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THE BLACK FRANCOLIN IN THE EVERGLADES AGRICULTURAL AREA

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The Black Francolin (*Francolinus francolinus asiae*) was introduced into the United States during the 1960's under the U.S. Department of Interior Foreign Game Introduction Program. One successful introduction has been reported at Gum Cove in south-western Louisiana (Sims 1963, 1965, Sims et al. 1967, Palermo 1968). Stevenson (1976) reported without details a release near Avon Park, Highlands Co., Florida. Among documented releases in Florida were 35 pairs liberated on the University of Florida's Agricultural Research and Education Center (AREC), Belle Glade, Palm Beach County, Florida. In this paper we report on this successful introduction.

The male Black Francolin is approximately twice the size and slightly more elongate than the Bobwhite (*Colinus virginianus*). Its black head, neck, and breast, rich chestnut collar, large, white sub-triangular cheek spot, light-brown, black-streaked upper-parts, and its barred retrices, primaries and tail are diagnostic field characters. The bill is blackish to light-brown, and the legs are reddish to dull orange (Fig. 1). Spurs are often prominent.

The brownish to buffy-hued female has dark triangular markings on breast and flanks. The chestnut collar present in the male is reduced to a pale neck patch in the female, and the bill is a lighter brown. Feathers of the thigh are buffy, and the tibiae are lighter than in the male. Bump and Bump (1964) provided a more technical description.

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Fig. 1. Black Francolin (*Francolinus francolinus*), introduced into Florida at Belle Glade. Male is on the left; female is on the right.

On 2 February 1962, the 35 pairs of Black Francolin, wild trapped by Gardiner Bump in India, were released at the Everglades Experiment Station by personnel of the Florida Game and Fresh Water Fish Commission and the University of Florida. The release site chosen offered protection being on the Research Center and contained 16.1 hectares of elderberry (*Sambucus simpsonii*) scrub. Adjacent habitat was composed of several agricultural crops and the area as a whole resembles the bird's native habitat in India in climate and general habitat features.

From shortly after the release until May 1963, four quail feeders provided with poultry scratch-feed were maintained in the release area. During the months after liberation, Black Francolins were seen regularly, particularly in the sugarcane, ramie, and elderberry areas. The birds on the AREC were kept under close surveillance for the first three years. Some predator regulation was conducted when the birds were considered in jeopardy. Posted signs were also maintained along the AREC boundaries.

We believe that Black Francolins now occur over 1036 km² of

the Everglades agricultural area. In documenting this range, we have accepted reports of a few people familiar with the birds, but otherwise we have relied only on our own sightings or call records. Our data show occurrence in Palm Beach County from near US 27 on the west, almost to the 20 mile bend on US 441 to the east and from Pelican Lake on the north to within two miles of the Florida Game and Freshwater Fish Commission Management Area on SR 827 on the south (Brown's Farm Road). We have heard reports of the birds beyond these limits but have been unable to verify them. Within the documented range, birds are found in a patchy distribution.

Francolins appear to have bred each year since their release. Based on presence of young birds and calling of males, we believe the bulk of nesting occurs between May and September. However, we know of only three Black Francolin nests. A francolin nest with one broken and one intact egg was found in October, 1965 during a mowing operation. Another female francolin was observed almost under foot on a ditch bank in relatively short St. Augustine grass in 1970. Close examination of the area from which the bird flew away revealed a rather simple nest with several olive-tan eggs. Examination of the nest the next day showed the eggs had all hatched and the brood gone. A third nest, found on the AREC in August 1972, was revealed by a fleeing female francolin from grass near an elderberry area.

When approached, Black Francolins may run or fly. They run somewhat like Bobwhite, but with body, possibly, held a little more erect. Their flight is usually straight and direct to the nearest cover. When surprised on margins of a field, roadway, or pasture, they vanish into fence-row, brush, sugarcane, or weed cover. As Bump and Bump (1964) have stated, they just seem to "melt into the cover".

The Black Francolin is not a covey bird but has, at times, seemed mildly gregarious in that six or eight birds may be flushed in ones and twos from a relatively small patch of cover. At points of concentration, in early morning, five or six birds can be observed along 500 meters of field road. They tend to be fairly cautious and alert, and, in human presence, they usually seek cover. Males engaged in calling duels with a rival, however, become so engrossed as to permit close approach. If the bird is calling from a fence post or other exposed site, only occasionally can a person approach nearer than 150 meters before the bird drops to the ground and fades back. Hens are seen much less frequently than males, possibly because the

females are shy, more cryptic, and do not call in the manner of the male.

The call of the Black Francolin is distinctive (Bump and Bump 1964), a click followed by a shrill cicada-like sound. The cicada-like sound can be heard nearly one kilometer away on a calm day. Males call throughout the day during the breeding season but with greater frequency from distinct daylight to 1000 and from 1800 to sundown. Seasonally, the bulk of the calling is from mid-April through September.

Only one Black Francolin (dead on road) became available to us for stomach contents analysis. The one stomach we examined had percentage-wise and volume-wise much more animal (primarily arthropods) matter than vegetable matter.

We believe that the Black Francolin is under considerable predation pressure though we have seen no actual predation. A wildcat (*Lynx rufus*) was interrupted apparently stalking a calling male.

A young francolin brought to Lewis in July 1965 was suffering from a paralytic-type disease, possibly fowl paralysis or Newcastle's Disease. This bird lived four days after it was found. The disease was not authoritatively diagnosed.

The Black Francolin has persisted and spread slowly since its release in the Everglades Area. Black Francolins have survived temperature extremes (Bump and Bump 1964) in excess to those of the Everglades Area. The annual precipitation in Belle Glade ranges of 102 to 178 cm is well within optimum levels for the birds. Although populations are now found scattered over 1000 km² of the agricultural area, no significant crop damage by these birds has been observed during their 16 years in the Everglades. Predation, illegal shooting, and certain farm practices may have adversely affected the species. However, it is believed that the area is very suitable for the species from the standpoint of climate, vegetation, invertebrate fauna, and crops.

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BIRD DIVERSITY AND ABUNDANCE IN THREE PLANT COMMUNITIES IN PUTNAM COUNTY, FLORIDA

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Geographically isolated communities exhibit distinct differences in the composition and diversity of breeding bird species (Abbot 1980). Species composition and diversity can be used to characterize the structure of avian communities (Curtis 1978), including correlates of the successional state of a given area. On a local scale, such community parameters are useful in demonstrating small-scale variation within an ecosystem and the niches that are available to resident birds. The purpose of this study was to differentiate bird populations for three distinct habitat types in the Welaka Center for Education and Research, through the determination of species composition, diversity, and feeding guilds.

METHODS

The Welaka Reserve is located on the east bank of the St. Johns River in southeastern Putnam County, Florida. Birds were censused on 16-17 May 1980 in three plant communities on the 918 ha Reserve. A variation of Emlen's (1977) transect method was used to determine bird density. Within each Fla. Field Nat. 10(4): 69-73, 1982.