Biodiversity Observations

http://bo.adu.org.za/

An electronic journal published by the Animal Demography Unit at the University of Cape Town

The scope of Biodiversity Observations consists of papers describing observations about biodiversity in general, including animals, plants, algae and fungi. This includes observations of behaviour, breeding and flowering patterns, distributions and range extensions, foraging, food, movement, measurements, habitat and colouration/plumage variations. Biotic interactions such as pollination, fruit dispersal, herbivory and predation fall within the scope, as well as the use of indigenous and exotic species by humans. Observations of naturalised plants and animals will also be considered. Biodiversity Observations will also publish a variety of other interesting or relevant biodiversity material: reports of projects and conferences, annotated checklists for a site or region, specialist bibliographies, book reviews and any other appropriate material. Further details and guidelines to authors are on this website.

Lead Editor: Arnold van der Westhuizen – **Paper Editor:** Arnold van der Westhuizen

---

SYNTHETIC NESTING MATERIALS USE IN BIRDS' NESTS

R Pretorius and G Ringani

Recommended citation format:
Pretorius R, Ringani G2016. Synthetic nesting materials use in birds' nests. Biodiversity Observations, Vol 7.10: 1-3

URL: http://bo.adu.org.za/content.php?id=203

Published online: 23 February 2016

– ISSN 2219-0341 –

SYNTHETIC NESTING MATERIALS USE IN BIRDS' NESTS

R Pretorius[1] and G Ringani[2]*

[1]University of Pretoria, Chemical Engineering Department
[2]University of Pretoria, Zoology

* Corresponding author: rpretorius.chemeng@gmail.com

In November 2014, a nest was found on the lawns of the University of Pretoria campus. Further inspection of the nest revealed the unusual nature of its construction: it had been lined with synthetic thermal insulation (Fig 1).

The structural materials, as seen in the accompanying figures, were determined to be *Vachellia galpinii* trees growing within 200 m of the site at which the nest was discovered. While the source of the synthetic nest lining material was traced back to a nearby temporary disposal site of building materials that had been removed from a building undergoing renovations. The builders were unable to confirm the specific type of insulation other than that it was a type of "insulation board" which consists of compressed synthetic fibres.

As winter fast approaches, a properly insulated house is a necessity. Some parallels can be drawn between a properly insulated home and some features exhibited by birds in the construction of their nests.

Nest lining material, like thermal insulation, can serve a thermoregulatory role, thus maintaining optimum microclimatic conditions. Based on this, incubating birds can also expend less energy while brooding, although, this is dependent on the type of material used to line the nest. Other functions that nest lining materials can serve include warding off predators, parasites and sexual selection.

Fig 1: Top view of the nest – 91 mm in diameter with cup diameter ≥ 60mm and cup depth ≥40 mm. The cup is lined with the pale/yellow thermal insulation © Werner Strumpher

Bird nests

Birds construct their nests according to available materials obtained within the environment they inhabit. The nests comprises of two components: structural components that provide the nest with its overall shape and nest lining materials that can range from feathers to grasses and everything in between.

Fig 2 - Side view of the birds nest.

Fig 3: View of the bottom of the birds nest.

In a study conducted in 2014 with Zebra finches *Taeniopygia guttata*, it was found that they are able to learn to use different materials to build their nests based on the properties of the materials (Bailey *et al.* 2014). In other words, birds may not solely rely on their genes when selecting types of materials but can learn to differentiate between materials through trial and error.

Similar cases

Although the nest which was discovered at the University of Pretoria is of an unusual nature in terms of the material used in its construction, it is not unique as there have been cases in which birds have been found to utilise available materials in their environment to build nests with.

One such case documented in 2012 (Suárez-Rodríguez *et al.* 2012) involves birds lining their nests with used cigarette filters which aid in warding off parasites, while another involving American Crows *Corvus brachyrhynchos* which incorporating plastic into their nests had dire consequences for their fledgling chicks (Townsend *et al.* 2014).

With this in mind, birds have adapted to the environment that we have modified and thus they include materials that we dispose during nest construction. The effects of the anthropogenic materials can be positive or negative but either way, this should serve as yet another reminder of the impact that we have on the natural environment around us.

- oo0oo -

– ISSN 2219-0341 –

Acknowledgements
Dr A Mckechnie for allowing us to utilise his identification guides to try to determine the identity of the birds. Dr W Tarboton, who assisted in narrowing down the search for the identity of the bird that may have built the nest. Dr J van Gruining for confirming the identity of the twigs used in the nest construction.

References:

Bailey IE, Morgan KV, Bertin M, Meddle SL, Healy SD, 2014. "Physical cognition: birds learn the structural efficacy of nest material". Proceedings of the Royal Society B: Biological Sciences DOI: 10.1098/rspb.2013.3225

Suárez-Rodríguez M, López-Rull I, Garcia CM 2012. "Incorporation of cigarette butts into nests reduces nest ectoparasite load in urban birds: new ingredients for an old recipe?", Biology Letters, rsbl.royalsocietypublishing.org DOI: 10.1098/rsbl.2012.0931

Townsend AK, Barker CM 2014 "Plastic and the Nest Entanglement of Urban and Agricultural Crows", PLoS ONE 9(1): e88006. doi:10.1371/journal.pone.0088006