

been banded off Massachusetts recovered in their home burrows. What a thrill, to be a party in both enterprises, banding at sea in summer and burrowing for the same birds in winter!

It is hardly probable that any of the twelve who wear my bands will be heard from; but let hundreds or thousands be banded at different points off our coasts, and some returns would seem certain.

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GENERAL NOTES

Mortality of Banded Hawks and Owls.—An analysis of the recoveries expressed in percentages in the table submitted herewith indicates very closely the comparative efficiency of custom and law in the protection of our raptors. Comparison of the protected birds in Group I and the unprotected birds of Group II shows a mortality rate of over two and one half times among the more destructive species. Unfortunately the figures show also a distressing mortality among Group III, raptors which should be but are not generally protected.

Another method of approach is a comparison of mortality rates among different groups of birds as represented by recoveries. The table clearly indicates the fact, which is generally known but not often shown so forcibly, that birds which are exposed to hunting or which lack complete protection have an excessively high mortality. The case of the hawks, which raise small broods in contrast to the ducks, which require a comparatively large territory for breeding purposes, and which have no group of people like sportsmen interested in their propagation, but instead have many avowed enemies, therefore becomes a serious one. The corollary to lower mortality rates of the protected species is more protection of the others if the raptors are to survive. Of course, it is possible to give reasons why these percentages will not be absolutely accurate, but still I believe the trend is clear.

	<i>Number Banded</i>	<i>Recoveries</i>	<i>Rate in Percent</i>
I			
2 Vultures.....	188	2	1.6
Osprey.....	175	11	6.3
Barn Owl.....	679	35	5.2
5 Other Owls			
(except Screech Owl ¹ and Great Horned Owl)	568	16	2.8
Sparrow Hawk.....	391	24	6.1
	2001	88	4.4 average
II			
3 Accipiters.....	247	31	12.6
Great Horned Owl.....	209	20	9.6
	456	51	11.2 average
III			
Marsh Hawk.....	367	52	14.2
4 Buteos.....	473	50	16.6
2 Roughlegs.....	63	9	14.3
3 Falcons (except Sparrow Hawk).....	94	13	13.8
2 Eagles.....	53	3	5.7
	1050	127	12.1 average

¹Screech Owl figures omitted because most of the recoveries were of birds recaptured and released, not of birds shot.

GROUP I—PROTECTED BIRDS

	Banded	Recoveries	Rate in Percent
Passerine birds, Austin Station, 1930 and 1931.....	7031	9	.13
Sea-birds (Gulls and Terns), 1930 and 1931.....	8042	15	.18
Passerine birds, M. J. Magee.....	18459	59	.32
Black Skimmers, Gillespie.....	5290	7	2.4
GROUP II—BIRDS CUSTOMARILY SHOT			
Purple Grackle, McCann.....	6305	33	10.8
All Hawks and Owls except the Screech Owl.....	73507	266	7.6
(included are all the protected species in first table, Group I)			
Ducks, 1920-1926.....	12119	1675	13.82
Unprotected Hawks and Owls.....	1506	178	11.8

² and ³ *Bird-Banding*, Vol. III, No. 2, pp. 59-63.

⁴ *Bird-Banding*, Vol. III, No. 3, pp. 111, 112.

⁵ *Bird-Banding*, Vol. II, No. 2, p. 52.

⁶ *Bird-Banding*, Vol. II, No. 4, p. 174-176.

⁷ Dr. F. C. Lincoln *in litt.*, Aug. 2, 1932.

⁸ Dr. F. C. Lincoln, U. S. Dept. of Agriculture, Circular No. 118, May, 1930.

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Mortality in Marsh Hawks.—In June and early July, 1930, Dr. Paul L. Errington, of the University of Wisconsin Bird-Banding Station, banded twenty-five young Marsh Hawks (*Circus hudsonius*) in the vicinity of Madison, Wisconsin. The bands were applied very shortly before these birds were able to fly. In June and early July, 1931, he banded twenty-two more, making a total of forty-seven.

Of these, reports have since been received concerning the following:

- A626610. banded June 11, 1930; shot, Mineral Springs, Arkansas, Feb. 1, 1932.
- A626613. banded June 11, 1930; shot, Elgin, Texas, Dec. 25, 1930.
- A626615. banded June 11, 1930; shot, Rayne, Louisiana, Nov. 5, 1930.
- 456978. banded June 13, 1930; shot, Coloma, Waushara Co., Wis., July 26, 1930 (about 70 miles north of Madison).
- A626621. banded June 13, 1930; shot, Downs, Kansas, Aug. 2, 1930.
- A626623. banded June 13, 1930; shot, Branch, Louisiana, Dec. 5, 1930.
- A673915. banded June 26, 1930; stepped on in nest by cow, July 2, 1930.
- A673917. banded June 26, 1930; shot, Santa Rosa, Texas, Feb. 11, 1931.
- A673923. banded June 20, 1931; killed in nest by unknown predator, July 5, 1931.
- A673925. banded June 20, 1931; killed in nest by unknown predator, July 5, 1931.
- A673928. banded June 20, 1931; shot, Mercer, Missouri, Oct. 2, 1931.
- A673931. banded June 20, 1931; found dead, Iowry, Minnesota, Aug. 22, 1931. ✓
- A673932. banded June 20, 1931; killed in experiment.
- A626617. banded June 30, 1931; killed at nest by mink, July 8, 1931.
- A673927. banded June 30, 1931; killed at nest by mink, July 8, 1931.
- A695914. banded July 3, 1931; shot, Cassoday, Kansas, Oct. 31, 1931.
- A626620. banded July 5, 1931; killed at nest by mink, July 8, 1931.

Omitting the one killed under experiment, we have then approximately thirty-four per cent of the banded birds dead within a period of one year and nine months from the time they began to fly. All but one of them were dead in less than eight months, and six perished a few days after being banded. Those on which we have returns lived on the average only about one hundred and twenty days after being banded. Nine were shot. Considering the offhand way in which most hunters shoot down hawks, without bothering to retrieve them, and the small chance there is for the observation by competent and interested persons on birds that perish in other ways, these returns certainly make it appear probable that very few indeed of the Marsh Hawks hatched in any year live to see their first birthday.

Two other facts in these records are worth calling attention to. First is the fact that two hawks shot before September of the year they were banded were killed a considerable distance *north* of the place of banding. This rather points to an exploration flight before real migration, a habit