

Population survey and Environmental threat assessment of Williams's Lark,

Mirafra williamsi, in Dida Galgalu Desert IBA.

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Introduction

Williams's Lark, *Mirafra williamsi*, is classified as data deficient (Birdlife International, 2009) and is restricted to the rocky lava deserts of Northern Kenya (Zimmerman et al, 1996). Rock lava deserts are unique habitats, represented in Kenya by Dida Galgalu desert and parts of Shaba National Reserve, the only two sites where Williams's Lark occurs. The species is endemic to Kenya, with two disjunct populations: one in Dida Galgalu desert, 20 km north of Marsabit, and the other near Isiolo (in and around Shaba National Reserve). Both sites are now globally recognized as Important Bird Areas (Bennun and Njoroge, 1999), mainly because of the presence of this species. The species inhabits scattered short-grass areas with low shrubs growing on rocky desert plains and red lava soils or low *Baleria* shrubs on rocky lava desert.

There is little mention and remarkably little is known about the status, ecology, habitat requirements and the actual degree of threat to this species in Dida Galgalu desert. The population of this species has never been surveyed nor habitat threats at the site assessed in this area. From a recent survey in Shaba National reserve, the species appeared to be greatly threatened. This necessitated the need for a survey in Dida Galgalu desert to help in conservation of this species and management of its unique habitats by providing essential information.

Objective

The aim of the study was to carry out a population survey and threat assessment of the Williams's Lark (*Mirafra williamsi*) in Dida Galgalu desert (02° 40', 38° 05' E).

Specific objectives

1. Determine the local densities of the species in Dida Galgalu desert
2. Assess the potential threats to the species and its unique habitat in Dida Galgalu Desert.
3. Estimate the probable global population size using the recent results from Shaba National Reserve

Methodology

1. Flush and count: Williams's Lark is very secretive and rarely perches above ground except on low rocks, where it stands high on hot substrate (Zimmerman *et al* 1996), thus this was the ideal method used to survey the species. Four study sites were randomly selected namely; Guf Choba, Oloder, Selebule, Dekuku and Dida. The study sites were randomized in manner to cover the entire 60km lava rock stretch that Williams's Lark inhabits and to give a more precise population density by eliminating spatial biasness. Species surveys started at 0600hr and ended at 0900hr. We walked across each study site holding a 25-m long rope tight between two members of the study team, beating the vegetation (lava rocks and scattered grasses) to flush out any birds therein. One observer was positioned around the middle of the rope/transect and was recording data on any sitting of Williams's Lark flushed with aid from the other observers. A 500m long transect was walked in one direction, then walk back taking a different 25 m slice 500m away from the previous transect. On average therefore, the size of the sampled areas per walk at site was 25-by-500 m (or about 1.25 ha). Number of transects done in each site varied depending on the size of suitable and accessible habitat stretch, a total of 17 transects were surveyed. To determine habitat characteristics associated with *Mirafra williamsi*, percentages of grass cover, soil type, lava rocks and presence of *Baleria* were recorded within a 1m² grid where it has been flushed.

During each walk, we were also in the lookout for the presence of any habitat disturbance: presence of livestock (and how many e.g. 20 cows, 100 goats, 50 sheep etc), foot paths, artificial targets used for military trainings and tree stumps of >30cm DBH where possible.

2. Variable transect count: We conducted a 10km transects along the road between Oloder and Selebule but no Williams's lark was recorded. The habitat terrain could not permit a 10km transect to be surveyed deep into the lava rocks away from the road. The edge effect of the road affects the distribution of the species and thus a 10km monitoring transect was not viable.

Results and Discussion

This survey was to investigate the population status of the species in Dida Galgalu where it is reported to be present in disjunct population. Results confirmed the presence of the species in the IBA. We recorded a total of 16 Williams's Lark individuals in 19-0.5-km transects in the entire Dida Galgalu desert. The highest density of Williams's Lark recorded was at Dida site, 50km from the onset of lava rocks and 70km north of Marsabit town. Guf Choba and Dekuku had the same densities despite the spatial variation i.e Guf Choba is at the start of lava rocks stretch and the latter being 40km into the desert. No Williams's lark was recorded at Selebule, 30km into the lava rock stretch, probably due to the Gabra community that lives and grazes their herd in the area (see table 1 below).

The overall density for the population of Williams's Lark was 0.61 individuals/ha. This is similar to density of 0.72 birds/ha of the same species at Shaba national reserve (25 birds counted verses 16 birds counted in this study) obtained in December 2010 by the same team. Earlier, about six years ago at Shaba national reserve, 60 birds were flushed in 20-0.5km transects by Mwangi et al (unpublished report). The density then was 0.55 birds/ha. This suggests that the population of Williams's Lark appears stable over the last six years in Shaba reserve and also similar to Dida Galgalu population.

Table 1: The numbers and densities of William's Lark at the five study sites in Dida Galgalu desert

Study site	No of transects	No of WL flushed	WL/transect	WL/ha
Guf Choba	4	2	2	0.8
Oloder	2	1	0.5	0.4
Selebule	2	0	0	0
Dekuku	5	5	1	0.8
Dida	6	8	1.3	1.04

Habitat preference

At the point where Williams's Lark was flushed, percentages of grass cover, lava rocks and Baleria shrubs were estimated in 1m² grid. The same was also done in areas where the species was not flushed to determine its habitat selection. Majority of the species were flushed in areas with numerous mature Belaria shrubs confirming an association with the species (Zimmerman et al 1996). Selebule site although with a few Belaria, no Williams's lark was recorded, this was probably due to Gabra community that live in Bubisa village and graze their cows, goats and camels in the area suggesting that the species is sensitive to human encroachment. Generally Williams's lark seems to prefer habitats with less/scanty grass and shrub cover.

Table 2; Williams's Lark numbers and association with Baleria

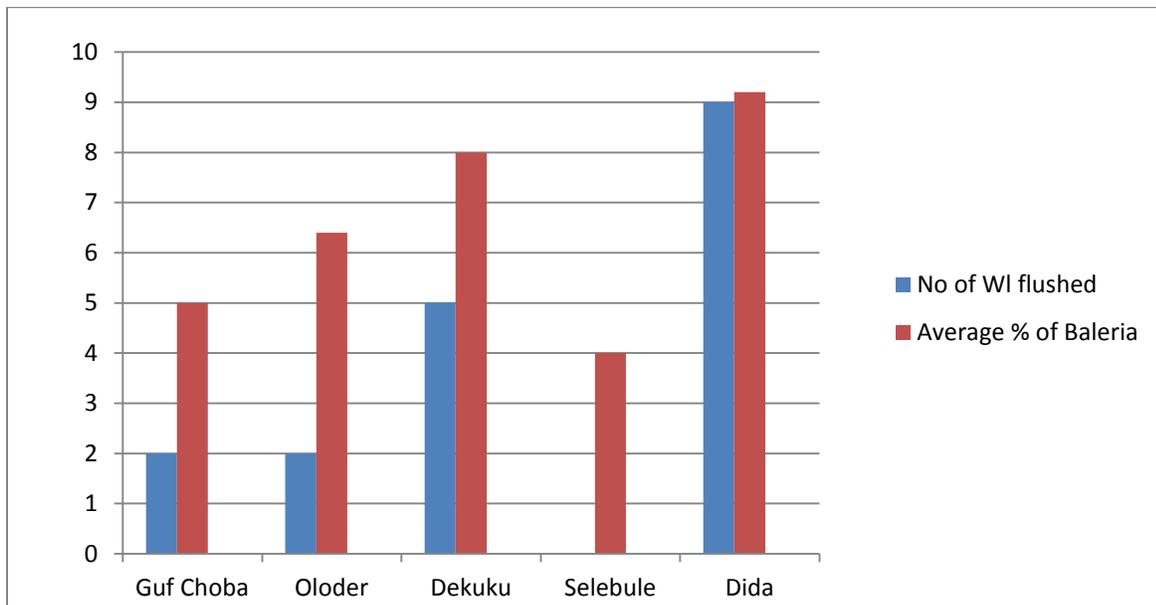
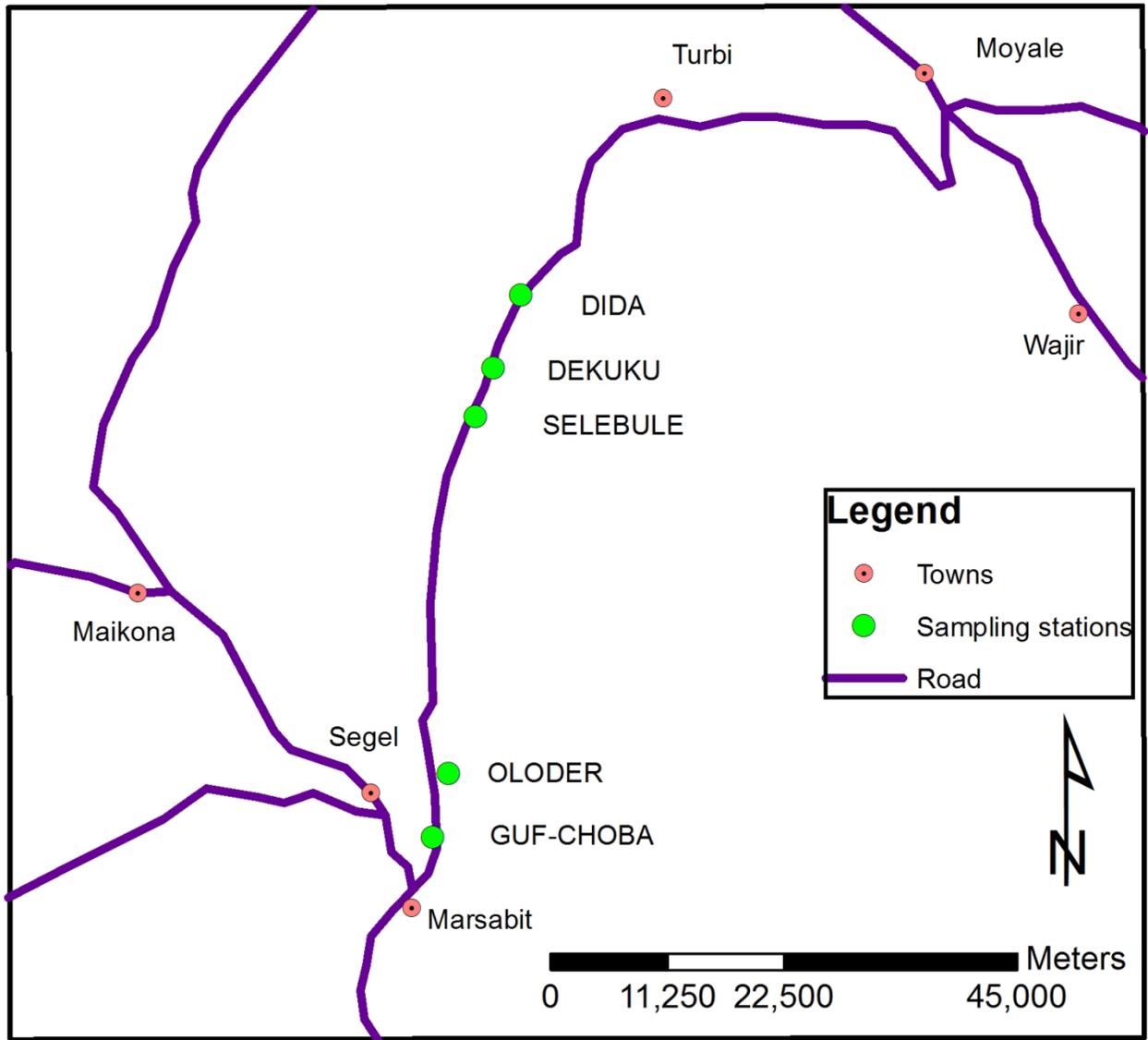


Figure1. Map of the study sites that were surveyed in Dida Galgalu desert.



Environmental threats

There were no obvious anthropogenic threats to the species recorded during this survey. Evidence of Livestock grazing were noted at the site 3 (Selebule) but we don't think this is a severe threat at the moment. Evidence of human activities were scarce probably due to unfavorable climatic conditions. Threats to the species in future may be ecological and biological e.g. threats induced by changes to the land cover types- invasion of habitat by grasses, woodland etc.

Other observations

Opportunistic birds species seen during the survey were recorded and nests were also searched for evidence of breeding birds. The survey confirmed the importance of the desert as an Important Bird Area not only for the studied species but also for Somali-masai biome species and restricted range species. An ascension of chesnut-headed sparrow-lark, thekla lark, masked lark and white-crowned starlings (with their nests) were seen at the IBA. Others birds that were seen are in the table below.

Table 3: List of all birds recorded during the survey

Common Name	Scientific Name
Magpie Starling	<i>Speculipastor bicolor</i>
Superp Starling	<i>Lamprotornis superbus</i>
Isabeline Wheatear	<i>Oenanthe isabellina</i>
Ring-necked dove	<i>Streptopelia capicola somalica</i>
Roughwing swallow	<i>Psalidoprocne holomelas massaicus</i>
Capped wheatear	<i>Oenanthe pileata livingstonii</i>
Laughing dove	<i>Streptobelia s.senegalensis</i>
Somali sparrow	<i>Passer castanopterus fulgens</i>
Rock Martin	<i>Hirundo fuligula fusciventris</i>
Fan tailed raven	<i>Corvus rhipidurus</i>

Common bulbul	<i>Pycnonotus barbatus</i>
Chesnut-headed sparrow lark	<i>Eremopterix signata</i>
Pied wheatear	<i>Oenanthe p. pleschanka</i>
Namaqua dove	<i>Oena c. capensis</i>
Red-billed Buffalo-weaver	<i>Bubalornis niger intermedius</i>
Yellow-spotted petronia	<i>Petronia pyrgita</i>
Red-fronted barbet	<i>Tricholaema diademata</i>
Black-throated Barbet	<i>Tricholaema melanocephala stigmatothorax</i>
Black kite	<i>Milvus m. migrans</i>
Pied crow	<i>Corvus albus</i>
Speckled peginon	<i>Columba g. guinea</i>
Crowned plover	<i>Vanellus c. coronatus</i>
White-headed buffalo-weaver	<i>Dinemellia dinemelli boehmi</i>
Brown necked raven	<i>Corvusn edithae</i>
Somali fiscal	<i>Lanius somalicus</i>
Collared pratincole	<i>Glareola pratincola fuelleborni</i>
Crested Lark	<i>Galerida cristata somaliensis</i>
Thekla lark	<i>Galerida theklae huriensis</i>
Somali Courser	<i>Cursorius somalensis littoralis</i>
Lesser Kestrel	<i>Falco naumanni</i>
Wattled starling	<i>Creatophora cinerea</i>

Conclusion and Recommendation

Dida galgalu desert although dry and vastly covered by lava rocks is rich in birds' diversity. Various larks and other interesting birds were recorded during the survey. Williams's lark population is indeed disjunct and inhabits almost the entire IBA. Vegetation and tree species in the desert is scanty; a few *Acacia totilis*, *acacia nilotica*, *Leucas tomentosa*, *Commiphora spp* and *Calotropis procera* were seen. No threat to the habitat and the species was noted during this

survey. Although the timing of the survey was after rains where *Baleria* shrubs are in plenty, no nest or any breeding behavior of the species was seen.

Our results had the following implication:-

- (i) These population surveys should be conducted more regularly to cover all the months of the year, since it appears the species numbers may be related to some aspects of the vegetation-presence of *Baleria* sp, grass height and thus have a seasonal effect.
- (ii) Seasonal movements of the species also need to be investigated. A study that wing tagged several individuals may help indicate whether there is interchange between this population and the Shaba population. A recent report indicated the sighting of a single bird at Laisamis, a site roughly halfway between the two populations. It would, for instance, be interesting to find out if they are two distinct populations or if there exists considerable exchange of individuals, or indeed population shifts
- (iii) The locals, Gabra community, have very little knowledge on birds. They need to be capacity built on the importance of birds and other Ornithological aspects.

Acknowledgement

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Photos



Mirafra williamsi



Baleria shrub



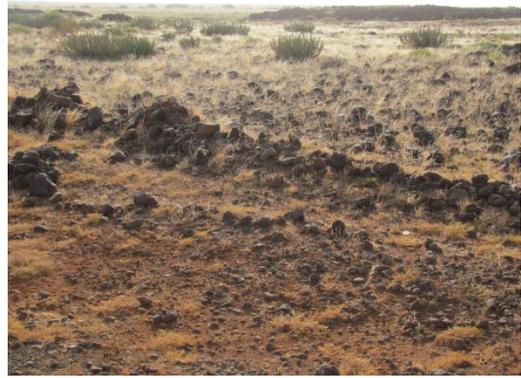
Goats' kids shelter – lava rocks used



Research team



25m transect



Mirafra williamsi habitat