

response than the appearance of other species. By responding more strongly to conspecifics, a territorial individual might leave the nectar source unguarded and thus available to other competitors. The rarity with which such nectar sources are encountered and the more unlikely condition that another larger species is not already defending it, give little time for selection to "finely-tune" this defense behavior. Nectar specialists, i.e. hummingbirds and sunbirds, tend to chase all competitors of the same size or smaller with equal vigor. The Palm Warbler which on rare occasions takes nectar might respond to a competitor with which it is most familiar. Aggression towards conspecifics is a common behavior found within the repertoire of possible responses and may account for the differential pursuit times.

Selection should favor defense of a feeding territory as long as the energy gained from exclusive use of that defended nectar source is greater than the energy expended in its defense (see Stiles and Wolf, *Auk* 87:467-491, 1970; Wolf, *Condor* 72:1-14, 1970). Generally interspecific dominance is based upon size, for larger species are either difficult or impossible to drive out of the territory. This territorial Palm Warbler ignored all intruding larger species and chased only parulid species of equal size.

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Ring-billed Gull pair with 2 nests.—On 13 May 1975, I observed 2 nests of *Larus delawarensis* in the Calcite Colony (Rogers City, Presque Isle Co., Mich.) that were unusually close together. The nests had a common rim on one side and both contained eggs. Observations verified that only 2 gulls, apparently a pair, were attending the double nest. The nests were in a portion of the colony that has been used repeatedly since at least 1958.

The largest and most complete nest (i.e. that with the most nest material) contained 4 eggs while the other had 2 (Fig. 1). Two adult-plumaged gulls (i.e. lacked terminal tail bands and other characters normally indicative of birds less than 3-years old; see Ryder, *Wilson Bull.* 87:534, 1975) attended the nests. Each of the gulls consistently incubated the same clutch of eggs during my two 8-h observation periods before color-marking. Neither of the birds left the nest site while I was present on these 2 days. This represents unusually long incubation bouts for each bird as the mean duration of shifts for pair members at this colony is 1.8 h (Southern, pers. observ.).

The incubating birds were tolerant of one another and body contact was not unusual. Frequently the head of one bird touched the wing, tail, or back of the other. Occasionally their bodies were aligned parallel to one another facing in the same direction. The 2 gulls, either singly or in combination, threatened incubating neighbors and territory intruders. Both birds arranged nesting material, including that in the common wall between the nests.

Once the gull attending the 2-egg clutch left the nest and stood unchallenged near the adjoining nest. Before returning to the nest, it chased an intruding neighbor from the territory. While standing at the nest before settling, it again threatened the neighbor (with open-bill thrusts), this time in unison with its partner on the adjacent nest. During my observations no other gulls approached the double nest without being challenged by one or both attending gulls.



FIG. 1. Double Ring-billed Gull nest tended by 2 adult-plumaged birds.

To determine if more than 2 Ring-bills were involved, the incubating birds were color-marked on the 3rd day of observation. This was accomplished by placing a paint-soaked swab of cloth on the nest rim so that any gull settling to incubate was marked on some part of its ventral plumage. Yellow was used at the 4-egg nest and blue at the other. Both gulls appeared somewhat alarmed by the presence of paint on the nest as they had resettled quickly following my previous daily check on nest contents. Following marking, the "yellow gull" rearranged nesting material as if attempting to cover up the spot. This action stimulated the other gull to contribute nest material and both worked on the spot. The gull attending the 2-egg clutch was hesitant to settle on the blue paint and after doing so immediately left the nest and stood nearby. Within 2 min it returned with nest material and worked on the painted area. About 10 min later both birds settled on their respective nests but the "blue gull" continued to rise and resettle. About 3.5 h later the blue gull ceased sitting on the nest and remained nearby with its plumage sleeked. It continued to defend the nest and eggs against intruders.

The following morning the yellow gull was standing near the 4-egg nest that now was being incubated by the blue gull. The 2-egg clutch had been abandoned and was not incubated thereafter. Four days later the 2 eggs were gone and the nest material, or at least that spotted by blue paint, had been incorporated into the remaining nest. The 2 gulls shared incubation duties thereafter at this nest. Four young eventually hatched and were cared for by both adults. Continuous observations were not made of the family group following hatching and so the role played by each adult in caring for the young is unknown.

Since the birds were not sexed it remains possible that the 2 gulls were other than a mated male and female (e.g. 2 females). Polygyny has been reported in other gulls (e.g. *Larus argentatus*, Shugart and Southern, in press) but in this particular case a 3rd

gull was not involved, or at least did not share incubation duties. Therefore, this may be the first recorded instance of a pair of Ring-billed Gulls, and possibly any gull species, having 2 clutches of eggs simultaneously.—WILLIAM E. SOUTHERN, *Dept. of Biological Sciences, Northern Illinois Univ., DeKalb 60115. Accepted 22 Feb. 1977.*

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Clutch size and nest placement of the Pied-billed Grebe in Manitoba.—The Pied-billed Grebe (*Podilymbus podiceps*) breeds widely throughout North, Central, and South America (Palmer, Handbook of North American Birds, Vol. 1, Yale Univ. Press, New Haven, Conn., 1962). Despite this, relatively few studies of its breeding biology have been conducted. I obtained information at 2–4 day intervals between 19 May and 25 July 1973 on nest placement and clutch size of the Pied-billed Grebe in a prairie pothole area south of Minnedosa, Manitoba. This area has been described in detail by Ferguson (M.Sc. thesis, Univ. Manitoba, Winnipeg, 1977) and more generally by Ehrlich et al. (Man. Soil Surv. Rept. No. 6, 1957), Bird (Canada Dept. Agric., Contr. No. 27, 1961), and Keil et al. (Can. Wildl. Serv. Rept. Ser. No. 18, 1972).

Semi-drought conditions existed in the study area in 1973. The ephemeral and seasonal potholes (following Stewart and Kantrud, Resource Publ. 12, Bur. of Sport Fish. and Wildl., 1971) were dry or nearly so. The water levels in most semi-permanent and some permanent potholes were low, in some instances exposing entire stands of emergent vegetation.

In all cases ($N = 53$) only 1 pair of Pied-billed Grebes nested per pothole; this was also the case with most Horned Grebes (*Podiceps auritus*) nesting in the Minnedosa area (Ferguson 1977) and the Horned and Pied-billed grebes in North Dakota (Faaborg, *Wilson Bull.* 88:390–399, 1976).

Of 42 nests found with eggs in 1973, 29 failed; most of the failures were washed out before the clutches were completed. The average size of 22 completed first clutches was 6.8 eggs (1 of 5 eggs, 3 of 6, 17 of 7, 1 of 8). The mean size of 6 suspected replacement clutches was 7.2 eggs (5 of 7 eggs, 1 of 8). Glover (*Wilson Bull.* 65:32–39, 1953) also found no difference in size between first and first replacement clutches (see also Miller, *Cassinia* 32:22–34, 1943) and lumped them in his calculations. Palmer (1962) indicated that Pied-billed Grebe clutch sizes do not decrease as the season progresses. Ferguson (1977), however, noted such a decline in Horned Grebe clutch size in the Minnedosa area. The clutches used to calculate clutch size in my study were all initiated within a 2-week period from late May to early June.

I obtained additional information on Pied-billed Grebe clutch sizes in Manitoba, Saskatchewan, and Alberta from the Prairie Nest Records Scheme (PNRS) and for British Columbia from the British Columbia Nest Records Scheme (BCNRS). Nests where the clutch size was the same after 2 visits, 2–3 days apart, were used. The mean size of 6 such clutches from the PNRS was 6.7 eggs (extremes, 3 and 10). In 19 other nests visited only once by the observer, there were 5 with 6 eggs, 6 with 7, 5 with 8 and 3 with 9 ($\bar{x} = 7.3$).

There is no apparent increase in clutch size from south-to-north in temperate North America (Table 1). The small clutches found in Idaho are not explained. The small sample of clutch sizes from Central America (Costa Rica, Honduras) suggests an overall latitudinal increase in clutch size. However, much more work needs to be done there on Pied-billed Grebes. In the Atilan Grebe (*P. gigas*) of Guatemala, LaBastille (Wildl. Monogr. No. 37, 1974) reported a mean clutch size of 2.9 eggs, with extremes of 2 and 5.