

bach on 25 May 1918 at Palmarito on the Río San Julián, Provincia de Chiquitos, in the Departamento de Santa Cruz, and described by Todd in 1931 (Critical notes on the Neotropical thrushes, Proc. Biol. Soc. Washington 44:54). The 2 LSUMZ specimens, both of which are males, were also collected by Steinbach, but on the Río Mamoré, Provincia de Marbán, in the Departamento de Beni, 250–275 km northwest of the type locality. LSUMZ 36465 was collected on 4 April 1944 and LSUMZ 38084 was taken on 12 March 1944. Kenneth C. Parkes (in litt.) informed me that the Carnegie Museum received an additional specimen of this thrush (adult male, CM 119459) 15 years after having received the holotype. This specimen was obtained at the same place and on the same date as the holotype, but it was, for some reason, retained by Steinbach for inclusion in the second collection that he sent to the Carnegie Museum. Both of these birds are in quite fresh plumage and show no signs of the last of the molt. Parkes found that even though the 2 LSUMZ specimens were in exceedingly worn plumage, they did not differ significantly from the pair at Carnegie. I thank Kenneth C. Parkes for supplying information on the 2 specimens in his care and for comparing them to the 2 LSUMZ examples.—JOHN P. O'NEILL, *Museum of Zoology, Louisiana State Univ., Baton Rouge 70893*. Accepted 9 Apr. 1976. Page costs paid.

**Breeding chronology and interspecific relations of Pied-billed Grebes in northern Minnesota.**—I investigated waterfowl use of 10 beaver (*Castor canadensis*) flowages on the Chippewa National Forest in north central Minnesota during 1970 and 1971 in order to form a base line for later comparison of man-made impoundments with these natural areas (Kirby, M.A. thesis, S. Ill. Univ., 1973). The Pied-billed Grebe (*Podilymbus podiceps*) is common on the Chippewa Forest, but I observed only one grebe brood successfully reared on the beaver flowages studied in 1971. I here provide data on nesting chronology for northern Minnesota and some previously unrecorded observations of interspecific relationships of Pied-billed Grebes collected during the period from first open water in early April through the departure of grebes from the study areas in late summer.

Pied-billed Grebes arrive on the Chippewa shortly after open water first appears in the spring. In 1971 these birds were first observed 6 April on the Mississippi River below the Lake Winnibigoshish dam. Pied-bills were on smaller lakes by 12 April and were first seen on a beaver flowage 17 April, 2 days after first open water on the pond. Flowage 300, where the following observations were made, became ice-free early in the third week of April.

On 23 April, 4 adult grebes were observed feeding quietly together in the center of the flowage main pool. The number of Pied-bills on the flowage was reduced to one pair by 3 May, at which time the total area of available breeding habitat for grebes (open water and emergent vegetation) was only slightly more than 4.4 ha. Four young grebes were first seen on 30 June. Based upon the first record of a single pair on the flowage, literature records of hatching times ranging from a minimum of a clutch of 6 in 2 days (Glover, Wilson Bull. 65:32–39, 1953) to at the same rate as laying (various authors), the recorded incubation time of approximately 23 days (Bent, U.S. Natl. Mus. Bull. 107, 1919; Deusing, Auk 56:367–373, 1939), and the last date the pair without a brood was observed, nest initiation for this pair was approximately 21 May and hatch was approximately 21 June. Since the young seen 30 June were still quite small but not downy, their age could be estimated as 1 week, leading to similar estimates of nest initiation and hatch dates. The

adult grebes stayed with the young approximately 25 days. The young grebes (the brood of 4 was reduced to 2 by 2 August) departed the natal area after approximately 44 days.

No data are available in the literature on either growth rates or age at independence of Pied-billed Grebe young. Palmer (Handbook of North American Birds, vol. 1:112, 1962) suggested that independence and first flight may occur in less than 3 weeks. My data from 1971 suggest that these times are not synonymous. Even if the first observation of the brood is taken as day 1 after hatching, time to first flight was still 35 days. Age at departure of the adults, 25 days, was within Palmer's estimation.

Between 30 June and mid-July, waterfowl were present on flowage 300 in various numbers on every occasion that the area was visited. By 30 June there were a female and a brood of 8 Common Goldeneyes (*Bucephala clangula*), 2 broods of Mallards (*Anas platyrhynchos*) and 3 Wood Duck (*Aix sponsa*) broods. A hen Mallard and 9 ducklings, and a hen Blue-winged Teal (*Anas discors*) and brood of 11 ducklings, which entered the flowage during the third week of July made a total of 8 different waterfowl broods which used the flowage in company with the grebes between 31 May and early August.

Aggression by Pied-bills against goldeneye ducklings was observed from 30 June until late July when the adult grebes left the flowage. A typical example is illustrated by my first observation of this behavior 30 June. One of the adult grebes flew to 3 of the goldeneye ducklings from a distance of approximately 15 m, landed approximately 2 m short of the young birds, and then chased them by running across the water while flapping with its wings. The goldeneyes were driven off the open water area into a flooded alder (*Alnus* spp.) bay. Thereafter, on no occasion did I observe the grebes to allow the young goldeneyes to move any farther than 3 m from the vegetation edge into open water. The adult Pied-bill always pecked at the ducklings, but was able to strike the goldeneyes only during the first week of these attacks. The goldeneye young escaped the grebes on all later occasions by outrunning the Pied-bills in a flapping chase across the water. Nevertheless, the goldeneyes were always forced into the emergent border of the flowage. On 2 occasions, after a short chase, the adult grebe dove, then surfaced beneath the goldeneyes causing them to flee across the pond. The other waterfowl on the flowage did not spend as much time in the open water areas of the flowage as did the goldeneyes, but even when near the Pied-bills they elicited no agonistic behavior from the grebes.

Munro (J. Wildl. Manage. 3:339-344, 1939) and Ryder (Auk 76:424-442, 1959) did not believe that interspecific attacks by water birds seriously affected other species. Glover (1953) based sex discrimination on the size of the bird and found that the area defended by the male Pied-billed Grebe usually was included within an arc of about 46 m around the nest, with the total area used being approximately twice the size of the defended area. Palmer (1962) reports that territorial defense is usually accomplished by the male and that such behavior may be directed at other Pied-billed Grebes, Coots (*Fulica americana*) and several duck species. Kilham (Wilson Bull. 66:265-267, 1954) documented territorial attacks by a Pied-bill on a female Ring-necked Duck (*Aythya collaris*), a female Hooded Merganser (*Lophodytes cucullatus*), and an immature Pied-bill, but observed no attacks upon Blue-winged Teal, Wood Ducks, or Coots on the same water area. Kilham's hypothesis that the attacked species bore enough resemblances to adult Pied-billed Grebes to elicit defensive behavior from the male grebe may apply to the behavior observed on the Chippewa also. The goldeneyes superficially resembled grebes (brown above, white below) and were the only birds on the flowage "acting" like grebes, i.e. diving, shaking feathers with the breast raised above the water, and using the open water areas instead of the emergent vegetation. However, I believe that this behavior is adaptive. All reports of Pied-bill interspecific agonistic behavior in the literature concern species that, at least partially, overlap the grebes in requirements for food and nesting and brood-rearing

habitat. The larger area of available wetland in the spring allowed the grebes and ducks to use flowage 300 without conflict. The reduced midsummer flowage area and the presence of the brood apparently were responsible for the initiation of attacks against the goldeneyes.

Whatever the releasers for the grebe attacks, the effects upon the goldeneye ducklings were profound. The young birds were denied access to the deeper water portions of the flowage whenever the grebes were active. This goldeneye brood, unlike many others observed, became scattered along the shoreline and often mixed with other broods after being harassed by the Pied-bills. Some portion of the goldeneye brood loss observed (4 ducklings) may have been indirectly attributable to the interspecific conflict. Although Pied-billed Grebes can rear broods on even very small water areas, their presence may, at times, be detrimental to some other species.

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**Growth rate in the Monk Parakeet.**—The Monk Parakeet (*Myiopsitta monachus*) has aroused considerable interest since its introduction into the U.S. Studies on the basic biology of this species have focused in particular upon their potential for establishment in this country. There is good evidence that physiologically this species is well adapted to invade many of the climatic regions of North America (Weathers and Caccamise, *Oecologia* 18:329–342, 1975), and based on the numerous breeding records it would appear that other aspects of their niche requirements are met at least in certain geographic areas.

One way of evaluating the potential for an exotic species to become established in a new area is to evaluate its breeding success. One important component of breeding success is the ability of parents to maintain the growth rates of young within those acceptable limits determined by the physiological capabilities of the species. The purpose of this study was to determine the growth rates of nestling Monk Parakeets in both caged and wild situations in order to provide a basis for comparative studies.

Subjects for this study consisted of 3 nestlings reared in an outdoor flight cage (4 × 3 × 2 m) by 2 pairs of adults using 2 separate nests. These birds were all live-trapped as adults in New Jersey and maintained in the cage for about 7 months before breeding began. In addition, data were collected on 3 nestlings reared by a pair of free-living birds nesting in Franklin Township, New Jersey. This nest was located near the top of an eastern hemlock (*Tsuga canadensis*) at a height of about 10 m.

The wild birds were part of a flock of 6 individuals of which only 1 pair bred at the nest under observation. This nest had been active for at least 3 years prior to 22 May–13 June 1974 when these observations were made. Local residents stated that this nest was constructed initially by only 2 birds, however, in the succeeding 3 years the flock grew to 6 individuals. Whether this increase was due to reproduction or to recruitment is not known.

Age-dependent weights are presented in Fig. 1. Since the free living birds deserted their nest about midway through the nest cycle none of their nestlings survived to fledge.