

SHORT NOTE

Scavenging behaviour of common starlings (*Sturnus vulgaris*)

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There are no native members of the family Sturnidae in New Zealand; however, 2 species, the common starling (*Sturnus vulgaris*) and the common myna (*Acridotheres tristis*), have been introduced. Starlings were successfully liberated in New Zealand from 1862–1883 and are now widely distributed throughout the country (Heather & Robertson 1996; Robertson *et al.* 2007). Similar to their native Europe, starlings in New Zealand are strongly affiliated with areas of human habitation such as farms, orchards, parks, gardens and towns (Cramp & Perrins 1994; Heather & Robertson 1996), although selection is shown for habitats within these areas for foraging (Coleman 1977). Starlings tend to avoid densely forested and alpine areas, but have been observed foraging in open forest and on the coastal foreshore (Cramp & Perrins 1994; Higgins *et al.* 2006).

Starlings are considered to be adaptable opportunists with a broad diet. Invertebrates and fruit tend to be the most common food items for most New Zealand populations of starlings;

however, they also supplement their diet with nectar and grain (Oliver 1955; Coleman 1977; Heather & Robertson 1996). The diet of starlings in spring is predominantly composed of invertebrates (e.g., grass grubs, beetles, ants, caterpillars, earthworms, snails, and spiders), and nestlings are fed almost exclusively invertebrates (Feare & McGinnity 1986; Cramp & Perrins 1994; Higgins *et al.* 2006). Rarer food items such as lizards, frogs, newts, and nestling and dead adult passerines have been reported from studies of starlings in Europe and India (Ali & Ripley 1987; Cramp & Perrins 1994; Feare & Craig 1999). The objective of this note is to describe an unusual foraging behaviour – scavenging road-killed mammals – by common starlings in the South I, New Zealand. We also provide a brief review of carcass scavenging by other members of the family Sturnidae.

On the morning of 17 Dec 2010, whilst driving north from Dunedin on State Highway 1, we made 2 observations of starlings scavenging road-killed brushtail possums (*Trichosurus vulpecula*). The 1st observation, near Waitati, included 2 starlings standing on the carcass of a possum that had

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been recently killed by a vehicle. The collision had caused the possum to split open and expose the flesh. Both starlings were observed feeding on the exposed flesh of the possum carcass. A similar observation on the same day was made near the town of Moeraki (~50 km from Waitati). In this instance, a single starling was observed feeding on the carcass of a road-killed possum that had similarly been split open by a collision with a vehicle. Both possum carcasses were fresh and it is likely that they were hit by vehicles on the night of 16 Dec or the morning of 17 Dec.

Although common starlings occasionally feed on small vertebrates (Ali & Ripley 1987; Cramp & Perrins 1994), to our knowledge starlings have not been reported scavenging on large road-killed vertebrates within their native range. Our observation is not unique, as a starling was observed feeding on a dead possum on Highway 73 near Otira in Arthur's Pass, New Zealand, by J.R. Jackson in the mid- to late-1960's. This observation is mentioned in 'Classified summarised notes', 1972 Supplement to *Notornis*, which covers 1963–1970 (Edgar 1972). However, no further details about Jackson's observation are provided. Coleman (1977) also reports 'meat' as a rare component of the starling diet in West Melton, Canterbury, but no further information is provided. Our observations of scavenging starlings, together with Jackson's (Edgar 1972) and possibly Coleman's (1977) observations, represent the first accounts of a species within the genus *Sturnus* scavenging vertebrates that are substantively larger than the lizards, frogs, newts, and passerines that have been previously reported.

Although the diet of most species in the Sturnidae is composed of invertebrates and fruit (Feare & Craig 1999), a number of species have been observed scavenging dead vertebrates. In Asia, crested myna (*Acridotheres cristatellus*), white-vented myna (*A. javanicus*), and common myna have been reported as scavengers of vertebrates killed on roads or washed up on beaches (Feare & Craig 1999). In Africa, wattled starling (*Creatophora cinerea*) and bronze-tailed glossy starling (*Lamprolornis chalcurus*) have been observed scavenging the meat of slaughtered cattle at abattoirs (Roberts 1932; Bolster 1935), and the red-winged starling (*Onychognathus morio*) is considered a general scavenger (Feare & Craig 1999). In addition, the African pied starling (*Spreo bicolor*) has been observed feeding on road-killed toads (Skead 1995). In New Zealand, Moon (1992) and Higgins *et al.* (2006) list 'carrion' as a food of mynas; however, no reference is made to scavenging possums or other large vertebrates.

Road-killed possums, as well as other mammal and bird species, are a common feature of New Zealand roadsides, and thus it is unusual that

scavenging by starlings and mynas has not been reported more frequently, particularly given that both of these species scavenge insects hit by vehicles on roads (Higgins *et al.* 2006). Our observations, and that of Jackson's (Edgar 1972), were made in the South I where mynas do not occur. Access to road-kill by starlings may be limited in the northern North I because of interference competition from mynas. Similarly, scavenging by species within the genus *Sturnus* might not occur (or be rare) within their native distribution, as well as regions where they have been introduced such as North America, because of the more diverse avifauna within these areas. In other words, the niche of scavenging carrion is occupied by other bird (and mammal) species in these regions, which may exclude starlings. In New Zealand, the Australasian harrier (*Circus approximans*) and southern black-backed gull (*Larus dominicanus*) are generally considered the primary scavengers of road-killed mammals and birds (Heather & Robertson 1996). In areas where there is limited competition with these species, starlings might have learnt to exploit this opportunistic food source. However, because harriers and gulls are widespread and common in New Zealand (Heather & Robertson 1996), one would expect that observations of scavenging starlings (and mynas) remain uncommon.

Our observation was temporally coincident with the period (spring to early-summer) when adult starlings forage for animal matter to feed nestlings (Feare & McGinnity 1986), suggesting that possum remains may be a nutritionally valuable addition to nestling diet. It is also possible that other mechanisms might have resulted in starlings learning to scavenge possum carcasses. The carcasses that we observed being scavenged had been recently hit by a vehicle and consequently had not become fly-blown or maggot-ridden. Although speculative, starlings might first have learnt that decomposing road-killed carcasses contained maggots and foraged on them accordingly. Scavenging flesh or fat deposits from dead animals might have occurred secondarily to foraging on maggots. Similarly, starlings might initially have learnt to visit road-killed possums to obtain fur for nests (Higgins *et al.* 2006). Finally, the observed behaviour might have originated when more common food items or prey of starlings were temporally scarce. Regardless of the mechanism, the scavenging of road-killed carcasses by starlings illustrates the adaptable opportunistic nature of this species and their ability to exploit a resource in a niche that would likely be unavailable to them in a more diverse avifauna.

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