

## SHORT NOTE

### A novel foraging method by gull-billed terns (*Gelochelidon nilotica*)

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A recent small invasion of gull-billed terns (*Gelochelidon nilotica*) to New Zealand has provided an opportunity to observe this vagrant species and its behaviour. Little has been recorded about the diet of the species in New Zealand. McKenzie (1955) noted one of the first birds seen in New Zealand as feeding over a short-grassed field near Invercargill, where it was seen to pick up a worm. Overseas, gull-billed terns have been documented foraging in drier habitats than is typical for other tern species, and feeding mostly on invertebrates, fish or small terrestrial vertebrates such as mice and skinks, and occasionally small waterbirds (Marchant & Higgins 1990; Hobbs 1976). Although they are widely regarded as being largely insectivorous, gull-billed terns will also take spiders, earthworms, small reptiles, frogs, small fish, aquatic invertebrates and rarely voles and 'small birds' (del Hoyo *et al.* 1996). The latter refers to the small chicks of least tern (*Sterna antillarum*), snowy plover (*Charadrius alexandrinus*), killdeer (*C. vociferous*) and black-necked stilt (*Himantopus mexicanus*; Densmore 1990, Shuford & Gardell 2008). These chicks would be relatively slow-moving or even immobile at the time of capture. Other prey items taken by gull-billed terns include an entire lizard assumed to have been taken from a shrub (Sievert *et al.* 1968),

while Hobbs (1976) recorded an apparent diet of almost exclusively house mice (*Mus musculus*) for birds breeding in NSW, Australia.

On 27 April 2013, Sheila Petch, Mark McFadden and I visited Lake Ellesmere (43°74'S, 172°51'E) primarily to locate and study a number of gull-billed terns which had been observed foraging a few days prior in a manner suggestive of them taking small passerines. The weather was mild, mostly sunny and winds were around 10-15 knots from the east. The location of our observations was centred near Embankment Road, in an area that gull-billed terns had been seen fairly regularly since an initial sighting in July 2012 (*birding-nz news group*). Other gull-billed terns were seen at other localities in the South Island over the austral summer and autumn.

We quickly found a single bird, and nearby were able to approach (within c. 10-60 m) up to 4 terns feeding over rank dry grassland. This site was several hundred metres from the edge of the lake. We watched the birds, mostly with binoculars, for a period of ~2.5 hours. We noted that the terns appeared to be foraging solely in the midst of large flocks of many hundreds of small passerines, which were moving around the area and flying up in large numbers as the terns approached.

The terns flew upwind, rising and falling, mostly within 2-10 m of the ground, before flying back downwind and following a similar or different path. Occasionally individual birds would put on



**Fig. 1.** Pellet discarded by a gull-billed tern containing remains of 2 common redpolls. Photo: Mark McFadden.

a burst of speed at low level (<3 m) in a manner reminiscent of some raptors. Every ~15 minutes a bird would land, unfortunately out of view, for up to 30 seconds. We did not detect what behaviours occurred immediately prior to these landing events but concluded that as the birds were foraging, whatever they were feeding on was being taken infrequently and probably fairly large to justify the substantial energy expenditure involved in the terns' persistent flights. We suspected the small birds that the terns were putting up were the prey items sought.

When all terns were temporarily out of sight, we moved to a group of 7 gull-billed terns roosting beside and in a shallow pond. While checking their breeding plumage by telescope, I saw a tern open its bill, shake its head and deposit a small pellet. I kept the scope on the object which was visible just above the pond surface. After most birds had moved off to resume foraging, I was directed to the exact spot by MM, where I retrieved the pellet (Fig. 1). SP took it to Canterbury Museum 2 days later for analysis, where Paul Scofield recovered the skeletal remains and a large number of feathers of 2 common redpolls (*Carduelis flammea*), one of which was immature. This confirmed that at least one of the terns was feeding on passerine birds.

Bev Alexander visited the same site on 8 May 2013 and also observed terns capturing small passerines. "The bird I saw that caught the small prey was about 0.5 m above the ground. Also saw birds chasing flocks of goldfinches and redpolls well into the air with an attempt to catch one."

(B. Alexander, *pers. comm.*). Andrew Crossland observed similar behaviours to ours on the other side of Lake Ellesmere at Kaitorete Spit on 1 May 2013.

The size of the terns we observed appeared consistent with the Australian race, *G. n. macrotarsa*. If this is correct then the birds would perhaps not have had prior experience of large flocks of seed-eating birds before arriving in New Zealand. All terns appeared to be adults, with full black caps and with no sign of primary or secondary moult.

While the total numbers and relative proportions of the numerous passerines present were impossible to estimate, the majority appeared to be common redpoll, with large numbers of European goldfinch (*Carduelis carduelis*) and smaller numbers of European greenfinch (*C. chloris*). Other bird species in the area included waders and waterfowl but neither were associating with the passerines nor with the foraging terns. Although we do not know if the gull-billed terns fed on other types of prey in the area, our observations and those of others over an extended period confirm that the species will feed on flocking passerines.

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