Narrative Report

1972

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Personnel

Blackwater National Wildlife Refuge

William H. Julian ..... Refuge Manager
Wendell E. Crews ..... Refuge Manager
(Transferred Reelfoot NWR Tenn. 8/21/72)
Ellen T. Prior ..... Refuge Manager
(Entered Departmental Training Program 8/7/72)
Kenneth M. Chitwood ..... Refuge Manager
(E.O.D. 11/12/72)
Robert R. Germany ..... Refuge Manager
(E.O.D. 6/12/72)
Guy W. Willey ..... Biological Technician
Domenick R. Ciccone ..... Recreation Specialist
(E.O.D. 10/15/72)
Franklin A. Hughes ..... Auto Mechanic
G. Wallace Stewart ..... Maintenanceman
Kenneth M. Wheatley ..... Clerk-Typist
Guy J. Bramble ..... Carpenter (WAE)
Joseph H. Cornish ..... Laborer (Career Conditional Intermittent)
Charles P. Drake ..... Recreation Aid (Summer)
William M. Giese ..... Laborer (Career Conditional Intermittent)
Cindy A. Foxwell ..... Laborer (WAE)

Glen L. Martin National Wildlife Refuge
J. Stanley Marshall ..... Maintenanceman
(Narrative Report under separate cover)

Mason Neck National Wildlife Refuge
Larry A. Dunkeson ..... Refuge Manager
(Entered Departmental Training Program 8/7/72)
(Narrative Report under separate cover)

Susquehanna National Wildlife Refuge
Roger S. Mason ..... Maintenanceman (WAE)

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BLACKWATER

SUSQUEHANNA

Blackwater National Wildlife Refuge

Narrative Report

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I. General

A. Weather Conditions

The year 1972 was another wet one for the refuge. Above normal precipitation in the amount of 12.99 inches was recorded for 1972. Some type of precipitation was recorded on at least 155 days of the year with a grave total of 61.95 inches. Heaviest amount was recorded in June when 10.66 inches was reported. Tropical storm "Agnes" hit the area on June 22 and heavy rainfall flooded fields and roads. High winds up to 55 mph uprooted trees and did minor damage adjacent to the refuge. Extremely high tides were reported all along the Maryland-Delaware area.

Heaviest snowfall occurred in February with six days reporting the white stuff for a total of 13.5 inches. The earliest snowfall since 1940 was recorded on October 19. Only a trace was recorded on the refuge, whereas Northern and Western Maryland reported three inches. The first frost of the Fall season was reported on October 10.

A climatological summary of the Blackwater weather for the period 1942-1970 is attached.

U.S. DEPARTMENT OF COMMERCE
NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION
IN COOPERATION WITH BLACKWATER NATIONAL WILDLIFE REFUGE
CLIMATOGRAPHY OF THE UNITED STATES NO. 20 – 18

LATITUDE 38° 26' N.
LONGITUDE 76° 08' W.
ELEV. (GROUND) 5 feet

CLIMATOLOGICAL SUMMARY

STATION BLACKWATER NATIONAL WILDLIFE REFUGE, MARYLAND

MEANS AND EXTREMES FOR PERIOD September 1941 - December 1970

Month	Temperature (°F) Means: Daily maximum	Daily minimum	Monthly	Extremes: Record highest	Year	Record lowest	Year	** Mean degree days	Precipitation Totals (Inches): Mean	Greatest daily	Year	Snow, Sleet: Mean	Maximum monthly	Year	Greatest daily	Year	Mean number of days: Precip. .10 inch or more	Temperatures Max. 90° and above	Max. 32° and below	Min. 32° and below	Min. 0° and below	Month
(a)	29	29	29	29		29		20	29	29		30	30		30		29	29	29	29	29	
Jan	44.1	27.8	36.0	75	1967	-14	1942	914	3.28	2.85	1948	5.0	30.0	1966	18.0	1966	7		4	21	*	Jan
Feb	45.8	28.8	37.3	75	1948	-4	1961	775	3.02	1.70	1958	3.7	21.5	1967	9.0	1967	6		2	19	*	Feb
Mar	54.0	35.3	44.7	85	1948	12	1943	635	3.87	2.05	1958	2.8	15.0	1960	8.0	1947	7		*	13		Mar
Apr	64.9	44.7	54.8	88	1960+	25	1965+	299	3.07	1.78	1954	0.8	1.0	1964+	1.0	1964+	6			2		Apr
May	74.5	54.7	64.6	93	1942	26	1947	96	3.69	2.86	1948						7	1		*		May
Jun	82.3	63.6	73.0	102	1959	40	1947+	10	3.55	3.90	1967						6	5				Jun
Jul	85.9	68.1	77.0	100	1959	48	1946	*	5.02	4.05	1945						7	8				Jul
Aug	84.8	66.3	75.6	98	1955+	44	1944	1	4.59	8.60	1955						5	6				Aug
Sep	79.2	59.7	69.5	100	1953	34	1942	36	3.49	4.62	1957						5	2				Sep
Oct	69.5	49.2	59.4	99	1941	21	1969	200	2.90	3.48	1949						5	*		1		Oct
Nov	57.9	39.2	48.6	78	1961+	16	1951	487	3.51	3.40	1963	0.5	7.0	1967	7.0	1967	6			8		Nov
Dec	46.3	29.7	38.0	70	1970+	2	1958	829	3.37	1.90	1969	2.6	12.0	1962	7.0	1945	6		2	20	0	Dec
Year	65.8	47.3	56.6	102	1959	-14	1942	4282	43.36	8.60	1955	14.8	30.0	1966	18.0	1966	73	22	8	84	*	Year

(a) Average length of record, years.

T Trace, an amount too small to measure.

** Base 65°F

\+ Also on earlier dates, months, or years.

* Less than one half.

CLIMATE OF BLACKWATER NATIONAL WILDLIFE REFUGE, MARYLAND

Blackwater National Wildlife Refuge, established in Dorchester County in 1933, is administered by U.S. Department of Interior, Bureau of Sport Fisheries and Wildlife. The primary responsibility of the Refuge is to perpetuate, protect and manage migratory birds and other wildlife. The Refuge, consisting of 11,216 acres, mostly of tidal marsh, is located at the confluence of the Big and Little Blackwater Rivers about 10 miles south of Cambridge. It is in the flat Atlantic Coastal Plain where elevations in the area range from one to six feet. The weather station is located in a clearing at an elevation of five feet.

The Refuge has a humid, continental type of climate by reason of its 43-inch average annual rainfall and its location in the middle latitudes where the general atmospheric flow is from west to east across the North American continent. During the colder half of the year, a frequent succession of high and low pressure systems move along in this flow bringing alternate surges of cold dry air from the north and of warm humid air from the south. This accounts for much of the variety in the weather from day to day. During the summer this pattern tends to break down as warm moist air spreads northward from the south and southwest and remains over the area much of the time.

The warmest part of the year is the last half of July when the maximum afternoon temperature averages near 88°F. Extremes, 100°F. and higher, are rare, occurring only 5 times during the period of record. Temperatures of 90°F. and higher occur on the average of 21 days per year and have ranged from 1 day in 1946, again in 1967, to 45 days in 1963. In 1955 there were 19 days in July with temperatures 90°F. and higher. The coldest period, on the other hand, is the last of January and the beginning of February when early morning minimum temperature averages near 25°F. The average annual number of days when the daily minimum temperature is 32°F. or lower is 84 and has ranged from 58 days in 1949 to 109 days in 1944. Temperatures, 0°F. or lower, are quite rare, occurring 9 times during the period of record (7 times in January and twice in February); none were recorded during the years, 1966-1970.

Precipitation is rather evenly distributed through the year, with August the wettest month and October the driest. The annual precipitation averages 43.36 inches and has ranged from 28.21 inches in 1943 to 67.27 inches in 1948. Heavy precipitation during the colder half of the year is generally the result of low pressure systems moving north- or northeastward along the coast. In summer it occurs mostly in thunderstorms; tropical storms or hurricanes may also bring unusually heavy one- or two-day rainfalls.

The average seasonal snowfall at this station is 15 inches and has ranged from 2 inches in the 1948-1949 winter season to 37½ inches in the 1966-1967 season. The greatest snowstorm during the period of record is the blizzard of January 29-30, 1966 which brought an actual snowfall of 19 inches and extremely heavy drifting. The snowdepth on February 3, 1966, after three separate snowstorms beginning January 26, totaled 33 inches.

Thunderstorms occur on an average of 30 days per year; while they may occur in any month, nearly 75 percent of them occur from May through August. Thunderstorms may be accompanied by heavy rain, damaging winds, hail and/or intense lightning. Tornadoes are rare and in the past have caused mostly minor damage; in the state of Maryland the annual average is two. Tropical storms or hurricanes affect the area about once a year, usually in the period, August through October. Most of them have caused minor damage through heavy rainfall, strong winds and high tides. The most damaging storm during this period of record was Hurricane Hazel on October 15, 1954.

Prevailing winds are from the west to northwest except during summer when they become more southerly, from south to southwest. The average annual wind speed is about 9 miles per hour, but winds may reach 50 to 60 miles per hour and even higher during severe summer thunderstorms, hurricanes or intense winter storms.

The average date of the last 32-degree temperature in spring is April 12 and the first in fall is October 28. The growing season, defined as the number of days between the last 32-degree temperature in the spring and the first in the fall, averages 200 days. The following table gives the probability (in percent) of the last spring and first fall occurrences of temperatures 32°, 24° and 16°F.

Temperature	10%	33%	50%	67%	90%
	AFTER DATE IN SPRING				
32° or below	Apr 27	Apr 17	Apr 12	Apr 7	Mar 28
24° or below	Mar 23	Mar 14	Mar 10	Mar 6	Feb 25
16° or below	Does not occur every year				
	BEFORE DATE IN FALL				
32° or below	Oct 12	Oct 23	Oct 28	Nov 2	Nov 13
24° or below	Nov 10	Nov 21	Nov 26	Dec 1	Dec 12
16° or below	Does not occur every year				

W. J. Moyer, Climatologist for Maryland and Delaware
Room 101, Jull Hall
College Park, Maryland 20742
University of Maryland
August 1971

Average Temperature (°F)

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Ann'l
1941									71.4	63.8	48.2	40.6	--
1942	33.0	32.8	44.9	55.7	67.0	73.4	78.4	74.8	69.6	59.3	48.2	33.6	55.9
1943	35.8	35.6	41.6	47.8	64.7	77.2	76.8	75.9	65.8	54.2	44.4	35.8	54.6
1944	35.4	35.0	41.4	51.6	69.8	73.5	76.2	74.2	69.1	56.0	45.8	34.6	55.2
1945	30.2	36.2	52.4	55.2	59.3	70.4	72.8	71.4	70.4	55.3	48.4	31.2	54.4
1946	36.4	38.4	50.6	52.5	63.0	69.0	71.9	69.1	66.8	58.6	50.8	41.8	55.7
1947	42.4	33.2	40.0	56.4	65.3	71.3	75.7	78.0	70.6	64.2	45.9	37.4	56.7
1948	30.4	37.1	49.2	55.5	65.4	74.4	78.1	77.4	71.0	56.8	55.1	41.7	57.7
1949	43.9	44.7	46.5	54.3	63.6	72.9	78.6	75.2	66.2	63.1	48.9	43.1	58.4
1950	49.2	38.7	41.6	50.1	61.1	70.2	73.7	74.1	67.8	60.9	47.4	34.0	55.7
1951	37.7	37.8	42.9	52.6	62.6	71.4	77.2	74.1	68.4	60.6	44.4	41.2	55.9
1952	40.5	40.6	43.7	56.2	62.6	75.2	80.6	76.6	70.6	55.0	45.6	35.0	56.8
1953	39.2	39.0	42.4	50.8	--	--	--	73.7	70.2	59.7	48.5	40.4	--
1954	35.3	43.8	46.2	58.3	62.6	72.5E	76.4	74.3	71.1	64.8	47.7	37.8	57.6E
1955	33.3	38.3	48.6	62.9	66.3	69.6	81.2	79.9	70.1	59.3	45.7	31.6	57.3
1956	33.2	39.3	42.9	52.7	62.4	71.2	75.7	73.4	68.0	60.5	49.6	46.4	56.3
1957	34.8	41.7	44.6	58.3	66.3	75.3	76.4	73.3	71.3	55.3	49.1	41.2	57.3
1958	33.6	31.2	40.7	54.3	63.2	70.1	79.8E	76.1	68.1	58.3	49.8	32.6	54.8E
1959	35.3	37.8	45.5	57.5	69.0	75.3	78.7	78.9	71.8	63.0	48.8	43.5	58.8
1960	41.0	39.6	34.9	58.8	63.7	73.8	77.0	79.9	70.3	59.0	50.5	32.5	56.8
1961	31.9	40.7	50.2	54.3	63.8	73.8	79.6	77.6	75.8	60.7	52.3	39.0	58.3
1962	36.3	35.8	43.6	56.7	68.6	73.2	74.3	75.5	67.6	60.5	45.7	34.1	56.0
1963	31.8	20.2	46.9	53.5	62.7	75.5	79.3	77.3	67.2	63.0	51.6	34.6	56.2
1964	39.7	38.5	49.1	55.9	67.6	73.9	76.5	74.0	69.7	55.8	51.3	42.6	57.9
1965	34.7	38.0	41.8	51.9	68.9	71.0	75.8	76.0	71.8	57.2	48.5	40.7	56.4
1966	32.2	35.5	47.8	52.4	63.3	73.0	77.5	76.2	67.3	56.4	51.9	38.4	56.0
1967	40.6	34.4	44.0	56.2	58.9	72.1	74.7	75.1	67.0	58.2	45.0	40.3	55.5
1968	30.4	32.0	46.8	54.6	61.9	73.6	76.6	75.9	66.0	60.4	50.5	37.2	55.5
1969	34.1	36.0	42.6	57.5	64.9	75.8	78.6	75.7	69.7	58.4	47.1	37.1	56.5
1970	30.2	36.9	41.7	54.9	66.8	74.0	78.0	77.5	74.0	62.3	50.2	39.6	57.2

FREEZE DATA (month-day)

	Last Spring Minimum of					First Fall Minimum of				
Year	16° or below	20° or below	24° or below	28° or below	32° or below	32° or below	28° or below	24° or below	20° or below	16° or below
1956	1-28	3-1	3-1	4-1	4-25	11-11	11-24	11-24	11-24	None
1957	1-19	1-19	3-4	3-5	4-15	10-13	11-12	11-12	12-12	12-12
1958	2-19	2-19	2-21	3-24	3-29	11-8	11-23	11-30	11-30	12-1
1959	2-20	2-21	3-23	3-29	3-29	11-10	11-18	12-23	None	None
1960	3-12	3-16	3-16	4-11	4-11	10-26	11-8	12-3	12-9	12-13
1961	2-3	2-6	3-18	3-18	3-18	11-11	11-11	12-14	12-16	None
1962	3-3	3-4	3-5	4-4	4-4	11-7	11-7	12-12	12-12	12-13
1963	2-27	2-27	2-28	3-11	4-15	11-4	12-7	12-14	12-15	12-31
1964	1-15	2-13	2-23	4-2	4-5	10-12	11-22	11-23	11-23	None
1965	2-20	2-27	3-22	4-5	4-5	10-6	10-30	11-15	12-22	None
1966	2-20	2-21	2-23	3-29	5-10	10-3	11-23	12-3	12-4	12-4
1967	2-27	3-19	3-19	3-20	3-25	10-30	11-6	12-2	12-2	12-2
1968	2-27	3-8	3-8	3-14	4-12	10-31	10-31	12-7	12-10	12-11
1969	1-28	2-15	4-1	4-13	4-14	10-16	10-24	10-24	12-25	None
1970	2-26	3-1	3-16	3-17	4-11	11-17	11-17	11-18	12-8	None

STATION HISTORY

The National Weather Service (Weather Bureau) cooperative weather station at the Blackwater National Wildlife Refuge began operation on September 1, 1941. The weather station, located in an area behind the Administration Building has an excellent exposure.

The following individuals have been responsible for a fine set of weather records at the Refuge:

	Period of Record
Dr. Hubert Dozier	Sep. 1, 1941 - Dec. 31, 1946
Mr. W. Steele Webster	Jan. 1, 1947 - June 6, 1960
Mr. Guy W. Willey	June 7, 1960 - Present

Total Precipitation (Inches)

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Ann'l
1941								3.43	0.6	2.02	1.20	4.16	--
1942	3.38	2.92	6.95	0.61	3.78	4.67	5.77	6.15	5.03	3.99	2.37	2.98	48.60
1943	2.88	2.57	3.46	2.65	3.14	2.03	0.45	0.26	1.75	5.66	1.70	1.66	28.21
1944	2.99	3.38	6.52	4.53	1.68	3.01	4.49	1.41	3.59	3.04	4.57	2.53	41.74
1945	3.74	3.01	0.77	2.83	7.47	6.34	19.95	3.01	3.26	3.31	4.82	7.05	65.56
1946	1.57	1.57	1.99	2.82	4.86	3.17	5.31	3.19	3.21	1.94	2.09	2.73	34.45
1947	4.74	1.10	3.35	3.34	4.85	3.79	3.23	0.72	4.00	1.13	6.42	2.13	38.80
1948	6.40	2.45	4.05	2.46	11.64	5.18	7.70	10.53	2.82	2.98	6.88	4.18	67.27
1949	4.34	2.80	2.51	2.53	3.54	2.62	4.75E	3.25	3.14	4.30	0.99	1.53E	36.30E
1950	2.15	2.23	4.77	2.09	8.57	1.33E	5.36	3.36	5.05	1.22	2.65	2.23	41.01E
1951	1.52	2.14	2.84	2.53	2.48	4.39	4.33	3.36	4.40	2.22	5.25	4.60	40.06
1952	5.63	3.09	6.59	6.11	3.03	1.18	2.65	8.55	3.35	0.94	7.45	3.93	52.50
1953	4.75	3.26	4.20	2.77	3.50	1.76	1.71	5.75E	1.25	4.57	2.37	2.60	38.49E
1954	4.08	1.95	3.64	3.94	2.61	1.30	2.74	4.43	2.68	2.01	3.31	2.59	35.28
1955	0.90	3.42	4.74	4.04	2.35	5.30	2.62	16.09	4.49	3.30	2.64	0.38	50.27
1956	2.24	3.68	4.07	2.15	2.50	3.35	6.53	2.69	4.03	4.65	5.33	3.51E	44.73
1957	3.47	4.12	3.82	1.83	0.98	4.22	1.30	4.75	7.41E	5.13	4.09	5.58	46.70E
1958	3.55	4.54	6.01	4.83	6.59	3.45	4.25	7.90	2.46	3.05	3.22	2.08	51.93
1959	3.21	2.25	3.03	3.06	1.50	1.32	10.03	10.98	1.23	4.65	6.12	3.70	51.08
1960	2.68	3.58	1.72	2.67	7.01	3.32	6.93	1.51	9.34	3.37	1.88	3.20	47.21
1961	3.59	5.47	4.27	3.79	4.11	6.41	3.98	2.88	0.63	5.87	1.70	4.32	47.02
1962	4.21	4.97	3.34	4.62	1.34	4.09	1.77	1.23	3.21	2.17	5.85	3.78	40.58
1963	2.59	2.63	6.35	0.85	2.46	5.14	2.93	1.77	4.85	0.11	7.96	2.30	39.94
1964	4.95	5.11	3.18	4.39	0.35	4.27	9.17	0.73	5.26	2.91	2.72	3.92	46.96
1965	3.22	2.82	4.43	3.18	0.43	3.28	5.47	5.83	2.76	1.16	0.29	0.80	33.67
1966	3.89	3.65	1.85	4.20	3.24	3.54	2.45	0.49	4.96	5.04	1.08	3.65	38.04
1967	1.38	3.28	2.15	1.42	4.75	5.87	4.50	10.05	3.51	1.33	2.09	4.67	45.00
1968	2.96	0.47	5.06	1.26	4.12	5.07	3.19	4.50	2.04	1.90	3.65	2.13	36.35
1969	2.42	3.33	2.70	3.91	1.88	1.38	6.88	7.48	2.36	1.03	1.47	7.66	42.50
1970	1.81	1.69	3.91	3.69	2.36	2.09	5.18	1.54	2.38	1.86	3.19	4.48	34.18

RAINFALL FREQUENCY FOR DURATIONS FROM 5 MINUTES TO 24 HOURS AND RETURN PERIODS FROM 2 TO 100 YEARS FOR BLACKWATER WILDLIFE REFUGE AREA (VALUES GIVEN IN INCHES)

Return Period	5-Min	30-Min	1-Hour	2-Hour	3-Hour	6-Hour	12-Hour	24-Hour
2-year	0.5	1.4	1.7	2.0	2.2	2.7	3.2	3.4
5-year	0.7	1.8	2.2	2.6	2.8	3.3	3.9	4.6
10-year	0.8	2.0	2.6	3.2	3.4	4.0	4.8	5.4
25-year	0.9	2.4	3.0	3.6	3.9	4.5	5.4	6.2
50-year	1.0	2.8	3.4	4.1	4.5	5.3	5.2	6.8
100-year	1.1	3.0	3.9	4.6	5.2	5.7	6.7	7.8

For example: The 2-year 1-hour rainfall given in the table as 1.7 inches means that this value will be equalled or exceeded, on an average, once every two years.

From: U.S. Weather Bureau, Technical Paper No. 40, Rainfall Frequency Atlas of the United States, May 1961.

MONTHLY AND SEASONAL SNOWFALL (INCHES)

Season	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	Total (or Seasonal)
1941-1942	0	0	T	5.0	T	10.0	0	0	15.0
1942-1943	0	0	5.3	0.3	1.2	2.5	T	0	9.3
1943-1944	0	T	T	4.0	2.0	1.9	0.5	0	8.4
1944-1945	0	T	0.5	1.8	1.5	0	0	0	3.8
1945-1946	0	T	8.5	2.0	2.0	0	0	0	12.5
1946-1947	0	0	5.0	8.0	6.7	13.5	0	0	33.2
1947-1948	0	0	2.1	8.5	7.0	0	0	0	17.6
1948-1949	0	0	T	1.0	0.5	0.2	0	0	1.7
1949-1950	0	0	0	T	5.0	1.5	0	0	6.5
1950-1951	0	0	T	1.0	2.0	0	0	0	3.0
1951-1952	0	0	1.0	0	3.0	T	0	0	4.0
1952-1953	0	3.0	2.0	3.0	T	6.0	0	0	14.0
1953-1954	0	4.0	0	8.0	T	0	0	0	12.0
1954-1955	0	0	2.0	3.0	T	0	0	0	5.0
1955-1956	0	1.0E	0	3.0	0	0.5	0	0	4.5E
1956-1957	0	0	0	12.0	4.0	0	1.0	0	17.0
1957-1958	0	0	3.0	4.0	7.0	7.0	0	0	21.0
1958-1959	0	0	10.0	2.0	0	T	0	0	12.0
1959-1960	0	0	0	0.7	5.0	15.0	0	0	20.7
1960-1961	0	0	8.0	4.5	8.0	0	0	0	20.5
1961-1962	0	T	0.3	10.0	6.0	3.0	0	0	19.3
1962-1963	0	0	12.0	3.0	1.0	T	0	0	16.0
1963-1964	0	0	4.0	5.5	12.0	3.0	1.0	0	25.5
1964-1965	0	T	T	7.0	4.0	3.0	0	0	14.0
1965-1966	0	0	T	13.8	5.0	T	0	0	18.8
1966-1967	0	0	8.5	7.0	21.5	0.5	0	0	37.5
1967-1968	0	7.0	3.0	1.0	T	5.0	0	0	16.0
1968-1969	0	T	T	0.5	4.1	7.8	0	0	12.4
1969-1970	0	0	T	7.5	0.5	0	0	0	8.0
1970-1971	0	0	2.0	5.9	1.5	3.0	0	0	12.4

Month	Precipitation Snowfall	Rainfall	Normal	Max. Temp.	Min. Temp.
January	T	4.05	3.47	64	5
February	13.5	6.19	4.22	74	15
March	.0	2.53	3.82	75	20
April	1.0	3.88	3.82	83	26
May	.0	5.10	5.61	80	42
June	.0	10.66	3.45	86	47
July	.0	4.05	2.00	94	53
August	.0	5.82	4.75	92	49
September	.0	3.86	4.03	88	46
October	T	4.02	5.13	78	31
November	T	6.84	5.33	74	22
December	.0	4.95	3.43	67	21
Totals	14.5	61.95	48.96		
Extremes	13.5	10.66	5.61	94	5
Average				79.6	31.4

B. Habitat Conditions

1. Water. Above normal precipitation throughout the year kept all the fresh water impoundments at a desired level. Draw down was necessary several times during the year due to excessive runoff from Kentuck and Green Brier Swamps. We had more than sufficient water for both flooding the bottom lands and waterfowl banding.

Tidal waters of the refuge for the second consecutive year were above normal. These extremely high tides caused more damage to the thinly vegetated areas of the interior of the refuge. It is estimated that more than one thousand acres of three-square had retarded plant growth in areas bordering the river and large ponds. The high tides prevailed on the marshes throughout much of the summer after Tropical Storm "Agnes" passed during June. Extremely high tides were present during the peak of the goose migration. Canadas, Blues, and Snows totally denuded many of the areas. Once the vegetation is gone the wave erosion from the winds takes place. Another factor contributing to the damage was the mild weather which caused the geese to use the marsh areas since they prefer browse of green marsh plants and three-square roots over the hot foods of corn or soybeans. The above factors force the muskrats and nutria to move to other areas and they cause more damage since they are concentrated in small areas and not distributed to maintain the marsh in good condition.

We would also like to mention that this loss of marsh is not confined to the refuge. Many adjacent marshes suffer the same dilemma. At present, during heavy rainfall and high tides, the marshes are covered for long periods. When this occurs during the growing season, the vegetation is limited to minor growth. Three to five years of extreme drought conditions in the summer would help the situation.

2. Food and Cover. Production from cultivated crops in 1972 was poor. The heavy rainfall damaged all grain crops. Late plantings suffered from the early October killing frost.

Controlled burning of the marsh resulted in providing green browse for both geese and ducks.

A good mast crop was reported this year. This provided food for the squirrel population. Fescue and lespedze growth around the dikes, roadways, and fallow fields provided cover for rabbits, fox, quail, and other upland wildlife species. A breakdown of crops grown is shown in Section III, Part B of this report.

II. WILDLIFE

A. Migratory Birds. Total waterfowl production for the calendar year was 590, a decline of 61 from the estimate for 1971. Mallards led on the "production line" with 250 and Black ducks remained stable with 200 produced. Blue-winged teal and Wood ducks hatched 50 each, a considerable decline for both from last year. A total of 20 Gadwall were produced this year with none reported last year. We feel certain that even though they probably were present last year, this is a high percentage increase for the species. Canada geese also produced 20 representing over a 100% from 1971.

Use of nesting boxes by Wood ducks proved to be negligible again this year with only 3 of 22 being used. From our records of use of these boxes, it seems apparent that there are adequate natural cavities present to provide nesting for this species.

Whistling swans again reached their peak in December with 200 reported near the end of the month. A total of 23,635 use days were recorded for 1972, as compared to 27,124 in 1971. A total of 45 of these birds were banded and marked in the winter and spring in cooperation with the Johns Hopkins University project.

Blue and Snow goose populations were again higher than the previous year with a peak of 2,100 reported at the beginning of December. Use days for these species totaled 225,385, an increase of nearly 17% over last year and the highest on record for Blackwater. Feeding habits for these birds seem to be shifting from the coastal marshes to cultivated fields, yet they can still do considerable damage to three-square marsh on a low tide.

Canada geese peaked at 60,000 in November and December, down 10,000 from 1971 and 20,000 from 1970. The 5,843,365 use days were down almost one-half million from last years figures and well below the average for the last five years. Early reports in this area indicate that perhaps this species had a rather poor breeding year. The resident flock continues to number around 300.

On December 2, Mr. Richard Rowlett and Assistant Manager Germany sighted a single white-fronted goose near the refuge visitor center. This is the first such sighting since October 14, 1969, when Refuge Manager Julian sighted two. Several other sightings of this goose were reported during the two week period to the end of October.

Total duck use days have shown a steady decline from 11,652,880 in 1967 to 3,422,460 in 1972. This is a decrease of over 70% in use since 1967. The year peak was reached in November at 58,175, considerably below the five-year high of 139,200 in 1968.

Key species were Pintail, Mallard, American widgeon, Blue-winged teal, and Green-winged teal.

Pintail reached their peak of 22,000 in November, the highest since 1969. This concentration was present on the refuge for a very short period during the peak month.

Mallards reached a high of 10,000 in December, a far cry from the 60,000 recorded in 1968. The resident population of about 700 brought off several broods along the Diffenbach and Headquarters Pools.

Blue-winged teal began arriving in late August and built up to a peak of 6,000 in early November. Green-wings arrived later in September and reached a high of 8,000 also in November. As

temperatures dropped in early December, the majority of teal continued their southerly migration. Approximately 500 Blue-wings remained resident and a few nested throughout the spring and summer.

Following the downward trend, American Widgeon peaked at 8,000 compared to 10,000 last year and 15,000 in 1968.

Black duck numbers were also down considerably with a high of only 5,000 compared to 20,000 in 1968 and 17,500 last year.

Although use by diving ducks is insignificant at Blackwater, small numbers are seen by personnel throughout the winter. Species seen are ring-necks, mergansers, buffleheads, and ruddy ducks.

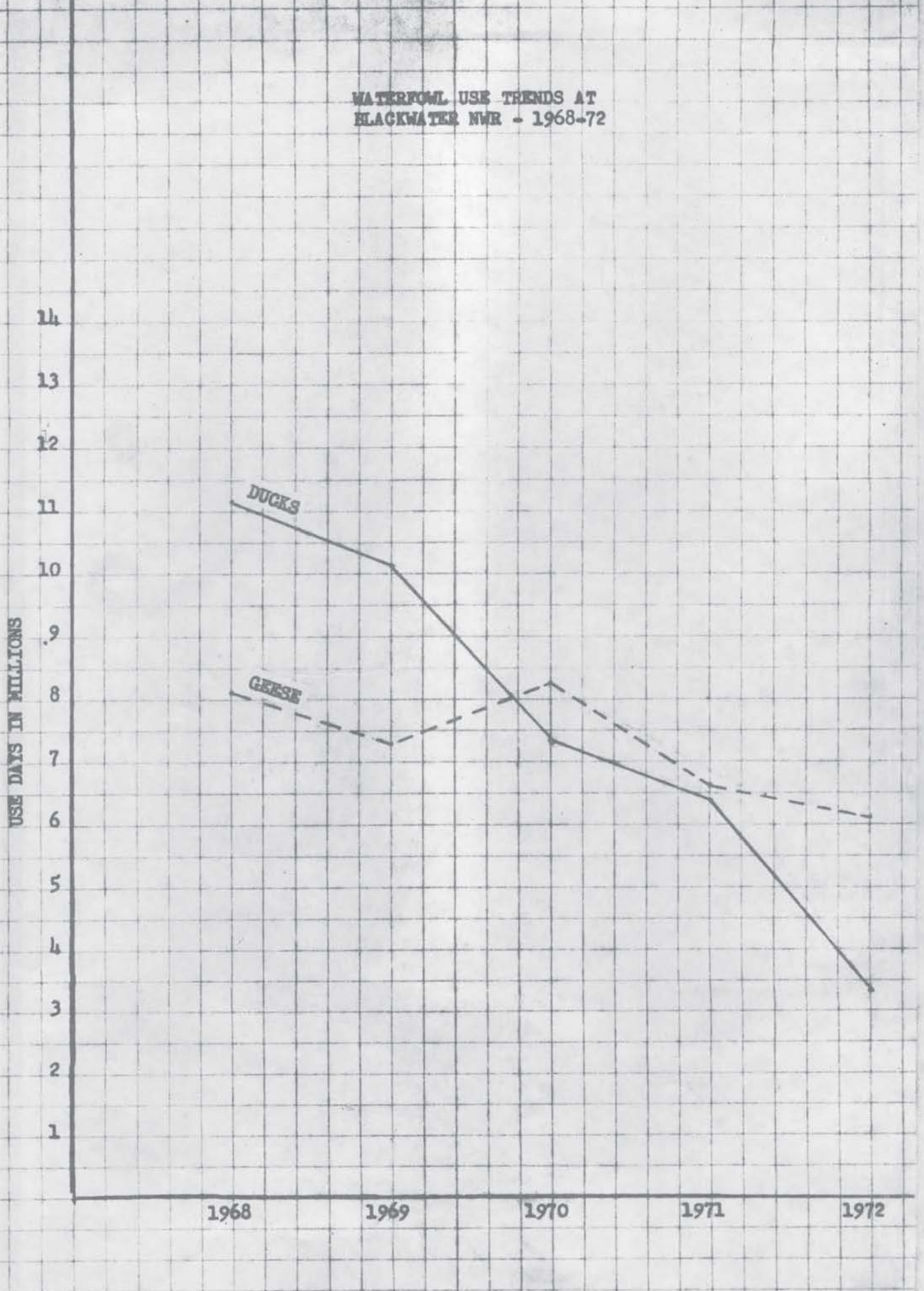
See Chart #1 for a graphic comparison of waterfowl use days since 1968.

Mourning doves showed an increase over 1971 with a peak of 200 as opposed to 160. A total of 81 were banded toward the refuge quota of 100.

B. Upland Game Birds. Observations by Refuge personnel again indicate that Bob-white quail numbers are lower. A peak of 600 was reported during the summer period. 1971 was another wet year and probably had a detrimental effect on nesting attempts by this species.

The Eastern Wild Turkey has remained stable from the figures reported last year at 10 birds. No reproduction has been evident during the year and sightings have been only occasional.

C. Big Game Animals. White-tailed and Sika deer are the only big game animals that occur at Blackwater. Estimates for these species are 500 and 25 respectively. Crop depredations on the refuge and nearby farms continued to be a problem during the year. Dorchester County had a one deer limit and harvested an estimated 1,000 during the eight-day season as opposed to 1,500 killed during 1971 with a two deer limit and seven days. The deer hunt for Blackwater received approval for 1972 and was held on November 27 and 28 for shotguns and December 18 and 19 for bow hunters. A total of 13 were harvested, all taken during the gun hunt. A complete report of the hunt is included in Section VI.


WATERFOWL USE TRENDS AT
BLACKWATER NWR - 1968-72
USE DAYS IN MILLIONS
14
13
12
11
10
9
8
7
6
5
4
3
2
1
DUCKS
GEESE
1968
1969
1970
1971
1972

Some illegal kills occurred during the year as well as a few inevitable road kills. Mortality by these means was considered negligible.

Production in white-tails was again excellent as evidenced by numerous sightings of twins and two known sets of triplets. A high of 40 deer were counted in one field adjacent to the refuge office.

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

1. Muskrat. Populations for the muskrat during 1972 on the refuge are estimated at 9,685, an approximate 30% increase over last year. This indicates that production was well above average for the year and is the highest population recorded in a number of years. The 1973 fur trapping season is scheduled to run from January 1 to March 15. This is the last year of a three-year permit for three refuge trappers which were drawn by lottery in 1970. Share for muskrat fur will again be 50:50. A summary of the fur harvest for 1972 is included in Section IV.

2. Nutria. Refuge trappers removed a total of 769 nutria during 1972, an increase of 236 over last year's take. Present population is estimated at 4,500, an approximate increase of 87% from 1971. At this writing, it appears that nutria prices will remain relatively unchanged and probably will have little or no effect on the harvest of this species for the coming year.

3. Otter. Observations of this species during the year indicate it has remained stable at an estimated 30 animals. Due to the low numbers, no trapping is permitted for otter on the refuge.

4. Raccoon. The estimate of 400 for this species is also the same as reported for 1971. Only four were removed by refuge trappers due to low prices for pelts. None were removed in the predator program during the year.

5. Red Fox. Numbers of these animals have increased slightly to an estimated 40. A litter of four pups was seen quite often during the summer on the wildlife drive near the end of the Diffenbach Pool Dike. No foxes were removed in the predator program during the year.

6. Squirrels. The population of the endangered Delmarva Peninsula Fox squirrel (Sciurus niger bryanti) is estimated at 250 compared to 150 last year. This increase is due largely to the aquisition of 410 additional acres of woodland habitat in the Kentuck Swamp.

Sightings of Delmarvas have been frequent during the year. Six were seen at one time by refuge personnel in late fall. Eastern Gray Squirrels (Sciurus carolinensis) also showed a notable increase during the year from 200 to 400. This increase is also explained by the additional acreage of habitat obtained in Kentuck Swamp.

7. Opossum. The estimated population for this species is 150, unchanged from last year. Even though the opossum has prolific breeding habits, road kills seem to eliminate the yearly increment.

8. Skunk. Striped skunks (Mephitis nigra) are holding their own on the refuge with an estimated 50 reported. None were removed during the predator control program this year.

9. Cotton-tailed Rabbit. This species numbers 300 on the refuge, a significant decline from 1971. Natural predators and poor nesting conditions appear to have kept these animals in check.

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

1. Hawks. Red-tailed hawks are resident at Blackwater and are seen often throughout the year. Marsh and sparrow hawks are generally present in significant numbers beginning in fall and continuing into the winter. Those present during the year but less frequently seen include Sharp-shinned, Red-shouldered, Rough-legged, and Pigeon hawks.

2.. Eagles. Peak population for the Southern bald eagle reached 22 in late December. The low recorded for the year was 17 in mid-June. There were only two active nests on the refuge during 1972. Only one eaglet was hatched from these two nests. Sightings of eagles were fairly common throughout the year and refuge personnel watched one "baldy" capture a Mallard drake behing the refuge office.

Two Golden eagles remained on the refuge through most of the year and picked off several Delmarva Fox squirrels on the wildlife drive. They were also seen harassing flocks of Canada Geese on several occasions.

3. Owls. Due to their nocturnal habits, owls are rarely seen on the refuge. However, Horned and Barn owls, the two most prevalent species on the refuge, are seen occasionally by personnel and the visiting public.

4. Crows. The estimate of 250 during the fall peak is below last year's count of 300 for this species. Crows have remained relatively common throughout the winter on the refuge.

F. Other Birds. One American Peregrine falcon was seen intermittently throughout the year and two were sighted on one occasion in early October. Mr. Richard Rowlett sighted the two birds and observed one eating a duck.

A single Swallow-tailed kite was seen by Refuge Manager Julian and Larry Dunkeson of Mason Neck Refuge on May 31, 1972. The kite was also seen by Messrs. Crews, Julian and Wheatley on June 2 and Mr. Richard Rowlett, Messers. Phil and Paul Dumont and several members of the Carolina Bird Club also confirmed the sighting on June 2. All sightings were in the general area of the northwest corner of the refuge. Mrs. Russell Abbott of Shorter's Wharf reported a bird described to be the kite on June 11. According to Chandler Robbins, only four other sightings are recorded for Maryland: Howard County, August 7, 1879; Baltimore County, August, 1889; Montgomery County, August 3, 1895; and Whaleysville, Maryland, May 10, 1969.

Mr. Bob Hahn visited the refuge on December 3 and reported sighting what he thought was a Gyrfalcon. Mr. Carl Carlson confirmed the sighting on December 4 and likewise Messrs. Paul Dumont and Richard Rowlett on December 6 and 7 respectively. December 7 was the last reported sighting for the Gyrfalcon.

For other species of interest, refer to the summary of the 1972 Christmas Bird Count which is included in this report following this section.

G. Fish. Public sport fishing was again permitted on the refuge from April 1 through September 30. Restricted areas were again the fresh water impoundments and areas adjacent to public use facilities. Species taken by fishermen include crappie, perch, rockfish, catfish, carp, and large-mouth bass.

H. Reptiles. Several turtles are common to Blackwater but the ones most frequently seen are the painted turtle which sun themselves on logs and banks along the dikes. Box turtles are always popular with the visiting public and are commonly found along the two nature trails. Several different species of rat, water, and black snakes are seen fairly often throughout the warmer months. No poisonous snakes were seen during the year.

I. Diseases. No disease has been noted on the refuge during the year.

Annotated Summary of Southern Dorchester County, Md. Christmas Count, 1972

Latitude 38° 22' N, 76° 02' W. 15-mile diameter, centered 5 1/4 miles NE of Wingate P.O. as in the past 25 years, to include Blackwater National Wildlife Refuge and Elliott Island. Coverage by habitats essentially the same as last year, which was: brackish marsh 35%, Loblolly Pine woods 33%, ponds, bays and estuaries 15%, deciduous woods 12%, fields 5%.

Dec. 26, 1972; 5:45 a.m. to 6 p.m. Heavy overcast; temp. 38° to 44°; wind 0-10 m.p.h.; tide high all day, low roads under water; no snow yet, no ice. Twenty-one observers in 10 parties. Total party-hours, 91 (68 on foot, 15 by car, 7 by canoe and motorboat, 1 by airplane). Total party-miles, 257 (66 on foot, 131 by car, 10 by boat, 50 by airplane).

Horned Grebe, 304 (previous high, 229); Pied-billed Grebe, 8; Great Blue Heron, 58 (previous high, 54); Common Egret, 1; Snowy Egret, 2 (new species--GCR, CSR); Black-crowned Night Heron, 7; Am. Bittern, 1; Whistling Swan, 1065 (2nd highest); Canada Goose, 8660; Snow Goose, 327 (3rd highest); Blue Goose, 66; Mallard, 1237; Black Duck, 675; Gadwall, 5; Pintail, 171; Green-winged Teal, 53; Blue-winged Teal, 12 (3rd highest); Am. Widgeon, 34; Shoveler, 20 (tied 3rd highest); Redhead, 210 (5200 others seen in the Honga River just outside the circle); Canvasback, 1400 (800 others in the Honga River just outside the circle); Lesser Scaup, 261; Common Goldeneye, 103; Bufflehead, 561 (previous high, 511); Oldsquaw, 7; White-winged Scoter, 1 (5th year); Ruddy Duck, 109; Hooded Merganser, 8; Common Merganser, 56 (highest since 1959); Red-breasted Merganser, 12; Turkey Vulture, 93; Goshawk, 1 adult (new species--CA, TA); Sharp-shinned Hawk, 1 (lowest since 1960, when coverage was limited by sleet storm and deer season to 4 observers and 25 party-hours); Cooper's Hawk, 1; Red-tailed Hawk, 11; Red-shouldered Hawk, 3 (lowest since 1960); Rough-legged Hawk, 5; Bald Eagle, 13 (6 adults, 7 immatures); Marsh Hawk, 54; Sparrow Hawk, 27; Bobwhite, 65; King Rail, 7; Clapper Rail, 2; Virginia Rail, 27; Sora, 1 (6th year); Am. Coot, 5; Killdeer, 18; Am. Woodcock, 25 (previous high, 15); Common Snipe, 38 (4th highest); Greater Yellowlegs, 21; Dunlin, 31; Great Black-backed Gull, 26; Herring Gull, 215; Ring-billed Gull, 905 (previous high, 860); Mourning Dove, 144; Barn Owl, 2; Screech Owl, 5; Great Horned Owl, 11; Barred Owl, 1; Short-eared Owl, 2; Belted Kingfisher, 36 (2nd highest); Yellow-shafted Flicker, 56; Pileated Woodpecker, 11; Red-bellied Woodpecker, 33; Hairy Woodpecker, 20 (tied 2nd highest); Downy Woodpecker, 36 (lowest since 1960); Horned Lark, 25; Blue Jay, 372 (previous high, 203); Common Crow, 459; Fish Crow, 9; Carolina Chickadee, 134; Tufted Titmouse, 42; White-breasted Nuthatch, 1; Red-breasted Nuthatch, 20 (previous high, 16); Brown-headed Nuthatch, 30 (new low); Brown Creeper, 26; House Wren, 4 (2nd highest); Winter Wren, 7; Carolina Wren, 90 (highest since 1959); Long-billed Marsh Wren, 26 (highest since 1961); Short-billed Marsh Wren, 2; Mockingbird, 15 (lowest since 1960); Catbird, 1 (tied lowest since 1952); Brown Thrasher, 4; Robin, 24 (lowest since 1960); Hermit Thrush, 8; Eastern Bluebird, 20; Golden-crowned Kinglet, 121; Ruby-crowned Kinglet, 43; Cedar Waxwing, 28; Loggerhead Shrike, 2; Starling, 594; Myrtle Warbler, 1603 (low); Yellowthroat, 3 (2nd highest); House Sparrow, 70 (lowest since 1960); Eastern Meadowlark, 191 (lowest since 1960); Red-winged Blackbird, 24,745;

Rusty Blackbird, 11; Boat-tailed Grackle, 284 (2nd highest); Common Grackle, 137,740; Brown-headed Cowbird, 100; Cardinal, 118; Evening Grosbeak, 8; Purple Finch, 5 (tied 3rd highest); House Finch, 9 (new species); Pine Siskin, 1; Am. Goldfinch, 142; Red Crossbill, 50 (2nd year); Rufous-sided Towhee, 40; Savannah Sparrow, 11; Sharp-tailed Sparrow, 2 (14th year); Slate-colored Junco, 81; Tree Sparrow, 2 (lowest since 1956); Field Sparrow, 9 (tied lowest); White-throated Sparrow, 212 (lowest since 1960); Fox Sparrow, 3 (lowest since 1954); Swamp Sparrow, 169; Song Sparrow, 264 (lowest since 1961).

Total, 118 species (all-time record is 121); about 185,366 individuals. Observers: Clay Andres, Tommy Andres, Henry Armistead, Danny Bystrak, George Hoffman, Mark Hoffman, David Holmes, Paul Kalka, Bob Lamberton, Dirk Mattheisen, Taylor McLean, Chandler S. Robbins (compiler), George Robbins, Charles Vaughn, Donald Weber, Bruce Whitcomb, Robert Whitcomb, Steve Whitcomb, Guy Willey (Maryland Ornithological Society). Special thanks are extended to Blackwater National Wildlife Refuge Manager William Julian and his staff and to BSFW Pilot Lawrence Thurman for their excellent cooperation in helping us get a representative count of the waterfowl and other birds throughout the circle.

III. Refuge Development and Maintenance

A. Physical Development.

Several unsafe trees located in the public use areas were felled and left for effect.

Panels for mounting and displaying the winning photos for the first annual Wildlife Photography Contest were installed.

The large entrance sign, located on Route 50 near Cambridge, was moved by refuge personnel to a new location for safety reasons.

Several wood duck nesting boxes were installed in Pond #1. All other wood duck boxes were checked, repaired, and new material placed in the boxes.

A "Urban Yard Landscape Plan" was worked up with cooperation from SCS for the Visitor Center this year. Trees and shrubs were planted. This demonstration area is to provide the public with an example of what they can do in their yards at home to attract wildlife.

A new gate was constructed and installed at the shop entrance road.

Trail signs were made and installed on the Wildlife Drive.

A demonstration bee hive was constructed and installed at the Visitor Center. Now a leaflet will have to be developed on bee hives to fill the increasing request for information.

Roof repairs on the Equipment Shed, Fur House, and Shop were made.

A new leaflet dispenser was installed at the entrance to the Wildlife Drive.

Approximately 500 feet of split rail fence was erected at the Visitor Center. Wood chip mulching was also placed around the fence and Visitor Center.

The Wildlife Drive was given a top dressing of fill, graded and covered with slag. In October the County Highway Department tarred and chipped the Wildlife Drive on a cost basis.

Approximately six miles of refuge boundary were posted, a portion being the newly acquired property on Key Wallace Drive and Egypt Road.

tons soybeans were available for wildlife use. Sorghum planted

in the rear of the Visitor Center to facilitate public viewing of the wildlife in a natural environment was planted late due to wet ground conditions. The early frost of October brought an abrupt end to the 1972 growing season and about one half of the sorghum was lost.

Deer damage was again heavy in many of the corn fields. The greatest damage occurred in fields bordering the wooded areas. The refuge deer kill in 1972 (13 animals) will not be significant to alleviate the damage in 1973.

C. Collections and Receipts.

1. Seed and other Propagules. The following seed was received during the year. Seven hundred and thirty-five bushels of corn harvested for banding operations. Twenty-five bushels of sorghum planted in refuge fields. Two bushels of buckwheat used in dove banding program.

D. Control of Vegetation. A total of 152 acres of corn was treated in 1972 by the cooperator farmer. Alachlor (**fasso**) was the chemical approved and applied. The application period was June 15-July 2. Target pests were all broad leaf weeds and noxious grasses. Water was used as a carrier and method of application was a tractor-mounted sprayer. A rate of 1½ lbs. of fasso in 12 gallons of water was used per acre. Results were good with 90% kill on almost all grasses and weeds.

Cost Breakdown

Labor	$380.00
Materials	918.00
Equipment cost & maintenance	200.00
Total	$1,498.00

Refuge treatment of Johnson-grass in compliance with state law consisted of treatment by Dalapon. This was spot treatment of the 10 acres located in Field #10, 26, 27, and 36. Wet ground conditions prevented treatment in the early stages, but we got good results in Field #10, the largest invested area.

Cost Breakdown

Labor	$500.00
Materials	180.00
Equipment cost & maintenance	100.00
Total	$780.00

E. Planned Burning.

1. General. Controlled burning for providing supplementary feed during the late winter and early spring consists of the following units: Unit 3, 6, 7, 11, 13a, 13b, 14, 20, 21, 22, 23, 24, 25, 32, 33, 34, 35, 35a. Total acreage burned was 3,248.

2. Conditions Prior to Burning. The wet weather of 1971 made the vegetation broken in many areas and only a fair burn was received on most areas. Overall estimated burn was 60%. Marsh vegetation ranged from heights of three feet to more than six feet.

3. Conditions Following Burning. Canadas, Snows, Blues, and a few ducks used the controlled burned areas from February thru April. However, the greatest use was during the month of March. The areas receiving the greatest use were Unit 3 bordering the Wildlife Drive and Units 16, 37, and 38 located near Bear Garden Pond on the S.E. side of the refuge. Due to low duck population only a few Blacks, Mallards, and Teal used the areas.

The providing of this type of green browse relieves depredation on private green browse crops adjacent to the refuge during the spring when ground conditions in the fields are wet.

F. Fires. There were two small marsh fires on the Shorters Wharf road on tract 14b and g of less than one acre. The fires occurred on October 27 at about 5:30 p.m. This was a case of arson since matches were found on the county road. No damage was done since the marsh vegetation was very green and conditions wet at the time of the fire. The local forest tower was contacted but the fire burned itself out by the time equipment arrived

IV. Resource Management

A. Grazing. None to report.

B. Haying. None to report.

C. Fur Harvest. A total of 2,747 Muskrats, 769 Nutria, 4 Raccoon, and 3 Fox were removed by the three permittee trappers in 1972. The refuge share of 1,370 pelts sold for $3,427.65 or an average price of $2.50 per pelt. This is the highest price on record for the refuge. It compared with an average price of $1.65 in 1971. Some market for large nutria (26 inches or more) sold for $2.00 while the 20-26 inches sold from $1.00 to $1.50 depending on the buyer. Raccoon sold for $4.00 for the extra large and fox reported at $7.00 for the reds.

D. Timber Removal. The proposed selective cutting of 60 acres of wooded area in the headquarters area was out on bids for the second time in two years without a bid being received. This cutting would have been for experimental Delmarva fox squirrel management purposes.

E. Commercial Fishing. Three permits were issued in 1972 to three local fishermen for gill netting. Approximately 5000 lbs. of fish consisting of perch, carp, catfish, crappie, and some striped bass were caught.

F. Other Uses. Two local permittees removed snapping turtles from refuge ponds. The poundage was estimated at 300. Only a few large turtles were removed in 1972

V. Field Investigation or Applied Research

A. Progress Report.

1. Banding. The following waterfowl were banded by Blackwater during the calendar year 1972:

Specie	Post Season Quota	Banded
Canada Goose	1200	321
Mallard	1000	871
Black Duck	500	76
Green - Winged Teal	---	53
American Widgeon	---	88
Pintail	---	45
Totals	2700	1400

We came close to reaching the mallard quota of 1000, but the Canada goose trapping was extremely difficult. The lack of Canada geese using the banding sites due to the extremely mild weather throughout late January and most of February was one factor. Clear, cold weather is needed to keep the birds feeding on the hot foods such as corn. If mild weather prevails during the trapping season, most of the birds feed in the marshes or on other green browse.

2. Experimental Demonstration Area for Wildlife. On July 13, 1972, the Bureau entered into a Memorandum of Understanding with the Soil Conservation Service on five acres of land to be used for a wildlife demonstration area for wildlife plantings.

The planting furnishes us with knowledge of what plants to recommend to interested adjacent landowners. At the same time we have an area which serves as a field test site for the SCS and the viewing public. Attached is a chart showing the woody and grass species planted in the plot.

VI. Public Relations

A. Recreational Uses. Refuge visits during 1972 totaled 100,747, an approximately 28% increase over the previous year's total of 78,675. The bulk of this visitor load fell in the Fall, November being the peak month. A graph of monthly visitation is presented in an appendix to this section.

As in the past, the Wildlife Drive sustained the heaviest visitor use with 70% of the visitors traveling the two and one-half mile course. The Visitor Center was the second biggest attraction, capturing the attention of 28,299 visitors. Conducted programs were given to 10,431 persons in the auditorium and the field. A large portion of this audience was comprised of groups from schools and other organizations. 15 off-site programs were given to approximately 1000 people. The picnic area, observation tower, and foot trails also sustained heavy use this year with a resultant increase in the litter problem. A graph comparing visitor use of the various refuge facilities is included in the appendix to this section. The Public Use Report in the report section of the Narrative gives a complete account of visitor activities.

1. Special Programs. A Wildlife Photography Contest, co-sponsored by Blackwater Refuge and the Dorchester Arts Center, was conducted during March. A total of 92 photographs were entered by 42 individuals. The judging was held in the Blackwater Visitor Center on March 19, 1972. Among the judges were Mr. Dan Salts and Mr. Bob Hines of the Central Office, and Mr. Don Pfitzer from the Regional Office in Atlanta, along with two local professional photographers.

The Talbot Retriever Club held its Spring field trial at Blackwater on April 7th and 8th with approximately 250 people attending.

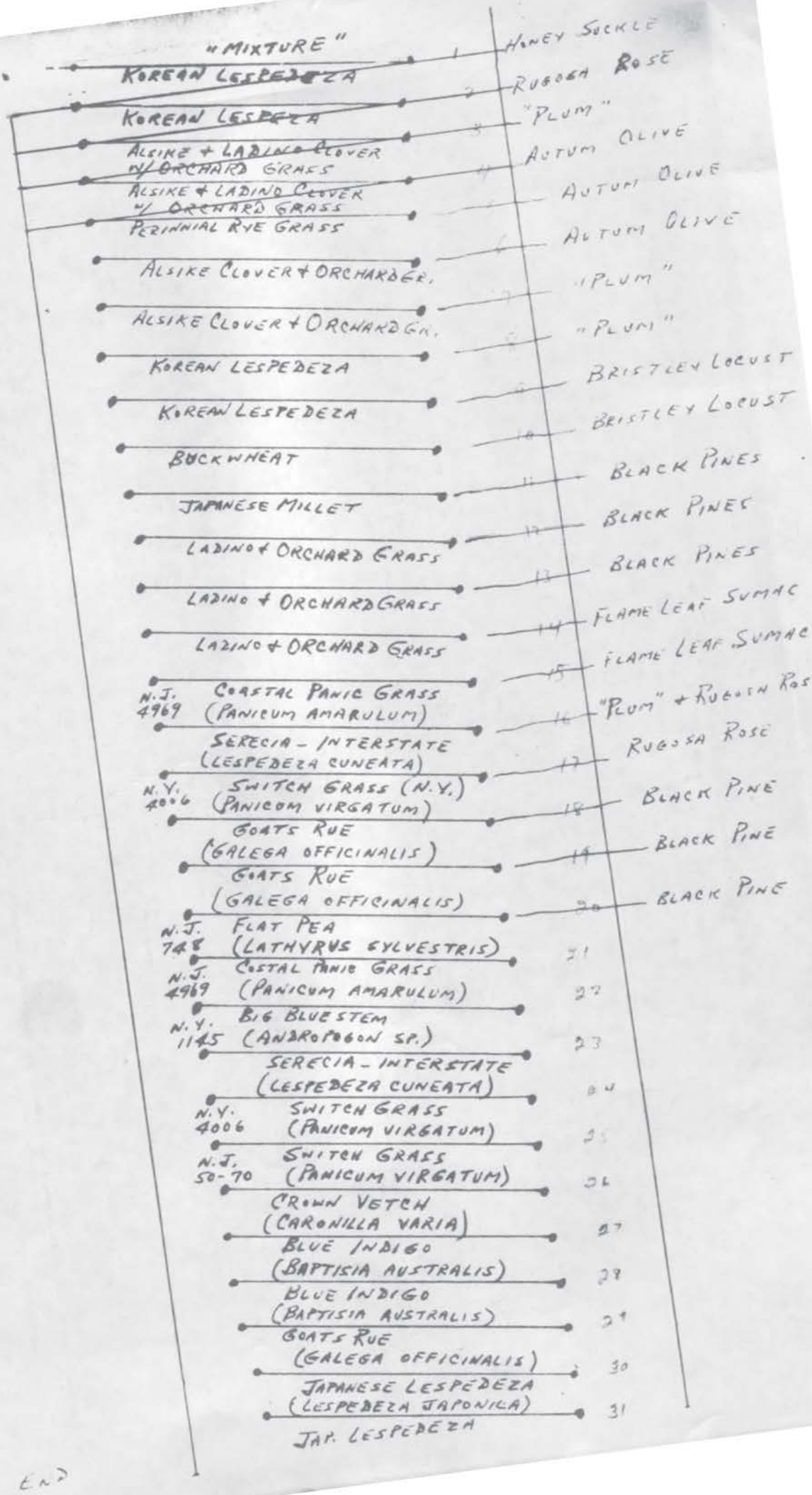
Blackwater participated in an environmental education Teacher's Workshop conducted by the Dorchester County Board of Education during the month of June. Twenty-one teachers and several advisors and instructors attended.

A special honey bee program was given at the Visitor Center on the weekend of September 30. This included a talk and slide program by Dr. Dewey M. Caron of the University of Maryland, and the showing

SOUTH END

Blackwater Wildlife Demonstration Plot
(Blackwater Refuge and Soil Conservation Service, cooperating)

Note: Woody species planted April 27, 1972.
Grass species planted May 1, 1972.



NORTH END

of a film "Secrets of The Hive" on loan from the Japanese Embassy. The Friday night program was given to the general public and the Saturday night program to prospective beekeepers. The film was also shown at the center on Sunday October 1 to 147 people.

2. Exhibits. A see-thru demonstration bee hive was added to the Visitor Center in June.

B. Refuge Visitors. Official visitors to Blackwater during 1972 included the following:

Mr. Andrew Schnieder - COVER International Editorial Service
Mr. Marty Robbins - COVER International Editorial Service
Mr. Joseph Revell - COVER International Editorial Service
Mr. E. Frank Johnson - Asst. Refuge Supervisor, Region IV, Atlanta, Ga.
Mr. Ron Hawk - Soil Conservation Service, Cambridge, Md.
Mr. Charles Mowery - Soil Conservation Service, Cambridge, Md.
Mr. Lawrence S. Givens - Refuge Supervisor, Region IV, Atlanta, Ga.
Dr. William Sladen - John Hopkins Swan Research Program
Mr. John Moore - Director, Salisbury Zoo
Mr. Lynn Greenwalt - Chief of Wildlife Refuges
Mr. Spencer H. Smith - Director of The Bureau of Sport Fisheries & Wildlife
Mr. George Beall - U.S. Attorney, Baltimore, Md.
Mr. Phil Dumont
Mr. Paul Dumont
Mr. Michael Marr - Asst. U.S. District Attorney, Baltimore, Md.
Miss Bianca Lavies - National Geographic Society, Washington, D.C.
Mr. Eric Cripps, Mr. Jim Fristoe, Mr. Kenneth Basile - "Biofilms"
Mr. Steve Graham - Director, Salisbury Zoo
Dr. Dewey M. Caron - University of Maryland

C. Refuge Participation.

Blackwater again participated in Waterfowl Week Open House in conjunction with other area refuges. Although no special demonstrations or programs were held, approximately 9,000 people visited the refuge during this week, November 18-26. The majority toured the Wildlife Drive while nearly 4,000 stopped at the Visitor Center. At the Center, 39 programs were conducted for 1,223 people.

Approximately 39 major news articles featured Blackwater during 1972, and the refuge was mentioned in about 15 additional articles. These articles were featured in eight different newspapers.

The Public Use Specialist participated in a television interview during April. The program was conducted by high school students on local cable television and was part of an Earth Week program.

Off-site programs consisted of:

(1) Blackwater's exhibit at the annual Cambridge Outdoor Show during February consisted of a Nutria exhibit, Refuge exhibit (The Many Faces of a Refuge), and a mounted Bald Eagle. Approximately 3,000 people viewed the exhibit.

(2) Blackwater had a display panel of photographs at the Chincoteague Art & Decoy Show with an estimated attendence of 8,000 people.

(3) The Wildlife Photography Contest Exhibit was shown at the "Day in Dorchester" on October 22. This event was sponsored by the Dorchester Historical Society.

On-site programs presented during 1972:

Month	Group	Program	Number
Jan.	Univ. of Delaware	COM/Tour	11
	North Caroline High School	SLT	94
	White Marsh PTA	SLT	25
	Cambridge Rotary Club	Slides	50
	Quota Club	Slides	15
	Essex Cub Scouts	SLT	65
	Chesapeake College	Tour	25
	Severna Park Jr. High Sci. Club	COM/Tour	22
	Troop 890 - Baltimore Boy Scouts	SLT/COM	52
Feb.	Cambridge Garden Club	Slides	30
	Baltimore Boy Scouts	SLT	7
	Salisbury Girl Scouts	SLT	8
	Col. Union Coll.-Field Nat. Hist.	COM/Slides/Tour	20
	St. Clair Kindergarten	Tour	225
	Woodbridge - 3rd grade	SLT/COM/Tour	53
	Rolling knolls - 6th grade	COM/Tour	27
	St. Mary's Woman's Club	Slides	18
	Rod & Gun Club	SLT/Tour	44
	Berlin Middle School	SLT/Tour	56
March	Mt. Hebron High School	COM/Tour/Slides	50
	Seaford Jr. High 7-8th grade	SLT/Tour	96
	Busy Bee 4H Club	Slides	30
	Hurlock Kindergarten	Tour	36
	N. Maryland Rec. & Ed.	Slides/Tour	45
	Baptist Church Group	Slides	70
	Kirkland Hall College	Slides/Tour	20
	Chesapeake College	COM/Slides/Tour	7

March	A.F.S. Group	Slides/Tour	12
	Hurlock 3rd grade	Tour	40
	Col. Union College	SLT/Slides	9
	Bureau of Standards group	SLT	18
	Hurlock Kindergarten	Tour	38
	Rutgers	Tour	12
	St. Clair 1st grade	Tour	82
	St. Michaels Boy Scouts	COM/Tour	11
	Boy Scout Troop #354	SLT/Tour/Slides	45
	Hagerstown Academy School	COM/Slides	11
April	Group of 7th Day Adventist	SLT	20
	Hurlock 3rd grade	SLT/Tour	42
	St. Clair 1st grade	Tour/Slides	22
	Lory School 4th grade-advanced	Tour	23
	Seaford Jr. High	SLT/Tour	80
	University of West Va.-Grad. Stud.	Tour	6
	St. Michaels 7th grade	COM/Tour	112
	Chesapeake College	COM/Tour/Slides	40
	Cambridge H.S. Wildlife Club	COM/Slides	18
	Country School 2nd grade	SLT	21
	Peachblossom School	COM	300
	St. Clair 2nd grade	Tour/Slides	30
	Gunston School 11-12th grade	Talk	12
	Teacher Orientation	Tour	2
	Beaver Run School 6th grade	SLT/Tour	93
	Merkley Flats School	SLT/Tour/Slides	20
	St. Clair Elementary	Tour/ Slides	85
	Montgomery Hills Jr. High	COM/Tour/Slides	31
	Library group	Talk	12
May	Merkley Flats School	COM/Slides	20
	North Dorchester H.S. 8th grade	COM	55
	Spring Brook H.S.	SLT/Slides	51
	N.Dorchester Girls Club	Tour	32
	East New Market 4-5th grade	SLT	62
	White Marsh Elem. 3rd grade	SLT/Tour	58
	YMCA Indian Guides	SLT	46
	Silver Spring Baptist Church	SLT	58
	Northwestern Elem. 4th grade	SLT/Tour	31
	North Dorchester 7-8th grade	SLT/Slides	21
	East New Market 2nd grade	Tour/Slides	50
	Univ. West Va. Wildlife Class	Tour	31
	Georgetown Day School 10th grade	SLT/Tour	61
	Easton H.S. 10th grade	SLT/Tour	43
	Tours group	SLT/Tour	24
	Wilde Lake H.S.	SLT/Tour	31

May	South Dorchester grade 7	Tour	36
	White Marsh Elem. Kindergarten	Tour	50
June	Deershead Hosp. Volunteers	Slides	50
	Mount Hebron H.S.	SLT/Tour	33
	4-H Camp - East New Market	SLT	50
	State Educ. group	Tour	5
	Teacher's Workshop	Tour	27
	Teacher's Workshop	Tour/Slides	22
July	None		
August	Dorchester Summer Enrichment Class	SLT	5
	Hudson Summer School	SLT	16
	St. Clair Summer School	SLT	23
	Hudson Summer School	SLT	10
	Seaford Scouts	SLT	47
	Toddsville Summer School	SLT	20
Sept.	Salisbury State College	SLT/Tour	13
	Bee Program	Jap.Bee/Slides	16
	Md. State Beekeepers	Slides	90
	Bee Program	Jap.Bee/Slides	14
Oct.	Bee Film - 4 showings	Jap. Bee	147
	Severna Park Garden Club	SLT/Tour	18
	Somerset School 4th grade	SLT/Tour	36
	Green Acres School	SLT/Tour	35
	Easton Cub Scouts	SLT/Tour	25
	Seaford Elem. 4th grade	SLT/Tour	70
	Greensboro School 5th grade	SLT/Tour	80
	Seaford Elem.4th grade	SLT/Tour	70
	Seaford Elem.4th grade	SLT/Tour	60
	Caroline County School 4th grade	SLT/Tour	88
	Peachblossom Elem. 4th grade	SLT/Tour	132
Nov.	Idlewood 2nd grade - Easton, Md.	SLT/Tour	58
	Cen. Middle School 5th grade	SLT/Tour	105
	West Side Elem. 6th grade	SLT/Tour	122
	Federalsburg Elem.	SLT/Tour	50
	Denton Elem. 4th grade	SLT/Tour	120
	St. Clair Elem. 2nd grade	SLT/Tour	70
	Greenbrook Elem. 2nd grade	SLT/Tour	80
	Garden Club	SLT	30
	Girl Scouts	SLT/Tour	25
	Wilson H.S. Biology Club	SLT/Tour	13
	Crapo Elem. 4th grade	SLT/Tour	25

Nov.	Academy School 4th grade	SLT	35
	Laurel Elem. 1st grade	SLT/Tour	75
	N. Laurel Elem. 1st grade	SLT/Tour	56
	St. Clair Elem. 1st grade	SLT	60
	N. Laurel Elem. 1st grade	SLT/Tour/Trails	60
	Ft. Washington Forest School 4th gr.	SLT	100
	St. Clair 1st grade	SLT/Tour	52
	Catholic School 7-8th grade	SLT/Tour	100
	Potomac Chapter Sierra Club & Johns Hopkins Seminar	Slides/Talk	60
	Boy Scout Troop #336	SLT	50
	Down-to-Earth Garden Club	SLT	10
	Laurel, Del. 5th grade	SLT/Tour	90
	Col. Union College	Environ. Ed.	35
Dec.	Federalsburg Girl Scouts	SLT	20
	Preston Cub Scouts	SLT	21
	Idlewood Elem., Easton, Md.	SLT/Tour	36
	Julius West Jr. H.S.	SLT/Tour	30
	Chesapeake College	SLT/Tour/Envir.Ed.	25
	Linstead Garden Club	SLT	15
	Prince Hall School	SLT/Tour	130
	Bishop Ireton H.S.	Slides/Tour	10
	Seaford Jr. H.S.	SLT/Tour	35
	St. Clair Kindergarten	SLT/Tour	120
	Eldorado School gr. 1-2-3-6	SLT/Tour	80
	Hurlock 3rd grade	SLT/Tour	50
	Tacoma Academy	SLT	25
	Peter Dierlich - Webelos	SLT/Tower	10
	Cub Scouts	SLT/Trails	12

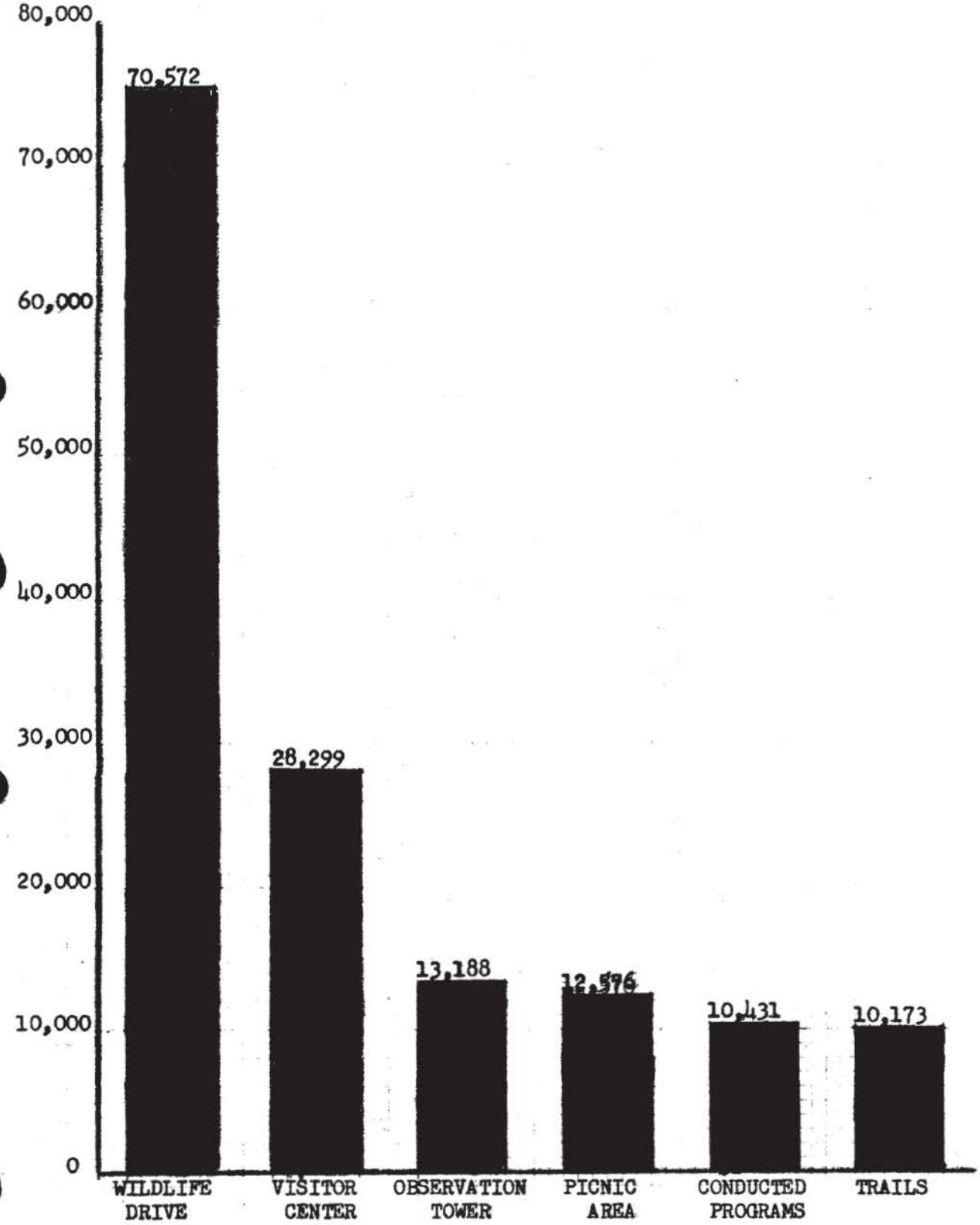
COM - Cry of the Marsh
SLT - So Little Time

Off-site Programs for 1972 are given as follows:

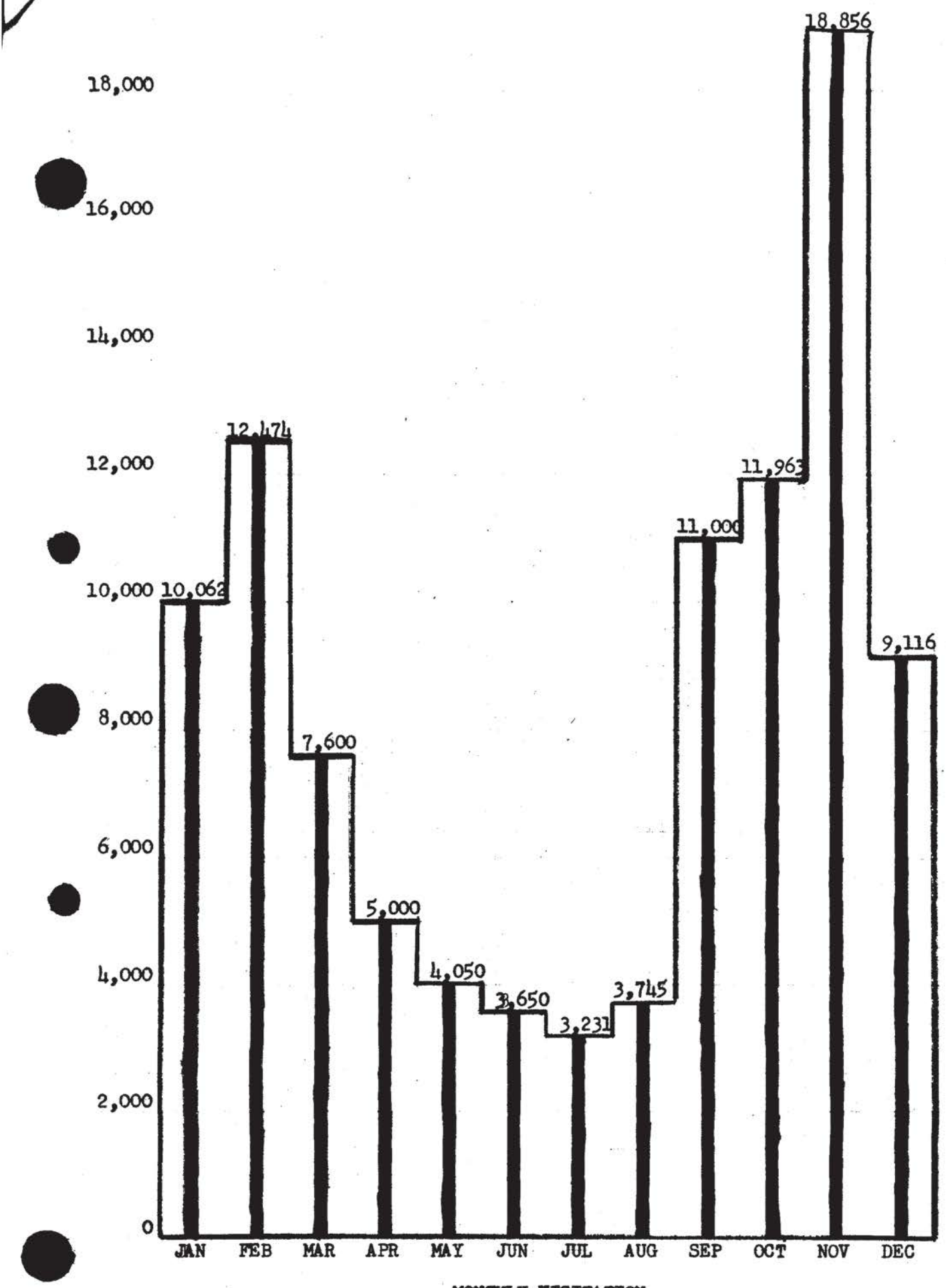
Month	Group	Program	Number
Jan.	North Caroline H.S.	SLT	94
	White Marsh Elem. PTA	SLT	25
	Cambridge Rotary Club	Slides	50
	Quota Club of Cambridge	Slides	15
Feb.	Cambridge Garden Club	Slides	30
	St. Mary's Church group	Slides	18
March	4-H Club	Slides/Talk	30

April	Chesapeake College	COM/Talk/Slides	40
	Cambridge H.S. Wildlife Club	COM/Talk/Slides	18
	Peachblossom School	COM/Talk	300
May	N. Dorchester H.S. 8th grade	COM/Talk	55
June	Deershead Hosp. Volunteers	Talk/Slides	50
	4-H Camp East New Market	SLT/Talk	50
July	University of Maryland	Slides/Talk	27
Aug.	None		
Sept.	East New Market School	SLT/Talk	30
	Shriners	Slides/Talk	20
	Maryland State Beekeepers Assoc.	Jap.Bee/Slides	93
Oct.	Career Day at Col. Richardson H.S.	Talk	
Nov.	Business & Professional Women	Slides/Talk	
Dec.	None		

SLT - So Little Time
COM - Cry of the Marsh



VISITOR ACTIVITY DURING 1972



MONTHLY VISITATION

1972

D. Hunting and Fishing. The refuge held its first scheduled two-day deer hunt this year. The hunt was split into two, two-day seasons; the first for shotgun (Nov. 26-28) and the second for bow (Dec. 18-19). Hunting ended at noon on each hunting day.

The huntable areas on the refuge were divided into 12 compartments and hunters assigned to a compartment. The number of hunters to a compartment varied from 52 to 1 depending on the size of the compartment. The total number of hunters selected for each hunt was 110.

Individuals applying to hunt were supplied with computer adapted applications, and permits were mailed to successful applicants. The unsuccessful applicants were also notified by mail. Applications for the two hunts totaled 3,500. There were serious problems from the computer mailing. Some of this was the fault of the Postal Service.

Successful applicants were given two days (Nov 18-19) to scout their assigned compartment prior to the scheduled hunts. Out of the 220 permittees only 16 bowmen and 61 shotgun hunters came to scout their area.

The shotgun hunt produced 85 hunters the first day and 43 on the second day. A total of 13 deer were harvested; 10 on the first day and 3 on the second. The hunters spent 512 activity hours afield.

The bow hunt was more disappointing. Only 31 bowmen hunted the first day and 10 the second day. Four bowmen hunted both days. No deer were taken during the bow hunt and only one wounded deer was reported. The bowmen spent 124 activity hours afield.

Poor hunter turnout can be attributed to several factors. Prior to the scheduled hunts we experienced several heavy rains, giving us abnormal water conditions. Some hunters had to wear hipboots to hunt. Some of the hunters that scouted their areas did not return for the hunt. The refuge shotgun hunt started on the second day of the state deer season and a few hunters filled their bags on the first day elsewhere, making them ineligible to hunt the refuge. Some hunters that hunted the first day on the refuge, hunted other places the second day. Others could only hunt one of the two hunting days. For the bow hunters it was just too cold and only the hardy turned out to hunt.

Sport fishing and crabbing was permitted from April 1 through September 30, 1972. The interior section of the refuge was open,

while the fresh water pools and areas adjacent to the public use units were closed. No boat launching was permitted from the refuge since no ramps or other facilities are present.

E. Violations. Lighting of refuge fields by deer hunters and possible deer hunters resulted in 18 persons being apprehended.

Two cases of hunting deer with bow and arrow, six cases of persons with firearms in possession, two cases of untagged deer during the refuge deer hunt and only one waterfowl hunting violation was reported.

On a Saturday morning, November 18, at 1:30 a.m., two men were dropped off near a field of standing corn. They were picked up a little later and the vehicle and three men were apprehended. They had gathered large grocery bags of ear corn to bait a duck blind. They returned the corn to the field. Their story was that they were baiting a deer stand but the described location was recognized by Agent Thurman as a pond baited with ear corn. The pond was not hunted.

The serious problem of a portion of our visitors walking into waterfowl concentrations continues. Vandalism of trail signs, etc. is increasing.

F. Safety. Regular safety meetings were held monthly throughout the year. Coverage at meetings included the normal distribution of safety materials received from Regional Office and discussion of safety releases, etc. Any unsafe practices at the station level were discussed and corrected at these meetings. The last lost-time accident at this station was June 8, 1960. A total of 4,599 calendar days and 164,911 employee hours have been worked since then. We feel that our record is excellent and we'll strive to keep it for many more years.

UNITED STATES DEPARTMENT OF THE INTERIOR
Fish and Wildlife Service
Bureau of Sport Fisheries and Wildlife
Blackwater National Wildlife Refuge
Route 1, Box 121
Cambridge, Maryland 21613

1972 GENERAL HUNT INFORMATION

Blackwater National Wildlife Refuge is one of more than 324 Federal Refuges dedicated to the production, protection, and management of migratory birds and other wildlife species. One of the necessary management techniques is the harvesting of surplus game animals to maintain a healthy balance between wildlife populations and their environment. Overpopulation by any given species leads to serious--and possibly permanent--habitat damage not only for that species but for others as well. The deer on Blackwater Refuge are presently damaging the environment and, at the same time, are destroying their own ultimate source of sustenance. In addition, they are also damaging the vital elements necessary for the perpetuation of the endangered Delmarva fox squirrel, and they are causing serious crop depredation problems both on the refuge and on neighboring farms. Hence, the reason for the decision to reduce the Blackwater deer herd this fall.

SEASONS. Two 2-day deer hunts will be held: a Gun Hunt November 27-28 and a Bow Hunt December 18-19, 1972.

The refuge BAG LIMIT will be one deer of either sex. A refuge deer will be considered as part of a hunter's state-wide bag. NO HUNTER MAY TAKE OR ATTEMPT TO TAKE ANY SPECIES OTHER THAN DEER.

WEAPONS. Shotguns only, 20 gauge and larger, using single-slug ammunition will be permitted during the gun hunt. Bows and arrows as prescribed by State Regulations must be used during the bow hunt.

HUNTING HOURS shall be from one-half hour before sunrise until 12:00 noon.

Hunters will be assigned to specific refuge compartments and will be restricted thereto.

All participating hunters must have a special REFUGE PERMIT. Permits will be FREE, valid for the duration of one of the above two day periods, and strictly NON-TRANSFERABLE!

Applications for permits must be COMPLETELY and PROPERLY filled out on the prescribed form. On the same form, a person can apply for either, or both, the gun and bow hunts. <u>It is illegal to submit more than one application.</u> If you are not chosen for your first choice, the computer will automatically consider you for your second choice. Persons submitting more than one application, or false information, will be disqualified for the drawing, and may be excluded from future hunts.

Applications may be submitted singly or as a group of not more than FIVE. Group applications MUST be returned in the same envelope.

Any hunter of less than 18 years of age must be accompanied by a permit holding adult while hunting. Thus, applicants who are not yet 18 years old should apply with an adult.

Successful applicants will be selected by impartial COMPUTER DRAWING. All applicants will be notified of the drawing results, whether or not successful.

To be considered, returning applications MUST be in the receiving office no later than October 13,1972.

Return your application (or applications in the case of groups) to the receiving office in a LARGE-SIZE envelope with the inscription "HUNT APPLICATION" printed in the lower left corner. DO NOT fold or otherwise mutilate your application.

All current Federal and State laws and regulations shall prevail during these hunts.

Successful applicants will receive necessary additional hunt details with their hunt permits.

UNITED STATES DEPARTMENT OF THE INTERIOR
Fish and Wildlife Service
Bureau of Sport Fisheries and Wildlife
Blackwater National Wildlife Refuge
Route 1, Box 121
Cambridge, Maryland 21613

DEER HUNT - REGULATIONS SUMMARY - 1972

Public deer hunting on Blackwater National Wildlife Refuge is being initiated in 1972 for the first time. The primary reason for having this hunt is to reduce the herd to a level in keeping with the available habitat. Providing a wholesome sporting opportunity for hunters is a secondary bonus. Hunting shall be in accordance with applicable Federal and State regulations and subject to the following special conditions.

(1) SEASONS. Two 2-day deer hunts will be held: a GUN HUNT November 27-28 and a BOW HUNT December 18-19, 1972.

(2) HUNTING HOURS will be from one-half hour before sunrise until 12:00 noon E.S.T. All hunters MUST check in at a designated refuge checking station, near the refuge office, each morning before going afield. The check station will be open each morning two hours prior to shooting time. Hunters MUST check out through the check station by 1:00 P.M. daily.

(3) BAG LIMIT. The refuge bag limit will be one deer of either sex, and a refuge deer will be considered as part of a hunter's state-wide bag. IT WILL BE UNLAWFUL TO TAKE OR ATTEMPT TO TAKE ANY SPECIES OTHER THAN DEER.

(4) All hunters must have a special REFUGE PERMIT, in addition to any other licenses required by the State. Permits are valid for the duration of one of the above two day periods and are strictly NON-TRANSFERABLE.

(5) WEAPONS. Shotguns only, 20 gauge and larger, using single-slug ammunition will be permitted during the gun hunt. Bows and arrows as prescribed by State Regulations shall be used during the bow hunt. Handguns, crossbows, and drug-tipped arrows may not be used or possessed. Weapons must be empty and dismantled or encased when transported on refuge. Bows must be unstrung while in vehicles.

(6) Hunting will be permitted in 12 refuge compartments. Hunters will be assigned a specific compartment and are restricted to their assigned compartment ONLY.

(7) All deer killed MUST be checked through the refuge check station on the day killed and BEFORE leaving the refuge area. The refuge reserves the right to collect any specimen samples, such as jawbones and other body parts, deemed desirable for future herd management.

(8) Hunters under 18 years of age must be under the immediate supervision of a permit-holding adult. Camping, fires, and dogs are prohibited on the refuge.

(9) Vehicle traffic will be restricted to primary roads ONLY. Hunting from or on any refuge, county, or state road open to vehicle traffic is illegal.

(10) Hunters may use tree climbers and PORTABLE tree stands. However, it is unlawful to drive a nail, spike, or other metal object into any tree or to hunt from any tree into which these items have been driven.

(11) Intoxicants are not permissible on the refuge. Any hunter who refuge officials determine is under the influence of an intoxicant will not be permitted to hunt.

(12) Permit holders may visit their assigned refuge hunting compartment for scouting purposes on November 18 and 19, 1972 during daylight hours only. Weapons and dogs are not allowed while scouting. Blind construction prior to actual hunting is prohibited, and no live vegetation may be used in blind construction.

(13) Apprehension of a person for any infraction of regulations shall be cause for immediate revocation of hunting privileges.

(14) These regulations supplement the general regulations which govern hunting on National Wildlife Refuges, as set forth in Title 50, Code of Federal Regulations, Part 32.

OFFICE HOURS: Monday - Friday, 7:00 A.M. - 3:30 P.M.

HUNT SCHEDULE
1972-73 EITHER-SEX DEER HUNTS
AT
Blackwater National Wildlife Refuge

Public deer hunts on the above refuge are expected to attract many more hunters than can be safely accommodated. In order to offer each person who is interested an equal opportunity to hunt, permits are issued only through advance application. Applications are processed and impartially chosen by computer to fill a safe quota for each hunt. The following hunts are available:

BLACKWATER NATIONAL WILDLIFE REFUGE
Rt. 1, Box 121, Cambridge, Md. 21613

Two 2-day hunts - either-sex deer:
Nov.27&28 shotguns only, 110 permits.
Dec.18&19 bow & arrow only, 110 permits.

Fee for nonresident license is reciprocal with State of residence, or $25.00 whichever is greater; $5.50 big game tag is required. Hunt permits are free. No camping permitted.

U. S. DEPARTMENT OF THE INTERIOR
Fish and Wildlife Service
Bureau of Sport Fisheries & Wildlife

UNITED STATES DEPARTMENT OF THE INTERIOR
Fish and Wildlife Service
Bureau of Sport Fisheries and Wildlife

SAMPLE APPLICATION

Application No.

TYPE OR PRINT PLAINLY

Hunter Iam A.
Last Name First Middle

246 South St.
Street Address, Route or Box No.

Hometown, Md. 21345
City State ZIP

Maryland
State of Legal Residence

Number in Party
(1) 2 3 4 5
(Circle One)

Social Security Number
123 45 6789

If no number, why?

Blackwater National Wildlife Refuge

EITHER-SEX DEER HUNTS
1972

November 27-28 (1) Shotgun [2]

December 18-19 (2) Bow & Arrow [1]

If you would like to apply for both hunts, indicate 1st and 2nd choice.

Return Address

Place Stamp Here

Bureau of Sport Fisheries and Wildlife
Division of Refuges
Peachtree-Seventh Building
Atlanta, Georgia 30323

INSTRUCTIONS FOR COMPLETING APPLICATION FOR HUNT

GENERAL. The application blank below is for applying for deer hunts at Blackwater National Wildlife Refuge on the dates shown. Hunters wishing to participate should complete an application blank and send it to the address shown. On the same form, a person can apply for either or both of the hunts, but no one will be selected for more than one hunt.

APPLICATIONS MUST BE RECEIVED BY OCTOBER 13, 1972.

It is illegal to submit more than one application. If you are not chosen for your first choice, the computer will automatically consider you for your second choice. Persons submitting more than one application or false information will be disqualified for the drawing and may be excluded from future hunts.

HOW TO APPLY. The open dates and type of hunt are shown on the form. Ignore the numbers in parentheses as these are only for keypunch operators. Select your first choice hunt and put a "1" in the box opposite. If you would like to participate in the other hunt as a second choice, put a "2" in the other box. PLEASE do not mark both choices if you will not accept either hunt, as this may deprive another hunter of a chance to hunt.

PARTY APPLICATIONS will be accepted for up to 5 persons. Those wishing to hunt as a party should EACH fill out separate applications, marking identical hunt choices, and then mail them together, stapled at the upper corners. If two or more applications are received attached together, they will be considered a party application. Each party will be treated as one "choice" by the computer, the same as a single. The entire party will be selected or rejected.

IMPORTANT. CHECK YOUR APPLICATION!

1. Did you provide all the required information?
2. If you didn't list your Social Security Number, did you say why?
3. Is your name and address complete and legible?
4. The computer will reject all applications without a ZIP code.
5. Detach and mail ONLY the HUNT APPLICATION below the dotted line on this page.
6. Mail SINGLE APPLICATIONS by affixing a stamp and dropping in the mail.
7. Mail PARTY APPLICATIONS stapled together with adequate postage affixed to the addressed side of the top card.

(Cut Along Dotted Line)

UNITED STATES DEPARTMENT OF THE INTERIOR
Fish and Wildlife Service
Bureau of Sport Fisheries and Wildlife

H U N T A P P L I C A T I O N

Application No.
5017

Number in Party
1 2 3 4 5
(Circle One)

Social Security Number
☐☐☐ ☐☐ ☐☐☐☐

If no number, why?
_____

TYPE OR PRINT PLAINLY

Last Name First Middle

Street Address, Route or Box No.

City State ZIP

State of Legal Residence

Blackwater National Wildlife Refuge

EITHER-SEX DEER HUNTS
1972

November 27-28
Shotgun (1) ☐

December 18-19
Bow & Arrow (2) ☐

If you would like to apply for both hunts, indicate 1st and 2nd choice.

United States Department of the Interior

FISH AND WILDLIFE SERVICE

BUREAU OF SPORT FISHERIES AND WILDLIFE

BLACKWATER NATIONAL WILDLIFE REFUGE

Cambridge, Maryland

Fishing Regulations

Sport fishing and crabbing on the Blackwater National Wildlife Refuge is permitted only on the areas designated by signs as open to fishing. These areas, comprising approximately 2,700 acres of water, are delineated on the map on the reverse. Sport fishing and crabbing shall be in accordance with all applicable State regulations and the following special conditions:

1. Season: April 1 - September 30.

2. Creel and size limits: Same as State.

3. Boat launching from the refuge prohibited. A public launch ramp is located at Shorter's Wharf. (See map on reverse).

4. Use of airboats prohibited.

5. Set tackle prohibited. All fish and crab lines must be attended.

6. Certain areas listed as fishing areas may be posted as closed to protect nesting eagles and other wildlife.

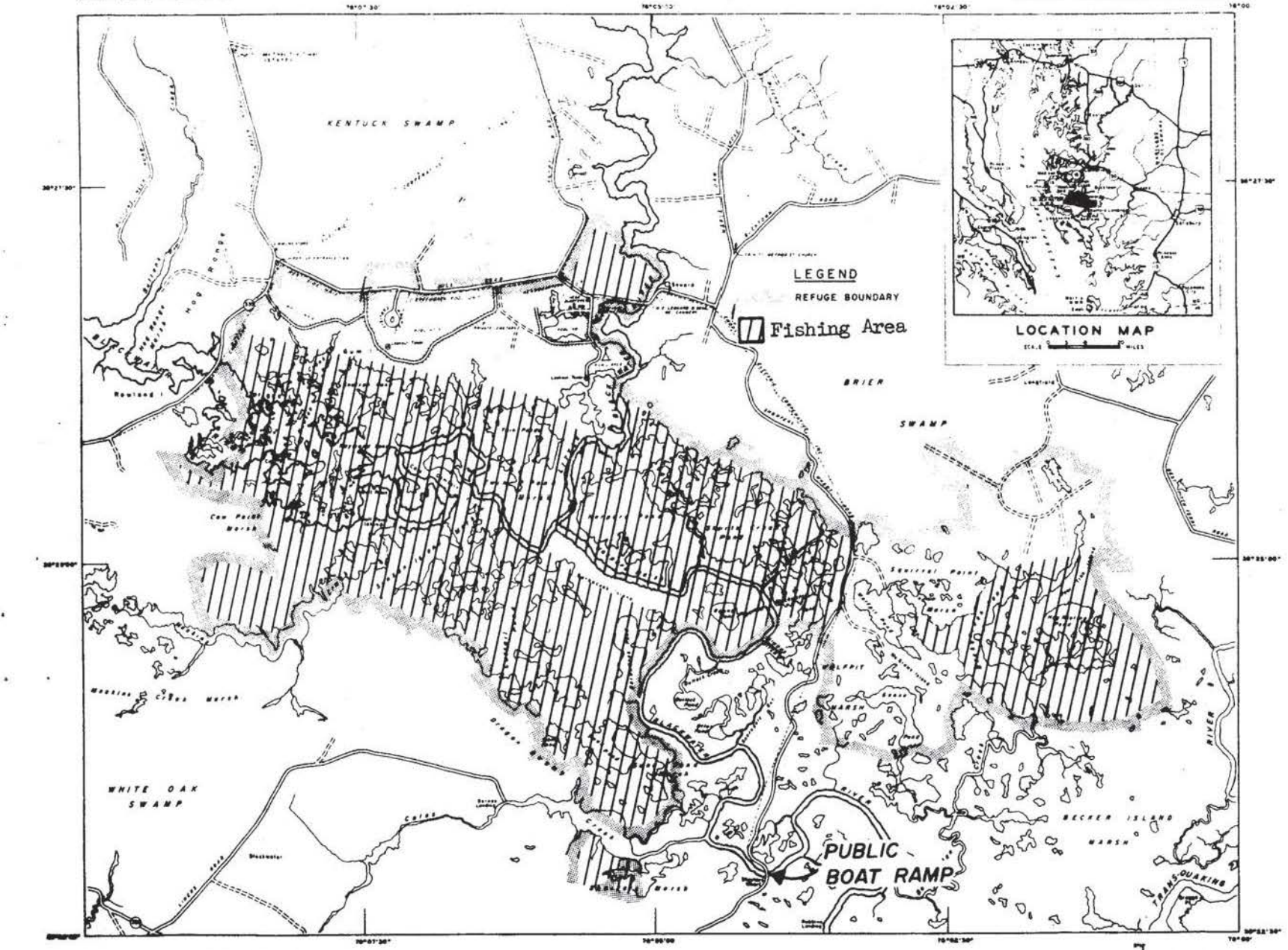
DON'T BE A LITTERBUG - TAKE YOUR LITTER HOME.

BLACKWATER NATIONAL WILDLIFE REFUGE

DORCHESTER COUNTY, MARYLAND

UNITED STATES
DEPARTMENT OF THE INTERIOR

FISH AND WILDLIFE SERVICE
BUREAU OF SPORT FISHERIES AND WILDLIFE



COMPILED IN THE BRANCH OF ENGINEERING
FROM SURVEYS BY U.S. ARMY

ATLANTA, GEORGIA JULY, 1964

Scale

MEAN DECLINATION 1964

4R-MD-148-403

ADDRESS ONLY THE DIRECTOR,
BUREAU OF SPORT FISHERIES
AND WILDLIFE

United States Department of the Interior

FISH AND WILDLIFE SERVICE
BUREAU OF SPORT FISHERIES AND WILDLIFE
WASHINGTON, D.C. 20240

An Invitation to Enjoy a Day at Blackwater

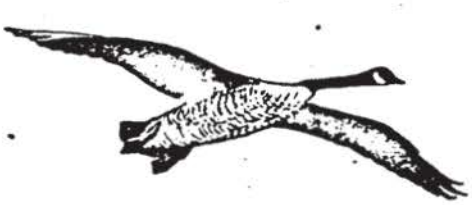
The Bureau of Sport Fisheries and Wildlife is planning a special tour to Blackwater National Wildlife Refuge for Congressional Staff and Committee Members.

Blackwater, located on the Eastern Shore of the Chesapeake Bay about 10 miles from Cambridge, Maryland, is an important resting and feeding area for migratory and wintering waterfowl. It is one of the chief wintering areas for Canada geese. When waterfowl reach their peak numbers during late fall, many of the 80,000 Canada geese and 100,000 ducks can be observed on the Refuge.

Tour facts are as follows:

When:	October 26, 1972
Where:	Charter buses leaving from First and East Capitol Streets at 8:30 a.m. Return to same location by 5:00 p.m.
Lunch:	Bring your own picnic lunch. Beverages will be provided at the Refuge.
Dress:	Warm casual clothing should be worn; weatherproof, comfortable walking shoes are a must. Women should not wear high heel shoes.
Reservations:	If you plan to attend, please call the Office of Legislative Services, Bureau of Sport Fisheries and Wildlife, 343-4305 or IDS Code 183, extension 4305. We are limited in the number of people we can accomodate on this trip. So, call early to insure a reservation. (P.S.--another trip will be arranged for later in the year for those of you who call too late to make the quota.) Reservations should be made on or before Oct. 18.

We hope you can join Russ Fielding and his staff for this visit to Blackwater to see the spectacular Canada geese and other wildlife this Refuge harbors.



VII. Other Items

A. Items of Interest. Mr. Charles Drake (Recreational Intern GS-2), a student at North Carolina State, reported for summer duty on May 15, 1972.

Mr. Robert Germany, Refuge Manager, transferred from Okefenokee NWR, Georgia, to Blackwater NWR on June 12.

Miss Nell Prior, Refuge Manager, attended the Supervisor Training Course in Norfolk, Va. during May.

Refuge Managers Nell Prior (Blackwater) and Larry Dunkeson (Mason Neck) left for Washington D.C. to participate in the ten month Departmental Training Program.

Refuge Manager Wendell E. Crews left Blackwater on August 21 for his new assignment as Refuge Manager at Reelfoot NWR in Tennessee.

Jeffrey Climpson, a Bureau Trainee assigned to the Washington office, received field training at Blackwater the week of August 28-September 1.

Mr. Domenick Ciccone arrived for duty on October 15 to fill the position of Recreation Specialist.

Mr. Ken Chitwood reported for duty at Blackwater on November 12 from Santee Refuge, S.C., as the new Assistant Manager.

B. Photographs. Photographs were taken by Manager Julian and Manager Prior.

C. Narrative Credits. Credit for the narrative writing follows:

Refuge Manager Julian - VIE, Photo Section.
Asst. Manager Chitwood - IIIA, VID.
Asst. Manager Germany - II, VIF.
Biological Tech. Willey - I,IIIB, IV, V, VII & NR Forms.
Recreation Specialist Ciccone - V

Respectfully submitted,

William H. Julian
Refuge Manager

Date Prepared

Howard D. Woon

Regional Refuge Supervisor

Regional Office Approval

Date

3-1750c
Form NR-1C
(Sept

WATERFOWL HU KI URVEY

Refuge Blackwater National Wildlife

Year 1972

(1) Weeks of Hunting	(2) No. Hunters Checked	(3) Hunter Hours	(4) Waterfowl Species and Nos. of Each Bagged	(5) Total Bagged	(6) Crippling Loss	(7) Total Kill	(8) Est. No. of Hunters	(9) Est. Tota Kill
			None to report.					

(over)

(1) The first week of hunting begins with opening day and ends at the close of hunting 6 days later. Successive weeks follow the same pattern.

(2) The goal is to survey a minimum of 25 percent of refuge hunters each week and to record data only from those who have completed their day's hunting. This information should be collected during each day of the week and in each area hunted in relative proportion to the hunter effort expended. When the 25 percent goal cannot be achieved, particular care should be taken to collect representative data.

(3) Record the total number of hours the hunters spent hunting on the refuge.

(4) List waterfowl species in decreasing order of numbers bagged. Sample entry: Mallard (61), Pintail (36), Redhead (16), Gadwall (11), Widgeon (6), Coot (4), Canada Goose (3), Green-winged Teal (1).

(5) Record total numbers of waterfowl bagged.

(6) Record total numbers of waterfowl reported knocked down but not recovered.

(7) Total of Columns 5 and 6.

(8) Estimate the total number of hunters who hunted on the refuge during the week, including hunters checked (Column 2).

(9) Kill sample projected to 100 percent. Column 9 = $\frac{\text{Column 8}}{\text{Column 2}}$ x Column 7.

3-1755
Form [illegible]

DIS[illegible]

Refuge Blackwater National Wildlife Year 19 72

Botulism

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 Negative Report

Lead Poisoning or other Disease

Kind of disease _____

Species affected _____

Number Affected Species	Actual Count	Estimated

Number Recovered _____

Number lost _____

Source of infection _____

Water conditions _____

Food conditions _____

Remarks Negative Report

3-1757
Form NR-[redacted]
(Rev. J[redacted])

NONAGRI[redacted]LTUR[redacted] COLLECT[redacted], R[redacted]PTS, A[redacted] PL[redacted]INGS (1)

Refuge **Blackwater National Wildlife** Year 19**72**

Species	Collections and Receipts (Seeds, rootstocks, trees, shrubs)						Plantings (Marsh - Aquatic - Upland)						
	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
Sumac							**Dieffenbach Pool Unit**			1000	5/72	50%	*
Sweet Pepper							" "			200	5/72	20%	*
Holly (American)							" "			50	5/72	10%	*
Baccharis							" "			500	5/72	40%	*
Waxmyrtle							" "			500	5/72	50%	*
Serviceberry							" "			10	5/72	10%	*
Huckleberry							" "			25	5/72	10%	*
Wild Rose							" "			100	5/72	50%	*
Holly (Jap.)							**Visitor Center**			30	3/72	95 %	"

(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 _____
Hedgerows, cover patches _____
Food strips, food patches _____
Forest plantings _____

Remarks: **Heavy loss of some species due to extremely heavy amounts of rainfall which flooded low areas. All the plantings were transplants from refuge areas and rate of survival is considered good.**

3-1757
Form NR-7
(Rev. J[redacted])

NONAGRI[redacted]LTU[redacted] COLLECT[redacted], R[redacted]PTS, A[redacted] PLA[redacted]INGS (1)

Refuge **Blackwater National Wildlife** Year 19**72**

	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
Autumn Olive (Wildlife Shrub)							**Dieffenbach Pool Unit**			50	4/27	80%	*See Remarks
Tatarian Honeysuckle (Wildlife Shrub)							**Dieffenbach Pool Unit**			75	4/27	80%	"
Black Pine (Jap.)							**Dieffenbach Pool Unit**			500	4/27	80%	"
Flame Leaf Sumac							**Dieffenbach Pool Unit**			75	4/27	80%	"
Bristley Locust							**Dieffenbach Pool Unit**			25	4/27	80%	"
Rugosa Rose							**Dieffenbach Pool Unit**			100	4/27	80%	"

(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 _____
Hedgerows, cover patches _____
Food strips, food patches _____
Forest plantings _____

Remarks: **Some loss due to the heavy rainfall throughout the year. All the plantings done in the Wildlife Demonstration Plot with the Soil Conservation Service Cooperating.**

3-1758
Form NR-[redacted]
(Rev. Ja[redacted])

Fish and [redacted]ldli[redacted] Service[redacted] Div[redacted]n of W[redacted]dlif[redacted] Refuges

CULTIVATED CROPS - HAYING - GRAZING

Refuge **Blackwater National Wildlife** County **Dorchester** State **Maryland**

Cultivated Crops Grown	Permittee's Share Harvested		Government's Share or Return Harvested		Government's Share or Return Unharvested		Total Acreage Planted	Green Manure, Cover and Waterfowl Browsing Crops Type and Kind	Total Acreage
	Acres	Bu./Tons	Acres	Bu./Tons	Acres	Bu./Tons			
Corn	137.6	10,009 Bu.	10.4	735.0 Bu.	0	0	152	**Fescue**	50
Fescue	0	0	0	0	50	100Tons	50	**Soybeans**	25
Sorghum	0	0	0	0	20	200 Bu.	20		
Soybeans	0	0	0	0	25	50Tons	25		
								Fallow Ag. Land	353

No. of Permittees: Agricultural Operations **1** Haying operations **0** Grazing Operations **0**

Hay - Improved (Specify Kind)	Tons Harvested	Acres	Cash Revenue	GRAZING	Number Animals	AUM'S	Cash Revenue	ACREAGE
None	**None**	**None**	**None**	1. Cattle	**None**	**None**	**None**	**None**
				2. Other	**None**	**None**	**None**	**None**
				1. Total Refuge Acreage Under Cultivation				247
Hay - Wild	**None**	**None**	**None**	2. Acreage Cultivated as Service Operation				75

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 harvested 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.

3-1570
NR-88
(4/54)

REFUGE GRAIN REPORT

Refuge Blackwater National Wildlife Months of January through December, 1972

(1) Variety*	(2) On Hand Beginning of Period	(3) Received During Period	(4) Total	(5) Grain Disposed of				(6) On Hand End of Period	(7) Proposed or Suitable Use*		
				Transferred	Seeded	Fed	Total		Seed	Feed	Surplus
Corn	675	735	1410	50	0	625	675	735	0	735	0
Buckwheat	0	2	2	0	0	2	2	0	0	0	0
Sorghum	25	20	45	0	20	25	45	0	0	0	0

(8) Indicate shipping or collection points Cambridge, Maryland

(9) Grain is stored at Blackwater Refuge grain storage bins.

(10) Remarks 50 bushels of corn transferred to Glen. L. Martin N.W. Refuge for banding purposes.

*See instructions on back.

REFUGE GRAIN REPORT

This report should cover all grain on hand, received, or disposed of, during the period covered by this narrative report.

Report all grain in bushels. For the purpose of this report the following approximate weights of grain shall be considered equivalent to a bushel: Corn (shelled)—55 lb., corn (ear)—70 lb., wheat—60 lb., barley—50 lb., rye—55 lb., oats—30 lb., soy beans—60 lb., millet—50 lb., cowpeas—60 lb., and mixed—50 lb. In computing volume of granaries, multiply the cubic contents (cu. ft.) by 0.8 bushels.

(1) List each type of grain separately and specifically, as flint corn, yellow dent corn, square deal hybrid corn, garnet wheat, red May wheat, durum wheat, spring wheat, proso millet, combine milo, new era cowpeas, mikado soy beans, etc. Mere listing as corn, wheat, and soybeans will not suffice, as specific details are necessary in considering transfer of seed supplies to other refuges. Include only domestic grains; aquatic and other seeds will be listed on NR–9.

(3) Report all grain received during period from all sources, such as transfer, share cropping, or harvest from food patches.

(4) A total of columns 2 and 3.

(6) Column 4 less column 5.

(7) This is a proposed break-down by varieties of grain listed in column 6. Indicate if grain is suitable for seeding new crops.

(8) Nearest railroad station for shipping and receiving.

(9) Where stored on refuge: "Headquarters granary," etc.

(10) Indicate here the source of grain shipped in, destination of grain transferred, data on condition of grain, unusual uses proposed.

3-1761
Form NR-
(2/46)

TIMBER REMO

Refuge Blackwater National Wildlife Year 19 72

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
None to report.								

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

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

Cords.....

Ties.....

.....

3-1979 (NR-12)
(9/63)

Bureau of Sport Fisheries and Wildlife

Refuge: Blackwater N.W.

ANNUAL REPORT OF PESTICIDE APPLICATION

Proposal Number: 5-72

Reporting Year: 1972

INSTRUCTIONS: Wildlife Refuges Manual, secs. 3252d, 3394b and 3395.

Date(s) of Application	List of Target Pest(s)	Location of Area Treated	Total Acres Treated	Chemical(s) Used	Total Amount of Chemical Applied	Application Rate	Carrier and Rate	Method of Application
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
July-August September	Johnson grass	Field #10,26, 27 and 36	10 Acres	Dalapon	180 lbs	7 lbs per Acre	40 gallons water per acre	Tractor Mounted Sprayer

10. Summary of results (continue on reverse side, if necessary) Spot treatment of Johnson grass in refuge fields. Stateof Maryland legislation House Bill 880, states that efforts will be made to eradicate Johnson grass from the state. Penalties will be imposed on those who have Johnson grass and do not try to control it. Results of the spot treatment this year looked good although heavy rainfall prevented treatment in the early stages as planned.

3-1979 (NR-12)
(9/63)

Bureau of Sport Fisheries and Wildlife

Refuge: Blackwater N.W.

ANNUAL REPORT OF PESTICIDE APPLICATION

Proposal Number: 3-72

Reporting Year: 1972

INSTRUCTIONS: Wildlife Refuges Manual, secs. 3252d, 3394b and 3395.

Date(s) of Application	List of Target Pest(s)	Location of Area Treated	Total Acres Treated	Chemical(s) Used	Total Amount of Chemical Applied	Application Rate	Carrier and Rate	Method of Application
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
June 15 thru July 2	Broad Leaved weeds and noxious grasses	Agricultural fields along Mill Road farmed by cooperative agreement	152	Alachlor (Lasso)	228 lbs	1 1/2 lbs. a.i. per acre	12 gal. water per Acre	Tractor pulled boom sprayer

10. Summary of results (continue on reverse side, if necessary) Application of Lasso increased corn production on the refuge. The low lying soils which were extremely wet in 1972 could have caused a total loss of the crop since the ground conditions did not dry until the late stages of the corn. Results from the use of this chemical were excellent this year.

3-1979 (NR-12)
(9/63)

Bureau of Sport Fisheries and Wildlife

Refuge: Blackwater N.W. Ref

ANNUAL REPORT OF PESTICIDE APPLICATION

Proposal Number: 1-72

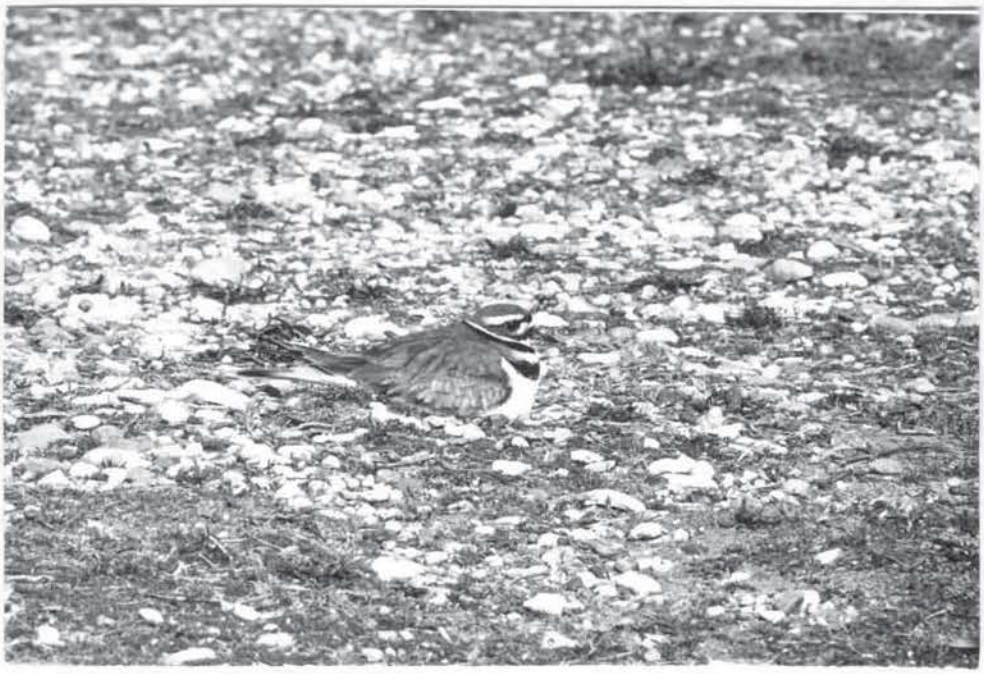
Reporting Year: 1972

INSTRUCTIONS: Wildlife Refuges Manual, secs. 3252d, 3394b and 3395.

Date(s) of Application	List of Target Pest(s)	Location of Area Treated	Total Acres Treated	Chemical(s) Used	Total Amount of Chemical Applied	Application Rate	Carrier and Rate	Method of Application
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
June 1 thru September 15, 1972	Mosquitoes	Headquarters Area Qtrs #1 and 2 Visitor Center	10	Malathion	5 lbs (a.i)	1/2 lb. a. i. per Acre	Water 100 gallons per 2 gallons of Malathion	Roto-Mist Sprayer

10. Summary of results (continue on reverse side, if necessary) All spraying accomplished by Dorchester County and approved by the Mosquito Control Division. The spraying was done during the time of heaviest mosquito infestation. This operation greatly increased the summer public use of the picnic area and the comfort of the refuge employees.

72-4-18 Goose on muskrat house near observation tower.



72-4-6 Killdeer on nest in shop area.

72-10-11

72-10-13

72-2-10 Hughes, Wheatley, and Willey.

72-2-13 Cornish, Crews, Wheatley, Willey, Hughes, and Stewart.

72-10-19 The rail fence at the Visitor Center stopped some of the people from walking into the geese.

72-6-4 The deer completely cleaned this field of drilled soy beans.

72-1-20A A photographer . . .

72-1-10 . . . and birds near Visitor Center.

72-9-6 Judging the first annual Dorchester Arts Center - Blackwater NWR photo contest.

72-9-15 Judges for the contest were Don Pfitzer, Atlanta RO; Hugo Brooks, chairman, Bethesda, Md.; Bob Hines, CO; Don Saults, CO; Bill Brightwell, Cambridge, Md.

72-9-20 Crews awarding prize to winner of best-in-show.

Winning photographs on display in lobby of the Interior Building
(photo by Goldman)

Julian and son (Keith) installing colony of bees in observation hive. (Photo by Dorchester News.)

Julian and Wheatley installing hive in Visitor Center. Opening to outside is in bottom of hive and through plexiglass pipe in lower left center. The hive can be rotated 180°.

Refuge corn harvested at 1:30 a.m. on a cold November Saturday morning. Intended use was a lure and attraction for migratory waterfowl on a private pond.

Same corn being returned to refuge field on the same cold November morning. Photos by Agent Badger.

72-2-18