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## SURVIVAL AND LONGEVITY OF WHITE-WINGED SCOTERS NESTING IN CENTRAL SASKATCHEWAN

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Abstract.—Female White-winged Scoters (*Melanitta fusca*) banded at Redberry Lake, Saskatchewan, have an annual survival rate of  $78.2 \pm 2.0\%$ . One female captured in July 1985 was at least 18 yr old, a new longevity record for the species.

### SOBREVIVENCIA Y LONGEVIDAD DE INDIVIDUOS DE *MELANITTA FUSCA* ANIDANDO EN SASKATCHEWAN

Resumen.—Hembras de *Melanitta fusca* anilladas en el Lago Redberry, Saskatchewan, mostraron una supervivencia de  $78.2 \pm 2.0\%$ . Una hembra capturada en julio de 1985 tenía al menos 18 años, lo que constituye un record para la especie.

Intensive trapping of female White-winged Scoters (*Melanitta fusca degandi*) nesting at Redberry Lake, Saskatchewan in 1984 and 1985 has provided additional information on their survival and longevity. A new longevity record was set by a female (847-90183) banded on her nest 12 Jul. 1969, and recaptured on her nest in July 1985. This female was at least 18 yr old because female scoters first breed at 2 yr (Brown 1981) of age and 16 yr had elapsed from the time of first capture. This exceeds

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TABLE 1. Numbers of breeding female White-winged Scoters in each age class for the populations nesting at Redberry Lake, Saskatchewan, in 1984 and 1985.

Year	Age class of breeding female scoters									
	<6 <sup>1</sup>	6	7	8	9	10	11	15	16	18
1984	47	6	10	8	6	5	2	2	1	—
1985	—	42	7	5	4	7	—	—	—	1

<sup>1</sup> Because there was no intensive banding between 1980 and 1983, birds banded during this time and unbanded birds caught in 1984 were pooled into a <6 year class. Similarly, unbanded birds were pooled with birds banded between 1980 and 1984, in 1985.

TABLE 2. Recovery ages of White-winged Scoters banded at locations other than Redberry Lake, Saskatchewan.

Age at banding	Years after banding											
	<1	1	2	3	4	5	6	7	8	9	10	11
Adults	14	2	3	0	1	—	—	—	—	—	—	—
Local, juvenile, hatch year	29	2	6	2	2	2	1	1	1	0	0	1

TABLE 3. Number of adult female White-winged Scoters known to be alive in subsequent years on Redberry Lake, Saskatchewan.

Year banded	Number banded	Years after banding					
		1	2	3	4	5	6
1966	8	4	3	3	3	3	1
1967	6	3	3	3	3	3	3
1968	2	0	0	0	0	0	0
1969	3	3	1	1	1	1	1
1970	6	3	2	1	1	1	1
1971	9	6	6	6	6	6	6
1972	8	8	8	8	8	6	5
1973	6	3	3	3	3	2	1
1975	31	14	13	12	10	5	2
1976	38	23	21	17	12	3	3
1977	55	32	29	16	9	9	9
1978	51	35	31	19	15	15	15
1979	54	19	12	12	12	12	6
1980	29	11	10	10	10	8	—
1981	2	0	0	0	0	—	—
1982	2	2	2	1	—	—	—
1983	9	7	5	—	—	—	—
1984	42	7	—	—	—	—	—
Total	361	180	142	112	91	72	52

all longevity records set by recoveries at Redberry (Table 1) and elsewhere (Table 2).

We used data that were collected in 1984 and 1985, from the population of scoters nesting at Redberry Lake, Saskatchewan, to calculate an average age of breeding females (Table 1). The average age of female scoters was 5.6 yr in 1984 and 4.9 yr in 1985, approximately 1 yr older than the previously published average (Brown and Houston 1982).

Using the methods outlined by Chapman and Robson (1960) and the data presented in Table 2, we estimate the annual survival rate for adult females 1–16 yr after banding to be  $78.2 \pm 2.0\%$  (95% Confidence Interval) per year. This estimate is higher than the  $63.8 \pm 2.8\%$  estimate published previously and is subject to similar biases (Brown and Houston 1982). This estimate should be more accurate than the previous estimate because of the time elapsed between the two studies and the two additional years of intensive banding. Sample sizes for scoters banded elsewhere are too small to allow a survival rate calculation (Table 2).

This analysis supports the suggestion that White-winged Scoters are long-lived waterfowl (Brown and Houston 1982). The high annual survival rate is probably an important factor allowing White-winged Scoters to endure the consistently low annual production noted elsewhere (Brown and Brown 1981; Hilden 1964; Koskimies 1955, 1957).

TABLE 3. Extended.

Years after banding									
7	8	9	10	11	12	13	14	15	16
1	1	1	1	0	0	0	0	0	0
3	3	2	1	1	1	1	1	0	0
0	0	0	0	0	0	0	0	0	0
1	1	1	1	1	1	1	1	1	1
1	1	0	0	0	0	0	0	0	—
5	4	3	1	1	1	1	0	—	
4	4	2	2	2	2	0	—		
1	0	0	0	0	0	—			
2	2	2	1	—					
2	2	1	—						
9	7	—							
7	—								
—									
36	23	12	7	5	5	3	2	1	1

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