September 26, 1984

Refuge Manager, Blackwater NWR
Cambridge, MD.

Report on Black Duck Production Enhancement Efforts FY 1984

Regional Director (AWR)
Newton Corner, MA.
ATTN: Refuge Supervisor-South

The Region directed refuges producing black ducks to increase black duck recruitment by 25% in FY 1984. The attached report outlines our efforts in that regard this fiscal year.

Although the elevated artificial nesting structures composed of a fescue haybale did not increase production, we plan to modify the structures somewhat next year and continue the project through FY 85.

We would appreciate hearing about the successes or failures at other stations in increasing black duck recruitment 25%. The former so we can attempt to duplicate them, the latter so we need not repeat them.

Don R. Perkuchin

Attachments

BLK:SAtzert-memo; WHester-study:ch 9-26-84

BLACK DUCK NESTING ENHANCEMENT STUDY
1984

Blackwater National Wildlife Refuge
Route 1, Box 121
Cambridge, Maryland 21613

BLACK DUCK NESTING ENHANCEMENT STUDY

For decades, the black duck population of North America has steadily declined due to such factors as habitat degradation and competition from the mallard. Every effort should be conducted to reverse this trend and the local manager can have a very positive impact in this regard. Both wintering and nesting communities may be manipulated to facilitate restoration.

Blackwater National Wildlife Refuge, located approximately 12 miles south of Cambridge, Maryland, is comprised of nearly 15,000 acres all of which is premium black duck habitat. Much black duck nesting is also found on Blackwater, oftentimes in low brackish marsh areas subject to sporadic, abnormally high spring tides which are proven to inundate nests hence destroying the clutch.

Beginning in the winter of 1984, Blackwater personnel initiated a study program to help alleviate this problem. Fescue hay bales were placed in promising locations in certain areas of Blackwater NWR marsh. The staff selected islands, peninsulas, and isolated shoreline spots, well concealed by dense cover, for the placement of these sites.

Each site consisted of one bale secured with a wooden stob driven through its center. Each site was then numbered with an inconspicuous sign and loose hay was spread over each secured bale. Fifty-five bales were placed throughout the refuge marsh between 20 February and 2 March 1984. Site locations and inspection results are found on the following pages.

Abstract: In the spring of 1984 Blackwater National Wildlife Refuge initiated a black duck production enhancement study. This research reflects the efforts of the U.S. Fish and Wildlife Service to halt the general decline in black duck numbers which has persisted for decades. Region 5 of the Service recently asked all its black duck producing refuges to increase black duck recruitment by 25%. Flooding of black duck nests in the marshes during abnormally high tides is considered a significant deterrent to production at Blackwater. Therefore, artificial nesting structures were placed throughout the marsh areas of Blackwater in hopes that black ducks would utilize these sites and avoid nest inundation. No duck nesting was found on the artificial nesting structures in the 1984 study. However, black duck eggshell fragments were noted on one site and black duck breast feathers were found on another.

REFUGE DESCRIPTION

Blackwater National Wildlife Refuge was established in 1932 as a resting and feeding area for migratory birds, primarily wintering waterfowl. The refuge currently consists of 14,263 acres and is located in Dorchester County on Maryland's Eastern Shore in an area known as the Delmarva Peninsula. The Chesapeake Bay lies about 5 miles to the west and south with the Atlantic Ocean 50 miles to the east. The Blackwater and Little Blackwater Rivers flow through the refuge's marshes and swamps.

Elevation on the refuge ranges from 0 to 8 feet above MSL. The rivers and adjacent marshes are influenced by an average tide differential of one foot. However, wind and runoff often have a greater bearing on water levels than tides. The refuge consists of 10,180 acres of shallow fresh and brackish marshes and open water areas; 575 acres of swamp, 2,774 acres of harvestable timberland, 102 acres of brushy upland, and about 355 acres of cleared land suitable for farming. Five freshwater impoundments have been constructed since 1950 and result in water control on approximately 250 acres. Some of the impounded areas, depending on the amount of rainfall, are drained annually and planted in wildlife foods such as millet and sorghum.

Blackwater's predominant marsh plant species is olney threesquare (Scirpus olneyi). Other major marsh species of lesser abundance include: saltmeadow cordgrass (Spartina patens), saltmarsh cordgrass (Spartina alterniflora), saltgrass (Distichlis spicata) and black needlerush (Juncus roemerianus). Several small pine islands are also distributed throughout the marsh. Loblolly pine-mixed hardwood is the major timber association found on the refuge.

HISTORICAL PERSPECTIVE

The North American black duck population has decreased steadily over the last three decades. The 1984 Atlantic Flyway mid-winter survey of 227,000 was less than half that of 1955. Blackwater's black duck numbers reflect this decline. From an average peak population of 30,000 in 1964-68 the refuge population fell to 5,100 during the 1970's and has averaged 1,600 since 1980. Black duck production at Blackwater is also waning; 1961-68 production averaged 520 as compared to an average of 90 since 1975.

PROCEDURES

Between February 20 and March 2, 1984, 55 artificial nest structures were created in the brackish marsh area of Blackwater. Each structure consisted of one fescue hay bale laid flat with its binding on the upper and lower

sides (width = 20", length = 36", height = 12"). Loose hay was placed on the bale to function as nest material and a wooden stake driven into the ground was used as an anchor.

The bales were placed:

(1) in marsh areas of the refuge which experience a relatively high black duck nesting density;

(2) under shrubs and tall marsh grass, such as big cordgrass (Spartina cynosuroides) and groundsel tree (Baccharis halimifolia), to alleviate aerial predation by such species as crows;

(3) in extensive marsh, as far as possible from wooded areas, to minimize land based predation;

(4) on islands or prominant peninsulas tc minimize land based predation.

Each site was marked with a numbered stake to facilitate identifying and relocating well concealed structures.

All sites, except as noted below, were inspected three times during the breeding season at the following times:

A. Inspection I - April 5-10, 1984

B. Inspection II - May 7-11, 1984

C. Inspection III - June 1-5, 1984

Structures 31-33 and 38-55 were only checked twice due to logistical problems.

RESULTS AND RECOMMENDATIONS

No duck nesting on the artificial structures was noted in 1984. The most encouraging sign was observed on June 1 when black duck eggshell fragments were discovered on structure #19. Presumably the egg was destroyed by a crow or raccoon. This egg may have been laid on the structure as a nesting attempt, but the predator may have picked up the egg somewhere else and used the structure to eat the egg.

Three black duck breast feathers were found on structure #51 on June 5. It is unknown whether the structure was inspected as a possible nest site or simply used as a loafing platform.

Nutria droppings were found on a majority of the hay bales and other droppings were found on about 5% of the hay bales. Goose droppings were found on bale #9 on April 5. Structures #1 and #17 were transformed into muskrat lodges.

It is recommended that this study be extended at least through the 1986 nesting season. Black duck production at Blackwater was very low this year probably due to the unusually cold spring and abnormally high tides. Future production could be augmented as a result of duck familiarization and imprinting to hay bales.

Furthermore, it is recommended that 30 additional structures be created in burned marsh areas that will be vegetated in the spring by big cordgrass. Such areas are common in the spring due to prescribed refuge burning conducted during the winter months. Nutria prefer thick cover and it is hoped that such structure placement will minimize possible disturbance by nutria.

Finally, each site in 1985 should be made by standing 2 bales on their sides (width = 12", length = 36", height = 20") and pushing their 36"

bound surfaces together. This design will allow for a higher platform elevation and a larger area from which the ducks may choose their nest locations.


ATTACHMENT #1
STUDY AREA AND SITE LOCATION
BRIER
SWAMP
Longfield
SHORTERS
COOPERATIVE, INC
WHARF ROAD
POOL NO 4
BEST PITCH
Twin Ponds
Pond
Marsh
LITTLE
BLACK
Harpers Pond
Shorts Creek Pond
Harpers Marsh
KEENES DITCH
Barbadoes Island
Round Pond
Blackwater Pond
SIMONS DITCH
Barbadoes Pond
Bullock Creek
Bullock Pond
Otter Pond
Snarepole Gut
BLACKWATER
Long Pond
Swan Pond
Swan Pond Marsh
Swamp
Creek
Shorters Marsh
Shorters Wharf
WOLFPIT
Wolfpit Pond
Squirrel Point
Marsh
McGraws Island
Goose Pond
MARSH
Backgarden Pond
Pear Tree Island
Hog Rooting Pond
Creek
RIVER
BECKER ISLAND
MARSH
Backgarden
TRANS-QU
Gregg
1
2
3
4
5
6
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BLACK DUCK NESTING ENHANCEMENT STUDY

Nesting Structure Number	Date	Comments	Observer's Name
1	4-5-84	X (No Activity)	G. Welley, F. Hughes W. Hester
2			
3			
4		Destroyed By Fire	
5		X	
6			
7			
8			
9		Goose Droppings On Structure	
10		X	
11			
12			
13			
14			
15			
16			
17		Muskrat Lodge	
18		X	
19			

BLACK DUCK NESTING ENHANCEMENT STUDY

Nesting Structure Number	Date	Comments	Observer's Name
20	4-5-84	DESTROYED BY FIRE	G. WELLEY, W. HESTER
21		X (NO ACTIVITY)	
22			
23			
24			
25			
26	4-10-84		G. WELLEY, W. HESTER
27			
28			
29			
30			
31			
32			
33			
34			
35			
36			
37			
38			

BLACK DUCK NESTING ENHANCEMENT STUDY

Nesting Structure Number	Date	Comments	Observer's Name
39	4-10-84	X	G. Welley, W. Hester
40			
41			
42			
43			
44			
45			
46			
47			
48			
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51			
52			
53			
54			
53			

BLACK DUCK NESTING ENHANCEMENT STUDY

Nesting Structure Number	Date	Comments	Observer's Name
1	5-7-84	MUSKRAT LODGE	G. WELLEY, W. HESTER
2		X	
3			
4		DESTROYED BY FIRE	
5		X	
6			
7			
8			
9			
10			
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16			
17			
18			
19			

BLACK DUCK NESTING ENHANCEMENT STUDY

Nesting Structure Number	Date	Comments	Observer's Name
20	5-7-84	DESTROYED BY FIRE	G. WELLEY, W. HESTER
21		X (NO ACTIVITY)	
22			
23			
24			
25			
26	5-11-84		
27			
28			
29			
30			
34			
35			
36			
37			

BLACK DUCK NESTING ENHANCEMENT STUDY

Nesting Structure Number	Date	Comments	Observer's Name
1	6-1-84	X (No Activity)	W. Giese, W. Kester
2			
3			
4		Destroyed By Fire	
5		X	
6			
7			
8			
9			
10			
11			
12			
13			
14			
15			
16			
17			
18			
19		Black Duck Egg Shell Fragments	

BLACK DUCK NESTING ENHANCEMENT STUDY

Nesting Structure Number	Date	Comments	Observer's Name
20	6-1-84	DESTROYED BY FIRE	W. GIESE, W. HESTER
21		X (NO ACTEVITY)	
22			
23			
24			
25			
26	6-4-84		G. WILLEY, W. HESTER
27	6-5-84		S. ATZERT, W. HESTER
28			
29	6-4-84		G. WILLEY, W. HESTER
30	6-5-84		S. ATZERT, W. HESTER
31			
32			
33			
34			
35	6-4-84		
36			
37			
38			

BLACK DUCK NESTING ENHANCEMENT STUDY

Nesting Structure Number	Date	Comments	Observer's Name
39	6-4-84	X (No Activity)	G. Welley, W. Hester
40	6-5-84		S. Atzert, W. Hester
41	6-4-84		G. Welley, W. Hester
42	6-5-84		S. Atzert, W. Hester
43			
44			
45			
46			
47			
48			
49			
50			
51		Black Duck Feathers On Structure	
52		X	
53			
54			
55			

BLACK DUCK ENHANCEMENT PROJECT

SITE LOCATIONS

1. REFER TO MAP (RTM)
2. RTM
3. LOCATED ON ~~ISLAND~~ PROMINENT ~~LARGE~~ ISLAND IN MIDDLE OF WATER AREA.
4. RTM
5. RTM
6. RTM
7. RTM
8. APPROXIMATELY 100 YDS. NORTH OF CREEK SOURCE
9. ADJACENT TO CREEK DUG WEST OF MAJOR ROUND POND CREEK.
10. } FOUND ON ISLANDS NOT PICTURED ON MAP. 10 AND 11
11. } ARE LOCATED ~~ON~~ ~~WESTERN~~ AT OPPOSITE ENDS OF WESTERN-
12. } MOST ISLAND. #12 LOCATED ON SMALL ISLAND TO THE EAST.
13. ON RELATIVELY LONG, EASILY RECOGNIZEABLE PENINSULA BETWEEN BLACKWATER RIVER AND BARBADOS POND AT INTERSECTION OF THE TWO WATER BODIES.
14. ON SOUTH SIDE OF CREEK AT SWAN POND ENTRANCE OFF OF BLACKWATER RIVER.
15. ON POTRUDING POINT ON NORTH SIDE OF CREEK JUST BEFORE THIS CUT ENLARGES INTO THE MAJOR SWAN POND WATER BODY.
16. FOUND ON PROTRUDING POINT JUST SOUTH OF OSPREY STRUCTURE
17. ON LARGE ISLAND JUST NORTHEAST OF OSPREY STRUCTURE.
18. NESTLED INTO MOST WELL-DEFINED POINT ON THIS EASTERN SHORE OF SWAN POND
19. ON ISLAND LOCATED IN FIRST NOTICEABLE POOL WHEN HEADING OUT FROM REFUGE HEADQUARTERS
20. ON NORTH POINT AT ENTRANCE TO THIS UNNAMED POOL
21. POSITIONED 200 YDS. NORTH ~~OF MAJOR PT AFTER~~ OF BARBADOS POND ENTRANCE ON MAJOR PT.
22. } BOTH STRUCTURES FOUND ON TWO MAJOR POINTS
23. } OF BARBADOS POND
24. AT INTERSECTION OF 3 WATERWAYS: POSITIONED ON NORTHERN SHORE.
25. AT REFUGE SIGN ON MAJOR POINT JUST SE OF LARGE COVE SEEN ON MAP

26. Found On First Island When Leaveng Wole Pit
27. On Major Point Just ~~South~~ East Of Abandoned Found Net Poles.
28. On Point At West Bank Of Backgarden Pond
29. Just North Of ~~Big~~ Largg Island
30. Just Southwest Of Burned Trapping Shack On ~~X~~ Point
31. Located On ~~An~~ ~~Island~~ The Southwest End Of An Island Just North Of Burned Trapper's Shack.
32. On Small Island North Of Trapper's Shack And Nest #31.
33. Prominent Point East Of #32
34. Major Point In Close Proxemity To Burned Shack.
35. Located On Largg Point Northeast Of Osprey Structure
36. Easterly Faleng Point. → First Major Point After Leaveng Wole Pit
37. Found On Island To The East After Departing Wole Pit
38. Major Point - RTM
39. Largg Point Where Water Body Starts To Narrow
40. Major Point Near Entrangle To ~~B Hog Rooting Pond~~ Creek
41. RTM
42. Largg Point To The East Of Entrangle To Hog Rooting Pond
43. North Side Of Greek → Small Island Found In Cove
44. Major Point . . . RTM
45. In Marsh Elder Bushes On North Side Of Pond
46. Located In Phrags Just East Of #45 On Far East Side Of Phrags
47. Major Point ~~To~~ On The North Side Of The Creek Just Before Creek Branches Off To Oak Pond
48. On First Island Upon Entering Oak Pond Creek
49. Found On ~~The~~ Another Island North Of #48.
50. Located In Marsh Elder ~~East Of~~ On East Side Of Oak Pond
51. On Third Island To The North After Entering Oak Pond Creek

52. On South Side Of Major Creek Where This Creek Branches Off To Oak Pond

53. On South Side Of Major Creek Between Oak And Hog Rooting Pond

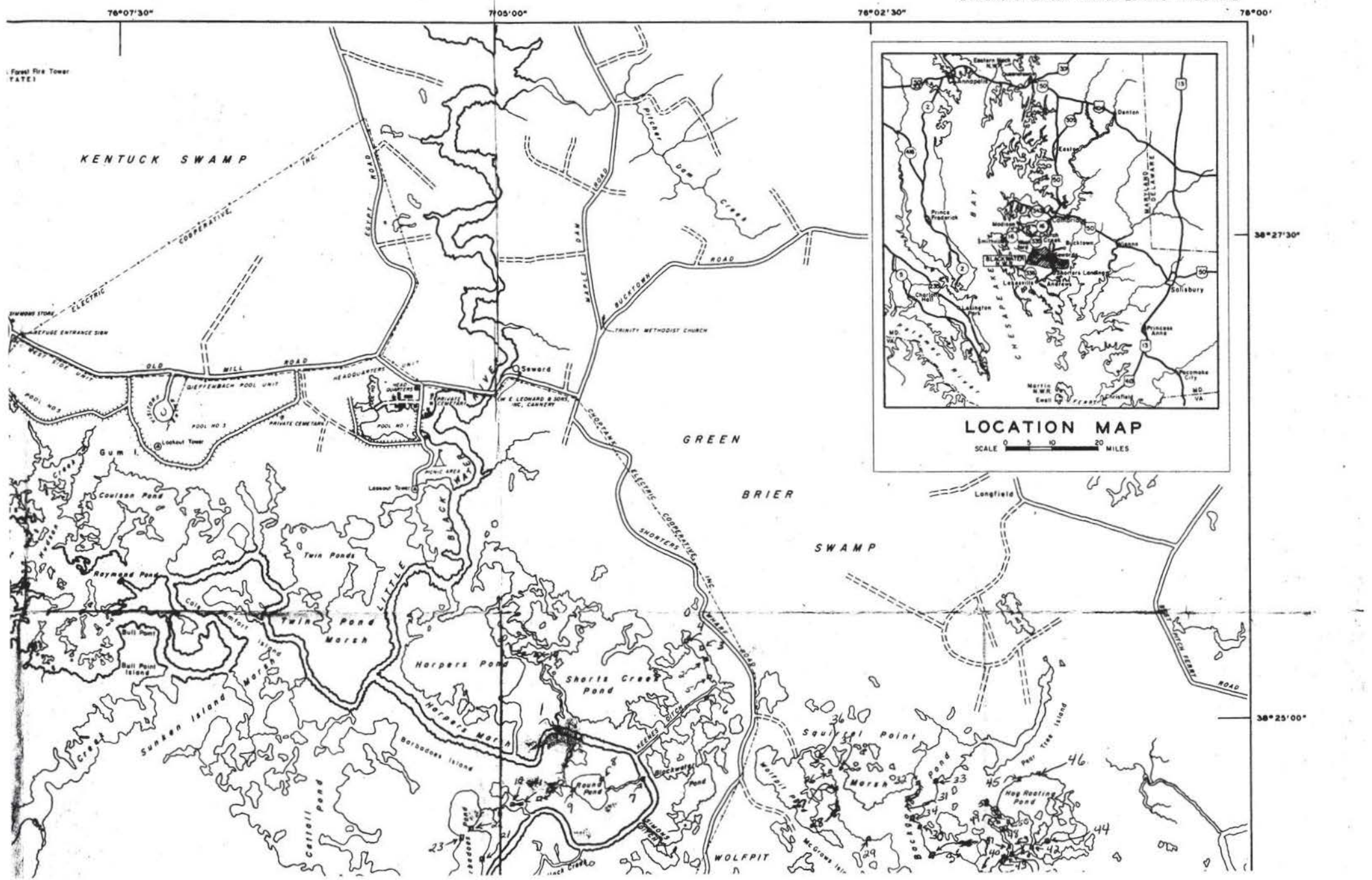
54. Southeast Of Osprey Structure On South Side Of Major Creek

55. Major Point ~~To~~ On The North Side Of Creek → First Point After Entering Said Creek

BLACKWATER NATIONAL WILDLIFE REFUGE

DORCHESTER COUNTY, MARYLAND

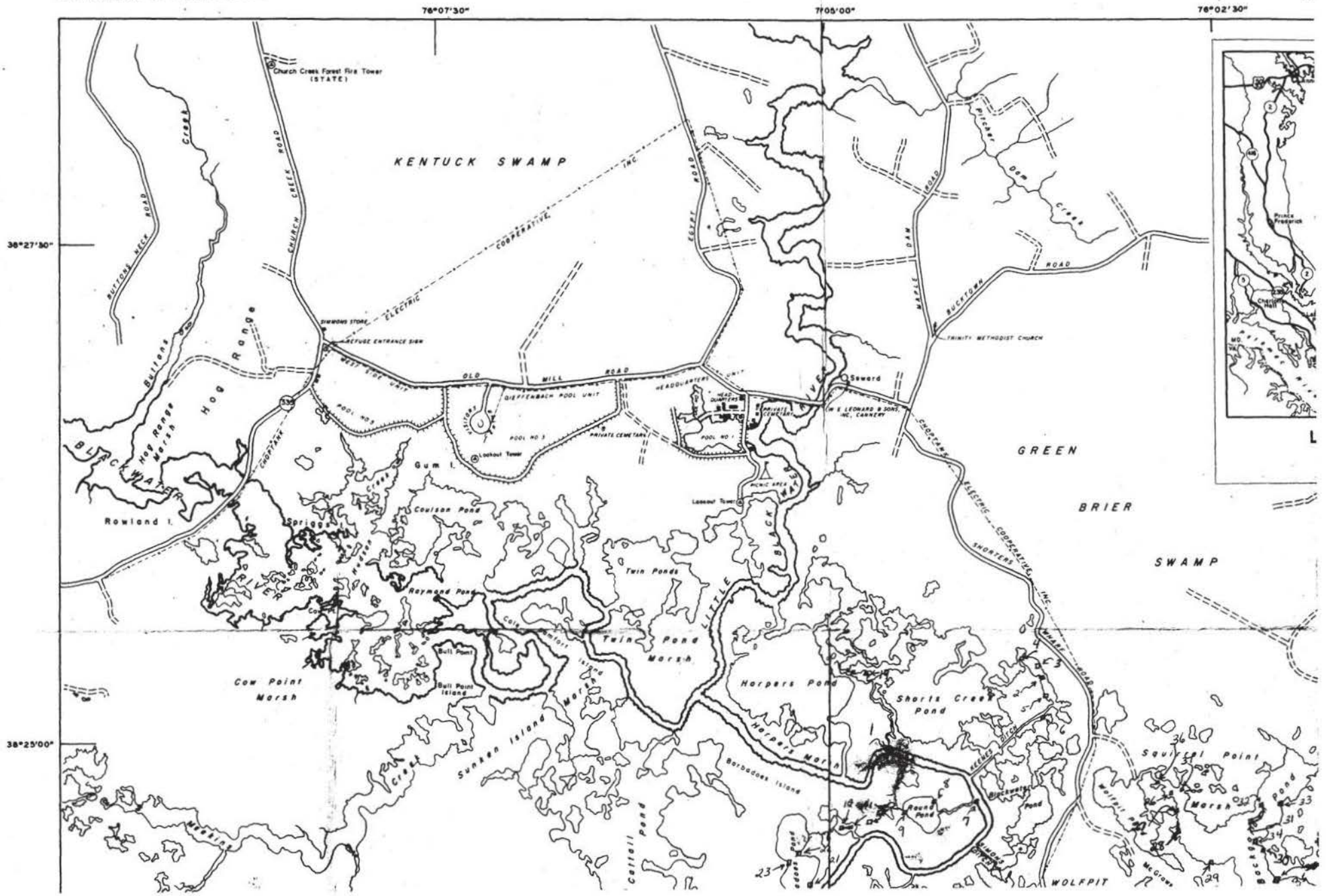
FISH AND WILDLIFE SERVICE
BUREAU OF SPORT FISHERIES AND WILDLIFE

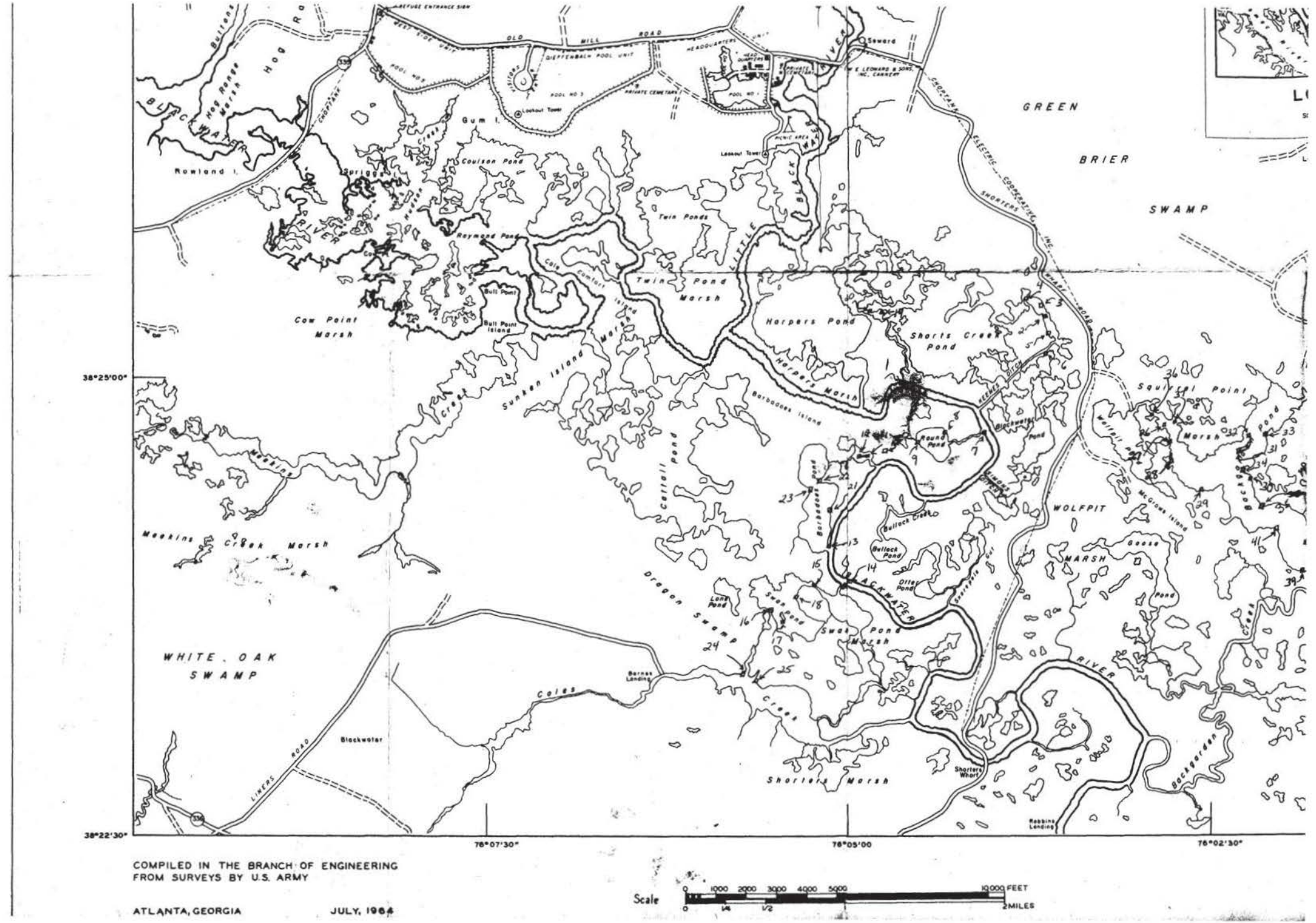


BLACKWATER NATIONAL WILDLIFE REFUGE

DORCHESTER COUNTY, MARYLAND

UNITED STATES
DEPARTMENT OF THE INTERIOR





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

ATLANTA, GEORGIA JULY, 1964

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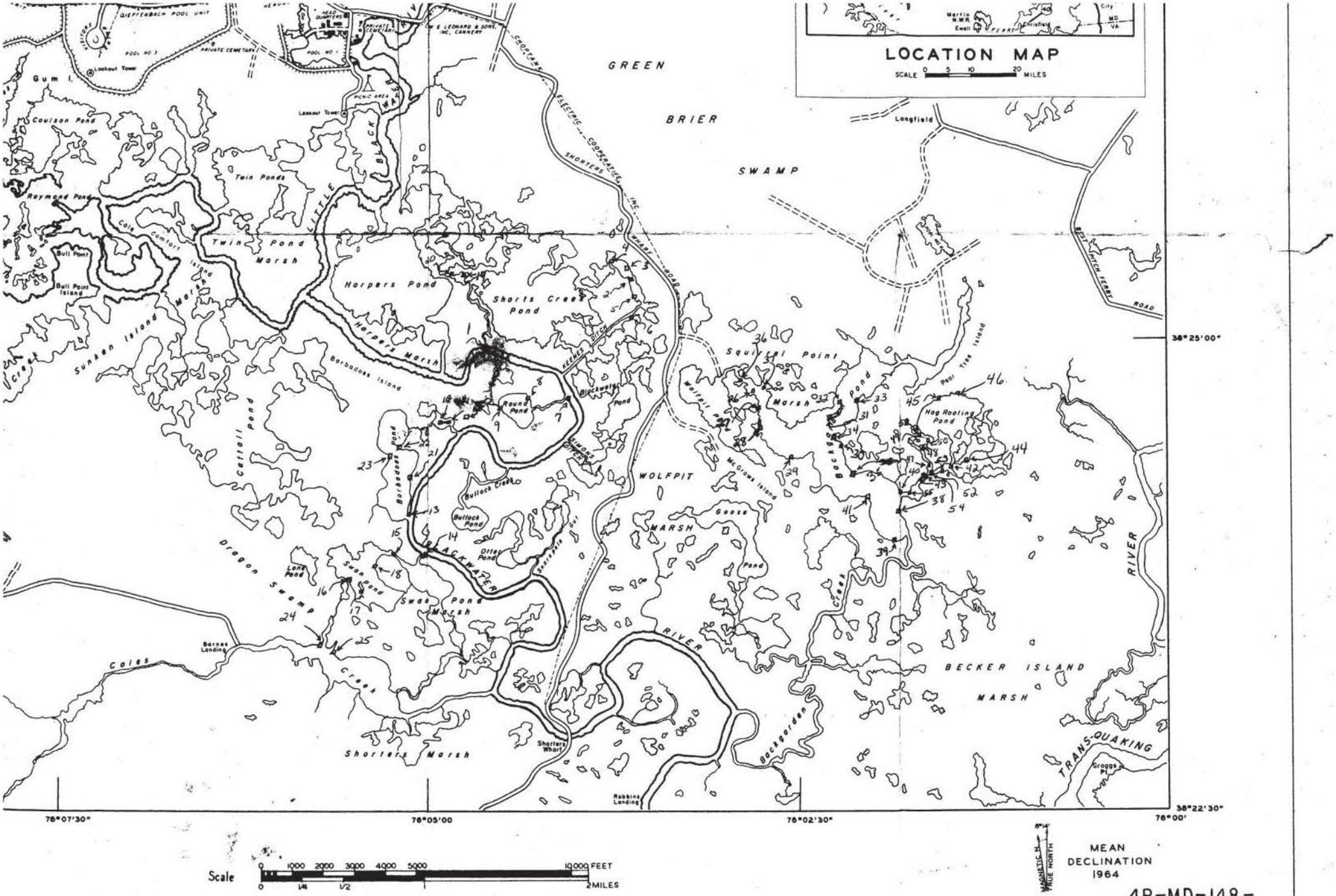
0 1/4 1/2 2 MILES



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41 BLA 404

December 3, 1985

Refuge Manager, Blackwater NWR
Cambridge, MD.

Report on Black Duck Production Enhancement Efforts FY 1985

Regional Director (AWR)
Newton Corner, MA.
ATTN: Refuge Supervisor-South

This follows up on the FY 1984 enhancement effort reported on in our September 26, 1984 memo on this subject. The procedures followed this year were the same as last year.

In early March, we placed 55 new fescue hay bales as artificial nest structures in the same locations as last year. We inspected the structures three times: April 16, May 30, and June 11 (inspection sheets are attached). The April inspection showed nutria using 18 of the 55 structures and black ducks in the vicinity of 5 of the structures. The June inspection showed nutria using 17 of the 55 structures and black ducks, including 1 brood of 6 young, in the vicinity of 4 of the structures. None of the three inspections showed any black duck use or any other duck use of the structures.

Contrary to the proposals in the FY 1984 report, 30 additional structures were not added in burned marsh areas and the structures this year were not made out of 2 hay bales placed on their sides. We decided that such large structures would make it too easy for avian predators to find the nests.

Because of our lack of success with the artificial structures we are terminating this approach to enhancing black duck production. We believe it still might have some use in areas that do not have nutria.

Don R. Perkuchin

Attachments

BLK:SPAtzert:ch 12-3-85

attach

Survey - 4/16/85.
5/30/85 - nested - 0 - one day check & all nest showed no use.

BLACK DUCK NESTING ENHANCEMENT STUDY

Nesting Structure Number	Date	Comments	Observer's Name
1	4/16/5/30	Mallards in general area - no nesting	Guy Willey
2	"	no nesting	
3	"	no nesting	
4	"	no nesting	
5	"	no nesting	
6	"	no nesting - Pair black ducks	
7	"	Nutria use - no nesting	
8	"	no nesting	
9	"	Nutria use - no nesting	
10	"	Nutria use - no nesting	
11	"	Nutria use - no nesting	
12	"	Nutria use - no nesting	
13	"	Nutria use - B.W. Teal (2) in area	
14	"	Nutria use - no nesting	
15	"	no nesting	
16	"	no nesting	
17	"	Nutria use - no nesting	
18	"	Nutria use - no nesting	
19	"	Nutria use - no nesting (2)	
20	"	NO nesting - Pair black duck in area.	

BLACK DUCK NESTING ENHANCEMENT STUDY

Nesting Structure Number	Date	Comments	Observer's Name
21	4/16	no nesting - BW Teal area (2 Pair)	Doug Wilday
22	"	Mallard use - no nesting	
23	"	Mallard use - no nesting	
24	"	Mallard use - no nesting (Pair blacks - in area) (1)	
25	"	no nesting	
26	"	no nesting	
27	"	no nesting	
28	"	no nesting	
29	"	no nesting	
30	"	no nesting	
31	"	no nesting	
32	"	no nesting (Pair blacks in area (4)	
33	"	no nesting	
34	"	no nesting	
35	"	no nesting	
36	"	no nesting	
37	"	no nesting	
38	"	no nesting	
39	"	Mallard use - no nesting (Mallard hen in area)	
40	"	Mallard use - no nesting	

BLACK DUCK NESTING ENHANCEMENT STUDY

Nesting Structure Number	Date	Comments	Observer's Name
41	4/16	no nesting	
42	"	no nesting - Nutria use	
43	"	no nesting	
44	"	no nesting	
45	"	no nesting Black (one) near by. (5)	
46	"	no nesting - Nutria use	
47	"	no nesting - Nutria use	
48	"	no nesting -	
49	"	no nesting.	
50	"	no nesting - Raccoon tracks or sign	
51	"	no nesting	
52	"	no nesting	
53	"	no nesting	
54	"	no nesting - Pair B.W. Teal near by.	
55	"	no nesting -	

Check of Straw Bales.

Survey 6/11-12/85

BLACK DUCK NESTING ENHANCEMENT STUDY

Nesting Structure Number	Date	Comments	Observer's Name
1	6/11	no nesting	D. W. Willey
2	"	"	
3	"	"	
4	"	"	
5	"	"	
6	"	Black duck observed in area	
7	"	Nutria use	
8	"	"	
9	"	"	
10	"	"	
11	"	"	
12	"	"	
13	"	"	
14	"	"	
15	"	"	
16	"	no nesting	
17	"	"	
18	"	Nutria use	
19	"	"	
20	"	"	

Check of Straw Bales

BLACK DUCK NESTING ENHANCEMENT STUDY

Nesting Structure Number	Date	Comments	Observer's Name
21	6/11	no nesting	D. Miller
22		Nutria use	
23		Nutria use	
24		Pair black's in area	
25		Brood of black's in cales (6) no use of straw bales.	
26		no nesting	
27		no nesting	
28		no nesting	
29		Nutria use	
30		no nesting	
31		Nutria use	
32		Pair of Black in area - no nesting	
33		no nesting	
34		no nesting	
35		no nesting	
36		no nesting	
37		no nesting	
38		no nesting	
39		no nesting	
40		no nesting	

Check of Straw Bales

BLACK DUCK NESTING ENHANCEMENT STUDY

Nesting Structure Number	Date	Comments	Observer's Name
41	6/11	No nesting	Guy Wilday
42		Pair of B. W. Teal in area - no nesting	
43		no nesting	
44		No nesting	
45		no nesting	
46		Nutria use	
47		no nesting	
48		no nesting	
49		no nesting	
50		Raccoon scat on bale	
51		No nesting	
52		no nesting	
53		no nesting	
54		no nesting	
55	↓	no nesting	