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The Subfamily Anseranatinae

TRIBE ANSERANATINI (MAGPIE GOOSE)

The first subfamily and tribe of the Anatidae consists of the single genus and species *Anseranas semipalmata*, or magpie goose. This species deviates in almost every respect from the rest of the Anatidae, and anatomical evidence indicates that it has some affinities with the South American family of screamers, the Anhimidae (Delacour, 1954; Woolfenden, 1961). The screamers are a group of semi-terrestrial birds which in turn have some of the characteristics of gallinaceous birds. It appears that the screamers and the magpie goose represent major stages in the evolution of the typical waterfowl from a gallinaceous ancestor. Besides the numerous anatomical similarities between the magpie goose and the screamers, a few other, obvious similarities are of interest. Both kinds of bird have broad wings, long legs, semipalmated feet, and a long hind toe—characteristics which enable them to walk rapidly (Fig. 1D) and to perch admirably. Presumably the ancestors of the rest of the Anatidae sacrificed these capabilities when they assumed a more aquatic existence. In addition the magpie goose and the screamers have a gradual wing molt, and thus never completely lack the ability to fly. Apparently a simultaneous wing molt and the resulting temporary inability to fly was a later adaptation to a more aquatic environment, when the ancestral waterfowl were able to utilize their improved swimming and diving abilities as an escape from danger during the molting period. Like screamers (Stonor, 1939) and swans, the magpie goose nests on

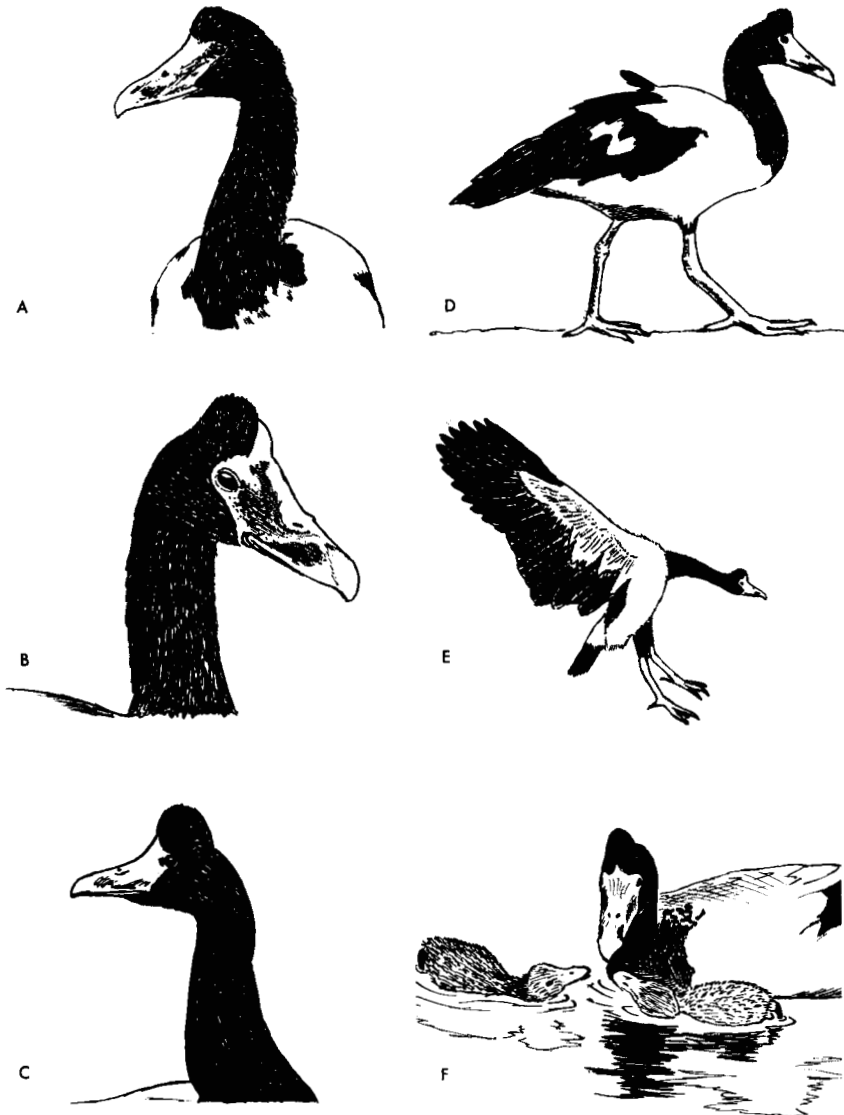


Figure 1. Magpie Goose

A. Immature female.

B. Male aged two and one half years.

C. Adult male.

D. Male walking. Note long toes and semipalmated feet.

E. Male landing. Note broad, rounded wings.

F. Male feeding young. (From photo by J. V. Beer.)

the ground or on mounds of weeds in water (Davies, 1962). The male helps build the nest and incubates part of the time, as do male screamers. In its foraging the magpie goose is mainly vegetarian, but it forages on every imaginable kind of plant, and especially tends to dig for roots in the soil. Although it swims fairly well, it has not been observed to dive.

The downy body-plumage of the magpie goose resembles that of the screamers in being a unicolored gray, shading to white below. The magpie goose has, however, a cinnamon-colored head that makes its downy plumage unique among waterfowl. The adult plumage has the same pattern in both sexes, a strongly contrasting black and white somewhat reminiscent of the horned screamer (*Anhima cornuta*) as well as of the spur-winged goose. Except for a slight difference in size, the sexes differ mainly in their head shape (Fig. 1A-C), adult males being marked by a distinct bony crown that increases with age, at least to the third year. The sexes also differ in that the voice of the male is much lower in pitch than that of the female. This is the result of sexual differences in the length of the trachea, which in adult males is a coiled, greatly elongated structure (reaching a length of about 150 cm.) lying between the breast muscle and the skin. The syrinx is small and not differentiated in the two sexes (see Johnsgard, 1961c). The species ranges over much of Australia, Tasmania, and southern New Guinea, and does not exhibit any subspeciation. No hybrids involving the magpie goose are known.

General behavior. Magpie geese are highly social with others of their species, but very seldom associate with other waterfowl. They do not persecute other birds, but captives at least will sometimes not hesitate to attack a human. Their threat behavior consists of approaching the opponent with head held slightly back, then suddenly making a powerful thrust with the open and strong beak, which has a large, sharp nail. Sometimes the birds open and flap their wings, and they have been known to fly at their opponent, striking him with their feet, wings, and beak. The preflight behavior of magpie geese is simple, consisting of short, rapid calls emitted with the neck stretched and, at times, with the lateral Head-shaking* typical of nearly all Anatidae. Vocalizations are fairly simple, adults of both sexes apparently using only a single monotone note. Differences, however,

* Names for behavior patterns which appear to be ritualized (i.e., to have signal function) are capitalized here.

in the loudness, rapidity, and pitch of the call appear to serve different functions. The downy young and juveniles up to about six months of age have a high-pitched whistle and produce chittering notes with a rapid opening and closing of the beak. These notes are emitted during any excitement, and are possibly of importance in keeping the family together during early life. Later, as the trachea lengthens and the adult call is developed, the chittering ceases, but the rapid beak movements continue into adulthood. Mutual nibbling involving similar bill movements has been observed in adults.

Two facts about magpie goose behavior are of special interest and may make this species unique in the Anatidae. The first is that from the time that they leave the nest, the downy young are fed directly by their parents in a bill-to-bill fashion (Fig. 1F). The downy young have a loud, sibilant whistle which they utter with their orange bill open, and which seems to function as a food-begging call. They also forage for themselves, but much of their food is obtained by their parents, who bring up aquatic vegetation from under the water and allow the young to take it from their bills. Janet Kear (pers. comm.) has observed possible cases of parental feeding in *Dendrocygna* and *Cygnus*, but these forms apparently exhibit a much more rudimentary form of parental feeding than do the magpie geese. The second fact of special interest is that unlike those of some swan species, the magpie goose family does not return to the original nest at night for brooding; rather, both adults assist in building a "brood nest," which is simply a pile of grass on which the young sleep or rest while being brooded by the mother. This brood nest is used until the young are about two weeks old, by which time they have largely abandoned parental feeding. A more detailed account of the development and the molts of the young has been published elsewhere (Johnsgard, 1961b).

Sexual behavior. Since a detailed account of the breeding behavior of magpie geese has also been presented elsewhere (Johnsgard, 1961b), only the major points will be mentioned here. Magpie geese probably become sexually mature between their second and third years, since males aged two and a half years have a fully elongated trachea and a well-developed crown enlargement (Fig. 1B). The pair bonds and family bonds appear to be as strong as they are with other geese and with swans. Unlike all the other waterfowl so far studied except Cape Barren geese and Hawaiian geese, magpie

geese apparently do not copulate while standing in water or while swimming. At least, in the three instances in which copulation has been observed (I have observed it twice), it occurred on or near the nest site. If the cases I saw were typical, there is no elaborate pre-copulatory display before the female climbs up on the nest and is followed by the male, who immediately mounts. During treading there is no call and little movement, and apparently the male does not grasp the female's nape as does the male of all other waterfowl studied thus far. After a successful treading both birds evidently call while "bowing and scraping" to one another, but in the two instances I observed there was no such calling; hence the treadings were probably not successfully completed. Magpie goose pairs perform a rudimentary sort of "Triumph Ceremony," analogous to those performed by swans and geese, which consists of both birds emitting loud calls and shaking their wings.