Although several species of Icterines are colonial nesters (Orians, "Blackbirds of the Americas," Univ. Wash. Press, Seattle, Washington, 1985), the phenomenon appears to be rare among the New World orioles, *Icterus*). Orchard Orioles (*I. spurius*) have been reported nesting in a colony (Dennis, in Bent, A. C., "Life Histories of North American Blackbirds, Orioles, Tanagers, and Allies," Dover Publications Inc., New York, New York 1958), but we have found no reference to other species of *Icterus* nesting colonially.

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First observations of chick carrying behavior by the Buff-crested Bustard.—Parental transportation of young is known to occur in several taxa. Some waterfowl passively carry offspring by allowing chicks to ride on their backs (Johnsgard and Kear 1968). More exceptional are those species that deliberately pick up their young and carry them by means of grasping the chick with the claws, the bill, or the wing (Cobcroft 1934, Johnsgard and Kear 1968). Clapper (*Rallus longirostris*) and Virginia rails (*R. limicola*), gallinules (*Gallinula* spp.), sandpipers (*Actitus* spp.), both genera of woodcock (*Scolopax* spp. and *Philohela* spp.) and cuckoos (*Centropus* spp.) all carry chicks in this manner (Pettingill 1938, Welty 1982). The African Jacana (*Actophilornis africana*) and the Lotus-bird (*Irediparra gallinacea*) hold offspring under their wings while conveying them across lily pads (Hopcraft 1968, Cobcroft 1934). They accomplish this by gripping one or two chicks between the wing and the torso with the chicks' feet and legs dangling below the wing. Chick carrying has not been reported previously for the Buff-crested Bustard (*Eupodotis ruficrista*) although it is known in a few members of Otididae. The East Africa Natural History Society Nest Record Scheme contains a record made by J. F. Reynolds of a Hartlaub's Bustard (*E. hartlaubi*) carrying a three-day-old chick in Nairobi National Park. The Houbara Bustard (*Chlamydotis undulata*) (P. Gaucher, pers. comm.) and the Great Indian Bustard (*Choriotis nigriceps*) (Hasan 1982) are reputed to transport chicks clasped under the wing. This paper describes what are believed to be the first observations of this behavior in the Buff-crested Bustard.

A female Buff-crested Bustard at the Dallas Zoo has been observed carrying chicks (Fig. 1) during three consecutive breeding seasons. The first observation of this behavior occurred in July 1989. For the first few days after hatching, the single chick exhibited a lack of coordination due to poorly developed motor and visual faculties, characteristic of the species previously noted in hand-reared offspring. During this period, the female carried the chick under her wing on four observed occasions. Bouts were initiated when the hen was alarmed by human intrusion while brooding the chick under the wing. The hen stood while continuing to hold the chick gripped between the wing and the torso. The only visual indication of the chick's presence was its feet hanging below the hen's wing. After the hen moved away, the chick was dropped straight down, usually into the concealment of grass. During one observation of this behavior, the female remained standing motionless for approximately 30 sec, then relaxed and dropped the chick in its original location. At other times, she moved distances varying up to twelve feet (the distance limit of the enclosure) before dropping the chick in a new site. Two more observations of this behavior were made in July of 1990

FIG. 1. Female *E. ruficrista* carrying a chick. The chick's feet are visible extending below the female's left wing.

when this female reared another chick. Again, each bout of carrying occurred when the female was startled while brooding. In July of 1991, several more bouts of chick carrying were observed when this female reared a third chick.

The observed bouts of parental transportation of young in the Buff-crested Bustard appeared to be deliberate attempts to relocate offspring. My observations of Spur-winged Lapwings (*Vanellus spinosa*), which are also wing brooders, have shown that, when the hen stands abruptly, the chicks immediately drop out, often landing on their sides or heads. In contrast, bustard chicks drop straight down, normally landing in an upright position. It is possible that chick-carrying behavior is a defense mechanism that reduces predation of young by moving offspring to safety. A female, alarmed while brooding, gets up and moves away while the chick remains held under the wing. When dropped into the grass, the chick may go unnoticed due to its cryptic coloration. The need for the parent to remove its offspring from potential danger may be due to the chick's poor vision and clumsiness during the first few days after hatching. Since the behavior was observed only during the first three or four days after hatching, it is possible that as the chick's coordination increases, it becomes less necessary for the hen to intervene; the chick is able to hide itself. Another explanation is that the chick's growth causes cessation of this behavior when it becomes too large for the hen to carry. This is substantiated by observations of chicks falling out from under the wing at later ages. Further research is needed to conclude if this behavior is an idiosyncrasy of an individual or a species characteristic. Occurrence of chick-carrying behavior in two or three members of Otididae may suggest a previously unknown familial characteristic.

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Long-eared Owl ingests nestlings' feces.—Female Barn Owls (*Tyto alba*) consume feces excreted by their small nestlings (Bunn et al. 1982:128). Hosking and Newberry (1945) watched a female Short-eared Owl (*Asio flammeus*) ingest dried nestlings' feces from about its nest. Indirect evidence of such behavior has been reported for Great Gray Owls (*Strix nebulosa*) (Nero 1980:118). Also, female Snowy Owls (*Nyctea scandiaca*) in semi-natural breeding chambers often consume the fresh feces of their small nestlings (K. McKeever, pers. comm.). I am unaware of published reports of similar behavior in other strigiforms.

On 16 June 1987, I observed an adult (presumably female) Long-eared Owl (*Asio otus*) at its nest in Burke County, North Dakota, from a blind 7 m away. Two of four 4–9 day old nestlings were fed by the adult at 09:40–09:50 CDT. Twice during this time, nestlings excreted feces onto the nest rim. Both times the adult immediately picked up and swallowed the feces. The feces appeared sac-like, similar to the mucous-covered fecal sacs of passerines and of small nestling Snowy Owls in breeding chambers (K. McKeever, pers. comm.). Nesting Long-eared Owls exhibit many predator-avoidance strategies (e.g., Bent 1938, Marks 1986). Removal of feces by ingestion could make nest sites less obvious to predators (Blair and Tucker 1941), although this hypothesis remains untested. Also, adult birds may ingest nestlings' feces to maintain nest hygiene or to obtain nutrients (e.g., Morton 1979).

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