

Diet of Long-eared Owls *Asio otus* wintering in the Khula valley, Israel

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CRAMP (1985) STATES that Long-eared Owls *Asio otus* in Fenno-Scandia and Russia north of 50°N are largely migratory and those further south in Europe mainly resident. The species principally winters in the southern two-thirds of its breeding range, with fewer reaching Israel (where several small breeding populations are known), Egypt and from Iraq to south Iran (Porter *et al.* 1996). Here, diet data from the Khula valley, north Israel is presented. The main food of many raptors using this region is the very common Field Vole *Microtus socialis guentheri* (Mendelson & Yom-Tov 1987), a rodent which, in Israel (especially in reclaimed areas), is classified as a pest.

Study area and methods

In the Khula Valley, three ornamental trees (*Casuarina cunninghamiana*, *Grevillea robusta*, *Schinus terebinthifolius*) on a collective-farming settlement called Yesod HaMaala have for many years served as a diurnal roost for 15–50 Long-eared Owls (Yossi Lev-Ari, pers. comm.). I visited it on three occasions during January (and once in March) 1995 and collected pellets. The number of owls present on each visit was noted and all pellets in good condition were collected from the base of the three roosting trees. A total of 279 pellets was taken during three consecutive weeks during January 1995 (111 on 17 January, 95 on 24 January, and 73 on 31 January). None were found on my final visit on 25 March. The pellets were dry-separated and the contents analysed for prey content.

Results and discussion

Pellets are pale grey in colour, and fresh ones were covered with mucus which dried to hard film. The average length of 167 pellets considered complete was 43.75 mm \pm 12.9 SD (range 24.69–73.81), and breadth 26.55 mm \pm 3.8 SD (range 22.68–30.60). These dimensions are within the range mentioned by Mikkola (1983). On 17 January, 43 owls were at the roost, 38 were present on 24 January, 31 on 31 January, and two on 25 March. At dusk, when the owls left to hunt, over 100 other owls from nearby areas flew over the roost. The owner of the garden in which the owls roost mentioned that the owls' departure always coincided with the first heatwave of spring. The final visit was 48 hours after such a heatwave.

A total of 438 prey items were in the 279 pellets, an average 1.57 (range 1–4) prey per pellet. Remains of 434 (99.1%) Field Voles, three (0.7%) Green Toads *Bufo viridis*, and one (0.2%) unidentified passerine were found. No pellets contained leaves or soil as reported by Cramp (1985). The diet was similar to diets in Europe, with small mammals constituting the majority

of prey, although the percentage of microtines is the highest of 179 diet studies reviewed in Williams (1996). In Europe, the species is considered a restricted feeder which specialises in hunting voles and, in some areas, mice or birds (see Williams 1996). Mikkola (1983) concluded that pellet analysis provided reliable information on the species' diet. The fact that wintering owls in the Khula Valley heavily depend on voles means that eradicating vole populations in winter could negatively affect the survival of wintering Long-eared Owls and diurnal raptors. Voles are presently considered a serious threat to agricultural practices. Farmers are encouraged to plough fields in winter in order to uncover vole dens, before watering them with aerial sprinklers so that voles die of exposure and cold. It is important that the authorities do not continue such eradication schemes without appropriate environmental impact studies.

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