place in less than 5 months time. Various gull species have appeared in Hawaii as stragglers, but none have become established.

The Laughing Gull reported herein was banded during a study funded by the New Jersey State Mosquito Control Commission.—THOMAS C. TELFER, *State of Hawaii, Department of Land & Natural Resources, Division of Forestry & Wildlife, P.O. Box 1671, Lihue, Kauai, Hawaii 96766,* AND JOSEPH K. SHISLER, *Mosquito Control, Cook College, Rutgers University, P.O. Box 231, New Brunswick, New Jersey 08903.* Received 1 Apr. 1981; accepted 17 Aug. 1981.

A New Longevity Record for the Ruffed Grouse.—A banded female Ruffed Grouse (*Bonasa umbellus monticola*) shot on 31 December 1979, in Perry County, Indiana was banded as an adult on 30 September 1972 in Brown County, Indiana. She had been one of 35 birds transported 170 km S to Perry County in the fall of 1972. This grouse was at least 16 months old when banded, and at least 103 months old when shot. To our knowledge, this is a new longevity record for a Wild Ruffed Grouse.

Bump et al. (The Ruffed Grouse, Life History—Propagation—Management. The Holling Press, Inc. Buffalo, N.Y., 1947:360) reported the average adult wild Ruffed Grouse seldom lives beyond 3 years. Gullion (Loon 38:132, 1966) reported a 94-month-old wild male (*B. u. togata* or *B. u. mediana*) in Minnesota and a 91-month-old wild female (*B. u. monticola*) was reported in Ohio (Stoll and Davis, Bird-Banding 45:270–271, 1974).

We thank L. E. Lehman, Indiana Department of Natural Resources for critically reviewing this manuscript.—P. DECKER MAJOR, MAURICE C. REEVES, AND CARL H. EISFELDER, *Indiana Department of Natural Resources, Division of Fish and Wildlife, Forest Wildlife Headquarters, R.R. #2, Box 477, Mitchell, Indiana 47446.* Received 19 Mar. 1981; accepted 23 July 1981.

A Technique for Distinguishing the Age Classes of Adult Bank Swallows.—As part of a long-term study of Bank Swallows (*Riparia riparia*) in the Ellenville, New York area, we became interested in finding a means for distinguishing age groups of the adult birds. All adult Bank Swallows appear superficially alike and have previously been recorded as AHY (after-hatching-year) birds. Because of the widespread interest in population studies of this species in North America and in Europe, we knew that a way to distinguish second-year birds from older birds would be of value.

We examined plumage characteristics in newly captured and returning (previously banded) Bank Swallows. The extent of wear on the inner primaries was found to be a useful characteristic. When this was combined with the degree of skull pneumatization, we could accurately identify some birds as second-year (SY) birds and others as after-second-year (ASY) birds. Although this combination of traits places only about 30% of the adult birds in these 2 age classes, we describe it here because we believe it can be of use to other banders.

Inner primary wear.—In most swallows, there is a single molt that takes place after the fall migration (Roberts, A Manual for the Identification of the Birds of Minnesota and Neighboring States. Univ. of Minnesota Press, Minneapolis, 1955). However, in Purple Martins (*Progne subis*) the postnuptial primary molt of adults is often interrupted by the fall migration (Niles, Condor 74:61–71, 1972) and Mead (Bird Study 27:51–53, 1980) found the same to be true for small numbers of adult Sand Martins (also *Riparia riparia*) captured at early fall roosts in England. In both species a few of the inner primaries are molted while the birds are near their breeding grounds; molt ceases during migration, and the remaining primaries are molted on the wintering grounds. Juvenile Purple Martins, and presumably juvenile Bank Swallows, undergo their first primary molt in the spring just prior to their first northward migration.

Close examination of the primaries of our Bank Swallows at their breeding colonies suggests that they have a similar molt schedule. Some birds known to be at least third-year birds from banding, show 2 to 4 very worn inner primaries and unworn outer primaries. The contrast in wear in the 2 groups of primaries suggests that the postnuptial

TABLE 1. Inner primary wear and skull pneumatization of previously banded Bank Swallows.

	Primaries new, unworn			Primaries moderately worn			Primaries heavily worn		
	A[1]	B	C	A	B	C	A	B	C
AHY[2]	25	6	0	61	5	1	43	3	0
HY	11	2	3	2	0	0	0	0	0

[1] Key to skulls: A—fully pneumatized; B—a single small window or 2 pinhole-sized windows; C—2 unpneumatized areas, each 2 mm or more in diameter.
[2] Age at the time of banding.

molt may have been interrupted during the previous fall migration. Returning Bank Swallows known to be second-year birds have primaries that appear fresh and unworn, presumably produced in a spring molt on the wintering grounds.

Examination of 162 previously banded Bank Swallows showed, however, that this characteristic could be used confidently in aging only those birds that had very worn inner primaries (46 birds). Those having either unworn or moderately worn inner primaries could not be aged with certainty.

Skull pneumatization.—The process of pneumatization in Bank Swallows proceeds posteriorly. We searched for regions that were not fully pneumatized by wetting and parting the feathers on the back of the skull. We found that pneumatization is complete by the time of first breeding in most Bank Swallows, but that some retain "windows" of varying sizes. We found both paired and single unpneumatized areas the size of pinholes in some birds known to be at least third-year birds, and one bird with pinholes in 1978 still showed them in 1981. Therefore, pneumatization may never be fully completed in a few birds. We did find, however, that other birds had much larger paired "windows"—often about 2 or 3 mm in diameter and in a few cases, up to 5 mm on each side of the skull, comprising most of the posterior region of the skull.

In 6 cases we found that birds having these very large unpneumatized areas in one breeding season had pinholes or fully pneumatized skulls a year later. Because of these and other examples, we decided not to use unpaired or tiny pinhole-sized windows as an indicator of age, and to assume that the birds having large (2 mm or more) paired windows were second-year birds. We found this condition in 196 (20%, n = 993) of the adult birds captured.

Table 1 shows the results of examination for both inner primary wear and skull pneumatization in 162 known-age (previously banded) Bank Swallows. The data on these birds show that no second-year birds had heavily worn inner primaries, and only one older bird had unpneumatized regions larger than pinholes. Based on this information, the following key was devised:

KEY TO THE AGING OF ADULT BANK SWALLOWS AT THE BREEDING COLONIES

1A. Inner 2 to 4 primaries heavily worn (with worn edges and/or thin regions on the vane, and often with light-colored shafts) ..... ASY
1B. Inner 2 to 4 primaries moderately worn (or any birds that do not clearly fit into 1A or 1C) ..... AHY
1C. Inner 2 to 4 primaries fresh and unworn 2
  2A. Skull completely pneumatized or with one or two pinholes ..... AHY
  2B. Skull with "windows," each 2 mm or more in diameter ..... SY

The use of this key on our known-age returning swallows (Table 1) produced no errors in 162 birds. It resulted in the designation of 3 (2%) birds as SY, 113 (70%) as

AHY, and 46 (28%) as ASY. If no key had been used, all of these birds would have been recorded as AHY. Examination of primary wear alone will serve only to identify the ASY birds, and will not differentiate between SY and older birds. While the use of skull examination identifies only 3 out of 18 SY birds (17%), we include it in the key since there is no other technique to identify them. Only one older bird out of 144 (<1%) had large windows, and this was correctly identified as older by its worn primaries.

When primary wear and skull pneumatization were used to age 993 newly banded adult Bank Swallows caught from 1979 through 1981, the ages were found to be as follows: 184 SY (19%); 185 ASY (19%); 624 AHY (63%).

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