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## NORTH AMERICAN MERLIN BREEDING SURVEY

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**ABSTRACT** - A total of 864+ North American nestings of the Merlin (*Falco columbarius*) are summarized by state and province. Of these nestings, 812+ occurred since 1950. Productivity figures are presented for 526 successful nests. The number of nestings of the prairie race of Merlin (*F.c. richardsonii*) far outnumbered the other two subspecies and also exhibited the highest reproductive rate.

The Merlin (*Falco columbarius*) has been poorly studied in comparison to the other 4 species of falcons common to Canada and the United States. Trimble's (1975) review of the status of the Merlin concluded that "All North American Merlins have recently decreased in reproductive success". He also concluded that the great plains population (*F.c. richardsonii*) was "in the greatest trouble". Because the studies that led to these conclusions were based upon very limited sample sizes and more recent data on Merlins nesting in Saskatchewan indicated a rather healthy breeding population (Oliphant and Thompson 1978), I felt that an attempt to gather more information on the breeding status of this poorly studied falcon was in order.

### METHODS

A "Merlin Working Group" was formed at the 1976 Raptor Research Meeting in Ithaca, New York, and a decision to summarize the breeding status of the Merlin was made at the 1977 meeting in Tempe, Arizona. Letters were mailed to over 60 persons known to have an interest in Merlins, soliciting information on the historic (pre-1950) and present (post-1950) breeding status of the Merlin. Summaries were made for each state or province with person(s) compiling the information indicated. The following criteria were used to edit submissions:

1. Minimum accepted evidence for a "nesting" was a defending pair seen during the breeding season.
2. Nestings at the same site in different years were counted as separate nestings (i.e. counted as a nesting for each year).
3. Only banding age nestlings or accurate counts of newly fledged young (branchers) were accepted for calculation of young/successful pair.
4. Published accounts of individual nestings (usually in local natural history journals) were included in the totals but not generally cited individually.

### RESULTS AND DISCUSSION

Table 1 summarizes the results of the information submitted. Almost 75% of all recorded nestings since 1950 were Merlins (*F.c. richardsonii*) nesting on the northern great plains. Of these, approximately 85% were from the Canadian prairies. Reproductive success of this population was generally good (3-4 yg/successful nest) with the exception of the 7 nests reported for North Dakota that averaged only 2.0 yg/successful nest. Although no attempt was made to extract information from museum collections, a cursory examination of several large institutions confirmed that the majority of Merlin eggs collected during the late 1800's and early 1900's were also from the Canadian prairies. To what extent these data reflect the true distribution and breeding density of the Merlin or merely the relative ease of access to breeding areas by humans is difficult to assess. In any case, concern regarding the recent reproductive success of *F.c. richardsonii* (Fox 1971; Trimble 1975) can perhaps be allayed somewhat on the basis of the data presented here. Loss of suitable habitat is perhaps the most critical factor that is presently affecting Merlins on the prairies.

In comparison to the data on *F.c. richardsonii*, breeding information on the Merlins inhabiting the boreal forest (*F.c. columbarius*) is rather meager (Craighead and Craighead 1940; Lawrence 1946; Temple 1972). Recent reproductive success of this population is lower than that of *richardsonii* (2-3 yg/successful nests in most areas). Although there has been a decline in fall Merlin sightings at the



Table 1. Summary of Merlin nesting attempts and productivity.

AREA AND COMPILER	# NESTINGS	YOUNG/ SUCCESSFUL PAIR	DETAILS
1. Newfoundland (David Bird)	5 (pre-1950) 6 (1963-79) 20 (1969)	4/1 = 4.0 4/1 = 4.0 5/19 = 3.0	Includes 2 ground nests  Temple, 1972. (David Bird visited 6 of these sites in 1977 - none were occupied.)
2. Maritimes and adjacent islands (David Bird)	7 (1955-79)	7/3 = 2.3	No breeding records for New Brunswick
3. Quebec (David Bird)	10 (1974-79)  1 (1965)		At least 5 of these nests hatched yg. and one fledged at least 4 yg. Fyfe (pers. comm.)
4. Ontario (Gerry McKeating)	20(pre-1950)		Eggs or young noted at 16 of these sites.
5. N.W.T. (Richard Fyfe)	11 (1950-78) 17 (1972-74)	16/6 = 2.7 26/6 = 4.3	
6. Yukon (Dave Mossop)	No nesting records pre-1950 13 (1973-79)	4/2 = 2.0	8 possible additional nestings where only single adult observed; Nest sites new each year (not rechecks of old sites).
7. Manitoba (Bob Nero)	2 (pre-1950)  5 (1954-77)	4/1 = 4.0	Eggs at 3 of 4 sites where production not recorded; Casual observations of another estimated 5-6 pair in Northern Man. (1977-79).
(Dave Mossop)	3 (1956-61)		3 fledged yg. at one site.
8. Saskatchewan (Lynn Oliphant)	27 (1958-65)	38/11 = 3.5	6 of the 27 known successful with unknown production and 1 known unsuccessful.
	96 (1970-77)	187/47 = 4.0	Oliphant and Thompson, 1978.
(Richard Fyfe)	70+(1978-82) 14 (1967-76)	214/51 = 4.2 31/8 = 3.9	Urban Nestings Includes one nest in woodpecker hole.
9. Alberta (Alan Smith)	300+(1968-79)	911/281 = 3.3	A single egg was taken from many of these nests for pesticide analysis. Productivity is reported <i>without</i> correction for this bias.
10. British Columbia (Keith Hodson)	4 (pre-1950)	--	<i>F.c. suckleyi</i> 2 females collected, one with eggs; other 2 nests with un-recorded number of young.
	11 (1969-1977)	7/2 = 3.5	<i>F.c. suckleyi</i> At least 5 nests where production was not recorded were successful (fledged young seen)

(TABLE 1 CONTINUED)



(CONTINUATION OF TABLE 1)

AREA AND COMPILER	# NESTINGS	YOUNG/ SUCCESSFUL PAIR	DETAILS
11. Alaska (Doug Weir)	2 (1960's)	5/1 = 5.0	Other nest unsuccessful. Adolphson, 1969.
	21 (1974-79)	6/2 = 3.0	Several other probable nestings where only single bird was seen.
	5-6 (1980)	--	Fledged broods
12. Washington (Clifford Anderson)	1 (pre-1950)		<i>F.c. suckleyi</i>
	3 (1978-79)		Unconfirmed reports of <i>F.c. suckleyi</i> . One nest with a minimum of 3 fledged yg.
13. Idaho (Timothy Craig)	3 (pre 1950)		Craig and Renn, 1977
	1 (1973)	--	
	1 (1975)	3/1 = 3.0	4 eggs June 1 5 eggs June 5 All hatched, 2 died
14. California (Jim Adamson)	1 (1977)		Same site as 1975 - unsuccessful
	--	--	No known historical records - All "Merlin eggs" are American Kestrel. Recent - Merlins observed in N. Calif. in June and July; no nests found.
15. Nevada (Bob Oakleaf)	--	--	No confirmed nestings.
16. Wyoming (Bob Oakleaf)	1 (pre-1950)		Bent (1938)
	21 (1961-79)	20/7 = 2.9	2 nests known to have failed
17. Montana (David Ellis)	8 (1970-74)	15/5 = 3.0	Ellis (1976) 3 nests known to be unsuccessful although 5 young hatched at one site and died subsequently
	(Dale Becker)		
	10 (1977)	4/1 = 4.0	Only one nest located, other sites (9) had active pairs
	8 (1978)	24/7 = 3.4	
	18 (1979)	60/17 = 3.5	All sites successful
	15 (1980)	49/14 = 3.5	
	16 (1981)	38/10 = 3.8	
18. Colorado (Alan Jenkins)	2 (pre 1950)		1877 and 1887
19. Utah (Alan Jenkins)	2 (pre-1950)		Eggs collected in 1868 and 1869
20. North Dakota (Howard Postovit)	5 (1977-78)	9/5 = 1.8	2 yg. killed by Weasel at one nest; 2 other nests with addled eggs (1 yg. and 4 addled eggs and 2 yg. and 2 addled eggs).
	(Bill Cornatzer)		
	5+(pre-1950)	5/2 = 2.5	
	2 (1977)		

(TABLE 1 CONTINUED)



(CONTINUATION OF TABLE 1)

AREA AND COMPILER	# NESTINGS	YOUNG/ SUCCESSFUL PAIR	DETAILS
21. South Dakota (Steve Duecker)	7 (1970) 3 (1971)	15/4 = 3.8	Unknown # yg. fledged in re- maintaining 3 sites. 2 nests checked had 2 and 4 small downies.
22. Nebraska (Ross Lock)	No historical records  5 (1975-78)  3 (1980)	--  --	One additional site with male only. 1 nest with 4 newly hatched young and 1 egg. 2 nests with 5 yg. each (less than 1 week old).
23. Wisconsin	3 (1966-68)	2/1 = 2	Sindelar and Jacobson 1981.
24. Michigan (Sergej Postupalsky)	3 (pre 1950) 19 (1955-67) 1 (1979)	-- 24/8 = 3.0 --	All 3 successful
25. New York, Penn. New England (Mark Fuller and Janet Partelow)	--	--	No authenticated records although some recent and historic sightings during the breeding season.
26. Minnesota   (P.B. Hofslund)	4+(pre-1950)  13(1950-64) 4 (1952-81) 6+(1951-60)	  4/1 = 4.0 5/1 = 5.0	Johnson 1982 - 3 nests con- tained 4, 4 and 2 yg. less than 1 week old. Beer, 1966 Johnson, 1982

Cedar Grove Ornithological Station in Wisconsin (D.D. Berger, unpub. obs.) the Merlins migrating along the east coast have increased over the past 10-15 years (W.S. Clark, F.P. Ward pers. comm.) despite the rather low productivity figures presented here. This discrepancy between the recent migration data and reproductive data is also true of the Peregrine Falcon (*Falco peregrinus*) and needs to be addressed.

The darkest Merlin (*F.c. suckleyi*) remains the least well studied of the three North American subspecies. Only 14 nestings potentially attributable to this subspecies since 1950 are reported here and production figures were available for only 2 nests (3.5 yg./successful nest). Conclusions as to the status of this population must await further study.

ACKNOWLEDGMENTS

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lin issue and is gratefully acknowledged. The effort of all those making contributions to this survey is greatly appreciated. The author takes full responsibility for any residual errors in the report.

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