called and charged to a significantly greater degree than females (LC— $\chi^2_c = 27.72$, $v = 1$, $P < 0.001$; Ch— $\chi^2_c = 49.70$, $v = 1$, $P < 0.001$), with time spent on territory taken into account.

Table 1 presents a breakdown of the major aggressive interactions between known birds and intruders. Charges were performed much more often by male ring-bills than by females when an intruder landed or walked toward the nest site. Males were more likely than females to respond with long-calls to an intruder landing nearby or flying over. When an intruder actually approached the nest site, however, males and females responded with long-calls in similar proportions. It is difficult to determine the significance, if any, of this latter finding. Possibly the approach of an intruding bird is a more threatening situation and one that elicits long-calls, but not charges, from even the typically less vociferous females. A larger sample is needed, however, to confirm this conclusion.

In summary, male Ring-billed Gulls played a generally more aggressive role in defense of territory and brood than did females. Although the time males and females spent on territory was somewhat similar, males engaged in long-calls and charges to a substantially greater extent. Gape-jabbing, a relatively lower intensity agonistic action, was performed by both sexes with about equal frequency.

I am grateful to W. E. Southern, D. Miller, and J. Burger for their helpful comments on the manuscript. Financial support for this study was provided by a grant to W. E. Southern from the Northern Illinois University Graduate School Fund.

Literature Cited

Burger, J., & C. G. Beer. 1975. Territoriality in the Laughing Gull (*L. atricilla*). Behaviour 55: 301–320.

Moynihan, M. 1962. Hostile and sexual behavior patterns of South American and Pacific Laridae. Behaviour Suppl. 8.

Ryder, J. P. 1978. Sexing Ring-billed Gulls externally. Bird-Banding 49: 218–222.

Shugart, G. W. 1977. A method for externally sexing gulls. Bird-Banding 48: 118–121.

Tinbergen, N. 1956. On the functions of territory in gulls. Ibis 98: 401–411.

Received 9 May 1980, accepted 21 July 1980.

Fertility of Albinistic Eggs of Mountain Bluebirds

Hugh L. Munro, Donita H. Munro, and Richard C. Rounds
Department of Geography, Brandon University, Brandon, Manitoba, Canada R7A 6A9

The usual egg color for Mountain Bluebirds (*Sialia currucoides*) is light blue. Although white eggs have been reported for both Eastern (*Sialia sialis*) and Mountain Bluebirds, they are considered unusual for Mountain Bluebirds (Bent 1949, U.S. Natl. Mus. Bull. 196). Laskey (1939, Bird-Banding 10: 24) reported that white eggs were not only common (9.1% of all eggs) but also fertile (25/26 hatched) for Eastern Bluebirds. Power (1966, Condor 68: 359) found that white eggs comprised 8.3% of all eggs laid by Mountain Bluebirds in Montana, but that only 1 of 9 of these hatched, while complete fertility occurred in normally pigmented eggs in the same nests. He found "the frequency of white eggs to be about equal in these two species of *Sialia,* but with a strong indication that they are less viable in *S. currucoides* than are normally pigmented eggs."

During spring 1980 we monitored five Mountain Bluebird nest box lines in southern Manitoba that contained nests with abnormally colored eggs. Mountain Bluebirds occupied 139 of the 252 available boxes by 15 May. Pair formation, egg laying, incubation, and hatching were monitored regularly to assure accurate documentation of all nests.

Of the 139 nests containing Mountain Bluebirds, 130 had complete clutches of normally pigmented eggs. The mean clutch size of 5.7 eggs was derived from the following observations: 87 nests with 6 eggs, 35 nests with 5 eggs, 4 nests with 7 eggs, and 4 nests with 4 eggs. The total of 789 normal eggs accounted for 93.9% of all eggs laid. Four clutches contained only pale blue eggs (5, 5, 6, 6), which were noticeably lighter in color than normal eggs. The mean clutch size was 5.5 eggs, and the 22 pale blue

eggs comprised 2.8% of all eggs. Five complete clutches of white eggs contained 26 eggs (3.3% of all eggs). The mean clutch size was 5.2 eggs (5, 5, 5, 5, 6). In total, therefore, 6.1% of all eggs were abnormally pigmented. No pale blue or white eggs occurred in clutches with normally colored eggs.

The hatching rate for normal eggs was 91.2% (718/789). Of the 22 pale blue eggs, 21 hatched (95.5%), and 25 of the 26 white eggs hatched (96.1%). The fertility rate, therefore, was high in all eggs. The fact that all of the clutches contained either completely normal or completely abnormal eggs suggests that albinism is a trait of individual females. This contrasts with Power's finding of infertile white eggs in clutches with fertile normal eggs, which would suggest that albinism is a function of individual eggs. This contrast may indicate that different phenomena are operative in the two samples. Our data suggest, however, that fertility is not related to color in Mountain Bluebird eggs. *Received 30 June 1980, accepted 16 September 1980.*

Black Vulture Nesting, Behavior, and Growth

LAURIE A. MCHARGUE[1]
Smithsonian Tropical Research Institute, Aptdo. 2072, Balboa, Panamá

Black Vultures (*Coragyps atratus*) have nested for 5 consecutive yr (1975–1979) on a small island in Gatun Lake, Panamá. The 1975 nest site (McHargue 1977) was 6 m from nests of the following 3 yr, which were all within 1 m of each other. The 1979 nest site was 35 m distant, in the same location as that used by a pair of Turkey Vultures (*Cathartes aura*) in 1975 (McHargue 1977).

Two eggs were laid about 13 December 1975 (estimated from the known fledging date of young), 28 October–6 November 1976, 16 November 1977, 12–18 November 1978, and about 10 October 1979 (estimated from development of young). Ranges represent the time between the day I last searched the area for eggs and the day eggs were found. Two young hatched and fledged in 1975 and 1976. In 1977 and 1978 only one young hatched; one of the 1977 eggs broke between 16 and 18 December, 6–8 days before the other egg hatched, and one of the 1978 eggs disappeared between 15 and 22 December, 4–12 days before hatching. The 1977 young fledged, but the 1978 young disappeared when 4–8 days old. Two young hatched in 1979 and were both present when 40 days old, after which time I could no longer observe them.

The 1976 nestlings hatched on 13 and 15 December, after an incubation period of 37–48 days. Incubation times were 38 days in 1977 and 38–45 days in 1978. The 1976 young fledged about 6 March 1977, when 81 and 83 days old. The 1977 young was still near the nest when 90 days old, but it is not known if it could fly.

In 1976 I banded the nestlings after the second one hatched and weighed them on a double pan balance about every 3 days in the late afternoon. I estimated the fullness of their crops for each weighing during the last half of the nestling period. The nestlings never regurgitated when handled. Photographs were taken at weekly intervals. Twice during the first month I tried to observe the nest site from a blind. The adults, however, were very wary, and my presence often kept them from the nest. Consequently, except to remove the nestlings for weighing or photographing, I left the nest area undisturbed in order not to interfere with normal care by the adults. If one of the adults was brooding when I came to remove the young, it usually ran a short distance and then flew into the branches of a tree, returning to the nest site about 20 min after I had returned the nestlings.

Figure 1 shows the first-hatched nestling at 2-week intervals from 9 to 79 days after hatching. The young at hatching were covered with very dense down. The first feathers appeared on the wings about 23 days later. Nestlings over 25 days old changed their resting location frequently but remained around the base of the palm clump where the eggs had been laid. With advancing age, they became increasingly more mobile and difficult to catch.

The second-hatched nestling was always more aggressive toward me than the first-hatched bird. I observed the younger nestling at 11 days after hatching strike at and grasp the older one with its bill after both had been fed simultaneously by an adult.

---

[1] Present address: 5820 SW 38th Street, Miami, Florida 33155 USA.