

MIGRATORY BIRD DISEASE CONTINGENCY PLAN

PARKER RIVER NATIONAL WILDLIFE REFUGE  
NEWBURYPORT, MASSACHUSETTS

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# MANAGEMENT PLAN

PARKER RIVER

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## MIGRATORY BIRD DISEASE CONTINGENCY PLAN

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**NWR**MIGRATORY BIRD DISEASE CONTINGENCY PLANINTRODUCTION

The U. S. Fish and Wildlife Service is responsible for the protection and management of migratory birds as authorized by the Congress and President through appropriate legislative mandates and Executive Orders. Prevention and control of migratory bird disease is one aspect of this responsibility.

Parker River National Wildlife Refuge is relatively small, consisting of approximately 4,662 acres, including roughly 2,994 acres of salt marsh and 265 acres of freshwater impoundments. The refuge portion of Plum Island contains approximately six and one-half miles of the barrier beach island located at the southern tip of the Gulf of Maine in Essex County, Massachusetts. The refuge includes the southern two-thirds of the island, except for the southernmost tip which is the Sandy Point State Reservation. Plum Island is one of the largest permanently protected barrier beach islands north of Cape Cod, Massachusetts.

Canada geese, black ducks, mallards, and blue-winged teal are the primary waterfowl species that nest on the refuge. Black ducks and Canada geese winter on and around the refuge.

DISEASE HISTORY

In recent years, there have been outbreaks of lead poisoning in Canada geese on the refuge. During the 1983-84 winter, 221 geese, both dead and dying, were picked up by National Wildlife Health Laboratory (NWHL) and refuge personnel. The majority of these birds were necropsied by NWHL personnel and diagnosed as having lead poisoning. An additional 88 geese were found during the 1984-85 winter and also diagnosed as having lead poisoning.

An impoundment on the refuge, Stage Island Pool, was isolated as the area where the geese had ingested the lead shot. This pool was drawn down in July 1985 to temporarily resolve the lead poisoning problem.

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**NWR**PURPOSE

The purpose of the Parker River NWR Migratory Bird Disease Contingency Plan is to establish administrative and field guidelines to properly respond to migratory bird disease outbreaks at this station and on adjacent wildlife management areas. This plan will assist in early detection and quick response to disease outbreaks and will, hopefully, reduce losses of affected species.

The plan provides notification procedures and establishes specific responsibilities for station personnel when responding to a disease outbreak.

This plan is based on policy and guidelines established in the U. S. Fish and Wildlife Service Migratory Bird Disease Contingency Plan and the National Wildlife Refuge System Manual (7 RM 17).

I. PLANNING AND RESPONSE ACTIONSA. Surveillance

Early detection is a first step in controlling disease outbreaks. Contagious disease outbreaks may escalate rapidly, and what may appear to be insignificant mortality can quickly erupt into a major die-off. Observed bird mortality should be investigated, even if only a few carcasses can be found. Mortality may be greater than it appears as predators and scavengers quickly eliminate sick birds and carcasses. Also, it is important not to assume that current mortality is caused by the same agent as in previous years.

When evaluating the seriousness of the observed mortality, the Project Leader should consider the number of sick or dead birds, the behavior and movements of affected birds, the number of birds at risk, the species affected, and other circumstances surrounding the disease outbreak. Reports of unusual mortality should be made to the Disease Control Specialist (DCS) at the National Wildlife Health Laboratory (NWHL) or, in their absence, the Regional Disease Coordinator (RDC).

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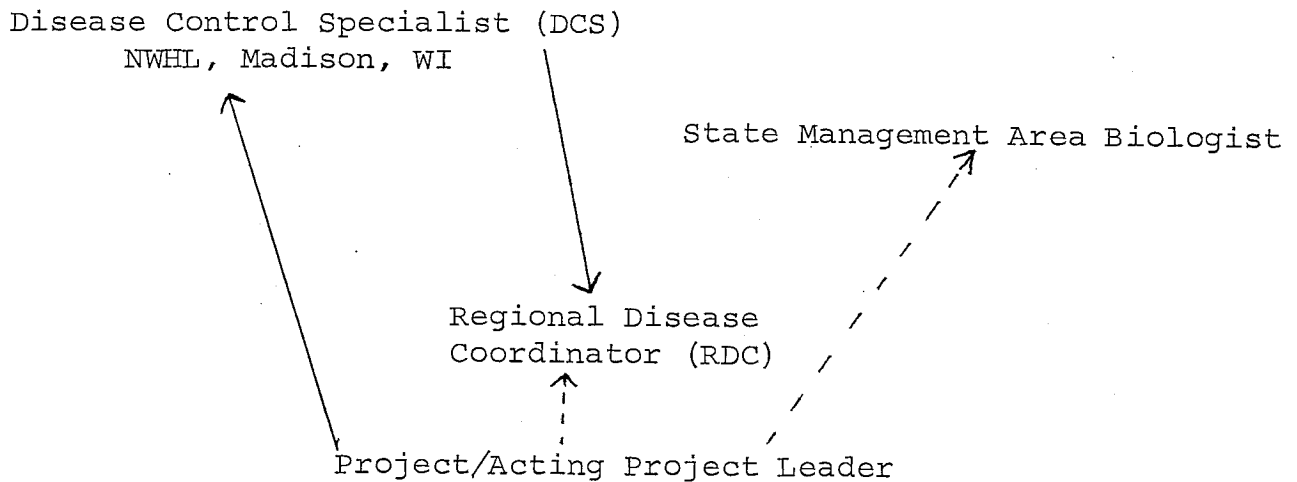
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## B. Notification Procedures

### 1. Onsite Response

- a. The refuge employee who first detects a disease problem must immediately inform the Project/Acting Project Leader, who will quickly determine the extent of mortality and report the occurrence to the DCS at the NWHL. If the Project Leader is not sure that the mortality is unusual, he should report to the DCS anyway. If the DCS is not available, the Project Leader should report the mortality to the RDC. The Project Leader will then notify manager(s) of any adjacent State or Federal management area or refuge. Telephone numbers are listed in Appendix 2.

Figure 1. - Notification Chart for Disease Outbreak



Primary Contact \_\_\_\_

Alternate Contact ---

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- b. Accurate records must be kept of any wildlife losses. A Report of Disease Problems will be completed for each incident. Information will include chronology of wildlife losses, species involved, when the incident began and ended, the diagnosis, where obtained, and the circumstances or any additional observations. A report is to be prepared for each separate disease outbreak and sent to the RDC contact.

2. Offsite Response

- a. When Project Leaders receive information regarding a disease outbreak or potential problem on non-Service lands, they will immediately notify the person responsible for administration of those lands and DCS at the NWHL. If the DCS is unavailable, the Project Leader must contact the RDC.

- C. Project Leader and Staff Responsibilities

1. Station Closure

If the facts indicate that a serious pathogen is responsible for the outbreak, the Project Leader will immediately close all or appropriate portions of the refuge to the public. This action is necessary to minimize dispersal of infected birds from the affected area. Refuge closure is authorized in 50 CFR, Section 25.21. Closure or quarantine signs should be obtained from the RDC. The notice of closure should be coordinated with the RDC or the Response Team Leader, if one has been designated.

2. Initial Preparations

The Project Leader will make arrangements for on-site transportation, housing, and other requirements of Response Team personnel detailed to the station. He/she is also responsible for procurement of contractual services for all equipment, vehicles, fuel, tools, and supplies required for the management portion of the operation. The

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DCS will provide supplies needed for his/her investigation. Disinfection of clothing, vehicles, and equipment used during the disease investigation is necessary to limit the mechanical spread of pathogens. Chemicals to be used and methods of application will be prescribed by the DCS. As a minimum, the Project Leader should anticipate the need for foot baths, hand or power sprayers, boot brushes, clothing changes, and vehicle changes to maintain the integrity of pathogen-free areas.

### 3. Staff Safety

Refuge staff personnel should take precautions when handling sick or dead birds. If there is doubt about how to handle a situation, professional help should be sought. The NWHL will provide advice upon request. Dead birds will be placed in double plastic bags when transported. Vehicles and equipment used will be disinfected by refuge personnel.

## II. PERSONNEL

### A. Refuge Staff

Staffing at Parker River includes:

- 1 Refuge Manager
- 2 Assistant Managers
- 1 Outdoor Recreation Planner
- 1 Refuge Law Enforcement Officer
- 1 Maintenance Mechanic
- 2 Secretaries

Rachel Carson NWR is a satellite refuge of Parker River NWR and is located in Wells, Maine, forty-five miles to the north. An Assistant Refuge Manager and a Biological Technician would be available for assistance. One Assistant Manager and the Maintenance Mechanic are qualified to operate Parker River NWR's heavy equipment.



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**NWR****B. Other Service Personnel**

Both Great Meadows NWR and the Regional Office are located approximately one and one-half hours' drive from Parker River NWR. Service personnel could respond from these locations if needed.

**C. State and Private**

Personnel could assist from the adjacent Martin Burns State Wildlife Management Area. State Environmental Police Officers may also be able to assist. Volunteers may be available from such nearby groups as the Brookline Bird Club, Massachusetts Audubon Society, and the Essex County League of Sportsmen's Clubs.

**D. Aerial Observation**

Aerial observation to assess a migratory bird disease outbreak on the refuge could be accomplished either by the Service's Special Agent/Pilot from Rhode Island or by a contract pilot and aircraft from Wiggins Airways, located one-half hour flight time from the refuge (Norwood, Mass.).

**E. Food and Lodging**

Several motels are located within a few minutes' drive from the refuge. These include:

Best Western - Seabrook, N.H.	(603) 474-3078
Driftwood Motel-Salisbury, MA	(617) 462-9424
East Coast Motor Inn-Salisbury, MA	(617) 462-3570

There are many restaurants available in the Newburyport area.

**III. SUPPLIES****A. Disinfectants/Clothing Gear**

Disinfectants are available at local hardware, garden, and cooperative agricultural stores in Newburyport and the surrounding towns. Clorox is available at all local supermarkets. Swimming pool chlorine

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crystals are available at local pool supply dealers and the Agway listed below. Hand sprayers, buckets, and brushes for cleaning contaminated equipment are available at the following stores:

1. Lunt and Kelly Hardware - Newburyport  
(617) 462-2951
2. Atkinson's Hardware - Newburyport  
(617) 462-4484
3. North Shore Grain Company - Newburyport  
(617) 462-6285
4. Agway Center - Amesbury  
(617) 388-3320
5. St. Cyr's Pool Center - Salisbury  
(617) 462-2281

Rubber gloves, boots, and rain gear can be purchased at K-Mart, Newburyport. Better quality rain gear is available at Kittery, Maine.

**B. Vehicles, Boats, and Heavy Equipment**

At the present time, Parker River has the following equipment on hand:

Four-wheel-drive vehicles

- 2 CJ5 Jeeps
- 1 Jeep Cherokee
- 1 Dodge Ramcharger
- 1 Dodge Pickup Truck

Other Vehicles

- 2 passenger vans
- 2 small size pickup trucks
- 1 full size pickup truck

Boats

- 1 18 ft. airboat
- 1 canoe
- 1 12 ft. aluminum rowboat which can be equipped with 7½ hp. outboard motor
- 1 16 ft. Boston Whaler

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## Heavy equipment

- 1 John Deere Model 444 Front-end Loader
- 1 John Deere Model 670 Road Grader
- 1 Mack 16-yard Capacity Dumptruck

IV. SUPPORT FACILITIESA. Indoor Work Area

The refuge shop could be used to necropsy specimens and process samples. This area has electricity, running water, heat, and a cement floor. It is located away from the refuge headquarters, well out of the way of field activities, yet includes part of the headquarters building with its communication facilities. Other refuge buildings (less utilities) could be used in an emergency. These would include the equipment storage building at subheadquarters (no running water and only generator-powered electricity and heat) and a shop/storage building at refuge headquarters which has a wood-fired stove and electricity.

B. Public Relations Facility/Briefing Facility

The Refuge Manager's office could be used as a part-time public relations facility. It has a two-line telephone, room for a blackboard, and seating for up to 10 individuals. It is separated from the public entrance to the headquarters building by an outer office. This office could also function as a daily briefing area.

C. Carcass Disposal

The disposal site for bird carcasses will depend upon the time of year of the disease outbreak with regard to accessibility of the site, public use, and waterfowl activity. If the cause of the mortality is known to be non-contagious, such as lead poisoning, the carcasses will be buried. During winter months, when the fields at Stage Island or Cross Farm Hill may be frozen, it would be possible to bury the carcasses in the sand dunes near beach access road #2. Usually, the west end of Cross Farm Hill will be used if disposal by burial is chosen. This area is used

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by Canada geese, but is remote from public use activity. The dunes area is remote from wildlife and public use during winter months. The carcasses will be sprinkled with fuel oil and covered with at least two feet of soil to discourage scavengers.

Incineration of the carcasses will be done whenever the cause of mortality is known to be a contagious pathogen or contagious disease is suspected. The refuge subheadquarters area will be the location for incinerating the carcasses. This location provides an area where a temporary burning pit or grates could be set up. This area would be accessible anytime of the year. Plastic trash cans and five mil heavy duty plastic bags for carcass storage and transport can be obtained at any of the hardware stores previously mentioned. For incineration of carcasses, the refuge keeps a supply of diesel fuel on hand. There is usually a supply of metal pipes and posts available on site which can be used to construct burning grates; more could be purchased at Dugan Plumbing in Newburyport.

## V. MIGRATORY POPULATION DATA

### A. Waterfowl Species and Number

#### Ten-Year History of Major Waterfowl/Shorebird Use of Parker River NWR

	<u>Canada Geese</u>	<u>Black Duck</u>	<u>Least Sandpiper</u>	<u>Herring Gull</u>
1974	10,000	10,000	5,000	2,500
1975	11,000	8,000	15,000	5,000
1976	10,500	8,600	10,000	5,000
1977	3,100	7,500	10,000	5,000
1978	2,000	8,000	10,000	5,000
1979	2,500	8,000	8,000	5,000
1980	3,600	8,500	2,000	5,000
1981	2,400	8,000	3,500	2,500
1982	3,500	4,500	3,500	1,800
1983	2,500	3,500	500	1,000
1984	1,300	3,000	800	1,000
1985	2,000	2,200	600	1,000
1986	1,600	1,500	600	2,000

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**NWR****B. Migration Chronology**

Northward waterfowl migrations peak in March, whereas shorebirds do not reach their highest counts until May. These peaks are of short duration, as most birds continue moving north to their nesting grounds. During July, shorebird numbers begin to climb as they begin their southerly flights, which peak in August. In late August, blue-winged teal begin arriving in sizable numbers. These ducks are followed by pintails, widgeon, mallards, green-winged teal, and black ducks in roughly that order from September through November, then slowly drop to the population that overwinters on or near the refuge.

**C. Migration Routes and Distribution Records**

Most of the black ducks that pass through the refuge in the fall originate in Maine and in the Maritime Provinces of Canada. After a variable resting and feeding pause in the Parker River NWR area, most of these birds move on to New York, New Jersey, Delaware, Maryland, Virginia, and the Carolinas. In December, flocks of predominantly male black ducks reach the refuge and winter in the immediate area. In spring, migrating Canada geese move on from the refuge to nesting in Labrador, Newfoundland, and other Eastern Canada Provinces. In fall, geese pass through on their way to wintering grounds in the Chesapeake Bay area. Green-winged teal appear to come from more interior locations than black ducks and Canada geese. In recent years, flights of snow geese have been using the refuge during migration. In spring several thousand may rest here before moving on to the St. Lawrence River.

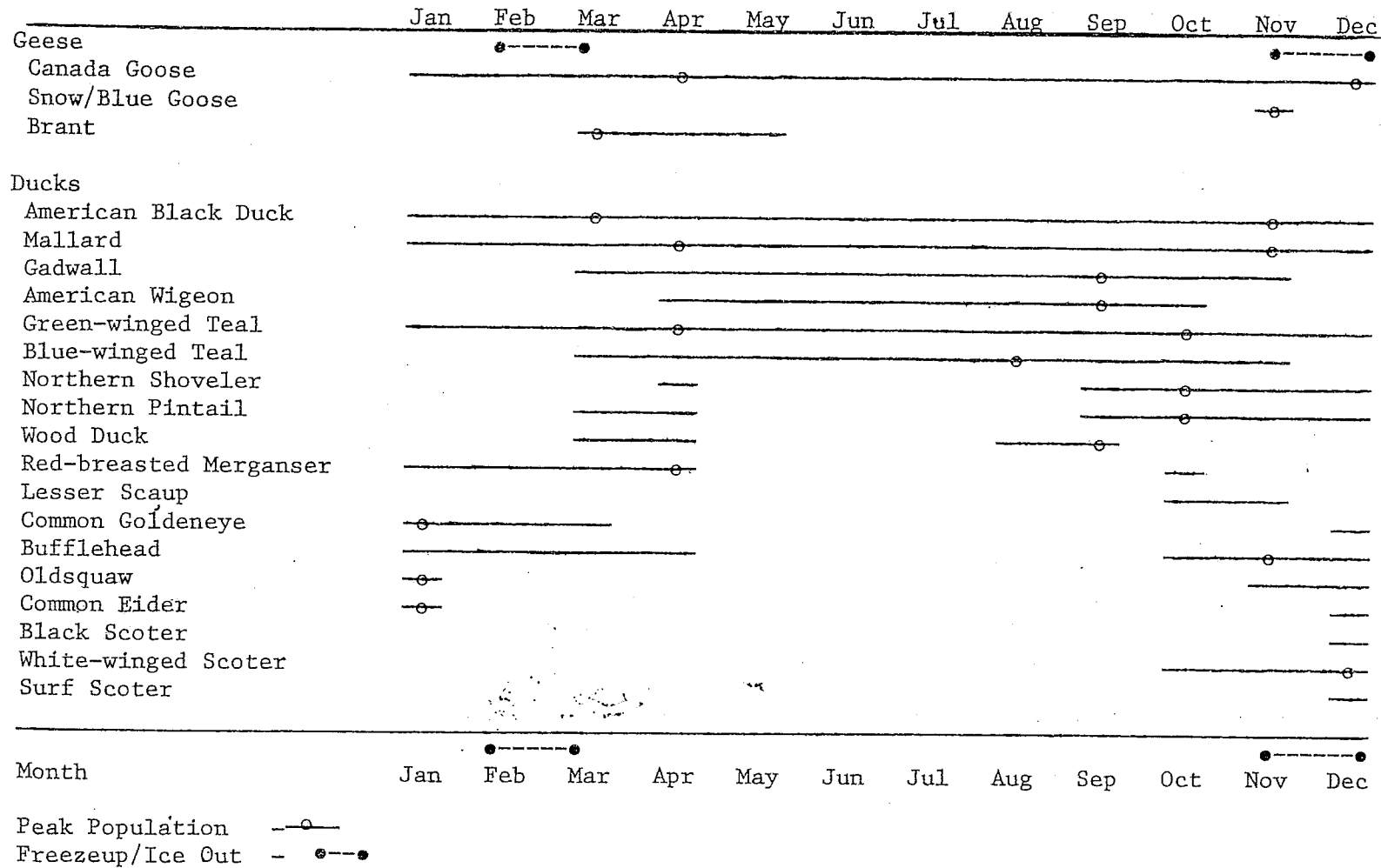
**VI. TIME AND PATTERN OF FREEZE-UP AND ICE-OUT**

Refuge pools normally freeze by mid-December; however, this event can occur a month earlier or later. After freeze-up, waterfowl are forced to either migrate further south or concentrate in open water tidal areas. During periods of severe cold, only the Merrimack River mouth, the south end of Broad Sound, and the Atlantic Ocean remain ice-free - further concentrating birds (see Map #3). In

Figure 1 - Parker River NWR's Peak Populations of Canada Geese & Black Ducks for the Past Ten Years



Figure 2 - Parker River NWR's Migration Chronology and Freezeup/Ice Out



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early March, it is possible to use a boat on rivers and larger tidal creeks throughout the area. By mid-March, the three freshwater pools are usually thawed out, but this can be prolonged depending on weather conditions.

**VII. MANIPULATION OF POPULATIONS AND HABITATS****A. Consequences of Dispersal****1. Waterfowl Dispersal**

The reaction of waterfowl to dispersal attempts depends on the time of year. In late winter or early spring, any efforts at moving birds off the refuge would probably push them to local concentration areas in Newburyport Harbor and Broad Sound. During fall and early winter, waterfowl could be expected to move to the Salisbury marshes and lower stretches of the Merrimack River, both north of the refuge. The dispersal effort could temporarily lead to low waterfowl use of the refuge. At other times of the year, much smaller populations of waterfowl are on the refuge, primarily in the impoundments but also scattered throughout the salt marsh. Those scattered in the salt marsh would be more difficult to disperse.

**B. Mechanics of Dispersal**

There are three basic ways that birds could be dispersed from the refuge, depending on their location. For birds in backwater channels of the pools and small tidal creeks, propane exploders can be utilized, thus affecting individuals or small groups scattered over a relatively wide area. The propane devices can also be used to keep birds from returning to given areas. For very specific sites, shell crackers are effective, as they can be aimed and used in a more selective fashion than the exploders. Finally, to move as many birds as possible out of the refuge or to cover a very large area with birds scattered throughout (e.g. the entire refuge), aircraft (preferably a helicopter) might be used. For materials and equipment necessary to accomplish dispersal, see Section II.E. and Section III.A.



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**NWR****C. Water Control Management**

Water management at Parker River NWR is extremely limited. The 264 acres of impounded freshwater marsh are dependent primarily on precipitation and ground water sources. The pools generally reach yearly peaks in spring, drop slowly during the summer (due to evapotranspiration losses), then replenish quickly in autumn from rainfall. The Forward Pool has a water control structure that can allow saltwater to enter from the salt marsh at high tide. A stoplog control structure dams a 24-inch corrugated pipe that connects the North Pool to the Forward Pool. Stage Island Pool also has a 24-inch corrugated pipe with screwgate that allows drainage of over half of the freshwater in the pool to a tidal creek. The pipe also allows saltwater into the pool at high tide. All pools are thus capable of being raised to some extent by saltwater, but doing that might also adversely affect existing freshwater biota. All pools can be partially drained, but pool borrow pits and former tidal channels within the impoundments would remain filled. Portable pumps could be used to let saltwater in or pump freshwater out in extreme circumstances.

Three thousand acres of tidal salt marsh and estuarine are flushed by tidal cycles daily. Because of this cleansing action, the salt marsh area is less susceptible to disease problems than areas where little water exchange occurs.

**D. Food Sources**

In terms of food availability, Potamogeton, Ruppia, and Polygonum are available throughout the summer and fall. Insect hatches occur from spring through fall on a semi-regular basis. Except when marsh and mudflats are totally frozen, small clams, snails, mussels, and other crustaceans are available to waterfowl.

Holding of waterfowl on the refuge might be difficult, especially in seasons when food is normally abundant everywhere. Feeding stations of cracked corn would certainly hold many black ducks and geese to a given site in severe winter weather. However, Parker River

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has no water control capabilities that would enable concentrations of birds on the refuge. In summer, locally produced birds and breeders could possibly be held by bait in the impoundments. The rest of the year, waterfowl are not as interested in bait and are scattered, making concentration infeasible. If artificial feeding is needed, cracked corn is stored at the refuge's subheadquarters. One-hundred-pound sacks of cracked corn are also available at the following stores:

North Shore Grain Company, Newburyport, MA	(617) 462-6285
High Tail Acres, Newbury, MA	(617) 462-8478
Dodge's Agway, Hampton Falls, NH	(603) 926-2253

**VIII. MAPS OF STATION**

- A. Parker River NWR and Surrounding Area - Appendix III
- B. Detailed View of Refuge - Appendix IV
- C. Waterfowl Concentrations on Refuge - Appendix V

**IX. ENDANGERED OR THREATENED SPECIES****A. Federal Listed Species**

There are two endangered species that utilize the refuge: the bald eagle and the peregrine falcon; and one threatened species: the piping plover. Both endangered species use the refuge occasionally during migration periods. Rarely are more than one or two individuals on the area at a time, then only for a short period. However, a wintering population of bald eagles has been building slowly over the past few years on the lower five miles of the Merrimack River. Piping plovers use the beach area on both the refuge and the adjacent Sandy Point State Reservation to nest and feed during the summer. Piping plovers would not be very susceptible to diseases from infected waterfowl.

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The main effects of disease control measures on endangered species are disturbance from hazing activities to disperse waterfowl and the possibility of disease transmission from infected birds or carcasses. In the event that dispersal of birds from the area is the recommended approach, the disturbance of endangered species will probably be desirable - since causing them to leave the area would reduce the probability of contacting the pathogen. Hazing efforts, if used, will be directed away from piping plover nesting areas on the beach. The presence of endangered and threatened species on the area will add to the need to gather and dispose of infected carcasses to prevent spread of a disease. Scavenger species like the bald eagle could be susceptible to infection from feeding on dead birds.

**B. State Listed Species**

The least tern is the only State endangered species occurring on the refuge. Least terns arrive in May and depart by September. Like the piping plover, they are not currently threatened by any disease but may be affected by disease control activities. Care will be taken by management personnel to minimize disturbance to nesting least terns. If disturbed, the terns may desert the nesting area.

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Appendix I - Wildlife Disease Notification Chart

Appendix II - Report of Disease Problems

Appendix III - Parker River NWR Area Map

Appendix IV - Detailed Refuge Map

Appendix V - Waterfowl Use Map

APPENDIX-I

WILDLIFE DISEASE NOTIFICATION CHART

(To be filled out and posted in office)

Refuge or Station Name: Parker River NWR

Refuge Manager: John L. Fillio

Assistant Refuge Manager: J. Frederick Milton

In the event of a disease outbreak notify: (608) 264-5411 (Day)  
(608) 231-3544 (Nights & Weekends)

1. Disease Control Specialist at NWHL

Dr. Tom Roffe or  
Dr. Milton Friend

Phone number for use day,  
evening or weekend

OR if DCS not reachable call:

Regional Disease Coordinator:

Regional Office  
U.S. Fish and Wildlife Service  
Newton Corner, MA 02158

George Haas

NAME

LOCATION

(617) 965-5100

PHONE NUMBER

2. Immediate Supervisor and/or designated Regional Office contact

3. Biologist-in-charge of nearby management area:

Mr. Larry Howie

NAME

Mass.Div.Fisheries & Wildlife  
Byfield, MA (617) 465-8012

LOCATION

PHONE NUMBER

Mass.Div.Fisheries & Wildlife  
Field Headquarters

Mr. H. Heusmann

NAME

Westboro, MA 01581 (617) 366-4470

LOCATION

PHONE NUMBER

4. Service Special Agent:

Mr. Chris Graham

NAME

Div. of Law Enforcement  
U.S.Fish & Wildlife Service  
Boston, MA 02222-1085 (617) 565-6580

LOCATION

PHONE NUMBER

Special Reminder: Are Endangered Species in, or likely to arrive in, the disease outbreak area? Endangered Species permits or Section 7 consultations may be required; consult page 9 in Migratory Bird Disease Contingency Plan for procedures and your Station Disease Contingency Plan for list of Endangered Species.

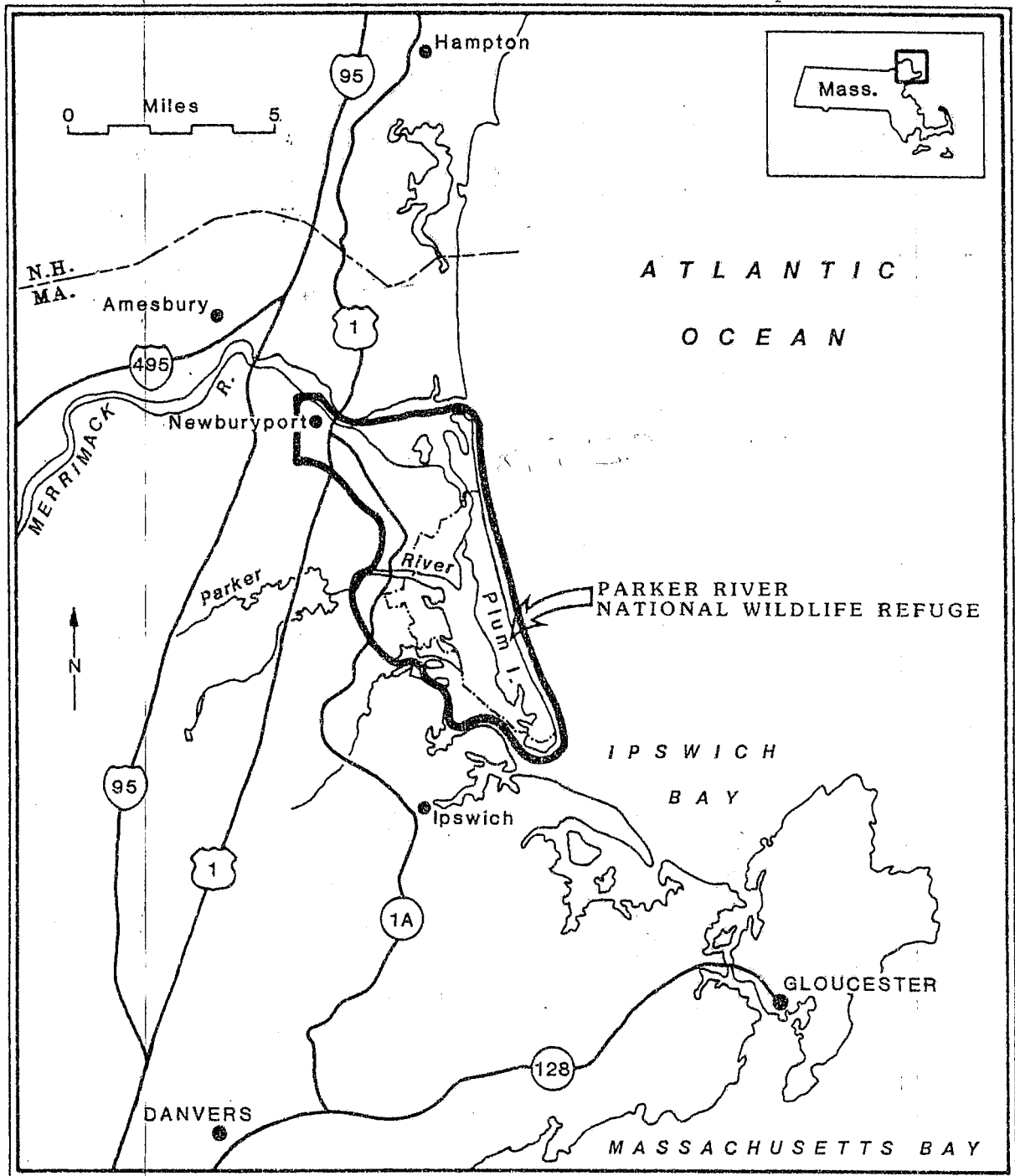
APPENDIX II  
Report of Disease Problems

While this report is to be completed by individuals at National Wildlife Health Laboratory when receiving initial reports of mortality, Service personnel should use this as a checklist to ensure that they have as much of the information as possible when reporting the die-off.

1. Location of the problem:
  - (a) State
  - (b) County
  - (c) NWR, if any
  - (d) Nearest town
  - (e) Nearest commercial airport
  - (f) Other (Name of lake or river, or State or Federal wildlife areas).
2. Identification of informant or contact:
  - (a) Name
  - (b) Title
  - (c) Organization
  - (d) Telephone number
  - (e) Address
3. Species involved in the problem (be as specific as possible, i.e., mallards and Canada geese rather than ducks and geese):
4. Estimated losses to date (by species, if known):
5. Estimated population(s) at risk (by species, if known):
6. Identification of any rare and endangered species, or other critical species on the problem area (indicate Unknown if not known and None if there are none):
7. Date of onset of problem if known or best estimate if unknown (indicate estimated dates):

8. Other laboratories involved in investigation of the problem (indicate None or Unknown as appropriate):
  - (a) Name of laboratory
  - (b) Name of contact within laboratory
  - (c) Telephone number of laboratory (if FTS, indicate)
9. Findings of other laboratories if known (indicate None or Unknown as appropriate)
10. Other individuals notified of the problem by the informant or contact
  - (a) Names
  - (b) Organizations
  - (c) Telephone numbers if known
11. Assistance requested of the NWHL
  - (a) Diagnostic specimens being sent to NWHL (specify type)
  - (b) Tissues being sent for assay (specify type of assay)
  - (c) Advice requested for control of problem
  - (d) Other (specify)
12. Additional pertinent information, including behavior of sick and dying birds, and signs of bleeding, physical injury, or discharge around vent.
13. Date and time contact was established with NWHL
14. Name of individual receiving contact
15. Method of contact (check as appropriate)
  - (a) Telephone
  - (b) Letter
  - (c) Other (specify)
16. Instructions provided to the caller.
17. Date and time RDC contacted and type of assistance requested.
18. Date of this report.

APPENDIX III - Parker River NWR Area Map





# PARKER RIVER NATIONAL WILDLIFE REFUGE

Newburyport, Massachusetts



Refuge Headquarters

Gate House Entrance Gate  
YOU ARE HERE

42°47'

42°45'

42°43'

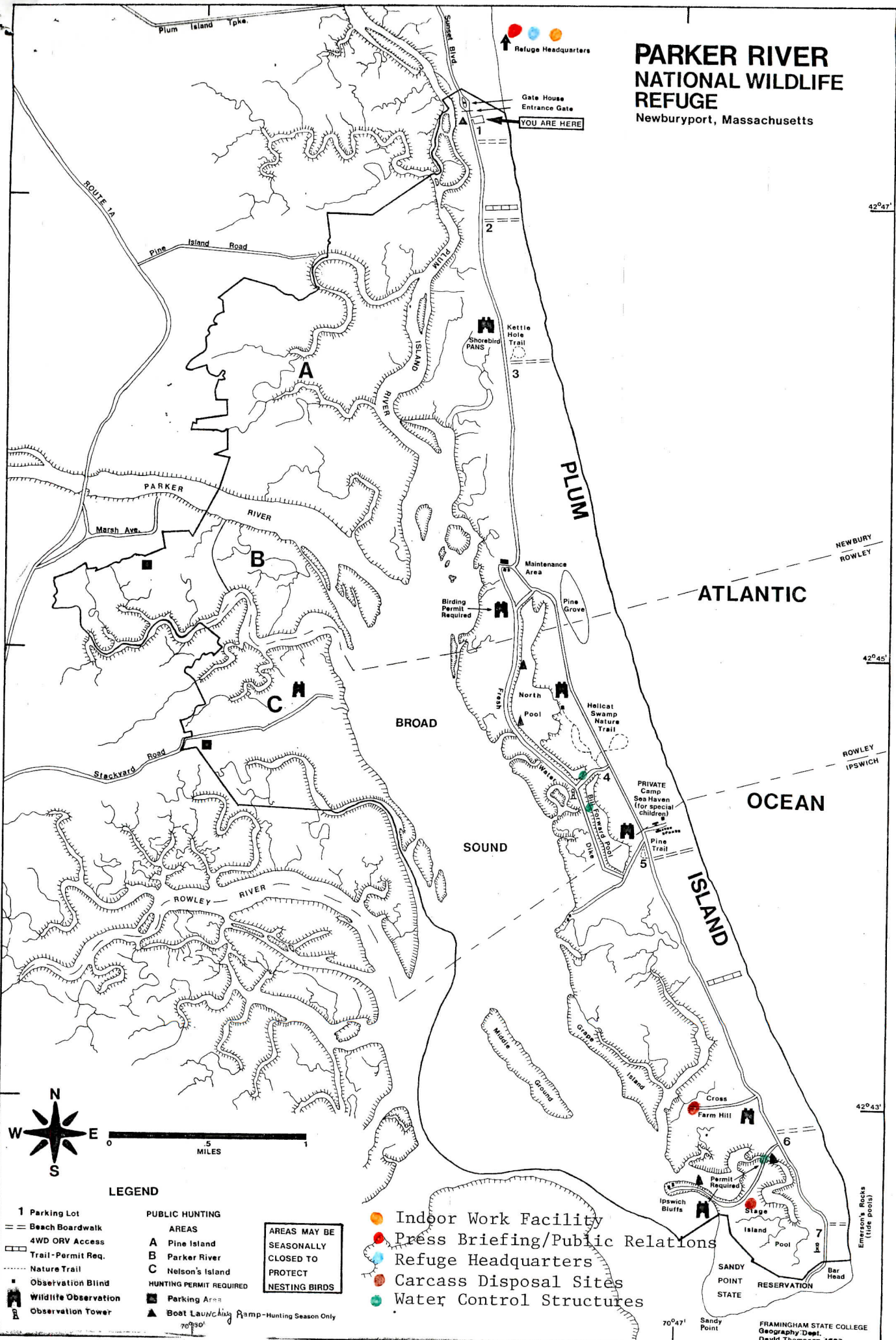
ATLANTIC

OCEAN

ISLAND

Emerson's Rocks  
(tide pools)

FRAMINGHAM STATE COLLEGE  
Geography Dept.  
David Thompson 1987



## LEGEND

- 1 Parking Lot
  - == Beach Boardwalk
  - 4WD ORV Access
  - Trail - Permit Req.
  - ..... Nature Trail
  - Observation Blind
  - ▲ Wildlife Observation
  - ▲ Observation Tower
- PUBLIC HUNTING AREAS**
- A Pine Island
  - B Parker River
  - C Nelson's Island
- HUNTING PERMIT REQUIRED**
- Parking Area
  - ▲ Boat Launching Ramp - Hunting Season Only
- AREAS MAY BE SEASONALLY CLOSED TO PROTECT NESTING BIRDS**

- Indoor Work Facility
- Press Briefing/Public Relations
- Refuge Headquarters
- Carcass Disposal Sites
- Water Control Structures