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## **EXPANDING THE BOUNDARIES: BREEDING RANGE OF RED-BILLED FIREFINCH *LAGONOSTICTA SENEGALA* IN NAMIBIA EXTENDED TO THE ATLANTIC COAST**

**Ursula Franke-Bryson**

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**EXPANDING THE BOUNDARIES: BREEDING RANGE  
OF RED-BILLED FIREFINCH *LAGONOSTICTA  
SENEGALA* IN NAMIBIA EXTENDED TO THE  
ATLANTIC COAST**

*Ursula Franke-Bryson*  
Munich, Germany

Corresponding author: [praxis@ursula-franke.de](mailto:praxis@ursula-franke.de)

"Continuously changes are occurring, partially through movement in and out of areas favoured by rainfall (i.e. larks), partially through expansion of the boundaries of distribution into new areas" (Hoesch 1955, p.4).

**Range extension into new grounds**

Hundreds of kilometers astray of its traditional range, at the Sewage Works (S22°39' S14°32') in Swakopmund, we caught and ringed a female Red-billed Firefinch showing a featherless, dark red brood patch (13.01.2014). This species had not been recorded here before (Mark Boorman, pers. comm. 2013). Unfortunately, we could not find a nest for more data about the actual breeding.

It was one of 20 birds of this species recorded along the Swakop River in the arid west of Namibia: In mid December 2013, we ringed 10 Red-billed Firefinches (3 males, 7 females) about 120 km inland of the Namibian coast along the Swakop River, about 70 km south of Usakos (S22°32' E15°33') and 150 km west of Windhoek, where this species has become established in the last 20 years.

Additionally, a single female was caught in February 2014 at the same location, and 8 individuals (3 males and 5 females) in March 2015. The



**Fig 1** – Female Red-billed Firefinch, Swakopmund, Sewage Works.

tenant, where these birds were captured, is knowledgeable about birds and had observed this species in the area already for some time (FS, pers. comm.).

Red-billed Firefinches are causing a stir by establishing themselves in and around Windhoek, far away from their traditionally considered distribution (see Clancey 1980; Nuttal 1997). It is the most widespread of the eight *Lagonosticta* species (Firefinches), occurring throughout the savanna belt of sub-Saharan Africa. In the southern third of Africa they are previously known around Namibia only along the Kunene-Zambezi-line, the Okavango Delta and in a large semi-circle along the eastern, and parts of the southern Botswana border. In the south of Namibia this species has been recorded at few locations along the Orange River (see Fig 3).



Fig 2 - Male Red-billed Firefinch, Namibia.

Since the species was first observed in Windhoek in 1995 (Brown 1997; Thomson 2009), hundreds of individuals have been ringed in the town and some have been spreading in central Namibia (Thomson 2009; SAFRING 2015). Equally, successful breeding has been recorded (Brown 1998) and the brood parasite, the Village Indigobird *Vidua chalybeata*, has followed and reproduced with his host (Thomson 2009; Schubert *et al.* 2012).

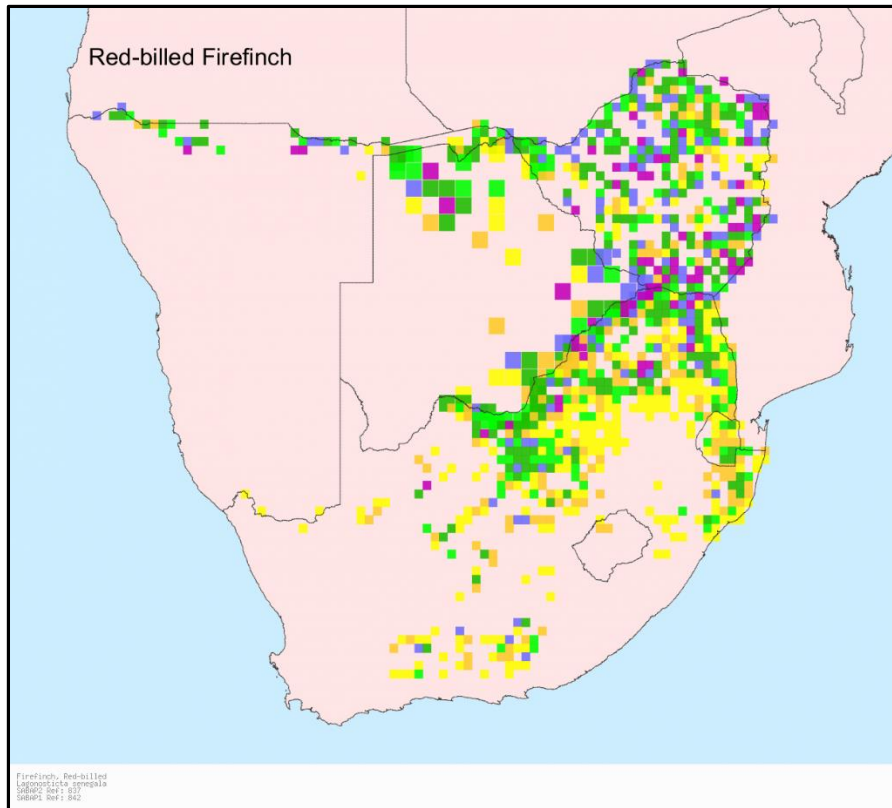


Fig 3 – Distribution map of Red-billed Firefinch  
(from <http://www.birdlife.org/datazone/species/factsheet/22719440>)

### How did they get there?

There has been a discussion about the origin of the rising numbers of these Red-billed Firefinches: Are they descendents of escaped caged birds or of birds caught for trade? (Brown 1998; Cunningham and Cunningham 2009; Thomson 2009).

Or are we observing a natural range extension? Or a combination of

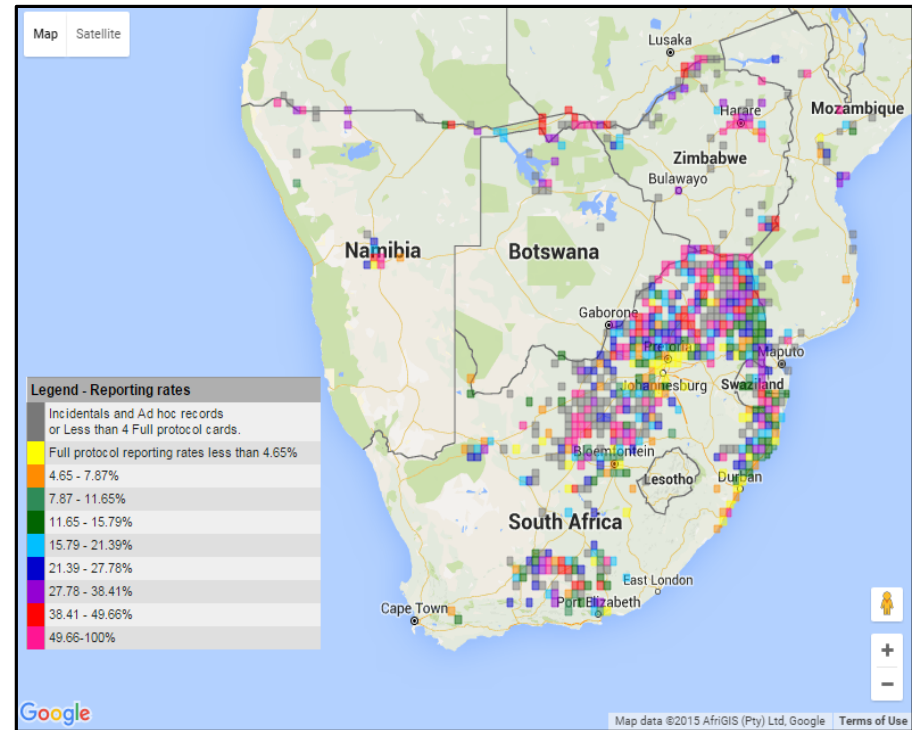


**Fig 4** – SABAP1, showing the observed and documented distribution of Red-billed Firefinches in 1997.

([http://sabap2.adu.org.za/species\\_info.php?spp=837&section=6#menu\\_left](http://sabap2.adu.org.za/species_info.php?spp=837&section=6#menu_left))

the above: Do we have introduced birds that find suitable habitat and expand their range?

Comparing the species distribution map of SABAP1 (South Africa Bird Atlas Project 1997) and the actual recording in the current project of

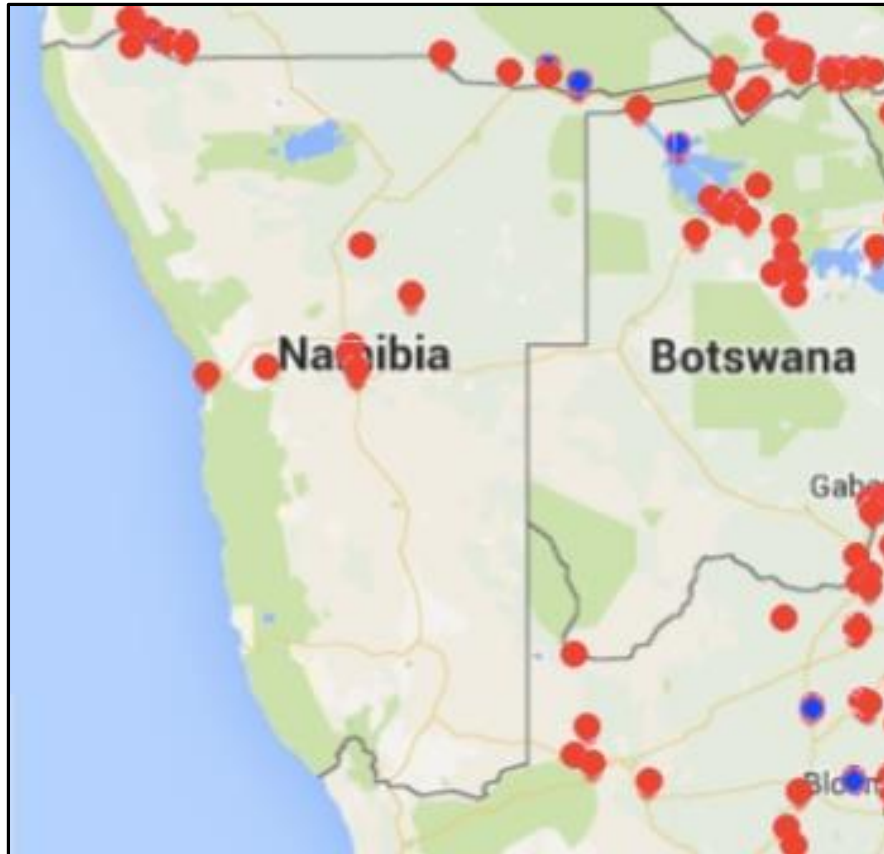


**Fig 5** – SABAP2 actual status of distribution of Red-billed Firefinch ([http://sabap2.adu.org.za/species\\_info.php?spp=837&section=5#menu\\_left](http://sabap2.adu.org.za/species_info.php?spp=837&section=5#menu_left))

SABAP2 (2015) we see the change especially in the Namibian range of this Firefinch species (see Fig 4, 5) in central Namibia, but also east of Etosha.

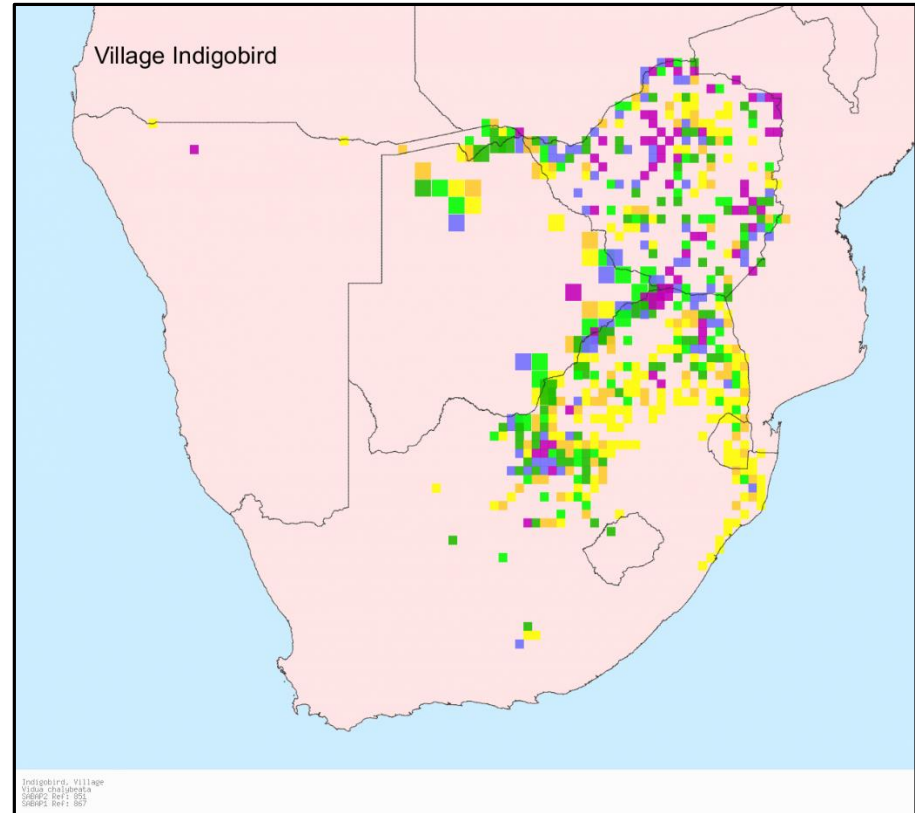
Other areas show the species moving in: in South Africa mainly along the east coast towards the south, an increase in the Eastern Cape and even recordings in the Western Cape and on the Botswana border around the Kgalagadi Transfrontier Park.





**Fig 6** – As not all ringing data are included in the SABAP 2 map yet, here the SAFRING map from 16.09.2015 showing the actual records of Red-billed Firefinches ringed in Namibia. The red dot on the coast shows the position of Swakopmund.

In addition, we can see in the wake of the Red-billed Firefinch the brood parasite following his host, on large scale. Comparing the change in distribution of the Village Indigobird between SABAP1 (see Fig 7) and SABAP2 (still in progress) (see Fig 7) shows also a range extension into the host's newly occupied territory in Namibia, but also



**Fig 7** – SABAP 1, showing the observed and documented distribution of Village Indigobird *Vidua chalybeata* in 1997.

in South Africa towards Port Edward and into the Eastern Cape.

**Precipitation and occurrence of bird species**

We have been ringing birds for almost 15 years in the area on the edge of the Namib Naukluft park in the austral summer months (December to March). In 2013 during the time of our observations, Namibia was blessed with repeated and exceptionally high rainfall, reaching far west to the Namib desert.





**Fig 8** – Female Firefinch, Namibia.

Range extension has been observed in many species of plant and animal. Passerines like House Sparrow *Passer domesticus*, Common Myna *Acridotheres tristis* and Common Starling *Sturnus vulgaris* and crow species, but also non-passerines as ducks, swans and ibisses, like Egyptian Geese *Alopochen aegyptiaca* or Hadeda Ibis *Bostrychia hagedash*, just to name a few, proliferate and spread in suitable habitat after being introduced or by occupying new territories.

One of the best known examples in birds is the Eurasian Collared-dove *Streptopelia decaocto* whose huge, rapid and relentless range expansion "proved to be one of the major changes in avian biogeography of the 20th century" (Baptista *et al.* 2015).

Its original distribution is considered to be India, Sri Lanka, Pakistan, Afghanistan and Chinese Turkestan. Moving west through Iran, where it might also have been introduced, it colonized Turkey in the beginning of the 17th century. From 1930 on it spread quickly through all Europe. After a few decades it has reached the Atlantic coast and

islands (and the Middle East and northern Africa) and has established itself now in whole Europe in still increasing numbers.

With similar rapid expansion after being introduced by humans, stable breeding populations of the Eurasian Collared-dove can now be found in the US, Canada and even Japan (Baptista *et al.* 2015). On its continuous move from the Asian through the European continent it has covered thousands of kilometers.

### **The bigger picture: What do other firefinches do?**

All ten *Lagonosticta* species, the firefinches of Africa, are considered to be resident, of which two are known to undertake altitudinal movements, and only Red-billed and Jameson's Firefinch (up to now) have been observed of movements up to 14 respectively 10 km from their ringing sites. One single Jameson's Firefinch was retrapped 125 km away (Payne 2010, p. 343).

But comparing maps of SABAP1, SABAP2 and SAFRING documentation we find, beyond the discussed range extension in Red-billed Firefinches, that actual ringing data of Jameson's Firefinches in South Africa show long distance movements south and west, to Bloemfontein, Vryburg and the Kimberley area and one record on the coast almost reaching Port Edward. (The distance from St. Lucia on the edge on the area of distribution, to Margate, north of Port Edward, is 370 km). (The individual data have been, as well as possible, rechecked for errors in typing or wrong coordinates.)

Red-billed Firefinches represent the most widespread and numerous species. Thus, knowledge about them, as well as about the widespread Jameson's firefinch, in regard of such information as details of observations, occurrence and movement of these two species might be due to the number of birds observed, as well as

ringed and retrapped, and their occurrence in areas with lay and professional ornithologists.

In literature a single retrap of a Red-billed Firefinch is mentioned referring to a possible long distance (almost 500 km) movement of the species. McLachlan, author of the original ringing report already asks for caution: "Unfortunately the ring was not submitted by the finder and the number was sent in as being a *Quelea*. However, the number belongs to a Red-billed Firefinch ringed in Bulawayo. Perhaps future recoveries will reveal that these birds do move about but there is a suspicion that the number has been wrongly quoted and that the bird involved was a *Quelea*" (McLachlan 1963, p. 102).

In the SAFRING database this retrap does not exist any more, and likely has been considered as *Quelea* (SAFRING, 2015, pers. comm.)

Searching for more documentation of possible range extensions in firefinches I could find in literature only two small articles. Kopij (2015) describes in "Population expansion on Sweet Waxbill *Coccyzygia melanotis*, Red-billed Firefinch *Lagonosticta senegala* and Karoo Scrub Robin *Cercotrichas coryphaeus* in Lesotho?" an observed, still moderate, increase of Red-billed Firefinches in Lesotho from "very rare" with only two records during the SABAP1 compared to 15–19 birds, counted individually or in pairs between 2000 to 2002, and estimated 30-60 pairs. The author points out the possibility, that the increase could be attributed to the introduction of trees and shrubs in farmland, with the recent invasion by Black Wattle *Acacia dealbata* along some stream valleys as described by Ambrose *et. al.* (2000).

The second article is on "Range extension of the Bar-breasted Firefinch *Lagonosticta rufopicta*" (Mwebi 1997). The author reports the mist netting of two individuals in Kenya of this firefinch species 60 km

south of its recognized and expected range, although considered as "resident" in the Handbook of the Birds of the World (Payne 2010a). More research is needed to evaluate this finding on a long term. Is it due to seasonal or nomadic movement, or does it give evidence of an already or a to be established range extension?

Time will show if the Red-billed Firefinches in Namibia find suitable habitat as far west as the town of Swakopmund to establish a sustainable population, as it seems to have already achieved in Windhoek. At the end, only DNA comparison might shed light on the origin and the distribution paths.

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