

Monomoy NWR - Narrative Report - 1969

NARRATIVE REPORT

Calendar Year 1969

MONOMOY NATIONAL WILDLIFE REFUGE

No permanent personnel are assigned
to this station.

Temporary Personnel

Richard DeGraaf. Biological Technician*

* Period of Employment--June 2, 1969 to September 2, 1969

UNITED STATES DEPARTMENT OF THE INTERIOR

Fish and Wildlife Service

Bureau of Sport Fisheries and Wildlife

Concord, Massachusetts

(Under Supervision of Great Meadows Refuge)

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NARRATIVE REPORT

Monomoy National Wildlife Refuge

Calendar Year 1969

I. GENERAL

A. Weather Conditions:

MONTH	PRECIPITATION		TEMPERATURE		
	<u>Snowfall</u>	<u>Total Precipitation</u>	<u>Normal</u>	<u>Maximum</u>	<u>Minimum</u>
January		1.29	2.26	48	11
February	7.0	6.53	3.28	46	13
March	4.0	3.37	2.97	53	19
April		5.51	3.39	69	20
May		1.02	3.66	74	35
June		1.62	2.64	86	48
July		1.84	1.54	90	52
August		2.01	3.23	91	51
September		7.11	3.93	90	44
October	1.5	2.43	2.40	74	28
November		6.77	5.23	63	22
December	<u>1.8</u>	<u>8.36</u>	<u>3.76</u>	59	20
EXTREMES				91	11
TOTALS	14.3	47.86	38.29		

The weather data was obtained from the National Park Service, South Wellfleet, Massachusetts.

The normal precipitation is the average from the years 1964-1969.

B. Habitat Condition:

1. Water: Total precipitation was over twelve inches more this year than 1968. Although rainfall was not heavy in May through July, it was sufficient to maintain fresh water ponds at higher levels than 1968. Conditions were good for breeding and migratory waterfowl.
2. Food and Cover: Continued use of the refuge by large numbers of migrant waterfowl and shore birds testify to the high quality of Monomoy's habitat. Food and cover was adequate throughout the year.

The four vegetation transects set up in 1968 were run again this year. The most obvious fact seen was that most changes were due to the difference in water levels between the two years. Water levels were higher in 1969.

Vegetative transect data and general observations revealed only a few significant changes in 1969. There was an estimated 80 percent reduction in smartweeds and a 50 percent reduction in spike rushes. However, there was several fold increase in the production of pondweed--especially sago pondweed. Dense mats of pondweeds occurred at Lighthouse Marsh and Little Station Pond.

In July Bayberry moth caterpillars denuded large areas of vegetation on the southern part of the island. Plants effected were bayberry, beach grass, poison ivy, black cherry, and beach plum. Even so, adequate cover remained available; and there was a good crop of beach plums and cranberries this year.

II. WILDLIFE

A. Migratory Birds:

1. Waterfowl: The total of 1,095,900 waterfowl use days for 1969 represents a substantial increase over the 820,411 waterfowl use days recorded for 1968. Although goose use decreased by 9 percent over last year, there was a 41 percent increase in duck use, largely attributed to increased numbers of black ducks, American eider, surf scoter, and white-winged scoter.

Goose production increased by 54 percent over 1968 while duck production declined by 23 percent. Green-winged teal production decreased greatly; however, increases were observed in mallard, black duck, and blue-winged teal production.

Bait trapping and banding of ducks was conducted from August 5 to September 1 with the following results:

<u>Species</u>	<u>Number Banded</u>
Black duck	76
Blue-winged teal	38
Green-winged teal	3
Wood duck	2
TOTAL	119

2. Shore birds, Gulls, and Terns: A large nesting population of herring and great black-backed gulls, estimated at 6,000-7,000 pairs, utilizes Monomoy Island. As many as 20,000 gulls use the island at night and as a loafing area between garbage flights. This expanding gull population has been of concern in recent years especially in regard to the alleged detrimental effects on the nesting populations of terns. Biological Technician DeGraaf observed gull behavioral activity which contributed to the suppressed production of all nesting colonies of least terns. A similar interaction resulted in nest abandonment in the common, roseate, and particularly

the Arctic tern colonies. The latter are most susceptible because they tend to nest at the periphery of the consolidated colony.

An estimated 3,000 common, roseate, and Arctic terns were produced this year with a preponderance of common terns. Two pair of black skimmers nested in the centers of each of two tern colonies.

As might be expected, an abundance of shore birds covering a wide range of species utilizes the refuge.

B. Upland Game Birds:

Ring-necked pheasant and bobwhite quail are present on Morris Island, the portion of the refuge which has become part of the mainland. In recent years there have been no reports of upland game birds on Monomoy Island; however, on October 4 Mr. Wallace Bailey of the Massachusetts Audubon Society observed 12 bobwhite quail on Monomoy.

C. Big Game Animals:

A herd of approximately twenty white-tailed deer utilize Monomoy Island. In past years this apparently insular population has been reported as maintaining a relatively stable level; however, there is considerable evidence that movement does occur between the island and the mainland. Although gross observations suggest these animals are in apparent good health, virtually nothing is documented about the dynamics of this most interesting population.

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

Muskrats were observed in moderate numbers this year. Sightings of an unidentified weasel, a mink, and a harbor seal were recorded during the summer.

E. Hawks, Eagles, Owls, Crows, Ravens, and Magpies:

Observations of the following species were recorded this year: marsh hawk, osprey, peregrine falcon, pigeon hawk, red-tailed hawk, sparrow hawk, barn owl, and short-eared owl. Common crows continue to be present in modest numbers.

F. Other Birds:

Mr. Wallace Bailey, Wellfleet Bay Sanctuary, Massachusetts Audubon Society, has recorded 314 species of birds, including 68 accidental species, which have been observed on Monomoy National Wildlife Refuge.

G. Fish:

This summer Biological Technician DeGraaf reported finding a considerable number of large mouth bass in Little Station Pond. Some bass were as large as seven pounds. Fresh water eels were also found in the ponds in Lighthouse Marsh.

H. Diseases:

None evidenced during the year.

III. REFUGE DEVELOPMENT AND MAINTENANCE

A. Physical Development:

Buildings: Both front corners of the garage on the north end of Monomoy were undermined by wind and water action and had to be repaired. Snow fence was stretched around the entire building in an effort to prevent this type of damage.

All of the dormers on the Monomoy storage building and all window frames were painted inside and out. Broken glass was replaced in several windows.

Equipment and Maintenance: Extensive repairs were required on the OC3 tractor costing \$344.17. The tractor was cleaned and painted at Parker River National Wildlife Refuge.

Rust spots on the cab, the bed, bumpers and the entire undercarriage of the 1967 power wagon were painted.

Repaired the fire protection system pump to place the Morris Island water system back into service.

Servicing and tune ups were performed on all equipment as required or scheduled.

Posting: The entire 16 miles of posted boundary was checked requiring replacement of 80 posts and signs.

Signs: The Monomoy Island entrance sign was refurbished, as was the Morris Island entrance sign. Three public use signs were erected again this year. They are taken down each fall to prevent unnecessary weathering during the winter.

Additional Jobs Completed This Year:

1. A dry well was constructed for the sink drain at the Monomoy storage building.
2. Several truck loads of debris were removed from the beach and inland points. This material was taken to suitable locations where it was burned and the remains buried.

3. Posts were driven in around the yard at the Morris Island building to prevent vehicle entrance onto the grass.

B. through F.

Not applicable this year.

IV. RESOURCE MANAGEMENT

A. through E.

Not applicable this year.

F. Other Uses:

Fees for cabins and beach buggy permits and one permit for storage of fish weir trap equipment are the only uses in this category.

Seventy-two dollars annually is collected from the fish weir trap equipment storage and over-the-sand vehicle permit. An additional \$217 per annum is collected from ten cabin permits at \$2.50 each and eight vehicle permits at \$24 each.

V. FIELD INVESTIGATIONS OR APPLIED RESEARCH

A. Progress Report--Experimental Eider Trapping:

No additional experimentation was conducted on techniques of attracting and trapping American Eider this year.

B. Cooperative Research--Geologic Study on Monomoy Island:

Under a grant from the U. S. Corps of Engineers, Mr. Victor Goldsmith, Geology Department, University of Massachusetts is conducting a study of offshore sand bars and adjacent beaches. Part of the study area includes Monomoy Island.

Based on observations between November 1, 1968, and March 16, 1969, the following preliminary conclusions have been reached:

1. There has been a permanent net retreat of Monomoy Island to the west due to beach erosion from storms. The retreat during this period amounted to a maximum of 40 feet on Monomoy.
2. The beach itself will maintain its former width at the expense of dune erosion.

Additional data has been collected, but results are not yet available.

VI. PUBLIC RELATIONS

A. Recreational Uses:

Monomoy attracted an estimated 9,235 visitors this year compared to 4,281 in 1968. The majority of the visits are for wildlife observation and salt water fishing on Monomoy Island which can be reached only by boat. Thousands of migrating shore birds feed and rest on Monomoy's brood tidal flats. Regularly scheduled "Beachbuggy Wildlife Tours" of the island are conducted by the Massachusetts Audubon Society at \$15 per person. Fifty-eight tours were scheduled this year from May 25, to October 5. Cape Cod is a major summer recreation area and Monomoy Island is a natural drawing card for boaters who are looking for some place to beach their boat and swim, fish, picnic, or just beachcomb.

B. Refuge Visitors:

<u>Date</u>	<u>Name</u>	<u>Organization or Address</u>	<u>Purpose</u>
7/21	Peter Suich	R. O., Boston Assistant Regional Supervisor, Planning	official business

Refuge headquarters remained closed this year, and no visitor listing was maintained. The following persons made numerous visits to the refuge during the year:

Wallace Bailey	Massachusetts Audubon Society
James Baird	Massachusetts Audubon Society
Victor Goldsmith	Geology Department, University of Massachusetts

C. Refuge Participation:

June 27--DeGraaf discussed Monomoy with Dr. William Sheldon, Leader of the Massachusetts Cooperative Wildlife Research Unit, and several of his guests. He also gave them a partial tour of the island.

August 28--DeGraaf assisted Jim Baird of Massachusetts Audubon Society mist net warblers at Lighthouse Marsh.

August 29--DeGraaf conducted a tour of Monomoy for George Lake of Chatham. Mr. Lake has done considerable work on coast survey maps of the area.

September 25--Tibbs conducted a tour of Monomoy for Zack Taylor of "Sports Afield" magazine who was doing a story on Cape Cod National Seashore. He was interested in the island and may include it in his story.

Since no permanent personnel are stationed at Monomoy and it is over 100 miles from Great Meadows, slide talks and speaking engagements are few in the immediate area of the refuge. However, Monomoy is included in many of the presentations given in the vicinity of Great Meadows. In 1969, Monomoy was included in seven programs presented to various groups.

D. Hunting:

No hunting is permitted on the refuge.

E. Violations:

Biological Technician DeGraaf made twice-daily public use patrols of Monomoy Island. Occasional violation of recreation regulations occurred but were generally corrected on the spot when offenders were made aware of refuge regulations.

There were no major problems with camp permittees this year--probably largely as a result of the good relations established with the permittees by Biological Technician DeGraaf.

Several instances of vandalism occurred at the camps. In most cases the camps are broken into with minor damage. However, in August the sand tires were removed from a beachbuggy parked at the Albert Young camp and several windows broken.

F. Safety:

Although no formal safety meetings were held, Biological Technician DeGraaf was made thoroughly aware of the importance of safety through informal discussions.

Radio contact is maintained with the Chatham Coast Guard Station via a portable Coast Guard radio. Daily radio checks are made to be sure the equipment is working properly and personnel working on the island are having no difficulties since this is the only communication link with the mainland.

VII. OTHER ITEMS

A. Items of Interest:

1. Personnel: Richard M. DeGraaf began his duties as biological technician on Monomoy June 2, and worked throughout the summer until he resigned September 3, to work toward a Master's Degree in Wildlife at the University of Massachusetts. Dick graduated from Rutgers University and served two years in the Army as a biological science assistant before coming to Monomoy.
2. Oiled Sea Ducks: On a report from Wallace Bailey of the Massachusetts Audubon Society of a number of oiled sea ducks having been picked up along Nauset Beach, Refuge Manager Moses arranged a helicopter flight to Monomoy with the Coast Guard on March 5. Only four oiled birds were observed along Nauset Beach from Orleans to Chatham. No oiled birds were observed on Monomoy.
3. Cooperation--Massachusetts Audubon Society: In April the OC-3 tractor was transported from Monomoy Point to Tern Island. It was loaned to the Massachusetts Audubon Society to disc vegetated areas in an effort to encourage terns to begin nesting again on Tern Island.
4. Boat Rescue: On August 11, DeGraaf, assisted by a Monomoy camp owner, H. Jones, saved a carelessly beached Boston Whaler from being washed out into the ocean.

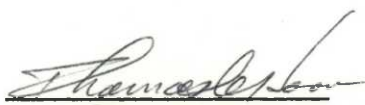
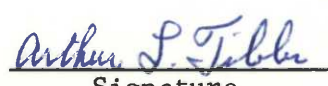
He also retrieved a canoe on August 23, and notified local police. It was claimed by its owner the following day.
5. Lost Light: The Coast Guard spent July 16, and 17, erecting a reference marker near the south end storage building to be used in locating a lost light off the south end of Monomoy Island.
6. "Monomoy Wilderness:" Bills were introduced again this year to designate the 2,600 acre Monomoy Island as wilderness. But, like last year, action was not

completed; and the island did not become part of the National Wilderness Preservation System in 1969.

7. Photographs: Appended.
8. Payment to Counties: Under the Revenue Sharing Act, a check for \$277.33 was delivered to the Barnstable County Treasurer on October 28. The money will be used on roads within the county.
9. Forms: The following forms are not applicable this year: NR-1C, NR-5, NR-7, NR-8, NR-8A, NR-11, and NR-12. All others are appended.
10. Credits: Assistant Refuge Manager Clarke prepared Section II, NR-1, NR-1A, NR-2, NR-3 and the photographs. Clerk-stenographer Brown prepared Section I A, VI B, VI C, Public Use Summary and typed the report. Refuge Manager Tibbs completed the remainder of the report and edited it.

Received by:

Submitted by:

<u></u>	<u>1/30/70</u>	<u></u>	<u>1/19/70</u>
Signature	Date	Signature	Date

N. R.'s checked in Regional Office by 

3-1750

Form NR-1

(Rev. March 1953)

5RF - 4/68

W A T E R F O W L

REFUGE

MONTHS OF

January

To

April

19 69

[illegible]

WATERFOWL
(Continuation Sheet)

MONTHS OF January TO April , 19 69

(1)	(2) Weeks of reporting period								(3)	(4)
(1)	3/12-18	3/19-25	3/26-4/1	4/2-8	4/9-15	4/16-22	4/23-29	4/30	Estimated waterfowl days use	Production Broods: Estimated seen : total
Species	11	12	13	14	15	16	17	18		
Geese:										
Whistling Trumpeter										
Canada	150	150	150	200	200	200	200	200	37,650	
Cackling										
Brant	100	100	100	300	300	300	300	300	12,200	
White-fronted										
Snow										
Blue										
Other										
Ducks:										
Mallard										
Black	400	400	400	400	400	400	400	400	51,500	
Gadwall										
Baldpate		10	20	25	25	25	25	25	935	
Pintail			25	25	30	40	40	25	1,145	
Green-winged teal		100	150	200	200	150	150	100	6,750	
Blue-winged teal				75	100	100	100	100	2,725	
Cinnamon teal										
Shoveler										
Wood										
Rodhead										
Ring-necked										
Canvasback										
Scaup										
Goldeneye	100	75	75	50	50				7,700	
Bufflehead	100	100	100	100	100	100	100	100	9,550	
Ruddy										
Other										
R.B. Merganser	250	250	250	200	200	200	200	200	28,500	
Amer. Eider	5,000	5,000	5,000	3,000	2,000	1,000	1,000	1,000	505,000	
W.W. Scoter	100	100	100	50	50	50	25	25	10,350	
				(over)						

	(5)	(6)	(7)	SUMMARY
	Total Days Use	Peak Number	Total Production	
Swans	:	:	:	Principal feeding areas
Geese	49,850	500	:	
Ducks	624,555	6,120	:	Principal nesting areas
Coots	:	:	:	
				Reported by Edward S. Moses, Refuge Manager

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).

W A T E R F O W L

REFUGE Monomoy

MONTHS OF May TO August, 1969

(1) Species	Weeks of reporting period									
	5/1-7	5/8-14	5/15-21	5/22-28	5/29-6/4	6/5-11	6/12-18	6/19-25	6/26-7/2	7/3-9
	1	2	3	4	5	6	7	8	9	10
Swans:										
Whistling										
Trumpeter										
Geese:										
Canada	200	100				27	27	27	35	35
Cackling										
Brant										
White-fronted										
Snow										
Blue										
Other										
Ducks:										
Mallard	2	2	2	2	2	7	7	7	7	7
Black	400	300	100	100	50	40	20	5	5	3
Gadwall										
Baldpate										
Pintail	25	25	10	10	5		1		1	
Green-winged Teal	100	50	20	20	10	2	10	20	25	50
Blue-winged Teal	100	50	20	15	5					20
Cinnamon Teal										
Shoveler										
Wood										
Redhead										
Ring-necked										
Canvasback										
Scaup										
Goldeneye										
Bufflehead										
Ruddy										
Other Am. Eider	1,000	500	200	60	25	6		8	6	12
White-winged Scoter	25									
Common Scoter										10

3-1750a
 Cont. NR-1
 (Rev. March 1953)
 5RF - 4/68

WATERFOWL
 (Continuation Sheet)

REFUGE Monomoy MONTHS OF May TO August, 19 69

(1) Species	(2) Weeks of reporting period								(3) Estimated waterfowl days use	(4) Production Broods: Estimated seen : Total
	7/10-16: 11	7/17-23: 12	7/24-30: 13	7/31-8/6: 14	8/7-13: 15	8/14-20: 16	8/21-27: 17	8/28-31: 18		
Swans:										
Whistling										
Trumpeter										
Geese:										
Canada	35	35	35	35	35	35	35	35	5,012	5 20
Cackling										
Brant										
White-fronted										
Snow										
Blue										
Other										
Ducks:										
Mallard	7	7	7	7	7	7	7	7	686	1 5
Black	20	50	48	50	60	80	100	100	10,417	8 90
Gadwall										
Baldpate										
Pintail	1	6			1	3	2	1	634	
GW teal	15	25	25	25	30	25	25	25	3,439	3 20
BW teal	1	2	2	3	9	40	50	50	2,419	1 5
Cinnamon teal										
Shoveler										
Wood	1	1							14	
Redhead										
Ring-necked										
Canvasback										
Scaup										
Goldeneye										
Bufflehead										
Ruddy										
Other <u>Am. Eider</u>	10	50	10	25	25	25	25	25	14,009	
<u>White-winged Scoter</u> 1				1		1	1		203	
<u>Coot:</u> <u>Common Scoter</u>		1							77	

(over)

	(5) Total Days Use	(6) Peak Number	(7) Total Production
Swans			
Geese	5,012	200	20
Ducks	31,898	1,652	120
Coots			

SUMMARY

Principal feeding areas ~~Station and lighthouse marshes.~~

Principal nesting areas ~~Station and lighthouse marshes.~~

Reported by ~~Lee Tibbs, Refuge Manager~~

INSTRUCTIONS

See Wildlife Refuges Manual Section 3321-24, "Wildlife Records".

- (1) Species: In addition to the birds listed on form, other species occurring on the 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).

W A T E R F O W L

REFUGE Monomoy

MONTHS OF September TO December, 1969

(1) Species	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	:10/13-19 7	:10/20-26 8	:10/27-11/2 9	:11/3-9 10
Swans:										
Whistling										
Trumpeter										
Geese:										
Canada	50	50	50	50	50	50	100	100	300	300
Cackling										
Brant										
White-fronted										
Snow										
Blue										
Other										
Ducks:										
Mallard	20	20	20	20	20	20	20	20	50	50
Black	100	100	100	100	100	100	800	800	1,100	1,100
Gadwall										
Baldpate							300	300	300	300
Pintail										
Green-winged Teal	50	50	50	50	50	50	200	200	300	300
Blue-winged Teal	50	50	50	50	50	50				
Cinnamon Teal										
Shoveler										
Wood										
Redhead										
Ring-necked										
Canvasback										
Scaup										
Goldeneye										
Bufflehead									80	80
Ruddy										
Other Am. Eider	400	400	400	400	400	400	400	400	400	400
Surf Scoter	400	400	400	400	400	400	400	400	400	400
White-winged Scoter	400	400	400	400	400	400	400	400	400	400
Coot	50	50	50	50	50	50	50	50	200	200

(Rev. March 1953)

REFUGE Monomoy

MONTHS OF September TO December, 19 69

(1) Species	(2) Weeks of reporting period								(3) Estimated	(4) Production
	11/10-16	11/17-23	11/24-30	12/1-7	12/8-14	12/15-21	12/22-28	12/29-31	waterfowl	Broods: Estimated
	11	12	13	14	15	16	17	18	days use	seen : total
Swans:										
Whistling										
Trumpeter										
Geese:										
Canada	300	600	600	1,100	1,100	1,100	1,100	1,100	52,300	
Cackling										
Brant										
White-fronted										
Snow										
Blue										
Other										
Ducks:										
Mallard	50	75	75	75	20	20	20	20	4,225	
Black	1,100	2,800	2,800	2,800	1,400	1,400	1,400	1,400	130,900	
Gadwall										
Baldpate	300	500	500	100	100	100			19,600	
Pintail										
Green-winged teal	300	200	200	200	20	20			15,680	
Blue-winged teal									2,100	
Cinnamon teal										
Shoveler										
Wood										
Redhead										
Ring-necked										
Canvasback										
Scaup										
Goldeneye										
Bufflehead	80	100	100	100	200	200	200	200	8,580	
Ruddy										
Other Am. Eider	400	400	400	400	1,100	1,100	1,100	1,100	65,600	
Surf Scoter	400	400	400	400	200	200	200	200	44,000	
White-winged Scoter	400	400	400	400	100	100	100	100	41,600	
Coot:	200	100	100	100	100	100			10,500	

(over)

	(5)	(6)	(7)	
	Total Days Use	Peak Number	Total Production	SUMMARY
Swans	:	:	:	Principal feeding areas
Geese	52,300	1,100	:	
Ducks	332,285	5,475	:	Principal nesting areas
Coots	:	:	:	

Reported by Stephen H. Clarke

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).

3-1751
Form NR-1A
(Aug. 1952)

MIGRATORY BIRDS
(Other than Waterfowl)

Refuge Monomoy Months of January to April 19 69

(1)	(2)	(3)	(4)	(5)	(6)
Species	First Seen	Peak Concentration	Last Seen	Production	Total
Common Name	Number	Date	Inclu- sive Dates	Number Date	Number Colonies Total # Nests Total Young Estimated Use
I. <u>Water and Marsh Birds:</u>					
The lack of personnel at the installation during this period precluded maintaining accurate species records. Figures would have no basis in fact.					
II. <u>Shorebirds, Gulls and Terns:</u>					

(over)

5RF-4/68

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

INSTRUCTIONS

See Wildlife Refuges Manual Section 3321-24, "Wildlife Records".

If more space is needed for listing species in Group I, you can X out heading for Group II and continue listing. Retype heading of Group II below, or list Group II on a second page. Here, too, if the list is long, you can X out both headings and retype heading for Group II at top of form. This can eliminate the necessity for a third page of form.

Explanation of column headings:

- (1) Species: Use correct names as found in the A.O.U. Checklist.
- (2) First Seen: The first migration record for the species for the reporting period.
- (3) Peak Numbers: Estimated number and inclusive dates when peak population of the species occurred.
- (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 species days use (average population X no. days present) of refuge during the reporting period.

3-1751
Form NR-1A
(Aug. 1952)

MIGRATORY BIRDS
(Other than Waterfowl)

Refuge Monoway

Months of May to August 19 60

(1)	(2)		(3)		(4)		(5)			(6)
Species	First Seen		Peak Concentration		Last Seen		Production			Total
Common Name	Number	Date	Number	Inclusive Dates	Number	Date	Number Colonies	Total # Nests	Total Young	Estimated Use
I. Water and Marsh Birds:										
Common Loon	3	8/1	3	8/1-31	3	8/31	0	0	0	90
Rare Grebe	1	8/10	1	8/10	1	8/10	0	0	0	7
Pied-billed Grebe	5	7/24	5	7/24-8/1	5	8/1	1	1	3	35
Cory's Shearwater	2	8/17	2	8/17	2	8/17	0	0	0	2
Greater Shearwater	1	7/6	5	8/17	5	8/17	0	0	0	60
Sooty Shearwater	2	8/17	2	8/17	2	8/17	0	0	0	2
Wilson's Petrel	14	8/13	14	8/13	14	8/13	0	0	0	14
Double-crested Cormorant	6	7/6	30	7/18-30	1	8/15	0	0	0	400
Great Blue Heron	3	8/17	6	8/27	6	8/27	0	0	0	40
Green Heron	2	7/10	2	7/10-30	1	8/3	0	0	0	40
Louisiana Heron	1	7/10	1	7/10-18	1	7/18	0	0	0	8
Snowy Egret	1	7/6	1	7/6-20	1	7/20	0	0	0	14
Bl. Crowned Night Heron	5	7/6	8	7/6-8/24	5	8/24	0	0	0	110
II. Shorebirds, Gulls and Terns:										
Semipalmated Plover	10	6/10	400	8/9-8/17	200	8/31	0	4	8-10	7,000
Piping Plover	75	6/10	100	6/10-7/15	3	8/24	0	40	80	4,600
Killdeer	1	8/7	1	8/7	1	8/7	0	0	0	5
American Golden Plover	1	8/17	2	8/19-8/24	2	8/24	0	0	0	15
Black-bellied Plover	5	6/10	1,200	8/13-8/15	700	8/31	0	0	0	10,600
Sooty Terns	0	7/6	220	8/7-8/13	60	8/24	0	0	0	4,000

(over)

NR-1A

From

to

5RF-8/69

	(1)	(2)	(3)	(4)	(5)	(6)				
III. <u>Doves and Pigeons:</u>										
Mourning dove										
White-winged dove	3	8/10	3	8/10-30	1	8/30	0	0	0	60
IV. <u>Predaceous Birds:</u>										
Golden eagle										
Duck hawk										
Horned owl										
Magpie										
Raven										
Crow										
Marsh Hawk	1	7/6	3	8/3-17	2	8/31	0	0	0	60
Sparrow Hawk	1	7/18	1	7/18	1	7/18	0	0	0	1

INSTRUCTIONS

See Wildlife Refuges Manual Section 3321-24, "Wildlife Records".

If more space is needed for listing species in Group I, you can X out heading for Group II and continue listing. Retype heading of Group II below, or list Group II on a second page. Here, too, if the list is long, you can X out both headings and retype heading for Group II at top of form. This can eliminate the necessity for a third page of form.

Explanation of column headings:

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- (2) First Seen: The first migration record for the species for the reporting period.
- (3) Peak Numbers: Estimated number and inclusive dates when peak population of the species occurred.
- (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 species days use (average population X no. days present) of refuge during the reporting period.

II. Shorebirds, Gulls and Terns:

SPECIES	FIRST SEEN		PEAK CONCENTRATION		LAST SEEN		PRODUCTION			TOTAL
	<u>Common Name</u>	<u>No.</u>	<u>Date</u>	<u>No.</u>	<u>Inclu- sive Dates</u>	<u>No.</u>	<u>Date</u>	<u>Number Colonies</u>	<u>Total # Nests</u>	<u>Total Young</u>
Whimbrel	4	7/6	25	8/17- 8/24	2	8/24	0	0	0	650
Spotted Sandpiper	10	6/10	30	7/15	9	8/24	0	0	0	1,100
Solitary Sandpiper	2	8/19	2	8/19	2	8/19	0	0	0	5
Willet	4	7/6	9	8/15- 8/19	2	8/24	0	0	0	120
Gr. Yellow-Lags	3	7/6	75	7/24- 8/17	60	8/31	0	0	0	2,500
Lesser Yellow-lags	1	7/6	32	8/9	4	8/24	0	0	0	750
Knot	4	7/10	500	8/17- 8/19	15	8/24	0	0	0	7,500
Pectoral Sandpiper	1	7/15	10	8/17- 8/19	3	8/19	0	0	0	200
White-rumped Sandpiper	1	7/10	12	8/15	10	8/24	0	0	0	300
Least Sandpiper	28	7/6	400	7/18- 8/3	75	8/24	0	0	0	10,000
Dunlin	1	7/18	2	7/20	1	8/24	0	0	0	50
Sh. Billed Dowitcher	60	6/18	1,000	8/3- 8/6	40	8/30	0	0	0	18,000
Stilt Sandpiper	1	7/15	108	8/9	1	8/25	0	0	0	1,500

II. Shorebirds, Gulls and Terns:

SPECIES <u>Common Name</u>	FIRST SEEN		PEAK CONCENTRATION		LAST SEEN		PRODUCTION		TOTAL	
	<u>No.</u>	<u>Date</u>	<u>No.</u>	<u>Inclu- sive Dates</u>	<u>No.</u>	<u>Date</u>	<u>Colonies</u>	<u>Total # Nests</u>	<u>Total Young</u>	<u>Estimated Use</u>
Semipalmated Sandpiper	15	7/1	2,000	8/4- 8/9	1	8/25	0	0	0	40,000
Western Sandpiper	2	7/20	2	7/20- 8/19	1	8/24	0	0	0	25
Marbled Godwit	36	8/3	36	8/3	1	8/25	0	0	0	200
Hudsonian Godwit	3	7/6	48	8/3- 8/9	17	8/24	0	0	0	1,200
Sanderling	2	7/10	1,500	8/15	300	8/25	0	0	0	20,000
Northern Phalarope	1	7/30	1	7/30	1	7/30	0	0	0	5
Parasitic Jaeger	3	8/17	3	8/17	1	8/19	0	0	0	10
Gr. Black-Backed Gull	800	6/8	4,000	7/10- 8/31	4,000	8/31	2	1,000	2,000	250,000
Herring Gull	6,000	6/8	11,000	7/6- 8/31	11,000	8/31	2	4,000	80,000	500,000
Ring-billed Gull	1	7/6	100	8/19- 8/24	100	8/24	0	0	0	2,000
Laughing Gull	1	7/6	8	8/19	8	8/19	0	0	0	200
Common Tern	2,000	6/8	6,000	8/9	1,000	8/31	3	1,000	3,000	200,000
Arctic Tern	8	6/8	30	7/15	2	8/3	2	10	20	300

II. Shorebirds, Gulls and Terns:

SPECIES	FIRST SEEN		PEAK CONCENTRATION		LAST SEEN		PRODUCTION		TOTAL	
<u>Common Name</u>	<u>No.</u>	<u>Date</u>	<u>No.</u>	<u>Inclu- sive Dates</u>	<u>No.</u>	<u>Date</u>	<u>Number Colonies</u>	<u>Total # Nests</u>	<u>Total Young</u>	<u>Estimated Use</u>
Roseate Tern	500	6/8	500	6/8- 8/10	200	8/31	3	200	300	20,000
Least Tern	140	6/8	280	7/6	1	7/19	2	70	144*	2,000
Black Tern	1	8/7	9	8/19	2	8/24	0	0	0	200
Black Skimmer	2	7/6	4	7/10- 8/19	1	8/24	0	0	0	300

* None survived to flight stage.

MIGRATORY BIRDS
(Other than Waterfowl)

Refuge Monomoy

Months of September to December 19 69

(1) Species	(2) First Seen		(3) Peak Concentration		(4) Last Seen		(5) Production			(6) Total
Common Name	Number	Date	Number	Inclu- sive Dates	Number	Date	Number Colonies	Total # Nests	Total Young	Estimated Use
I. <u>Water and Marsh Birds:</u> The lack of personnel at this installation preclude maintaining accurate species records. Figures would have no basis in fact.										
II. <u>Shorebirds, Gulls and Terns:</u>										
III. <u>Doves and Pigeons:</u>										

(over)

NR-1A

From _____ to _____

5RF-8/69

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

INSTRUCTIONS

See Wildlife Refuges Manual Section 3321-24, "Wildlife Records".

If more space is needed for listing species in Group I, you can X out heading for Group II and continue listing. Retype heading of Group II below, or list Group II on a second page. Here, too, if the list is long, you can X out both headings and retype heading for Group II at top of form. This can eliminate the necessity for a third page of form.

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- (1) Species: Use correct names as found in the A.O.U. Checklist.
- (2) First Seen: The first migration record for the species for the reporting period.
- (3) Peak Numbers: Estimated number and inclusive dates when peak population of the species occurred.
- (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 species days use (average population X no. days present) of refuge during the reporting period.

3-1750b
Form NR-1B
(Rev. Nov. 1957)
5RF-10/64

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

WATERFOWL UTILIZATION OF REFUGE HABITAT

Refuge Monomoy For 12-month period ending August 31, 1969

Reported by A. L. Tibbs Title Refuge Manager

(1) Area or Unit Designation	(2) Habitat Type Acreage	(3) Use-days	(4) Breeding Population	(5) Production
UNIT 1	Crops	Ducks 88,228		
	Upland 49	Geese		
	Marsh 40	Swans		
	Water	Coots		
	Total 89	Total 88,228		

UNIT 2	Crops	Ducks 176,457		
	Upland 304	Geese 66,831		
	Marsh 344	Swans		
	Water 6	Coots		
	Total 654	Total 243,288		

UNIT 3	Crops	Ducks 264,685		
	Upland 779	Geese 11,138		
	Marsh 259	Swans		
	Water 25	Coots		
	Total 1,063	Total 275,823		

UNIT 4	Crops	Ducks 352,913	24 pr.	115
	Upland 569	Geese 33,415	8 pr.	20
	Marsh 190	Swans		
	Water 53	Coots		
	Total 812	Total 386,328	32 pr.	135

TOTALS	Crops	Ducks 882,283	24 pr.	115
	Upland 1,701	Geese 111,384	8 pr.	20
	Marsh 633	Swans		
	Water 84	Coots		
	Total 2,618	Total 993,667	32 pr.	135

	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.

REPORT OF BANDING ON Monomoy REFUGE - CALENDAR YEAR 1969

Geese	Method of Trapping*	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Totals
Canada														
Brant														
Ducks														
Mallard														
Black	Cage								75	1				76
Gr.-Winged Teal	Cage								3					3
Bl.-Winged Teal	Cage								36	2				38
Wood Duck	Cage								2					2
Eider														
Total Waterfowl									116	3				119
Other														
Mourning Dove														
Woodcock														

Quotas: Canada geese _____; Mallard _____; Blacks _____; Other _____

*Method of Trapping: CAN - Cannon Net; CAGE - Cage; MIST - Mist Net; NITE - Night-lighting

3-1752
Form NR-2
(April 1946)

UPLAND GAME BIRDS

Refuge Monomoy Months of January to April 1969

(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 observed	Estimated Total	per- centage	Hunting	For Re- stocking	For Research	Esti- mated number using Refuge	Pertinent information not specifically requested. List introductions here.
Ring-necked Pheasant									6	Morris Is. only none on Monomoy
Bobwhite									25	Morris Is. only none on Monomoy

INSTRUCTIONS

Form NR-2 - UPLAND GAME BIRDS.*

- | (1) SPECIES: | (2) DENSITY: | (3) YOUNG PRODUCED: | (4) SEX RATIO: | (5) REMOVALS: | (6) TOTAL: | (7) REMARKS: |
|--------------------------|--|---|---|--|--|---|
| Use Correct common name. | 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. | Estimated number of young produced, based upon observations and actual counts in representative breeding habitat. | This column applies primarily to wild turkey, pheasants, etc. Include data on other species if available. | Indicate total number in each category removed during the report period. | Estimated total number using the refuge during the report period. This may include resident birds plus those migrating into the refuge during certain seasons. | 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.

3-1752
Form NR-2
(April 1946)

UPLAND GAME BIRDS

Refuge Monocacy

Months of May to August 1969

(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 observed	Estimated Total	per- centage	Hunting	For Re- stocking	For Research	Esti- mated number using Refuge	Pertinent information not specifically requested. List introductions here.
NONE OBSERVED THIS PERIOD										

INSTRUCTIONS

Form NR-2 - UPLAND GAME BIRDS.*

- | (1)
Species | (2)
Density | (3)
Young
Produced | (4)
Sex
Ratio | (5)
Removals | (6)
Total | (7)
Remarks |
|---------------------|--|--------------------------|---------------------|-----------------|--------------|----------------|
| (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.

3-1752
Form NR-2
(April 1946)

UPLAND GAME BIRDS

Refuge Monomoy

Months of September to December 19 69

(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 observed	Estimated Total	per- centage	Hunting	For Re- stocking	For Research	Esti- mated number using Refuge	Pertinent information not specifically requested. List introductions here.
Bobwhite quail					1:1				12	First observation (10-4-69) in recent years.

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 Monomoy

Calendar Year 1969

(1) Species	(2) Density	(3) Young Produced	(4) Removals			(5) Losses			(6) Intro- ductions	(7) Estimated Total Refuge Population		(8) Sex Ratio
Common Name	Cover types, Total Acres Habitat	Number	Hunting	Restocking	Research	Predation	Disease	Winter Loss	Number and Source	Period of Peak Use	As of Dec. 31	50 percent males 50 percent females
White-tailed Deer	50 acres of scrub pine, oak. 2,648 acres bay- berry, beach plum, poison ivy, sand dunes, and fresh ans salt water marshes.	4						1		20	19	50 percent males 50 percent females

Remarks:

NR-3
5RF 1/69

3-1754
Form NR-4
(June 1945)

SMALL MAMMALS

Refuge Monomoy

Year ending April 30, 1969

(1) Species	(2) Density	Removals						(4) Disposition of Furs					(5) Total Population	
Common Name	Cover Types and Total Acres of Habitat	Acres Per Animal	Hunting	Fur Harvest	Predator Control	Restocking	For Research	Share Trapping			Total Refuge Furs Shipped	Furs Donated	Furs Destroyed	
								Permit Number	Trappers Share	Refuge Share				
Muskrat	23 1/4 acres fresh water marsh	.60												400

REMARKS:

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

REMARKS:

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 headings listed.
 - (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.

Bureau of Sport Fisheries and Wildlife
Division of Wildlife Refuges

MONTHLY RECREATIONAL USE REPORT

Refuge name

Monomoy

State

Massachusetts

State

Code 21
(1-2)

Congressional

District Code 12
(3-4)

Refuge

Code 508
(5-7)

Report Yr. Mo.

Period 69
(8-11)

(Card Columns). (12-13) (14-18) (19-25) YEAR			
VISITS FOR THE MONTH			
ACTIVITY	Code	Total Number	Total Hours
Hunting:			
Big Game	01		
Upland Game	02		
Waterfowl	03		
Other Migratory	04		
Other	05		
Bow	06		
Fishing:			
Salt Water	07	3,375	13,460
Warm Water	08		
Cold Water	09		
Environmental Education	10	595	2,975
Wildlife Photography	11	285	470
Wildlife Observation	12	4,935	19,240
Conducted Programs	13		
Field Trials	14		
Wildlife Trails	15		
Wildlife Tours/Routes	16	620	3,100
Visitor Contact Stations	17		
Camping (wildlife related)	18		
Picnicking (wildlife related)	19	55	110
Wildlife Interpretive Center	20		
Off-Site Programs	21		

(Card Columns). (12-13) (14-18) (19-25) YEAR			
VISITS FOR THE MONTH			
ACTIVITY	Code	Total Number	Total Hours
On-Site Programs	22		
*Miscellaneous Wildlife	23		
Swimming	24	400	1,400
Boating	25	455	910
Water Skiing	26		
Camping	27		
Group Camping	28		
Picnicking	29		
Horseback Riding	30		
Bicycling	31		
Winter Sports	32		
Fruit, Nut and Vegetable Collecting	33	30	30
*Miscellaneous Non-Wildlife	34	230	530
Average Peak Load Day	35	51	
Actual Visits	36	9,235	
Fee Area Use	37		
Number of Fee Areas	38	(14-18)	
Fee Collections	39	\$	
Collection Costs	40	\$	



Refuge Manager Tibbs (left) and Biological Technician DeGraaf (right) banding a blue-winged teal at the trapping site on August 5, 1969.



Poised on a sand dune, a robust and apprehensive male surveys intruders on his atypical white-tailed deer habitat.



The Monomoy lighthouse, situated at the south end of the Island, guided mariners from 1824 to 1923 when it was abandoned because of power and range of the modern Chatham Light. It is one of the few man made structures on the Island and is now maintained by the Massachusetts Audubon Society as a research station.

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

W A T E R F O W L

REFUGE Monomoy

MONTHS OF September TO December, 1969

(1) Species	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	:10/13-19 7	:10/20-26 8	:10/27-11/2 9	11/3-9 10
Swans:										
Whistling										
Trumpeter										
Geese:										
Canada	50	50	50	50	50	50	100	100	300	300
Cackling										
Brant										
White-fronted										
Snow										
Blue										
Other										
Ducks:										
Mallard	20	20	20	20	20	20	20	20	50	50
Black	100	100	100	100	100	100	800	800	1,100	1,100
Gadwall										
Baldpate							300	300	300	300
Pintail										
Green-winged Teal	50	50	50	50	50	50	200	200	300	300
Blue-winged Teal	50	50	50	50	50	50				
Cinnamon Teal										
Shoveler										
Wood										
Redhead										
Ring-necked										
Canvasback										
Scaup										
Goldeneye										
Bufflehead									80	80
Ruddy										
Other Am. Eider	400	400	400	400	400	400	400	400	400	400
Surf Scoter	400	400	400	400	400	400	400	400	400	400
White-winged Scoter	400	400	400	400	400	400	400	400	400	400
Coot	50	50	50	50	50	50	50	50	200	200

SRF 11/2/66

3 -1750a

Cont. NR-1

(Rev. March 1953)

WATERFOWL

(Continuation Sheet)

REFUGE Monomoy

MONTHS OF September TO December, 1969

(1) Species	(2) Weeks of reporting period								(3) Estimated waterfowl days use	(4) Production Broods: Estimated seen : total
	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		
Swans:										
Whistling										
Trumpeter										
Geese:										
Canada	300	600	600	1,100	1,100	1,100	1,100	1,100	52,300	✓
Cackling										
Brant										
White-fronted										
Snow										
Blue										
Other										
Ducks:										
Mallard	50	75	75	75	20	20	20	20	4,225	✓
Black	1,100	2,800	2,800	2,800	1,400	1,400	1,400	1,400	130,900	✓
Gadwall										
Baldpate	300	500	500	100	100	100			19,600	✓
Pintail										
Green-winged teal	300	200	200	200	20	20			15,680	✓
Blue-winged teal									2,100	✓
Cinnamon teal										
Shoveler										
Wood										
Redhead										
Ring-necked										
Canvasback										
Scaup										
Goldeneye										
Bufflehead	80	100	100	100	200	200	200	200	8,580	✓
Ruddy										
Other Am. Eider	400	400	400	400	1,100	1,100	1,100	1,100	65,600	✓
Surf Scoter	400	400	400	400	200	200	200	200	44,000	✓
White-winged Scoter	400	400	400	400	100	100	100	100	41,600	✓
Coot:	200	100	100	100	100	100			10,500	✓

(over)

	(5)	(6)	(7)	
	<u>Total Days Use</u>	<u>Peak Number</u>	<u>Total Production</u>	<u>SUMMARY</u>
Swans	:	:	:	Principal feeding areas _____
Geese	52,300 ✓	1,100	:	_____
Ducks	332,285 ✓	5,475	:	Principal nesting areas _____
Coots	:	:	:	_____

Reported by Stephen H. Clarke

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).

3-1751
Form NR-1A
(Aug. 1952)

MIGRATORY BIRDS
(Other than Waterfowl)

Refuge Monomoy

Months of September to December 19 69

(1) Species	(2) First Seen		(3) Peak Concentration		(4) Last Seen		(5) Production			(6) Total
Common Name	Number	Date	Number	Inclu- sive Dates	Number	Date	Number Colonies	Total # Nests	Total Young	Estimated Use
I. <u>Water and Marsh Birds:</u> The lack of personnel at this installation preclude maintaining accurate species records. Figures would have no basis in fact.										
II. <u>Shorebirds, Gulls and Terns:</u>										

(over)

NR-1A From _____ to _____

5RF-8/69

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

INSTRUCTIONS

See Wildlife Refuges Manual Section 3321-24, "Wildlife Records".

If more space is needed for listing species in Group I, you can X out heading for Group II and continue listing. Retype heading of Group II below, or list Group II on a second page. Here, too, if the list is long, you can X out both headings and retype heading for Group II at top of form. This can eliminate the necessity for a third page of form.

Explanation of column headings:

- (1) Species: Use correct names as found in the A.O.U. Checklist.
- (2) First Seen: The first migration record for the species for the reporting period.
- (3) Peak Numbers: Estimated number and inclusive dates when peak population of the species occurred.
- (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 species days use (average population X no. days present) of refuge during the reporting period.

(VNR 1025)
 FORM NR-14
 3-11-57

(OCCUPY THIS SPACE)
 WILDLIFE BIRDS

REPORT OF BANDING ON Monomoy REFUGE - CALENDAR YEAR 1969

Geese	Method of Trapping*	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Totals
Canada														
Brant														
Ducks														
Mallard														
Black	Cage								75	1				76
Gr.-Winged Teal	Cage								3					3
Bl.-Winged Teal	Cage								36	2				38
Wood Duck	Cage								2					2
Eider														
Total Waterfowl									116	3				119
Other														
Mourning Dove														
Woodcock														

Quotas: Canada geese _____; Mallard _____; Blacks _____; Other _____

*Method of Trapping: CAN - Cannon Net; CAGE - Cage; MIST - Mist Net; NITE - Night-lighting

3-1752
Form NR-2
(April 1946)

UPLAND GAME BIRDS

Refuge Monomoy

Months of September to December 19 69

(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 observed	Estimated Total	per- centage	Hunting	For Re- stocking	For Research	Esti- mated number using Refuge	Pertinent information not specifically requested. List introductions here.
Bobwhite quail					1:1				12	First observation (10-4-69) in recent years.

INSTRUCTIONS

Refuge Monomoy Months of September to December 19 69

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 Monomoy

Calendar Year 1969

(1) Species	(2) Density	(3) Young Produced	(4) Removals			(5) Losses			(6) Intro- ductions	(7) Estimated Total Refuge Population		(8) Sex Ratio
			Hunting	Restocking	Research	Predation	Disease	Winter Loss		Period of Peak Use	As of Dec. 31	
Common Name	Cover types, Total Acres Habitat	Number							Number and Source			
White-tailed Deer	50 acres of scrub pine, oak. 2,648 acres bay- berry, beach plum, poison ivy, sand dunes, and fresh ans salt water marshes.	4						1		20	19	50 percent males 50 percent females

Remarks:

NR-3
SRF 1/69

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 each species 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.