KILLDEER NEST ON GRAVEL ROOFS OF OFFICE BUILDINGS IN CANTON, MASSACHUSETTS

by William E. Davis, Jr., and Craig Armstrong

Killdeer (*Charadrius vociferus*) have expanded their range in North America during the twentieth century and have invaded urban areas, where they sometimes nest on the gravel roofs of buildings. The earliest report of roof-nesting was by Pickwell (1925), who described Killdeer nesting on the roof of a racetrack grandstand at the Fair Grounds near Lincoln, Nebraska. Since then, reports have documented roof-nesting behavior for Killdeer through most of their range, e.g., California (Abbott 1944, Stoner 1937), Arizona (Demaree 1975), Maryland (Beaton 1947, Walbeck and Oring 1966), Virginia (Wass 1974), Ohio (Dexter 1979), Kentucky (Larson 1973), and South Dakota (Giegling 1979). In five Canadian provinces from Saskatchewan to New Brunswick, 34 of 852 roofs sampled (4 percent) had nesting Killdeer (Ankney and Hopkins 1985). Fisk (1978) reported Killdeer nesting on roof-tops "east to New England," and roof-nesting has apparently occurred in Massachusetts at Tantasqua Regional High School in Brookfield in the early 1980s (B. Blodget, pers. comm.) and at the Hanover Middle School in the 1970s (W. Petersen, pers. comm.). We have, however, found no published record documenting roof-nesting in Massachusetts. We report here roof-top nesting by Killdeer at the Neponset Valley Industrial Park, located at 480 Neponset Street in Canton.

Figure 1.

Roof-tops provide the flat, open, gravelly setting that this widespread and common plover prefers for nesting. Such sites are generally rare at ground level in densely developed areas; therefore, roof-tops represent "islands" of suitable nesting habitat in locations otherwise unattractive to Killdeer, and it seems possible that a willingness to nest on top of buildings is part of the reason behind the incursion of this species into the urban areas. Moreover, roof-tops probably provide freedom from many mammalian predators and human disturbance—hazards to which this ground-nesting bird is otherwise vulnerable.

However, roof-top nesting concomitantly creates new perils for Killdeer. For one thing, eggs sometimes fail to hatch because of extreme temperatures attained by asphalt roofs (Giegling 1979). Further hazards stem from the fact that adult Killdeer do not feed their young (Jackson and Jackson in press). (The chicks are precocial, able to run and feed themselves almost from the moment of hatching.) Killdeer are opportunistic foragers but eat mostly terrestrial invertebrates, including earthworms, beetles, and snails. These foods are not generally available on roof-tops, although lights may attract flying insects at night, and air conditioning units may provide puddles of water. Hence, young Killdeer will starve to death if they don't get to the ground where they can forage (they hatch with energy reserves sufficient for about two days).

In one study (Demaree 1975), the chicks left the roof either on the first day after hatching or on the second. Jumping onto hard surfaces may be lethal to young birds, although chicks are known to have survived falls of 6.8 meters (Demaree 1975), and two chicks survived the jump from the roof of a seven-story building (Jackson and Jackson in press). If they land in tall grass or bushes, their chances of survival are considerably enhanced. Roofs with parapets are particularly hazardous for young Killdeer, since the parapets may prevent them from jumping from the roof (Wass 1974). In one Mississippi case, an adult Killdeer called at the base of a downspout of a gutter complex on the roof. The chicks leapt from the gutter into the downspout and slid to ground level (Schardien 1981)!

Roof-nesting in Canton, MA

Craig Armstrong first noticed Killdeer calling from the roof-top of the building in which he worked in the spring of 1992, and in April 1993 found a nest on the gravel roof. Both authors gained access to the roof by fork-lift truck, and Craig photographed the adults and four young. The following day, adults were on the ground calling and repeatedly flew to the edge of the roof where the young were standing. The young were hesitant to jump from the roof, and Armstrong took part in herding the young off the roof. The four young fell about 20 feet to the asphalt parking lot, but only one appeared to have been injured. The other three appeared normal (Figure 1), although it was difficult to tell with certainty because the young birds crouch and freeze when alarmed.

Figure 2.

Figure 3.

Killdeer were heard calling from the roof in the spring of 1994 and 1995, but no nests were found. In 1996, Killdeer were spotted on April 22 on a gravel-top roof on an adjacent building visible from Craig's office. The nest, with at least two eggs, was discovered by spotting scope, and during the following two days the Killdeer incubated throughout the day. On April 24, Davis was hoisted by fork-lift to the roof, where he photographed the nest and four eggs (Figures 2 and 3). The incubating bird (Figure 4) left the nest and gave a distraction display as Davis appeared over the edge of the roof. About a week later, the nest was lost to a predator, probably a crow that was frequently observed flying over the roof and foraging in the dumpster beside the building.

Killdeer apparently prefer to include white material (e.g., gravel) in their nests (Kull 1977), and this is evident in Figure 2. White material, which reflects sunlight, may aid in thermoregulation in exposed nests, or in cryptic coloration. Killdeer have disruptive color patterns (head and breast patterns disrupt the Killdeer's outline), and the white nesting material may help to make an incubating bird more cryptic. Schardien (1981) suggested that Killdeer may be attempting to prepare a mottled substrate to camouflage their eggs, which are cryptically patterned (Figures 2 and 3). It is also apparent in these photographs that the nest is located along a highly mottled part of the slightly pitched gravel roof. Nest site preference for mottled background has been noted in the Least Tern (Jackson and Davis in press), and may be important for Killdeer too.

Killdeer are at least seasonally monogamous (some individuals in southern populations may mate for life). There is some evidence of natal philopatry (young birds returning to breed near where they were hatched), and studies of banded birds have demonstrated some breeding site fidelity in adult birds

Figure 4.

(Jackson and Jackson in press). This may be the case for the Killdeer nesting in Canton, which have presumably nested on building roof-tops each year since at least 1992.

There is little solid information about the extent of roof-top nesting by Killdeer in New England. The authors would be interested in receiving reports of Killdeer observed, or documented as nesting, on gravel roofs. Killdeer usually arrive and begin nesting in Massachusetts by late April. With an incubation period of up to a month, roof-top nesting Killdeer should be looked for from about mid-April through May, or even later for birds that renest. Please send a report of any roof-top sighting or confirmed roof-top nesting to: William E. Davis, Jr., c/o BOEM, P.O. Box 236, Arlington, MA 02174. Thank you for your help.

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