

MOVEMENTS OF EARED GREBES INDICATED BY BANDING RECOVERIES

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The Eared Grebe (*Podiceps nigricollis*) breeds widely in the western United States and southern Canada (A.O.U. 1983, map in Palmer 1962: 83). In late summer and fall, hundreds of thousands stage at Great Salt Lake, Utah, and Mono Lake, California, remaining there until early winter, when they depart for wintering areas. As part of a study of the post-breeding biology of this species (Jehl unpubl.), we analyzed banding data from North America to determine whether these would clarify aspects of the fall migration, winter range, and site tenacity. Data for 1955-1984 were provided by the Bird-banding Laboratory of the U.S. Fish and Wildlife Service. Additional data for previous years were found in Clapp et al. (1982).

RESULTS AND DISCUSSION

Through 1984, 4076 Eared Grebes had been banded in North America, of which only 57 (1.4%) were encountered subsequently. Sixteen recovered within 90 d in the same 10' × 10' latitude-longitude block are not considered further. Data for the remaining 41 are summarized in Table 1.

There were 23 encounters of 1052 grebes (2.2%) banded prior to 1955. Thirteen (56%) were recovered 1-4 yr later in the breeding areas in which they had been banded, which provides evidence for philopatry; of these 12 were banded as adults in British Columbia, and one of unknown age was banded in late September in Saskatchewan. There were no definite records of breeding birds being encountered in non-natal areas. From 1955-1984 (the only years for which we have complete data), only 18 of 3024 grebes banded were recovered or trapped, all in a different 10' × 10' block from that in which they were banded. Encounter rates by place of banding ranged from 0 to 4.4% (Table 1). Most of these were not banded in breeding areas, which probably accounts for the four-fold difference in recovery rates between the 2 periods.

Data for all 28 foreign recoveries (10 prior to 1955, 18 subsequent; listed in Table 2, and plotted in Fig. 1) seem to fall into three patterns.

1. Birds from the eastern part of the breeding range (Saskatchewan, North Dakota, Iowa) seem to migrate in a generally south or southeasterly direction and winter in the Gulf of Mexico or in northeastern Mexico, although no large wintering sites in those areas seem to have been documented. The summer recovery in Saskatchewan of a bird (#20) banded in Wyoming in autumn may indicate that some eastern birds stage at Great Salt Lake. As no major staging area is known in the eastern part of the range, however, we infer that at least some grebes

TABLE 1. Recovery data for Eared Grebes banded through 1984.

State or province of banding	Number banded ^a		Number of encounters ^b			
	1955- 1984	Before 1955	Banded 1955-1984		Banded before 1955	
			Local ^c	Foreign ^d	Local ^c	Foreign ^d
British Columbia	30		0	1 (3.3%)	12	6
Alberta	32		0	0	0	1
Saskatchewan	140		0	2 (1.4%)	1	2
Idaho	727		0	2 (0.3%)	0	0
Wyoming	1362		0	11 (0.8%)	0	0
North Dakota	23		0	0	0	1
Iowa	45		0	2 (4.4%)	0	0
Other	665		0	0	0	0
Total	3024	1052	0	18 (0.6%)	13 (1.2%)	10 (1.0%)
	4076		41 (1.0%) ^b			

^a Data from Clapp et al. 1982 (through August 1981) and U.S. Bird-banding Laboratory (1955-1984).

^b Excludes 16 recovered within 90 d in the same 10' × 10' block as banded; there were 57 encounters overall.

^c Within the same 10' × 10' block as banded (more than 90 d after banding).

^d Within a different 10' × 10' block than banded.

from that region may move directly to wintering areas, perhaps postponing much of the pre-basic molt until after they arrive. This could explain the seemingly anomalous molt patterns of the remiges on the wintering grounds noted by Storer and Jehl (1985). Relatively direct southward migration is indicated by the recovery of a juvenile (#9) in Mexico in mid-October that had been banded in Saskatchewan in July.

2. Very few Eared Grebes winter coastally in the Pacific Northwest (Jehl unpubl.). We presume that most birds from the western Great Basin fly southward east of the Cascade and Sierra Nevada ranges and stage at Mono Lake before continuing to the Salton Sea or Gulf of California. Movement into the Great Basin from British Columbia is indicated by 3 recoveries, including one (#6) near Big Pine, California, in December that seems likely to have been departing Mono Lake. Some birds from British Columbia may not migrate far, however, as indicated by 4 recoveries from Puget Sound.

3. Grebes from the central and eastern Great Basin and the High Plains presumably comprise most of the flock staging at Great Salt Lake. However, in view of the vast numbers that occur there, it seems likely that birds from almost any area could be represented, as indicated by recovery #20, noted above. Two grebes (#23, 24) banded in western Wyoming in autumn were recovered near Great Salt Lake shortly afterward. Winter recoveries of birds banded in Wyoming and Idaho are spread from coastal California to central Mexico. Although most of the few recoveries were shot in north-central Mexico, the major wintering

TABLE 2. Recoveries of banded Eared Grebes.

Encounter number	Location banded	Date banded	Age at banding ^a	Sex ^a	Location encountered	Date encountered
1	Southern British Columbia	3 Aug. 1949	I	U	Puget Sound, Washington	9 Sept. 1950 ^b
2	Southern British Columbia	3 Aug. 1950	A	U	Central Washington	12 Oct. 1950
3	Southern British Columbia	3 Aug. 1950	N	U	Puget Sound, Washington	27 Jan. 1951 ^b
4	Southern British Columbia	25 July 1951	A	U	Puget Sound, British Columbia	20 Feb. 1952
5	Southern British Columbia	6 Aug. 1955	A	U	Puget Sound, Washington	28 Mar. 1959 ^b
6	Southern British Columbia	3 Aug. 1950	A	U	Near Big Pine, California	27 Dec. 1950
7	Southern British Columbia	25 July 1951	N	U	North-central Oregon	2 Dec. 1953
8	South-central Alberta	22 June 1941	A	U	West-central Nevada	May 1942 ^c
9	Southern Saskatchewan	22 July 1949	J	U	Guanajuato, Mexico	12 Oct. 1949
10	Southwestern Saskatchewan	13 Aug. 1953	N	U	Niagara Falls, Ontario	16 May 1954
11	Central Saskatchewan	21 July 1961	N	U	Gulf coast of Florida	late fall 1961
12	West-central Saskatchewan	28 July 1961	A	U	Gulf coast of Alabama	late fall 1961 ^d
13	Southeastern Idaho	4 May 1960	A	U	Sinaloa, Mexico	14 Jan. 1963 ^b
14	Southeastern Idaho	3 May 1962	U	U	Baja California, Mexico	20 June 1968 ^b
15	Southwestern Wyoming	19 Oct. 1975	U	U	Jalisco, Mexico	15 Apr. 1976
16	Southwestern Wyoming	14 Sept. 1978	U	U	Coahuila, Mexico	15 Dec. 1978
17	Southwestern Wyoming	20 Sept. 1979	U	U	Michoacan, Mexico	13 Mar. 1980 ^b
18	Southwestern Wyoming	27 Sept. 1981	U	U	Sinaloa, Mexico	25 Apr. 1983 ^b
19	Southwestern Wyoming	25 Oct. 1975	U	U	Southern Nevada	14 Dec. 1975
20	Southwestern Wyoming	14 Sept. 1978	U	U	Southeastern Saskatchewan (at U.S.-Canada border)	8 June 1983
21	Southwestern Wyoming	21 Sept. 1978	U	U	Texas panhandle	26 July 1979
22	Southwestern Wyoming	2 Oct. 1978	U	U	Mono Lake, California	2 May 1982
23	Southwestern Wyoming	20 Sept. 1979	U	U	North-central Utah	summer 1980
24	Southwestern Wyoming	1 Oct. 1979	U	U	North-central Utah	30 Oct. 1979
25	Southwestern Wyoming	28 Sept. 1981	U	U	Southern California	15 Jan. 1983
26	Northwestern North Dakota	27 Oct. 1939	A	U	Northeastern Nebraska	6 Nov. 1939
27	Northwestern Iowa	13 July 1965	N	U	Tlaxcala, Mexico	26 Dec. 1966
28	Northwestern Iowa	20 July 1966	N	U	Gulf coast of Texas	27 Jan. 1969

^a A = adult, I = immature, J = juvenile, N = nestling and local, U = unknown.^b Date of recovery unknown. Date listed is postmark date of recovery.^c Second 10 days in month.^d From Imhof 1985.

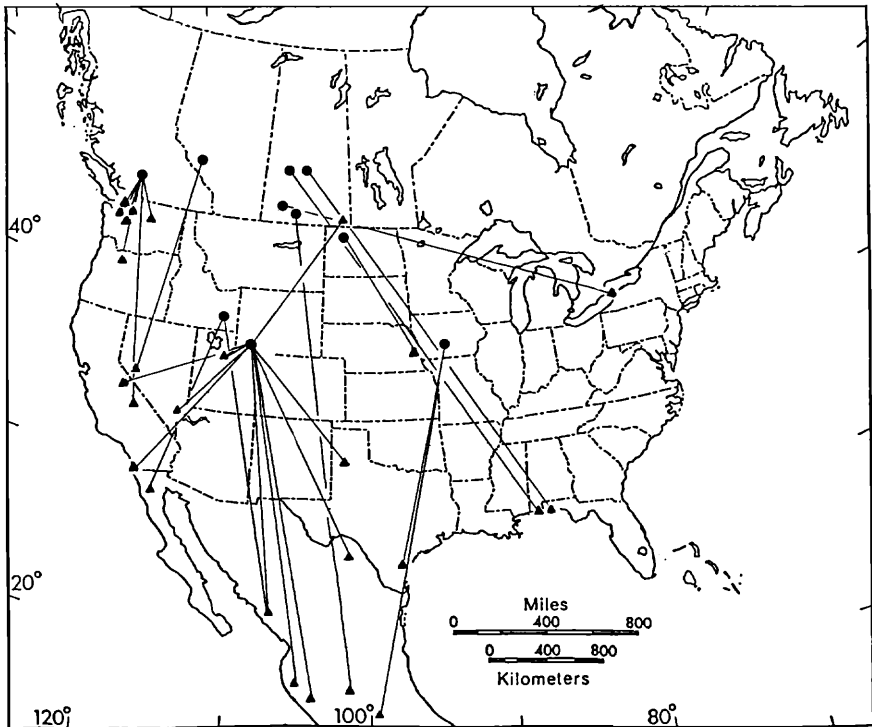


FIGURE 1. Banding locations (circles) and recovery sites (triangles) of Eared Grebes.

area for birds staging at Great Salt Lake is probably the Salton Sea or Gulf of California, as indicated by mass downings in early winter of birds apparently migrating between Great Salt Lake and those localities (Jehl and Bond 1983). It follows that birds from Great Salt Lake and Mono Lake mingle in winter. That some may return northward together through the western Great Basin is suggested by the recovery at Mono Lake in May of a migrant (#22) banded in Wyoming several years earlier, as well as by the May recovery (#8) at Walker Lake, Nevada (96 km E of Mono Lake) of a grebe banded on the breeding grounds in Alberta. Whether such birds are returning northward on a circular migration route or have, perhaps, mated on the wintering grounds and are returning to the natal area of their mate is unknown. Some Eared Grebes form pair bonds on migration, and possibly earlier (R. W. Storer, pers. comm.).

We hope to test the validity of the three patterns outlined above, and to determine whether there may be differences in the dispersal patterns of adults and juveniles, through a banding program now in progress at Mono Lake.

SUMMARY

Banding returns through 1984 of 41 Eared Grebes suggest the following patterns. Birds from central North America migrate south or southeasterly to winter in northeastern Mexico and the adjoining gulf. Grebes from the central and eastern Great Basin and High Plains probably stage at Great Salt Lake and winter at the Salton Sea or Gulf of California. These may mingle in winter with birds from the western Great Basin and western Canada, which migrate southward east of the Cascade and Sierra Nevada ranges and stage at Mono Lake, before continuing to the Salton Sea or Gulf of California. Very few grebes winter along the Pacific coast.

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