

Wilson Bull., 91(2), 1979, p. 323

Interspecific use of Sandhill Crane nests.—Sandhill Crane (*Grus canadensis tabida*) nesting studies have been in progress in southeast Oregon since 1966. More than 650 nests have been examined, and 4 of these nests have contained eggs of other species. After eggs have hatched or have been destroyed, many crane nests are used by waterfowl and marsh birds for loafing sites. The following are the only instances I have recorded of interspecific use of crane nests for egg deposition.

On 13 May 1976, a nest was located 5 km south of Burns, Harney Co., Oregon. It contained 2 crane eggs and 1 Canvasback (*Aythya valisineria*) egg. The nest was both built in and composed of broad-fruited burreed (*Sparganium eurycarpum*). The Canvasback egg was next to the crane eggs and was apparently being incubated by the cranes. The Canvasback egg was collected and the 2 crane eggs hatched in early June. Johnsgard (Waterfowl of North America, Indiana Univ. Press, 1975) mentioned that Canvasback socially parasitize other females of their own species and have been known to lay eggs in the nests of both Redheads (*Aythya americana*) and Ruddy Ducks (*Oxyura jamaicensis*). I know of no other record of Canvasback egg parasitism of species other than waterfowl.

In southeast Oregon, Canada Geese (*Branta canadensis moffitti*) nest at the same time as Sandhill Cranes and use similar habitat. A crane nest that was lost to an unknown predator contained 2 goose eggs when re-examined on 12 April 1969. The goose eggs had apparently been deposited in the nest after the crane eggs had been destroyed; they had not been incubated. On 11 April 1974, a deserted crane nest with 2 crane eggs and 5 Canada Goose eggs was located. All 7 eggs had been covered with nesting material. Normally, Sandhill Cranes do not cover the eggs until they have been destroyed or hatched (shell fragments). Both of these nests were located on Malheur National Wildlife Refuge, about 50 km southeast of Burns.

An active nest was located on Malheur NWR in April 1971. When re-examined in May it was occupied by a Trumpeter Swan (*Olor buccinator*). The swan had added material to the nest and was incubating 5 swan eggs. Fate of the crane eggs was not determined, but the swan eggs hatched successfully. The crane eggs had probably been destroyed before the swan added material to the nest.

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The Red-whiskered Bulbul in Hawaii.—The Red-whiskered Bulbul (*Pycnonotus jocosus*) is native to India, but has been introduced into Australia (Chaffer, *Emu* 33:136–137, 1933; Barrett, *Australian Bird Life*, Brown, Prior, Anderson Pty., Ltd., Melbourne, 1947), Florida (Banks and Laybourne, *Auk* 85:141, 1968; Owre, *Wilson Bull.* 85:491–500, 1973), and Hawaii. In both Australia and Florida the bird is well established and has become somewhat of an agricultural pest. This bulbul was first recorded in the lower Makiki Heights area of Oahu in 1965 (Kjargaard, *Elepaio* 29:35, 1968). Over a 10-year period following their establishment, the birds have been reported only in small numbers (Table 1). However, since 1967 the species has spread

TABLE 1
THE NUMBER OF RED-VENTED AND RED-WHISKERED
BULBUL SIGHTINGS ON OAHU, HAWAII*

Species	Year											
	65	66	67	68	69	70	71	72	73	74	75	76
Red-whiskered Bulbul	0	0	2	7	0	0	4	0	0	2	5	77
Red-vented Bulbul	0	0	0	9	7	7	26	56	14	50	212	453

* Number of birds observed in annual Christmas counts by the Hawaii Audubon Society.

to Pacific Heights (Pyle, Elepaio 28:69-71, 1968), and we have recorded a range expansion and population explosion throughout the length of Manoa Valley (Fig. 1). This restricted expansion is in marked comparison to the Red-vented Bulbul (*Pycnonotus cafer*) which arrived in Hawaii at approximately the same time and has spread over a much wider region of Oahu (Fig. 1). Berger (Elepaio 36:16-19, 1975) believed multi-introductions were responsible for the wide distribution of the latter species.

Feeding habits.—A plethora of fruit-bearing trees have been imported to Hawaii, and many thrive in the lowland residential districts of Oahu (Neal, Bernice P. Bishop Mus., Special Publ. 50, 1965). These trees have supplied bulbuls with a wide variety of fruits, of which some type is almost always present at any given time of year. Red-

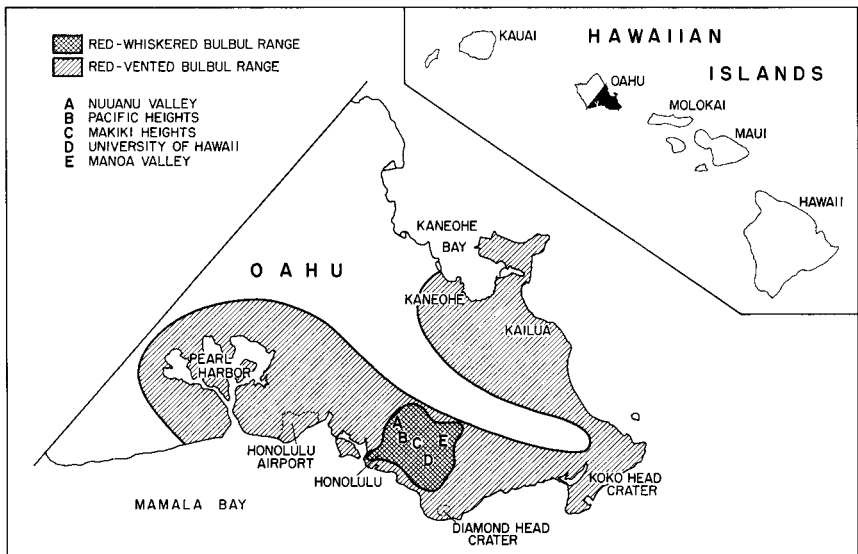


FIG. 1. Distribution of Red-whiskered and Red-vented bulbuls on Oahu, Hawaii.

whiskered Bulbuls have been reported feeding on the date palm (*Phoenix dactylifera*) (Roberts, Elepaio 30:66, 1970). We have observed its favorite fruits to be papaya (*Carica papaya*), mango (*Magnifera indica*), the fruits of the autograph tree (*Clusia rosea*), and berries of the several banyan (*Ficus*) species present here. It also fed on loquat (*Eriobotrya japonica*), avocado (*Persea americana*), and fruits of the octopus tree (*Brassaia actinophylla*) when these fruits were in season. Berries from mock orange (*Murraya exotica*) were readily taken as were fruits from many species of introduced palms.

Carleton and Owre (Auk 92:40-57, 1975) listed numerous fruits eaten by the Red-whiskered Bulbul in Florida, and indicated that the birds were incapable of piercing the skin of citrus and other large fruits, eating these only after another species of animal had created an opening. This was apparently only true for mature avocado in Hawaii, for the bulbul could pierce the skin of all other listed food items. It may be that as these fruits became overripe, the skin tore and birds enlarged the opening.

Bulbuls in Hawaii also ate nectar, a variety of insects, and possibly smaller reptiles. Thomson (A New Dictionary of Birds, McGraw-Hill Book Co., New York, 1964) cited nectar feeding in bulbuls, and Carleton and Owre (op. cit.) reported that captive birds exhausted containers of sugar-water solution faster than ones of plain water. In Hawaii the bottle brush (*Callistemon lanceolatus*) and coconut palm (*Cocos nucifera*) were the 2 primary nectar sources used by bulbuls. The birds also gathered insects from a variety of substrates in many different fashions. The most common technique of capture was short flights from perches, although the birds often gleaned up and down tree trunks. Possibly because numbers are still low in Hawaii, the degree of insect gathering at roosts reported by Meriwani (Ibis 115:285, 1973) and Carleton and Owre (op. cit.) was not observed. Birds also used corners of buildings that had large spider webs, hovering in front and plucking insects out. Another preferred substrate was roofs of larger buildings; birds walked along the gutter and frequently were observed running up the roof in pursuit of insects they had flushed. On 3 August 1977, a bulbul was observed chasing a large (ca. 20 cm in length) chameleon (*Anolis* sp.) in a circular pattern down an octopus tree; it was unsuccessful in capturing the reptile.

Nesting.—Prior to the population explosion in 1976, virtually nothing had been reported on the nesting habits of the Red-whiskered Bulbul in Hawaii. Roberts (Elepaio 32:9, 1971) told of a pair fledging 1 young on 20 April. The nest was 1.5 m above ground and located in a croton (*Codiaeum variegatum*) hedge. Apparently the pair built another nest in the same location and fledged 2 more young on 14 August 1971 (Roberts, Elepaio 32:38, 1971). Ohashi and Ueoka (Elepaio 38:1, 1977) reported in May on 3 nests in upper Makiki. They gave measurements of the nests and of 1 egg. Morgan (pers. comm.) found a pair nesting in upper Nuuanu during May 1977. Berger (Elepaio 38:35-38, 1977) summarized other records.

In 1973 there was apparently only 1 resident pair on the University of Hawaii campus, while in the past year (1977) numerous birds were present. In a small section of campus (35 ha), 2 pairs successfully nested. The Red-whiskered and Red-vented bulbuls seemed to "partition" this study area and there appeared to be little interspecific territory overlap. This may have been a sampling artifact, or it may indicate some degree of competitive exclusion as the 2 species do have similar diets (Ali and Ripley, Handbook of the Birds of India and Pakistan, Vol. 6, Oxford Univ. Press, Bombay, 1971).

On 19 April 1977, a pair of Red-whiskered Bulbuls was discovered constructing a nest. The structure was partially completed, located 3.6 m from the ground in an up-



FIG. 2. Red-whiskered Bulbul nestlings on day 3.

right terminal fork of a jasmine (*Trachelospermum jasminoides*) hedge. Birds brought material to the nest throughout the initial day of discovery and the next; tissue paper and strands of bark adorned the outside of the cup.

On 22 April 1977, the nest contained 2 eggs. These had a white background with dark

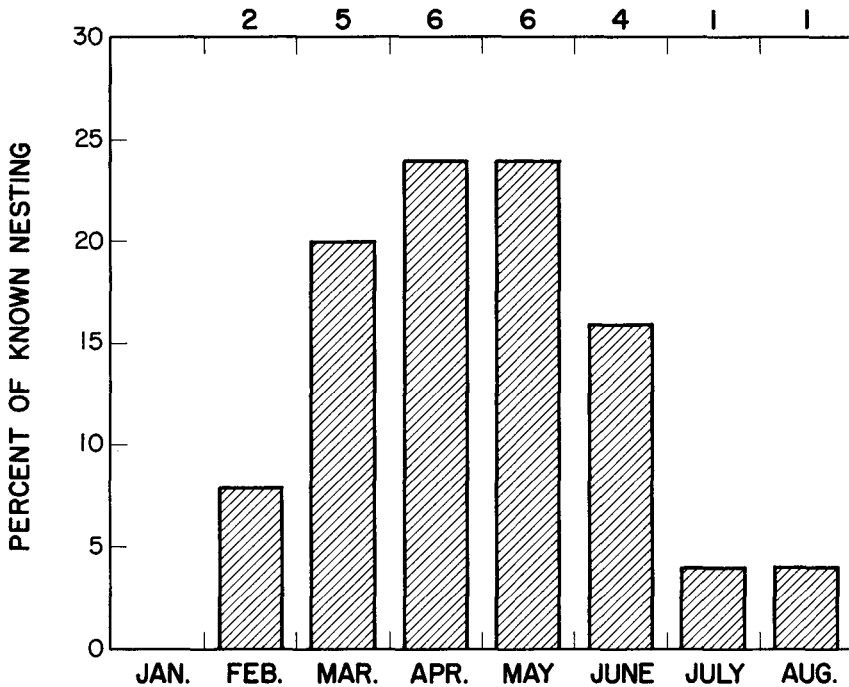


FIG. 3. Breeding season of the Red-whiskered Bulbul in Hawaii. Numbers are nests known to be active during that month. No nesting is recorded from September through December.

brown splotches of varying sizes that covered the surface, but were concentrated at the larger end. On 2 and 3 May, a bird was incubating 3 eggs. At 15:40 on 4 May, 2 young had hatched and the remaining egg was pipped. The third egg hatched that evening; early the next morning 3 young were active in the nest and readily gaped when the nest was moved. Assuming consecutive days of egg-laying and incubation, the incubation period was 11 days.

The young were naked at hatching. On 7 May, the nestlings were in pin feathers, their eyes had not yet opened, and they still gaped when the nest was shaken (Fig. 2). Their mouth lining was red on the outside and blended to yellow in the middle. Only the posterior half of the rictus (to the commissural point) was bright white. On 14 May, 2 young remained in the nest and were fully feathered. At 14:00 on 16 May, both young were present but perched on the nest rim. They apparently fledged that afternoon as the nest was empty the following morning at 07:00. The nestling period was 12 days.

The used nest was collected in August and had not been reused. Nest measurements were as follows: nest height was 8 cm; nest width varied from 8 to 10 cm; bowl depth was 5 cm; bowl width varied from 6 to 7.5 cm; and nest weight was 9.9 g. The nest had

a leaf base with coarse grass and flexible stems of small shrubs woven together to make a bowl; there was no cup lining. The exterior was adorned with tissue paper, pieces of wide grass, and strips of bark.

Breeding season.—The breeding season of the Red-whiskered Bulbul in India is “chiefly March to July in the north, December to June in the south with a second period in September after the monsoon” (Ali and Ripley, op. cit.). Carleton and Owre (op. cit.) reported their earliest nest on 9 February. From data presently available, an extended breeding season seems also to be the case in Hawaii (Fig. 3). One bulbul was observed carrying nesting material as early as 29 February 1976 (pers. obs.); young were reported to have fledged as late as 14 August 1971. With an equable climate throughout the year, and release from competition, it is not surprising to find a protracted breeding season in Hawaii.

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Removal of fur from a live raccoon by Tufted Titmice.—We have raised and released a number of raccoons (*Procyon lotor*) into the wooded property at the back of our home. Although the raccoons are self-sufficient in the wild they tend to return to the vicinity of our home at fairly regular intervals. During the spring of 1976 1 individual chose to rest high in the limbs of a shingle oak (*Quercus imbricaria*) during the afternoons.

On 3 separate occasions between mid-April and the first week of May we observed a pair of Tufted Titmice (*Parus bicolor*) obtaining nesting material from the back of a raccoon. Typically, a pair of birds would fly to some branches next to the raccoon. Then, as 1 bird sat on a branch watching, the second individual made continuous short flights to the tail and more rarely the back of the raccoon pulling out small amounts of underfur. At times the bird perched directly on the back of the raccoon. The titmouse had to retreat quite often since the raccoon would finally become so annoyed that it would swipe at the bird with its forepaw or snap at it. However, the titmouse was never discouraged for long and simply resumed its efforts until its beak was full of fur. Then it would fly off to the nest to deposit the fur. At other times the 1 titmouse collecting fur transferred it to the watching partner and once both bills were full they would fly off together in the direction of the nest. Eventually, the titmice would return to the raccoon and this occurred several times during each observation period. Reports in the literature document the fact that the titmouse is an opportunist and collects nesting material from other living animals including the red squirrel (*Tamiasciurus hudsonicus*), woodchuck (*Marmota monax*), and opossum (*Didelphis virginiana*) (see J. W. Goertz, *Wilson Bull.* 74:189–190, 1962).—BARBARA K. ESHBAUGH, *Oxford, Ohio 45056* and W. HARDY ESHBAUGH, *Dept. of Botany, Miami Univ., Oxford, Ohio 45056*. Accepted 19 May 1978.