PARKER RIVER NATIONAL WILDLIFE REFUGE

Newburyport, Massachusetts

NARRATIVE REPORT

Jan. - - April 1962

REFUGE PERSONNEL

J. C. Appel	Refuge Manager
William R. Forward	Asst. Refuge Manager
Thomas J. Stubbs	Wildlife Aid
Irvine H. Walker, Jr.,	Maintenanceman
Donald G. Grover	Maintenanceman
Raoul J. DeSerres	Maintenanceman
Harry E. Sears	Maintenanceman
Catherine A. Welch	Clerk-Typist

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NARRATIVE REPORT

PARKER RIVER NATIONAL WILDLIFE REFUGE

Jan. - Apr. 1962

I. General

A. Weather Conditions:

January: Temperature was slightly below normal. Precipitation was 3.22 inches below normal. Average wind velocity 16 m.p.h. Twenty-three days with winds of 25 m.p.h. or greater.

February: This was the snowiest February in 28 years, and was tied with February 1959 as the third coldest in the last 26 years. Precipitation was .88 of an inch above normal. Average wind velocity 14.2 m.p.h. Eighteen days with peak gusts of 25 m.p.h. or greater.

March: Temperature was slightly above normal. Precipitation was .99 of an inch above normal. On the 6th and 7th, this area experienced the fringe effects of a vast ocean storm that wrecked havoc over coastal areas to the south. Average wind velocity 17.4 m.p.h. Twenty-three days with peak gusts of 25 m.p.h. or greater.

April: Temperature was near normal, precipitation was .37 of an inch above normal. Date of fresh water ice breakup 3/16/62.

Precipitation

	Snowfall	This Month	Average*	Maximin Temperature	Minimum
Jan.	3.2	.72	3.94	50	0
Feb.	21.5	4.12	3.24	50	-4
Mar.	.5	4.43	3.44	78	5
Apr.	--	4.22	3.85	88	29
Totals	25.2	13.49	14.47		
Extremes				88	-4

*Averages 1947 - 1961

Above data obtained from the weather station at refuge headquarters.

B. Habitat Conditions.

1. Water: Water was pumped from the North pool to the South

pool in the fall of 1961 to inundate millet and smartweed plantings. The North pool had returned to near normal level by the end of March.

Water in the South pool had returned to the near normal level for this time of year.

Water level in the Stage Island pool is slightly below normal.

2. Food and Cover: The South pool marsh millet plantings had little use during the fall and practically none during this period although an excellent seed crop was produced. This can probably be attributed to competition from the North pool, Stage Island pool and a heavy seed crop of the salt marsh plants.

The Stage Island marsh was planted to approximately 40 acres of Jap Millet which produced an excellent seed crop. The majority of this crop was not available during the fall migration due to the low water level.

During the spring migration this pool was used by up to 3,000 dabble ducks predominately black ducks. Previous years' use during the spring were negligible. This increase is due to water manipulation and the millet plantings.

The North pool had a volunteer crop of smartweed, Jap millet and tri-square. Most of this food was exhausted during the fall migration.

The rye and wheat plantings of last fall were exhausted during the previous period. However, early spring re-growth provided some goose browse during the later part of the period.

II. Wildlife

A. Migratory Birds.

1. Waterfowl.

a. Canada Geese:

Varied numbers of geese occurred in the area throughout the period depending upon weather patterns and other factors. They averaged about 250 birds until mid-March when an influx of spring migrants took place. The refuge peak of 1,800

Canadas appeared the week of March 19 - 25, and although populations declined somewhat thereafter, significant numbers of geese were present in the vicinity during the remainder of the period.

The heaviest use by geese took place in the tidal marsh areas, although some utilization of regrowth in refuge rye and wheat fields also was noted, particularly as spring developed. Involved in this primarily was the Nelson's Island area, Stage Island field and Cross Farm section of the refuge.

b. Black Ducks:

This species, normally the dominant component of our duck population, was well represented all during the period, their numbers fluctuating markedly with changes in weather and tide. On certain occasions, when both the tidal marsh and our fresh water pool units were frozen over (through March 16 this year) the bulk of birds utilizing the refuge area simply shifted their zone of activity to the nearby Merrimack River - Newburyport Harbor or the Essex River - Rowley River - Ipswich River complex. The single peak number of blacks noted in the refuge occurred on Jan. 8th, during the Winter Inventory Flight, when 4,100 storm concentrated birds were found chiefly in the Stage Island Pool unit. The highest sustained number of blacks, as reflected in the "Weekly Waterfowl Populations" form came during Mar. 19 - 25 when some 3,500 spring flight birds were recorded. Numbers dropped rapidly thereafter.

Despite, at times, a fairly severe winter period no evidence of weak birds or starvation was noted, as populations appeared to come through in good shape.

c. Other Ducks:

Relatively limited numbers of other species of ducks were noted during this period. Most species peaked during the week of Mar. 19 - 25 as follows: Mallards 300, Pintail 500, Green-winged Teal 400 and American Widgeon 100. Other species noted during the period included Shoveler, Blue-winged Teal, American Goldeneye and Bufflehead.

2. Other Waterbirds and Shorebirds.

A few birds in this category were noted late in the period. These included Great Blue Heron and Yellowlegs.

3. Doves.

No wintering mourning doves were noted in the refuge this period. Migrants appeared the latter part of the period with a high of 12 seen on 4/27. Total numbers present at the close of the period appear to be comparable with past seasons.

B. Upland Game Birds.

Ring-necked pheasant came through the winter in fairly good shape. An estimated 100 birds is present at the close of this period with a 60:40 cock-hen ratio. The reduction in numbers from the late fall refuge total of 120 reflects normal winter mortality, while the cock-hen ratio is probably the result of differential mortality of sexes.

C. Big Game Animals.

Our only big game species is the white-tailed deer. Numbers of animals utilizing the refuge appear to have declined over recent months, despite more than adequate food supplies. Harassment by dogs may have been a factor in this reduction in numbers. One dead deer was reported on the beach and was buried by refuge personnel. An estimated total of 6 animals is present at the close of the period.

D. Fur Animals, Predators, Rodents and Other Mammals.

In general most species included under this heading posed no control problems of importance. Occasional nuisance animal control is engaged in as the situation warrants by refuge personnel, for such species as red fox, raccoon, skunks and rats. Muskrats are currently at low levels in all units and constitute no difficulty in management.

E. Hawks, Eagles, Owls, Crows, etc.

No eagles were noted within the refuge during the period.

Occasional observations were made of marsh hawks and sparrow hawks during the period especially as April developed.

Snowy owls were noted on a number of occasions this period. A total of 8 was estimated as using the area at the peak. These owls, unwary and tame, always attract considerable interest from the public.

Crows occurred throughout the period in limited numbers. A high population estimate of 40 came on 4/30.

F. Other Birds.

Nothing to report.

G. Fish.

There was no sports fishing this period. Shellfish harvest appeared to be about normal for the period.

III. Refuge Development and Maintenance

A. Physical Development.

1. A number of experimental nesting devices were constructed and set up in the refuge during early March prior to the nesting period. These included some 24 galvanized wash tubs, painted black and filled with marsh hay, which were set up at selectively chosen sites in the tidal salt marsh to encourage nesting in a relatively unproductive breeding habitat.

2. Also, a series of 24 experimental wooden nesting boxes were set up in the North pool unit and at Nelson's Island to encourage nesting by waterfowl in these areas.

3. Graded and maintained refuge roads.

4. The office was redecorated and new desks were installed.

5. Repaired bodies and painted 57 & 58 Willys pickups.

6. International motor for vertical lift pump overhauled and painted.

7. Chev. pickup valve job and motor tune up.

8. Repair Int. and Allis Chalmers disc harrows.

9. Complete motor and steering overhaul on Massey Harris tractor also painted.

10. New bath room installed in Quarters 2 complete with a new septic tank and dry well.

11. Reposted portions of North and South boundary lines with new metal posts and signs.

12. Constructed and graded small parking lot at Nelson's Island entrance.

13. Routine maintenance of buildings and equipment were performed during the period.

B. Plantings. None this period.

C. Collections and Receipts.

1. Seed or Other Propagules.

Species	Quantity	Source	Condition	Use
Millet Jap	3,000 lbs.	Purchased	Good	Seed

D. Control of Vegetation. None this period.

E. Planned Burning. None this period.

F. Fires.

No reportable fires occurred during the period. Fire hazards during January, February, and March low due to snow cover, rain, and low public use. April fire hazards were high due to lack of rainfall and high public use.

IV. Resource Management

A. Grazing. None.

B. Haying. None this period.

C. Fur Harvest. None.

D. Timber Removal. None.

E. Commercial Fishing. None.

F. Other Uses.

Ten Special Use Permits were issued this period for Rental of land and buildings.

Total fees: $750.00.

One Special Use Permit issued to the Town of Amesbury, Mass. for 320 tons of sand.

Fee: $32.00

V. Field Investigation or Applied Research

A. Progress Report.

Released the last group of our experimental goose flock during the period.

Four black ducks and two mallards were banded during the period.

A sizable amount of time was spent trying to fabricate an experimental semi-floating trap to catch Greater Scaup in the Merrimac River for banding. The only success we had was that we did get them feeding on the bait pan, but we would no sooner get them feeding when heavy flowing ice would take bait pan, anchor and all down stream, thus adversely affecting success of our program. It is believed some additional work should be done on this in the future, in order to enable us to sample this scaup population.

VI. Public Relations

A. A traffic counter installed at the main entrance to the refuge Plum Island had recorded 3921 crossings by the end of the period. Using an average of 3.0 persons per car this would indicate a total of 11,763 visitors during the recorded period. Based on previous observations it seems reasonable to estimate a visitor-day use of 16,000 visits. Majority use during the early part of the period was for birding and nature study; latter part of the period sun bathing, picnicking, birding, etc.

B. Refuge Visitors.

		1962
Mr. Ashford of Geneva, Switzerland re refuge birds		1/4
Mrs. R. Gibbons re refuge birds		1/4
Almon Griffin re enforcement	Mass. Cons. Supv.	1/9,2/21
Norman Marble re enforcement	Mass. Cons. Officer	1/8-9,2/20-21
John Bartolomeo re enforcement	Mass. Cons. officer	1/9
George Gavutis,Jr. re traps, etc.	Student Assistant	2/23-29,4/13
James Van Weelden re Regnier case	U. S. G. M. A.	3/21
Dale Sutherland tour P.R. & Gt.Md.	Asst. Reg. Supv.	2/13

Mr. Cheney, Plaistow,N.H. re lands		3/1
Miss Marian G. Todd, Rowley Librarian to arrange talk		3/12
H. Greenleaf Noyes, Essex Co. Spts. Assoc. to arrange meeting		3/14
Essex Co. Sportsmen discussion re waterfowl conditions		3/15
Messrs. Ulmer and Ettleman, Central Office		3/24
Mr. Fred L. Jacobson, R. O. Chief of Administration tour of refuge		3/24
Robert Stevens re wildlife schools	Student	3/26
Supt. R. Nock re surplus property	Newburyport School Dept.	3/27
Mr. Batchelder re moths	U. S. Dept. Agriculture	3/27
Maruice Lundy, Instruct staff	Asst. Reg. Supv. Mgt. and Enforcement	4/13
Messrs. Brown, Baker,& Van Weelden, re enforcement	U. S. G. M.A.	4/13
John Grundstrom, Rowley Clam Warden discuss Nelson's Is.		4/18
Gordon T. Nightingale and family		4/20

Other visitors included fishermen, nature students, and persons seeking directions and information.

C. Refuge Participation.

		Attended
Feb. 6	Essex Co. Spts. Assoc. Discussion of waterfowl problems.	9
8	Jackman School Talk - careers in biology	35
12	Salisbury Parent-Teachers Slide show.	120
15	Peabody Museum Meeting arranged by Director.	35
20	Newburyport Garden Club Slides and talk.	28
Mar. 2	Ducks Unlimited Dinner	(600)
6	Amesbury Grange Slides and talk.	35
15	Essex Co. Spts. Waterfowl Committee Problems discussed.	6
Apr. 1	Colonial Retriever Field Trial Manager and personnel supervised.	50
5	Pine Grove School, Rowley Talk and slides.	80
11	Girl Scouts and Leaders Tour of refuge.	13

D. Hunting.

None.

E. Violations.

Several waterfowl cases were turned over to Game Management Agent Van Weelden and are awaiting disposition.

F. Safety.

1. Four formal safety meetings were held during the period. These meetings were mostly general in nature.

2. No accidents occurred during the period.

3. The following measures were taken to prevent accidents:

   a. All electric motors were grounded.
   b. Floor mat at office entrance to shop replaced.
   c. Four Fire Hazard Inspections were performed during the period.

4. Number of man-days since last lost time accident: 910.

5. Future safety plans call for monthly safety meetings, spot checks to be made periodically. Films to be acquired as available.

6. Acquisition of protective clothing or equipment:

   a. Four unicellular plastic foam work vests.
   b. A gun type portable kerosene heater.

VII. Other Items

A. Items of Interest.

During the period from February 16 through the 24th, Refuge Manager Forward was detailed to man the Bureau Exhibit at the National Sports, Vacation and Travel Show in the New York Coliseum in New York City.

Mr. William Forward returned to duty from sick leave Jan.3,1962.

Mr. Harry Sears was changed from 180 day taper appointment to temporary pending the establishment of register.

Staff attended Bureau Conference in Boston March 20 -23.

Traffic counter was stolen and reported to the F.B.I. and the local police.

Two Canada Geese were released to the Trailside Museum, Milton, Mass. for educational and display purposes.

Refuge Manager Appel was assigned a special detail to prepare a slide program on the Wetlands Acquisition program.

On April 13, 1962 a general session on law enforcement was held at this station with particular reference to some of Parker River's problems. Assistant Regional Supervisor Maurice Lundy, Branch of Management and Enforcement and Game Management Agents Baker, Brown, and Van Weelden along with Manager Appel and refuge personnel. The meeting was useful and informative for all persons attending.

A Retriever trial was held on the refuge by the Colonial Retriever Club of Concord, Mass. on April 4, 1962. Eight Labradors in Qualifying Stake; 13 Labs and 1 Chesapeake in Open Stakes, 25 participated in trial. A gallery of 20 on hand during the course of the trial.

Credits: Thomas J. Stubbs, Wildlife Aid
Catherine A. Welch, Clerk-Typist

B. Photographs.

Appended.

Period ending April 30, 1962.

ACTING Refuge Manager

Date_____ Regional Refuge Supervisor

Date_____ Regional Director

3-1750
Form NR-1
(Rev. March 1953)

WATERFOWL

REFUGE Pocket River N. W. MONTHS OF Jan. TO April, 19 62

(1) Species	(2) Weeks of reporting period 1/1 - 7 (1)	8 - 14 (2)	15 - 21 (3)	22 - 28 (4)	29 - 2/4 (5)	5 - 11 (6)	12 - 18 (7)	19 - 25 (8)	26 - 3/4 (9)	5 - 11 (10)
Swans:										
Whistling										
Trumpeter										
Geese:										
Canada	200	270	230	280	175	275	275	200	60	280
Cackling										
Brant										
White-fronted										
Snow										
Blue										
Other										
Ducks:										
Mallard	100	50	50	-	10	50	50	100	50	75
Black	550	2350	725	2675	375	500	500	500	250	850
Gadwall										
Baldpate										
Pintail	50			25						
Green-winged teal										
Blue-winged teal										
Cinnamon teal										
Shoveler	Pools Frozen	Pools Frozen	Pools Frozen	Pools Frozen	Pools Frozen	Pools Frozen	Pools Frozen	Pools Frozen	Pools Frozen	Pools Frozen
Wood										
Redhead										
Ring-necked										
Canvasback										
Scaup										
Goldeneye	10	50	65	100	25	100	100	50	25	150
Bufflehead										
Ruddy										
Other										
	710	2450	840	2800	410	650	650	650		
Coot:										

3 -1750a
Cont. NR-1
(Rev. March 1953)

WATERFOWL
(Continuation Sheet)

REFUGE Parker River N. W. MONTHS OF Jan. TO April, 19 62

(1) Species	(2) Weeks of reporting period 3/12 -18 11	19 - 25 12	26 - 4/1 13	2 - 8 14	9 - 15 15	16 - 22 16	23 - 29 17	4/30 18	(3) Estimated waterfowl days use	(4) Production Broods seen	(4) Production Estimated total
Swans:											
Whistling											
Trumpeter											
Geese:											
Canada	500	1800	350	525	400	600	200	200	46,540		
Cackling											
Brant											
White-fronted											
Snow				2					14		
Blue											
Other											
Ducks:											
Mallard	100	300	50	25	25	25	25	25	7,620		
Black	1500	3500	300	125	100	200	100	100	105,800		
Gadwall											
Baldpate		100							700		
Pintail	25	500	125	25	10	25	20	20	5,655		
Green-winged teal		400	75	135	100	300	150	150	8,270		
Blue-winged teal				10	25	50	50	50	995		
Cinnamon teal											
Shoveler		25							175		
Wood											
Redhead											
Ring-necked											
Canvasback											
Scaup											
Goldeneye	150	25							5,950		
Bufflehead				5					35		
Ruddy											
Other											
Coot:											

(over)

	(5) Total Days Use	(6) Peak Number	(7) Total Production
Swans			
Geese	46,554	1,800	
Ducks	135,200	4,850	
Coots	-	-	

SUMMARY

Principal feeding areas Tidal mud flats when exposed and Stage Is., N. Pool & S. Pool when open.

Principal nesting areas

Reported by W. R. Foward

INSTRUCTIONS (See Secs. 7531 through 7534, Wildlife Refuges Field Manual)

(1) Species: In addition to the birds listed on form, other species occurring on refuge during the reporting period should be added in appropriate spaces. Special attention should be given to those species of local and national significance.

(2) Weeks of Reporting Period: Estimated average refuge populations.

(3) Estimated Waterfowl Days Use: Average weekly populations x number of days present for each species.

(4) Production: Estimated number of young produced based on observations and actual counts on representative breeding areas. Brood counts should be made on two or more areas aggregating 10% of the breeding habitat. Estimates having no basis in fact should be omitted.

(5) Total Days Use: A summary of data recorded under (3).

(6) Peak Number: Maximum number of waterfowl present on refuge during any census of reporting period.

(7) Total Production: A summary of data recorded under (4).

Interior Duplicating Section, Washington, D. C.
1953

76242

3-1751
Form NR-1A
(Nov. 1945)

MIGRATORY BIRDS
(other than waterfowl)

Refuge Parker River N. W. Months of Jan. to April 195 62

(1) Species	(2) First Seen		(3) Peak Numbers		(4) Last Seen		(5) Production			(6) Total
Common Name	Number	Date	Number	Date	Number	Date	Number Colonies	Total # Nests	Total Young	Estimated Number
I. Water and Marsh Birds:										
Double-crested Cormorant	10	4/21	25	4/21	12	4/30				50
Great Blue Heron	2	3/24	5	4/18	1	4/27				20
Black-crowned Night Heron	1	4/4	10	4/20	2	4/30				250
American Bittern	1	4/20	1	4/20	1	4/20				5
Common Gallinule	1	4/1	1	4/1	1	4/30				10
II. Shorebirds, Gulls and Terns:										
Killdeer	2	4/4	6	4/4	1	4/30				30
Greater Yellowlegs	2	4/27	12	4/30	12	4/30				40
Great Black-backed Gull	12	1/10	25	3/6	4	4/30				100
Herring Gull	25	1/15	100	3/12	10	4/30				1000

(over)

(1)	(2)		(3)		(4)		(5)			(6)
III. Doves and Pigeons:										
Mourning dove	2	3/16	12	4/27	2	4/30				50
White-winged dove										
IV. Predaceous Birds:										
Golden eagle										
Duck hawk										
Horned owl										
Magpie										
Raven										
Crow	2	1/1	40	4/30	40	4/30				100
Marsh Hawk	1	2/15	5	4/21	1	4/30				10
Sparrow Hawk	1	3/23	8	4/21	1	4/30				10
Snowy Owl	1	1/1	4	2/15	1	3/30				8
Short-eared Owl	1	1/12	2	3/5	2	3/5				2

Reported by W. R. Forward

INSTRUCTIONS

(1) Species: Use the correct names as found in the A.O.U. Checklist, 1931 Edition, and list group in A.O.U. order. Avoid general terms as "seagull", "tern", etc. In addition to the birds listed on form, other species occurring on refuge during the reporting period should be added in appropriate spaces. Special attention should be given to those species of local and National significance. Groups: I. Water and Marsh Birds (Gaviiformes to Ciconiiformes and Gruiiformes)
II. Shorebirds, Gulls and Terns (Charadriiformes)
III. Doves and Pigeons (Columbiformes)
IV. Predaceous Birds (Falconiformes, Strigiformes and predaceous Passeriformes)

(2) First Seen: The first refuge record for the species for the season concerned.

(3) Peak Numbers: The greatest number of the species present in a limited interval of time.

(4) Last Seen: The last refuge record for the species during the season concerned.

(5) Production: Estimated number of young produced based on observations and actual counts.

(6) Total: Estimated total number of the species using the refuge during the period concerned.

3-1752
Form NR-2
(April 1946)

UPLAND GAME BIRDS

Refuge Parker River N. W. Months of Jan. to April, 19 62

(1) Species	(2) Density		(3) Young Produced		(4) Sex Ratio	(5) Removals			(6) Total	(7) Remarks
Common Name	Cover types, total acreage of habitat	Acres per Bird	Number broods obs'v'd.	Estimated Total	Percentage	Hunting	For Re-stocking	For Research	Estimated number using Refuge	Pertinent information not specifioally requested. List introductions here.
Ring-necked Pheasant	Sand dunes and brush Est. 1200 acres.	12			60:40	N	O N	E	100	

INSTRUCTIONS

Form NR-2 - UPLAND GAME BIRDS.*

(1) SPECIES: Use correct common name.

(2) DENSITY: Applies particularly to those species considered in removal programs (public hunts, etc.). Detailed data may be omitted for species occurring in limited numbers. Density to be expressed in acres per animal by cover types. This information is to be prefaced by a statement from the refuge manager as to the number of acres in each cover type found on the refuge; once submitted, this information need not be repeated except as significant changes occur in the area of cover types. Cover types should be detailed enough to furnish the desired information but not so much as to obscure the general picture. Examples: spruce swamp, upland hardwoods, reverting agriculture land, bottomland hardwoods, short grass prairie, etc. Standard type symbols listed in Wildlife Management Series No. 7 should be used where possible. Figures submitted should be based on actual observations and counts on representative sample areas. Survey method used and size of sample area or areas should be indicated under Remarks.

(3) YOUNG PRODUCED: Estimated number of young produced, based upon observations and actual counts in representative breeding habitat.

(4) SEX RATIO: This column applies primarily to wild turkey, pheasants, etc. Include data on other species if available.

(5) REMOVALS: Indicate total number in each category removed during the report period.

(6) TOTAL: Estimated total number using the refuge during the report period. This may include resident birds plus those migrating into the refuge during certain seasons.

(7) REMARKS: Indicate method used to determine population and area covered in survey. Also include other pertinent information not specifically requested.

* Only columns applicable to the period covered should be used.

3-1754
Form NR-4
(June 1945)

SMALL MAMMALS

Refuge Parker River N. W. Year ending April 30, 1962

(1) Species	(2) Density		(3) Removals					(4) Disposition of Furs						(5)
								Share Trapping						Total Population
Common Name	Cover Types & Total Acreage of Habitat	Acres Per Animal	Hunting	Fur Harvest	Predator Control *	For Re-stocking	For Re-search	Permit Number	Trappers Share	Refuge share	Total Refuge Furs Shipped	Furs Donated	Furs Destroyed	
Muskrat	Fresh Marsh 280 A	2.8	NONE											100
Raccoon	Sand Dunes & Marsh 3890 A	486	NONE											8
Weasel	" " & Marsh 3890 A	129	NONE											30
Mink	" " & Marsh 3890 A	486	NONE											8
Otter	" " & Marsh 3890 A	1945	NONE											2
Woodchuck	" " & Cropland 1000 A	6.6	---		90 Dam Bombing									150
Skunk	" " " Cropland 1000 A	13.3	---		26 Shot								x	75
Red Fox	" " " Cropland 1000 A	167	---		1 Shot								x	6
Cottontail Rabbit	" " " Cropland 1000 A		NONE											125
Small Rodents	" " " Cropland 1000 A		NONE											Moderate

* List removals by Predator Animal Hunter *Control work by refuge personnel incidental to other duties.

REMARKS:

Reported by W. R. Forward

INSTRUCTIONS

Form NR-4 - SMALL MAMMALS (Include data on all species of importance in the management program; i. e., muskrats, beaver, coon, mink, coyote. Data on small rodents may be omitted except for estimated total population of each species considered in control operations.)

(1) SPECIES: Use correct common name. Example: Striped skunk, spotted skunk, short-tailed weasel, gray squirrel, fox squirrel, white-tailed jackrabbit, etc. (Accepted common names in current use are found in the "Field Book of North American Mammals" by H. E. Anthony and the "Manual of the Vertebrate Animals of the Northeastern United States" by David Starr Jordan.)

(2) DENSITY: Applies particularly to those species considered in removal programs. Detailed data may be omitted for species occurring in limited numbers. Density to be expressed in acres per animal by cover types. This information is to be prefaced by a statement from the refuge manager as to the number of acres in each cover type found on the refuge; once submitted, this information need not be repeated except as significant changes occur in the area of cover types. Cover types should be detailed enough to furnish the desired information but not so much as to obscure the general picture. Examples: spruce swamp, upland hardwoods, reverting agriculture land, bottom land hardwoods, short grass prairie, etc. Standard type symbols listed in Wildlife Management Series No. 7 should be used where possible. Figures submitted should be based on actual observations and counts on representative sample areas. Survey method used and size of sample area or areas should be indicated under Remarks.

(3) REMOVALS: Indicate the total number under each category removed since April 30 of the previous year, including any taken on the refuge by Service Predatory Animal Hunter. Also show any removals not falling under headingslisted.

(4) DISPOSITION OF FUR: On share-trapped furs list the permit number, trapper's share, and refuge share. Indicate the number of pelts shipped to market, including furs taken by Service personnel. Total number of pelts of each species destroyed because of unprimeness or damaged condition, and furs donated to institutions or other agencies should be shown in the column provided.

(5) TOTAL POPULATION: Estimated total population of each species reported on as of April 30.

REMARKS: Indicate inventory method(s) used, size of sample area(s), introductions, and any other pertinent information not specifically requested.

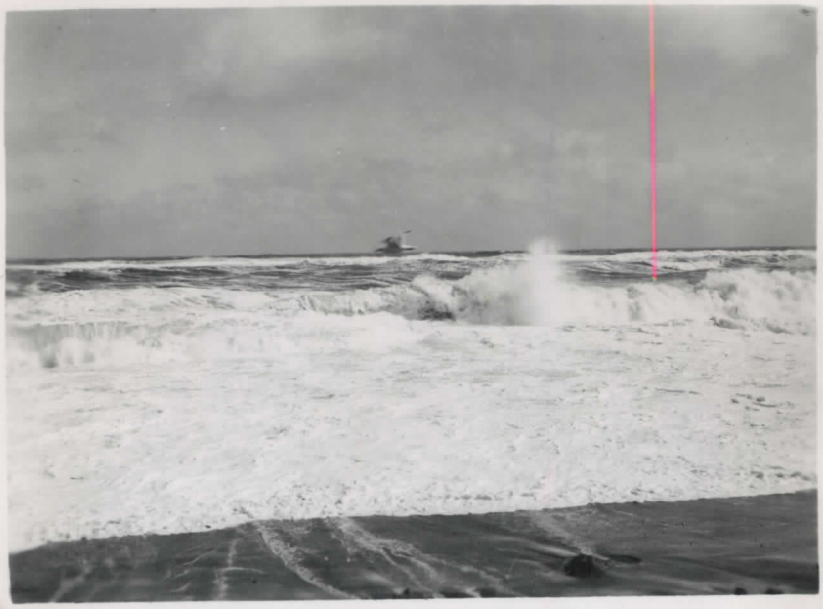
116007

View of very attractive photographic mural of waterfowl obtained from Sears, Roebuck and set up on office wall area.

Another view of part of office area showing new lighting fixtures obtained from GSA. A big improvement in lighting.

Refuge personnel putting up artificial nesting tub in tidal marsh habitat.

Close-up of galvanized tub, painted black and containing nesting materials, showing manner of mounting.



Typical heavy surf running during period of March 6 - 7 N. E. storm, and which caused extensive damage elsewhere in coastal areas.

A view of high tide occurring during period of March 6 - 7 N. E. storm inundating Coast Guard Boat Ramp on Merrimac River.

Very unusual frost pattern which occurred on Service Building garage windows during past winter period.

PARKER RIVER NATIONAL WILDLIFE REFUGE

Newburyport, Massachusetts

NARRATIVE REPORT

May - Aug. 1962

REFUGE PERSONNEL

J. C. Appel	Refuge Manager
William R. Forward	Asst. Refuge Manager
Thomas J. Stubbs	Wildlife Aid
Irvine H. Walker, Jr.,	Maintenanceman
Donald G. Grover	Maintenanceman
Raoul J. DeSerres	Maintenanceman
Harry E. Sears	Maintenanceman
Catherine A. Welch	Clerk
George W. Gavutis, Jr.,	Student Assistant (Wildlife Aid)

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NARRATIVE REPORT

PARKER RIVER NATIONAL WILDLIFE REFUGE

May - August 1962

I. General

A. Weather Conditions.

May: May was a comfortable month with precipitation 2.65 inches below normal. Average wind velocity 13.3 mph. Seventeen days with peak gusts of 25 mph or greater.

June: Temperature was near normal. Precipitation was 1.69 inches above normal. Average wind velocity 12.6 mph. Fifteen days with peak gusts of 25 mph or greater.

July: The nearly complete absence of hot, humid weather was the outstanding feature of the month. Precipitation was .20 inches below normal. Average wind velocity 12.4 mph. Thirteen days with peak gusts of 25 mph or greater.

August: Temperature was below normal for the month. Precipitation .26 inches above normal.

Precipitation

	Snowfall	This Month	Average*	Maximum Temperature	Minimum Temperature
May	-	1.67"	4.32"	91	40
June	-	4.17"	2.48"	102	50
July	-	3.57"	3.77"	95	52
August	-	3.46"	3.20"	94	54
Totals		12.87	13.77		
Extremes				102	40

*Averages 1947 - 1961.

Above data obtained from weather station at refuge headquarters.

B. Habitat Conditions.

1. Water. The Stage Island pool was drawn down during the period May 21 - 24, according to plan, to an indicated gauge level of 4.00. This exposed some 40 acres of mud flats for planting and levels for the remainder of the period followed the normal pattern.

South pool water levels were near normal throughout the period and were managed according to approved plans.

North pool water levels were near normal during the period and were also managed in approved manner.

2. Food and Cover. Stage Island pool wet exposed areas were seeded experimentally by air during May to Japanese millet. By the close of the period an excellent chest-high growth of this plant had developed and was well headed out. In addition, an extensive complex of other desired food plants, such as smartweed and bulrushes developed by the period's close.

A portion of the South pool was also aerial seeded at the same time as the Stage Island unit, but this planting did not enjoy comparable success. This was primarily due to somewhat drier conditions during and following the seeding operation. However, a nice complex of smartweed, sunflower and panic grass came in during the summer.

The North pool developed naturally this summer with no significant manipulations. Cattail is the dominant plant with some stands of Loosestrife mixed in. Moderate amounts of smartweed and tri-square also exist.

All units had a good interspersion of cover throughout the period, particularly the Stage Island pool and North pool areas. Most duck usage took place in the North and Stage Island pools.

II. Wildlife

A. Migratory Birds.

1. Waterfowl. Refuge population and species composition were near normal - the bulk of the birds being breeders and young. During August the refuge became a gathering area for immature birds which had most probably been reared in the surrounding territory. A late census showed 50 geese, 300 blacks, 120 mallards, 250 green-winged teal, 50 blue-winged teal and lesser numbers of other species. Most early nesting attempts were successful with the majority of the broods (except teal) appearing the first two weeks of June.

Two pairs of geese nested on the islands in the North pool and hatched out and successfully reared to flight stage a total of seven goslings. Several reports of good goose production in the area inland from the refuge were received during the summer.

Of the 24 different broods of ducks observed, 12 were mallards; 7 blacks; 3 blue-winged teal; 1 green-winged teal; and 1 pintail. A decrease in the number of broods of the less common breeding species (teal and pintail) was noted. Mallards increased somewhat and blacks

remained nearly the same.

90% of the feeding was done in the fresh water marshes (primarily the North and Stage Island pools, and the Nelson's Island pond). 40 geese began using the newly sprouted rye fields in the North and South pools late in August.

2. Other Waterbirds. Pied-billed grebes were scarce and no broods were seen. Last summer two broods were recorded.

A common murre was picked up from the beach in August in a weakened condition after several days of rough seas. It was later released in the North pool.

Nine snowy egrets were observed on August 31st and an immature little blue heron was noted through August.

A yellow-crowned night heron and several king and clapper rails were reported during May.

3. Shorebirds, Gulls, and Terns. The shorebird flight built up steadily during August and continued heavy at the end of the period. Peak numbers of 1500 semipalmated sandpipers, 800 sanderlings, 600 black-bellied plovers, 450 semipalmated plovers, and 300 least sandpipers were recorded.

A ruff was observed twice during the summer, once on July 3rd and again on August 15th.

Other noteworthy observations include Hudsonian Godwit, white-rumped sandpiper, immature laughing gull, black tern, stilt sandpipers and an unconfirmed report of Baird sandpipers.

A single red dyed herring gull was observed during June.

Least tern production fell off sharply this year due to fox and skunk predation and human molestation. An estimated 40 - 50 pairs produced a maximum of 20-25 young.

4. Doves. Mourning dove production was approximately 30 young and an influx of doves during August brought the population up to 150 birds.

B. Upland Game Birds.

The ring-necked pheasant population remained normal. Most early nesting attempts failed, but a good late hatch compensated for this.

C. Big Game Animals.

The white-tailed deer herd is presently at a safe level of 10 - 12 animals. Only one fawn was observed but tracks indicate that several are present on the refuge. All deer observed appeared healthy with the exception of a scrawny yearling doe seen one mile north of sub-headquarters. No archery season is planned for this year.

D. Fur Animals, Predators, Rodents, and Other Mammals.

The red fox population continued to increase and three dens were located on the southern portion of the refuge. No control was effected here but one fox was destroyed in the vicinity of the tern colonies.

Skunks have ceased to be a problem and only 7 animals (compared with 26 last year) were destroyed. Most were near tern colonies.

No woodchuck control was attempted this period but populations have spread out on to croplands and dikes again. A den bombing program is scheduled for this fall.

The muskrat population remains normal but low water levels in the impoundments restrict them to the borrow pits and main channels during the summer months.

E. Hawks, Eagles, Owls and Crows.

No bald or golden eagles were reported this period.

Hawks were completely absent during July but two duck hawks as well as several marsh, sparrow, and Cooper's hawks made their appearance during August. One immature Cooper's was found in the road and died shortly thereafter.

F. Other Birds.

Martins used the house at sub-headquarters again this year.

The ruff was added to the refuge bird list on 7/3/62.

A heavy flight of tree swallows (several thousand birds) was noted on the southern portion of the refuge late in August.

G. Fish.

Surf fishing produced a good catch of bull stripers and unlimited numbers of legal sized school bass, throughout the summer.

Record catches of bull stripers and tuna were effected by the "Fishing Fleet" off-shore.

A weak 8' porbeagle shark was dragged from the surf near the Polio Camp and destroyed and buried.

H. Reptiles.

An 8" snapping turtle was picked up (alive) from the surf on 6/3/62 and later destroyed. This was the first refuge record for a turtle.

Several garter snakes were reported this period, but they remain uncommon.

I. Disease.

Three ducks were picked up dead from the various pools during the course of the summer. All three were extremely thin, but the cause of death remains undetermined.

III. Refuge Development and Maintenance

A. Physical Development.

1. The refuge road which runs down through the island was graded and maintained as time and conditions allowed. In addition, an experimental application of waste oil was placed on a 5 mile portion of the road (from the north end to Polio Camp) to reduce dust and loss of roadway material. Some 13,000 gallons of oil @ .07 per gallon were laid on this section of the road with effective results, both in terms of public relations with visitors as well as in reduction of road maintenance. Further use of this method is planned for the future.

2. Approximately 1,256 sq. yds. of area around Quarters #2 at Headquarters was covered with 6" or more of loam, graded and seeded to #1 grass mix under contract.

3. Considerable time was spent by refuge personnel in building various aids for use in the recreation program. These included construction of a series of parking bumpers from old creosoted lumber in the Recreation area parking lot to channel and guide parking during periods of heavy use; erection and refurbishing of the checking station at the North boundary entrance of the refuge; construction and placement of a number of signs at significant points throughout the refuge; construction of an access road to the beach from the Recreation area parking lot.

4. The old William H. Foster camp on the Rowley side of the refuge was destroyed by burning as planned.

5. The North pool dike roadway was partially gravelled this period under contract. Some 300 yds. were placed before a dispute between the contractor and bridge tender (tending bridge over Plum Island River) caused a half in this operation. It remains to be completed.

6. All trails and roadways, other than the five (5) approved beach buggy trails, were blocked off with fill to eliminate troublesome points of entry and egress to the beach areas.

7. Routine inspection and maintenance of all mobile equipment was undertaken as occasion warranted, with particular emphasis on recreation oriented vehicles.

B. Plantings.

1. Aquatics and Marsh Plants. As previously noted, Stage Island pool was experimentally seeded by air to millet. By use of a small Piper Cub type aircraft some 2,500 pounds of Jap millet was seeded in strips throughout the Stage Island unit. In addition, 900 pounds of seed was placed on the South pool unit by air. A total flight time of 2.6 hrs. @ $45.00/hr. was required for the complete seeding operation, with seed provided by the Service. Refuge personnel loaded the aircraft and oriented the pilot. Results from Stage Island alone have been sufficiently successful to justify such seeding methods.

2. Trees and Shrubs. None.

3. Upland Herbaceous Plants. None.

4. Cultivated Crops. All fields in the North pool, South pool, and Cross Farm Hill areas were fitted, seeded to goose browse and fertilized with 10-10-10 at 600#/acre by the close of the period. These plantings of winter rye, amounted to some 59 acres. In addition Stage Island pool rye plantings (20 acres) were disced in and fertilized at 600 #/acre of 10-10-10. Early growth of these plantings indicates a successful effort. At the close of the period the only remaining farm areas to be worked were at Nelson's Island (21 acres).

C. Collections and Receipts.

1. Seeds or Other Propagules.

Approximately 8,560 lbs. of good Balbon rye was purchased for use as seed in our farming program.

D. Control of Vegetation.

1. Approximately 10 acres of heavy stands of cattail in the North pool were mowed with the Oc-6 rotary mower, until a breakdown of equipment stopped the operation.

2. Some experimental spot applications of Urab soil sterilant were made in the headquarters area to eliminate undesirable weed growth. It appears to be working effectively.

E. Planned Burning. None.

F. Fires. No reportable fires occurred this period despite heavy public use and generally dry conditions.

IV. Resource Management

A. Grazing. None.

B. Haying. Special use permits were issued to three individuals for harvest of 95 tons of salt hay. Total fees - $95.00.

C. Fur Harvest. None.

D. Timber Harvest. None.

E. Commercial Fishing. None.

F. Other Uses. None.

V. Field Investigation or Applied Research

A total of 292 ducks have been banded thus far with species, age and sex as follows:

	Locals		Immatures		Adults	
	M	F	M	F	M	F
Black	8	3	79	70	8	14
Mallard	7	1	49	24	5	10
Wood			1		5	
Pintail		1				
Blue-winged Teal			1	1	2	3
Sub-totals	15	5	130	95	20	27
Totals	20		225		47	

Less time was spent trapping this summer - explaining the reduction in the number of bandings (418 last year). Although only 20 birds were in the "Local" stage when captured, it is estimated that 60% of the birds produced on the refuge were banded as immatures.

Only a few of the adults captured were flightless and all these were in the North pool. Despite an exhaustive banding program last summer and fall, only one bird (a female mallard) was taken again this summer. Losses due to predation were eliminated by using one inch welded wire mesh in trap construction. This prevented the birds from thrusting their necks through the wire and making themselves vulnerable to predation. It was noted again this summer that the initial catches at a particular trap showed a heavy preponderance of young males. The females tended to show up as the site was approaching exhaustion indicating that the males are probably more belligerent and adventuresome.

Four wild mallard drakes were trapped and turned over to Dr. Wilson of the Brandeis University Biochemistry Department for a comparative study of muscle tissue which the University was conducting.

Good results were obtained from the ten established bait sites. At least 75% of the known broods were coming regularly to and trapped at these sites. Once again a marked increase in usage of artificial nest sites in the vicinity of the bait sites was noted.

Only two of the twenty-one goose platforms were utilized this summer as compared with six used last year. At the same time, four of the twelve newly provided box nests in the North pool were used by mallards. The two utilized goose platforms were in the display pool and the south pool where no box nests were available. A single topless wood duck box was found in the North pool and in it was a dead brood of eight mallards. Since four box nests were within 100 yards, it seems that the topless wood duck box still holds some attraction for mallards. For this reason a design which similates a topless wood duck box with either a 2" escape hole near the bottom or a 2" slot the length of the box is suggested for experimentation next spring. Since the shading feature of a deep box may have something to do with this preference, canopies could also be placed over a number of the existing box nests to determine if this is the desired feature. Experimentation with nest sites which are 12" to 15" above the water and placed in the permanent channels within a few feet of the vegetative edge is also suggested. A number of mallard box nests should be placed in the Stage Island pool to encourage this species nesting there where only blacks and teal were recorded this year.

There was no usage of either the six stovepipe nests in the fresh water areas, or the thirty-two wash tub nests in the saltmarsh.

The spring and early summer wood duck population increased again this year, but no usage (other than starlings) of the wood duck boxes (5 this year) has been noted. An additional dozen boxes

placed in the permanent pools and channels might well encourage nesting by this species. If this failed, a transplant stock could easily be obtained at Great Meadows.

Waterfowl production is estimated at 1.13 birds per acre or 257 birds in the fresh water impoundments and .013 birds per acre or 30 birds in the saltmarsh.

pH and salinity tests were taken in the three pools from June to August. In the North and South pools the salinity rose slightly and the pH remained the same. The Stage Island pool showed a marked increase in both salinity and pH.

	Stage Island		South Pool		North Pool	
	Salinity	pH	Salinity	pH	Salinity	pH
June 1962	6%	5.0	7%	5.0	6%	5.0
August 1962	17%	6.4	8%	5.0	7%	5.0

The discrepancy in the Stage Island pool is believed due to a leak in the control valve during periods of low water level in the pool. This leak occurs only during the high tide and only when the tide is higher than the pool water level. During the winter and spring the freshening effect of excess moisture and lack of evaporation cause a drop in salinity. At this time the water is held at maximum level. After the usual spring drawdown for planting, the salinity begins to rise once again.

The nest mortality rate in the least tern colonies was very high this year. The majority of the early nests were raided (all on the same night) by human egg collector(s). Second nesting attempts were also highly unsuccessful. Foxes hunted for eggs after dark and during the day recreationists and fishermen lingered too close to the colonies causing the birds to leave their nests and the eggs to spoil. The upper beach was very narrow this year and in order to allow beach buggies to bypass the colonies at high tide, the posting on the beach side, crowded the colony edge. For this reason it is recommended that the colonies be posted at a minimum of 50 yards from the nearest nest on the north and south boundaries and at least 20 yards from the nearest nest on the east side of the colony. If the beach is narrow again next year, this will mean that it will be necessary for buggies to circumvent the colonies at high tide by using the buggy trails and refuge road.

Eight stick-board stations were established at various sites

to obtain greenhead fly frequency counts from June 15 to August 15. Six sites were in the saltmarsh, one on the North pool dike and one on the beach. Two 8' x 8" x 1" boards were driven into the ground at each station - one facing N - S and one facing E - W. Tanglefoot was applied to each of the boards in a 1/16" layer, and the surfaces were reworked every 2 - 3 days with a wire comb to keep them tacky. The stations were checked daily throughout the period and the results graphed and analyzed.

Greenhead fly populations reached three peaks this summer (probably separate hatches), one from July 12 - 15, one from August 2 - 6, and one from August 14 - 18. These peaks were found to occur in spite of poor weather conditions (rain, cold), but were greatly accented when they occurred during a fair, hot and humid spell. No correlation was found between fly abundance or activity and wind speed or direction, except that poor weather was usually accompanied by an east wind and for this reason counts were usually low when the wind blew from this direction. Although two aerial DDT sprayings were scheduled for the saltmarsh edge only one (July 17) was recorded on the refuge. This spraying occurred at a time when the first "hatch" was declining. The only difference between the sprayed areas (sub-headquarters-north - Knobs -south) and the non-sprayed control areas (sub-headquarters through South pool) was that the spray hastened the die-off by two days. The rest of the period the population build ups and peaks were proportionally similar in both areas with even slightly heavier populations noted at several of the spray stations.

Page size cover maps (See Figures 1,2 and 3) of the North, South and Stage Island pools were prepared employing the following method: General pool outlines and water areas were traced directly from "Blow-ups" of high altitude aerial photos taken in 1952, which were in the refuge file. Next, followed field reconnaissance, in the form of spot checks and transects, in order to determine vegetative species and composition. The final step was analysis and comparison of two series of aerial color slides with all available field data, and plotting the vegetative units on the map.

Several experimental applications of URAB soil sterilant were made on undesirable stands of vegetation in the North and Stage Island pools.

The first three were strips at the south end of the North pool in heavy cattail stands, and extended from the borrow pit 200' into the cattail. The granular material was applied with a cyclone seeder on 6/8/62, one strip at 60 lbs./acre, one at 120 lbs./acre and one at 240 lbs/acre (see Figure 1 A). All three strips were permanently marked with 12' metal posts. The average width of application was 25' but this varied with the density of the cattail as well as the rate at which the handle of the seeder was turned. Browning of the

FIGURE 1

NORTH POOL

PARKER RIVER NATIONAL WILDLIFE REFUGE

COVER MAP OF EMERGENT VEGETATION

AUGUST, 1962

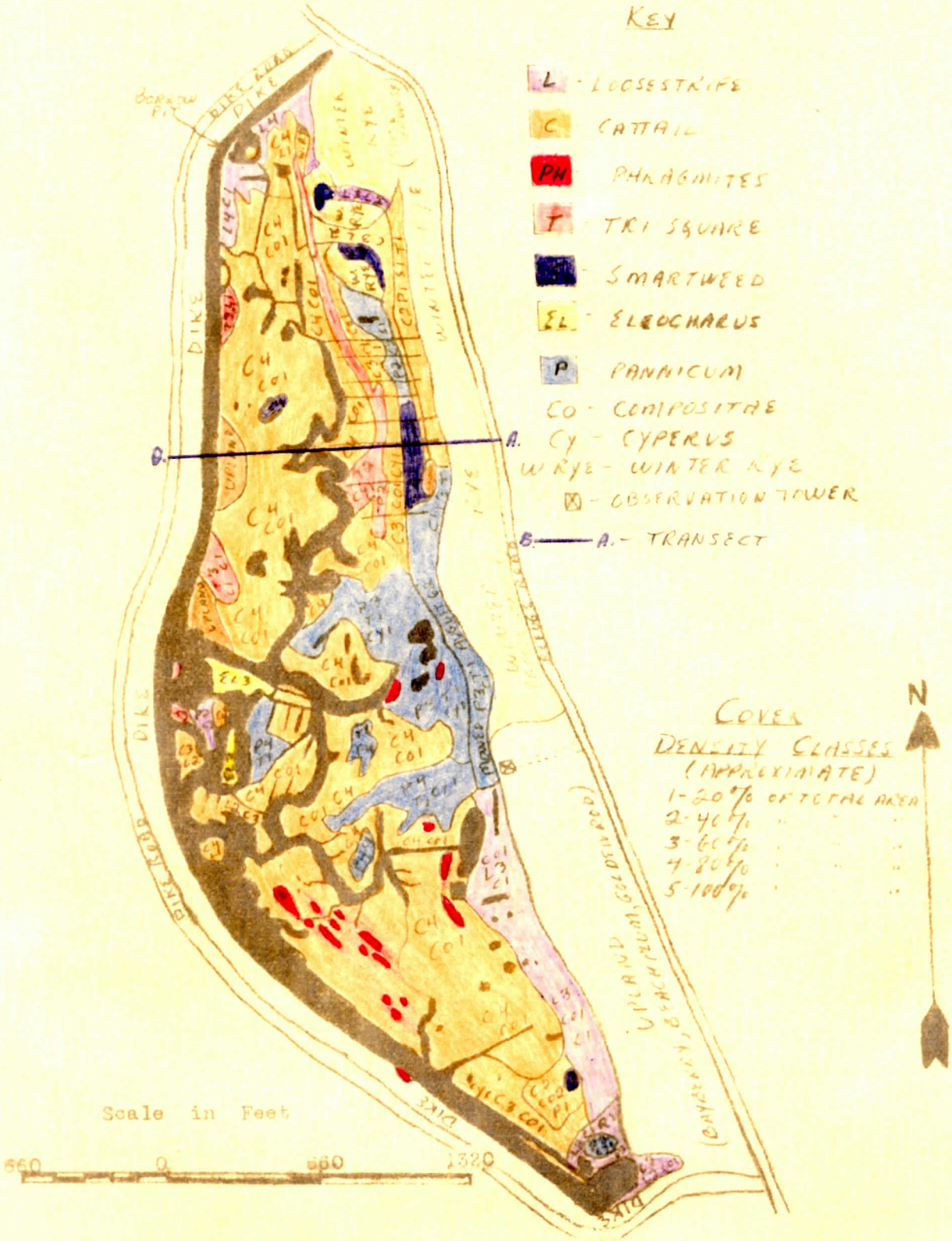


FIGURE 1(A)

NORTH POOL

TAMPER RIVER NATIONAL WILDLIFE REFUGE

WATER AREAS (AUGUST 1962) AND URAB TEST PLOTS

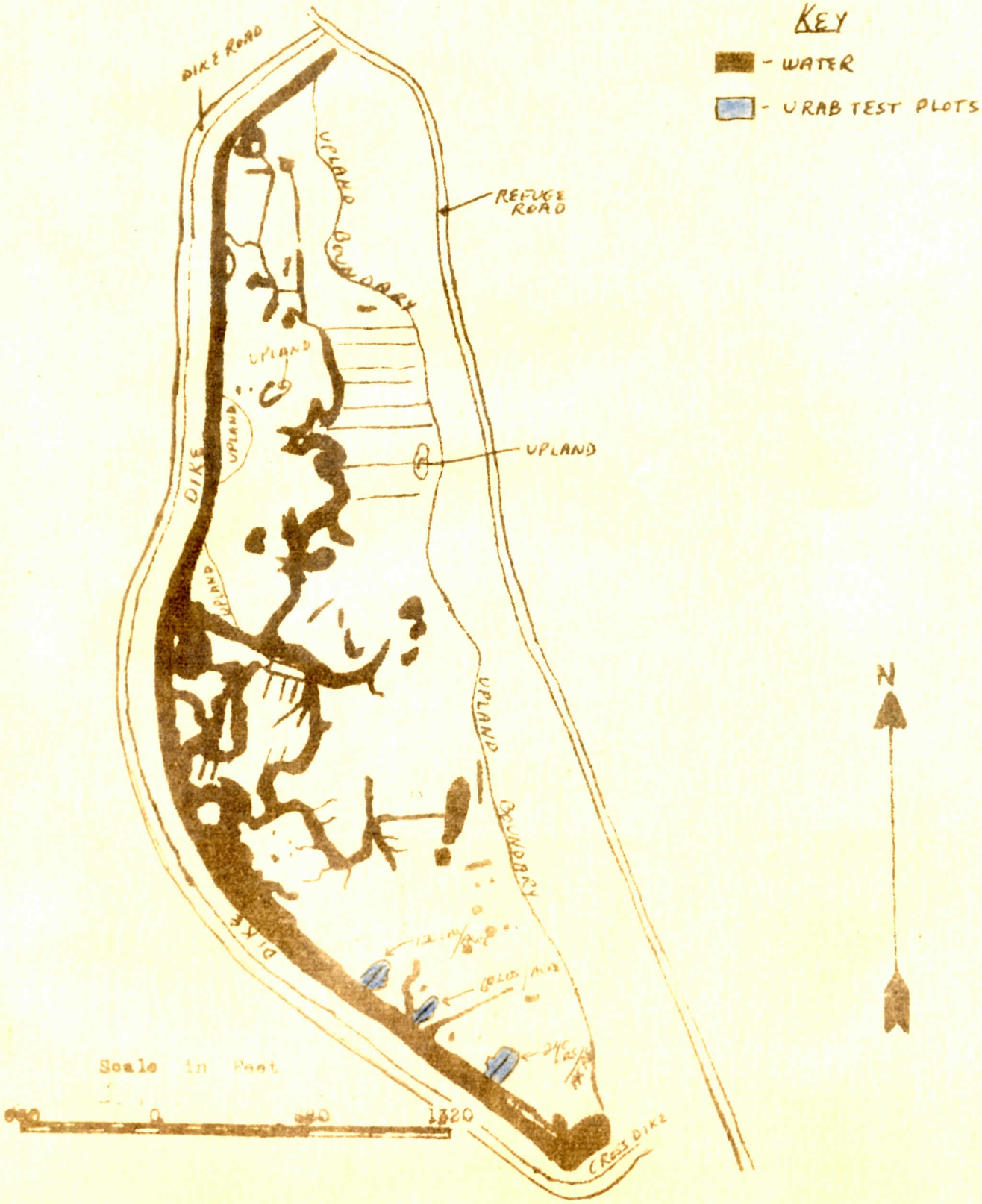
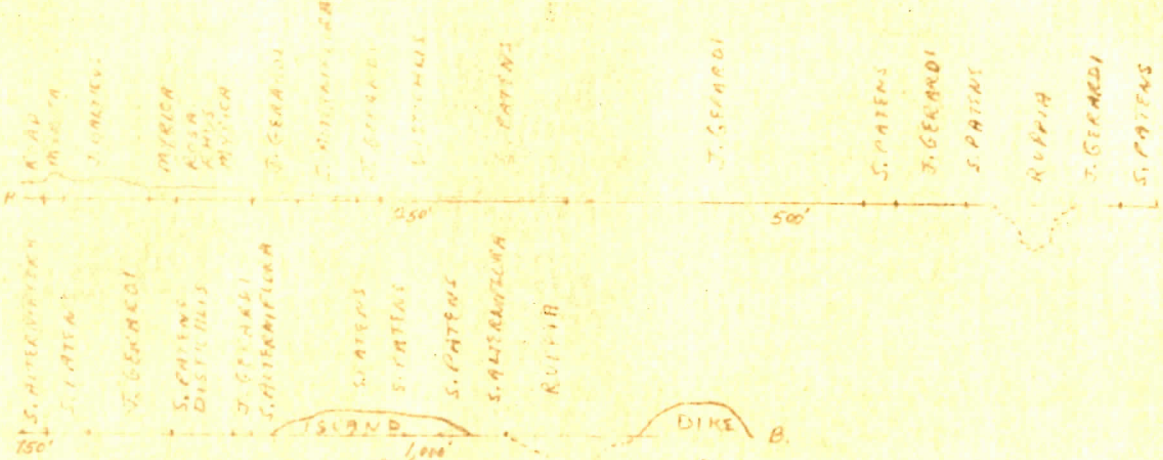


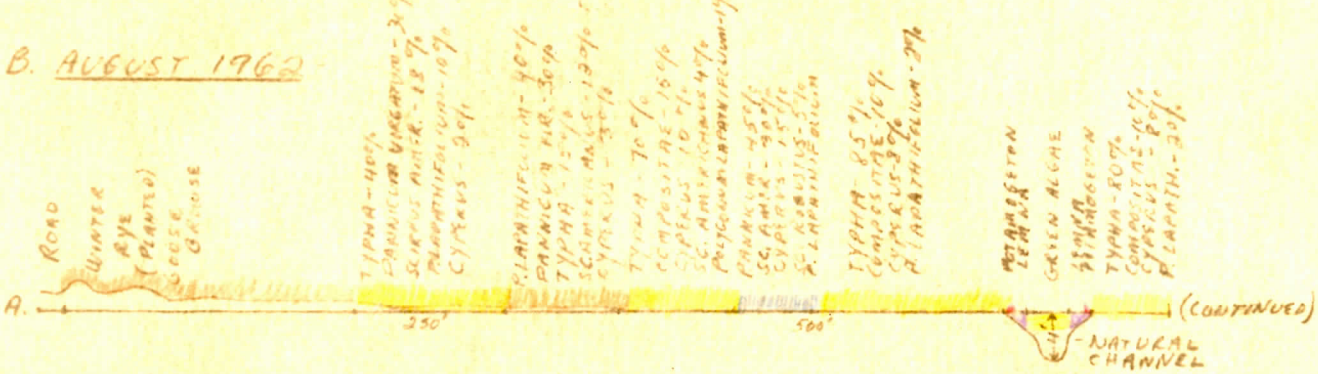
FIGURE 1 (B)

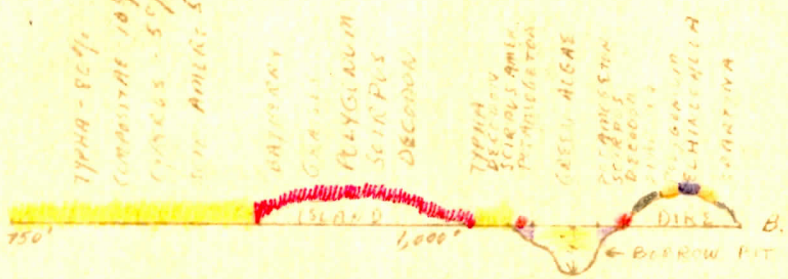
CROSS SECTION OF NORTH POOL TRANSECT (ROAD TO DIKE)

A. AUGUST 1950 - STUDENT ASSISTANT KENNEDY



B. AUGUST 1962





SINCE THE ERECTION OF THE DIKE IN 1948, THE NORTH POOL HAS UNDERGONE THE TRANSITION FROM A SALT MARSH TO A NEARLY FRESH WATER AREA. NEW, FRESH WATER PLANTS ARE STILL COMING IN EACH YEAR. THE PRESENT SALINITY IS APPROXIMATELY 6%.

THE NATURAL CHANNELS ARE QUITE DEEP AND VERY PRECIPITOUS. THIS COUPLED WITH THE FACT THAT THE MUD BOTTOM IS CONSTANTLY BEING ROILED BY MINNOWS AND EELS GREATLY LIMITS THE PRODUCTION OF SUBMERGED AQUATIC PLANTS.

THE BORROW PIT AVERAGES 8-10' DEEP IN THE CENTER BUT IS MUCH SHALLOWER BETWEEN THE DIKE AND THE ISLANDS. IN SEVERAL PLACES THE PIT CAN BE SAFELY CROSSED WITH WADERS OR EVEN HIP BOOTS. HAVING A SANDY BOTTOM, THE BORROW PIT HAS GOOD LIGHT PENETRATION AND SO HAS A GOOD GROWTH OF PONDWEEDS DOWN TO ABOUT TWO FEET OF DEPTH. THIS YEAR, A THICK GREEN ALGAE, CLOGGED ALL

BUT THE DEEPEST CHANGES, MEANING TRAPPED BY DEEP NEARLY IMPASSABLE THE MARGINS OF THE MARSHES ARE LEFT WITH THE SWAMP THE MUCK BETTER BELOW THE SURFACE POTENTIAL AND A FEW ISOLATED POTHOLES. THIS DRY AREA IS NEVER CATTAIL STAND WITH THE EXCEPTION OF THE SPOTS WHICH HAVE BEEN MOWED AND ROTOTILLED. HERE THE EFFECTS OF MOWING ARE REFLECTED FOR A YEAR OR TWO BY A CHANGE IN VEGETATIONAL TYPES AND COMPOSITION. LOOSESTRIFE, PARROTFOOT, TRI-SQUARE, CYPERUS AND SMARTWEED HAVE ALL COME INTO THESE AREAS WHEN THE CATTAIL WAS REMOVED, BUT THE RETURN TO CATTAIL, DUE TO THE LOW WATER TABLE, IS VERY RAPID.

THE FOLLOWING IS A LIST OF THE PLANTS ENCOUNTERED AND IDENTIFIED IN THE NORTH POOL THIS SUMMER. ALTHOUGH BY NO MEANS COMPLETE, THIS LIST DOES INCLUDE THE MOST IMPORTANT AND ABUNDANT SPECIES.

	SCIENTIFIC NAME		FREQUENCY	COMMON NAME
1.	CHLOROPHYCEAE		ABUNDANT	GREEN ALGAE
2.	TYPHA LATIFOLIA		"	COMMON CATTAIL
3.	TYPHA ANGUSTIFOLIA		"	NARROW-LEAVED CATTAIL
4.	POTAMOGETON PECTINATUS		UNCOMMON	SAGO PONDWEED
5.	"	ROBBINSII	COMMON	CLASPING-LEAF PONDWEED
6.	"	PERFOLIATUS	ABUNDANT	PONDWEED
7.	SAGITTARIA LATIFOLIA		RARE	ARROWHEAD
8.	PANICUM VIRGATUM		ABUNDANT	PANIC GRASS
9.	"	SPECIOSUM	UNCOMMON	"
10.	EMERSHOTTS	OBTUSUS	UNCOMMON	PARAGNITES
11.	ECHINOCHLOA	CRUS-GALLI	OCCASIONAL	WILD MILLET
12.	"	PUNGENS	COMMON	"
13.	LEERSIA ORYZOIDES		OCCASIONAL	RICE CUT-GRASS
14.	CYPERUS ESCULENTUS		COMMON	CYPERUS
15.	"	SP.	"	"
16.	ELEOCHARIS OBTUSA		COMMON	DWARF SPIKERUSH
17.	SCIRPUS CYPERINUS		UNCOMMON	THREE SQUARE
18.	"	AMERICANUS	COMMON	" "
19.	"	EPIGEJOS	RARE	"
20.	LEMNA MINOR		OCCASIONAL	LESSER DUCKWEED
21.	RUMEX CRISPUS		RARE	DOCK
22.	POLYGONUM CITRINUM		OCCASIONAL	SMARTWEED
23.	"	LAPATHIFOLIUM	COMMON	"
24.	PLANTAGO SAGITTARIA		"	SPIKED LOOSESTRIFE
25.	COMPOSITAE		"	COMPOSITE FLOWERS
26.	BIDENS	DISCOLOR	"	BITCHFORK
27.	SOLIDAGO	CANADENSIS	RARE	GOLDENROD
28.	SPIRAEA	TOMENTOSA	"	MEADOWSWEET
29.	ACORUS	CALAMUS	"	GREAT FLAG
30.	MYRICA	GALE	"	SWEET GALE

SOUTH POOL

THELMA RIVER U. P. IMPOUNDMENT

COVER MAP OF EMERGENT VEGETATION

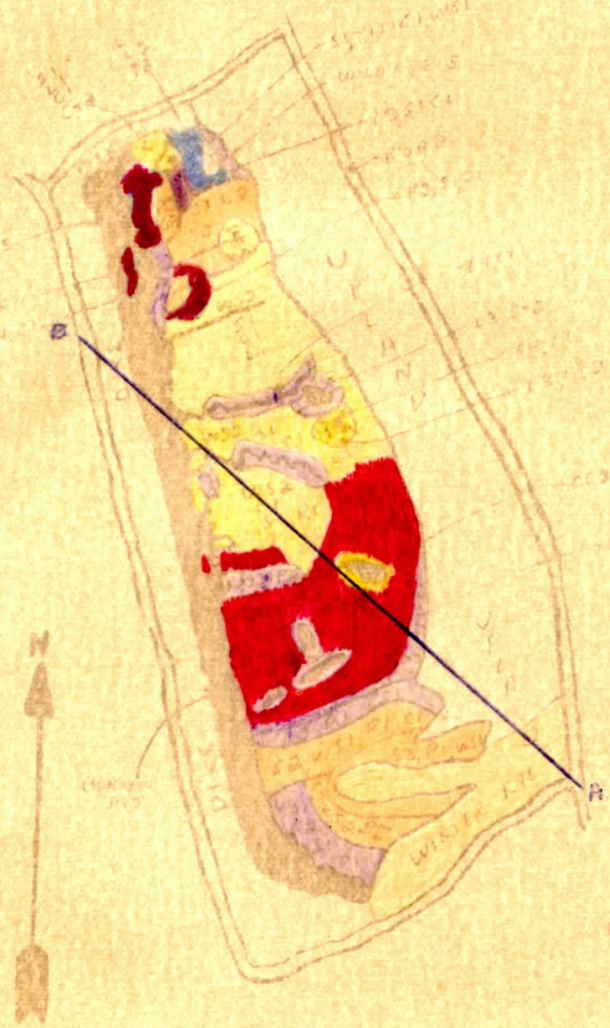
AUGUST 1962

KEY

- WILD SUNFLOWER
- SMARTWEED
- CATTAIL
- L — LOOSESTRIFE
- P — PANICGRASS
- T — TRIGLOCHIN
- C — COMPOSITAE

B —— A. - TRANSECT

R - RICE CUT-GRASS



COVER

DENSITY CLASSES

(APPROXIMATE)

1 - 20% OF TOTAL AREA

2 - 40% "

3 - 60% "

4 - 80% "

5 - 100% "

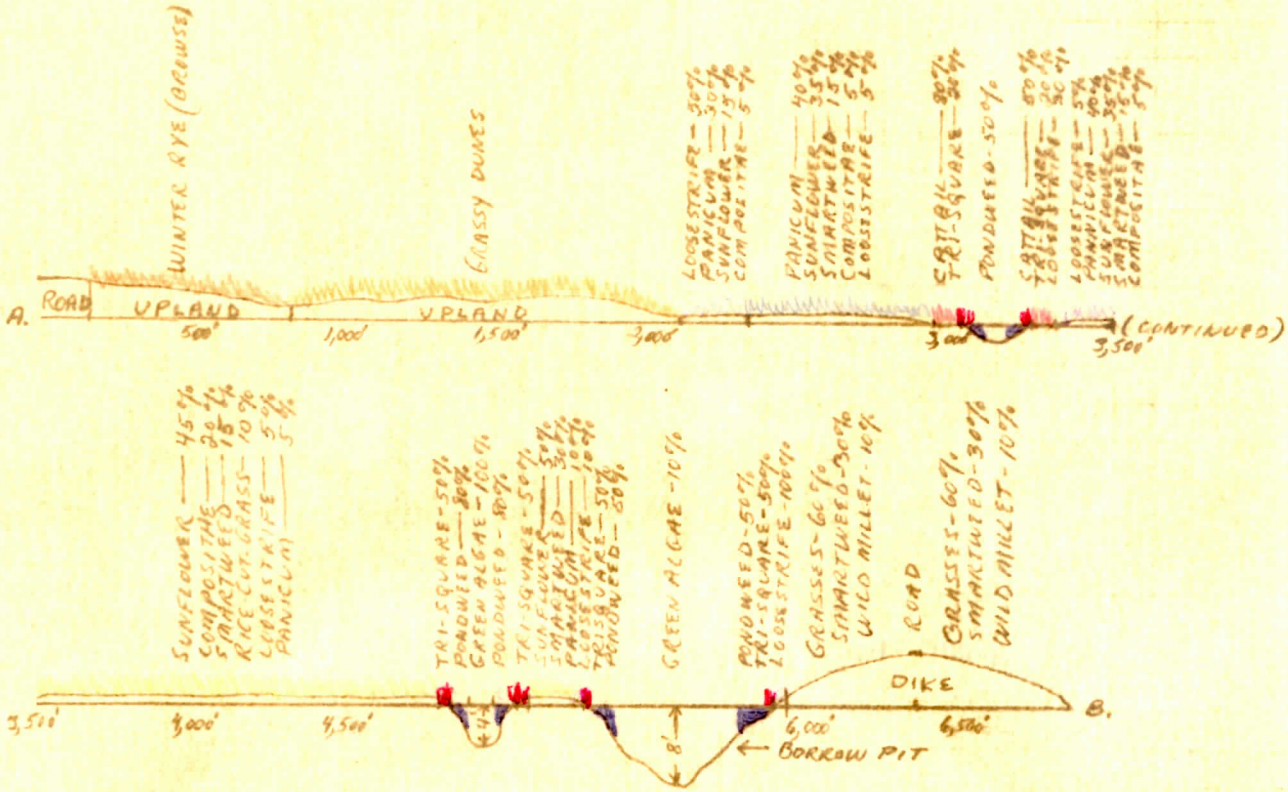
Scale in Feet

660 0 660 1320

FIGURE 26(A)

CROSS SECTION OF SOUTH POOL TRANSECT (ROAD TO DIKE)

AUGUST, 1962



THE NATURAL CHANNELS ARE SURPRISINGLY DEEP COMPARED TO THEIR WIDTH AND THE BANKS ARE NEARLY VERTICAL. AS IN THE NORTH POOL, SUBMERGENT VEGETATION IS LIMITED TO A NARROW ZONE OF SHALLOW WATER BECAUSE OF THE TURBIDITY OF THE WATER. A ZONE OF LOOSESTRIFE AND TRI-SQUARE BORDERS APPROXIMATELY 50% OF THE CHANNELS.

THE BORROW PIT, ALSO VERY DEEP, IS SOMEWHAT LESS PRECIPITOUS AND HAS A MORE SANDY BOTTOM. SUBMERGENT VEGETATION (PONDWEEDS) GROWS IN A 2-5' BAND AROUND THE EDGE OF THE PIT, DEPENDING ON DEPTH. THE THICK GREEN ALGAE WHICH CLOGGED THE NORTH POOL THIS YEAR, DID NOT BECOME HEAVY ENOUGH TO CAUSE ANY PROBLEMS IN THE SOUTH POOL.

WATER WAS LIMITED TO THE BORROW PIT, CHANNELS AND A FEW POTHOLES THROUGHOUT THE SUMMER. AERIAL SEEDING OF JAPANESE MILLET WAS ATTEMPTED ON MAY 24TH, BUT IT FAILED BECAUSE OF A LACK OF MOISTURE AND THE PRESENCE OF DEAD VEGETATION FROM LAST YEARS CROP. DESPITE THIS, A GOOD CROP OF SUNFLOWER AND SMARTWEED DEVELOPED AND WILL PROVIDE MORE THAN ENOUGH FOOD FOR THE FALL DUCK CONCENTRATIONS. THE SUNFLOWER WAS SEEDED IN THE POOL SEVERAL YEARS AGO AND HAS PERSISTED EVER SINCE.

FIGURE 2(B)

THE FOLLOWING IS A LIST OF THE PLANTS ENCOUNTERED AND IDENTIFIED IN THE SOUTH POOL THIS SUMMER. ALTHOUGH BY NO MEANS COMPLETE, THIS LIST DOES INCLUDE THE MOST IMPORTANT AND ABUNDANT SPECIES.

SCIENTIFIC NAME	RELATIVE OCCURANCE	COMMON NAME
1. CHLOROPHYCEAE	COMMON	GREEN ALGAE
2. TYPHA LATIFOLIA	UNCOMMON	COMMON CATTAIL
3. " ANGUSTIFOLIA	OCCASIONAL	NARROW-LEAVED "
4. POTAMOGETON PECTINATUS	UNCOMMON	SAGO PONDWEED
5. " RICHARDSONII	COMMON	CLASPING-LEAF "
6. " PUSILLUS	ABUNDANT	PONDWEED
7. SAGITTARIA LATIFOLIA	RARE	ARROWHEAD
8. PANICUM VIRGATUM	COMMON	PANIC GRASS
9. ECHINOCHLOA WALTERI	OCCASIONAL	WILD MILLET
10. " PUNGENS	UNCOMMON	" "
11. ECHINOCHLOA SPP	RARE	JAPANESE MILLET
12. LEERSIA ORYZOIDES	UNCOMMON	RICE CUT-GRASS
13. ELYMUS VIRGINICUS	OCCASIONAL	WILD RYE
14. CYPERUS ERYTHRORHIZOS	UNCOMMON	CYPERUS
15 CYPERUS SPP	"	"
16. ELEOCHARUS PARVULA	OCCASIONAL	DWARF SPIKERUSH
17. SCIRPUS OLNEYI	UNCOMMON	THREE-SQUARE
18. " AMERICANUS	COMMON	THREE-SQUARE
19. LEMNA MINOR	UNCOMMON	LESSER DUCKWEED
20. JUNCUS BALTICUS	OCCASIONAL	BALTIC RUSH
21. RUMEX MARITIMUS	OCCASIONAL	DOCK
22. POLYGONUM NATANS	OCCASIONAL	SMARTWEED
23. " LAPATHIFOLIUM	COMMON	"
24. DECODON SALICARIA	COMMON	SPIKED LOOSESTRIFE
25. COMPOSITAE	"	COMPOSITE FLOWERS
26. BIDENS DISCOIDEA	UNCOMMON	PITCHFORK
27. SOLIDAGO GRAMINIFOLIA	OCCASIONAL	GOLDENROD
28. ASTER SPP	UNCOMMON	ASTER
29. SALICORNIA EUROPA	RARE	GLASSWORT
30. SPIRAEA LATIFOLIA	OCCASIONAL	MEADOWSWEET
31. ROSA HUMULIS	RARE	LOW PASTURE ROSE
32. AMBROSIA TRIFIDUM	OCCASIONAL	GREAT RAGWEED
33.	COMMON	SUNFLOWER

FIGURE 3

STAGE ISLAND POOL

Parker River N.W. Refuge

COVER MAP OF EMERGENT VEGETATION

AUGUST, 1962

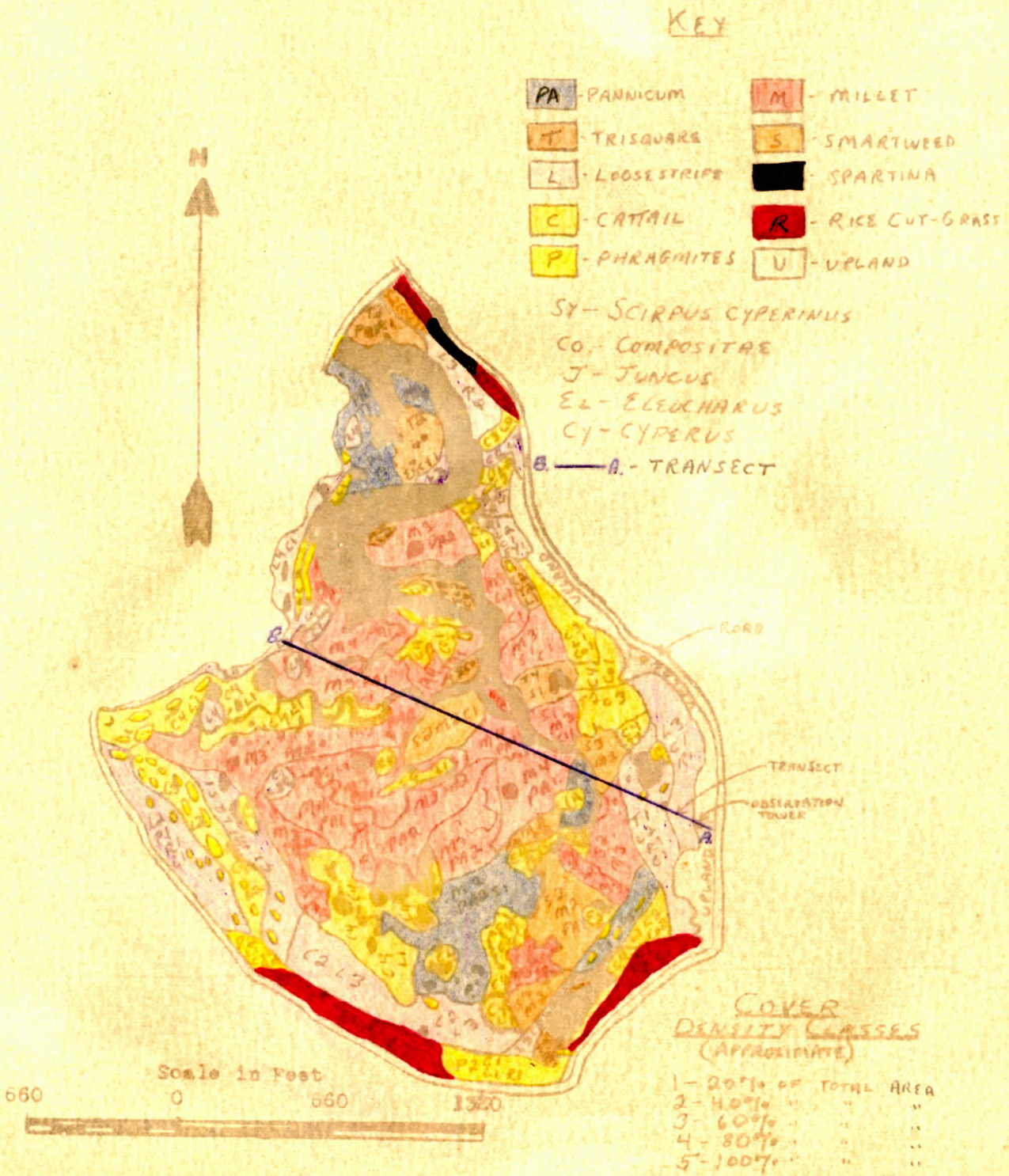


FIGURE 3(A)

STAGE ISLAND POOL

Tarkio River N.F., Missouri

WATER AREAS (AUGUST 1962) AND URAB TEST PLOT

FIGURE 3(a)

CROSS-SECTION OF STAGE ISLAND POOL TRANSECT (FROM OBS. TOWER TO BLUFFS)

AUGUST, 1962

THE NATURAL CHANNELS IN THIS POOL, AS IN THE TWO PRECEEDING, ARE PRECIPITOUS AND TORTUOUS. THE TURBIDITY, CAUSED AT LEAST IN PART BY MYRIADS OF MINNOWS, MAY BE THE REASON FOR THE PAUCITY OF SUBMERGED AQUATICS IN THIS POOL. THERE IS NO BORROW PIT HERE, SO ALL THE CHANNELS WERE ORIGINALLY SALTMARSH CREEKS. ALL AQUATIC VEGETATION OBSERVED WAS IN A NARROW BAND OF SHALLOW WATER ALONG THE DEEP BANKS AND EVEN THESE PLANTS WERE COVERED WITH A LAYER OF FINE SILT.

THE WATER IN THE POOL IS ESSENTIALLY FRESH IN THE WINTER AND SPRING BUT BECOMES STRONGLY BRACKISH (20% SALINITY) DURING THE SUMMER DUE TO A SEASONAL LEAK IN THE DRAIN VALVE. THIS IS ANOTHER POSSIBLE EXPLANATION FOR THE SCARCITY OF AQUATICS, BUT FOR SOME REASON, SMALL NUMBERS OF FRESH WATER PONDWEEDS WITHSTAND THE INCREASED SALINITY THROUGHOUT THE SUMMER.

THE POOL WAS AERIAL SEEDED TO TAP MILLET ON MAY 24TH FOLLOWING A THREE DAY DRAWDOWN WHICH EXPOSED ALL BUT THE DEEPER CHANNELS AND POTHOLES. THE SEEDING WAS HIGHLY SUCCESSFUL WITH A GOOD STAND OF MILLET COVERING AT LEAST 50% OF THE POOL. NATURAL FLOODING FROM WINTER AND SPRING PRECIPITATION WILL MAKE THE SEED AVAILABLE TO NORTHBOUND DUCKS NEXT SPRING.

FIGURE 3 (C)

THE FOLLOWING IS A LIST OF THE PLANTS ENCOUNTERED AND IDENTIFIED IN THE STAGE ISLAND POOL THIS SUMMER. ALTHOUGH BY NO MEANS COMPLETE, THIS LIST DOES INCLUDE THE MOST IMPORTANT AND ABUNDANT SPECIES.

SCIENTIFIC NAME	RELATIVE FREQUENCY	COMMON NAME
1. CHLOROPHYCEAE	COMMON	GREEN ALGAE
2. TYPHA LATIFOLIA	COMMON	COMMON CATTAIL
3. " ANGUSTIFOLIA	"	NARROW-LEAVED "
4. POTAMOGETON PECTINATUS	OCCASIONAL	SAGO PONDWEED
5. " RICHARDSONII	UNCOMMON	CLASPING-LEAF "
6. " PUSILLUS	OCCASIONAL	PONDWEED
7. PANICUM VIRGATUM	COMMON	PANIC GRASS
8. " LUCIDUM	OCCASIONAL	" "
9. PHRAGMITES MAXIMUS	UNCOMMON	PHRAGMITES
10. ECHINOCHLOA WALTERI	OCCASIONAL	WILD MILLET
11. " PUNGENS	"	"
12 ECHINOCHLOA SPP	ABUNDANT	JAP MILLET
13 LEERSIA ORYZOIDES	COMMON	RICE-CUT-GRASS
14. SPARTINA PECTINATA	RARE	CORD GRASS
15. CYPERUS ERYTHRORHIZOS	UNCOMMON	CYPERUS
16. ELEOCHARUS PARVULA	UNCOMMON	DWARF SPIKERUSH
17. SCIRPUS VALIDUS	RARE	SOFT-STEM BULRUSH
18 " OLNEYI	COMMON	TRI-SQUARE
19 " AMERICANUS	"	"
20. " CYPERINUS	"	SEDGE
21. JUNCUS BALTICUS	UNCOMMON	BALTIC RUSH
22. SALIX SPP.	OCCASIONAL	WILLOW
23. RUMEX MARITIMUS	OCCASIONAL	DOCK
24. POLYGONUM NATANS	OCCASIONAL	SMARTWEED
25. " LAPATHIFOLIUM	COMMON	"
26 DECODEN SALICARIA	"	SPIKED LOOSESTRIFE
27. COMPOSITAE	"	COMPOSITE FLOWERS
28 BIDENS DISCOIDEA	"	PITCHFORKS
29. SOLIDAGO GRAMINIFOLIA	UNCOMMON	GOLDENROD
30. ASTER SPP.	OCCASIONAL	ASTER
31. SALICORNIA EUROPA	"	GLASSWORT
32 SPIREA LATIFOLIA	"	MEADOWSWEET
33. ROSA HUMILUS	"	LOW PASTURE ROSE
34. AMBROSIA TRIFIDUM	UNCOMMON	RAGWEED
35. MYRICA GALE	OCCASIONAL	SWEET GALE
36. SAURURUS CERNUUS	"	LIZARDS TAIL

leaves was noted within a week on the two heavier strips and within a month, a 25' strip of dead vegetation marked the line of application on all three plots. Within the next few weeks the two heavier treated strips spread out, especially along wet spots and ditches until a maximum width of 75' was attained (in spots). Thus far, no new vegetation has appeared, but results will probably be forthcoming for the next few years.

The manufacturer recommends application rates of from 80 - 120 lbs./acre on brushland and claims effectiveness for 2 - 3 years. The 120 lb. rate seems to be the most effective and economical on moist marsh land but the life of the sterilant will probably be significantly reduced here. The main purposes of the tests are to determine effective application rates, side-effects, which species are most vulnerable, and which species first re-enter the treated area. Spot application of this material on the densely overgrown ditch banks and small islands in the North pool would provide needed loafing sites and possibly create new territories for additional pairs of breeding ducks.

A 100' x 50' patch of phragmites in the Stage Island pool (see Figure 3 A) was treated experimentally at 240 lb./acre with the aid of a cyclone seeder early in July. The plants were nearly six feet tall at the time and paths first had to be beaten through the stand to keep the vegetation from fouling the gears in the seeder. In addition, several hundred isolated phragmites plants in the same area were spot treated with the URAB. Once again, browning was apparent after one week, but it was nearly one and a half months before all the plants were completely dead. This was probably due to the lack of sufficient rainfall during this period.

The best time for treatment with URAB is most likely during the spring after the high water, but before the plants (cattail and phragmites) have reached waist height and interfere with the seeder. This would make it possible to treat a wider swath with less effort, and result in better penetration into the soil with the spring rain.

Dr. MacIntyre of the U. S. D. A. conducted light trap experiments for brown-tailed moths during July and August. We are presently awaiting a report of his findings.

Arrowhead (Duck Potato) was experimentally transplanted from a small pond on Stage Island to both the North and South pools.

VI. Public Relations

A. Recreational usage this summer exceeded that noted for any previous comparable period of record, despite much cool and cloudy weather.

This is best shown by a comparison of car count data between 1961 and 1962 for the May - Aug. period. (Car count figures are obtained by use of a traffic counter set up at the North boundary entrance, and when these figures are adjusted for periods of counter malfunction and non-use (such as at night when the gate is closed and vehicles entering bypass the counter) and then multiplied by an average of 3.5 persons per car, quite accurate information is obtained.) Thus in 1961, during the May - Aug. period, some 31,800 cars containing 111,300 people entered the area; contrasted to 1962, when 44,605 cars containing 156,117 people were recorded. This represents a significant increase from 1961.

It is worthwhile noting here that our public use was so heavy (especially on holidays and weekends) this past season it was necessary to close our recreational facilities and turn vehicles away at the gate. At times better than 1,000 cars entered the area in a single day (our current facilities are saturated at 500 cars).

A factor that further complicated the situation was that, perhaps, 1/3 of our visitors were interested in going through the refuge to the State land at the south end. Limited parking facilities there during days of heavy use caused a spill back onto the refuge of vehicles and people causing increased difficulties for the refuge staff.

This year, for the first time, the refuge had an official use season, running from Memorial Day to Labor Day. Regular schedules of patrol, cleanup and manning of the entrance gate were put into effect with uniformed personnel, and results were very satisfactory.

A more complete breakdown of 1962 public use data will be forthcoming in the Sept. - Dec. Narrative Report.

B. Refuge Visitors.

	1962
Mr. Owen, Oak Orchard Refuge	5/1
Mr. Stanhope, Moosehorn Refuge	5/1
Mrs. Clara deWindt discussed birds	5/22
Regional Director Gottschalk	5/26
Asst. Reg. Supv. Sutherland	5/26
Reg. Supv. Horn	5/26
Audubon members tour of refuge	5/26
Chief Rogers, Newbury Police re policy, violations	5/7
Henry Moore, Boston Herald	6/12

Prof. Barton, Boston University	6/13
Richard Collins, Boston University student re plant survey	6/13
Dr. Gerry, Mass. Reclamation Board re greenhead fly control	6/28
Messrs. Banko and Styles, Central Office	6/30
Messrs. Radway and Sutherland, R. O. refuge inspection	6/30
Mr. William, Soil Conservation Service	7/3
John Young, P. I. Surfcasters Assoc. re fishing regulations	7/6
Bill McQuade and John Young re fishing regulations	7/9
Mr. Mac Intyre, U. S. D. A. re setting out light traps	7/11
Mr. Buell, Director of Wildlife, C. O.	7/12
Mr. Towns, Chief, Technical Services, Atlanta,Ga.	7/12
Asst. Reg. Supv. Lard tour of refuge and discussion	7/12
Mr. McQuade, Plum Is. Surfcasters Assoc. re news release	7/13
Mr. Thurlow, Reporter - Haverhill Journal interview	7/13
U. S. G. M.A. Van Weelden left jeep	7/27
U. S. G. M. A. Baker and Jay Wilson pick up jeep	7/30
Mr. Brown, General Accounting Office	8/2
Mr. Povolick, " " "	8/2
Mr. De Witt, former GAO employee re rent of Gov. qtrs.	8/2
Mr. Boyle and son re violation on refuge	8/10
Mr. Hammer and son re violation on refuge	8/10
Mass. Clam Wardens Gannon and Zaikowski re Harry Thurlow's access permit	8/10
John Thurlow, reporter - Haverhill Journal	8/17
Kilby Marble, photographer - " "	8/17
interview with Student Asst. Gavutis	
Mr. Mac Intyre, U. S. D. A. re removing equipment from refuge	8/22
Dr. Joseph Barton, Boston University	8/23
Sec. Barbara Hurwitz, re identification of refuge plants	8/23

C. Refuge Participation

		Attended
May 7	Audubon - Ipswich River Sanctuary	50
May 14	Talk - Newbury Garden Club	21
Aug. 7	Lecture - B. U. Graduate Students -Biology	47

D. Hunting. None.

E. Violations. None.

F. Safety.

1. Four formal safety meetings were held during the period and these were chiefly general in nature.

2. No accidents occurred during the period.

3. Measures taken to prevent accidents:

a. Monthly Fire Hazard Inspections performed on schedule.
b. All fire extinguishers checked and recharged this period.
c. Two Ford pickups fitted with no-slip safety type rear bumpers.

4. Number of man-days since last lost-time accident - 1,988.

5. Future safety plans call for monthly meetings, rotating chairmanship and use of films.

VII. Other Items

A. Items of Interest.

1. On May 26th a meeting was held at the refuge in which the Regional Director, Regional Refuge Supv. Horn, Regional Biologist Sutherland, refuge staff personnel and interested birders and nature enthusiasts discussed various aspects of management policy.

2. Mr. Samuel Noyes, a local resident who graduated from the University of New Hampshire, was employed from May to July 13, as a caretaker in the refuge recreation program until he was called to Service with the Air Force.

3. Refuge Manager Appel completed (in May) a special detail on preparation of a slide program for use in the Regional Wetlands Acquisition Program.

4. A persistent problem of theft from automobiles using the refuge was solved on June 4, 1962 when a Mr. Harold Bingham of Derry, N. H. was apprehended by refuge personnel while he was engaged in this activity. A local judge convicted Mr. Bingham on counts of larceny and of driving in Massachusetts when his driving had been suspended, but he appealed to higher court. The matter is now pending and we have not been troubled by this individual since the hearing.

5. Messrs. W. Banko and W. Stiles of the C. O. accompanied by Mr. Radway and Mr. Sutherland of the R. O. paid a visit to the refuge on habitat inspection June 30th. Refuge Manager and staff showed them around the area with particular reference to the impact of people on this refuge.

6. Messrs. N. Buell of the C. O. and Mr. Towns of the Atlanta Regional Office visited the area with Mr. Lard of the R. O. on a survey team mission on July 12th.

Credits: W. R. Forward, Assistant Refuge Manager: Sections I; III; IV; VI; and VII.

George W. Gavutis, Jr., Student Assistant (Wildlife Aid) Sections II; V; NR forms; and Maps.

Catherine A. Welch, Clerk: Typing.

B. Photographs.

Appended.

Period ending August 31, 1962.

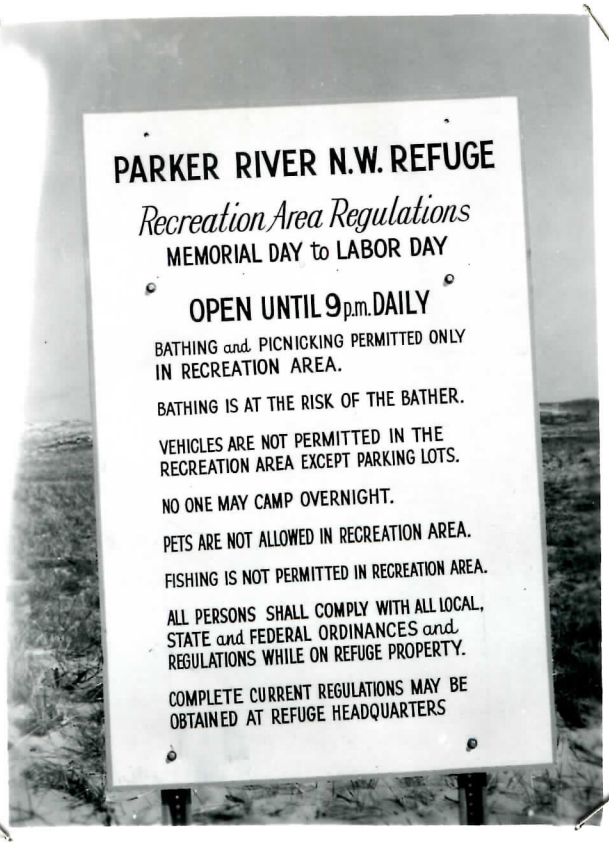
J. C. Appel
Refuge Manager

Date

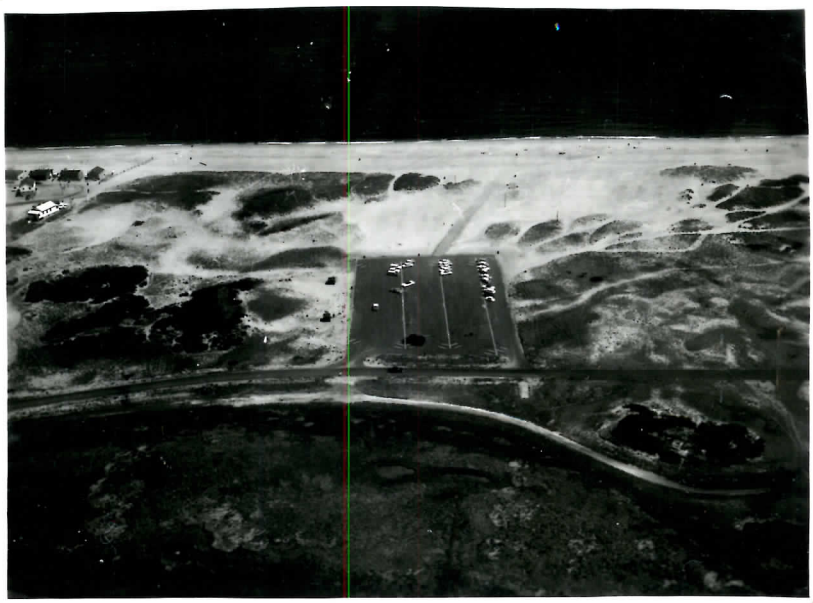
Regional Refuge Supervisor

Date

Regional Director



Recreation Area regulations sign as set up for public perusal in the parking lot.



Aerial view of Recreation Area parking lot with beach area shown in background.

2

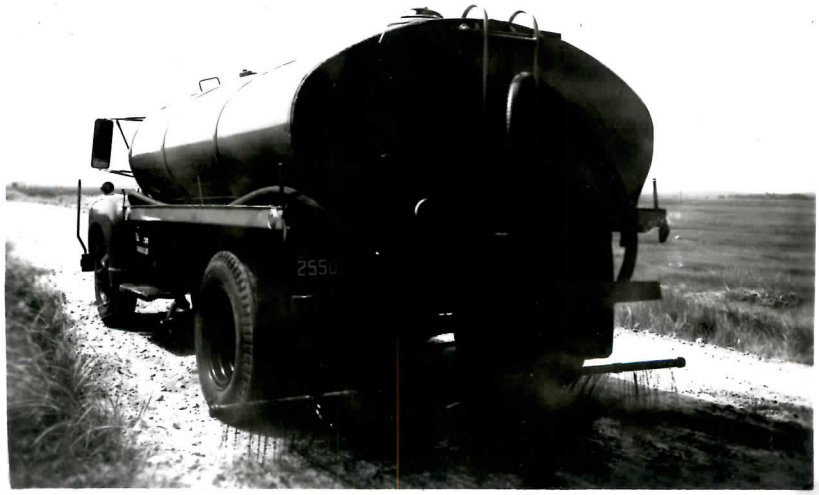
View showing refuge personnel constructing emergency access road and walkway to beach from Recreation Area parking lot.

View showing use of beach access roadway by visitors --- it filled a need especially for elderly people.

Typical scene of family type recreation such as occurs in Recreatich Area along beach.

Another type of public use---beach buggy as used by surf fisherman and family on refuge beach.

4



View of contractor's truck at start of oiling operation on portion of refuge road traversing island.

View of south boundary of refuge (on right) showing way in which indiscriminate camping occurs on unmanaged State land.

Loam fill placed on hdqtrs. residence lawn area before grading and seeding.

Appearance of lawn area later in season following seeding.

Typical trapload of ducks caught by student asst. in summer banding program.

Student asst. George Gavutis banding a mallard.

View showing burning of old Wm. H. Foster camp by refuge personnel according to plan.

Another view later showing results of Foster camp burning.

8

View showing manner in which phragmites spreads --- at base of the Sta ge Island Dike.

Another view showing results of cattail mowing operation in North Pool---a n excellent way of opening the habitat.

9

Initial plowing operation in South Pool field.

Discing operations in North Pool cropfields.

Completed seed bed in North Pool field.

3-1750
Form NR-1
(Rev. March 1953)

WATERFOWL

REFUGE PARKER RIVER N.W. MONTHS OF MAY TO AUGUST, 1962

(1) Species	(2) Weeks of reporting period: 5/1-7 (1)	8-14 (2)	15-21 (3)	22-28 (4)	29-6/4 (5)	5-11 (6)	12-18 (7)	19-25 (8)	26-7/2 (9)	3-9 (10)
Swans:										
Whistling										
Trumpeter										
Geese:										
Canada	100	50	30	30	30	30	30	20	20	20
Cackling										
Brant										
White-fronted										
Snow										
Blue										
Other										
Ducks:										
Mallard	25	30	30	40	40	80	90	60	60	50
Black	100	75	70	120	120	310	300	200	180	140
Gadwall										
Baldpate						10	10			10
Pintail	20	10	10	10	10	10	10	10	10	10
Green-winged teal	200	50	20	10	10	10	10	30	20	20
Blue-winged teal	100	50	30	20	20	20	30	20	20	20
Cinnamon teal										
Shoveler	10									
Wood						20	20	40	40	30
Redhead										
Ring-necked										
Canvasback										
Scaup							10	10		
Goldeneye										
Bufflehead										
Ruddy										
Other						10		10		
COOT:										

3 -1750a
Cont. NR-1
(Rev. March 1953)

WATERFOWL
(Continuation Sheet)

REFUGE PARKER RIVER N. W. MONTHS OF MAY TO AUGUST, 19 62

(1) Species	(2) Weeks of reporting period: 7/10-16 11	17-23 12	24-30 13	31-8/6 14	7-13 15	14-20 16	21-27 17	8/28-31 18	(3) Estimated waterfowl days use	(4) Production: Broods seen	Estimated total
Swans:											
Whistling											
Trumpeter											
Geese:											
Canada	20	20	20	30	30	40	50	40	4,150	2	7
Cackling											
Brant											
White-fronted											
Snow											
Blue											
Other											
Ducks:											
Mallard	50	50	50	60	110	120	120	120	7,935	12	120
Black	130	150	150	200	250	320	320	300	23,145	7	100
Gadwall											
Baldpate	10	10	10						420		
Pintail	10	20	20	10	10	10	10		1,400	1	10
Green-winged teal	50	50	50	60	70	80	120	250	7,080	1	15
Blue-winged teal	20	30	30	30	40	40	50	50	4,190	3	35
Cinnamon teal											
Shoveler									70		
Wood	30	30	30	20	30	30	30	20	2,530		
Redhead											
Ring-necked											
Canvasback											
Scaup		10	10	10	10	10	10	10	600		
Goldeneye											
Bufflehead											
Ruddy											
Other	10	10	10	10	10	20	10	20	780		
Coot:					10				70		

(over)

	(5) Total Days Use	(6) Peak Number	(7) Total Production
Swans			
Geese	4,150	100	7
Ducks	48,090	770	280
Coots	70	10	—

SUMMARY

Principal feeding areas IMPOUNDED AREAS (NORTH POOL AND STAGE ISLAND POOL)

Principal nesting areas IMPOUNDED AREAS - DIKES AND ADJOINING BRUSHY UPLAND AND RYE FIELDS.

Reported by GEORGE W. GAVUTIS, JR.

INSTRUCTIONS (See Secs. 7531 through 7534, Wildlife Refuges Field Manual)

(1) Species: In addition to the birds listed on form, other species occurring on refuge during the reporting period should be added in appropriate spaces. Special attention should be given to those species of local and national significance.

(2) Weeks of Reporting Period: Estimated average refuge populations.

(3) Estimated Waterfowl Days Use: Average weekly populations x number of days present for each species.

(4) Production: Estimated number of young produced based on observations and actual counts on representative breeding areas. Brood counts should be made on two or more areas aggregating 10% of the breeding habitat. Estimates having no basis in fact should be omitted.

(5) Total Days Use: A summary of data recorded under (3).

(6) Peak Number: Maximum number of waterfowl present on refuge during any census of reporting period.

(7) Total Production: A summary of data recorded under (4).

Interior Duplicating Section, Washington, D. C.
1953

3-1751
Form NR-1A
(Nov. 1945)

MIGRATORY BIRDS
(other than waterfowl)

Refuge PARKER RIVER N.W. Months of MAY to AUGUST 1952

(1) Species	(2) First Seen		(3) Peak Numbers		(4) Last Seen		(5) Production			(6) Total
Common Name	Number	Date	Number	Date	Number	Date	Number Colonies	Total # Nests	Total Young	Estimated Number
I. Water and Marsh Birds:										
PIED-BILLED GREBE	2	5/22	2	5/22	1	8/28				5
COMMON MURRE	1	8/7	1	8/7	1	8/7				1
DOUBLE-CRESTED CORMORANT	2	6/5	8	8/7	8	8/7				15
AMERICAN BITTERN	1	5/1	3	8/14	2	8/31				5
LEAST BITTERN	1	6/12	20	8/7	2	8/21		4	16	20
GREAT BLUE HERON	5	5/1	10	8/14	7	8/31				15
COMMON EGRET	1	5/22	1	7/31	1	8/7				5
SNOWY EGRET	1	6/19	1	7/31	9	8/31				12
LITTLE BLUE HERON	1	8/7	1	8/14	1	8/21				1
GREEN HERON	1	5/1	25	8/21	22	8/31		5	18	25-30
BLACK-CROWNED NIGHT HERON	10	5/1	65	6/18	25	8/31	2	8	20	100
YELLOW-CROWNED NIGHT HERON	1	6/5	1	6/5	1	6/5				1
KING RAIL	1	5/1	1	5/1	1	5/1				5
CLAPPER RAIL	1	5/1	1	6/26	1	6/26				5
VIRGINIA RAIL	1	6/26	15	7/31	3	7/31		2	10	15-20
II. Shorebirds, Gulls and Terns:										
GREAT BLACK-BACKED GULL	10	5/1	55	8/31	55	8/31				120
HERRING GULL	80	5/1	550	8/31	550	8/31				700
RING-BILLED GULL	2	5/15	10	6/19	2	8/31				20
LAUGHING GULL	1	8/21	1	8/21	1	8/27				5
BONAPARTE'S GULL	1	8/21	1	8/21	1	8/21				5
COMMON TERN	4	5/8	375	6/19	10	8/31				1000
ROSEATE TERN	5	6/5	45	6/12	4	7/10				100
LEAST TERN	7	5/8	110	7/23	1	8/31	5	40	30	120
BLACK TERN	1	7/24	1	8/7	1	8/7				2
SHORT-BILLED DOWITCHER	1	6/5	350	7/10	145	8/31				1000-1500
STILT SANDPIPER	4	7/17	5	8/31	5	8/31				20
PECTORAL SANDPIPER	2	8/19	2	8/19	2	8/19				15-20

(over)

(1)	(2)		(3)				(5)			(6)
III. Doves and Pigeons:										
Mourning dove	8	5-1	150	8-31	150	8-31		10	15	150-200
White-winged dove										
IV. Predaceous Birds:										
Golden eagle										
Duck hawk	2	8-21	2	8-21	2	8-21				
Horned owl										
Magpie										
Raven										
Crow	17	5-1	25	5-22	5	8-31		3	12	30-35
MARSH HAWK	2	5-1	5	8-31	5	8-31				8-10
COOPERS HAWK	2	8-21	2	8-21	2	8-21				5
SPARROW HAWK	2	7-31	5	8-21	3	8-31				10

Reported by GEORGE W. GAVUTIS, JR.

INSTRUCTIONS

(1) Species: Use the correct names as found in the A.O.U. Checklist, 1931 Edition, and list group in A.O.U. order. Avoid general terms as "seagull", "tern", etc. In addition to the birds listed on form, other species occurring on refuge during the reporting period should be added in appropriate spaces. Special attention should be given to those species of local and National significance. Groups: I. Water and Marsh Birds (Gaviiformes to Ciconiiformes and Gruiiformes)
II. Shorebirds, Gulls and Terns (Charadriiformes)
III. Doves and Pigeons (Columbiformes)
IV. Predaceous Birds (Falconiformes, Strigiformes and predaceous Passeriformes)

(2) First Seen: The first refuge record for the species for the season concerned.

(3) Peak Numbers: The greatest number of the species present in a limited interval of time.

(4) Last Seen: The last refuge record for the species during the season concerned.

(5) Production: Estimated number of young produced based on observations and actual counts.

(6) Total: Estimated total number of the species using the refuge during the period concerned.

3-1751
Form NR-1A
(Nov. 1945)

MIGRATORY BIRDS
(other than waterfowl)

Refuge PARKER RIVER N.W. Months of MAY to AUGUST 1952

(1) Species	(2) First Seen		(3) Peak Numbers		(4) Last Seen		(5) Production			(6) Total
Common Name	Number	Date	Number	Date	Number	Date	Number Colonies	Total # Nests	Total Young	Estimated Number
I. Water and Marsh Birds:										
SORA RAIL	1	6/26	20	7/31	2	7/31		2	12	20-25
COMMON GALINULE	2	5/1	20	7/16	4	7/30		2	10	20-25
II. Shorebirds, Gulls and Terns:										
WHITE-RUMPED SANDPIPER	1	6-31	1	6-30	1	6-30				1
LEAST SANDPIPER	200	5-29	300	8-21	200	8-31				1000-1500
SEMIPALMATED SANDPIPER	500	5-29	1500	8-21	1100	8-31				3000-5000
SANDERLING	200	6-5	800	7-24	500	8-31				3000-3500
HUDSONIAN GODWIT	1	7-31	1	7-31	1	7-31				1
GREATER YELLOWLEGS	4	6-5	80	8-21	55	8-31				300-400
LESSER YELLOWLEGS	70	5-1	100	8-13	90	8-31				800-1200
RUFF	1	7-3	1	8-14	1	8-14				1
SPOTTED SANDPIPER	2	5-22	20	6-25	15	8-31		4	12	25
BLACK-BELLIED PLOVER	40	5-1	600	8-31	600	8-31				1000-1500
KILLDEER	2	5-1	20	6-11	6	8-7		4	5	30
SEMI-PALMATED PLOVER	2	6-5	420	8-31	420	8-31				2000-3000
PIPING PLOVER	8	6-5	14	6-26	10	7-17		4	8	20
RUDDY TURNSTONE	2	7-17	2	(over) 7-31	1	8-21				5

(1)	(2)		(3)		(4)	(5)			(6)
III. Doves and Pigeons:									
Mourning dove									
White-winged dove									
IV. Predaceous Birds:									
Golden eagle									
Duck hawk									
Horned owl									
Magpie									
Raven									
Crow									

Reported by GEORGE W. GAVUTIS, JR.

INSTRUCTIONS

(1) Species: Use the correct names as found in the A.O.U. Checklist, 1931 Edition, and list group in A.O.U. order. Avoid general terms as "seagull", "tern", etc. In addition to the birds listed on form, other species occurring on refuge during the reporting period should be added in appropriate spaces. Special attention should be given to those species of local and National significance. Groups: I. Water and Marsh Birds (Gaviiformes to Ciconiiformes and Gruiiformes)
II. Shorebirds, Gulls and Terns (Charadriiformes)
III. Doves and Pigeons (Columbiformes)
IV. Predaceous Birds (Falconiformes, Strigiformes and predaceous Passeriformes)

(2) First Seen: The first refuge record for the species for the season concerned.

(3) Peak Numbers: The greatest number of the species present in a limited interval of time.

(4) Last Seen: The last refuge record for the species during the season concerned.

(5) Production: Estimated number of young produced based on observations and actual counts.

(6) Total: Estimated total number of the species using the refuge during the period concerned.

3-1750b
Form NR-1B
(Rev. Nov. 1957)

UNITED STATES
DEPARTMENT OF THE INTERIOR
FISH AND WILDLIFE SERVICE
BUREAU OF SPORT FISHERIES AND WILDLIFE

WATERFOWL UTILIZATION OF REFUGE HABITAT

Refuge PARKER RIVER N.W. For 12-month period ending August 31, 1962

Reported by GEORGE W. GAVUTIS, JR. Title STUDENT ASSISTANT (WILDLIFE AID)

(1) Area or Unit Designation	(2) Habitat Type	(2) Habitat Acreage		(3) Use-days	(4) Breeding Population	(5) Production
ENTIRE REFUGE IS ONE UNIT	Crops	68	Ducks	610,662	55 PR.	280
	Upland	1068	Geese	136,194	2 PR.	7
	Marsh	2843	Swans			
	Water	2437	Coots	1,351		
	Total	6416	Total	748,237	57 PR.	287
	Crops		Ducks			
	Upland		Geese			
	Marsh		Swans			
	Water		Coots			
	Total		Total			
	Crops		Ducks			
	Upland		Geese			
	Marsh		Swans			
	Water		Coots			
	Total		Total			
	Crops		Ducks			
	Upland		Geese			
	Marsh		Swans			
	Water		Coots			
	Total		Total			
	Crops		Ducks			
	Upland		Geese			
	Marsh		Swans			
	Water		Coots			
	Total		Total			
	Crops		Ducks			
	Upland		Geese			
	Marsh		Swans			
	Water		Coots			
	Total		Total			
	Crops		Ducks			
	Upland		Geese			
	Marsh		Swans			
	Water		Coots			
	Total		Total			

(over)

INSTRUCTIONS

All tabulated information should be based on the best available techniques for obtaining these data. Estimates having no foundation in fact must be omitted. Refuge grand totals for all categories should be provided in the spaces below the last unit tabulation. Additional forms should be used if the number of units reported upon exceeds the capacity of one page. This report embraces the preceding 12-month period, NOT the fiscal or calendar year, and is submitted annually with the May-August Narrative Report.

(1) **Area or Unit:** A geographical unit which, because of size, terrain characteristics, habitat type and current or anticipated management practices, may be considered an entity apart from other areas in the refuge census pattern. The combined estimated acreages of all units should equal the total refuge area. A detailed map and accompanying verbal description of the habitat types of each unit should be forwarded with the initial report for each refuge, and thereafter need only be submitted to report changes in unit boundaries or their descriptions.

(2) **Habitat:** Crops include all cultivated croplands such as cereals and green forage, planted food patches and agricultural row crops; upland is all uncultivated terrain lying above the plant communities requiring seasonal submergence or a completely saturated soil condition a part of each year, and includes lands whose temporary flooding facilitates use of non-aquatic type foods; marsh extends from the upland community to, but not including, the water type and consists of the relatively stable marginal or shallow-growing emergent vegetation type, including wet meadow and deep marsh; and in the water category are all other water areas inundated most or all of the growing season and extending from the deeper edge of the marsh zone to strictly open-water, embracing such habitat as shallow playa lakes, deep lakes and reservoirs, true shrub and tree swamps, open flowing water and maritime bays, sounds and estuaries. Acreage estimates for all four types should be computed and kept as accurate as possible through reference to available maps supplemented by periodic field observations. The sum of these estimates should equal the area of the entire unit.

(3) **Use-days:** Use-days is computed by multiplying weekly waterfowl population figures by seven, and should agree with information reported on Form NR-1.

(4) **Breeding Population:** An estimate of the total breeding population of each category of birds for each area or unit.

(5) **Production:** Estimated total number of young raised to flight age.

Interior Duplicating Section, Washington, D. C. 27580

3-1752
Form NR-2
(April 1946)

UPLAND GAME BIRDS

Refuge PARKER RIVER N.W. Months of MAY to AUGUST, 1962

(1) Species	(2) Density		(3) Young Produced		(4) Sex Ratio	(5) Removals			(6) Total	(7) Remarks
Common Name	Cover types, total acreage of habitat	Acres per Bird	Number broods obs'v'd.	Estimated Total	Percentage	Hunting	For Re-stocking	For Research	Estimated number using Refuge	Pertinent information not specifioally requested. List introductions here.
RING-NECKED PHEASANT	BRUSHY UPLAND AND CROPLAND TOTALING 1200 ACRES FRESH WATER MARSH — 200 ACRES TOTAL — 1400 ACRES	8	15	120	50-50	NONE			180	MOST EARLY NESTING ATTEMPTS FAILED, BUT SECOND ATTEMPTS WERE HIGHLY SUCCESSFUL WITH NUMEROUS BROODS OF 6-7 YOUNG BEING OBSERVED IN LATE JULY AND EARLY AUGUST. DURING THE SUMMER MOST BROODS WERE CONCENTRATED IN THE VICINITY OF THE FRESH MARSHES AND CROPLAND.

INSTRUCTIONS

Form NR-2 - UPLAND GAME BIRDS.*

(1) SPECIES: Use correct common name.

(2) DENSITY: Applies particularly to those species considered in removal programs (public hunts, etc.). Detailed data may be omitted for species occurring in limited numbers. Density to be expressed in acres per animal by cover types. This information is to be prefaced by a statement from the refuge manager as to the number of acres in each cover type found on the refuge; once submitted, this information need not be repeated except as significant changes occur in the area of cover types. Cover types should be detailed enough to furnish the desired information but not so much as to obscure the general picture. Examples: spruce swamp, upland hardwoods, reverting agriculture land, bottomland hardwoods, short grass prairie, etc. Standard type symbols listed in Wildlife Management Series No. 7 should be used where possible. Figures submitted should be based on actual observations and counts on representative sample areas. Survey method used and size of sample area or areas should be indicated under Remarks.

(3) YOUNG PRODUCED: Estimated number of young produced, based upon observations and actual counts in representative breeding habitat.

(4) SEX RATIO: This column applies primarily to wild turkey, pheasants, etc. Include data on other species if available.

(5) REMOVALS: Indicate total number in each category removed during the report period.

(6) TOTAL: Estimated total number using the refuge during the report period. This may include resident birds plus those migrating into the refuge during certain seasons.

(7) REMARKS: Indicate method used to determine population and area covered in survey. Also include other pertinent information not specifically requested.

* Only columns applicable to the period covered should be used.

PARKER RIVER NATIONAL WILDLIFE REFUGE

Newburyport, Massachusetts

NARRATIVE REPORT

Sept.-Dec. 1962

REFUGE PERSONNEL

J. C. Appel	Refuge Manager
William R. Forward	Asst. Refuge Manager
Thomas J. Stubbs	Wildlife Aid
Irvine H. Walker, Jr.,	Maintenanceman
Donald G. Grover	Maintenanceman
Raoul J. DeSerres	Maintenanceman
Harry E. Sears	Maintenanceman
Catherine A. Welch	Clerk
George W. Gavutis, Jr.,	Wildlife Aid

PARKER RIVER NATIONAL WILDLIFE REFUGE

Newburyport, Massachusetts

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NARRATIVE REPORT

PARKER RIVER NATIONAL WILDLIFE REFUGE

Sept. - Dec. 1962

I. General

A. Weather Conditions.

Sept.: This month was cooler than normal. Precipitation exceeded the monthly average by 1.01", with a "line storm" on the 28th dumping 3.22" of rain in the area, accompanied by strong northeasterly gale winds. Average wind velocity was 13.5 mph. during the month. Fifteen days with peak gusts of 25 mph. or greater.

Oct.: October was also cooler than normal. A severe coastal storm on the 5th and 6th and 7th resulted in some 7.15" of rainfall in the area. Precipitation exceeded the monthly average by 6.04".

Nov.: The month was stormy and cold. Precipitation was normal during the month. The storm of Nov. 15 eroded a considerable amount of beach frontage on the north end of the island.

Dec.: Fresh water freeze-up Dec. 10th. During the latter part of the second week, the small tidal creeks froze over. The 30th and 31st were extremely cold with temperatures below zero accompanied with high winds out of the north. A southeast storm with high winds on the 5th and 6th did considerable damage to the north end of Plum Island. The high tide claimed four camps and extensive damage was done to several others. Except for rearrangement of beach sand, no damage was done to the refuge.

Precipitation

	Snowfall	This Month	Average*	Maximum Temperature	Minimum Temperature
Sept.		4.34	3.33	86	42
Oct.		9.47	3.42	78	24
Nov.	.80	3.92	4.92	54	24
Dec.	.50	4.30	3.76	58	-6
Totals	1.30	22.03	15.43		
Extremes				86	-6

*Averages 1947 through 1961.

Above data obtained from the weather station located at headquarters.

B. Habitat Conditions:

1. Water: Ground water and pool levels were higher than normal due to 22.03" of rainfall during the period. Water was again pumped from the North pool to the South pool to inundate the millet plantings for waterfowl utilization. Satisfactory water level was held in the South pool for this purpose.

2. Food and Cover: The South pool marsh (22 acres) was aerial seeded with Jap millet at the rate of 40 lbs. to the acre on 5/24/62. A poor crop resulted which was probably due to two factors: 1. Seed bed too dry, and 2. Other plant competition which had begun germination before the aerial seeding of millet. A volunteer crop of wild sunflower and smartweed did produce a fair crop of seed. This pool has received very little usage despite a favorable water level.

After a quick drawdown, Stage Island pool marsh (40 acres) was aerial seeded to Jap millet at the rate of 62lbs. to the acre on May 24, 1962. An excellent stand of millet which produced a good seed crop resulted from this planting. As planned, the majority of this food was not available due to the low water level except along the creeks and small ponds where some flooding of the millet did occur after the storm of Oct. 5th,6th, and 7th. A peak of 3,500 green-winged teal and 1,500 blacks utilized this pool immediately following the flooding by the above mentioned storm. A slight drop in the water level a week later reduced the millets availability and caused a subsequent reduction in waterfowl usage of this pool.

Approximately 40 acres of cattail and loosestrife were mowed in the North pool. Up to 2,000 green-winged teal with lesser numbers of other puddle ducks utilized this mowed area which was flooded by the storm of Oct. 6th and 7th.

Nelson's Island (21 acres) was seeded to winter rye on Sept.7th. 500 lbs of fertilizer was applied to the acre. A growth of 5" to 7" had developed by the third week of October when the first geese started to use this field. This browse was completely exhausted by the first week of November.

North pool edge (24 acres) was seeded to winter rye on Aug. 15th. 500 lbs. of fertilizer was applied to the acre and contributed to the good stand of rye. 50 to 350 geese utilized this field during the period.

South pool edge (8 acres) was seeded to winter rye on Aug. 17th. 500 lbs. of fertilizer was applied to the acre and contributed to the good stand of rye. This field has been used by 25 to 100 geese sporadically during the period.

Cross Farm (27 acres) was planted to winter rye on Aug.28th. 700 lbs. of fertilizer was applied to the acre. A growth of 6" to 8" had developed by the first week of Nov. when the first geese started to use this field. This browse was completely exhausted by the end of December except the extreme edge of the field near the road.

Stage Island (20 acres) was planted to winter rye on Aug.30th. 500 lbs. of fertilizer was applied to the acre. A stand of 6" to 8" had developed by the middle of November when the geese began using this field. This browse was nearly exhausted by the end of December.

In general a combination of early seeding, heavy fertilization and adequate rainfall all contributed to the best stand of rye we have ever had for goose browse for the fall migration.

II. Wildlife

A. Migratory Birds.

1. Waterfowl.

a. Canada Geese:

Migrant Canada geese first came in during the week of Oct.6 - 12. Total goose utilization of the refuge, when compared with past similar periods, was up (1962 = 150,740 use days vs. 1961 = 85,490 goose use days). The peak fall population this year was 3,000 versus 1,500 last year. This fall's increased total use was a reflection of specific management efforts aimed at the species. Use of the refuge rye fields was somewhat delayed in starting, but once started followed a pattern generally similar to last fall's usage. As would be expected, the earliest and most complete use took place on the least disturbed units (such as the Nelson's Island field) and progressed to other fields as numbers of birds built up and browse was exhausted. Except for some severe weather in December, a relatively mild fall contributed to increased goose use. At the close of the period some 500 Canadas were still present. No other species of geese, with the exception of a stray snow goose or two, were recorded.

b. Black Ducks:

Black ducks were well represented throughout the period, although populations fluctuated markedly with weather and tide changes. Total refuge usage by this species (669,400 use days) during the fall period more than doubled over that recorded for the

same period last year (307,350 use days), again influenced by the relatively mild weather pattern which occurred much of this fall. Although movements were somewhat difficult to interpret, a major waterfowl flight followed the "Northeaster" of Oct. 5 - 7. In addition, a large number of mixed waterfowl moved onto the refuge briefly right after the waterfowl hunting season opened on Oct.12th. These birds, estimated at from 25,000 - 30,000, chiefly blacks and green-winged teal combined, were present through the 15th, but about one-third of them moved out that same night. The single recorded high for blacks alone on the "Weekly Waterfowl Populations" form was 13,500 noted during the Oct. 13 - 19 period. Black ducks were on hand in good numbers the rest of the period although a significant drop occurred at the end of December when temperatures reached -6 degrees and most of the salt marsh was iced over. Bulk of black duck use this fall took place in the salt marsh areas of the refuge, even prior to the 12/10/62 freeze-up date of fresh water units.

c. Other Ducks:

Green-winged teal also utilized the refuge in unusual numbers this past fall when compared to recent similar periods. The peak estimated population was 4,500 during the Oct. 13 - 19 period compared to a peak of 1,600 last fall. Heavy sustained use by this species of mowed flooded sections of the North and Stage Island Pool units contributed to the increased teal use. Total fall use days in 1962 was 158,410 compared with 67,445 in 1961. By the close of the period all green-winged teal had left the area.

Most other dabbling species were present in limited numbers during all or part of the period. These included mallards which peaked at 600 between Oct. 27 and Dec. 2 nd; pintail, 500 at same time, and insignificant numbers of widgeon, blue-winged teal, shoveller and wood duck.

Diving ducks were noted infrequently in the refuge. These included small numbers of scaup, goldeneye, bufflehead and occasional other species as shown on the NR-1 form.

2. Other Waterbirds.

American coots increased remarkably this period over the number noted for the same period last year for no discernable reason. A total fall use of 19,880 use days for 1962 compared with 1961 use days of 1,281 reflects this increase. All coot use occurred in the fresh water pools particularly in the North and Stage Island units.

Other water and marsh birds, such as pied-billed grebes,

common gallinules, Virginia rails and Sora, and other species appeared to be present in near normal numbers during the period.

On Oct. 5th the "Northeaster" brought in some unusual birds. Approximately 50 northern phalaropes and 5 red phalaropes were observed in the refuge at that time.

Again, in December, on the 5th and 6th, when a strong offshore ocean storm passed this area a large number of dovekies were blown into the vicinity and numerous reports of this species were received.

3. Shorebirds, Gulls and Terns:

The heaviest shorebird movements took place prior to this period, although some activity occurred in September and early October. This activity included all the normally expected species, such as black-bellied plover, yellowlegs, semipalmated sandpipers and others, as well as some uncommon species like the stilt sandpiper (2) and white-rumped sandpiper (5).

Gulls were also found in normal numbers. These included peaks of 80 black-backed gulls, 400 herring gulls and on one occasion 500 Bonaparte's gulls.

Common terns were recorded early in the period in normal declining numbers as the season passed.

4. Doves:

Mourning doves were common early in the period, with a peak of 200 present on 9/21. Numbers dropped rapidly thereafter.

B. Upland Game Birds.

Ring-necked pheasants were present in normal numbers this period. At the period's close simple attrition and dispersal left an estimated 100 birds in the area.

C. Big Game Animals.

White-tailed deer were observed a number of times during the period, although they are present in low numbers. An estimated population of eight animals was on hand at the close of the period.

D. Fur Animals, Predators, Rodents, and other Mammals.

Muskrat populations have remained low in the refuge area, although a fall house count revealed some increase over last year.

They are a very useful tool in some of our marsh habitat manipulation and should be encouraged. Listed below are estimated muskrat populations for Parker River Refuge over the last 5 years.

Muskrat Populations (Fall)

Parker River N. W. Refuge

	1958	1959	1960	1961	1962
Stage Island Pool	-	150(30)[1]	300(60)	25(5)	175(35)
South Pool	-	-	-	75	75(15)
North Pool	-	-	-	100	175(35)
Total Animals	200[2]	150	300	200	425

[1]Figure in parenthesis equals number of houses.
[2]Figures estimated and based partially on house counts.

Predators and rodents were no problem this fall and no particular control efforts were engaged in, other than occasional bombing of dens on the dikes.

E. Hawks, Eagles, and Owls and Crows.

Bald Eagle: No observations of this species were made during the period or the remainder of the year.

The usual mixed assortment of hawks came through during the period with nothing unusual to report.

There were chiefly marsh hawks, red-tailed hawks and sparrow hawks along with occasional other species.

We did have three peregrine falcons (duck Hawks) present on October 9th.

Two short-eared owls were reported seen the last week of September.

F. Other Birds.

Nothing to report.

G. Fish.

Surf fishing continued to be allowed on the refuge. Excellent fishing for school stripers and occasional large "bull" stripers

took place early in the period.

H. Reptiles.

Nothing to report this period.

I. Disease.

Nothing to report this period.

III. Refuge Development and Maintenance

A. Physical Development.

1. Approximately 1500 yards of crushed gravel was hauled, dumped and spread on dikes, roads and trails.

2. A new circulating hot water heating system was installed in Quarters two under contract.

3. Dividing fences in the former goose holding pens were removed to facilitate farming operations.

B. Plantings.

1. Aquatics and Marsh Plants: None.

2. Trees and Shrubs: None.

3. Upland Herbaceous Plants: None.

4. Cultivated Crops: A total of 100 acres was seeded to winter rye for goose browse at the following locations: Cross Farm 27 acres, Nelson's Island 21 acres, Stage Island 20 acres, South pool edge 8 acres, and North pool edge 24 acres. Sixty-two acres were seeded to Japanese millet, 22 acres in the South pool and 40 acres in the Stage Island pool. Seeding was done with a fixed-wing aircraft with good results in the Stage Island pool and poor results in the South pool.

Progressive Use of Cereal Grain by Waterfowl

	Japanese Millet	Winter Rye
Sept. 1	0	0
15	0	0
Oct. 1	40	0
15	10	25
Nov. 1	0	30
15	0	20
Dec. 1	0	10
15	0	5

Unutilized millet (50%) will be available in the Stage Island pool for the spring migration.

C. Collections and Receipts.

1. Seed and other Propagules: None.

2. Specimens: None.

D. Control of Vegetation.

Several experimental applications of URAB soil sterilant were made on undesirable stands of vegetation in the North and Stage Island pools during the summer and early fall months.

Please refer to the next page for the details of experimental applications.

E. Planned Burning.

No planned burning was carried out this year. A suitable combination of conditions did not occur.

F. Fires.

None. The burning index during this period was low.

IV. Resource Management

A. Grazing: None.

B. Haying:

One special use permit for the removal of three tons of salt marsh hay was issued this period. Total fee was three dollars. Geese, shorebirds and some ducks continue to show a distinct preference for mowed salt marsh areas.

C. Fur Harvest: None.

D. Timber Removal: None.

E. Commercial Fishing: None.

F. Other Uses.

The annual renewal of the Camp Sea Haven special use permit, for the token fee of one dollar, was made.

CONTROL OF VEGETATION

	Acres	Species	Location	Application Method	Date	Results	Labor	Cost Analysis Mileage 6¢ mi.	Cost Analysis URAB $1./lb.
	.17	Cattail	North Pool	200' strip 60 lbs./acre Cyclone Seeder	6/8/62	Complete kill of 25' width- 1 mo. 35' - 2 mos.	$2.00	$ .10	$ 5.00
	.22	Cattail	North Pool	200' strip 120 lbs./acre Cyclone Seeder	6/8/62	Complete kill of 25' width- 1 mo. 45' - 2 mos.	2.00	.10	10.00
	.25	Cattail	North Pool	200' strip 240 lbs./acre Cyclone Seeder	6/8/62	Complete kill of 25' width - 1 mo. 50' - 2 mos.	2.00	.10	20.00
	.13	Phragmites	Stage Is. Pool	100' x 50' patch 240 lbs./acre Cyclone Seeder	7/17/62	Complete kill 40 da.	2.00	.50	25.00
	.10	Phragmites	Stage Is. Pool	Spot treatments by hand	7/17/62	Complete kill 40 da.	1.00	.30	25.00
	.50	Phragmites	Stage Is. Pool	Spot treatments by hand	10/17/62	None expected until spring 1963.	8.00	1.50	60.00
	1.00	Grasses & Weeds	Hdqtrs.& sub-hdq.	Hand trimming around bldgs. & drives.	6/7/62 7/10/62	Complete kill 30 days	8.00	1.00	155.00
Total	2.37					sub-totals Total Cost $328.60	25.00	3.60	300.00

URAB was found to spread out from the point of application along ditches and wet spots. Under favorable conditions (boggy soils), a 200% increase in coverage was obtained. The manufacturer claims up to 3-year effectiveness when applied at the rate of 80 - 120 lbs./acre. Our average application was 127 lbs./acre. Total cost $139.00/acre.

V. Field Investigation or Applied Research

Forty-four ducks, all mallards, were trapped this period, of which about half had been previously banded. Several attempts to cannon net geese, during the closed part of the split season, were fruitless.

VI. Public Relations.

A. Recreational Uses.

	1962	1961	1960	1959	1958
Hunting	-	230	515	528	1,061
Nature Study	30,000	29,000	28,200	18,556	18,197
Clamming & Fishing	26,400	19,500	17,600	16,024	17,542
Berry and Plum Picking	6,000	4,770	4,000	3,204	2,336
Picnicking and Swimming	154,000	125,000	122,585	103,267	88,000
Miscellaneous	4,100	3,000	3,000	13,526	32,804
Sub-totals	220,500	181,500	175,900	155,105	159,940
Boating	12,000	11,500	10,100	9,436	10,657
Totals	232,500	193,000	186,000	164,541	170,597

Thirty-four special permits for nature study at Nelson's Island, for the period of July to September 30, were issued.

Twenty-two special access to clam flats at Nelson's Island were issued.

Calendar of Public Use

Jan.	3,000	July	55,000
Feb.	4,000	Aug.	36,000
Mar.	8,000	Sept.	26,500
Apr.	12,000	Oct.	10,000
May	22,000	Nov.	9,000
June	40,000	Dec.	7,000

Public Use estimates are based on traffic counter figures using an average of 3.5 persons per car.

B. Refuge Visitors.

Merton Radway	Asst. Reg. Refuge Supv.	9/7/62	Inspection
Donald Miller	Mass. Littoral Society	9/12/62	Cooperation w/U.S.F&W
W. R. De Garmo	R.O. Wildlife Mgt. Biologist	9/13/62	Check Hampton marsh
Bernolt Palas	Supv. Mgt. & Enforcement	9/25/62	Enforcement meeting
J. Van Weelden	U. S. G. M. A.	9/25/62	Enforcement meeting
Wm. Snow	U. S. G. M. A.	"	" "
Almon Griffin	Mass. Cons. Supv.	"	" "
Norman Marble	" " Officer	"	" "
J. Bartolomeo	" " "	"	" "
A. Abbott	Dep. " "	"	" "
A. Sullivan	Reporter, Boston	"	Information
J. Van Weelden	U. S. G. M. A.	10/1/62	Patrol
Edw. Sherman	R. O.	10/19/62	Visit refuge
Mr. Flanagan and	C. O.	"	" "
Mrs. Flanagan		"	" "
Dick Smith	P. R. Control	11/1/62	" "
John S. Gottschalk	Regional Director	11/8/62	Pick up material for TV program
Messrs. Parker, York & Upham	Soil Conservation Service	11/15	View refuge
J. Van Weelden	U. S. G. M. A.	12/12/62	Violations

The refuge office was visited by hundreds of persons seeking permits for fishing, clamming, beach buggy operation on refuge, and information.

C. Refuge Participation.

No formal talks were made this period.

D. Hunting.

1. No deer hunt was conducted this year.
2. No waterfowl hunting is allowed on the refuge.
3. Refuge personnel made a number of spy blind observations.

Special Waterfowl Report

The following report is based on information obtained during patrol activities around the periphery of the refuge and weekly Waterfowl surveys on the refuge.

1. Hunter success on opening day:

	First Half	Second Half
1960	.62 birds/hunter 40% blks, 50% GW Teal	.53 birds/hunter 90% blks, 10% misc.
1961	.37 birds/ hunter 53% blks, 39% GW Teal	.45 birds/hunter 93% blks, 7% GW Teal
1962	.24 birds/hunter 56% GW Teal, 39% blks.	1.18 birds/hunter 93% blks, 5% GW Teal

Gunners in the Salisbury area harvested an average of 1.28 birds/hunter on opening day.

2. Number of hunters checked on opening day:

	First Half	Second Half
1960	200	62
1961	114	31
1962	74	33

3. Waterfowl Populations on opening day:

		Ducks	Geese	Brant
1960	1st half	10,350	1,000	0
	2nd half	2,160	400	0
1961	1st half	1,820	600	0
	2nd half	2,560	1,000	0
1962	1st half	14,350	320	0
	2nd half	4,625	2,000	0

4. Hunter success after opening day:

1960 .30 ducks/hunter/day
1961 .33 " " "
1962 .53 " " "

5. Number of hunters checked after opening day:

1960 323 hunters killed 99 ducks
1961 294 " " 99 "
1962 440 " " 233 "

6. Average weekly waterfowl populations during season:

	1960	1961	1962
Brant	0	0	0
Geese	995	1040	1250
Ducks	4200	4800	9014

Retrieving Zone.

The retrieving zone on the Pine Island boundary worked out very well again this year. There were no incidents.

E. Violations.

Refuge personnel were involved in the apprehension of nineteen violators of Federal waterfowl regulations. Six cases of hunting on the refuge were forwarded to GMA Van Weelden for prosecution in Federal court. Six cases of early hunting were tried in the local court by Mass. Conservation Officer Marble and resulted in fines aggregating seventy dollars and loss of hunting license privileges for each man for one year. On recommendation of Mass. Conservation Officer Marble, State warnings were sent to the other seven violators.

F. Safety.

1. Three formal safety meetings were held during the period and were general in nature.

2. One accident, during the graveling operation, while a load was being dumped from the F-700 truck, metal fatigue of one of the hinge plates of the lift mechanism caused a breakdown of this equipment. No one was hurt in this instance.

3. Measures taken to prevent accidents: Monthly Fire Hazard Inspections performed on schedule.

4. Number of man days since last lost time accident - 2,871.

5. Future safety plans call for monthly meetings, rotating chairmanship and use of safety films.

VII. Other Items

A.

1. Mosquito and Other Insect Control Programs.

The Parker River N. W. Refuge has participated in the North Shore Greenhead Fly Control program since 1954. Following is a

brief outline of the program, with specific procedures as they apply to the refuge, as outlined by Dr. Bertram Gerry, Executive Secretary of the Massachusetts Reclamation Board:

The total annual cost of the North Shore Greenhead Fly Project, $7,500., was established by a survey made originally by the North Shore Greenhead Fly Control Commission. By the authority of Chapter 388 of the Acts of 1954, one-third of the cost is borne by the several municipalities within the district in proportion to the entire salt marsh area within their respective boundaries, a similar one-third based on the foregoing provision is borne by the Commonwealth and the remaining one-third of such cost is borne by the several municipalities within the district in proportion to their respective taxable valuations as last established by the General Court as a basis of apportionment for State and County taxes. As shown on the attached table, the contribution from the Parker River N. W. Refuge was established on the basis of the percentage of the total salt marsh areas held by the refuge in Newbury, Rowley and Ipswich. See attached chart for cost breakdown by towns.

In practice the Service has supplied 1000 gallons of 25% DDT solution each year to meet its share of the program cost. A total of 5000 gallons of 25% DDT is used to treat the North Shore area.

To control greenhead flies on the North Shore District the following program is applied as closely as annual conditions will permit:

Two sprays are applied, the first beginning July 10th and the second July 20. Spraying is done by contract helicopters. Basically a one hundred foot swath along the edge of the marsh, including the edge of islands, is sprayed. The purpose of this spray is to kill the emerging adult fly as it crawls out on the tide rack prior to flight. The emergence of the adult flies is on a relatively constant date not affected by the weather. Weather and tides do affect the opportunity to spray, and, thus, actual spray dates will vary from year to year. Spray is applied only when the grass is dry, the wind under 15 m.p.h., during a period of receding tides 10.5 ft. or under and between the hours of 4:30 A.M. and 9:30 A.M. A dull, still day is preferred. The spray employed is D. D. T. in a fuel oil or kerosene carrier. The spray mixture consists of 1 lb. D. D. T. per gallon, or a 12% solution. Droplet size varies from mist to 50 mm. with an average of 20 mm. Planned rate of application is 1 pound of D. D. T. per acre. A normal plane load is 50 gallons with a maximum load of eighty gallons.

The effectiveness of the spray is checked five days after the first application. The check consists of parking a car at a predetermined spot during the heat of the day, opening the car windows for five

minutes and counting the number of flies entering the car. At Crane's Beach 5-6 flies is considered high, 3-4 flies moderate, and 1-2 light. At Pine Island 7-10 flies is high, 5-6 moderate and 1-4 light. If the count is high the second spray date is moved ahead.

The residual effect of the spray provides a maximum 1-day effective period. Depending on conditions it requires two to five days to treat the North Shore area.

The areas sprayed on the Parker River N. W. Refuge are as follows:

Plum Island. Along the marsh edge from the north boundary to sub-headquarters and from the south end of the South pool to the dike of the Stage Island pool a 100 foot swath is sprayed. Also, an area of about 50 acres in the immediate vicinity of the Polio Camp is treated constituting a repellent treatment and the solvent, rather than the dissolved insecticide, provides the repellent action. The Polio Camp treatment was requested by Congressman Bates.

West side of the Refuge:

Pine Island. An area of about 100 acres around Pine Island, but not inside of the refuge, where the elevation of the marsh exceeds 10.5 feet above mean sea level is treated.

Oldtown Area. A 100 foot swath of the marsh edge from the Pine Island road south to the Rowley line is treated. Most of this area lies within the refuge.

Town of Rowley. From the north line of the Town of Rowley south to the Rowley river a 100 foot swath following the contours of the marsh edge is treated. From the north line of the Town of Rowley to Mud Creek the area treated lies within the refuge. Certain small marshy areas west of route 1-A are treated to serve as "migrant traps".

In the summer of 1962 the refuge was sprayed only once instead of twice as outlined. The July 17 spraying conformed to the area outlined. The spray mixture consisted of one pound of DDT per gallon of diesel fuel or a 12% solution. Rate of application was one pound of DDT per acre. The spray was applied by a heliocopter of Aerial Sprayers Inc. under contract to the North Shore Greenhead Fly Control project. Observations of six "stickboard" stations indicated little if any diminution of greenhead flies that could be attributed to the spraying. No adverse effects of the spraying on wildlife were noted.

2. The Colonial Retriever Club conducted a three day retriever trial from September 28 - 30. A number of land and water events were held in the vicinity of the South pool, Cross Farm and Stage Island pool.

	Stake	Number of Dogs	Number of Participants	Number in Gallery
Sept. 28	Open all age	40	55	50
Sept. 29	Qualifying	40	60	60
Sept. 30	Amateur open	38	70	180

Poor weather (rain, wind, and fog) limited the size of the gallery on the 28th and 29th.

3. The Essex County Sportsmen's Association conducted a bird dog field trial on October 6, 1962. There was no gallery due to the heavy rains and wind, but twenty-one dogs were entered and twenty-one ran. Thirty people participated in the trial.

4. Refuge Manager Appel attended the Middle Management Institute held at Concord, New Hampshire the week of Oct. 29 - Nov.2.

5. Thomas J. Stubbs, Wildlife Aid and Catherine A. Welch, Clerk, attended an Administrative Training Conference held at the Regional Office in Boston on Nov. 27 and 28.

6. Wildlife Aid George W. Gavutis, Jr. terminated his appointment with us at the end of November to spend six months with the Army.

Credits:

William R. Forward, Assistant Refuge Manager:	Section II
Thomas J. Stubbs, Wildlife Aid:	Section I and Safety
George W. Gavutis, Jr., Wildlife Aid:	Chart - Control of Vegetation Special Waterfowl Report Field Trials
Catherine A. Welch, Clerk:	Typing.

B. Photographs: Appended.

Period ending Dec. 31, 1962.

J. C. Appel
Refuge Manager

Date:_____

Regional Refuge Supervisor

Date:_____

Regional Director

3-1750
Form NR-1
(Rev. March 1953)

WATERFOWL

REFUGE Parker River N. W. MONTHS OF Sept. TO Dec., 1962

(1) Species	(2) Weeks of reporting period 9/1-7 1	9/8-14 2	9/15-21 3	9/22-28 4	9/29-10/5 5	10/6-12 6	10/12-19 7	10/20-26 8	10/27/11/2 9	11/2-9 10
Swans:										
Whistling										
Trumpeter										
Geese:										
Canada	80	80	80	80	80	320	600	800	2,100	3,000
Cackling										
Brant										
White-fronted										
Snow						10	10	10	10	10
Blue										
Other										
Ducks:										
Mallard	120	120	150	120	120	200	200	200	600	500
Black	300	300	800	1,500	2,000	10,000	13,500	10,000	10,000	8,000
Gadwall							10	10		
Baldpate		10	40	40	50	210	100	200	100	150
Pintail		30	30	40	10	200	300	150	500	500
Green-winged teal	300	300	350	350	1,500	3,430	4,500	3,200	2,500	2,200
Blue-winged teal	100	180	150	150	200	220	150	30	10	10
Cinnamon teal										
Shoveler					20	20	10	10	20	10
Wood	30	30	20	10	10	10	10	10	10	
Redhead										
Ring-necked										
Canvasback										
Scaup					[illegible]	10	10	20	10	10
Goldeneye								10	10	10
Bufflehead								20	20	30
Ruddy							10	10	10	60
Other	20	20	20	10	40	30	20	50	50	150
Red-breasted Merganser					30	10	10	50	50	10
Coot:						20	50	400	500	800

3 -1750a
Cont. NR-1
(Rev. March 1953)

WATERFOWL
(Continuation Sheet)

REFUGE Parker River N. W. MONTHS OF Sept. TO Dec., 1962

(1) Species	(2) Weeks of reporting period 11/10-16 11	11/17-23 12	11/24-30 13	12/1-7 14	12/8-14 15	12/15-21 16	12/22-28 17	12/29-31 18	(3) Estimated waterfowl days use	(4) Production Broods seen	(4) Production Estimated total
Swans:											
Whistling											
Trumpeter											
Geese:											
Canada	3,000	2,700	2,600	2,000	1,500	1,000	1,300	500	150,740		
Cackling											
Brant											
White-fronted											
Snow	10	10							490		
Blue											
Other											
Ducks:											
Mallard	300	200	150	150	100	100	100	50	24,160		
Black	5,000	4,500	7,000	3,800	4,000	6,000	8,500	1,000	669,400		
Gadwall									140		
Baldpate	100	30	30	25	25				7,770		
Pintail	400	400	300	250	200	100	50		24,220		
Green-winged teal	2,500	600	350	300	200	50			158,410		
Blue-winged teal									8,400		
Cinnamon teal											
Shoveler	10	10	10						840		
Wood									980		
Redhead											
Ring-necked											
Canvasback											
Scaup	10								490		
Goldeneye	10	20	100	100	50	100			2,870		
Bufflehead	20	20	20	50	50	50	100		2,660		
Ruddy	50	20							1,120		
Other	100	30	20						3,920		
RB.Merganser	10	30	20						1,540		
Common Merganser	10								70		
Coot:	500	400	60	60	50				19,880		

(over)

	(5) Total Days Use	(6) Peak Number	(7) Total Production
Swans	-	-	-
Geese	151,230	3,000	-
Ducks	906,990	18,830	
Coots	19,880	800	

SUMMARY

Principal feeding areas ~~Tidal marsh and mud flats when open and fresh pools until frozen up.~~

Principal nesting areas

Reported by ~~W. R. Forward~~

INSTRUCTIONS (See Secs. 7531 through 7534, Wildlife Refuges Field Manual)

(1) Species: In addition to the birds listed on form, other species occurring on refuge during the reporting period should be added in appropriate spaces. Special attention should be given to those species of local and national significance.

(2) Weeks of Reporting Period: Estimated average refuge populations.

(3) Estimated Waterfowl Days Use: Average weekly populations x number of days present for each species.

(4) Production: Estimated number of young produced based on observations and actual counts on representative breeding areas. Brood counts should be made on two or more areas aggregating 10% of the breeding habitat. Estimates having no basis in fact should be omitted.

(5) Total Days Use: A summary of data recorded under (3).

(6) Peak Number: Maximum number of waterfowl present on refuge during any census of reporting period.

(7) Total Production: A summary of data recorded under (4).

Interior Duplicating Section, Washington, D. C.
1953

76242

Supplement to NR-1 Form

Parker River N. W.
(Refuge)

WATERFOWL PRODUCTION
5-YEAR RECORD

(Include in December 31 NARRATIVE REPORT ONLY)

(Production transcribed from Column 4, - May-August NR-1)

Year	1958	1959	1960	1961	1962
Species	Prior Year	Prior Year	Prior Year	Prior Year	Current Year
Canada Goose		12	5	5	7
Mallard	80	112	35	90	120
Black	390	350	96	112	100
Gadwall	-	-	-	-	-
Baldpate	-	-	-	-	-
Pintail	12	16	-	14	10
Green-winged teal	12	-	8	25	15
Blue-winged teal	47	43	63	48	35
Shoveler					
Wood duck					
Redhead					
Ring-necked					
Canvasback					
Scaup					
Goldeneye					
Bufflehead					
Ruddy					
Common Merganser					
Hooded Merganser					
*Total Duck Production	541	521	202	289	280

*(Use figure from Column 7, reverse of NR-1)

Total Production per acre#	.27	.26	.10	.14	.14

#Waterfowl produced divided by acres of nesting habitat equals production per habitat acre.

7/12/61

Supplement to NR-1 Form Parker River N. W. Refuge
(Include in December Narrative Report only)

WATERFOWL USE DAYS (5 Yr. Record)

(Total Waterfowl Use Days for Calendar Year 1962

Totals of Column 5, NR-1)

Year	1958	1959	1960	1961	1962
Species	Prior Year	Prior Year	Prior Year	Prior Year	Current Year
Swans	-	-	-	-	-
Geese	221,473	150,449	163,017	155,820	201,934
Brant	1,891	357	105	-	-
Ducks	2,221,605	1,151,062	815,605	607,308	1,090,280
Total Waterfowl	2,444,969	1,301,868	978,727	763,128	1,292,214
Coots	3,913	2,150	2,436	1,414	19,950
Grand Total Use	2,448,882	1,304,018	981,163	764,542	1,312,164

WATERFOWL DAYS OF USE PER ACRE OF WATERFOWL USE HABITAT

1. 1,292,214 Waterfowl Use Days Current Year. Swans, Geese, Brant and Ducks. (Do not include Coots.) ÷ 2. 5,000 Acres of Waterfowl Use Habitat. Include only areas actually used by waterfowl. = 3. 258 Waterfowl Use per Acre of Waterfowl Habitat.

7/12/61

Supplement to NR-1 Form **Parker River N. W.** Refuge

PEAK WATERFOWL POPULATIONS

(Include this form in December 31 NARRATIVE REPORT ONLY)

Year	1958	1959	1960	1961	1962
Species	Prior Year	Prior Year	Prior Year	Prior Year	Current Year
Maximum Goose Population Peaks for yr.-Use figure from Weekly Columns of NR-1.					
Canada Goose	1,920	3,104	1,400	1,500	3,000
Brant	150	20	15	-	-
Snow Goose	13	400	19	50	10
Maximum Duck Population Peaks for yr.-Use figure from Weekly Columns of NR-1.					
Mallard	1,190	790	500	300	600
Black	16,860	6,950	6,800	10,000	13,500
Gadwall	4	50	10	20	10
Baldpate	1,408	320	250	250	210
Pintail	415	400	200	200	500
Green-winged teal	611	1,200	2,700	1,600	4,500
Blue-winged teal	100	469	200	100	220
Shoveler	8	2	10	10	25
Wood duck	3	4	10	10	30
Redhead	-	-	-	-	-
Ring-necked	-	-	-	-	-
Canvasback	-	-	-	1	-
Scaup	570	150	200	10	20
Goldeneye	475	200	300	225	150
Bufflehead	164	460	100	50	100
Ruddy	63	10	10	30	60
Common Merganser	50	75	40	30	10
Hooded Merganser	30	25	10	20	-
Coots	67	25	100	100	800
Peak population all species at any single census	ducks 20,272	ducks 7,751	ducks 10,470	ducks 11,750	ducks 18,830
Date	11/17	3/19	10/27	10/26	10/13

7/12/61

3-1751
Form NR-1A
(Nov. 1945)

MIGRATORY BIRDS
(other than waterfowl)

Refuge Parker River N. W. Months of Sept. to Dec. 195 62

(1) Species	(2) First Seen		(3) Peak Numbers		(4) Last Seen		(5) Production			(6) Total
Common Name	Number	Date	Number	Date	Number	Date	Number Colonies	Total # Nests	Total Young	Estimated Number
I. Water and Marsh Birds:										
Common Loon	2	9/28	2	10/5	1	11/9				
Red-throated Loon			1	11/15						
Pied-billed Grebe	1	9/4	10	10/1	2	11/23				
Double-crested Cormorant			1100	10/3						
Great Blue Heron	6	9/4	6	9/4	2	10/19				
Green Heron			1	10/16						
Black-crowned Night Heron	10	9/4	20	9/4	10	10/19				
American Bittern	1	9/4	6	10/5	3	11/16				
Virginia Rail	25	9/4	30	10/5	2	11/2				
Sora Rail	5	9/4	30	9/4	20	10/5				
Common Gallinule	5	9/4	25	9/4	5	9/17				
II. Shorebirds, Gulls and Terns:										
Semipalmated Plover	10	9/4	200	9/4	75	9/28				
Killdeer	2	9/4	3	9/29	1	12/3				
Black-bellied Plover	50	9/4	300	9/4	50	11/5				
Greater Yellowlegs	30	9/4	100	4/29	30	11/5				
Lesser Yellowlegs	5	9/4	100	9/4	5	10/19				
Pectoral Sandpiper	2	9/25	75	10/5	5	10/5				
White-rumped Sandpiper			5	9/21						
Dunlin	10	9/21	500	11/2	100	11/19				
Short-billed Dowitcher	5	9/4	40	9/4	5	10/19				
Sanderling	100	9/4	300	9/4	100	11/2				
Red Phalarope			5	9/28						
Northern Phalarope			50	9/28						

(over)

(1)	(2)		(3)		(4)		(5)			(6)
III. Doves and Pigeons:										
Mourning dove	150	9/4	200	9/21	1	11/28				
White-winged dove										
IV. Predaceous Birds:										
Golden eagle										
Duck hawk	1	9/4	3	10/9	2	10/19				
Horned owl										
Magpie										
Raven										
Crow	10	9/4	20	11/28	20	11/28				
Sharp-shinned Hawk			1	10/9						
Red-tailed Hawk			1	11/20						
Rough-legged Hawk			1	10/2						
Marsh Hawk	4	9/4	10	10/9	1	12/18				
Osprey			1	9/21						
Pigeon Hawk			2	11/7						
Sparrow Hawk	2	9/4	3	9/4	2	11/28				

Reported by W. Forward

INSTRUCTIONS

(1) Species: Use the correct names as found in the A.O.U. Checklist, 1931 Edition, and list group in A.O.U. order. Avoid general terms as "seagull", "tern", etc. In addition to the birds listed on form, other species occurring on refuge during the reporting period should be added in appropriate spaces. Special attention should be given to those species of local and National significance. Groups: I. Water and Marsh Birds (Gaviiformes to Ciconiiformes and Gruiiformes)
II. Shorebirds, Gulls and Terns (Charadriiformes)
III. Doves and Pigeons (Columbiformes)
IV. Predaceous Birds (Falconiformes, Strigiformes and predaceous Passeriformes)

(2) First Seen: The first refuge record for the species for the season concerned.

(3) Peak Numbers: The greatest number of the species present in a limited interval of time.

(4) Last Seen: The last refuge record for the species during the season concerned.

(5) Production: Estimated number of young produced based on observations and actual counts.

(6) Total: Estimated total number of the species using the refuge during the period concerned.

(1)	(2)		(3)		(4)	(5)			(6)
III. Doves and Pigeons:									
Mourning dove									
White-winged dove									
IV. Predaceous Birds:									
Golden eagle									
Duck hawk									
Horned owl									
Magpie									
Raven									
Crow									

Reported by.....

INSTRUCTIONS

(1) Species: Use the correct names as found in the A.O.U. Checklist, 1931 Edition, and list group in A.O.U. order. Avoid general terms as "seagull", "tern", etc. In addition to the birds listed on form, other species occurring on refuge during the reporting period should be added in appropriate spaces. Special attention should be given to those species of local and National significance. Groups: I. Water and Marsh Birds (Gaviiformes to Ciconiiformes and Gruiiformes)
II. Shorebirds, Gulls and Terns (Charadriiformes)
III. Doves and Pigeons (Columbiformes)
IV. Predaceous Birds (Falconiformes, Strigiformes and predaceous Passeriformes)

(2) First Seen: The first refuge record for the species for the season concerned.

(3) Peak Numbers: The greatest number of the species present in a limited interval of time.

(4) Last Seen: The last refuge record for the species during the season concerned.

(5) Production: Estimated number of young produced based on observations and actual counts.

(6) Total: Estimated total number of the species using the refuge during the period concerned.

3-1751
Form NR-1A
(Nov. 1945)

MIGRATORY BIRDS
(other than waterfowl)

Refuge Parker River N. W. Months of Sept. to Dec. 195 62

(1) Species	(2) First Seen		(3) Peak Numbers		(4) Last Seen		(5) Production			(6) Total
Common Name	Number	Date	Number	Date	Number	Date	Number Colonies	Total # Nests	Total Young	Estimated Number
I. Water and Marsh Birds:										
II. Shorebirds, Gulls and Terns:										
Least Sandpiper	50	9/4	150	9/4	20	10/5				
Stilt Sandpiper	2	9/4	2	9/4	2	9/4				
Semipalmated Sandpiper	100	9/4	600	9/4	50	10/19				
Great Black-backed Gull	50	9/4	80	10/5	10	12/31				
Herring Gull	300	9/4	400	10/5	300	11/2				
Ring-billed Gull			25	10/5						
Bonaparte's Gull			500	11/9						
Common Tern	5	9/4	50	9/4	2	10/19				
Least Tern			10	9/4						

(over)

3-1752
Form NR-2
(April 1946)

UPLAND GAME BIRDS

Refuge Parker River N. W. Months of Sept. to Dec., 19 62

(1) Species	(2) Density		(3) Young Produced		(4) Sex Ratio	(5) Removals			(6) Total	(7) Remarks
Common Name	Cover types, total acreage of habitat	Acres per Bird	Number broods obs'v'd.	Estimated Total	Percentage	Hunting	For Re-stocking	For Research	Estimated number using Refuge	Pertinent information not specifically requested. List introductions here.
Ring-necked Pheasant	Brushy upland and cropland totalling 1200 acres. Fresh water marsh 200 acres. Total - 1400 acres.	14	-	-	60 - 40	-	-	-	100	

INSTRUCTIONS

Form NR-2 - UPLAND GAME BIRDS.*

(1) SPECIES: Use correct common name.

(2) DENSITY: Applies particularly to those species considered in removal programs (public hunts, etc.). Detailed data may be omitted for species occurring in limited numbers. Density to be expressed in acres per animal by cover types. This information is to be prefaced by a statement from the refuge manager as to the number of acres in each cover type found on the refuge; once submitted, this information need not be repeated except as significant changes occur in the area of cover types. Cover types should be detailed enough to furnish the desired information but not so much as to obscure the general picture. Examples: spruce swamp, upland hardwoods, reverting agriculture land, bottomland hardwoods, short grass prairie, etc. Standard type symbols listed in Wildlife Management Series No. 7 should be used where possible. Figures submitted should be based on actual observations and counts on representative sample areas. Survey method used and size of sample area or areas should be indicated under Remarks.

(3) YOUNG PRODUCED: Estimated number of young produced, based upon observations and actual counts in representative breeding habitat.

(4) SEX RATIO: This column applies primarily to wild turkey, pheasants, etc. Include data on other species if available.

(5) REMOVALS: Indicate total number in each category removed during the report period.

(6) TOTAL: Estimated total number using the refuge during the report period. This may include resident birds plus those migrating into the refuge during certain seasons.

(7) REMARKS: Indicate method used to determine population and area covered in survey. Also include other pertinent information not specifically requested.

* Only columns applicable to the period covered should be used.

3-1753
Form NR-3
(June 1945)

BIG GAME

Refuge Parker River N. W. Calendar Year 1962

(1) Species	(2) Density	(3) Young Produced	(4) Removals				(5) Losses			(6) Introductions		(7) Estimated Total Refuge Population		(8) Sex Ratio
Common Name	Cover types, total Acreage of Habitat	Number	Hunting	For Re-stocking	Sold	For Research	Predation	Disease	Winter Loss	Number	Source	At period of Greatest use	As of Dec. 31	
White-tailed deer	Sand dunes, crop fields, grass and brush 600 A. (This acreage discounts barren sand dunes.)	6	-	-	-	--	-	-	--	-	-	12	8	50-50

Remarks:

Reported by J.C.Appel

INSTRUCTIONS

Form NR-3 - BIG GAME

(1) SPECIES: Use correct common name; i.e., Mule deer, black-tailed deer, white-tailed deer. It is unnecessary to indicate sub-species such as northern or Louisiana white-tailed deer.

(2) DENSITY: Detailed data may be omitted for species occurring in limited numbers. Density to be expressed in acres per animal by cover types. This information is to be prefaced by a statement from the refuge manager as to the number of acres in each cover type found on the refuge; once submitted, this information need not be repeated except as significant changes occur in the area of cover types. Cover types should be detailed enough to furnish the desired information but not so much as to obscure the general picture. Examples: spruce swamp, upland hardwoods, reverting agriculture land, bottomland hardwoods, short grass prairie, etc. Standard type symbols listed in Wildlife Management Series No. 7 should be used where possible. Figures submitted should be based on actual observations and counts on representative sample areas. Survey method used and size of sample area or areas should be indicated under Remarks.

(3) YOUNG PRODUCED: Estimated total number of young produced on refuge.

(4) REMOVALS: Indicate total number in each category removed during the year.

(5) LOSSES: On the basis of known records or reliable estimates indicate total losses in each category during the year.

(6) INTRODUCTIONS: Indicate the number and refuge or agency from which stock was secured.

(7) TOTAL REFUGE POPULATION: Give the estimated population of <u>each species</u> on the refuge at period of its greatest abundance and also as of Dec. 31.

(8) SEX RATIO: Indicate the percentage of males and females of each species as determined from field observations or through removals.

116008

3-1755
Form NR-5
60701

DISEASE

Refuge Parker River N. W. Year 19 62

Botulism None

Lead Poisoning or other Disease None

Period of outbreak _____

Period of heaviest losses _____

Losses:

	Actual Count	Estimated
(a) Waterfowl		
(b) Shorebirds		
(c) Other		

Number Hospitalized	No. Recovered	% Recovered
(a) Waterfowl		
(b) Shorebirds		
(c) Other		

Areas affected (location and approximate acreage) _____

Water conditions (average depth of water in sickness areas, reflooding of exposed flats, etc.

Condition of vegetation and invertebrate life _____

Remarks _____

Kind of disease _____

Species affected _____

Number Affected

Species	Actual Count	Estimated

Number Recovered _____

Number lost _____

Source of infection _____

Water conditions _____

Food conditions _____

Remarks _____

3-1756
Form NR-6
(Rev. August 1957)

PUBLIC USE

Refuge Parker River N. W. Calendar Year 1962

Total Use Visitor-Days	Hunting Use	Fishing Use	Miscellaneous Use
232,500	None	26,400	206,100

Where practical, by means of occasional spot checks, or other methods, show by percent and visitor-days the breakdown of the above figures and other related information:

Hunting (on refuge lands):	Percent	Visitor-Days	Acres
Waterfowl			
Upland Game			
Big Game			

Supervised by refuge ____ by State ____ No. of blinds ____

Miscellaneous:	Percent	Visitor-Days
Recreation *	80%	164,900
Official	Minor	Minor
Economic Use	2%	4,100
Other	18%	37,100

Comments: Access to State and private lands, Polio Camp under group camp permit, buildings leased to former owners, field trials, etc.

Hunting (off refuge lands): Estimated man-days of hunting on lands adjacent to the refuge 1500 (These figures should not be included in hunting-use totals above).

Fishing:

Acres of ~~ponds or lakes~~ tidal water 1500 and miles of streams 6 open to fishing.

*(including picnicking, swimming, boating, camping, viewing wildlife, and photographing) berry picking.

INT.-DUP. SEC., WASH., D.C. 22919

3-1757
Form NR-7
(Rev. June 1960)

(1)

NONAGRICULTURAL COLLECTIONS, RECEIPTS, AND PLANTINGS

Refuge Parker River N. W. Year 19 62

	Collections and Receipts (Seeds, rootstocks, trees, shrubs)						Plantings (Marsh - Aquatic - Upland)						
Species	Amount (Lbs., bus., etc.)	(2) C or R	Date	Method or Source	Cost	(3) Total Amount on Hand	Location of Area Planted	Rate of Seeding or Planting	Amount Planted (Acres or Yards of Shoreline)	Amount and Nature of Propagules	Date	Survival	Cause of Loss
Jap Millet							South Pool Marsh	40/A	22 acres	900 lbs.	5/24/62	Poor	Lack of moisture
Jap Millet							Stage Island Pool Marsh	62/A	40 acres	2500 lbs.	5/24/62	Good	

(1) Report agronomic farm crops on Form NR-8
(2) C = Collections and R = Receipts
(3) Use "S" to denote surplus

Total acreage planted:
Marsh and aquatic 62 acres
Hedgerows, cover patches
Food strips, food patches
Forest plantings

Remarks: Stage Island pool wet areas were aerial seeded May 24,1962 to Jap Millet. This marsh was quite wet due to a quick draw down of water just before seeding.

The South pool marsh was aerial seeded May 24, 1962. The seed bed in this pool was not as wet as the Stage Island pool which resulted in a poorer catch of millet.

76148

3-1758
Form NR-8
(Rev. Jan. 1956)

Fish and Wildlife Service Branch of Wildlife Refuges

CULTIVATED CROPS - HAYING - GRAZING

Refuge Parker River N. W. County Essex State Mass.

Cultivated Crops Grown	Permittee's Share Harvested		Government's Share or Return				Total Acreage Planted	Green Manure, Cover and Water-fowl Browsing Crops Type and Kind	Total Acreage
			Harvested		Unharvested				
	Acres	Bu./Tons	Acres	Bu./Tons	Acres	Bu./Tons			
Winter Rye					100	40 tons	100	Winter Rye browse	100
								Fallow Ag. Land	10

No. of Permittees: Agricultural Operations None Haying Operations 4 Grazing Operations None

Hay - Improved (Specify Kind)	Tons Harvested	Acres	Cash Revenue	GRAZING	Number Animals	AUM'S	Cash Revenue	ACREAGE
				1. Cattle				
				2. Other				
				1. Total Refuge Acreage Under Cultivation				266
Hay - Wild	93 Salt marsh hay	93 Salt marsh Hay	93.00	2. Acreage Cultivated as Service Operation				266

DIRECTIONS FOR PREPARING FORM NR-8
CULTIVATED CROPS - HAYING - GRAZING

Report Form NR-8 should be prepared on a calendar-year basis for all crops which were planted during the calendar year and for haying and grazing operations carried on during the same period.

Separate reports shall be furnished for Refuge lands in each county when a refuge is located in more than one county or State.

Cultivated Crops Grown - List all crops planted, grown and harvested on the refuge during the reporting period regardless of purpose. Crops in kind which have been planted by more than one permittee or this Service shall be combined for reporting purposes.

Permittee's Share - Only the number of acres utilized by the permittee for his own benefit should be shown under the Acres column, and only the number of bushels of farm crops harvested by the permittee for himself should be shown under the Bushels Harvested column. Report all crops harvested in bushels or fractions thereof except such crops as silage, watermelons, cotton, tobacco, and hay, which should be reported in tons or fractions thereof.

Government's Share or Return - Harvested - Show the acreage and number of bushels harvested for the Government of crops produced by permittees or refuge personnel. Unharvested - Show the exact acreage and the estimated number of bushels of grain available for wildlife. If grazing is made available to waterfowl through the planting of grain, cover, green manure, grazing or hay crops, estimate the tonnage of green food produced or utilized and report under Bushels Unharvested column.

Total Acreage Planted - Report all acreage planted, including crop failures.

Green Manure, Cover and Waterfowl Grazing Crops - Specify the acreage, kind and purpose of the crop. These crops and the acreage may be duplicated under cultivated crops if planted during the year, or a duplication may occur under hay if the crop results from a perennial planting.

Hay - Improved - List separately the kinds of improved hay grown. Annual plantings should also be reported under Cultivated Crops, and perennial hay should be listed in the same manner at time of planting.

Total Refuge Acreage Under Cultivation - Report total land area devoted to agricultural purposes during the year.

INT.DUP.,D.C.61-88850

3-1761
Form NR-11

TIMBER REMOVAL

Refuge Pocket River N. W. Year 194/ 62

Permittee	Permit No.	Unit or Location	Acreage	No. of Units Expressed in B. F., ties, etc.	Rate of Charge	Total Income	Reservations and/or Diameter Limits	Species Cut
NO TIMBER ON REFUGE								

Total acreage cut over..... Total income.....

No. of units removed B. F..... Method of slash disposal.....

Cords.....

Ties.....

.....

Parker River N. W. REFUGE

WILDLIFE AND FISH POPULATIONS
AND PUBLIC USE

Calendar Year 1962

	* State Classification	Numbers: Latest Year (1962)	Numbers: Last 5-Year Average (1958-1962)
Wildlife			
Muskrat Population	Fur Animal	425	255
Muskrat Removals	" "	0	0
Beaver Removals	" "	0	0
~~Marmot~~ Woodchuck Removals	Varmint	8	24
Raccoon Removals	Fur animal & Game Animal	1	2
Fox Removals	Fur Animal	1	5
Mink Removals	" "	0	0

Upland Bird Populations: (Species)

Ring-necked Pheasant	100

White-tailed Deer Population 12

White-tailed Deer Harvest 0

Public Use Days (from NR-6)

Hunting	0
Fishing	26,400
Recreational	164,900
Official	Minor
Economic Use	4,100
Other	37,100
Total	232,500

**Fish (Show Abundance: S--Scarce, C--Common, A--Abundant)

Species	Abundance
Striped Bass	Common to abundant

*List as fur, predatory, or game animal as defined by State Law.

**List known species by recognized common name.

Submit this form annually with December Narrative Report 8/3/62

Early fall aerial view of Headquarters complex area on North end of Plum Island looking north.

Another aerial view showing sub-headquarters buildings and old goose pen fenéing (since removed) looking east.

A view showing heavy stand of smartweed which developed in parts of the Stage Island pool unit by early fall. Similar growths developed in parts of the North & South pools also.

Another view showing excellent chest high growth of Jap Millet which came into Stage Island pool as result of aerial seeding late in May. Portions of this received excellent waterfowl utilization this fall.

A view of heavy surf breaking over east edge of island during high tide at a point about 1 mile SE of refuge Hdqtrs. This action was the result of a strong storm passing off shore Dec. 15 and caused extreme damage to cottages on the north end of island.

Damage to F-700 truck resulting from metal fatigue of hinge plate of lift mechanism. No one was hurt in this incident (see Safety section).

A view taken early in fall showing beach plum pickers at work.

A typical result of the endeavor shown above.