Foraging and feeding behaviour of Greater Sand Plover *Charadrius leschenaultii* and Terek Sandpiper *Xenus cinereus* in Gulf St Vincent, South Australia

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INTRODUCTION

While surveying shorebirds in Gulf St Vincent in 2022, on one occasion I noticed a Greater Sand Plover *Charadrius leschenaultii* throwing items into the air. On closer inspection these items were seen to be Sand Crabs *Ovalipes australiensis*. On another occasion I observed a Terek Sandpiper *Xenus cinereus* actively probing to the full length of its bill angled into the soft mud and was surprised to see it slowly pull a Sand Crab from the mud and then eat it. In this note I document the foraging and feeding techniques of these two shorebird species and note the importance of Sand Crabs as a food source for overwintering shorebirds in Gulf St Vincent.

OBSERVATIONS

i) Greater Sand Plover

When foraging, Greater Sand Plovers often stand still for a minute or more before making a quick run to pick items from the surface. This foraging technique is well suited to flat muddy-sandy areas inhabited by Sand Crabs, so it is not surprising that crabs form part of the plover's diet. The feeding technique reported here, however, was a surprise to the observer when crabs were flung into the air by the plover.

Examining the photographs of one incident, observed on 7 March 2022 near Port Arthur, northern Gulf St Vincent, the Greater Sand Plover systematically removed and consumed the legs, paddles (modified hind legs) and pincers of the Sand Crabs, sometimes throwing the crabs into the air to remove those appendages, before swallowing the legless body whole. The process from confrontation to final ingestion of the body of the crab took about 30 seconds. The photographs in Figure 1 illustrate the process.

The crabs taken by the plover were small, with a carapace width of about 15 mm, and so were probably young individuals, as Sand Crabs can grow to a carapace width of 110 mm (Museums Victoria web page).

(ii) Terek Sandpiper

On 29 November 2022 also near Port Arthur, I noticed a Terek Sandpiper probing with an angled bill into soft mud. In view of the Terek's bill shape I was expecting the bird to extract a worm or something of similar size and dimensions. However, I was surprised to see it exert some effort to pull a sizeable Sand Crab out of the mud. As it walked along, the sandpiper appeared to be using visual clues about the presence of the crabs which, once located, were grasped firmly and pulled from the mud with some effort. The crabs were about 15 mm in carapace width.

The photographs in Figure 2 illustrate one such event which began when the sandpiper pushed its bill at an angle up to the base into the mud. When the crab was extracted, the sandpiper then squeezed and dropped the crab several times before swallowing it. In the process legs and pincers seemed to be lost and these were picked up and swallowed after the body.

Figure 1. (a) A Greater Sand Plover confronts a Sand Crab with pincers raised. **(b)** The plover picks up the crab by one of its paddles. **(c)** The appendages are broken off one by one, often by throwing the crab in the air, and each leg or paddle consumed, leaving the defiant crab on the sand. **(d)** and **(e)** The process is then quickly repeated several times until the crab's legs and pincers are removed and ingested. **(f)** The body is then ingested, and the plover continues foraging. All images Colin Rogers

Figure 2. (a) The Terek Sandpiper probes at an angle into the mud to locate the crab. **(b)** The crab is pulled from the mud to the surface. **(c)** The sandpiper grapples with the crab and squeezes it **(d)**, before dropping it into the shallow water **(e)**. This process (c) to (e) may occur several times. **(f)** The sandpiper then swallows the various pieces of the crab. All images Colin Rogers

DISCUSSION

On their non-breeding grounds, Greater Sand Plovers are known to eat crustaceans, shrimps, and crabs, as well as bivalves, snails, and worms (Marchant and Higgins 1993: 871) but there is no discussion of the feeding technique outlined in this note. Studies of the feeding behaviour of Greater and Lesser Sand Plover conducted in the Middle East, and referenced by Hirschfield *et al.* (2000), noted that Lesser Sand Plover did not feed on crabs at all, while the two races of Greater Sand Plover present, *C. l. columbinus* and *C. l. crassirostris*, made successful 'pecks at crabs' in only 2% and 18% of the attempts, respectively. By comparison, the process described in this note is far too methodical and prolonged to be described as 'a peck'. It consists of the systematic dismemberment of the crab before ingestion.

The forceful extraction of food items from mud or sand by the Terek Sandpiper reported here has been noted before by Austin (1954) although he did not mention the food items involved. Higgins and Davies (1996: 169) noted that Terek Sandpipers have been recorded eating crustaceans, insects, seeds, molluscs, and arachnids so it is very likely that the technique reported by Austin, and in this note, would be applied to crabs when they are available**.** By contrast, the Birds of India web page reports that Terek Sandpipers catch crabs by running after them and that they poke deeply in the mud for worms. No doubt both techniques will be employed and both food items taken by Terek Sandpipers as the conditions dictate. They are known to run rapidly across mudflats so could easily use that technique to attack any unwary crab. Wandering Tattlers *Tringa incana* were observed using that technique to catch small crabs, about 5 mm in carapace diameter, over rocky terrain in the Pacific (pers. obs.).

CONCLUSION

The Sand Crab may be an important food source for the two species examined in this note and the same conclusion may apply to other species such as Common Greenshank *Tringa nebularia* and Eastern Curlew *Numenius madagascariensis* that have been observed taking Sand Crabs. Both species of gull-billed tern (*Gelochelidon macrotarsa* and *G. nilotica affinis*) reported from Gulf St Vincent also appear to show a preference for areas with high densities of Sand Crabs.

A survey of the distribution of Sand Crabs from Port Adelaide across the International Bird Sanctuary to Ardrossan in the north on Yorke Peninsula would therefore be useful information for future conservation efforts. Changes in the density of crabs from south to north in Gulf St Vincent may also be a factor in explaining the changes in the distribution along the gulf of the two wader species examined in this note.

REFERENCES

Austin, C. N. 1954. Terek Sandpiper at Barwon Heads, south Victoria. *Emu* 54: 74–75.

Birds of India. https://indianbirds.thedynamicnature.com/2018/10/terek-sandpiper-xenus-cinereus.html

Higgins, P. J. and Davies, S. J. J. F. (eds). 1996. *The Handbook of Australian, New Zealand and Antarctic Birds. Volume 3: Snipe to Pigeons*. Oxford University Press, Melbourne.

Hirschfeld, E., Roselaar, C. S. (Kees) and Shirihai, H. 2000. Identification, taxonomy and distribution of Greater and Lesser Sand Plovers. *British Birds* 93: 162–189.

Marchant, S. and Higgins, P. J. (eds). 1993. *The Handbook of Australian, New Zealand and Antarctic Birds. Volume 2: Raptors to Lapwings*. Oxford University Press, Melbourne.

Museums Victoria. https://collections.museumsvictoria.com.au/species/8669

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