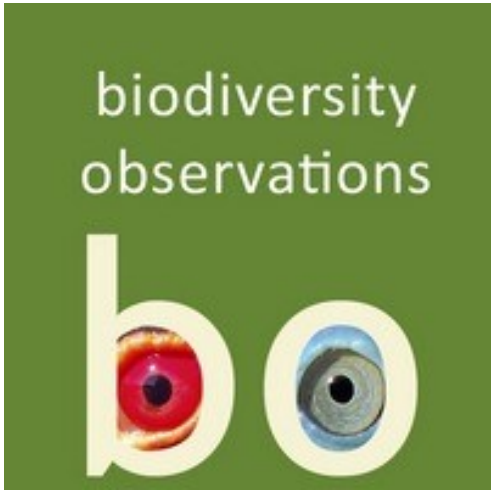
Powerful wind kills hundreds of birds

Ryan M Tippett & Les G Underhill



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Ornithology

Powerful wind kills hundreds of birds

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Abstract

Extreme weather events are predicted to occur with increasing frequency as a result of global climate change. These extremes take multiple forms. This note reports an abnormal weather event in which winds, apparently Force 10 on the Beaufort Scale (90–100 km/hour), killed hundreds of birds at a farmhouse in the Karoo, South Africa. The wind was so strong that it removed birds from their roosts in trees and flung them against the walls of the farmhouse with such force that it killed them. There are no published accounts of comparable events in southern Africa.

Introduction

One of the predictions of global climate change is an increase in extreme weather events (Cohen et al. 2021). Extreme events can be placed along a continuum, from those which last a few minutes to those which last months, years or even decades. Examples of extreme events along this continuum, ordered by duration, include tornados, hail storms, tropical storms, excessively hot days, overnight freezing weather, hurricanes, floods, heavy snowfalls, heat waves lasting days to a week and droughts. Many of these events are extreme in the context of the season of the year in which they occur. Climate change, which underlies the short- and medium-term variability, is associated with long term trends, generally of increasing temperature, decreasing precipitation and sea level rise. Although not a weather event per se, sea level rise is associated with climate change through the melting of ice in the polar ice caps and glaciers at all latitudes.

There are documented examples in southern Africa of most categories of extreme weather-related events which impacted birds (Table 1). This short note describes an event which appears not to have been previously described in this region, in which birds were killed as a result of strong winds.

Observation

At 01h00 on 26 September 2022, on the farm Rietaar (30.82°S, 22.37°E), near Carnarvon in the Northern Cape, South Africa, a wind suddenly started blowing. Immediately after the wind arrived, birds were flung from their roosts in farmyard trees and smashed against the windows, walls and roof of the farmhouse. A gust of wind forced open one of the farmhouse windows and many birds were driven into the house; these included approximately six Cape Sparrows *Passer melanurus*, 10 Red-billed Queleas *Quelea quelea*, two Wattled Starlings *Creatophora cinerea*, a Familiar Chat *Oenanthe familiaris* and a Red-headed Finch *Amadina erythrocephala*. Many of these were released. The wind eased markedly after about one hour.

At dawn, it was possible to examine the trail of destruction. A large *Pinus* tree in the farmyard had been ripped out of the ground (Figure 1). There were no instruments to measure windspeed, but the uprooted tree suggests that the wind was Force 10 on the Beaufort Scale,

Table 1: A selection of weather-related events in southern Africa which have impacted birds.

Type of event	Species impacted	Description	Reference
Hot day	14 bird species	Air temperature reached 45°C during mid-afternoon on 8 November 2020 in northern KwaZulu-Natal. 110 dead birds found were likely to be a small proportion of total.	McKechnie et al. 2021
Tidal storm surge	African Oystercatcher *Haematopus moquini*	Nests destroyed on Robben Island in unseasonal storm event. All 20 nests on the island were lost on 17 February 2003. A similar event took place on 19 January 2022, when 38 nests were washed away.	Calf & Underhill 2005; Itxaso Quintana pers. comm.
Rain and wind	Red-headed Quelea *Quelea erythrops*	Two days of rain and gale force winds in late December 1997 caused the queleas to desert, although nests were intact. The colony was at Hayfields, Pietermaritzburg, KwaZulu-Natal.	Brown & Symes 2004
Cold, wet weather	Barn Swallow *Hirundo rustica*, Greater Striped Swallow *Cecropis cucullata*, Rock Martin *Ptyonoprogne fuligula*, Common House Martin *Delichon urbicum*	At the end of a period of cold and wet weather near Cape Town between 9 and 13 April 1953, at least 100 hirundinids died.	Broekhuysen 1953; MacLeod et al. 1953
Cold, wet weather	Barn Swallows, Common House Martins	Cold snap (8°C) and heavy rain (40 mm) during arrival period of these migrant hirundinids killed hundreds of birds between 9 and 12 November 1968 at Hammanskraal, with further records of deaths as far south as the Free State.	Skead & Skead 1970
Cold, wet weather	Common Swifts	In early December 2019, during an unseasonable cold and wet period, Common Swifts roosting under a roof at Mabalingwe Nature Reserve, Limpopo Province, South Africa, died.	Rabie et al. 2023
Cold weather	Hirundinids, swifts, and other species in smaller numbers	There was an “unprecedented” cold spell across Zimbabwe during the first half of November 1968, accompanied by drizzle. Barn swallows, which would have been recent arrivals on migration, were particularly impacted. The main cause of death was starvation; aerial foragers became emaciated.	Steyn & Brooke 1971
Cold weather	African Palm Swifts *Cypsiurus parvus*	Cold air temperatures (minimum 4.6°C) and persistent drizzle between 13 and 22 June 1979 caused deaths of swifts at four localities in Zimbabwe. A similar event in early September 1981 killed 90 swifts in Bulawayo (minimum temperature 5.4°C).	Donnelly 1982
Hail storm	Amur Falcon *Falco amurensis*	Roosting flocks of Amur falcons were killed/injured on 9 and 21 March 2019 at nocturnal roost trees at Mooi River (700 killed, 1000 injured) and at Newcastle (1000 killed and 900 injured), 160 km apart in KwaZulu-Natal.	Allan 2019
Flooding	Village Weaver *Ploceus cucullatus*	The water level in the Ngotwane Dam, Gaberone, Botswana, rose overnight on 17–18 March 1991, submerging nests under 2 m of water.	Pedersen 1991
Drought	Common Ostrich *Struthio camelus*	Estimated that 252 ostriches, 10% of total population, died during a drought in 1985 in the Kgalagadi Transfrontier Park.	Knight 1995
Gale-force winds	Multiple species	Hundreds of birds killed.	This paper

which is associated with windspeeds of 90 to 100 km/hour and described as a storm (e.g. https://www.metoffice.gov.uk/weather/guides/coast-and-sea/beaufort-scale).

The perimeter of the house and the barn and the areas underneath trees were littered with hundreds of dead birds. All had presumably been bashed against the walls, roof and tree branches. There was a small number of injured birds. Many of the dead birds were found in contorted positions with traces of blood around the head, face and eyes. The farmyard spans a large area, and it was not feasible to obtain an accurate count of the numbers of dead birds, but the estimated total was in the hundreds. Red-billed Queleas accounted for an estimated 80 to 90% of the casualties. Other species recorded dead included Laughing Dove *Spilopelia senegalensis*, Ring-necked Dove *Streptopelia capicola*, Southern Masked Weaver *Ploceus velatus*, Wattled Starling, Orange River White-eye *Zosterops pallidus*, Red-headed Finch, African Red-eyed Bulbul *Pycnonotus nigricans*, Cape Sparrow, Cape Robin-chat *Cossypha caffra*, Dusky Sunbird *Cinnyris fuscus*, Fiscal Flycatcher *Melaenornis silens*, Black-throated Canary *Crithagra atrogularis* and Lark-like Bunting *Emberiza impetuani*. It is likely that other species were killed as well.

We asked whether neighbouring farms had experienced the same wind intensity as Rietaar; the answer was negative, and there were no reports of birds killed on neighbouring farms during the night of 25–26 September 2022.

Discussion

The farmyards scattered across the Karoo each have a cluster of trees, mostly *Eucalyptus* and *Pinus*. These clusters of trees have become of great importance to birds in the region. At Rietaar, they are used as overnight roosts by large numbers of birds (Ryan Tippett pers. obs).

In the compilation of Table 1, we favoured the inclusion of recent events over older ones. It is striking that many of these describe

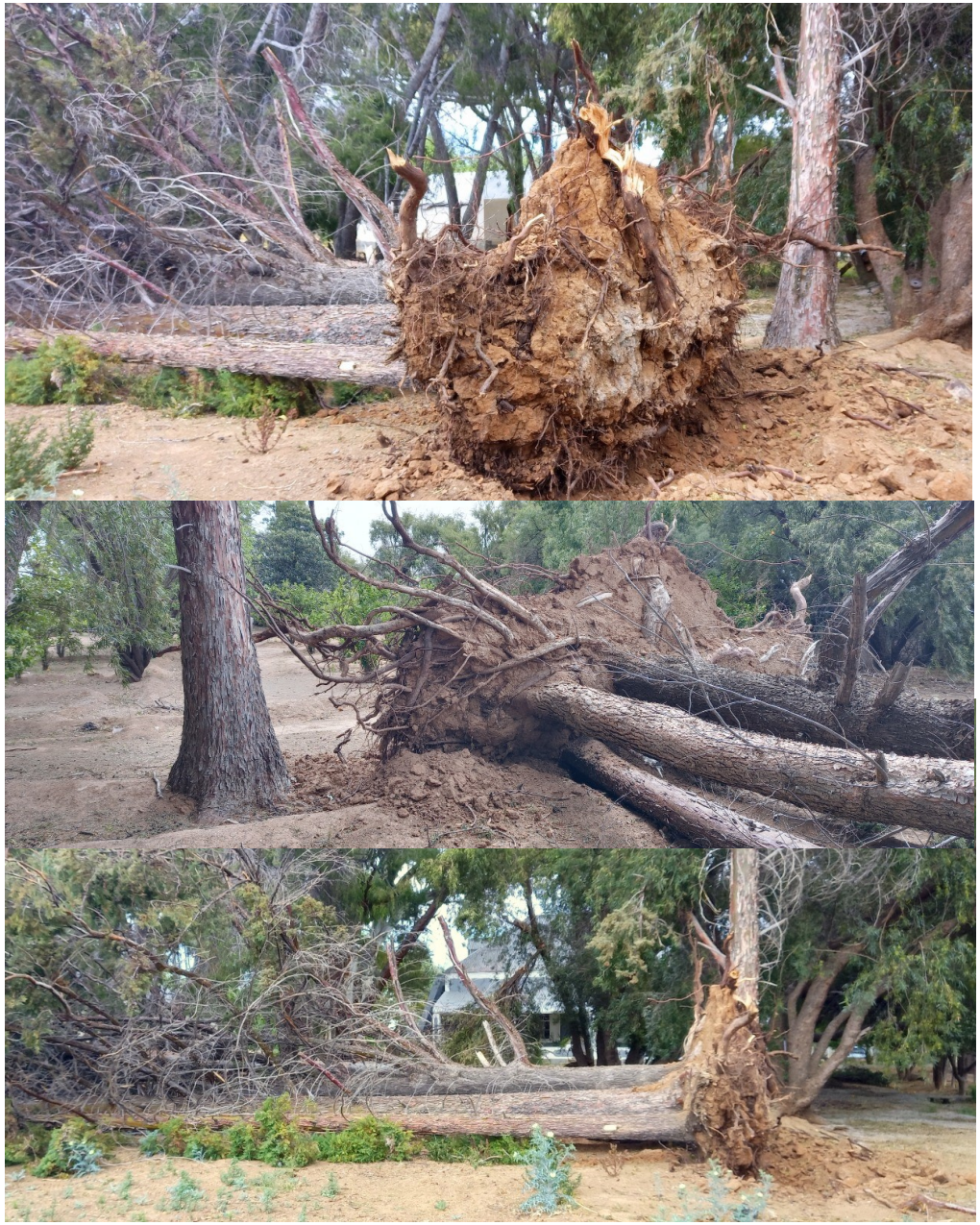

Figure 1: Uprooted tree at farm Rietaar, indicating Beaufort Scale allocation.

events taking place more than 25 years ago, before global climate change was widely recognised as a threat. It is possible that more recent events have not been reporting because there are already similar results published in the literature.

In particular, it seems there have been no reports of mass mortalities of barn swallows in more than half a century since 1968 (Skead & Skead 1970, Steyn & Brooke 1971). The November 1968 event was widespread; from Skead & Skead (1970) and Steyn & Brooke (1971) it is clear that the period of cold and damp whether caused mortalities of barn swallows over Zimbabwe, part of Botswana, and over northern South Africa as far south as Kimberley and as far east as Zululand. The impact of this widespread weather event appears to have been magnified by the fact that it took place simultaneously with the arrival of barn swallows on migration, at a time when many are needing to recover body condition after long flights (Skead & Skead 1970). This juxtaposition of events is probably rare.

Especially in the light of global climate change, weather-related mortality events of birds and other taxa ought to be routinely reported. This would facilitate a review of their frequency of occurrence. This journal (Underhill & Navarro 2023) provides a platform for this category of observations; Rabie et al. (2023) is an example of such a report.

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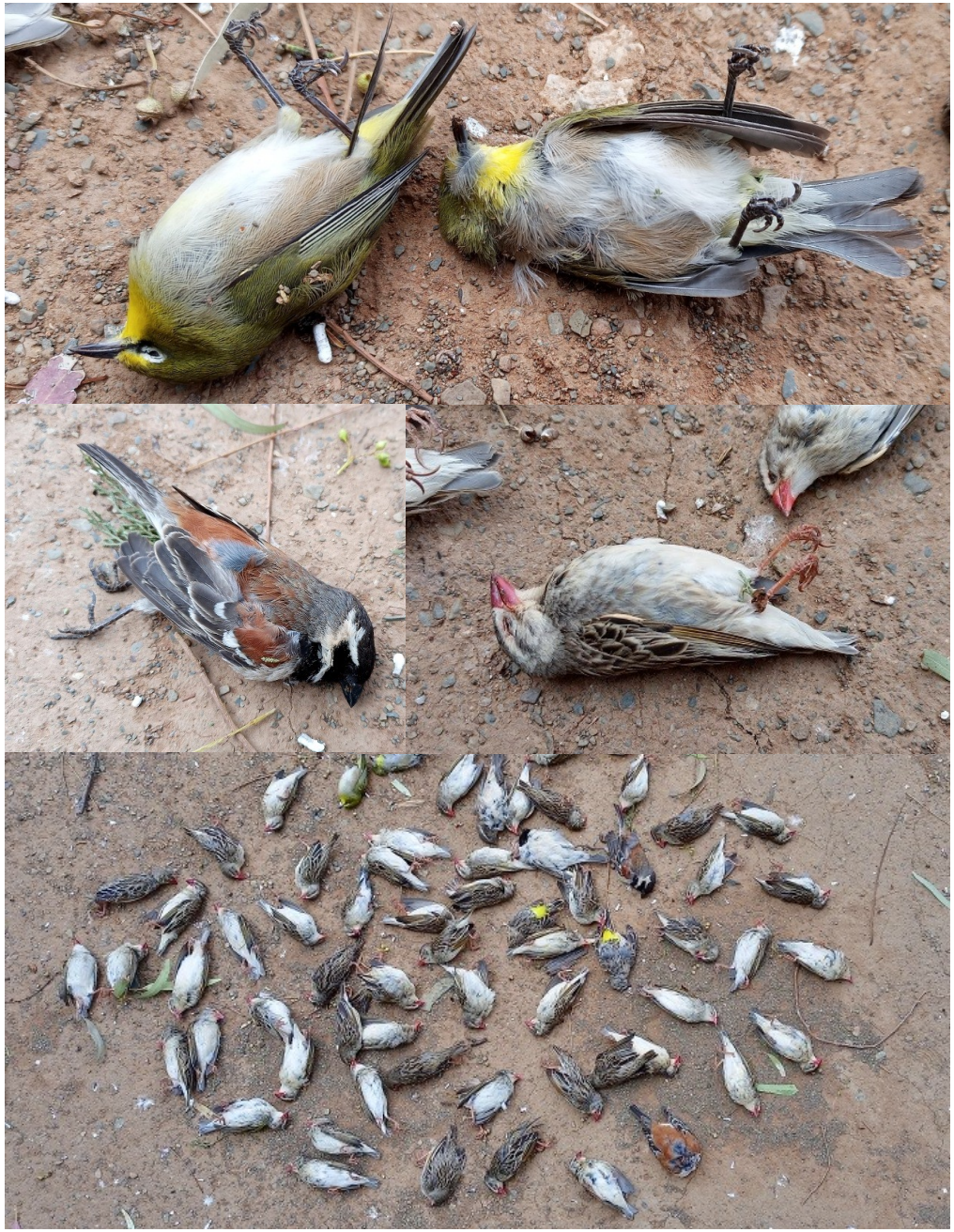

Figure 2: A sample of birds killed by the windstorm at farm Rietaar. Northern Cape, South Africa.

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