Ornithology from the Tree Tops

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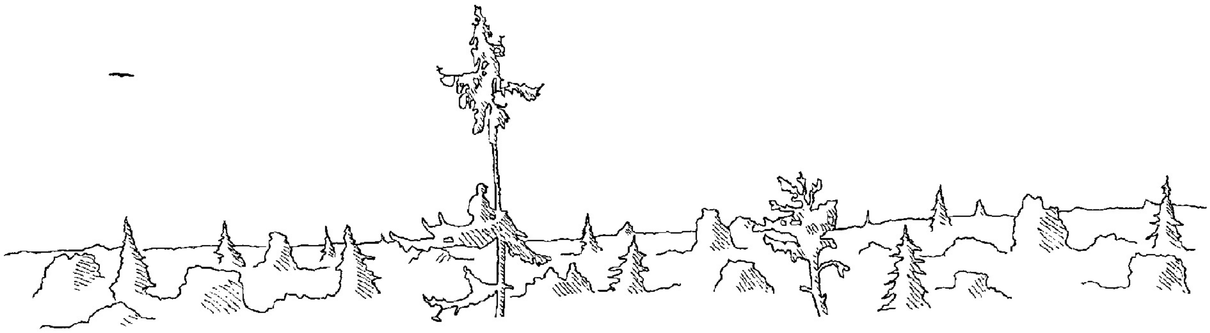

Ornithology from the tree tops

Voles are known to have their ups and downs. Not so long ago, ups were real ups, to the point of being characterized as plagues. In The Netherlands, outbreaks of Common Voles *Microtus arvalis* were especially noteworthy in the permanent grasslands of the peat and fluviatile districts of the northern and central Netherlands. But even in farmland on the poor Pleistocene soils, vole numbers used to fluctuate between almost nil and superabundant. Much has changed in the past decades. Vole numbers still show ups and downs, notably in grasslands on peat soils, but with smaller peaks and deeper troughs. Since the 1990s, a dampened amplitude of fluctuations in vole species has also been demonstrated for much of Western, Central and Northern Europe (Cornulier *et al.* 2013), although the short time scales of studies, and hence the validity of perceived 'collapses' and their apparent coherence, does not permit global explanations like climatic forcing. In fact, the drivers of population change at the larger scale are rarely known, not least because few vole studies integrate population dynamics into community- and ecosystem-level studies (Krebs 2013).

The decline of the Common Vole in The Netherlands is mirrored by similar declines of typical vole-eating species like Eurasian Kestrel *Falco tinnunculus* and Long-eared Owl *Asio otus*. The proportion of Common Voles in the diet of Long-eared Owls was highest in the 1970s, particularly low in most of the 1980s and 2000s, and somewhat improving in recent years (Figure 1). Kestrels nor Long-eared Owls are entirely dependent on Common Voles (resp. 73% and 67% of 1331 and 31,822 vertebrate prey consisted of Common Vole; R.G. Bijlsma), but both species show a clear functional response when vole numbers are high (and – in contrast to Finnish populations – hardly a numerical response; Korpimäki & Norrdahl 1991). The decline of vole-eaters may run in parallel with agricultural change and its concomitant plummeting vole populations. But matters in The Netherlands are certainly more complicated as both Kestrel and Long-eared Owl also suffer high predation rates from Northern Goshawks *Accipiter gentilis* and Common Buzzards *Buteo buteo*, and from scarcity of nest sites in woodlands (where Carrion Crows *Corvus corone* have become scarce).

Imagine the surprise when the proverbial vole-eater, namely the Short-eared Owl *Asio flammeus*, was found breeding in grasslands in peat and clay districts in the northern and central Netherlands in 2014, with tens of breeding pairs. These areas were riddled with active vole burrows, in a density not seen before by birders younger than 40 years of age. Is a vole outbreak of that magnitude in the impoverished grasslands already something of a mystery, the sudden arrival of that many Short-eared Owls was totally unexpected. Seen in the light of an overall decline of this species in much of Europe (in The Netherlands: from 150 pairs in 1982 to fewer than 30 pairs in recent years) and an apparent shortening of recovery distances of ringed Short-eared Owls over time in parallel with declining

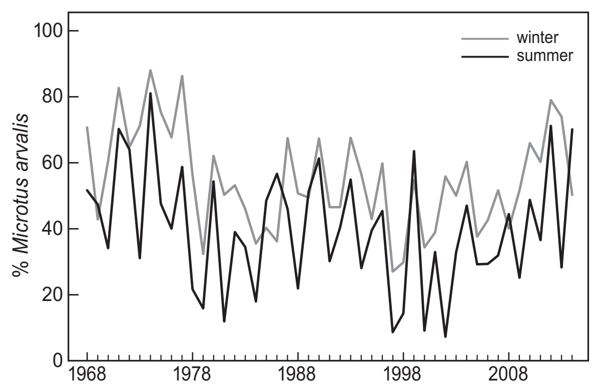

Figure 1. Proportion of Common Voles in the diet of Long-eared Owls breeding and wintering in The Netherlands in 1968–2014 (resp. 6311 and 25,511 prey items for summer and winter; data R.G. Bijlsma). High vole numbers were typical of the 1970s, but less so later on.

One of the Short-eared Owl broods in grassland in Hommerts (Province of Fryslân) on 7 July 2014, with nine chicks about to be ringed. Many of the broods were found in regular grassland, not in nature reserves (photo Lydia Barkema).

populations (Calladine *et al.* 2012), several questions arise. Irruptive species are known to be great nomads, in the case of the Short-eared Owl moving as far as 4000 km during natal dispersal (Newton 2006). Such irruptions occur after a prolific breeding season that is followed by a crash in vole numbers. A classic example is a winter brood in the newly reclaimed polder Oostelijk Flevoland, from which a young ringed on 11 December 1959 was recovered near Archangelsk, 2400 km away, on 12 May 1960 (Cavé 1961). But why would a nomadic Short-eared Owl turn up in Western Europe, for years the scene of impoverished vole densities? What are the chances to detect a rare event like the 2014 vole peak anyway? And what costs does it entail to exploit vast areas with poor food supply? In the past, recently reclaimed polders (Cavé 1961) and young forestry plantations (Village 1987) attracted tens, sometimes hundreds, of pairs when vole peaks were more regular and certainly involved higher densities over a longer time period. But those days are no more. Clearly, even though food conditions have consistently deteriorated over time, some Short-eared Owls are still able to detect scarce and focal food bonanzas well beyond their natal origins.

Calladine J., du Feu C. & du Feu R. 2012. Changing migration patterns of the Short-eared Owl *Asio flammeus* in Europe: an analysis of ringing recoveries. J. Ornithol. 153: 691–698.

Cavé A.J. 1961. De broedvogels van oostelijk Flevoland in 1958–1960. Limosa 34: 231–251.

Cornulier T. *et al.* 2013. Europe-wide dampening of population cycles in keystone herbivores. Science 340: 63–66.

Korpimäki E. & Norrdahl K. 1991. Numerical and functional responses of kestrels, short-eared owls, and long-eared owls to vole densities. Ecology 72: 814–826.

Krebs C.J. 2013. Population fluctuations in rodents. University of Chicago Press, Chicago.

Newton I. 2006. Advances in the study of irruptive migration. Ardea 94: 433–460.

Village A. 1987. Numbers, territory-size and turnover of Short-eared Owls *Asio flammeus* in relation to vole abundance. Ornis Scand. 18: 198–204.

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