

Silvereyes eating Gahnia seeds

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On 24 January 2024, author Mat Spillard observed and photographed a flock of five to six Eastern Silvereye (*Zosterops lateralis cornwalli*) foraging on the seeds of *Gahnia clarkei* at the Salamander Waters Estate, Salamander Bay (**Figure 1**). Matt had also observed and photographed this behaviour two years previously at the Blue Lagoon, Salamander Bay (**Figure 2**). On both occasions the birds consumed multiple seeds.



Figure 1. Silvereye (subspecies *cornwalli*, the Eastern Silvereye) foraging on *Gahnia clarkei*, Salamander Waters Estate, Salamander, Bay, January 2024 (photo by Matt Spillard).



Figure 2. Silvereye (subspecies *cornwalli*, the Eastern Silvereye) foraging on *Gahnia clarkei*, Blue Lagoon, Salamander Bay, 2022 (photo by Matt Spillard).

Gahnia clarkei, commonly known as Tall Saw-sedge, is a species of evergreen sedge that grows around semi-permanent wetlands and damp shady

areas. It is widespread throughout eastern Australian coastal areas from south of 25° latitude. It is 1.5-2 m tall and the same width range. In summer, the plants produce large flower spikes, 50-125 cm long, with shiny red seeds. The seeds darken when ripe and are very hard (PlantNET NSW 2024).

The seeds of *Gahnia* species are not easily digested except by birds with strong bills, such as the Red-browed Finch *Neochmia temporalis*, which can crack the seeds open and eat their contents (for an example, see Geelong Field Naturalists Club 2023). Various parrot and rosella species have also been reported to eat *Gahnia* seeds (J. Goswell pers. comm.). However, there also are several reports of seeds passing undigested, or apparently so, through a bird species after it has eaten them (J. Goswell pers. comm.).

Silvereyes have a thin pointed bill which is adapted for taking fruit and small insects. The bill is not designed for cracking seeds. Silvereyes feed on a wide variety of fruits and insects, plus nectar, other invertebrates, food scraps, flowers and seeds. They forage mainly by gleaning, predominantly amongst the shrub-layer (BirdLife Australia 2023a). Silvereyes often forage in small groups, and in mixed-species flocks. On occasions they can be highly destructive in orchards and vineyards and as such are sometimes considered a pest. Much of the seed ingested by Silvereyes is secondary (from foraged fruits they have eaten) and the birds are known to be important agents for seed dispersal in some forests (BirdLife Australia 2023a).

As *Gahnia clarkei* seeds are very hard, it is questionable as to whether the Silvereyes would be deriving any nutritional value from consuming them. French (1996) studied the gut passage rate of seeds in Silvereye and showed that the passage rate was short, 6-28 minutes, and that much of the passed seed was still viable. This is characteristic of frugivorous birds. For example, a study of the viability of the seeds of soft fruit following ingestion and passage by the frugivorous species

White-spectacled Bulbul *Pycnonotus xanthopygos*, Common Blackbird *Turdus merula* and European Robin *Erithacus rubecula* showed high levels of germination (Barnea *et al.* 1991). This indicates that the ingestion of seeds by non-granivorous species has relatively little impact on the coating of the seeds.

A similar observation was made recently of a male Eastern Shrike-tit *Falcunculus frontatus* foraging on the stem of a *Gahnia clarkei* seed head near Smiths Lake in March 2024 (R. McDonell pers. comm.). Although not actually seen to consume any seeds, the bird appeared to be foraging for them (**Figure 3**). The Eastern Shrike-tit is generally considered to be an insectivore. It forages on invertebrates, mainly insects and occasionally fruit, seeds or their arils (BirdLife Australia 2023b). Again, it is questionable as to whether the bird would derive any nutritional value from these seeds.



Figure 3. An Eastern Shrike-tit apparently collecting *Gahnia clarkei* seeds at Smiths Lake in March 2024 (photo by Rob McDonell).

When birds eat indigestible seeds, such as those of the various *Gahnia* species, the obvious question is why they would do that. We suggest that the hard, indigestible seeds might function as a vegetable equivalent of a gastrolith (i.e. a bio-gastrolith). Gastroliths are hard objects within the digestive tract of animals, that aid them to digest their food (Wings 2007; Gill 1990). Birds ‘grind’ food in their gizzard, aided by hard gritty materials, before returning it to the digestive part of their stomach.

We also note that there is a potential benefit for the plant: germination would be facilitated by contact with the birds' stomach acid, which would weaken the tough seed coat (Wikipedia 2024).

Regardless of the explanation for this activity, these observations do not appear to be often documented.

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