

OBSERVATIONS ON THE INCA DOVE AT TUCSON, ARIZONA

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For the past ten years the Inca Dove (*Scardafella inca*) has nested on or near our acre lot in the Rillito Valley, six miles northeast of Tucson, Arizona. The following summary of our observations is intended to fill in a few of the gaps in the life history of this somewhat neglected species. Inca Doves moved into our neighborhood about thirteen years ago when the first house was built. At that time the ten-acre block was covered chiefly with creosote bush and cholla cactus. A thin line of mesquites and catclaw fringed an abandoned irrigation ditch which traversed the area. Gradually homes were built on six of the acres. Small chicken houses with enclosed yards and gardens were added. Much of the original vegetation was left undisturbed. A few ornamental trees such as tamarix, pepper, and china berry, which were planted early, grew rapidly to large size.

Brief notes are available on 28 nesting attempts in this area. Although we have found nests in introduced ornamental trees in other parts of Tucson, all the nests in our neighborhood were placed in native shrubs. We found one in a catclaw bush (*Acacia greggii*), and all the others in chollas (*Opuntia spinosior*). Two other species of cholla which grew to suitable size were not selected for nest sites. Of these, *Opuntia versicolor* may have been unsuitable because of its smaller twigs and fewer horizontal branches. *Opuntia fulgida* was probably avoided because of the presence of nests of the Curve-billed Thrasher (*Toxostoma curvirostre*) and Cactus Wren (*Campylorhynchus brunneicapillus*), although two of the dove nests were built on old weathered remnants of Cactus Wren nests. Nest heights varied from three to six feet above the ground. There was no apparent attempt at concealment. Although the scanty nest platform was often difficult to make out, the incubating bird always sat in plain view and could readily be seen from some distance away. Its dull, gray-brown coloration in such a situation had little protective value. With the exception of one nest at 125 feet, all were placed within 50 feet of occupied buildings. Occasionally automobile traffic would pass as close as 15 feet from a nest.

Some chollas were especially favored nesting locations. Not only did the Inca Doves build several times in the same cholla, but they used the same nest over and over. In 1944 there were two successful nestings in a cholla just outside our east fence, the two broods being raised in the same nest. In the following year this same nest was occupied five times, in 1946 twice, and in 1947 twice, a total of eleven times.

Of these 28 nesting attempts, 12 were successful in fledging one or two young birds; 10 were failures, and 6 are in doubt, because of insufficient data. The cause of the failures could not be determined. Five of the nests were abandoned before the eggs were laid. Four sets of eggs were destroyed, resulting in desertions each time. At the tenth nest the partly grown nestling disappeared, perhaps having been eaten by a large snake which stayed in a ground squirrel hole beneath the cholla.

At no time did we have more than one nesting pair in the vicinity. A second pair, which attempted to nest at the edge of the area in May, 1945, deserted its nest and was not seen again. Fighting was observed only once, on July 16, 1937, when two birds tumbled over and over on the lawn near our bird pool. Occasionally three birds would be seen together during the breeding season but one of these may have been immature. No defense of territory could be discovered, yet other pairs remained away until fall, when flocking behavior became evident. As many as a dozen birds frequented the lot during the winter and early spring.

The nesting season extended from February to November. Construction of our earliest nest began on about February 18, 1948; the latest began on September 29, 1945. In 1945 four broods were raised. A fifth brood was attempted but the nest was deserted. Since the first nest of the 1945 season was not discovered until May 22, it seems probable that another brood had been raised earlier in the spring. At least four broods were attempted in 1947.

Construction proceeded slowly on the early nests. There was none of the apparent urgency that was so evident with the summer broods. On March 19, 1942, about 10:00 a.m., we observed an Inca Dove moving about on a few straws that remained from an old Cactus Wren's nest in a cholla 20 feet west of our house. It sat down, pecked rather aimlessly at the straws underneath and beside it for about an hour. Another dove, presumably its mate, perched quietly on a fence post close by. On the following day at 9:30 a.m., the same tentative, uncertain work continued. After a while the second bird flew to the cholla, moving close to the first. It remained there several moments, then it flew to the ground beneath, picked up some fine grasses and flew back up to the bird on the nest. There was a moment's pause, then it stepped upon the other dove's back, facing in the same direction. Leaning forward it placed the material close beside the bird which sat motionless beneath. The latter then arranged the grasses around its body, thus forming the low nest platform. This done, the helper flew to the ground for more material. We saw this peculiar act repeated again and again. Each time the same dove brought the nest material, stood on the other's back, thrust down the small bits of straws and grass to be arranged by the bird on the nest. If a straw was not in the right place, it was quickly moved, pushed underneath or tucked closer by the sitting bird. Sometimes the dove stood up, trampled down the straws, then settled down again and waited for the next delivery of material. Usually only a straw at a time was carried. Work continued until 10:45 a.m., when an approaching neighbor disturbed them. Later on the same day they resumed their nest building. By 4:20 p.m., they had constructed a shallow platform of cotton, straws, fine twigs, and a few feathers. Brief call notes, the familiar mournful *cō, cō*, were uttered at times by the dove which stayed on the nest. Answering notes came from its mate nearby.

Unfortunately, continuous observations were not possible during the remainder of the nesting. The doves worked irregularly on the nest, chiefly in the forenoons for nine days. Often we saw one of them on the nest moving about as though arranging or trampling down the floor. Cactus Wrens and Curve-billed Thrashers which came by, sometimes even inspecting the nest, were ignored by the doves as they fed in the vicinity. After the fourth day we heard the sitting bird utter a low clucking sound, while it slowly raised and lowered its tail. Calling by both birds was again noticed.

On March 28 at 7:30 p.m., we frightened the dove from the nest and discovered the first egg. It had probably been laid during the afternoon. One hour later, although it was quite dark, the dove had not returned to the nest. By 8:00 a.m., the next day, however, it had resumed incubation. The doves changed places at noon, at 2:30 p.m., and at 5:05 p.m. Sometimes it took three or four minutes for the dove to straddle the egg and gradually settle down upon it. Another egg was laid on March 30, in the afternoon. From then on incubation was continuous, both birds taking turns so that there was always a dove on the nest. Usually around noon we observed a dove flying to the nest to relieve the other of its duties. On the morning of April 12, one of the eggs hatched. Brooding by both adults lasted almost to the day of fledging which occurred on April 24. The other egg did not hatch. On the following day, April 25, nest building began 125 feet to the west in another cholla. This time construction proceeded more rapidly.

The first egg was laid on May 1, but later in the day it was found on the ground below the nest, pecked through, apparently by some other bird. Then our neighbor discovered a dead adult Inca Dove in the yard. Meanwhile the other adult continued to feed the immature bird. No further nesting attempts were observed in the vicinity in 1942. Summarizing the data from the first nest we have: time spent in nest construction, 9 days; incubation, 14-15 days, approximately; young in nest, 12 days, a total of about 35 days. Observations on a nest during July, 1943, checked the incubation period closely. The first egg was laid on July 6, the second on July 8, both hatching on the morning of July 21. At that time the adult bird was observed carrying away the broken egg shells.

With the change of warm spring into hot summer one brood after another, without pause, was brought forth. On May 22, 1945, we saw a dove moving about in a nest near our east fence. On June 26 the two young were fledged. The next day, June 27, an adult began arranging the same nest for another brood, although that night it roosted in a nearby mesquite with the rest of its family. A month later, on July 27, two more young were fledged. Two days later the adult was again on the same nest, and on August 29 the third pair of nestlings were fledged. Another nesting attempt began in the first part of September but was abandoned. Then they tried again on September 15, in a cholla in our west neighbor's lot, but this, too, was unsuccessful. Finally on September 29 they returned to their first nest site; incubation began about October 14, and their fourth brood was fledged on November 13.

Usually the adults roosted with their offspring for two or three nights after fledging. During 1945 they chose the same upper branch in the same mesquite tree in our front yard each time. After some preliminary jostling and pecking they settled down for the night, four in a row, the two immatures in the middle, with an adult on each side crowding them close together on the branch. We have no data on their survival. Invariably the immature birds vanished within a few days of leaving their nest.

Evidently the Inca Dove is able to withstand considerable climatic extremes. Summer temperatures often went to 100 or 105 degrees. The incubating bird always sat on its nest exposed to the direct rays of the noonday sun. None of the nests had any protective branches above them for shade. On the morning of November 9, 1945, when brooding in the last nest of the season was under way, the temperature dropped below freezing. A thin cover of ice formed on the bird pool and our zinnias froze. Violent summer storms presented a real danger. A heavy downpour of rain accompanied by a strong wind on a night in August, 1946, swept away both the incubating bird and the eggs from the shallow cupped nest. Yet, in a similar storm in August of the preceding year, a dove maintained its post all night, even though frequent lightning struck close in the vicinity.

Tucson, Arizona, February 22, 1948.