

# Ornithological Observations

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Ornithological Observations accepts papers containing faunistic information about birds. This includes descriptions of distribution, behaviour, breeding, foraging, food, movement, measurements, habitat and plumage. It will also consider for publication a variety of other interesting or relevant ornithological material: reports of projects and conferences, annotated checklists for a site or region, specialist bibliographies, and any other interesting or relevant material.

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## SOUTHERN MASKED WEAVERS NEST EARLIER IN SUBURBAN THAN RURAL AREAS

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*PHOTOS of Weaver Nests (PHOWN) is a Virtual Museum, citizen science project of the Animal Demography Unit, to collect and monitor breeding distributions and colony sizes of weaver birds globally. This is the third paper in a series of exciting new results from PHOWN, the previous two being Oschadleus (2014, 2015).*

### Introduction

The length of breeding seasons in birds is an important life history trait; the longer the breeding season, the more young are likely to be produced. Birds in urban and semi-urban areas seem to have longer breeding seasons than birds in rural areas (Rollinson and Jones 2002, Eden 2009), and this is investigated in this study for the Southern Masked Weaver *Ploceus velatus*, a common breeding bird in southern Africa. Egg-laying in the Southern Masked Weaver occurs from July to March, with a peak from October to December, in the summer rainfall region (Oschadleus *et al.* 2000). Reports of early nest-building in semi-urban areas have often appeared in local bird club newsletters, but without a comparison of colonies in nearby rural areas.

In the Southern Masked Weaver, newly built nests are green for up to 3 days, built by the male only. The nests fade in colour to brown,



Fig 1 - Southern Masked Weaver colony in rural area, with old nests, from PHOWN 6260.

and may remain in the colony for a few days or even up to a year when the next breeding season starts.

In an on-going attempt to collect as many PHOWN (PHOTOS of Weaver Nests) records as possible in eastern Pretoria by co-author PC, it was realised that a subset of this data could be analysed to compare breeding seasonality in rural and suburban areas at the start of the breeding season. Also, we look at historical reports of early nesting to see if there has been a noticeable advance in the start of nest building in this species in Gauteng.

### Methods

Southern Masked Weaver colonies in eastern Pretoria, Gauteng,



South Africa, were surveyed by vehicle during July 2013. Most colonies were marked as inactive ("old") or with at least 1 new nest ("new" colony). A photo was then taken and the record was submitted to the PHOWN database, a Virtual Museum citizen science project of the Animal Demography Unit. The survey included many gardens in eastern Pretoria as well as driving along the R104 eastwards. A year later, on 27 August 2014, a section of the R104 was travelled again and PHOWN records collected at an even later stage in the season.

The July 2013 PHOWN records were extracted and assigned as "rural" or "suburban" based on the satellite view of these records in Google Earth. Where possible, photos of the nests were also analyzed to identify the condition of the vegetation surrounding the nests. The surrounding vegetation was termed "dry" or "green". A Chi-squared test was then used to compare suburban and rural nests versus new or old colony status.

Early breeding records of the Southern Masked Weaver in Gauteng were extracted from bird club newsletters (Laniarius and Witwatersrand Bird Club News) and Nest Record Card Scheme (NERCS). The earliest record per decade of actual breeding (evidence of eggs or chicks) was used, rather than simply early nest building records.

## Results

A total of 255 records were collected in July 2013 with information about colony status; 83 of these were listed as inactive or old (having old nests only), and 172 of these colonies had at least 1 green nest. Colony status (new vs old nests) was significantly correlated with habitat type (suburban vs rural) ( $X^2=175.6542$ ,  $df=1$ ,  $p<0.001$ ). Generally suburban nests were in gardens, visible from the road,



**Fig 2** - Map of localities of new nests (green markers) and old nests (red markers) in eastern Pretoria and surrounds, Gauteng, July 2013.

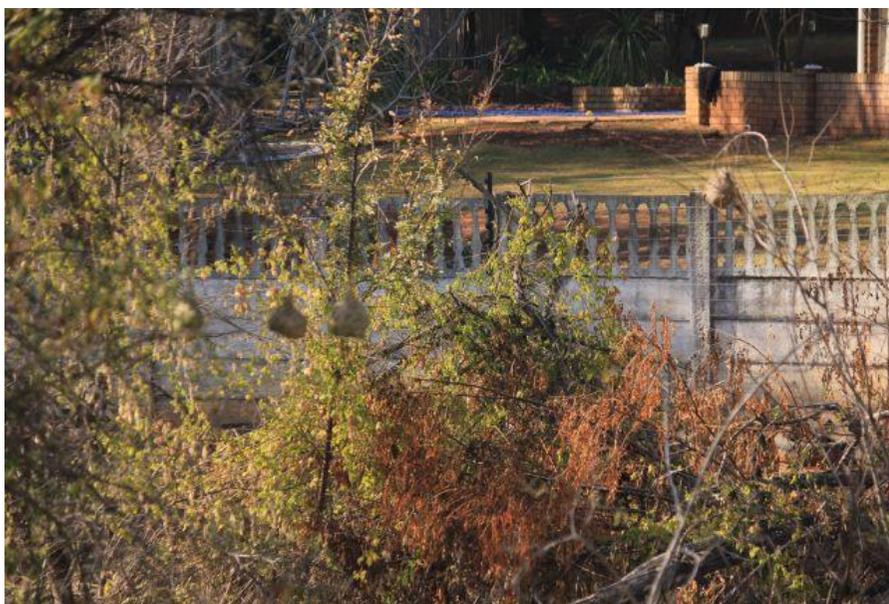
while rural nests were along the R104 Bronkhorstspruit road and along Nellmapius Drive in Rooihuiskraal, Centurion (Fig 2).

In 2014 a part of the R104 was surveyed again, this time a month later, but all 16 PHOWN records were of old nests, showing that the males had not started nest building in this rural area yet.

Early nesting has been reported in the local bird club newsletters and Nest Record Cards for many decades in Gauteng. The earliest record per decade was extracted (Table 1), showing breeding as early as May.

## Discussion

The results in this paper clearly show that the Southern Masked Weaver had started to build new nests in suburban areas in July



**Fig 3** - Southern Masked Weaver colony in suburban area, with new nest, from PHOWN 6606.

2013, while rural areas contained only old nests from the previous breeding season. Photographs of the colonies that included the surrounding area show that in the rural areas there was no green grass nor green leaves on the trees. Photos from suburban areas generally show that the trees had green leaves, and presumably green lawns. Availability of nest material is thus a limiting factor for nest building (as shown in the Village Weaver *P. cucullatus*, Collias and Victoria 1978), but this may not be the only factor. Suburban gardens may also have more insects to provide food for chicks. Anthropogenic factors present within suburban areas such as the watering of lawns (Rollinson and Jones 2002), and more shrubs and flowers that attract insects, are likely to play an important role in the differences in the timing of breeding.

**Table 1.** Earliest published breeding record in Gauteng for Southern Masked Weaver per decade

Status	Locality	Date	Reference
eggs	Roodepoort	23 May 1953	NRC 803.410
eggs	[Johannesburg]	26 Jul 1961	Anon. 1961
chicks	[Pretoria]	Aug [1970]	Kemp 1971
female active	Linden Ext, Jhb	22 May 1989	Johnson 1989

Early nest building is not a recent phenomenon as is often heard among birders (HDO, pers. comm.). The records from the literature and NERCS were not systematically collected, but do show actual breeding as early as May in 1953, ie. 60 years prior to this field study. There may be slight changes annually in the start of breeding related to rainfall, and individual males and females are likely to be ready to breed at slightly different times every year.

Early breeding in suburban areas compared to rural areas is not unexpected, and has been found in many other species globally, eg. Magpies *Pica pica* (Eden 2009) and Australian Magpies *Gymnorhina tibicen* (Rollinson and Jones 2002).

Early breeding in the Southern Masked Weaver has been hypothesised to be a strategy to avoid brood parasitism by the Diederik Cuckoo *Chrysococcyx caprius* (Irwin 2005). This is unlikely to be the evolutionary function of earlier breeding, however. For instance, in Cape Town the Southern Masked Weaver also breeds early (eg. PHOWN 5613 had eggs in May) but this weaver is not a host of the Diederik Cuckoo in the Western Cape (Rowan 1983, pers. obs.). Early breeding will have the side benefit of no brood parasitism until the cuckoos arrive. The simplest explanation, however, for early breeding is that nest sites and material and food is available sooner in suburban areas than elsewhere (eg. Eden 2009).



Early breeding results in extended breeding seasons with more breeding attempts and probably more fledged young than in rural areas.

The start of nest building had not begun along the R104 by September. Breeding in rural areas is likely to be highly dependant on local rainfall, and the start of breeding could thus vary greatly from year to year. Breeding in rural areas is also likely to end sooner than in suburban areas, making the length of the overall breeding season considerably shorter in rural areas than that in suburban areas.

### Acknowledgements

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**Box 1.** PHOWN species page

Each weaver species has a PHOWN web page, showing a summary of PHOWN records (if any), and a brief summary of published breeding information.

The PHOWN summary includes the following:

- Colony size – mean and range
- Sites used - Records per site (man-made, tree, reed, other)
- Breeding seasonality – records per month
- Breeding distribution – map with PHOWN records as red markers as well as yellow shape to show known range
- Thumb-nails of recent PHOWN records
- Listing of all PHOWN records for the species

To view the PHOWN species page for the Southern Masked weaver, see

[http://weavers.adu.org.za/phown\\_sp.php?Spp=803](http://weavers.adu.org.za/phown_sp.php?Spp=803)

Use the drop-down menu to choose any other species.