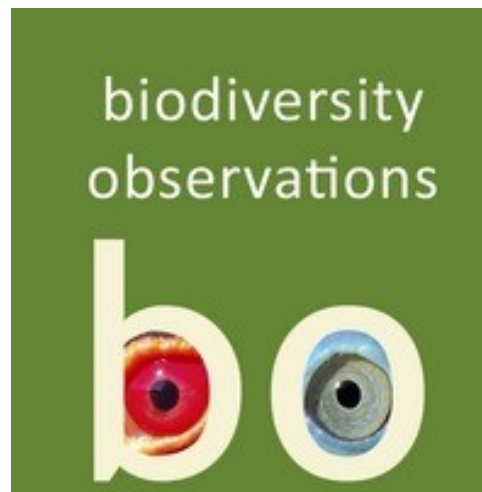


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Ornithology

Near-exclusive use of Setaceous Asparagus Fern *Asparagus setaceus* in the construction of nests by three South African bird species

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Abstract

The nesting material used by birds can be an important habitat requirement and a potential limiting factor for the successful reproduction of many bird species. I present records of the use of the Setaceous Asparagus Fern *Asparagus setaceus* by Bronze Mannikin *Lonchura cucullata*, and Swee Waxbill *Coccyzygia melanotis* (Family Estrildidae) and Amethyst Sunbird *Chalcomitra amethystine* (Family Nectariniidae) in the Western Cape, South Africa. It is the large percentage of fronds of Setaceous Asparagus Fern which have been used in these nests which is of particular interest.

Observation

It is important for habitat conservation that the identity and structure of *Asparagus* fern fronds used in the construction of bird nests is

clearly understood. Around 84 species of the plant genus *Asparagus* are indigenous to southern Africa (Fellingham & Meyer 1995, Manning & Goldblatt 2012). These plants exhibit substantial ecological variation with both shade and sun tolerant species, as well as shrubs and climbers. There are many references to "asparagus" as a nest material used in the construction of bird nests, with information for at least 23 bird species which use "asparagus" in their nests reported by Hockey et al. (2005). However, the actual species of *Asparagus* is not identified in any of these records.

Although Tarboton (2011) mentions the use of *Asparagus* stems to line the nest cup by Magpie Mannikins *Lochura fringilloides* and of green *Asparagus* stems used in the construction of the nest chamber by Red-backed Mannikins *L. bicolor*, no mention is made of the specific plant species. The use of the term 'asparagus', on its own, could refer to a woody, coarse shrub which would be unsuitable as material in the construction of a delicate nest.

The Setaceous Asparagus Fern *Asparagus setaceus* (SAF) is a fast-growing climber with a twining vine and wiry, spiny, scrambling stems. However, it has elegant foliage with flattened and extremely fine sprays of green leaf fronds. When the fronds die off, they lose their minute green leaves, leaving what are referred to as dry 'leaf skeletons'. These dry skeletons retain their flattened shape, and some birds evidently find them 'user-friendly' when building their nests. Unlike green fronds of the SAF, the dry skeleton fronds, when used in the building of a nest, are placed in an overlapping fashion, one on top of the other. These bind together more securely than do green fronds. This is clearly demonstrated when a nest built only of green fronds tends to fall apart when handled. Whereas nests built of dry asparagus fronds retain their composure when handled.

I present observations below detailing the near exclusive use of SAF in the construction of nests by three passerine birds in the Western Cape, South Africa. The nests described have been retained and stored by the author.

Bronze Mannikin

Bronze Mannikins *L. cucullata* were not historically indigenous to the Western Cape but have been observed on the Cape Peninsula since 2015 (Loftie-Eaton & Daniel 2022). A first nest of a Bronze Mannikin was found c.9 m above ground level in a tall Cape Ash *Ekebergia capensis* in Rondebosch, Cape Town. It was found to be constructed mostly of grass blades and thin grass stems forming the outer layer of material around the nest, but with some dry SAF skeletons.

On a neighbouring branch of the same tree, a second mannikin nest was found. These nests were c. 2 m apart in the top canopy of the tree. This nest was virtually 100% constructed of freshly plucked green SAF fronds. One or two dry fronds can be seen on the nest (Figure 1). The mannikins had been observed collecting green fronds from an SAF climber which had grown through a thick hedge which stood approximately 20 m from the nest tree (Figure 2).

The two nests were entirely different in appearance. The one nest was dry, ball shaped and brown, approximately 12 cm in diameter, with a side entrance, while the other was green and elongated (Figure 1). The inner construction of the 'dry' nest consisted mostly of dry SAF fronds, while the outer chamber material had more grass.

The floor of the dry, ball-shaped nest and lower rim of the exit opening was plastered with mannikin droppings (Figure 1). Two mannikins were seen leaving the nest and it had probably been used as a roosting nest for many months, possibly years. It is well known that Bronze Mannikins communally roost in 'dormitories' at night (Oatley 2014). The Shona name for Bronze Mannikins is Zadza Danga, which translated means "fill the kraal", alluding to the way the flock of mannikins fills the nest when roosting at night.

Swee Waxbill

At a domestic dwelling in Somerset West two large trees, Chinese Banyan or Indian Laurel *Ficus microcarpa* var. *nitida*, stood on the



Figure 1: A Bronze Mannikin nest found in Rondebosch, Cape Town, showing the use of virtually 100% freshly plucked green fronds of *Setaceus Asparagus* Fern with only one or two dry frond skeletons on the outside of the nest (nest on the left) and the dry, ball shaped nest next to it (nest on the right). Photo credit: Raleigh Meredith.

street pavement. Swee Waxbills *Coccygia melanotis* built several nests in the upper canopy of each tree, approximately 8 m above ground level. The waxbills were observed and photographed transporting dry SAF fronds to the nesting trees (Figure 3).

Pied Crows *Corvus albus* regularly dislodged or ripped these nests apart. Over a number of months, five complete nests were found on the ground, together with parts of two others. Around 95% of the material in each nest consisted of dry SAF skeletons (Figure 4). A few very thin grass stems had also been used, probably less than 0.5% of the total mass of material used. In one nest, the birds were evidently



Figure 2: Bronze Mannikin *Lonchura cucullate* holding a frond of Setaceus Asparagus Fern. Photo credit: Michael Titley.

about to lay eggs. The entire inner chamber, including the roof, sides and floor was lined with a soft, white, silky plant material (Fig. 4). The resident horticulturalist at Vergelegen Estate identified the soft lining as the airborne seeds of the Moth-catcher Creeper *Araujia sericifera* which is an invasive plant from South America. Interestingly, a very small single green SAF frond was lying in the bed of the nest as if it had been left there accidentally (Figure 4).

Amethyst Sunbird

After identifying the soft white lining used in the Swee Waxbill nest, the horticulturalist left his office to fetch a disused Amethyst Sunbird *Chalcomitra amethystina* nest he had found lying on the ground in the Vergelegen Estate garden. Close inspection revealed that the nest material was around 98% dry SAF frond skeletons. One or two small



Figure 3: A female Swee Waxbill *Coccygia melanotis* holding a dry frond of Setaceus Asparagus Fern in its bill. Photo credit: Raleigh Meredith.

blades of grass can be seen on the outside of the nest which is otherwise completely covered in lichen (Figure 5).

Discussion

These records of the use of both green and dry fronds of Setaceus Asparagus Fern in nest construction by representative bird species from the families Estrildidae and Nectariniidae in the Western Cape, South Africa, confirms that this plant species may be more extensively used than was previously known. I suggest that further investigation be conducted into evidence of the use of “asparagus” in bird nests in other parts of South Africa with careful attention be paid to species identifications. As well as whether there are bird species other than the three species mentioned here which almost exclusively use the fronds of for nest construction.



Figure 4: A Sweet Waxbill nest found in Somerset West, Western Cape, showing the use of almost 95% of the material consisting of dry frond skeletons of *Setaceus Asparagus* Fern, and the soft, white, silky Moth-Catcher Creeper *Araujia sericifera* nest chamber lining. Photo credit: Raleigh Meredith.



Figure 5: An Amethyst Sunbird nest found in the Vergelegen Estate, Somerset West, Western Cape, showing that the nest material used was around 98% dry frond skeletons of *Setaceus Asparagus* Fern. Photo credit: Raleigh Meredith.

Acknowledgments

I am grateful to horticulturalist Richard Arm for finding the Amethyst Sunbird nest and for providing clarity on the identification and phenology of *Asparagus* species, particularly for that of the Setaceous Asparagus Fern. I thank ornithologist Rob Little for reviewing and commenting on an early draft of this manuscript.

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