshwater fishing pier at Cedar Run Bog (Ocean County, Stafford Township) west of U. S. Route 9 by 2007.
  - b. Develop a Refuge fishing guide.
  - c. We will investigate the possibility of establishing an experimental shuttle service which would take anglers and other refuge visitors from a convenient location to the tip of the Holgate Unit from September through mid-November.
  - d. Open Little Beach Island (Atlantic County, Galloway Township) through Refuge special use permits to seasonal (September through March) surf fishing. Use these special use permits to limit the numbers and impacts of visitors to the island. Seasonal surf fishing at Little Beach Island is authorized under the Code of Federal Regulations (CFR) 50, section 32.49.
  - e. Offer seasonal saltwater surf fishing opportunities within the Brigantine Wilderness Area at the Holgate Unit when the beach is open to public access from September through March. Access either by foot, both above and below mean high tide, or by motorized vehicle driving only below mean high tide.
  - f. Reduce fishing activities if we determine that incompatible levels of use are occurring.

Objective 8. Continue to provide compatible wildlife observation and photography opportunities on the Refuge. (See Maps 10a, b, c and d beginning on page 73.)

Strategies

- a. Visitors would continue to be able to observe and photograph wildlife:
  - along the Wildlife Drive and from its two observation towers and associated foot trails;
  - on the newly developed trail at Reedy Creek in Brick Township;
  - from the observation deck at the Barnegat impoundments;
  - seasonally (from September through March) at the Holgate Unit of the Brigantine Wilderness Area.
- b. Allow Refuge visitors to bicycle and walk on the Wildlife Drive.
- c. Monitor and periodically review these activities to determine if they are negatively impacting wildlife resources or create conflicts with other users. Curtail these activities if it is determined that impacts or conflicts are occurring.

Objective 9. Expand compatible wildlife observation and photography opportunities on the Refuge. (See Maps 10a, b, c and d beginning on page 73.)

- a. Open new foot trails, with appropriate parking areas, entrance kiosks, and interpretive wayside signs at the following locations:
  - Four Mile Branch Bogs, Stafford Township by 2005;
  - Stouts Creek (Murray Grove), Lacy Township by 2008;
  - Cedar Run Bog, Stafford Township by 2010;
  - Collinstown Road, Barnegat Township by 2014.
- b. Provide new wildlife observation and photography opportunities as follows:
  - complete the existing trail and add an observation platform at the Reedy Creek Trail in Brick Township by 2007;
  - construct universally accessible observation platforms, with appropriate parking areas, at Bonnet Island, Stafford Township by 2006, & off the Wildlife Drive, overlooking the Experimental Pool by 2003;
  - develop parking sites & kiosks for canoeists & kayakers at Westecunk Creek by 2008 & Cedar Run Creek by 2012.
- c. Offer seasonal wildlife observation and photography opportunities at the Holgate Unit of the Brigantine Wilderness Area, when the beach is open for public access from September through March. Access would be either by foot or motorized vehicles driving below mean high tide.

- d. Open Little Beach Island (Atlantic County, Galloway Township) through Refuge special use permits to seasonal (September through March) wildlife observation and photography. We would use these special use permits to limit the numbers and impacts of visitors to the island.
- e. Reduce wildlife observation and photography activities if we determine that incompatible levels of use are occurring.

Objective 10. Continue to provide compatible environmental education and interpretation opportunities both on and off the Refuge. (See Maps 10a, b, c and d beginning on page 73.)

- Strategies
- a. Complete the renovation of the Refuge auditorium, and installation of new displays.
  - b. Provide class visit planning and informational assistance as needed.
  - c. Provide Refuge special use permits to environmental education classes for such activities as seining or collecting soil, water, or vegetation samples.
  - d. The newly developed Friends of Forsythe would give occasional group tours of the wildlife drive, when requested in advance.
  - e. Maintain the interpretive signs and provide Refuge brochures at all of our existing Refuge public use sites.

Objective 11. Expand compatible environmental education and interpretation opportunities both on and off the Refuge. (See Maps 10a, b, c and d beginning on page 73.)

- Strategies
- a. Increase our participation in local environmental education and outreach events.
  - b. Develop and initiate outreach to groups and organizations with which the Service has not typically interacted.
  - c. Stress the importance of conservation for maintaining all citizens' quality of life, and emphasize the positive and negative impacts of people on wildlife, including the impacts of personal water craft in our outreach efforts and environmental education.
  - d. Increase the availability of interpretive opportunities and information:
    - in new and existing public use areas;
    - develop two outdoor classroom sites along the Wildlife Drive;
    - provide teacher workshops;
    - develop a Refuge video;
    - develop wildlife learning materials for children;
    - develop materials focusing on hunters and anglers;

- develop five new Refuge brochures;
  - increase involvement and partnership with the educational community;
  - add scheduled seasonal nature tours at the Wildlife Drive, the Holgate Unit of the Brigantine Wilderness Area, and Reedy Creek (with the help of partners such as Friends of Forsythe).
- e. Develop partnerships with the New Jersey Department of Environmental Protection, local chambers of commerce, and others to emphasize the values of wilderness and:
- increase the public's understanding and appreciation of the Brigantine Wilderness Area;
  - identify new compatible uses for the area;
  - identify other alternatives to enhance the Wilderness quality and value to local communities of the Brigantine Wilderness Area.
- f. Conduct outreach to increase awareness of the Brigantine Wilderness Area, using TV, calendars, posters, presentations, etc..
- g. Reduce environmental education and interpretation activities if we determine that incompatible levels of use are occurring.

Objective 12. Increase our resource protection and visitor safety efforts on the Refuge.

Strategies a. Hire three new full-time Park Rangers, in addition to our current law enforcement staff, to better protect resources and visitors.

Objective 13. Provide new headquarters and visitor facilities on the Refuge. (See Maps 11a, b, and c beginning on page 77.)

Strategies a. Construct new Refuge headquarters office and visitor center building(s) at the Brigantine Division by 2008. Provide office space for Refuge employees, as well as for the Service's New Jersey Field Office and Law Enforcement employees. Consider providing office space for personnel from our conservation partners (e.g., National Oceanic and Atmospheric Administration, National Marine Fisheries Service, New Jersey Division of Fish and Wildlife, etc.).

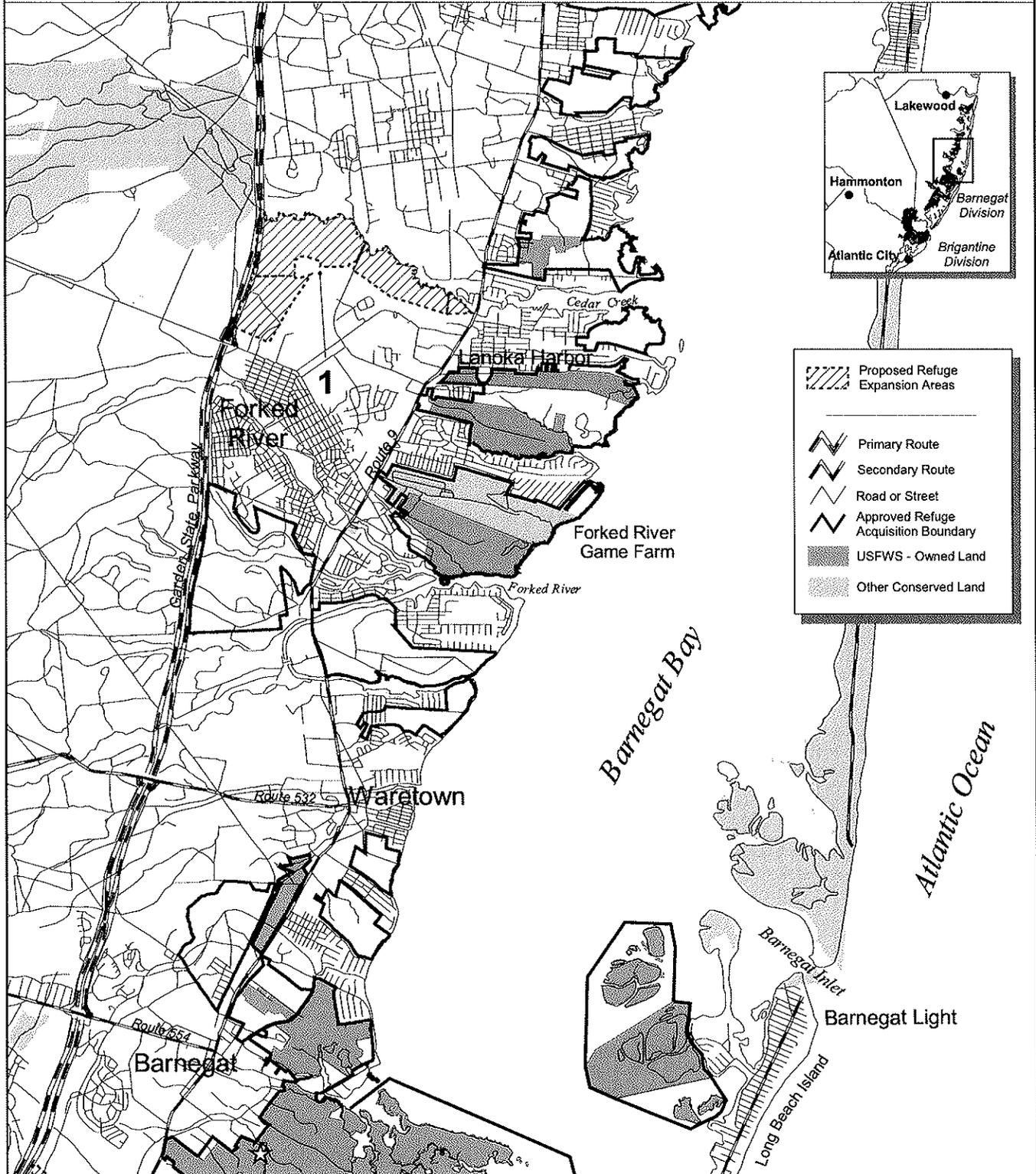
- b. Conduct a Site Requirement Analysis. We have identified several potential sites for the new facility at the Brigantine Division (see Map 11c on page 79), including:
- the current headquarters area in Galloway Township;
  - the Arboretum Tract area in Galloway Township;
  - the King's Highway area in Galloway Township;
  - the Nacote Creek/Chestnut Neck area in Port Republic;

- the Sim's Mansion area in Bass River Township;
  - the Werbler Tract area in Little Egg Harbor Township.
- c. The final decision on the location and construction of a new headquarters office and visitor center building(s) will be evaluated in a separate NEPA document at a later date. Criteria for site selection include:
- buildable area;
  - wetland buffers;
  - buffers to neighbors;
  - impact on open space;
  - existing sewer and water service;
  - proximity to major road;
  - site impacts of building or parking areas;
  - changes to the neighborhood;
  - view and access to trails and other visitor resources.
- d. Construct a new office and visitor contact building for the Barnegat Division along U.S. Route 9 in Ocean Township, Ocean County by 2008. The proposed site for the new facility is shown in Map 11b on page 78.

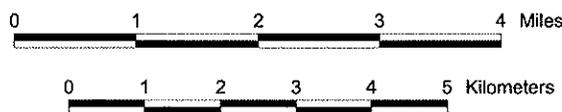
Map 3a.	Land Protection Focus Areas.	Page 51
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Map 11c.	Office and Visitor Facilities.	Page 79

# Proposed Refuge Expansion Areas

*Edwin B. Forsythe National Wildlife Refuge  
Barnegat Division, Ocean County, New Jersey, Group A*



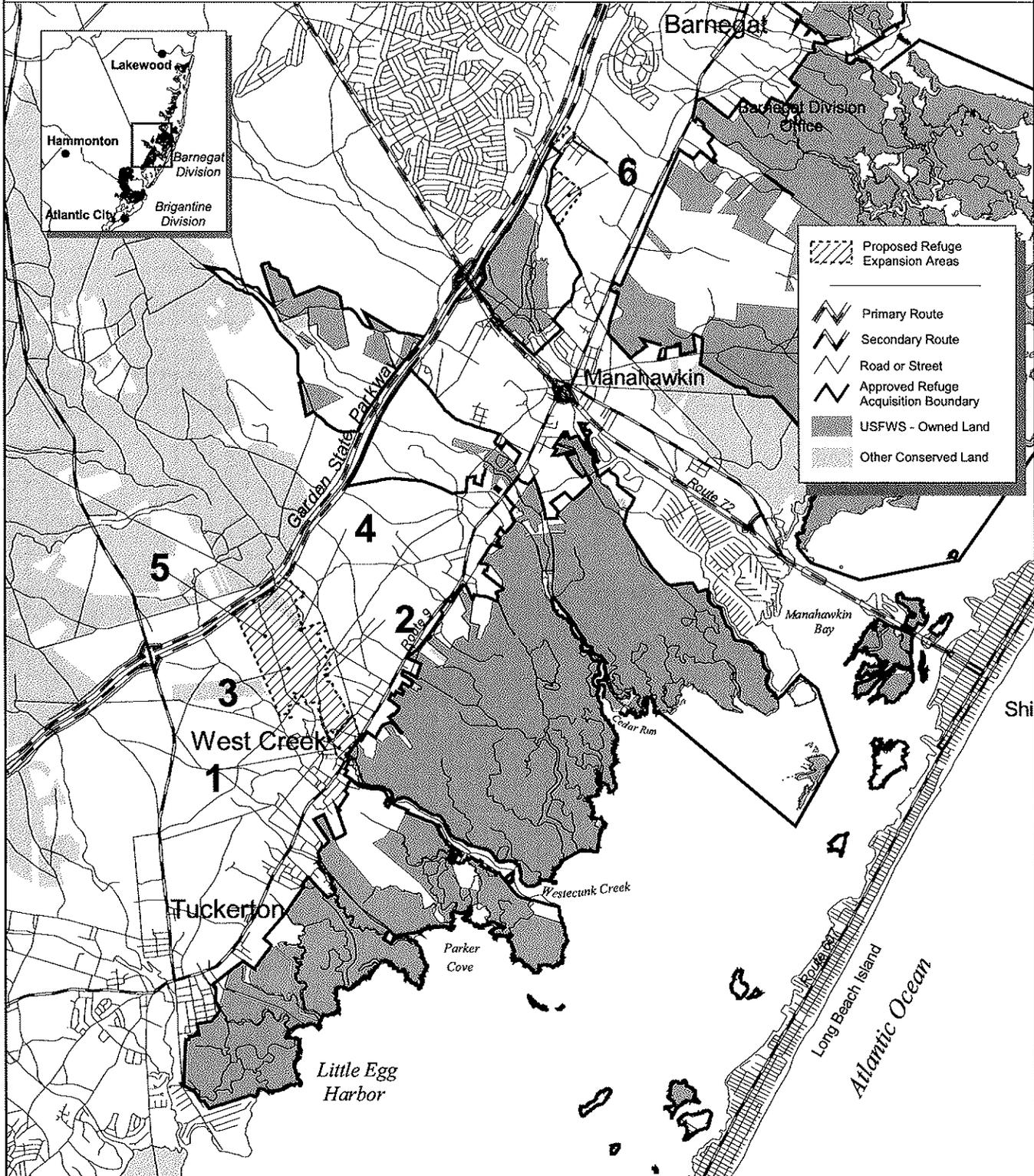
Data Sources:  
 USGS - 1:100,000 roads & hydro.  
 New Jersey - other protected land.  
 USFWS - refuge boundaries &  
 other refuge information.  
 Map prepared for Jersey Coast Refuges  
 Comprehensive Conservation Plan,  
 November 2001.  
 This map is for planning purposes only.



# Proposed Refuge Expansion Areas

## *Edwin B. Forsythe National Wildlife Refuge*

### *Barnegat Division, Ocean County, New Jersey, Group B*



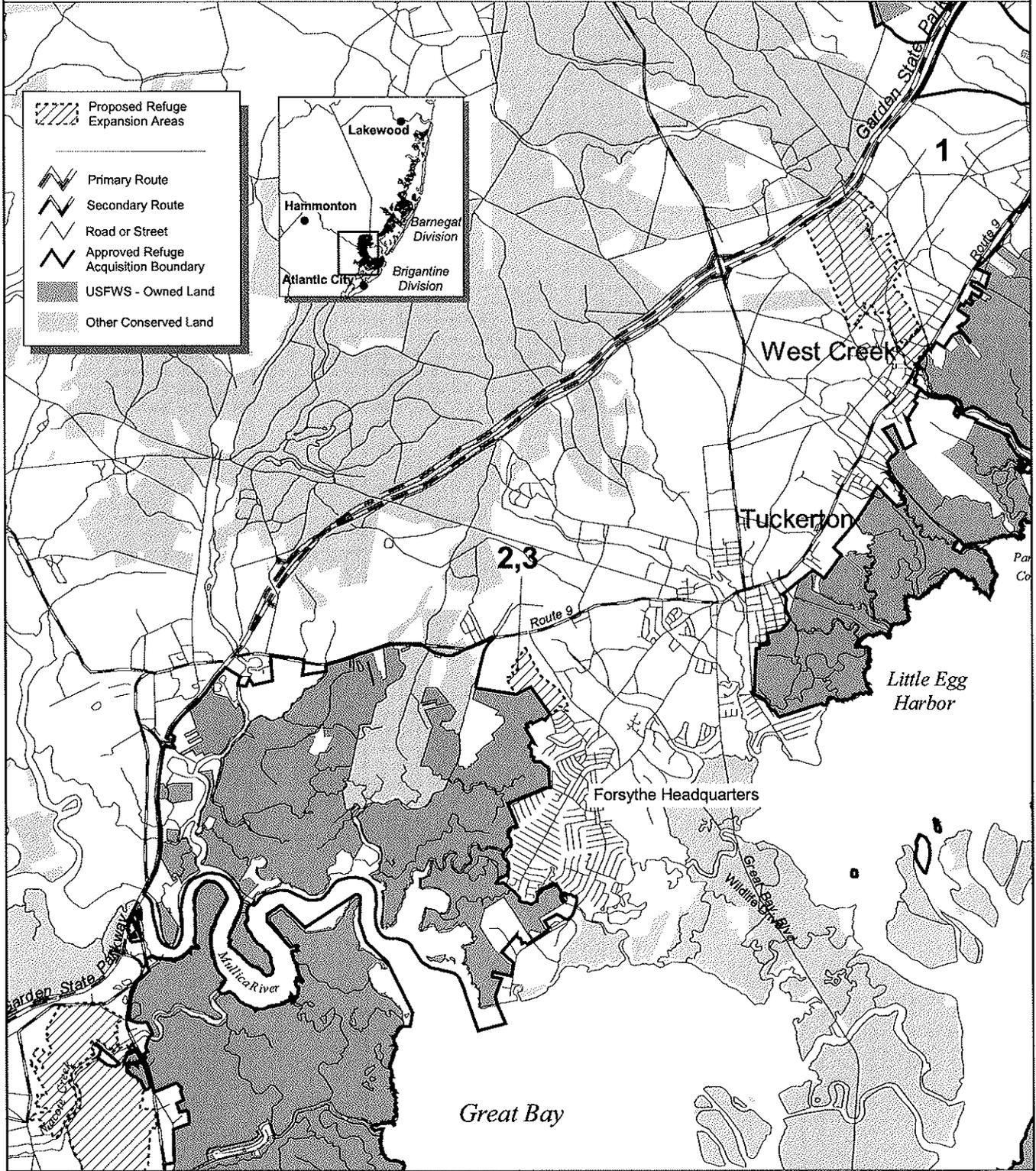
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# Proposed Refuge Expansion Areas

## Edwin B. Forsythe National Wildlife Refuge

Brigantine Division, Atlantic, Burlington and Ocean Counties, New Jersey, Group C



Data Sources:  
 USGS - 1:100,000 roads & hydro.  
 New Jersey - other protected land.  
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 other refuge information.

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0 1 2 3 4 Miles

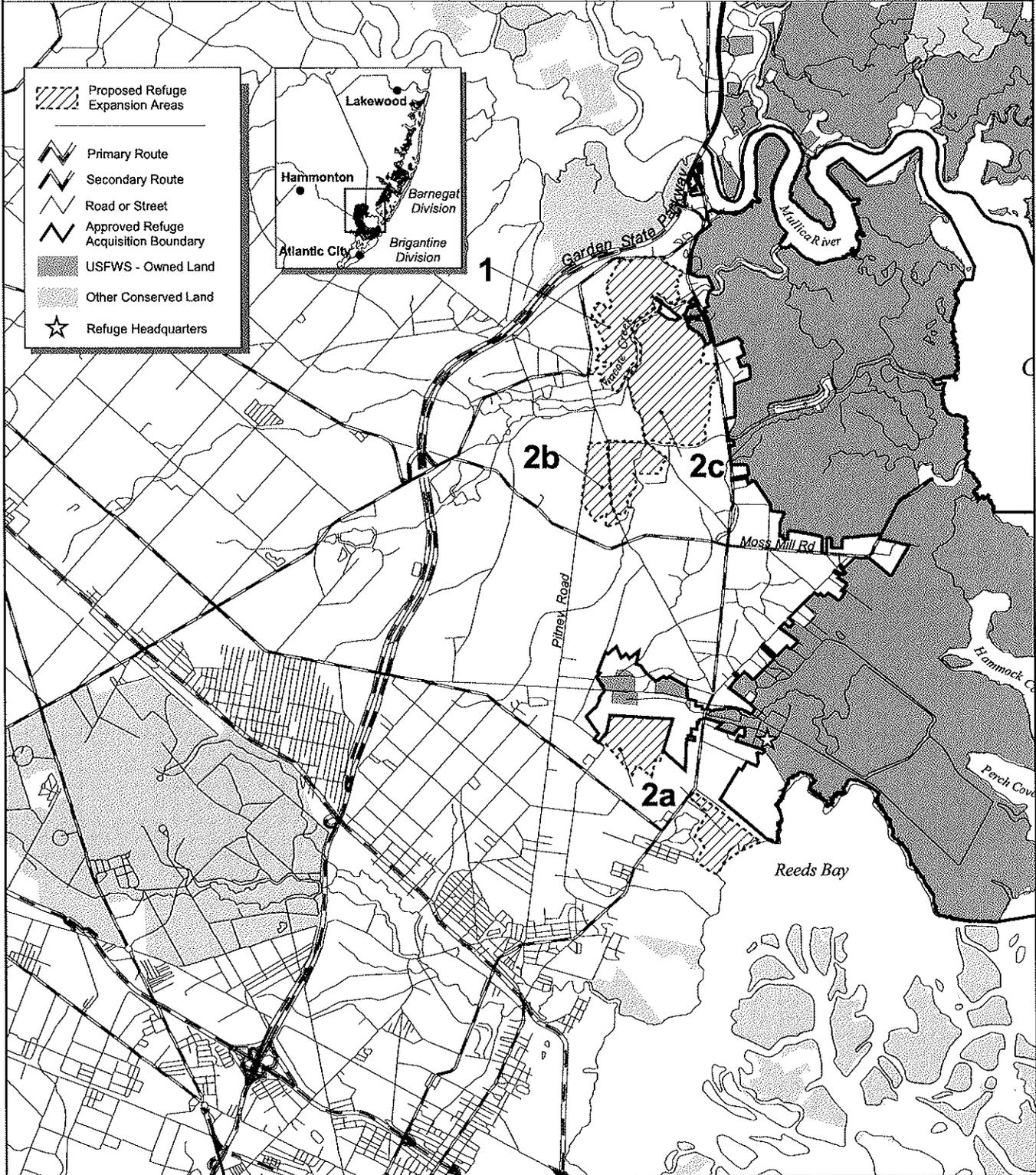
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# Proposed Refuge Expansion Areas

## *Edwin B. Forsythe National Wildlife Refuge*

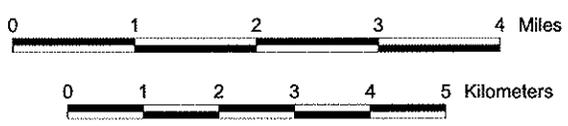
*Brigantine Division, Atlantic, Burlington and Ocean Counties, New Jersey, Group D*



**Legend**

- Proposed Refuge Expansion Areas
- Primary Route
- Secondary Route
- Road or Street
- Approved Refuge Acquisition Boundary
- USFWS - Owned Land
- Other Conserved Land
- Refuge Headquarters

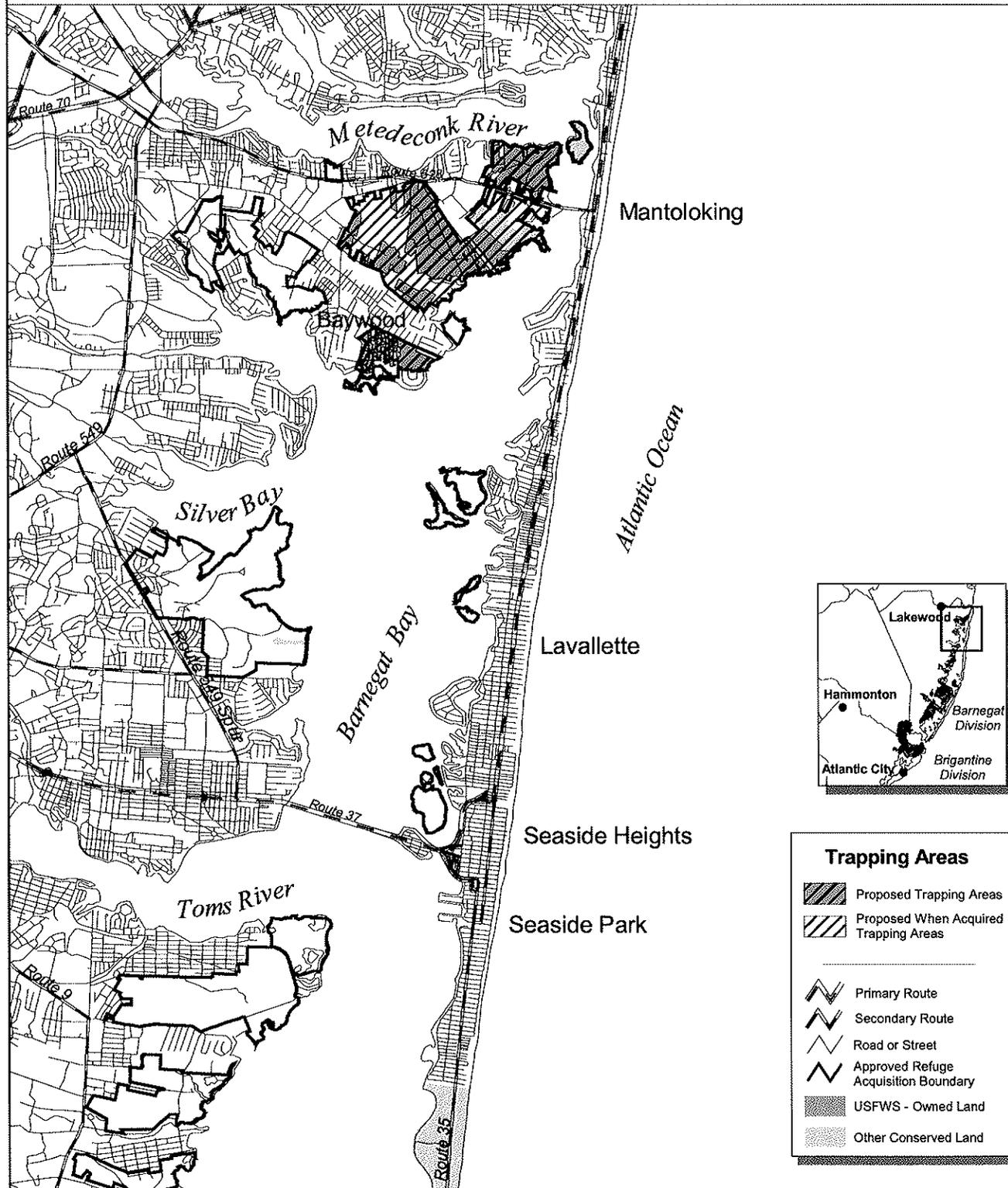
Data Sources:  
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# Trapping Areas

## Edwin B. Forsythe National Wildlife Refuge

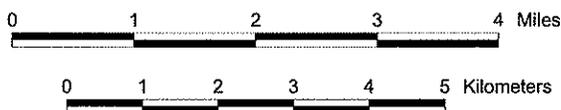
### Barnegat Division, Ocean County, New Jersey



**Trapping Areas**

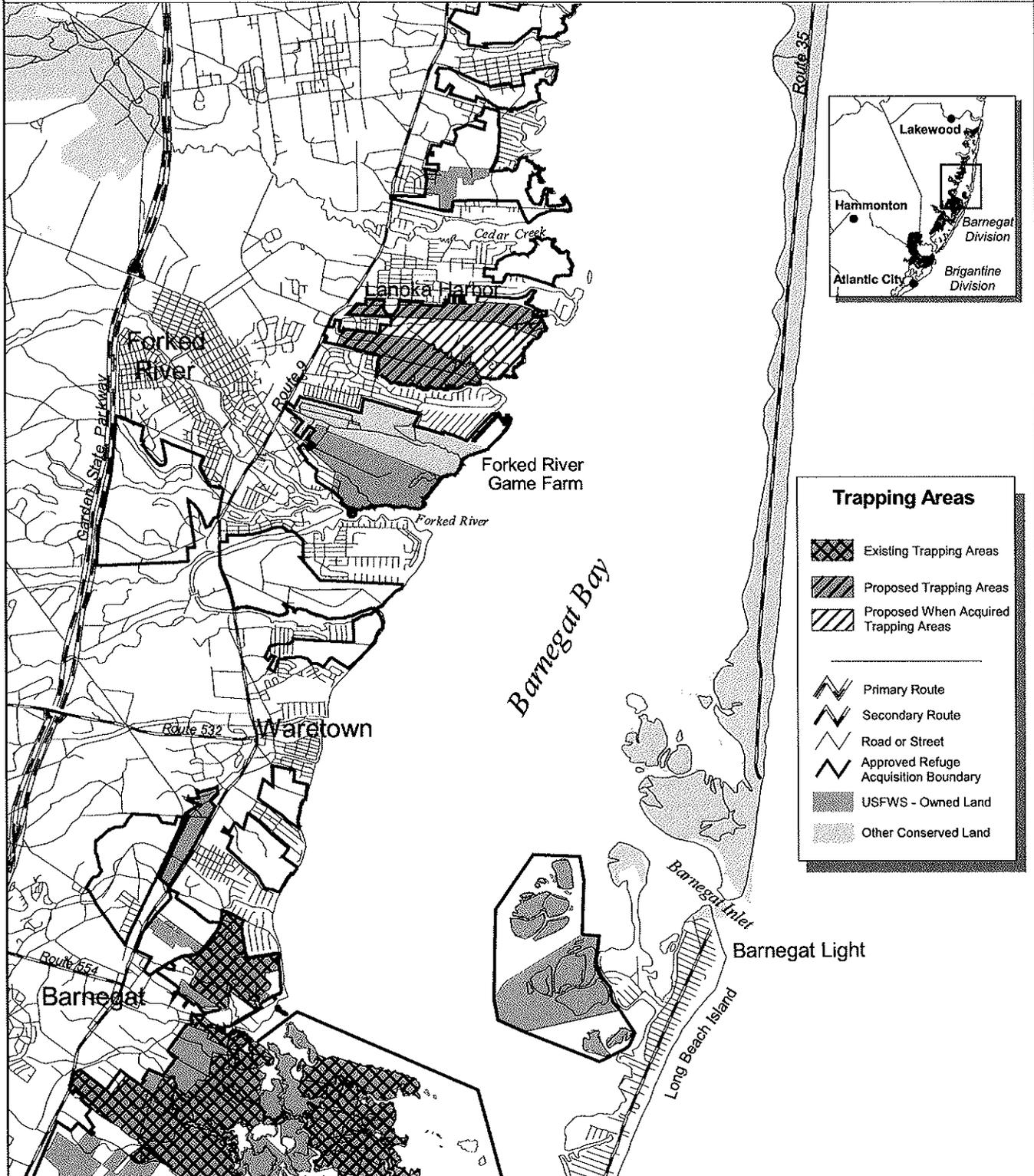
- Proposed Trapping Areas
- Proposed When Acquired Trapping Areas
- 
- Primary Route
- Secondary Route
- Road or Street
- Approved Refuge Acquisition Boundary
- USFWS - Owned Land
- Other Conserved Land

Data Sources:  
 USGS - 1:100,000 roads & hydro.  
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# Trapping Areas

*Edwin B. Forsythe National Wildlife Refuge  
Barnegat Division, Ocean County, New Jersey*

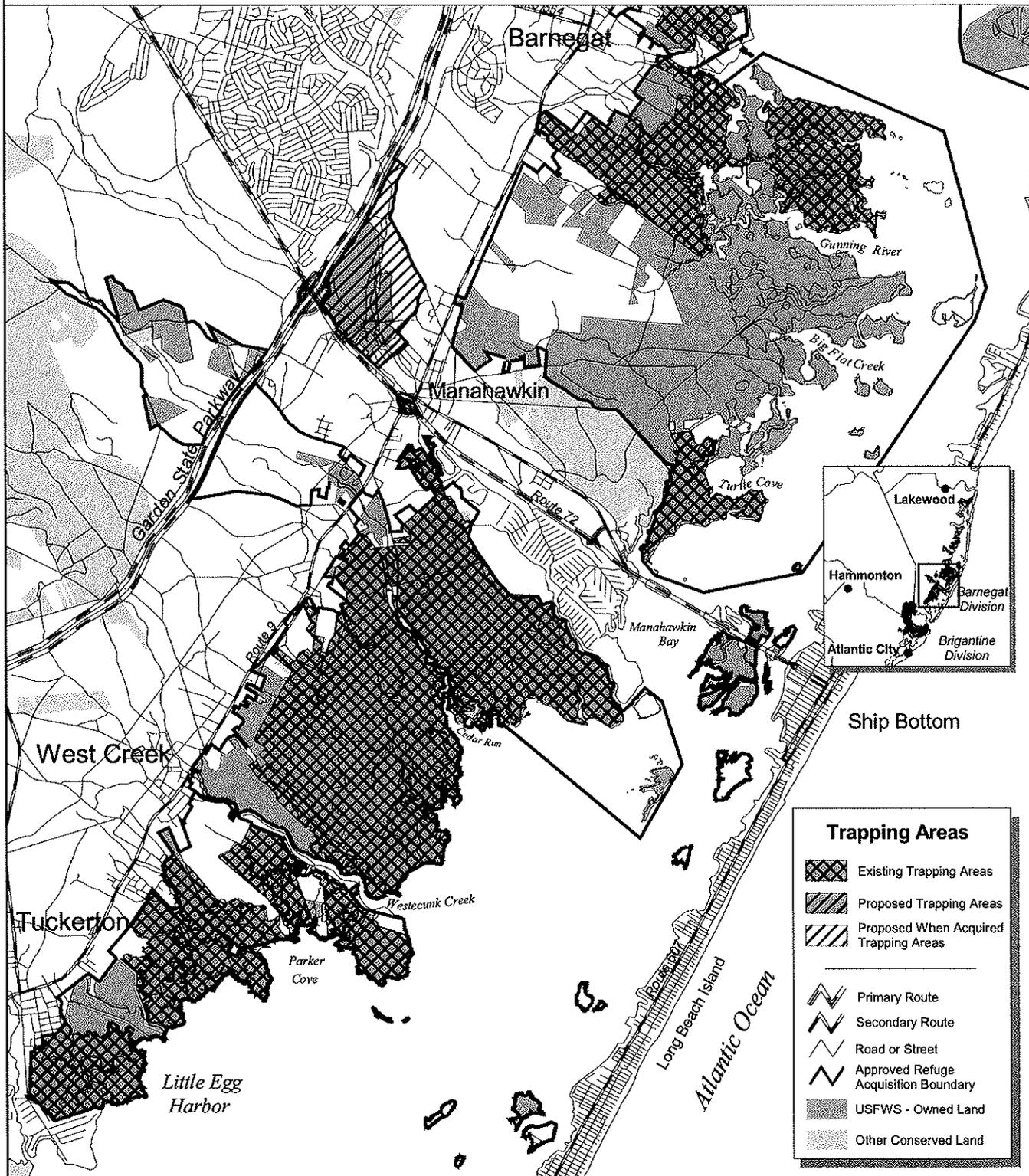


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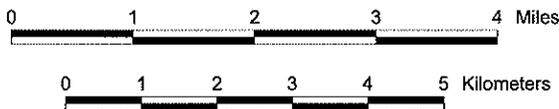


# Trapping Areas

*Edwin B. Forsythe National Wildlife Refuge  
Barnegat Division, Ocean County, New Jersey*



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USGS - 1:100,000 roads & hydro.  
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**Trapping Areas**

- Existing Trapping Areas
- Proposed Trapping Areas
- Proposed When Acquired Trapping Areas

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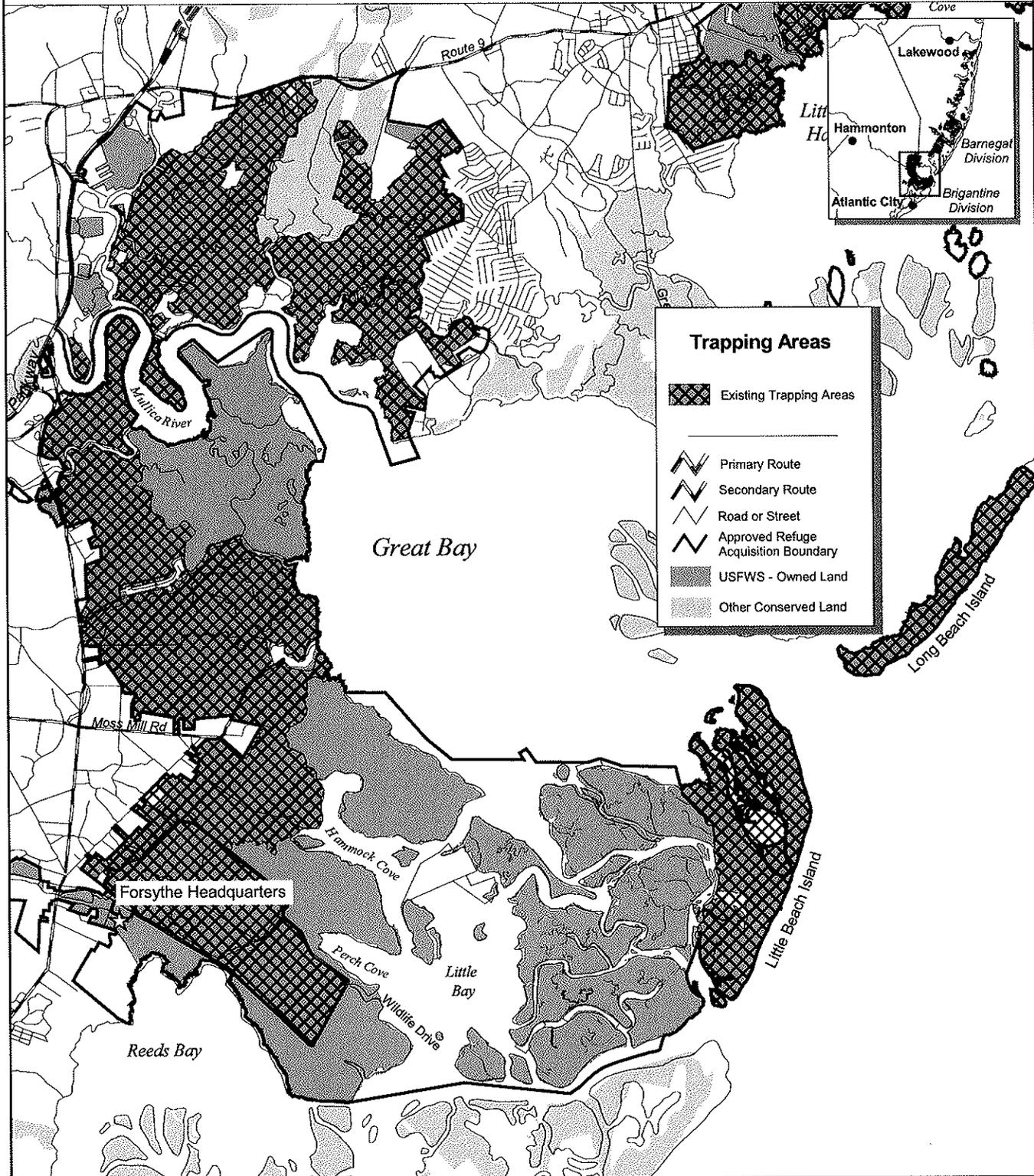
- Primary Route
- Secondary Route
- Road or Street
- Approved Refuge Acquisition Boundary
- USFWS - Owned Land
- Other Conserved Land



# Trapping Areas

## Edwin B. Forsythe National Wildlife Refuge

Brigantine Division, Atlantic, Burlington, and Ocean Counties, New Jersey



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0 1 2 3 4 Miles

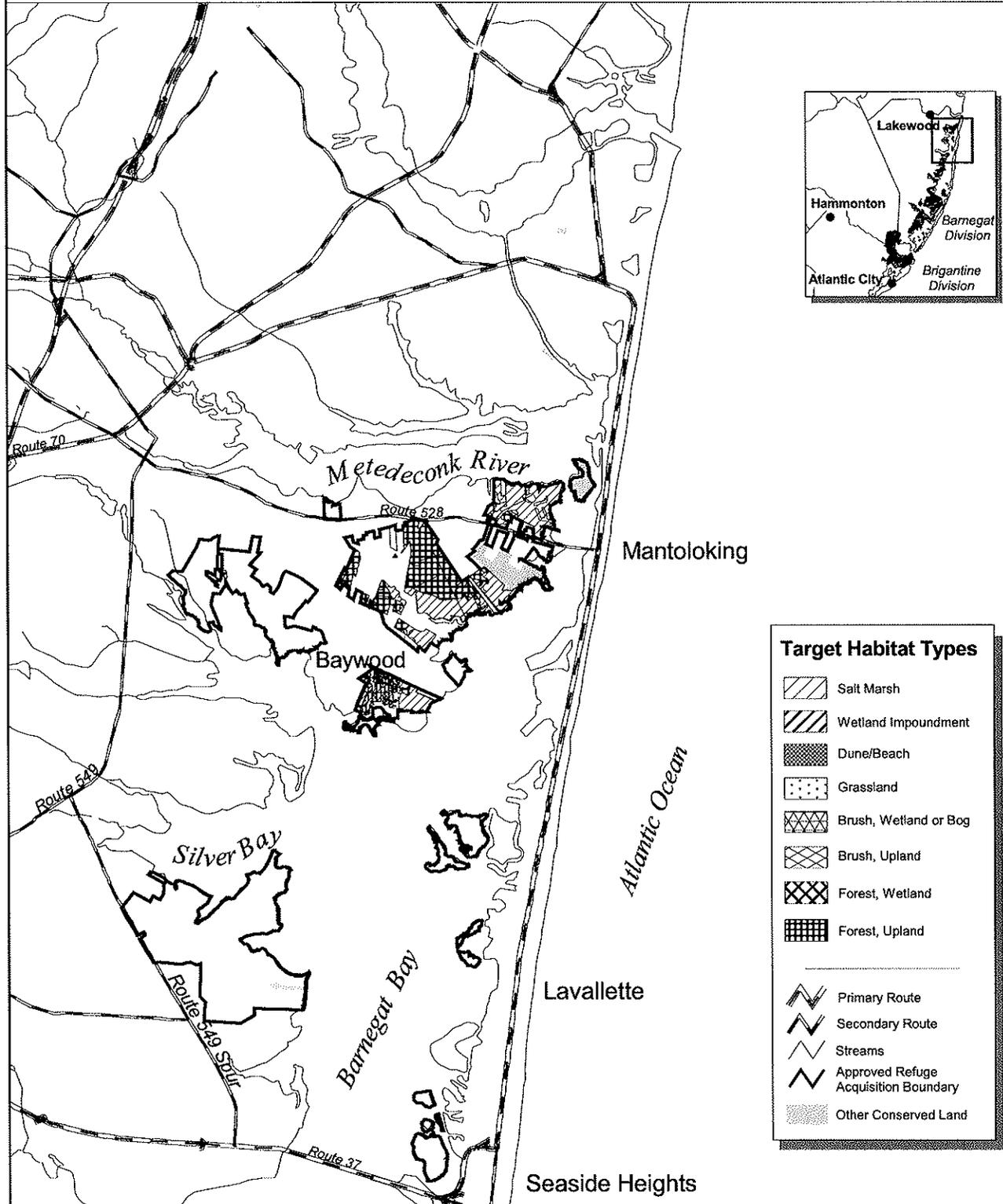
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# Habitat Management

## *Edwin B. Forsythe National Wildlife Refuge*

### *Barnegat Division, Ocean County, New Jersey*



**Target Habitat Types**

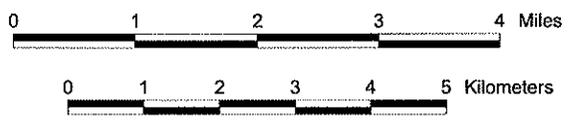
- Salt Marsh
- Wetland Impoundment
- Dune/Beach
- Grassland
- Brush, Wetland or Bog
- Brush, Upland
- Forest, Wetland
- Forest, Upland

---

- Primary Route
- Secondary Route
- Streams
- Approved Refuge Acquisition Boundary
- Other Conserved Land

Data Sources:  
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 other refuge information.

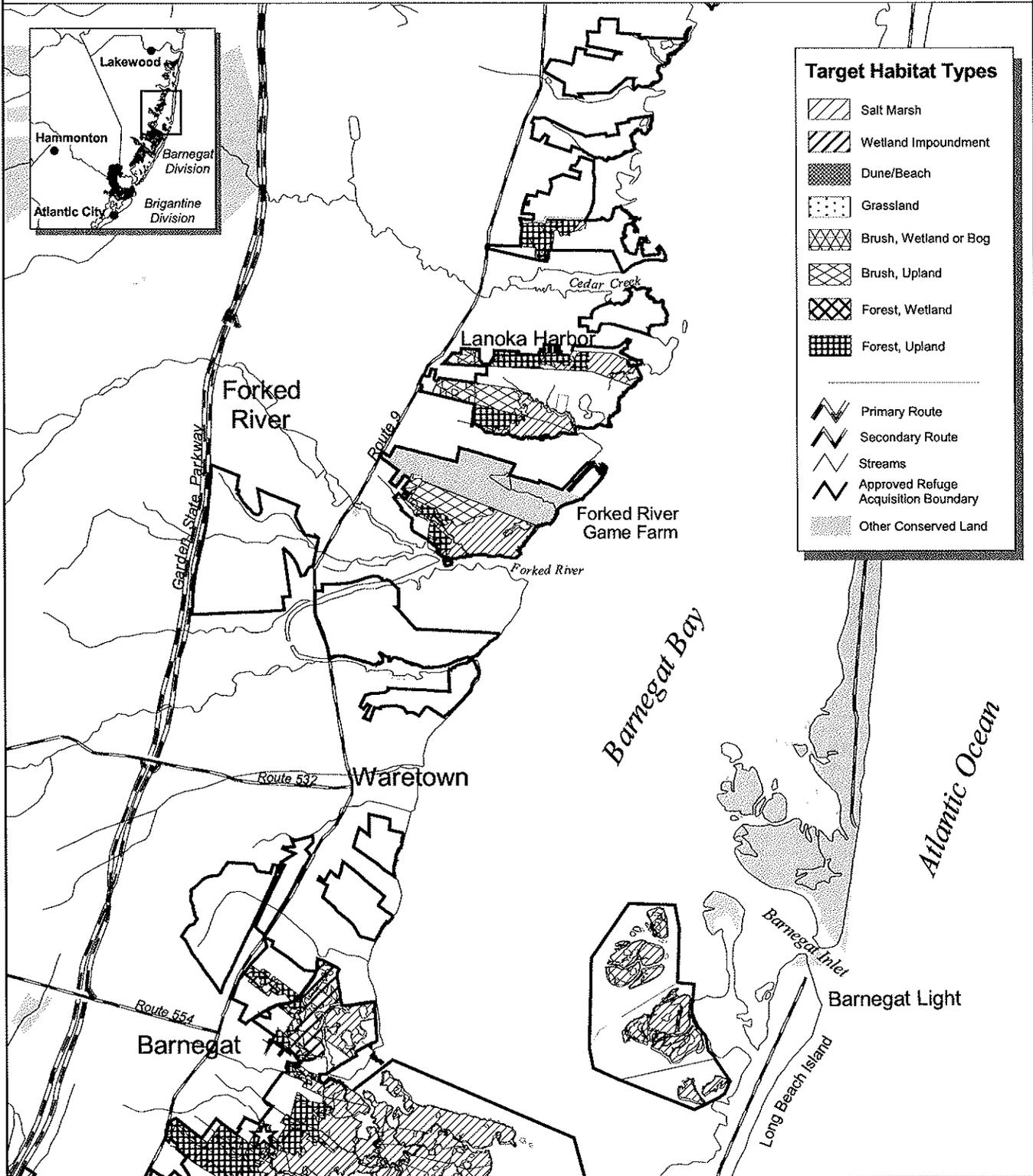
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# Habitat Management

## *Edwin B. Forsythe National Wildlife Refuge*

*Barnegat Division, Ocean County, New Jersey*



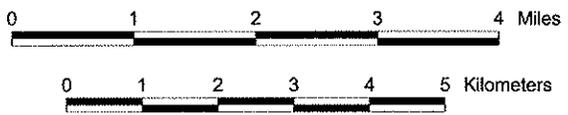
**Target Habitat Types**

- Salt Marsh
- Wetland Impoundment
- Dune/Beach
- Grassland
- Brush, Wetland or Bog
- Brush, Upland
- Forest, Wetland
- Forest, Upland

---

- Primary Route
- Secondary Route
- Streams
- Approved Refuge Acquisition Boundary
- Other Conserved Land

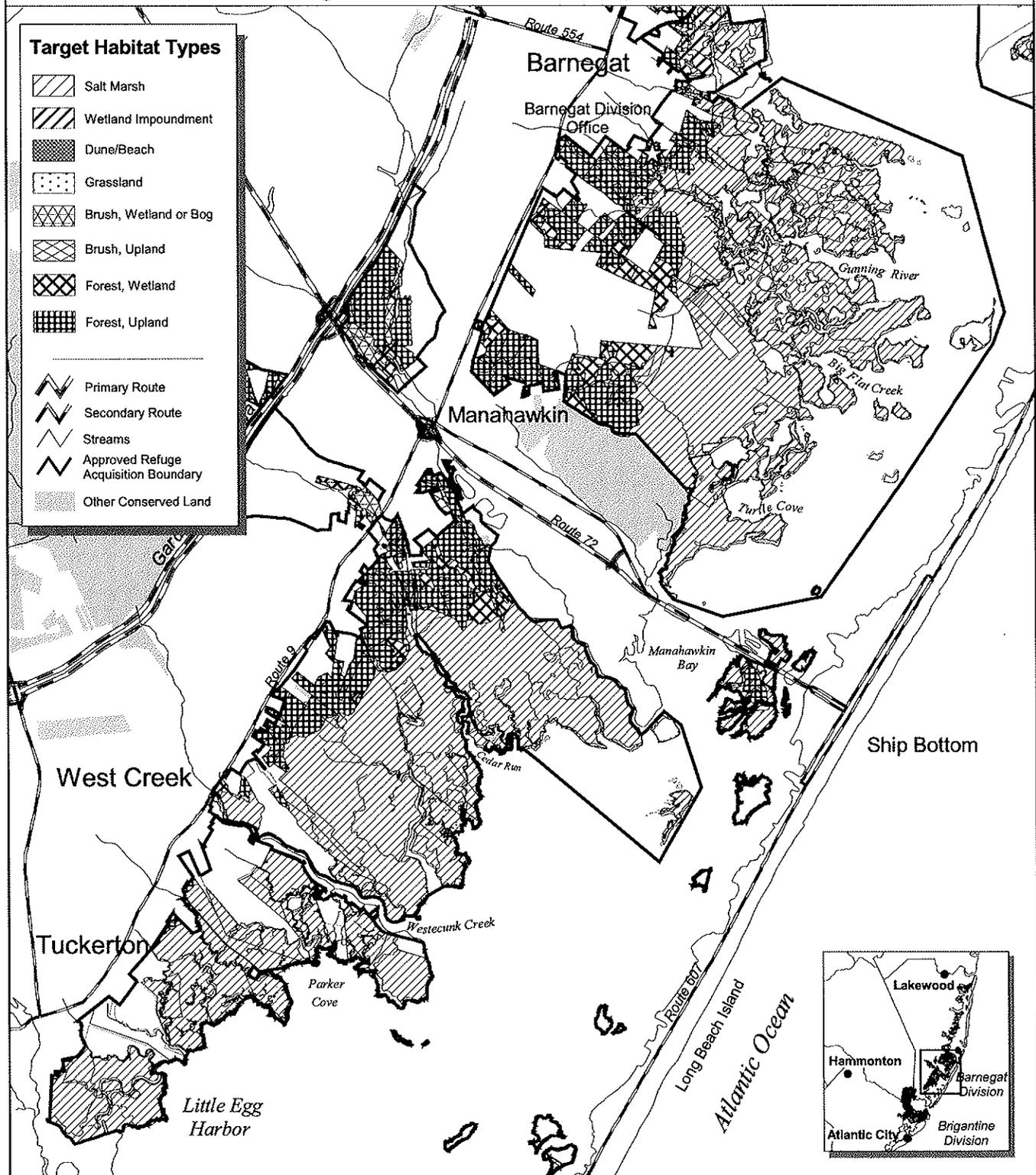
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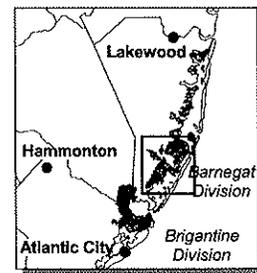
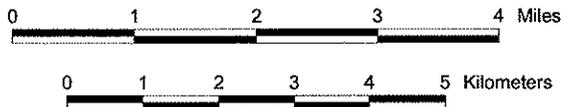
# Habitat Management

## *Edwin B. Forsythe National Wildlife Refuge*

### *Barnegat Division, Ocean County, New Jersey*



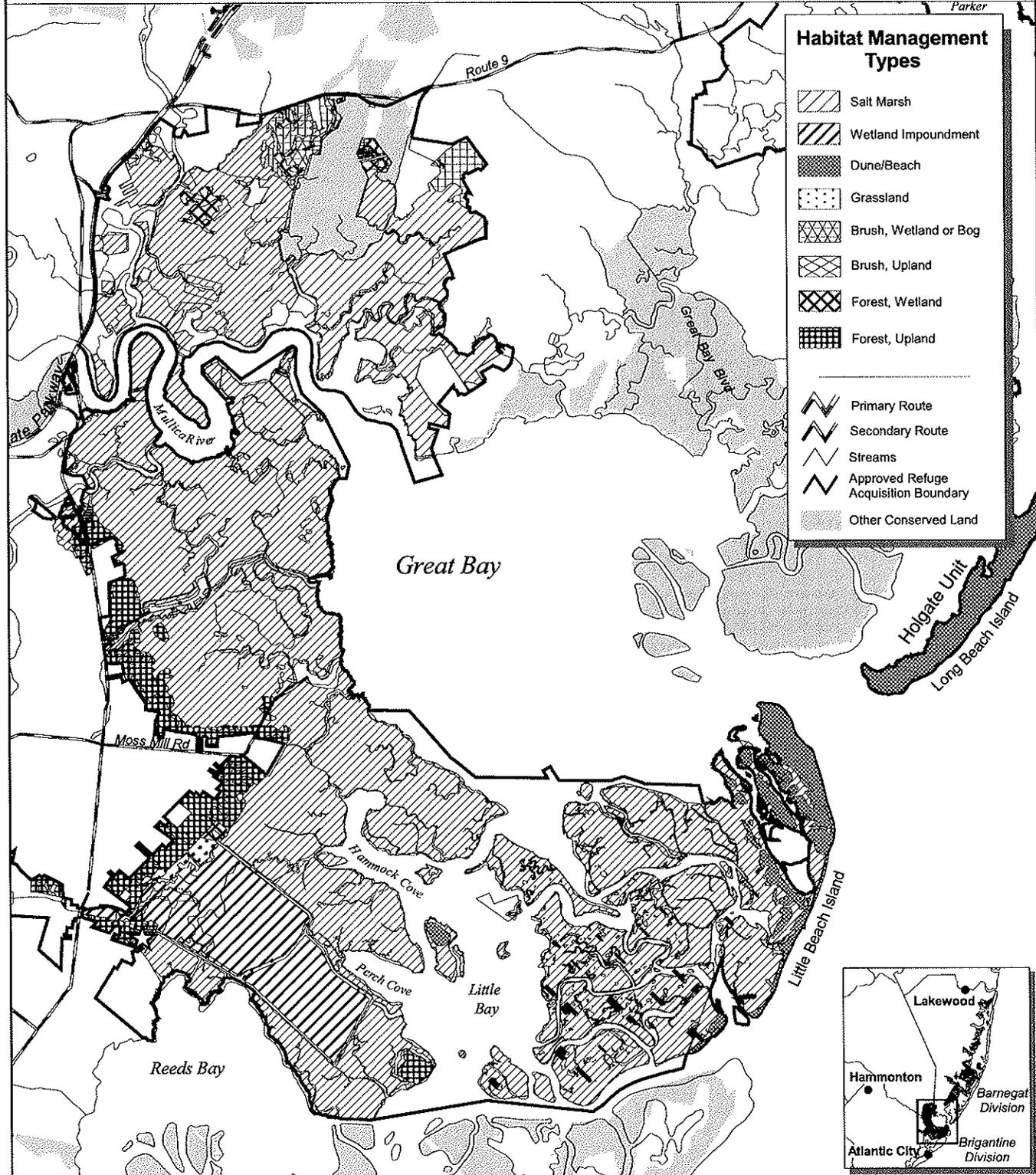
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# Habitat Management

## Edwin B. Forsythe National Wildlife Refuge

Brigantine Division, Atlantic, Burlington and Ocean Counties, New Jersey



**Habitat Management Types**

- Salt Marsh
- Wetland Impoundment
- Dune/Beach
- Grassland
- Brush, Wetland or Bog
- Brush, Upland
- Forest, Wetland
- Forest, Upland

--- Primary Route

--- Secondary Route

--- Streams

--- Approved Refuge Acquisition Boundary

--- Other Conserved Land



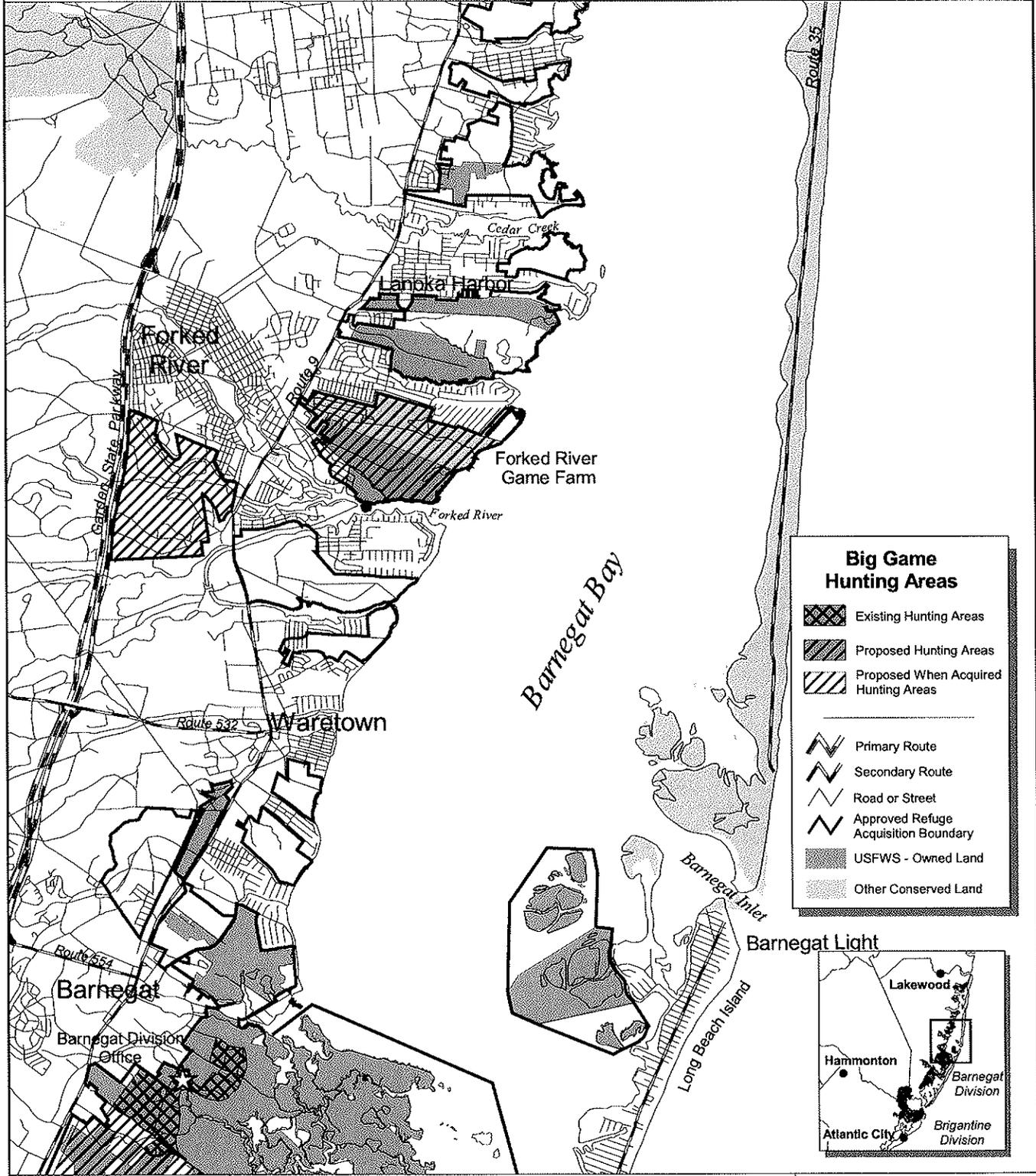
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# Big Game Hunting Areas

## Edwin B. Forsythe National Wildlife Refuge

### Barnegat Division, Ocean County, New Jersey



Data Sources:  
 USGS - 1:100,000 roads & hydro.  
 New Jersey - other protected land.  
 USFWS - refuge boundaries &  
 other refuge information.

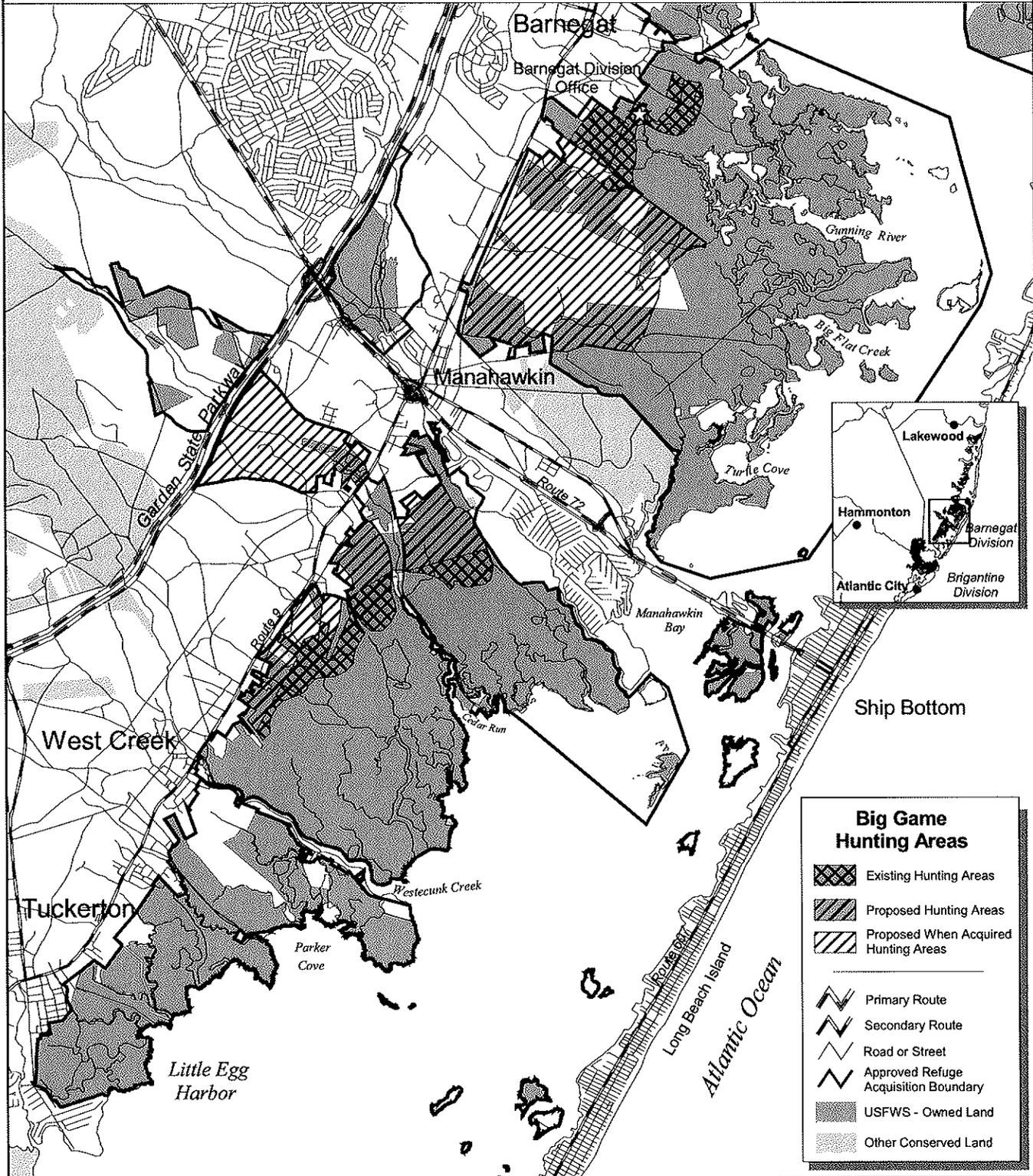
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# Big Game Hunting Areas

## *Edwin B. Forsythe National Wildlife Refuge*

### *Barnegat Division, Ocean County, New Jersey*



**Big Game Hunting Areas**

- Existing Hunting Areas
- Proposed Hunting Areas
- Proposed When Acquired Hunting Areas

---

- Primary Route
- Secondary Route
- Road or Street
- Approved Refuge Acquisition Boundary
- USFWS - Owned Land
- Other Conserved Land

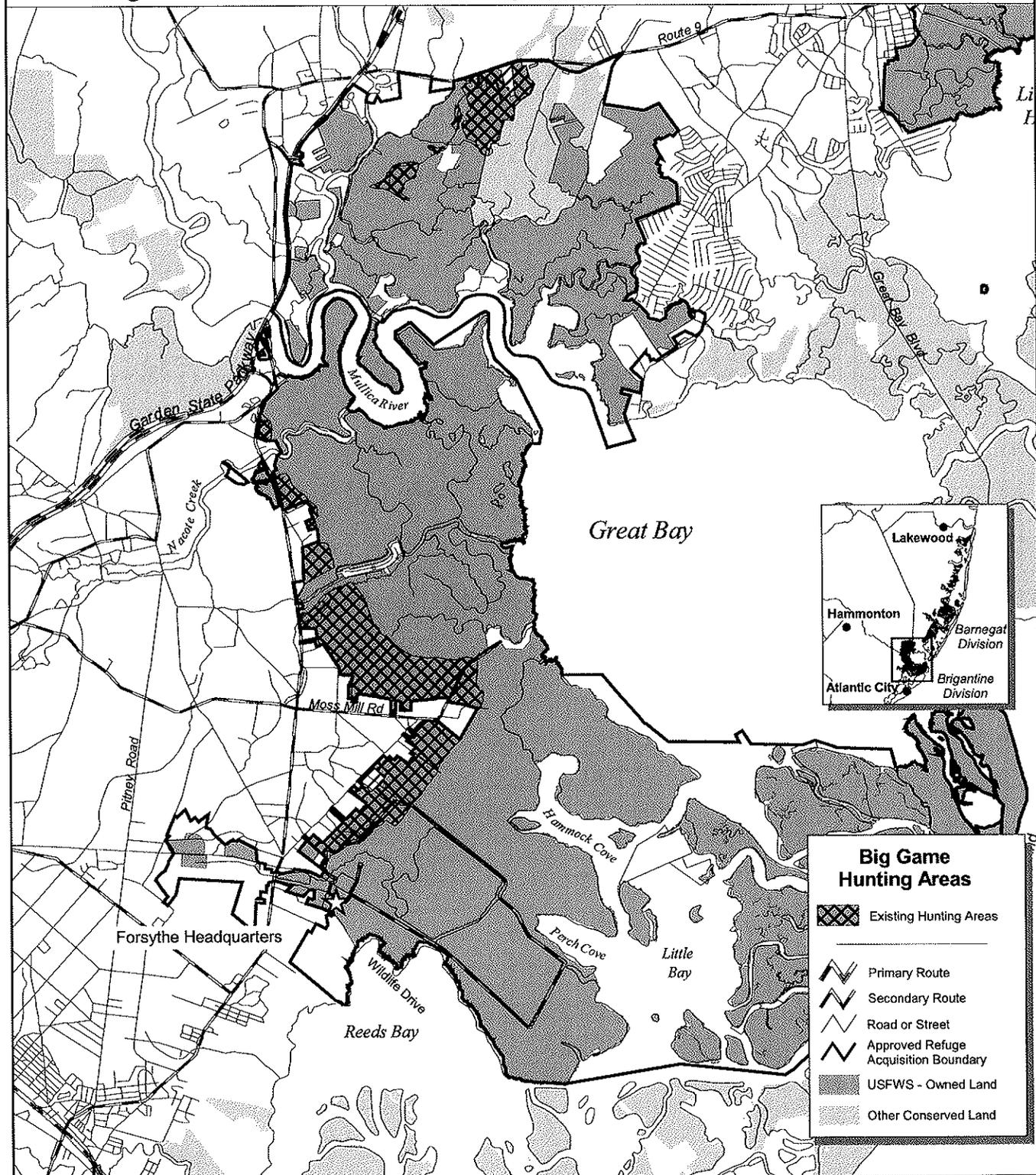
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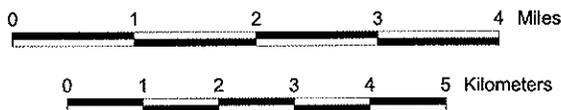
# Big Game Hunting Areas

*Edwin B. Forsythe National Wildlife Refuge*

*Brigantine Division, Atlantic, Burlington and Ocean Counties, New Jersey*



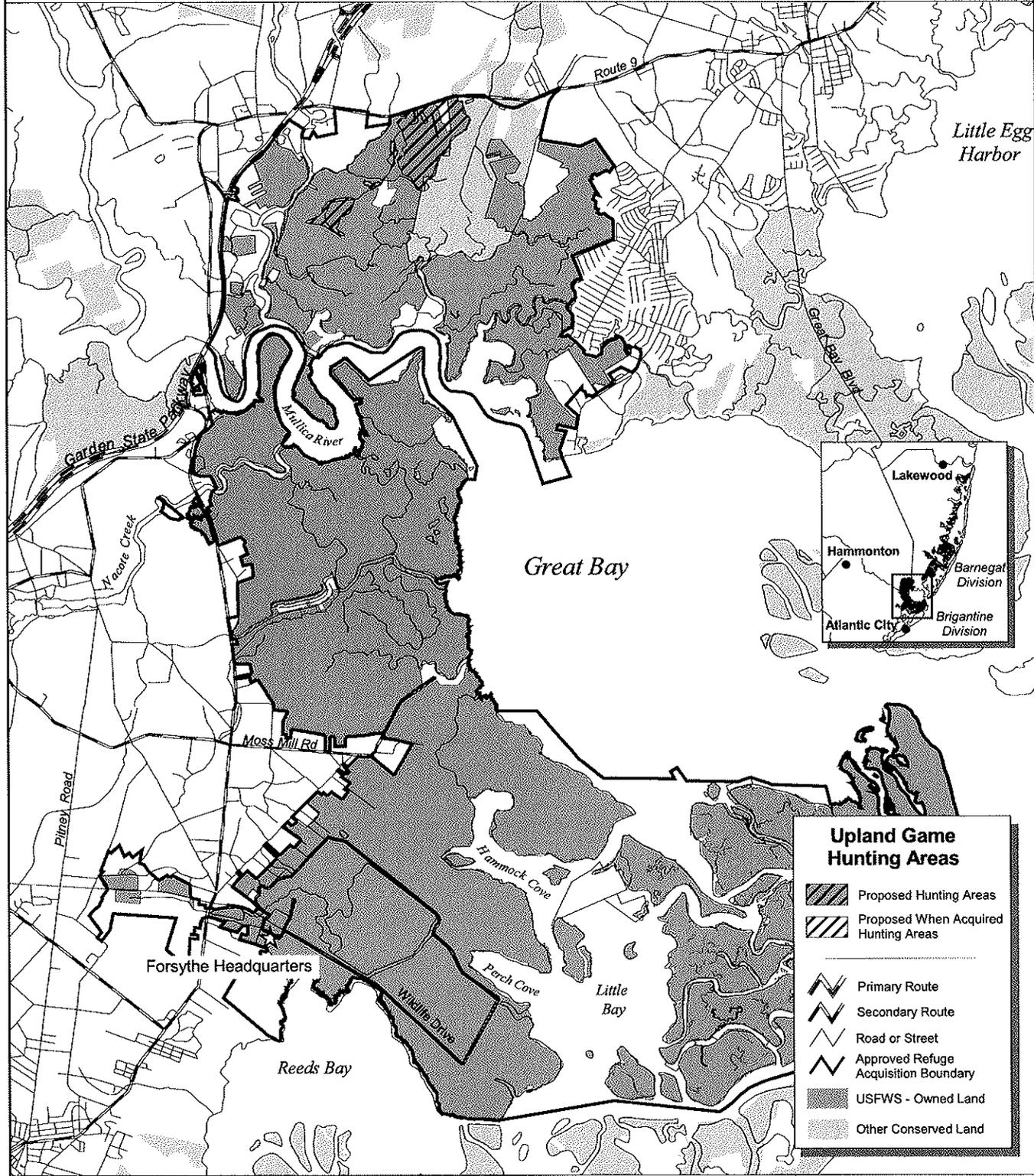
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# Upland Game Hunting Areas

*Edwin B. Forsythe National Wildlife Refuge*

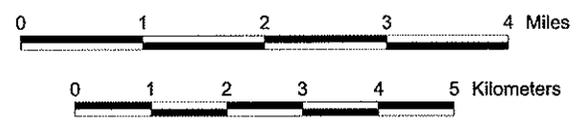
*Brigantine Division, Atlantic, Burlington and Ocean Counties, New Jersey*



**Upland Game Hunting Areas**

- Proposed Hunting Areas
- Proposed When Acquired Hunting Areas
- Primary Route
- Secondary Route
- Road or Street
- Approved Refuge Acquisition Boundary
- USFWS - Owned Land
- Other Conserved Land

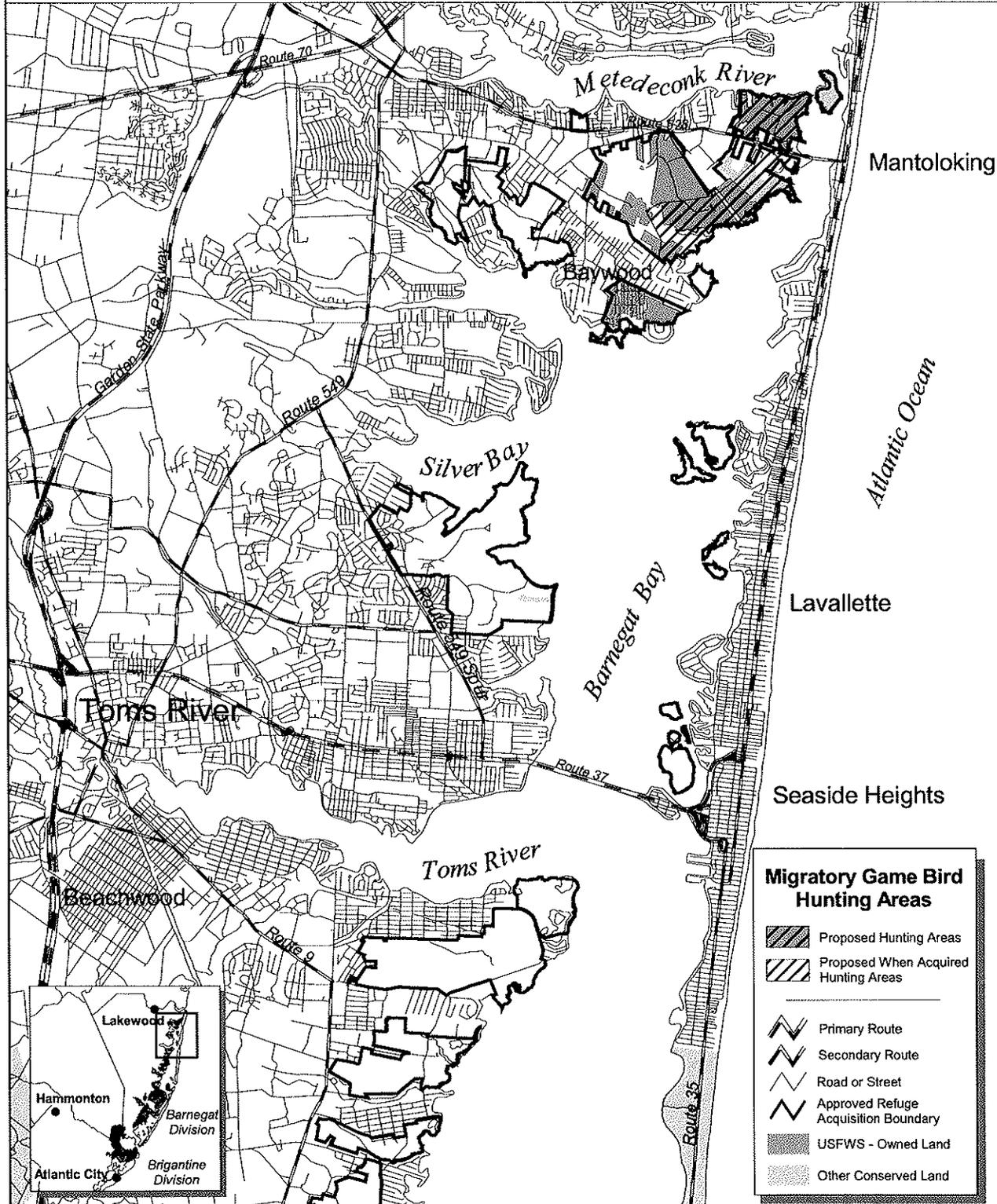
Data Sources:  
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 USFWS - refuge boundaries &  
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 Map prepared for Jersey Coast Refuges  
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# Migratory Game Bird Hunting Areas

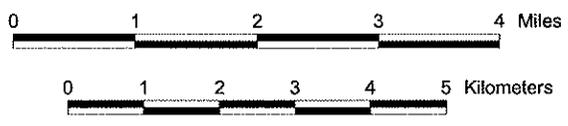
## *Edwin B. Forsythe National Wildlife Refuge*

### *Barnegat Division, Ocean County, New Jersey*



Data Sources:  
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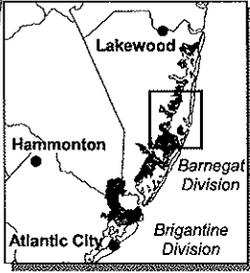
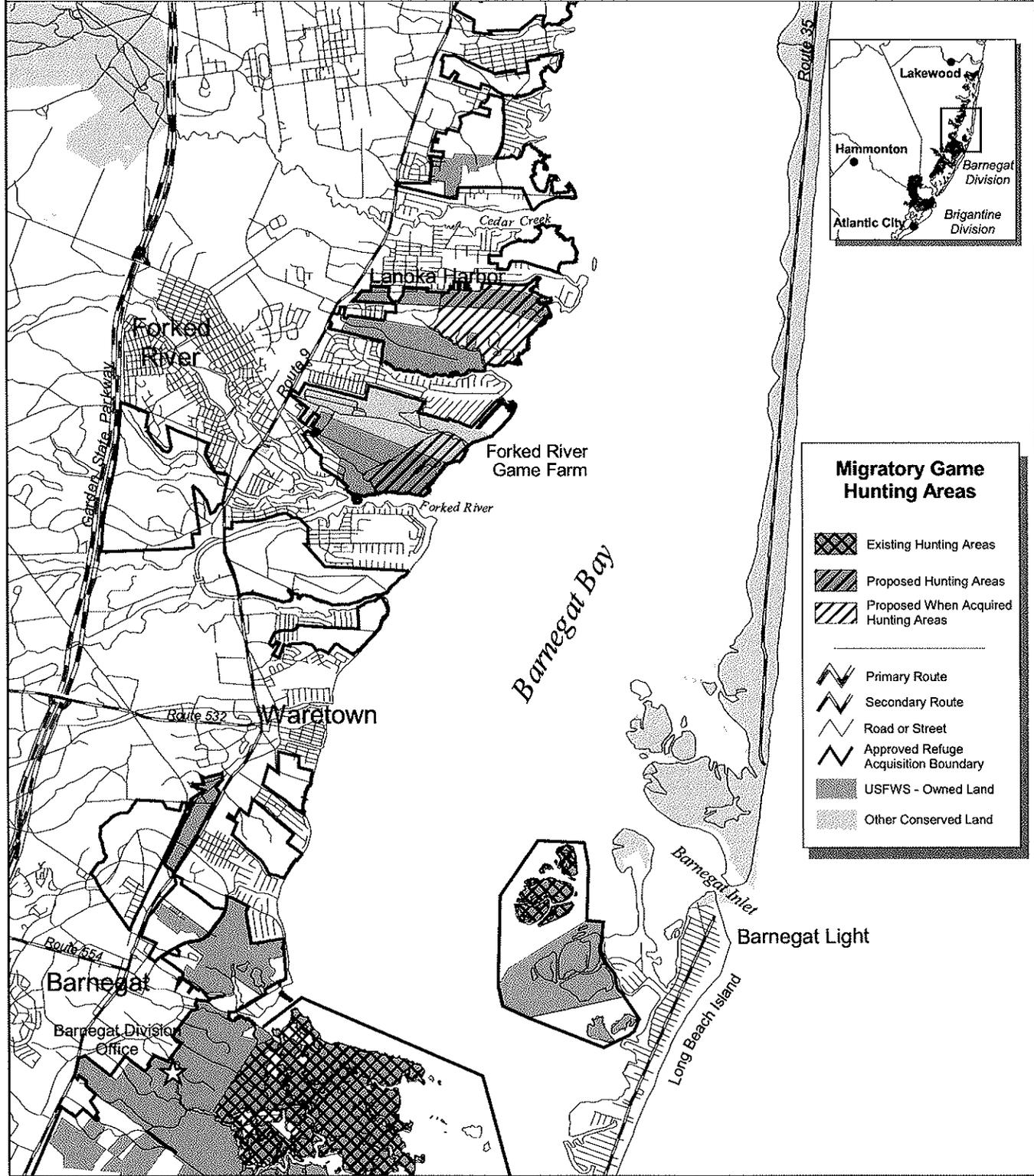
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# Migratory Game Bird Hunting Areas

## *Edwin B. Forsythe National Wildlife Refuge*

### *Barnegat Division, Ocean County, New Jersey*



**Migratory Game Hunting Areas**

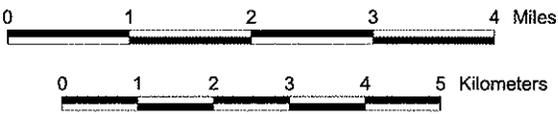
- Existing Hunting Areas
- Proposed Hunting Areas
- Proposed When Acquired Hunting Areas

---

- Primary Route
- Secondary Route
- Road or Street
- Approved Refuge Acquisition Boundary
- USFWS - Owned Land
- Other Conserved Land

Data Sources:  
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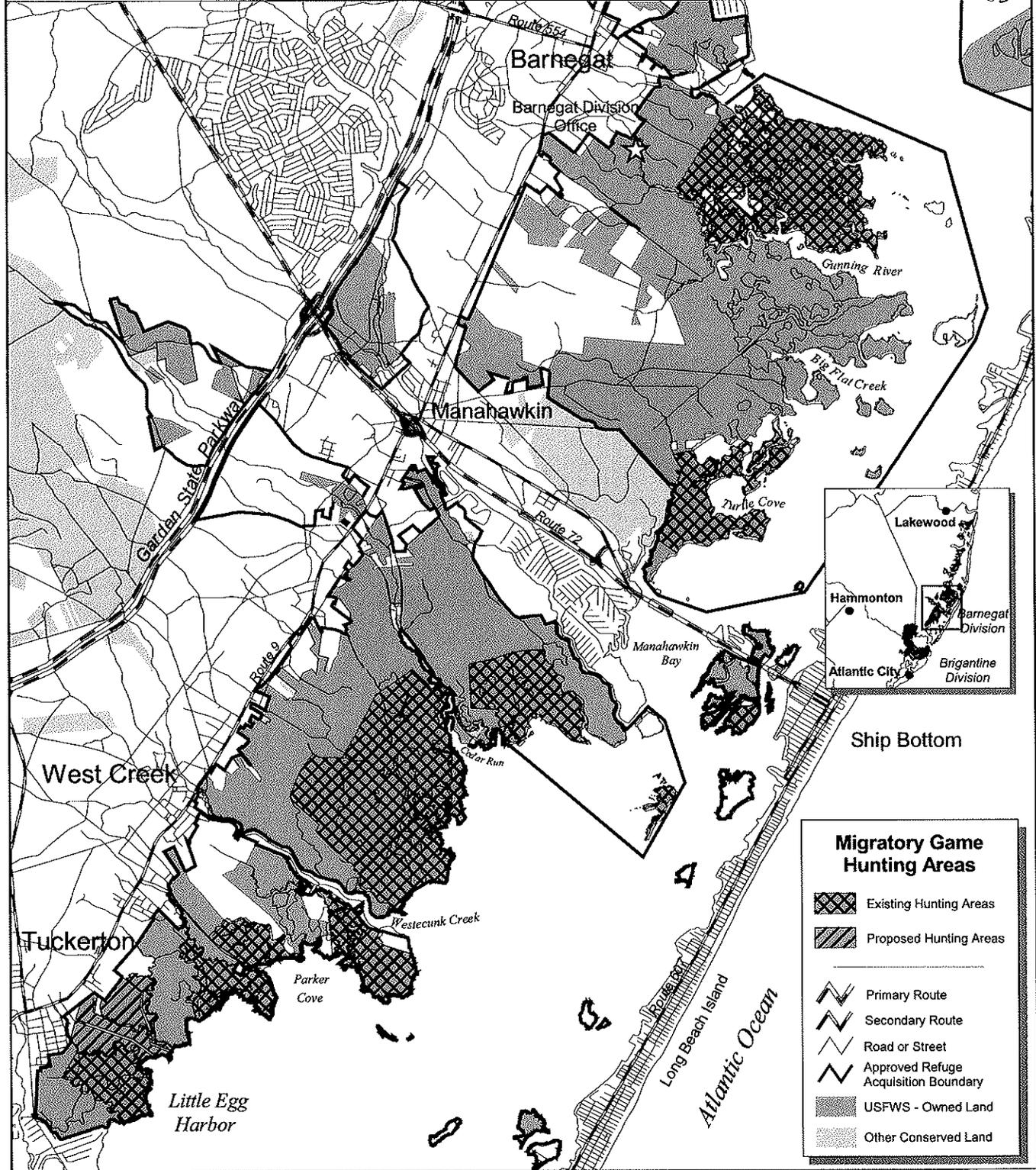
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# Migratory Game Bird Hunting Areas

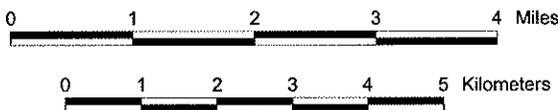
## *Edwin B. Forsythe National Wildlife Refuge*

### *Barnegat Division, Ocean County, New Jersey*



Data Sources:  
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**Migratory Game Hunting Areas**

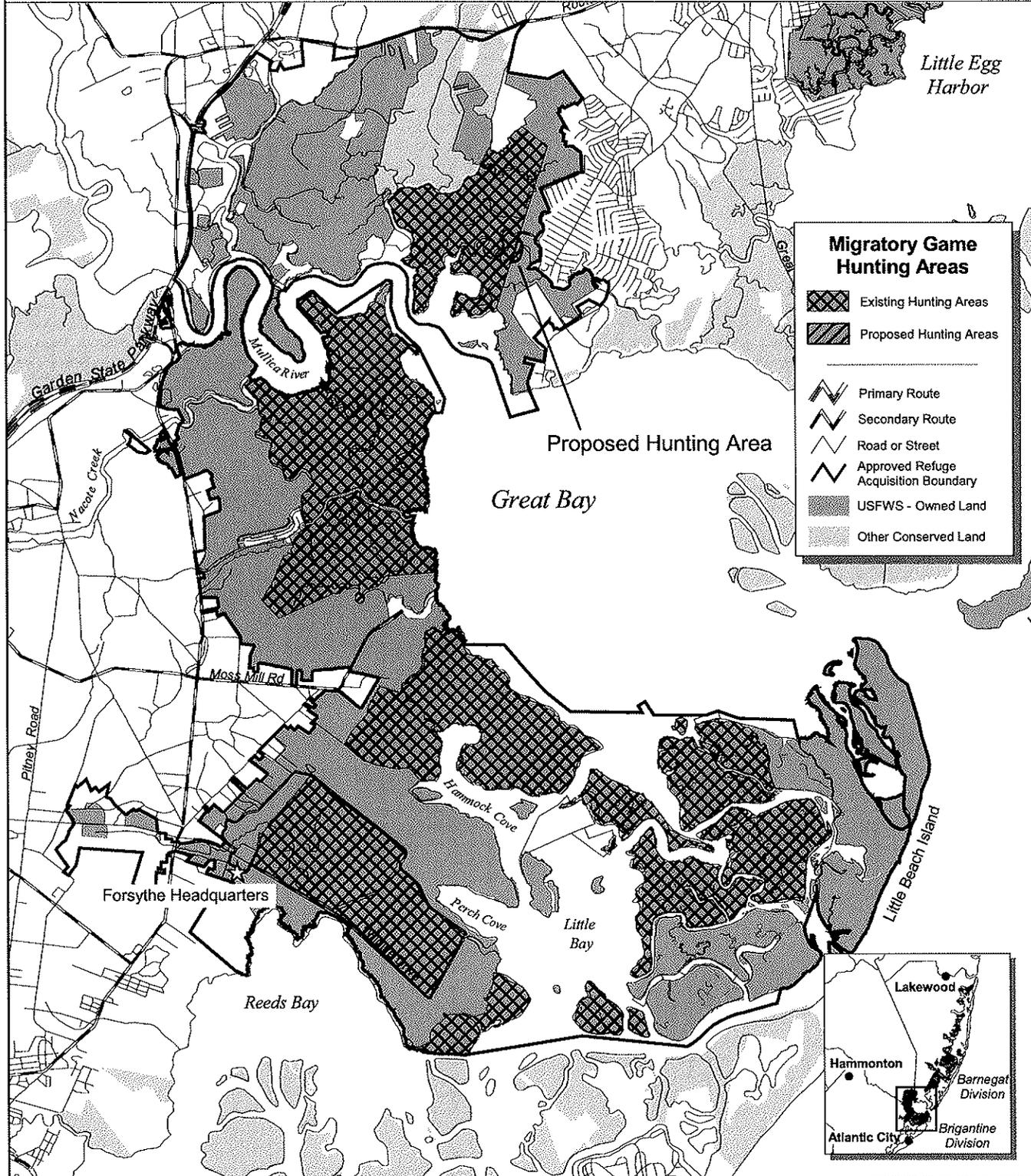
- Existing Hunting Areas
- Proposed Hunting Areas
- Primary Route
- Secondary Route
- Road or Street
- Approved Refuge Acquisition Boundary
- USFWS - Owned Land
- Other Conserved Land



# Migratory Game Bird Hunting Areas

## Edwin B. Forsythe National Wildlife Refuge

Brigantine Division, Atlantic, Burlington and Ocean Counties, New Jersey



Data Sources:  
 USGS - 1:100,000 roads & hydro.  
 New Jersey - other protected land.  
 USFWS - refuge boundaries &  
 other refuge information.

Map prepared for Jersey Coast Refuges  
 Comprehensive Conservation Plan,  
 January 2001.  
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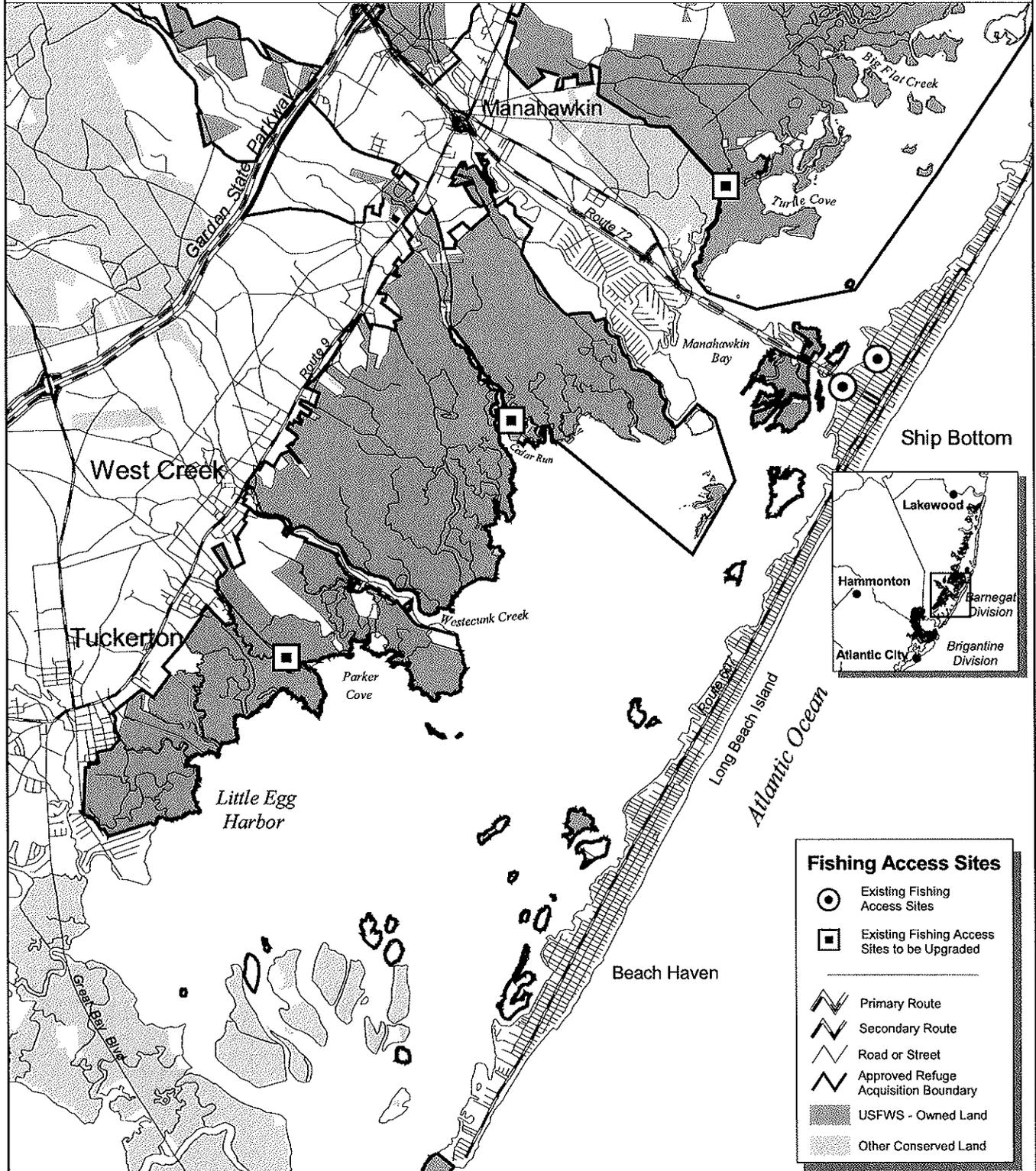
0 1 2 3 4 Miles

0 1 2 3 4 5 Kilometers



# Fishing Access Sites

*Edwin B. Forsythe National Wildlife Refuge  
Barnegat Division, Ocean County, New Jersey*

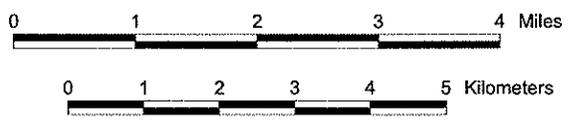


**Fishing Access Sites**

- Existing Fishing Access Sites
- Existing Fishing Access Sites to be Upgraded
- Primary Route
- Secondary Route
- Road or Street
- Approved Refuge Acquisition Boundary
- USFWS - Owned Land
- Other Conserved Land

Data Sources:  
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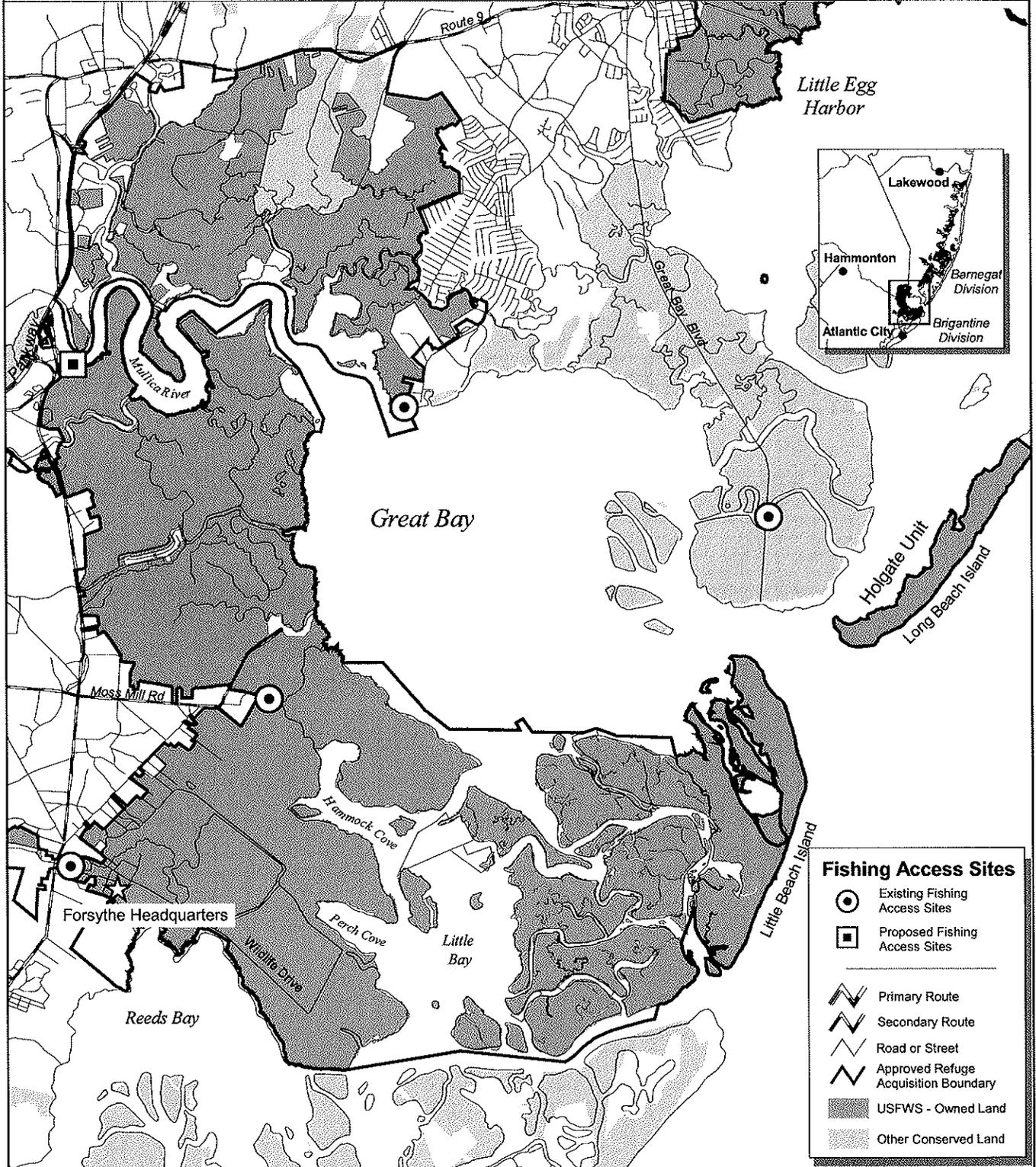
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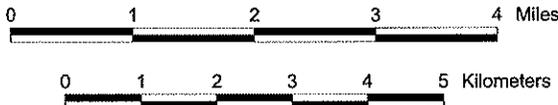
# Fishing Access Sites

*Edwin B. Forsythe National Wildlife Refuge*

*Brigantine Division, Atlantic, Burlington and Ocean Counties, New Jersey*



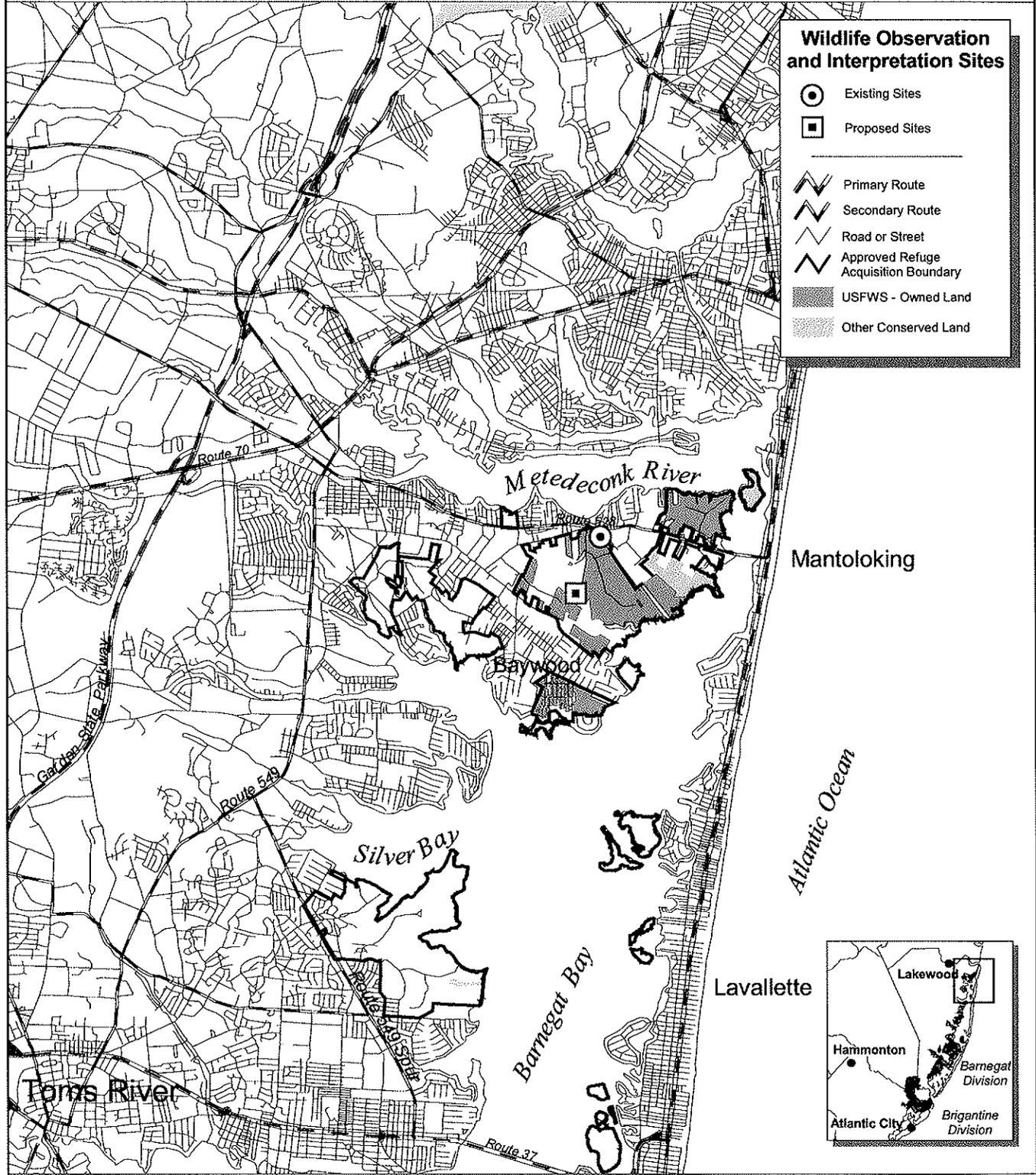
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# Wildlife Observation and Interpretation Sites

*Edwin B. Forsythe National Wildlife Refuge*

*Barnegat Division, Ocean County, New Jersey*



Data Sources:  
USGS - 1:100,000 roads & hydro.  
New Jersey - other protected land.  
USFWS - refuge boundaries & other refuge information.

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0 1 2 3 4 Miles

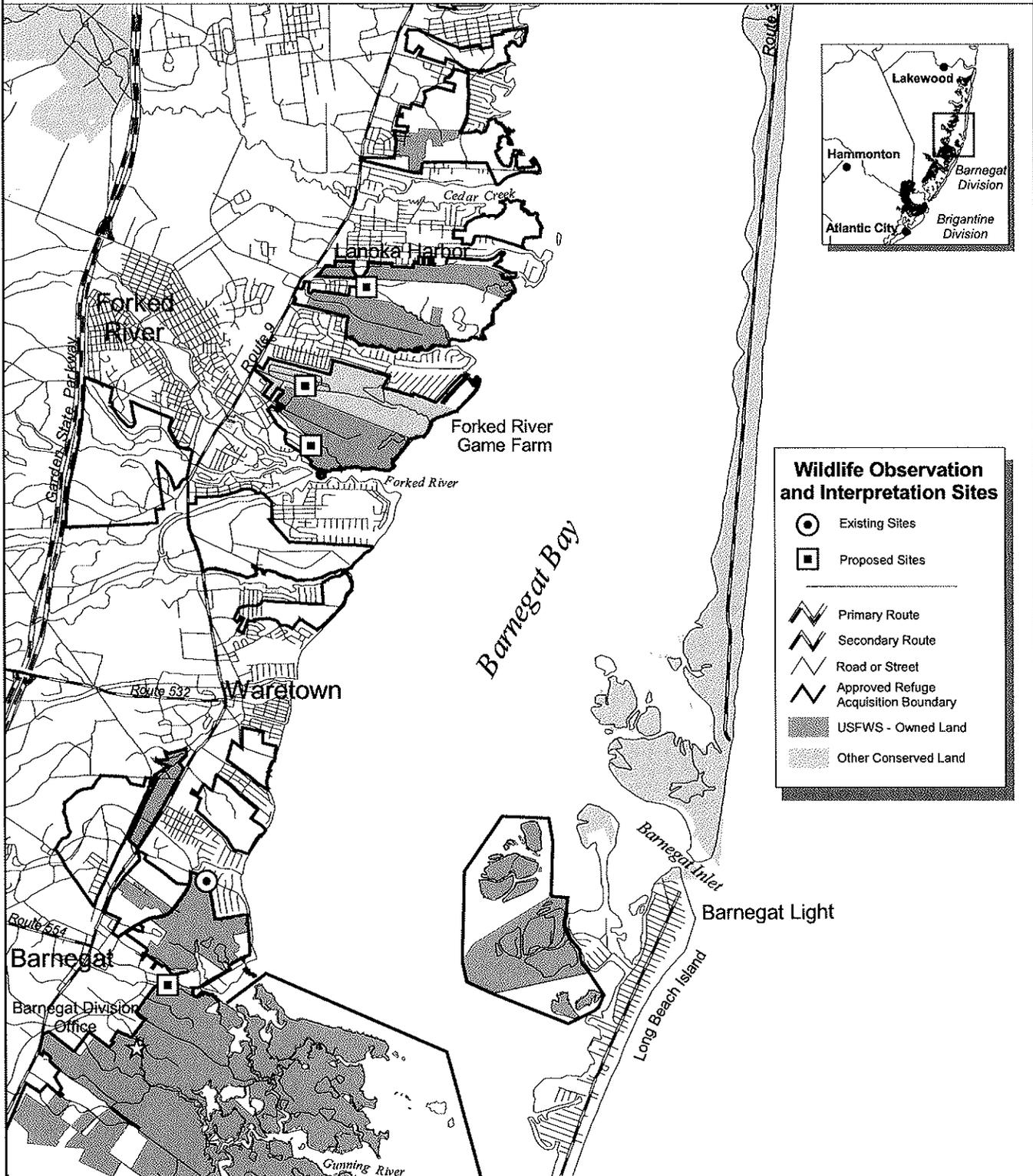
0 1 2 3 4 5 Kilometers



# Wildlife Observation and Interpretation Sites

*Edwin B. Forsythe National Wildlife Refuge*

*Barnegat Division, Ocean County, New Jersey*



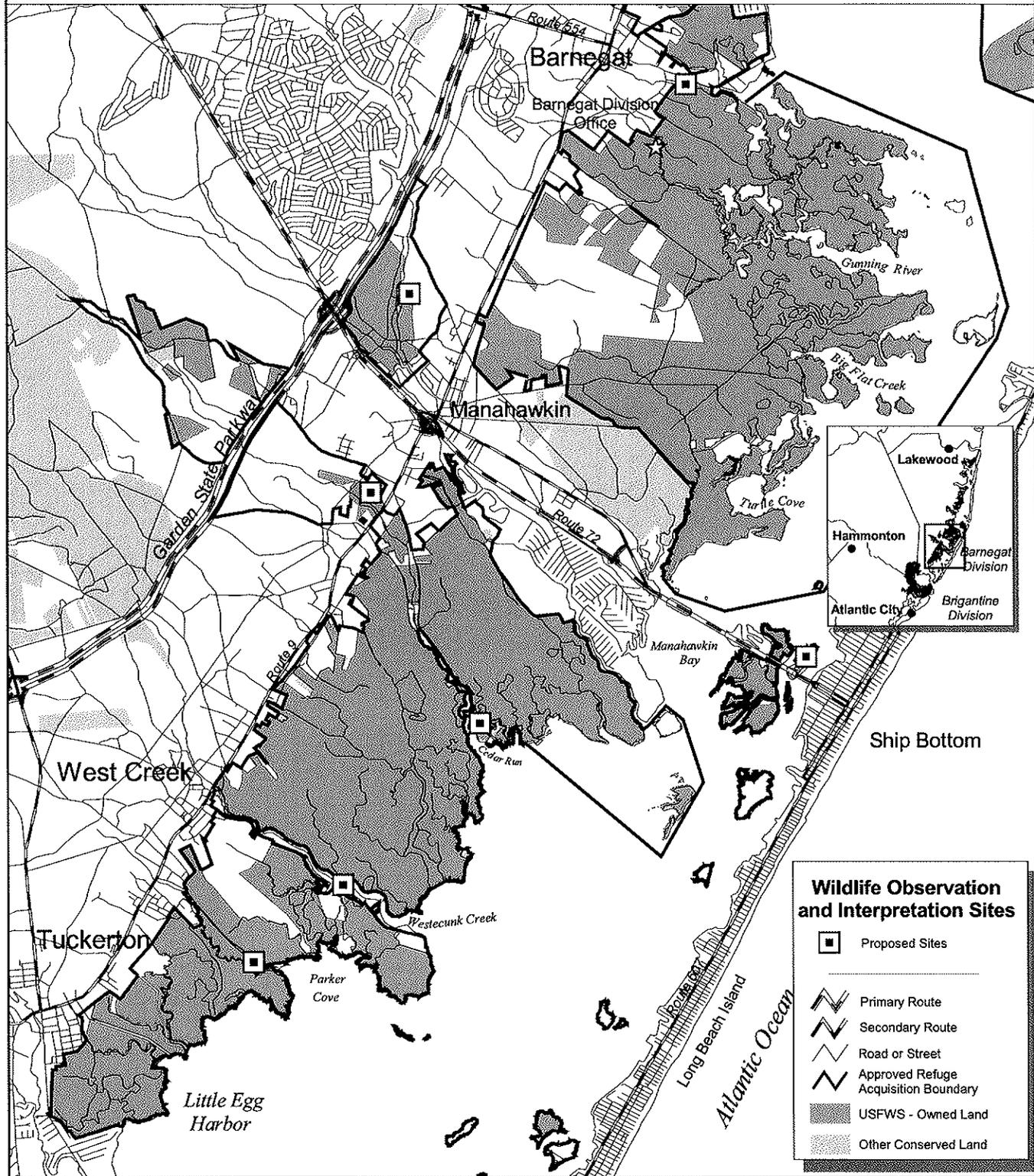
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**Wildlife Observation and Interpretation Sites**

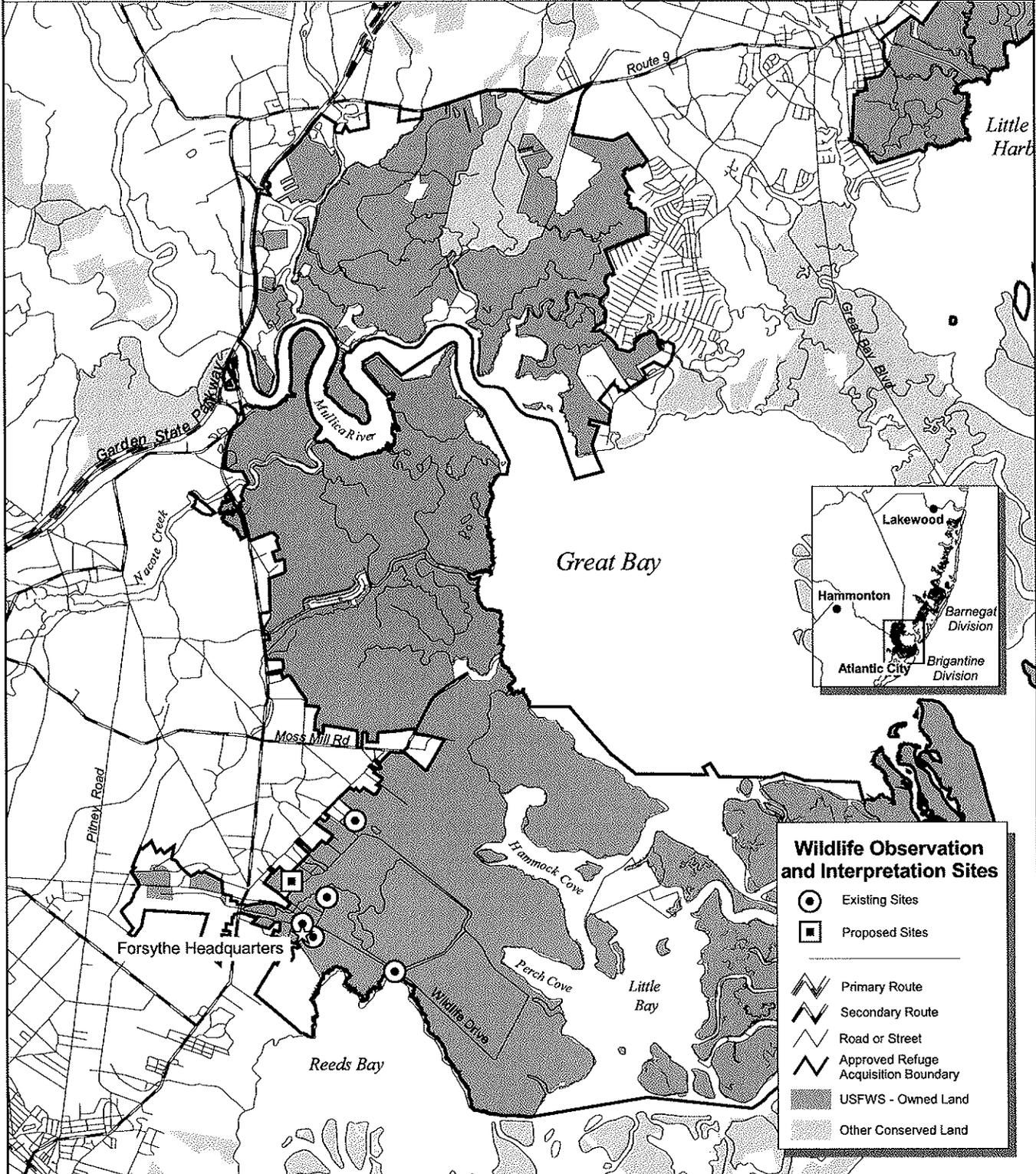
-  Proposed Sites
-  Primary Route
-  Secondary Route
-  Road or Street
-  Approved Refuge Acquisition Boundary
-  USFWS - Owned Land
-  Other Conserved Land



# Wildlife Observation and Interpretation Sites

*Edwin B. Forsythe National Wildlife Refuge*

*Brigantine Division, Atlantic, Burlington and Ocean Counties, New Jersey*



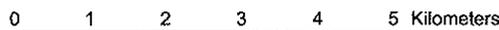
**Wildlife Observation and Interpretation Sites**

- Existing Sites
- Proposed Sites

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- ▬ Primary Route
- ▬ Secondary Route
- ▬ Road or Street
- ▬ Approved Refuge Acquisition Boundary
- USFWS - Owned Land
- ▨ Other Conserved Land

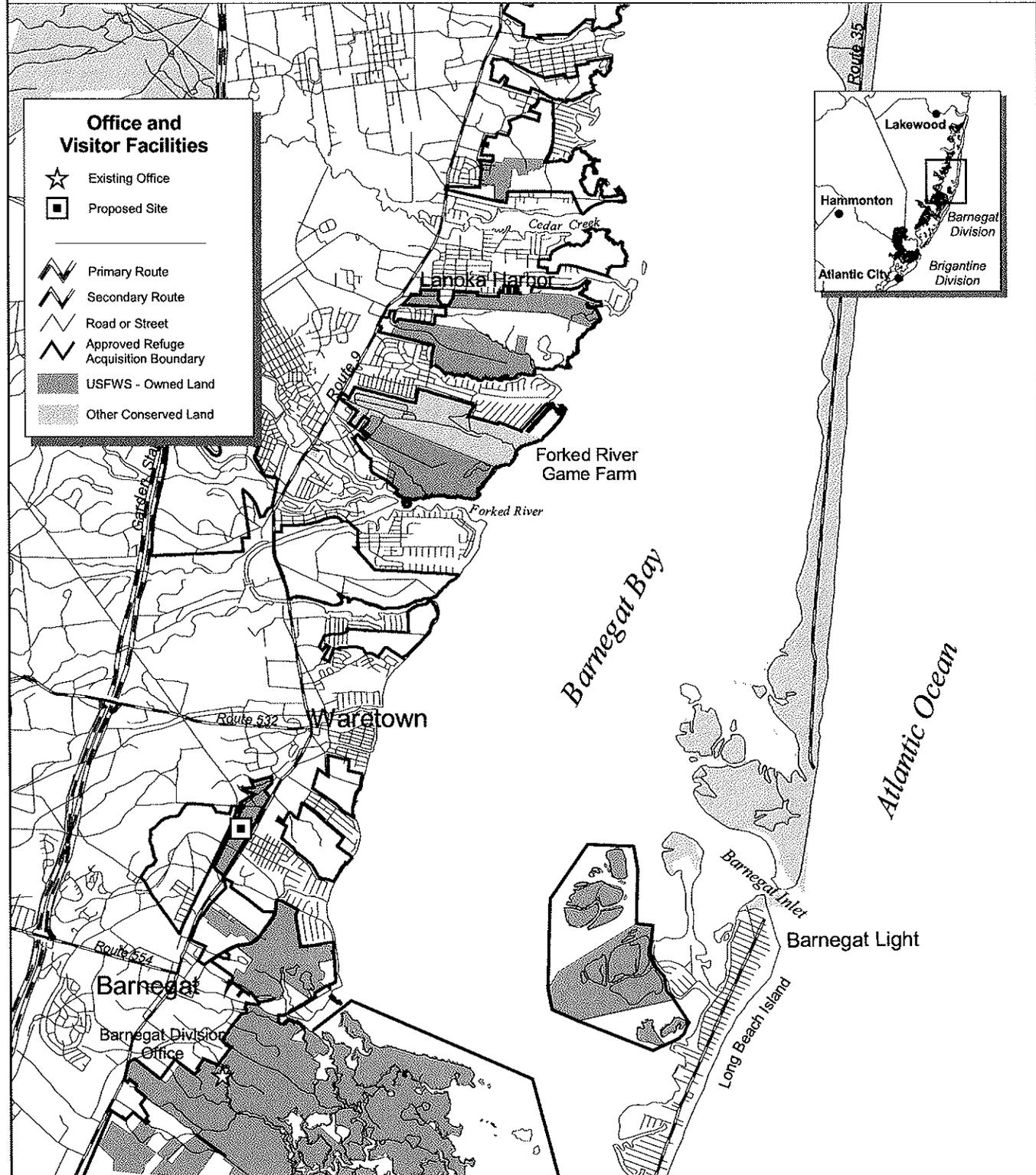
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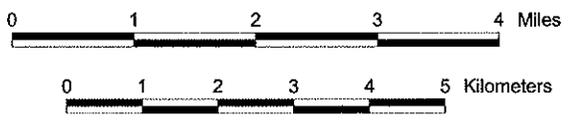


# Office and Visitor Facilities

*Edwin B. Forsythe National Wildlife Refuge*  
*Barnegat Division, Ocean County, New Jersey*



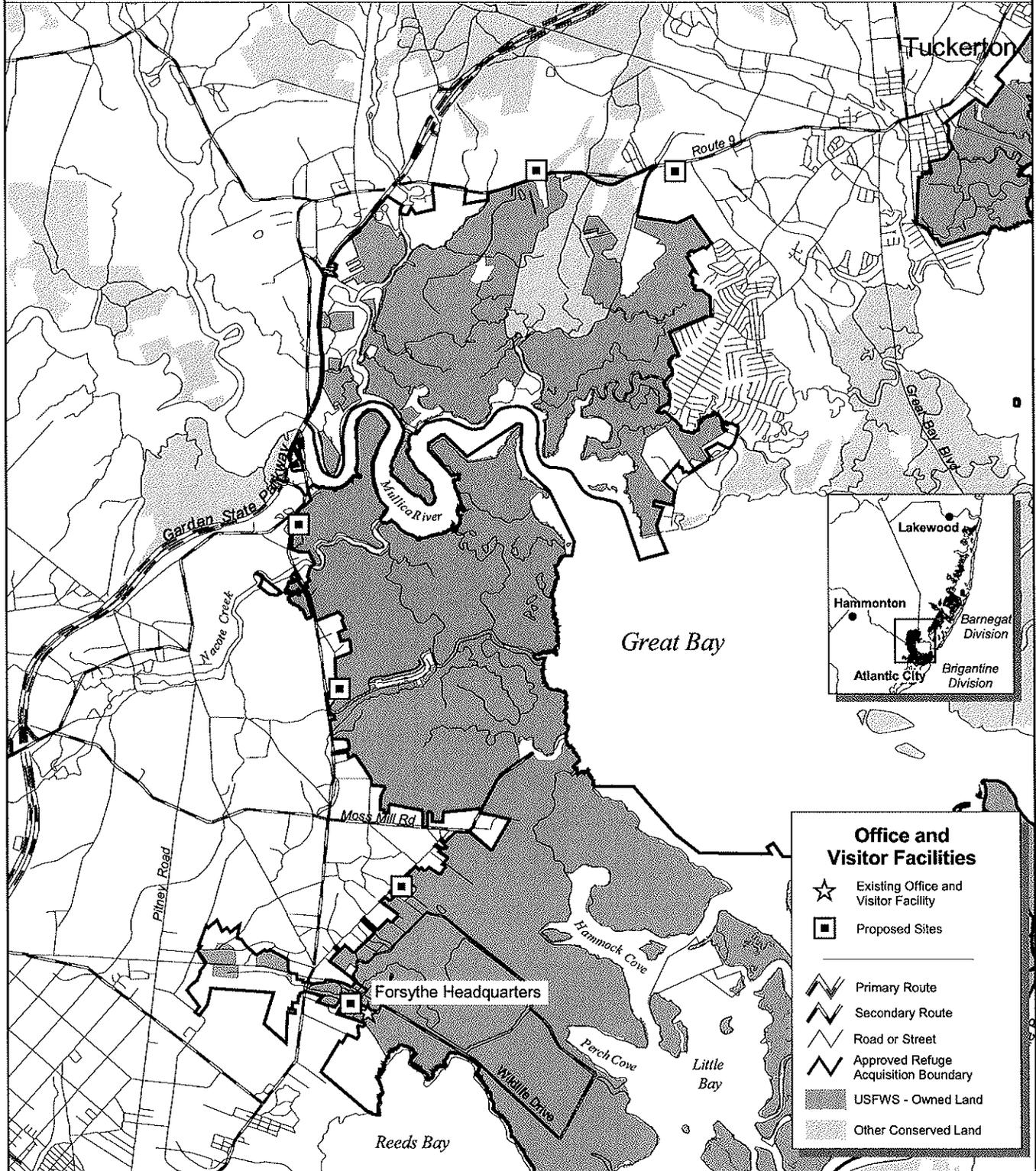
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# Office and Visitor Facilities

## *Edwin B. Forsythe National Wildlife Refuge*

*Brigantine Division, Atlantic, Burlington and Ocean Counties, New Jersey*



**Office and Visitor Facilities**

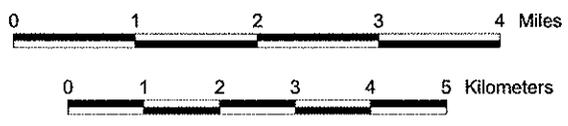
- ☆ Existing Office and Visitor Facility
- Proposed Sites

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- ▬ Primary Route
- ▬ Secondary Route
- ▬ Road or Street
- ▬ Approved Refuge Acquisition Boundary
- USFWS - Owned Land
- ▨ Other Conserved Land

Data Sources:  
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