

NOTES

USE OF NEST BOXES BY DIPPERS ON SAGEHEN CREEK, CALIFORNIA

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The Dipper (*Cinclus mexicanus*) is a fairly common breeding bird along streams of the Sierra Nevada. Densities of four pairs per 1.6 km of stream have been recorded in favorable situations (Grinnell and Miller 1944:328). On Sagehen Creek in eastern California, 13 km north of Truckee, Nevada County, I found only one pair of Dippers in 1974 and again in 1975, along 8 km of stream. Recessed rock faces of the sort favored by Dippers for nesting are essentially non-existent along Sagehen Creek, and I concluded that lack of nest sites might be limiting the population. Von Jost's (1970) report of successful use of nest boxes by European Dippers (*C. cinclus*) led to the present experiment. Twelve boxes were erected along Sagehen Creek. All were built of $\frac{3}{4}$ inch plywood following the design (20 cm wide, 18 cm deep, 16 cm high) recommended by von Jost. The boxes were numbered consecutively from the headwaters downstream.



Figure 1. Nest box 1 with three young Dippers, almost ready to fledge, Sagehen Creek, Nevada County, California, July 1975.

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Nest box 1 was fastened 0.6 m above the water in a metal roadway culvert (Figure 1). Nest boxes 2, 3 and 6 were nailed to trees that had fallen across the creek. These boxes were centered over the stream and varied from 0.3 - 0.6 m above the water. Nest box 7 was secured 1.2 m above the water on the side of a building located on the edge of the creek. Nest boxes 4, 5, 8, 9 and 10 were nailed to trees as near to the edge of the creek as possible. Nest boxes 11 and 12 were attached to the concrete wall of a highway bridge, 1.2 m above the water.

In the 5 year period 1975-1979, seven broods totaling 21 Dippers fledged from boxes 1, 7 and 11.

Nest Box 1 was installed 3 April 1975. Four eggs were found in the box, 10 June 1975. Three Dipper nestlings were banded 11 July. Two young banded Dippers were observed feeding in the creek 15 July. Presumably the three nestlings fledged between 11 and 15 July. The box was not used in subsequent years. This upstream location is generally under heavy snow when the Dippers start nesting in April.

Nest Box 7 was attached to a streamside building 1 May 1974. Three Dippers fledged from the box 8 June 1975. On 27 May 1976, two eggs and two young were in the box. The nest was intact but empty 8 June. One Dipper nestling was found dead in the creek near the nest box. No re-nesting attempt was made that year. Nest building began again 4 April 1977, and by 25 April five eggs were in the box. Four Dipper nestlings were banded 24 May and fledged 6 June. On 27 April 1978 five eggs were in the box. On 1 May the nest was partly destroyed and eggs removed by some predator. On 4 May the pair of Dippers started to rebuild the nest. The second nesting effort was successful, and four Dipper nestlings were banded 7 June and fledged 22 June. The nest was occupied again 12 April 1979 and contained five eggs 25 April. Four of the eggs hatched 10 and 11 May. During the night of 27 May the nest was raided by a predator, presumably a Pine Marten (*Martes americana*) that was living in an adjoining building. One live nestling was found and replaced in the nest. It fledged about 2 June.

Nest Box 11 was secured under a concrete highway bridge 15 March 1978. A nest was nearly completed 8 April 1978 and four eggs were in the box on 27 April. Three nestlings were banded 7 June and fledged between 7 and 11 June. On 30 April 1979 I found five eggs in the nest and on 16 May there were four young. Three of these fledged between 19 and 21 June.

Other Nest Boxes. Nest box 3, nailed to a tree that had fallen across the creek, contained a small amount of nesting material in the spring of 1977, but the nest was not completed. None of the other boxes was used during the study period. It seems significant that the only nest boxes used by Dippers were attached to vertical structures (inside a culvert, concrete bridge abutment, side of building). No nest attached to a tree was occupied, possibly because of vulnerability to predators.

The original population of one pair of nesting Dippers had at least doubled to two pairs by 1978 and 1979. The population will continue to be monitored in future years.

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LITERATURE CITED

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