

Baseline Survey Report
For the
Fox's Weaver & Karamoja Apalis
in North-Eastern Uganda

Prepared by

Plot 1, Katalima Crescent, Lower Naguru | P.O.Box 27034, Kampala, Uganda |
Tel; +256 414 540719 | Fax +256 414 533528 | Email:
nature@natureuganda.org | Website: www.natureuganda.org



August 2019



Acknowledgement

Special thanks go to members of all four survey teams (Names) from **NatureUganda** and Uganda Bird Guides Club (UBGC), who participated in the survey as well as the entire NatureUganda staff. Sincere gratitude goes to the Vegetationmap4africa team for providing vegetation GIS data sets for Uganda, and the EUROPEAN SOIL DATA CENTRE (ESDAC) for providing the soil GIS data set for Africa, that were key in mapping the potential distribution of the Fox's Weaver. We further appreciate the support from the Local Authorities in the study sites for their support and guidance during the surveys.



FIGURE 1: FOX'S WEAVERS IN MAGORO, KATAKWI ON THE LEFT A MALE; A FEMALE ON THE RIGHT. (PHOTO CREDIT: ONONGO JONATHAN).

ABSTRACT

Last documented in 1996 with more than 40 individuals breeding on the fringes of Lake Bisina, the Fox's Weaver *Ploecius Spekoides* was not recorded again until in the recent two years when the bird was rediscovered breeding at a different site but in the same catchment of Lakes Bisina and Opeti. This weaver species is restricted to the north-eastern parts of Uganda. An excursion in August 2019, discovered new pockets of breeding colonies in new areas where the species was not known before in the seasonally flooded planes of that region.

The Fox's weaver is among the special birds for Uganda and is only found in Uganda and nowhere else in the world. The species is poorly studied and has only been recorded in the seasonally flooded wetlands in Teso Sub-region in the North-Eastern part of the Country. Previous records were from L.Opeti, L.Kyoga and L.Bisina fringes, where the species preferred Papyrus swamps with nearby trees, but nesting on trees in wetlands or over water. The species mainly breeds during the main rainy season and was suspected to move further north to South Sudan during the dry season.

Similarly, the Karamoja Apalis *Apalis karamojae* is another rarely recorded species which inhabits the same habitat like the Fox's Weaver. Some information exists on its ecology and population but its not adequate. The Karamoja Apalis is a rare and little known East Africa endemic species in the Cisticolidae family. The species is confined to north-eastern Uganda, northern Tanzania and southern Kenya. The species was first discovered in 1919 at Mount Kamalinga in the then Karamoja District in Uganda where three specimens were collected by Van Someren. Presently, the distribution of the Karamoja Apalis in Uganda is limited in range to the north-eastern part of Uganda in the area around Kidepo, Mt Moroto, and Mt Napak. The population of the Karamoja Apalis although largely unknown is projected to be declining in many of its major habitats due to reduction in the size and quality of its preferred habitat *Vachellia drepanolobium* wooded grassland

NatureUganda is leading the way in bridging the information and knowledge gap with regard to the ecology and behavior of the two species. Working with partners such as African Bird Club (ABC), Uganda Bird Guides Club (UBGC) and Local bird guides, NU has carried out a total of three excursions, to locate and estimate the population of the species, map their distribution and document the habitat of the birds especially the breeding ecology.

The August 2019 the Fox's Weaver and Karamoja Apalis survey was conducted by a team comprised of four groups. The team was made up of members from NatureUganda staff and volunteers from Uganda Bird Guides Club (UBGC). Line transects were conducted to map the distribution of the two species in North-eastern Uganda. In addition to that, the habitat characteristics at all sites were described and recorded including specific information on the nesting sites of the two species. Information on the distribution and habitat preference of the Fox's Weaver and Karamoja Apalis will be vital in identifying priority areas for conservation.

The survey was timed to coincide with the known peak of the breeding season of the two species. Majority of the sites surveyed were found in Katakwi District, Kapelebyong, Kumi, Soroti and Napak districts. Through the dedicated effort of all teams, the Fox's Weaver and Karamoja Apalis were recorded in Magoro, Palam, Ngarium in Katakwi Districts, Ogongoja in Kapelebyong District and Irimi in Napak District. Previously another colony was recorded in Pian Upe in Nakapiripit District. No records were made in the visited sites in Kumi and Soroti Districts despite of previous reported observation at the Awoja bridge in Soroti District. In all observation except Irimi sites, the weaver was recorded breeding.

Findings from the survey showed that, the Fox's Weaver and Karamoja Apalis both inhabit mainly seasonally flooded grasslands dominated by *Vachellia drepanolobium* commonly known as the Whistling-thorn Acacia. However, the breeding colony of the Fox's Weaver in Palam was away from the wet places but close to the

stagnant pools of water on the roadsides. This acacia species was the favored nesting tree for the Fox's Weaver. Magoro and Ngarium had the highest number of observed individuals. In all cases of the breeding records, the nesting trees were within the vicinity of a road and it was not uncommon to see birds flying across the road or perched just a few meters off the road in this area. On the contrary, no Breeding Karamoja Apalis was recorded during the survey.

Altogether, sixty-six (66) individuals of Fox's Weaver were recorded from the survey. Majority of these (74%) were males, 23% were females while 3% were Juveniles. Most individuals (50) were recorded in Katakwi, seven (7) in Napak, six (6) in Amuria and three (3) in soroti. A total of 168 nests were recorded from Eight (8) locations in the Districts of Amuria and Katakwi. In the same way, seventeen (17) individuals of the Karamoja Apalis were recorded from the survey. Twelve (12) of these were males, while Five (5) were females. Majority of the birds (8) were recorded in Napak, five (5) in Katakwi, two (2) in Amuria and two (2) in Soroti. There were no nests of the Apalis recorded at any of the sites.

The survey takes us an important step forward in unraveling the mystery of Uganda's only endemic bird species. However, more studies will be required in the near future to understand the bird's distribution and ecology so as to mitigate threats to its habitat and develop species conservation measures to ensure the survival of its population in Uganda. This should apply to both breeding and non-breeding seasons.

Table of Contents

Acknowledgement	1
ABSTRACT	2
Introduction	5
The Fox’s Weaver <i>Ploceus spekeoides</i>	5
The Karamoja Apalis <i>Apalis Karamojae</i>	6
STUDY AREA AND METHODS	7
Study Area	7
Survey Methods	9
RESULTS	9
Fox’s Weaver Sightings	10
Breeding Records	11
Nesting Materials	12
Bird Activity	13
Karamoja Apalis	14
Habitat Characteristics	15
ASSESSMENT OF POTENTIAL DRIVERS FOR THE DISTRIBUTION OF THE FOX’S WEAVER AND KARAMOJA APALIS	16
Dominant Vegetation	16
Human Activities	17
Modeling distribution of Fox’s Weaver and Karamoja Apalis in the study sites	17
Altitude	17
Fox’s Weaver	17
The Karamoja Apalis	19
Vegetation	22
Fox’s Weaver	22
Karamoja Apalis	23
Soil type	24
Fox’s Weaver	24
Karamoja Apalis	25
Conclusion	26
References	26

Introduction

The Fox's Weaver *Ploceus spekeoides*

The Fox's Weaver *Ploceus spekeoides* is Uganda's only endemic bird species (Carswell *et al.* 2005). The species is named after Harold Munro Fox an English Zoologist who first collected the species in 1913 at Usuk and Ngarium, Katakwi district during July and August. Fox collected two specimens of the Fox's Weaver, a male on 30th July 1913 at Ngarium, and a female on 14th August 1913 at Usuk. The specimens were presented to the British Museum in 1923 where they remained until 1947 when Grant and Mackworth-Praed fully described the species (Grant and Mackworth-Praed 1947).

The population of the species is unknown. The first documented rediscovery of the species was in July 2018 when the NatureUganda team made a reconnaissance to the freshly discovered sites of the species. This was followed by a more intense survey in the area in August 2019 covering four districts and extensive habitats where most of the records of the species were on nests, indicating the peak of the breeding season. Apart from the breeding season that is known to occur between May and August, the ecology and behavior of the species has not been well studied and documented. The species is Globally and regionally Near Threatened but locally considered to be Endangered (WCS, 2016).

The species is restricted to the North-eastern part of Uganda. Most records have been made at Aketa, Usuk, Ngarium and Katakwi in the then Teso district where the species is very common in the rainy seasons (Pitman 1948, Mann 1976). More recently, we have had forty-seven nests of the species Recorded around Lake Bisina in early August 1996 as well as the unconfirmed records from Rhino camp in Arua and south of Lake Kyoga near Nakasongola (Byaruhanga *et al.*, 2001). However, the distribution of the species is largely unknown, but it is thought to be restricted to an estimated area of 33,300 km² in North-eastern Uganda (BirdLife International 2017).

The Fox's Weaver is a rare weaver, with a large head, heavy bill and short tail. The male has a red eye, yellow rump, and a black mask that ends in a point on the breast. The species is similar to a number of species and can easily be mistaken for a number of other similar looking weavers. The species bears a close resemblance to the Speke's Weaver *Ploceus spekei*, although the Speke's Weaver has a pale eye and has a different range. The Heuglin's Masked Weaver *Ploceus heuglini*, on the other hand, has small bill, pale eye, and plain green back. The Vitelline Masked Weaver *Ploceus vitellinus* has a characteristic chestnut crown and a black mask that is rounded on the throat while the Lesser Masked Weaver *Ploceus intermedius* has a white eye and black fore-crown. The female Fox's Weaver is dull, with yellow rump and underparts, and with heavy dark streaks on the crown and back (Keith and Fry, 2004).

The feeding ecology of the species is not well studied, however, the species is known to feed on ants and seeds (Keith & Fry, 2004). Breeding ecology of the bird is relatively well studied and is thought to occur between May and August. The Fox's Weaver prefers nesting on Whistling-thorn acacia trees standing in water. (Fox's Weaver Expedition Report, 2018). Nests size is 140mm long and 80mm high, entrance 45mm by 50mm with no entrance tunnel (Keith and Fry, 2004).

The species is globally and regionally Near-threatened (BirdLife, 2017) and classified as Endangered on the national Red list (WCS, 2016). The species is threatened by habitat destruction and modification. Over 20,000 heads of cattle move to the Opeta region each dry season (October-February) in search of

water and pasture; a factor degrading wooded grasslands upon which the species is dependent for breeding (Byaruhanga *et al.* 2001).

The Fox's Weaver *Ploceus spekeoides* has only been recorded from a restricted area of seasonally flooded wetlands in northern Uganda (Collar and Stuart 1985, and Byaruhanga *et al.* 2001). The species has been recorded at two Important Bird Areas (IBAs), Lake Bisina and Lake Opeta, and is found in the marshland habitat stretching between these lakes. There are also records from as far North as Rhino Camp in Arua, the environs south of Lake Kyoga near Nakasongola and around Lake Bisina (Byaruhanga *et al.* 2001).

For a period of over twenty years since 1996, the presence of the species in the country had not been documented, with only a few occasionally unconfirmed sightings. A survey conducted by NatureUganda in 2015, was unsuccessful, despite extensively surveying the habitat in North-eastern Uganda, no individuals of the species were recorded (Nalwanga *et al.*, 2015). A second survey conducted by **Nature**Uganda in August 2018, was more successful.

Recording twelve (12) individuals of the species and Thirty-two (32) nests of the species in Magoro, Katakwi District. This survey in 2018, therefore, confirmed the presence of the Fox's Weaver in North-eastern Uganda. Since then, the species has been sighted numerous times by different observers.

Although the presence of the species in North-eastern Uganda is confirmed, the distribution of the species in its area of occurrence is not known. **Nature**Uganda conducted a survey of the Fox's Weaver and Karamoja Apalis, in collaboration with the Uganda Bird Guides Club (UBGC) so as to document the extent of occurrence and distribution of the species in North-eastern Uganda.

The Karamoja Apalis *Apalis Karamojae*

The Karamoja Apalis *Apalis karamojae* is a rare and little known East Africa endemic species in the Cisticolidae family. The species is confined to north-eastern Uganda, northern Tanzania and southern Kenya (Nalwanga *et al.*, 2016; Shaw 2007 and Urban *et al.*, 1997). The species was first discovered in 1919 at Mount Kamalinga in the then Karamoja District in Uganda where three specimens were collected by Van Someren (Collar and Stuart, 1985; Van Someren, 1921). The distribution of the Karamoja Apalis is limited in range to the north-eastern part of Uganda in the area around Kidepo, Mt Moroto, and Mt Napak.

At present, the population of the Karamoja Apalis although largely unknown is projected to be declining in many of its major habitats due to reduction in the size and quality of its preferred habitat *Vachellia drepanolobium* wooded grassland (Nalwanga *et al.*, 2016).

The Karamoja Apalis is mostly plain grey with much white in tail and its characteristic white wing-flash. The species is easily distinguishable from any Warblers, although the species bears close resemblance with the Grey Tit-Flycatcher *Myioparus plumbeus*, another grey and white bird with white in tail occurring in Northern Uganda. The Grey Tit-Flycatcher lacks wing-flash and has white in tail confined to outermost feather. Unlike Fox's Weaver that show sexual dimorphism, both sexes of the Karamoja Apalis are alike.

The Karamoja Apalis has a black bill, brown eyes, black feet and legs. The forehead, crown, nape, mantle, cheeks and back to upper tail-coverts are ash grey; ear-coverts are darker grey. The species has a white stripe from nares to above eye, pre-orbital blackish loreal spot. The wings are blackish brown with outer webs broadly edged white, forming the characteristic wing flash. The underparts and thighs are mostly white.



FIGURE 2: THE KARAMOJA APALIS *APALIS KARAMOJAE* PERCHED ON A WHISTLING-THORN ACACIA IN NGARIUM MAGORO. (PHOTO CREDIT: ONONGO JONATHAN)

The Karamoja Apalis is globally and regionally Vulnerable (BirdLife, 2017) but locally Endangered (WCS, 2016). The species is threatened by cultivation, livestock farming and wood-cutting that have caused significant reduction in the potential habitat for the species in north-eastern Uganda. Its range now appears to be declining following a recent reduction in the coverage especially of *V. drepanolobium* in north-eastern Uganda (Nalwanga *et al.*, 2016).

The Karamoja Apalis has been recorded only in the Karamoja region in the past, (Nalwanga *et al.*, 2016); but more recently the species has been recorded as far south as Magoro, Katakwi (Fox's Weaver Expedition Report, 2018). The survey to document the rediscovery of the Fox's Weaver recorded one individual of the Karamoja Apalis in Magoro, Katakwi. Just like the Fox's Weaver, the species appears to be restricted to seasonally-flooded wooded grasslands dominated by *Vachellia drepanolobium* that are common and appear to be restricted to north-eastern Uganda.

Aim

The major aims of the study were;

- To estimate the range of occurrence of the Fox's Weaver and Karamoja Apalis in North-eastern Uganda.
- To document the habitat preference of the two species, Fox's Weaver and Karamoja Apalis.

STUDY AREA AND METHODS

Study Area

The study was carried out within the breeding season of Fox's Weaver between May and August (Keith and Fry, 2004). Fourteen sites from six districts covering a total area of about 13,000 square Kilometers were surveyed. The study covered districts of Katakwi, Soroti, Kumi, Amuria, Ngora and Napak.

Four teams comprising of **Nature**Uganda staff and volunteers from Uganda Bird guides Club conducted the study. Line transects were established systematically in seasonally flooded wooded grassland areas as these were deemed to have a high likelihood of occurrence of the species based on previous records (Fox’s Weaver Expedition Report, 2018). Other potential habitats especially those in seasonally flooded wetlands were also surveyed.

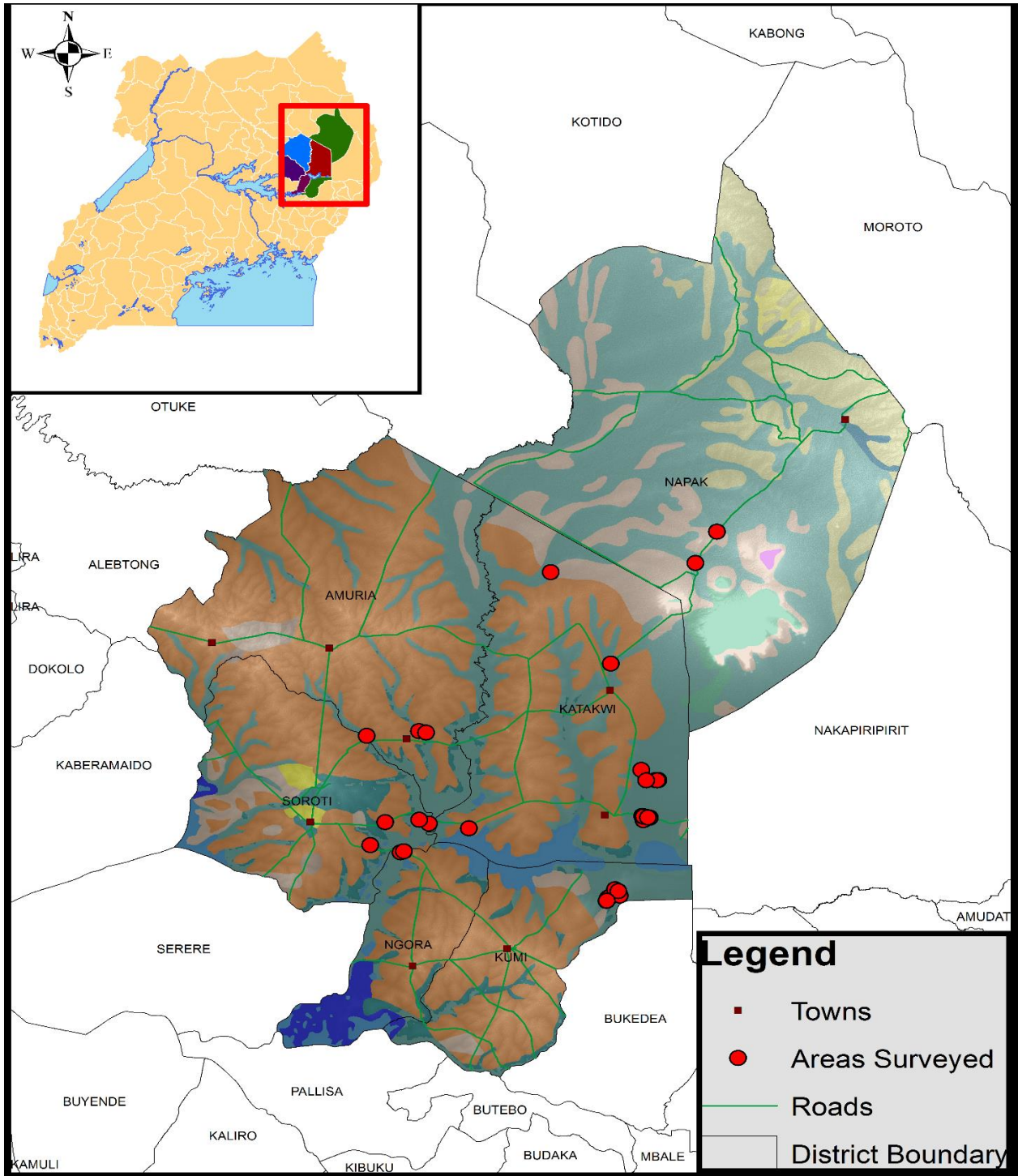


Figure 3: Locations of various study sites in north-eastern Uganda.

Survey Methods

Along each transect, a number of variables were recorded including; number, sex, and activity of each individual of the two species; the GPS coordinates of all nesting trees and bird sightings; the number of nests, nesting tree characteristics such as species name and tree height, the dominant vegetation, and predominant human activity.

RESULTS

The two species Karamoja Apalis and Fox's Weaver were recorded from four (4) out of the six (6) districts surveyed (Soroti, Katakwi, Amuria and Napak) as in figure 4. Ngora and Kumi didn't record any individuals of the species although there was suitable habitat of the whistling thorn where the two species seemed to be recorded.

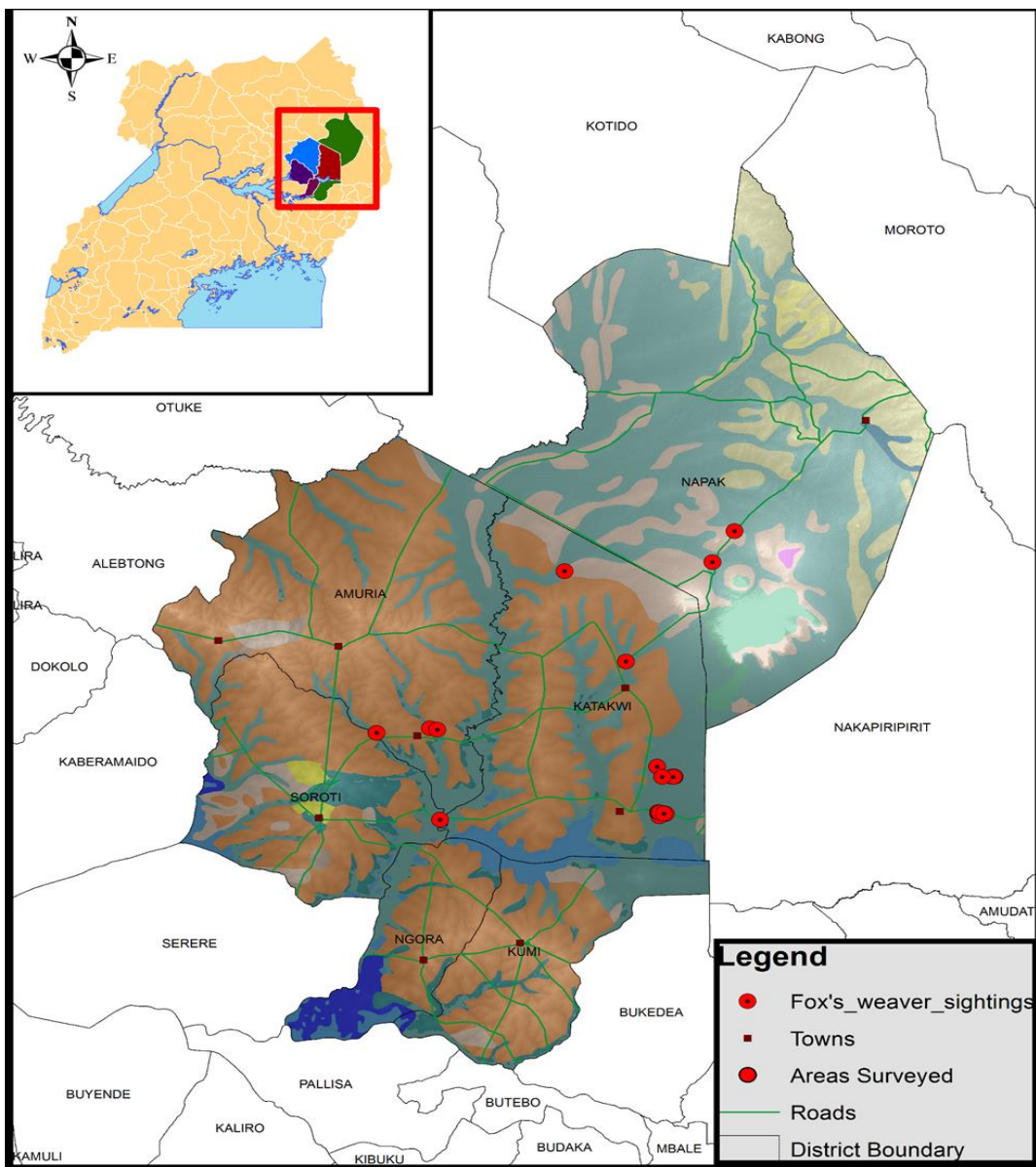


Figure 4: Sites which registered the Fox’s Weaver and Karamoja Apalis sightings in North-eastern Uganda during the Survey in August 2019.

Fox’s Weaver Sightings

Sixty-six (66) individuals were recorded from the survey. Majority of these (74%) were males, 23% were females while 3% were Juveniles (Figure 2). Most of these (50) were recorded in Katakwi, seven (7) in Napak, six (6) in Amuria and three (3) in soroti (Figure 5).

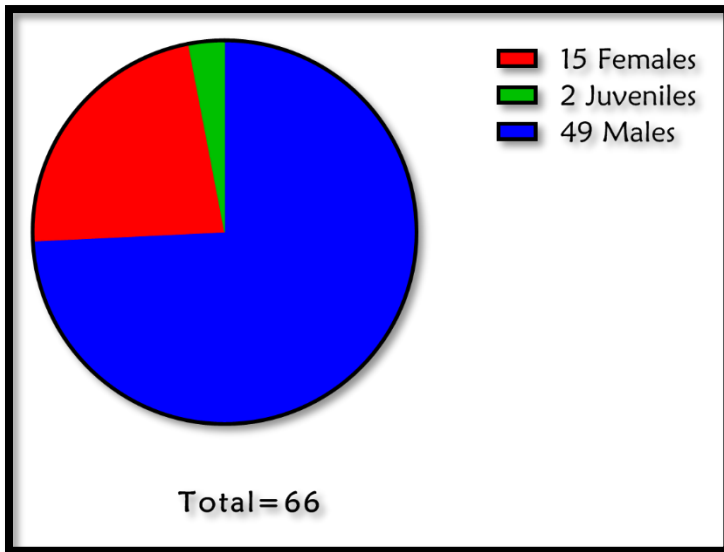


Figure 5: The number of male, female and juvenile Fox’s Weaver recorded during the Survey in August 2019

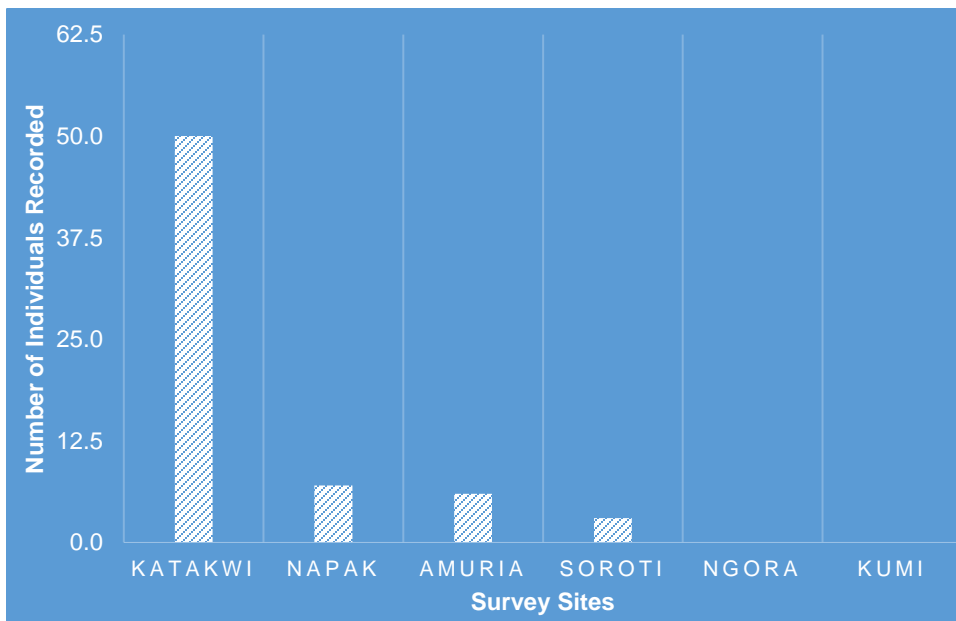


Figure 6: Number of Fox’s Weaver individuals recorded in the sites surveyed in August 2019.

Breeding Records

A total of 168 nests were recorded from Eight (8) locations in the Districts of Amuria and Katakwi (Figure 7). Majority of the nests (51%) were active, while the rest were inactive. All the nests recorded were constructed on Whistling-thorn *Acacia Vachellia drepanolobium* as shown in Figure 8 below. Most of the nests were constructed on trees either in water or in the vicinity of water. In the field, it was observed that Males seem to do most of the nest construction, while females inspect and chose the best nests (Pers. obs).

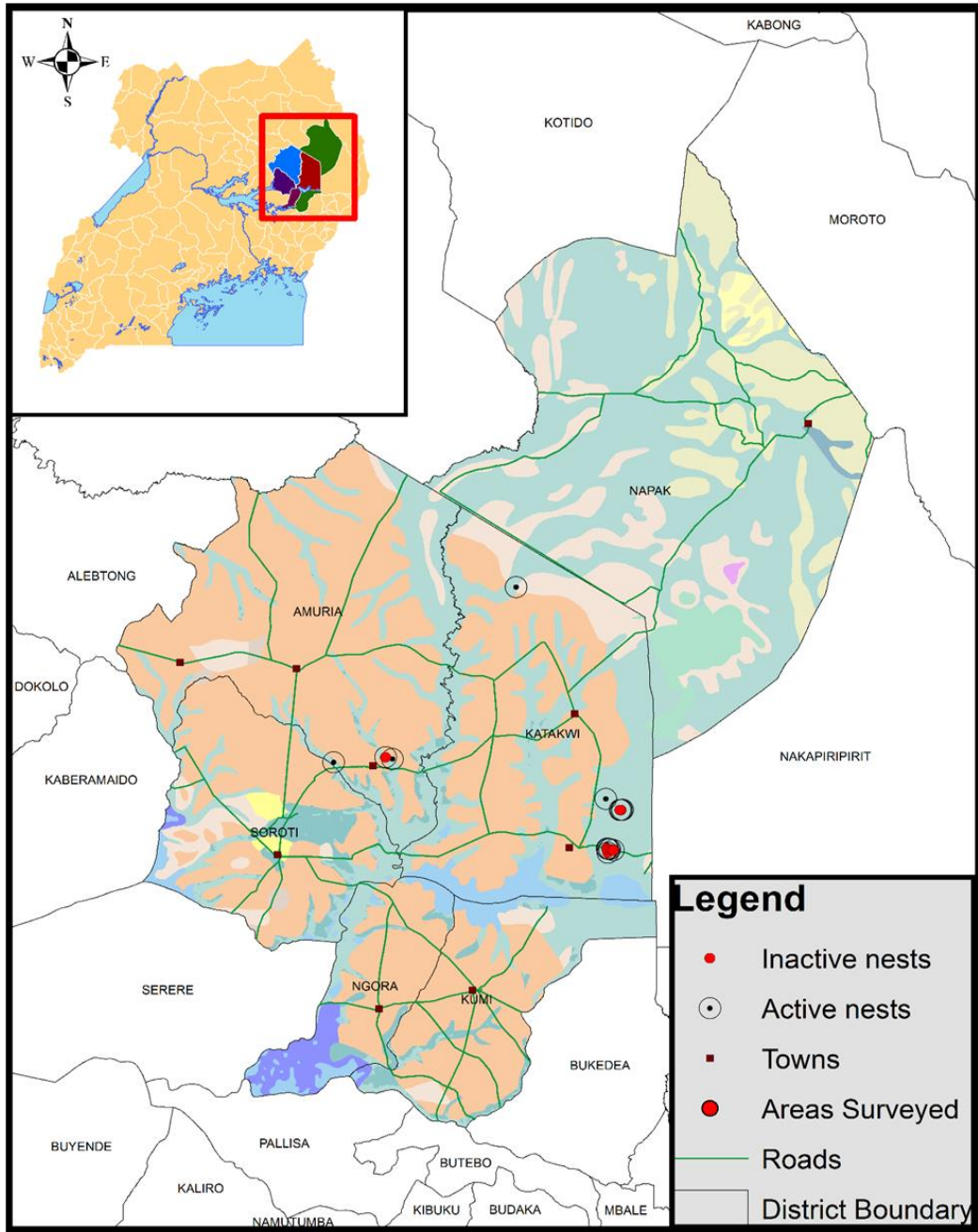


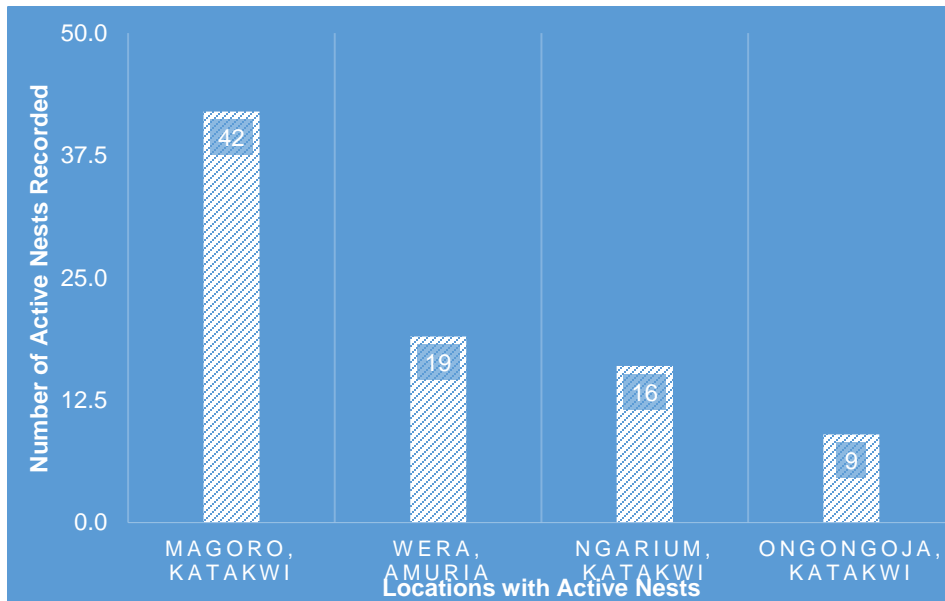
Figure 7: Locations of Fox's Weaver nesting sites recorded during the survey in August 2019.



Figure 8: A Fox's Weaver nest on a Whistling-thorn Acacia in Magoro, Katakwi.

Active nests were recorded in two major districts, Amuria and Katakwi. The sites in Magoro,- Katakwi had the highest number of active nests 42 (Figure 9), which is an indication of the importance of the sites for the breeding of the weaver.

Figure 9: Number of Active nests recorded in the sites surveyed in August 2019



Nesting Materials

The principal nesting material used by the Fox's Weavers is African bristle grass, *Setaria sphacelata* (Plate 1). The weaver uses the stalks and inflorescences of this grass to weave the nest (Figure 5). The inside of the nests is

usually lined with Guinea grass, *Megathyrsus maximus* (Plate 1). These findings suggest that the species appears to be selective of its nest-building material.



Plate 1: Nesting material used by Fox's Weaver. Guinea grass *Megathyrsus maximus* (left) and African bristle grass *Setaria sphacelata* (right).

Bird Activity

Most birds were observed feeding accounting for 51% of records (Figure 10). The Fox's Weaver was observed feeding on the ant *Crematogaster mimosae*, that is symbiotic with the Whistling-thorn Acacia pictured below. Other activities such as Perching and Nest Building were strongly associated with this Whistling-thorn Acacia.



Plate 2. The most common food for Fox's Weaver *Crematogaster mimosae*.

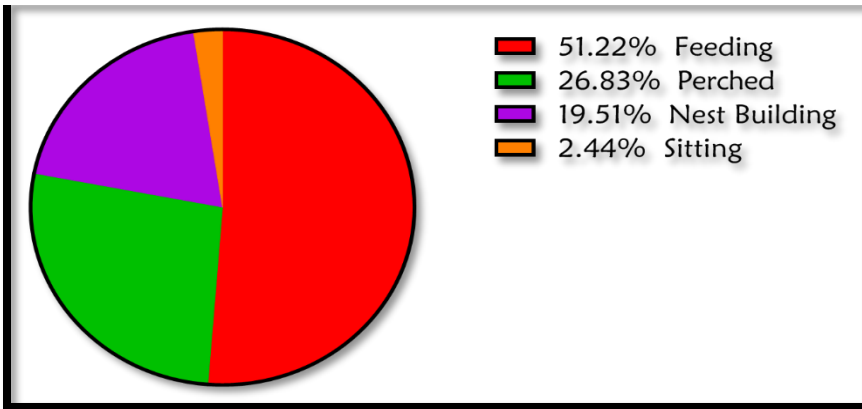


Figure 10: The activity of the birds recorded during the survey.



Figure 9: A Male Fox's Weaver Feeding on guinea grass seeds in Magoro, Katakwi.

Karamoja Apalis

Seventeen (17) individuals were recorded from the survey. Twelve (12) of these were males, while Five (5) were females. Majority of the birds (8) were recorded in Napak, Five (5) in Katakwi, Two (2) in Amuria and Two (2) in Soroti as shown in Table 2 below. There were no nests recorded at all sites.

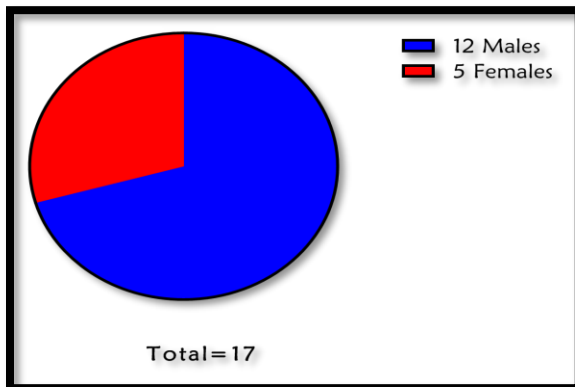


Figure 10: The number of male and female individuals of Karamoja Apalis

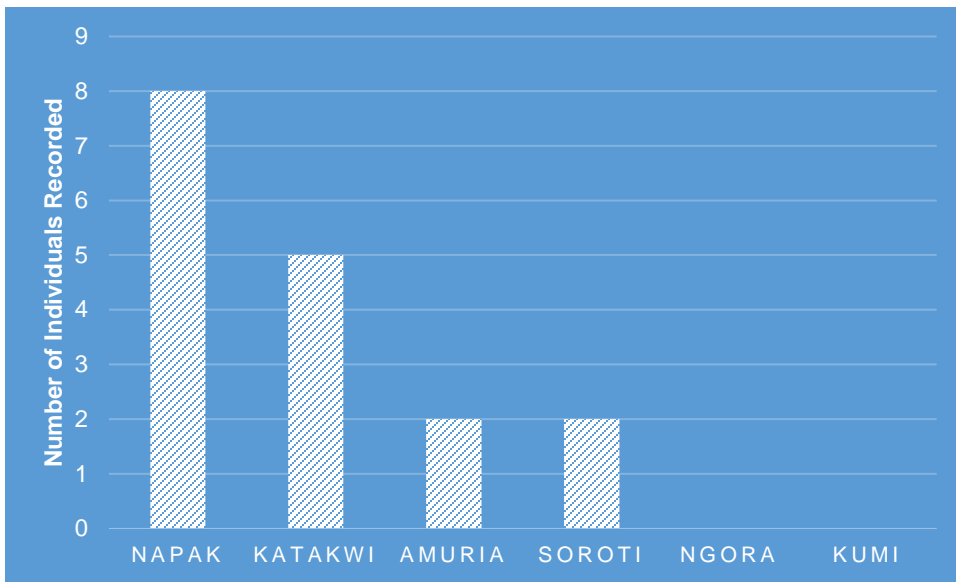


Figure 11: The number of Karamoja Apalis individuals recorded per district surveyed.

Habitat Characteristics

Most of the Fox’s Weaver sightings and nesting records (97%) were recorded in seasonal wetlands as opposed to 3% of sightings made in dry areas. Interestingly, Fox’s weaver and Karamoja Apalis were recorded at the same sites often feeding together. The seasonal wetlands in North-eastern Uganda are characterized by seasonally-flooded wooded grasslands dominated by Acacias.

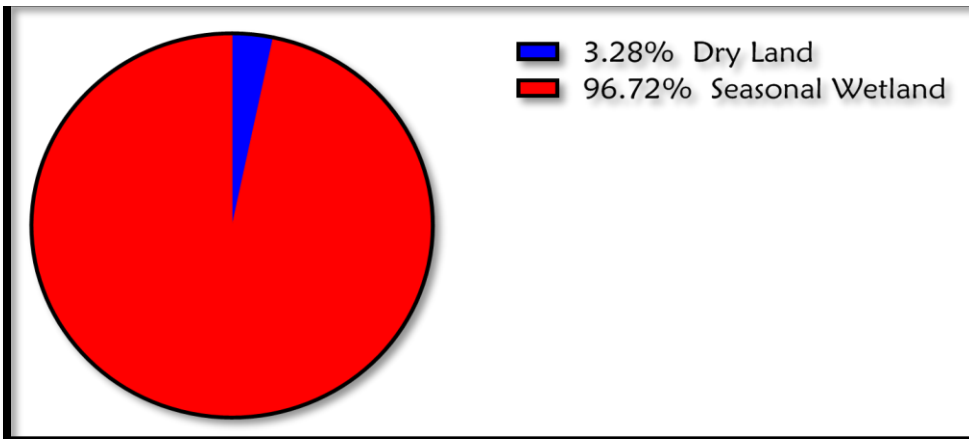


Figure 11: The distribution of Fox’s Weaver sightings in the different habitat types.

ASSESSMENT OF POTENTIAL DRIVERS FOR THE DISTRIBUTION OF THE FOX'S WEAVER AND KARAMOJA APALIS

Dominant Vegetation

The Whistling-thorn Acacia was the dominant tree species in the areas where Fox's Weaver and Karamoja Apalis were recorded (Figure 12). This Acacia is the preferred nesting tree species for the species. Both species were sighted feeding on ants (*Crematogaster mimosae*) symbiotic with the Whistling-thorn Acacia.

The dominant herbaceous species was *Hyparrhenia rufa*, often occurring in mixed stands with *sporobolus pyramidalis*, *Setaria sphacelate* and in a few instances, *Megathyrsus maximus*.



Figure 12: The most dominant vegetation type. Whistling-thorn Acacias.



Plate 3: The dominant grass species. *Hyparrhenia rufa*.

Human Activities

Grazing was the major human activity at all Fox's Weaver and Karamoja Apalis sites (93%). The wooded grasslands in the area provide good pasture for livestock and support cattle keeping the main occupation of the Iteso living in the area (Figure 13). Cattle keeping is often carried out alongside farming and fishing.

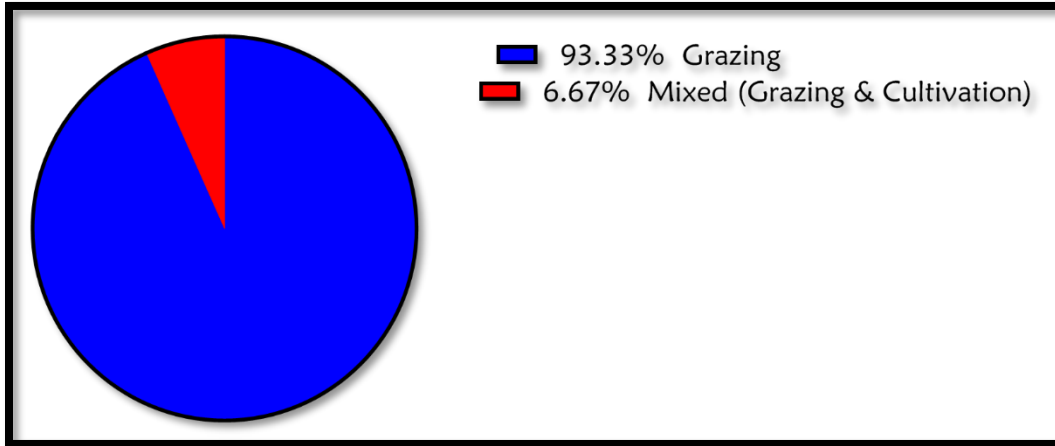


Figure 13: Human Activities at Fox's Weaver habitats

Modeling distribution of Fox's Weaver and Karamoja Apalis in the study sites

Using available GIS data on vegetation type, soil type and elevation of the study area, the key habitat characteristics based on three key parameters, soil, vegetation and elevation were identified and used to model suitability of the other areas. This information is vital in mapping the possible range and distribution of the two species.

The altitude data represents the 30 meters Digital Elevation Model (DEM) from Shuttle Radar Topography Mission (SRTM) published on 20th April 2015, retrieved from http://geoportal.rcmrd.org/layers/servir%3Auganda_srtm30meters.

Soil data were obtained from the Soil Atlas of Africa and its associated Soil Map data 2013 published by the EUROPEAN SOIL DATA CENTRE (ESDAC) on <https://esdac.jrc.ec.europa.eu/content/soil-map-soil-atlas-africa>.

Vegetation data used is derived from Potential natural vegetation map of eastern Africa retrieved from <http://vegetationmap4africa.org/>.

Altitude

Fox's Weaver

The altitude of Fox's Weaver sightings (individual and nest records) at the seven sites ranged between 1044m – 1262m above sea level. Sites in Napak district had higher altitudes than other areas, Iriiri had the highest altitude (1262m) while the altitude at Lorengecora averaged 1160m above sea level. Gweri in Soroti District had the lowest

altitude 1046m above sea level. All Fox’s Weaver sightings except those in Napak District fall between 1022 – 1099m (Table 8).

Table 8: The average altitude at Major Fox’s Weaver habitats.

S/no	Sites	Average Altitude (m)
	Gweri	1046
	Wera	1053
	Magoro	1047
	Palam	1071
	Ongongoja	1074
	Iriiri	1262
	Lorengecora	1160

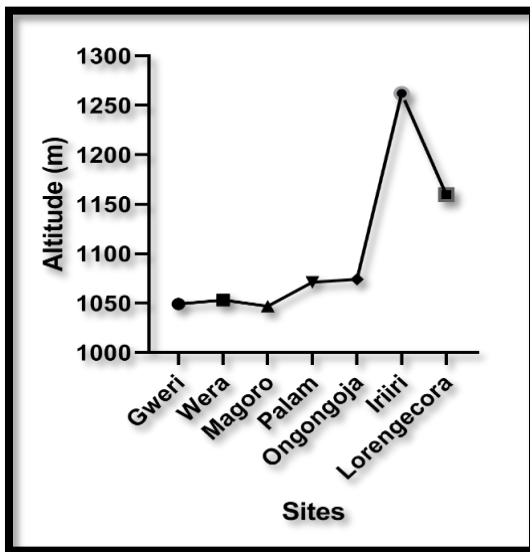


Figure 14: The Average altitude at major fox’s weaver sites.

It is important to note that no nesting records for the Fox’s Weaver were recorded at Iriiri, Napak district, therefore the elevation of Fox’s Weaver nest sites ranged between 1046m to 1074m above sea level.

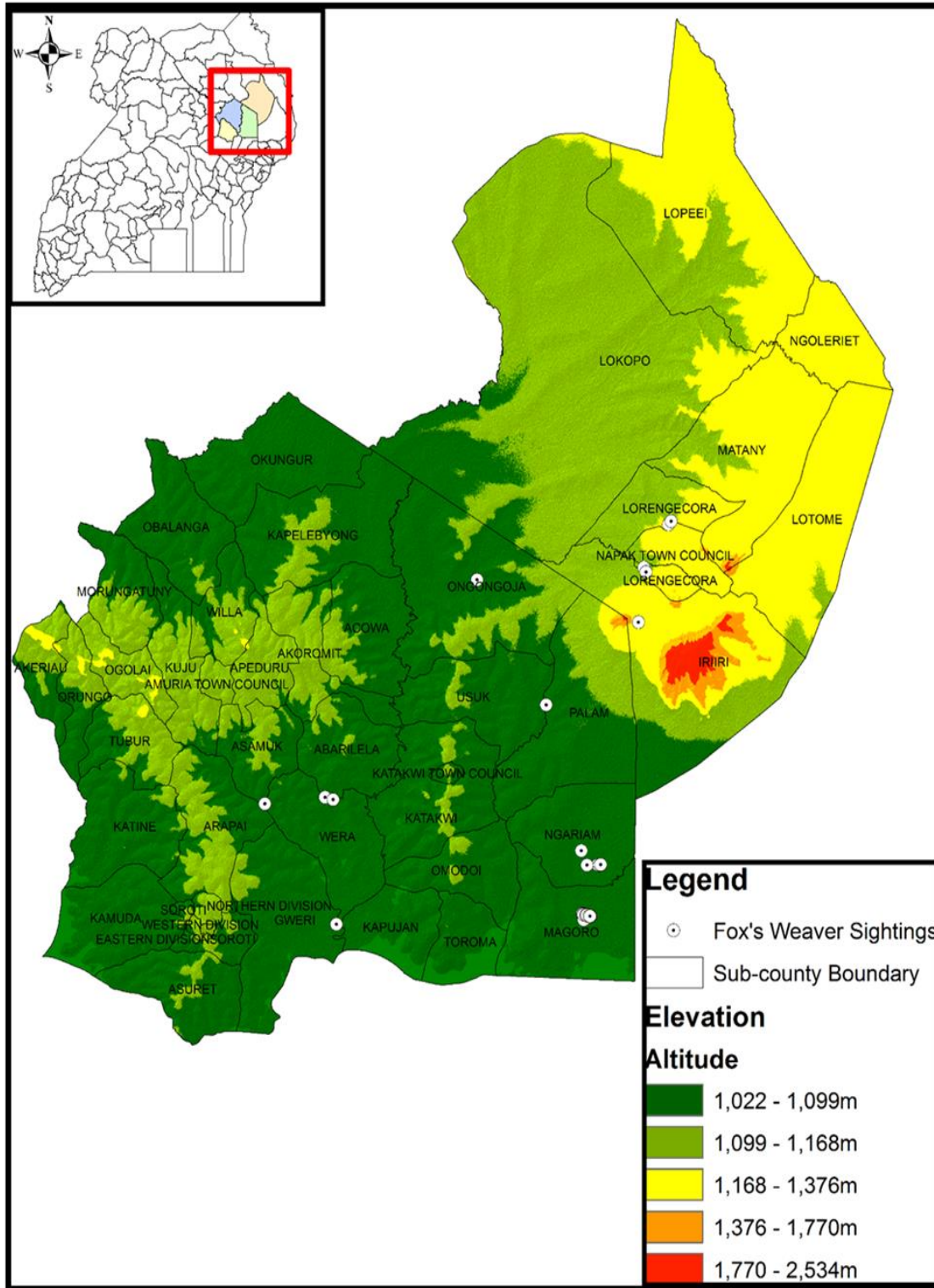


Figure 15: The Elevation of Fox's Weaver sightings and habitats.

The Karamoja Apalis

The altitude at the six major Karamoja Apalis sites ranged from 1048m to 1269m meters above sea level. Gweri, in Soro,ti had the lowest altitude, 1048m while sites in Napak district had the highest altitude (Figure 16).

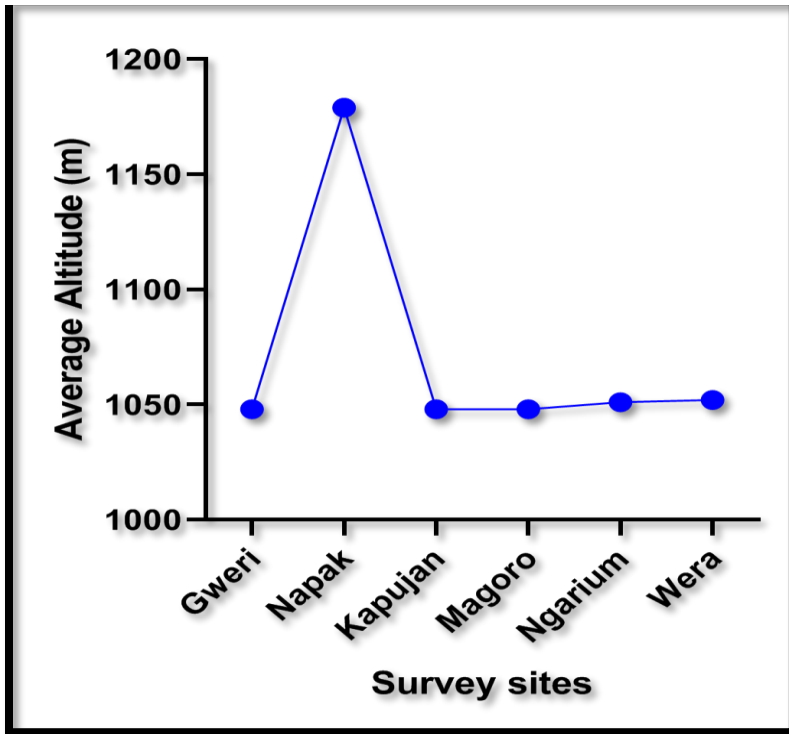


Figure 16: The average altitude of major Karamoja Apalis sites.

Table 9: The average altitude of major Karamoja Apalis sites.

S/no	Sites	Average Altitude (m)
	Gweri	1048
	Napak	1179
	Kapujan	1048
	Magoro	1048
	Ngarium	1051
	Wera	1052

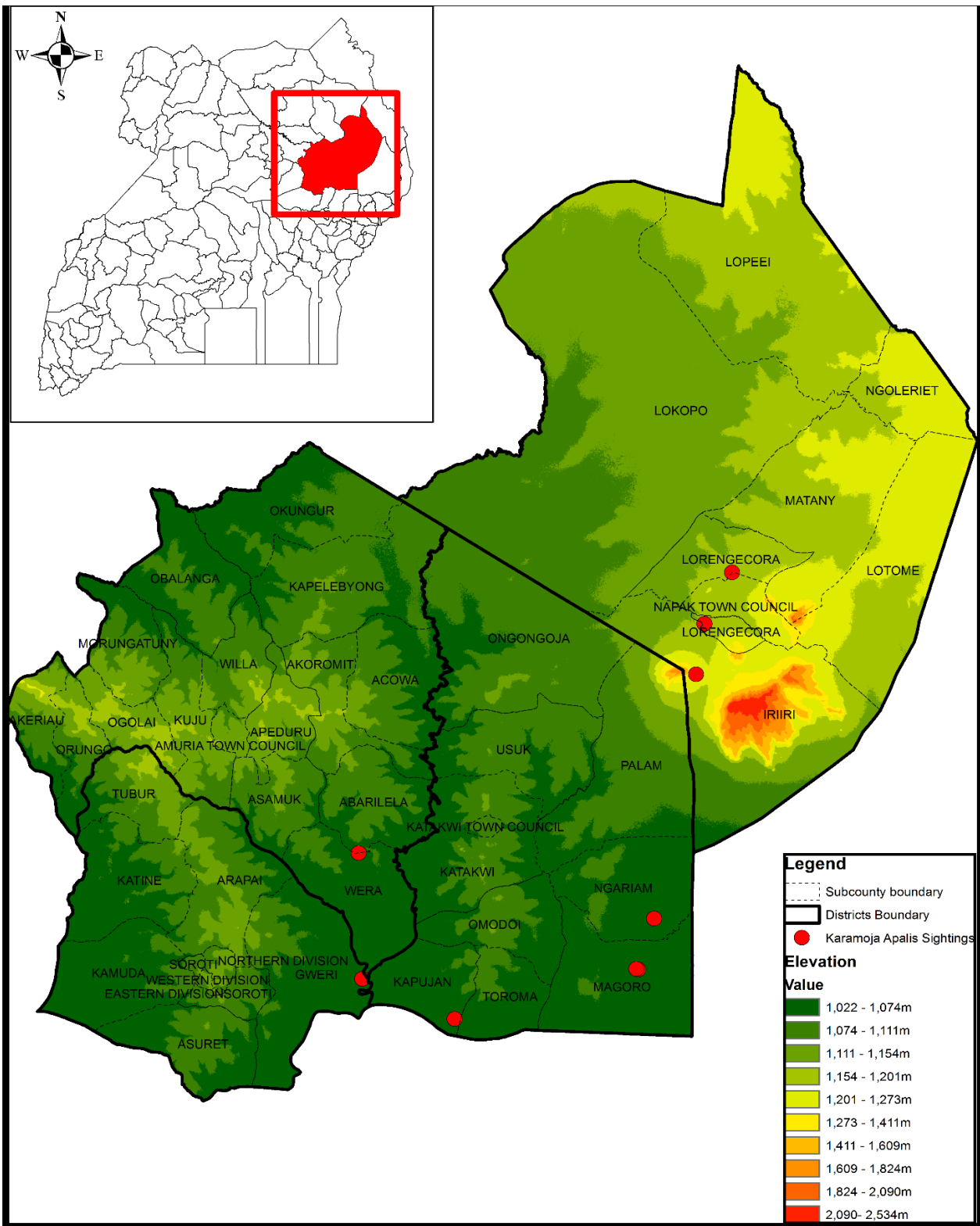


Figure 17: The altitude of Karamoja Apalis sites.

Vegetation

Fox's Weaver

The vegetation map for the study area generated clearly shows that the species was sighted within Edaphic Wooded grassland vegetation type (Figure 18). These wooded grasslands are dominated by Acacias and occur in drainage impeded soils (Bruegel *et al.*, 2015). This is no coincidence given that the Fox's Weaver feeds on ants that live on *V. drepanolobium*, and also nests on *V. drepanolobium*. These findings further confirm the assertion that the species might be restricted to seasonally flooded grasslands dominated by *V. drepanolobium*.

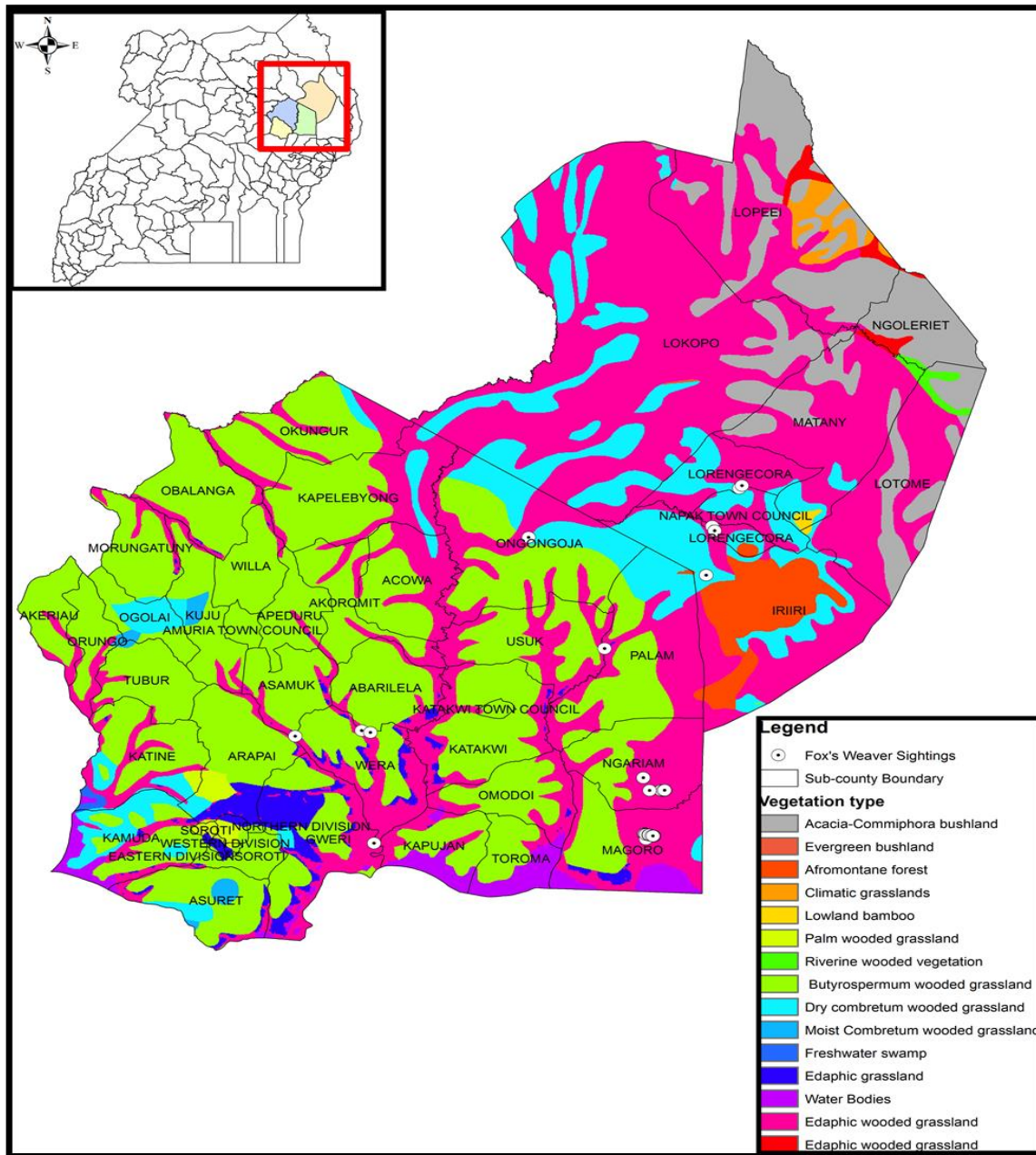


Figure 18: The Vegetation map of the area showing the location of Fox's Weaver sightings.

Karamoja Apalis

The Karamoja Apalis like the Fox's weaver was sighted within Edaphic wooded grasslands dominated by Acacias. The species was also sighted feeding on insects from the Whistling-thorn Acacia. In many instances, individuals were found feeding alongside the Fox's Weaver.

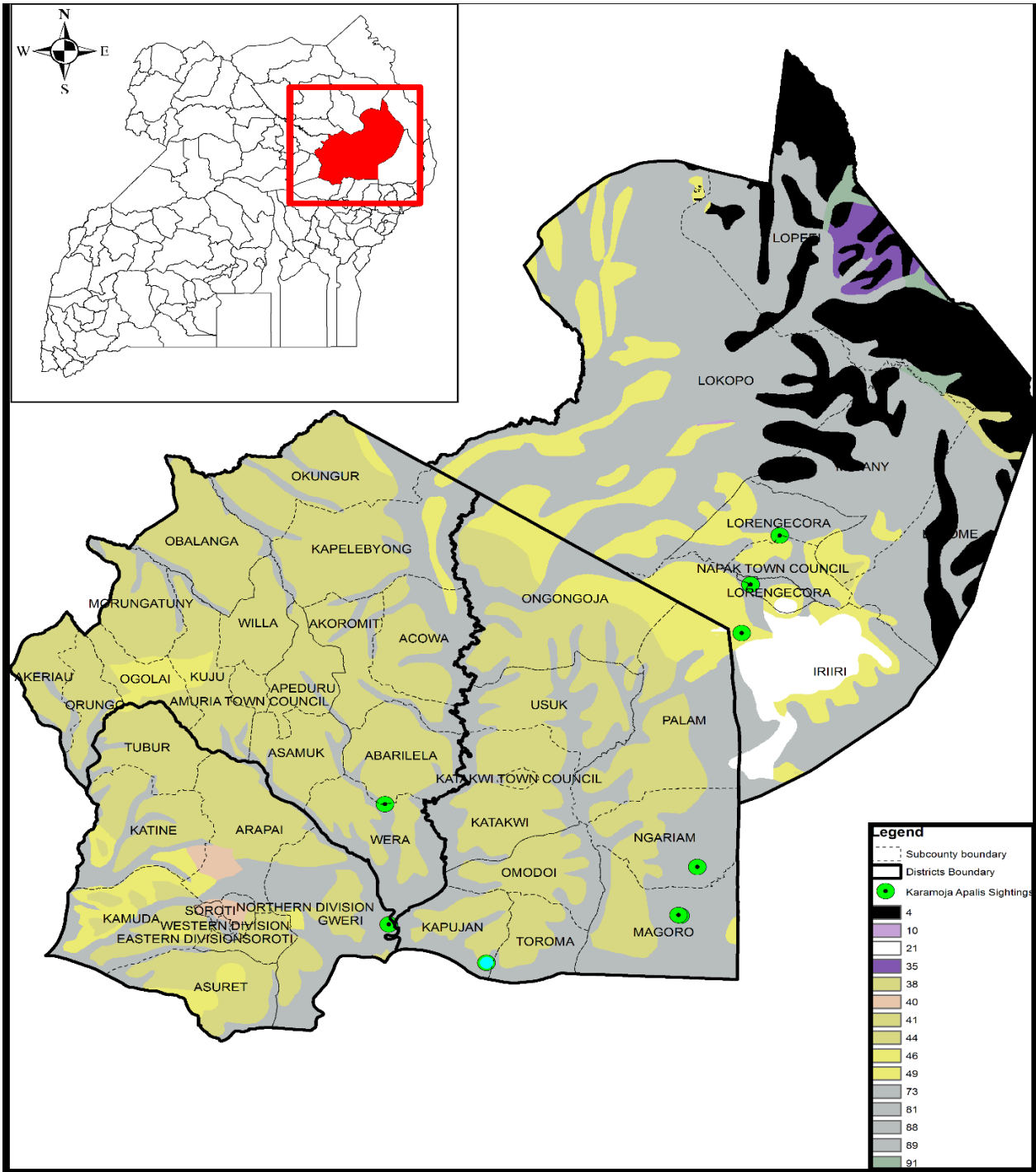


Figure 19: The Vegetation Map Showing the Location of Karamoja Apalis Sightings.

Soil type

Fox's Weaver

Fox's Weaver sightings were found within the Vertisols soil type (Figure 20). Although the soil type does not directly influence bird distribution, it plays a huge role in influencing vegetation type. The fact that most of the sightings were found within Vertisols indicates that the vegetation within these soils is vital for the species. An ecological analysis and characterization of acacia species in Kenya found that *Vachellia drepanolobium* grows in black cotton soils (Oginosako *et al.*, 2005).

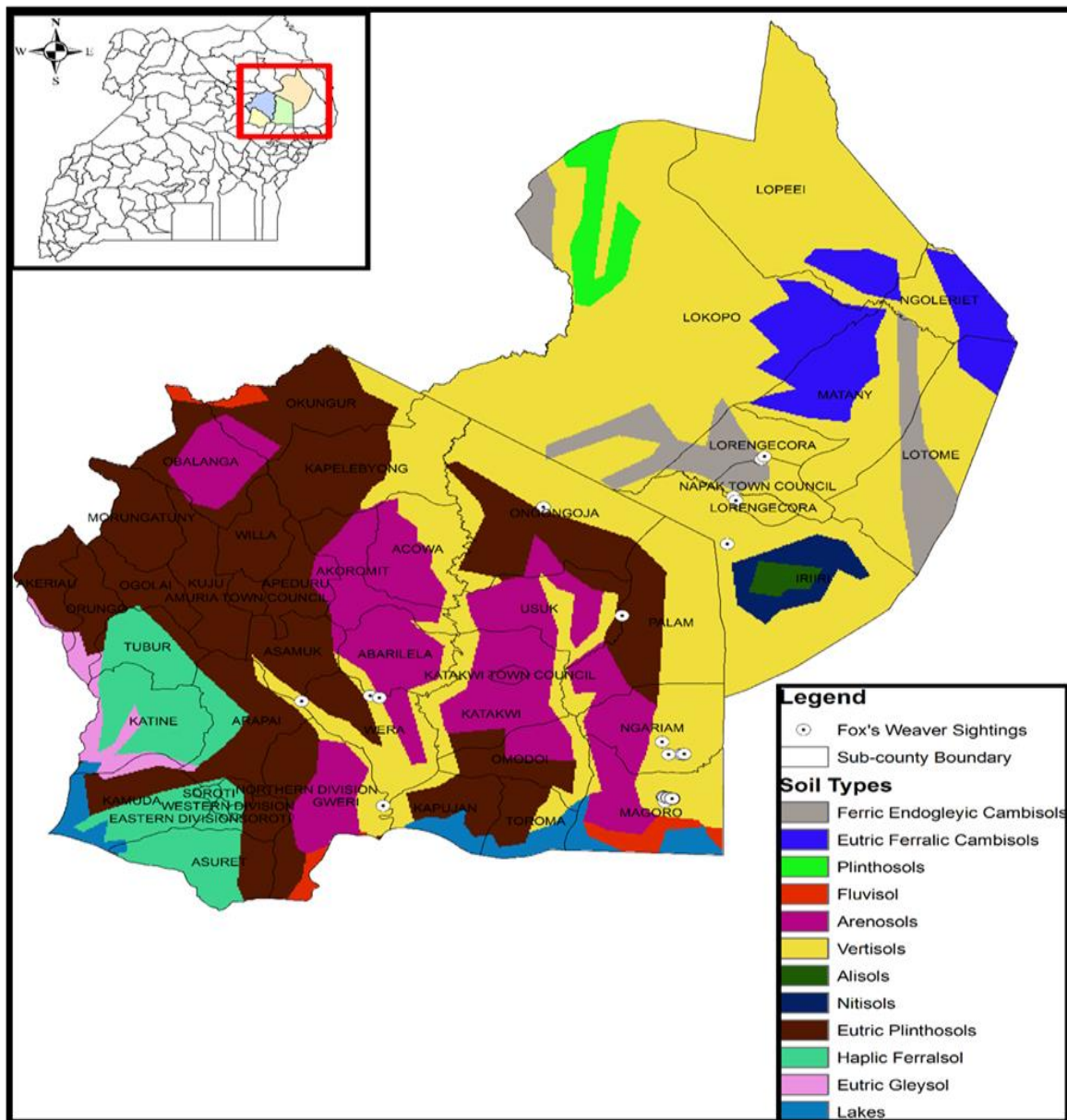


Figure 20: Soil types in the study area showing the location of Fox's Weaver sightings.

Karamoja Apalis

The Karamoja Apalis was also mostly sighted within the Vertisols soil type. Soil might be a very important factor determining vegetation type, given that the Karamoja Apalis has a great affinity to the Whistling-thorn Acacia.

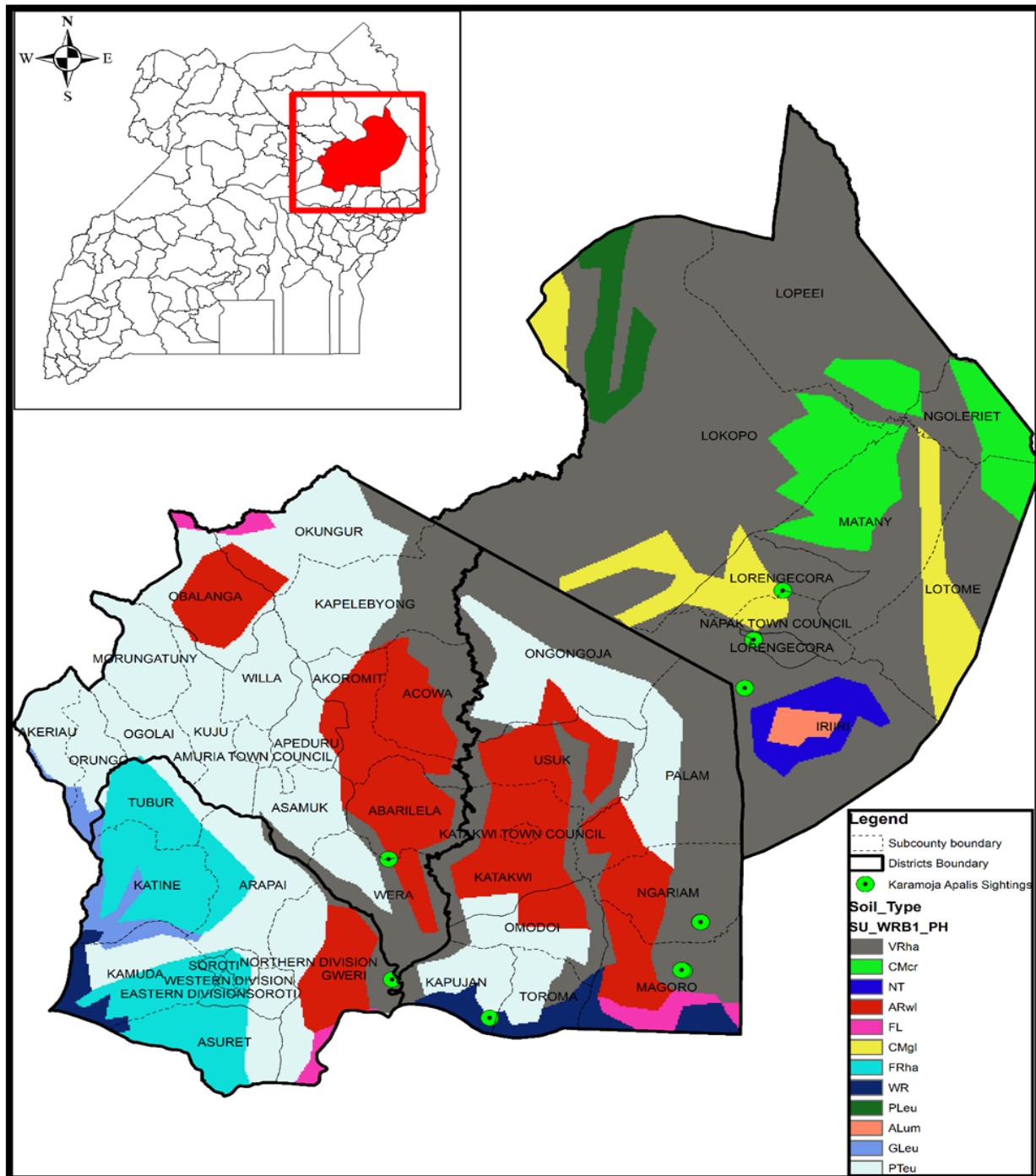


Figure 21: Soil types of the study area showing the location of Karamoja Apalis.

A vertisol is a soil in which there is a high content of expansive clay minerals, they form deep cracks in drier seasons or years. Vertisols typically form from highly basic rocks, such as basalt, in climates that are seasonally humid or

subject to erratic droughts and floods, or that impeded drainage characteristic of the area in the study area. Depending on the parent material and the climate, they can range from grey or red to the more familiar deep black also known as "black cotton" soils in East Africa. This soil type is very common in the north and north-eastern parts of the country and could be the most important factor determining the distribution of *V. drepanolobium*, and consequently that of the Fox's Weaver.

Conclusion

The study has shown that the Fox's Weaver occurs in a larger portion of the country than was previously thought based on the historical records as does the Karamoja Apalis. The weaver has extended its range Northwards up to Iriri in Napak District, while the Apalis has extended its range Southwards to Gweri, Soroti Districts and they now overlap in their ranges. Both these species were recorded in four districts in the North-eastern part of the country.

More studies on the distribution of the species need to be undertaken in new potential areas that have suitable habitat to ascertain the real extent of the species coverage. The distribution of the species in the non-breeding season is also still unknown as most of the studies including this one have been carried out in the breeding season. There is thus a need to carry out surveys in the non-breeding season too so as to ascertain the distribution of the Fox's Weaver in the non-breeding season.

References

- BirdLife International (2019) Species factsheet: *Ploceus spekeoides*. Downloaded from <http://www.birdlife.org> on 26/10/2019. Recommended citation for factsheets for more than one species: BirdLife International (2019) IUCN Red List for birds. Downloaded from <http://www.birdlife.org> on 26/10/2019.
- Byaruhanga, A., Kasoma, P. and Pomeroy, D. (2001). Important Bird Areas in Uganda. East Africa Natural History Society, Kampala.
- Carswell M, Pomeroy D, Reynolds J, Tushabe H (2005) *The Bird Atlas of Uganda*. British for Biodiversity Research Reports. National Museums of Kenya: *Ornithology* 23:1–16.
- Collar. N. J and Stuart. S. N. (1985). Threatened Birds of Africa and Related Islands. The ICBP/IUCN Red Data Book, Part1 3rd Edition.
- Dewitte, O., Jones, A., Spaargaren, O., Breuning-Madsen, H., Brossard, M., Dampha, A., Deckers, J., Gallali, T., Hallett, S., Jones, R., Kilasara, M., Le Roux, P., MichÃ©li, E., Montanarella, L., Thiombiano, L., Van Ranst, E., Yemefack, M., Zougmore, R., 2013. [Harmonisation of the soil map of Africa at the continental scale](#). *Geoderma*, 211-212, 138-153
- Fox's Weaver Report. (2018). *Nature*Uganda the East Africa Natural History Society. Retrieved from www.natureuganda.com.
- Fox's Weaver *Ploceus spekeoides* (2016, November 9). Weaver Wednesday [230] - Discovery [113]: Fox's Weaver. Retrieved from: <http://weavers.adu.org.za/sp.php?spp=3936>
- Fry, C. H. and Keith, S. (Eds) (2004). The Birds of Africa Vol. V. Christopher Helm, London.
- Fry, C. H. and Keith, S. (Eds) (2004). The Birds of Africa Vol. VII. Christopher Helm, London.

- Grant. C. H. B., and Mackworth-Praed. C. W. (1947). Birds of Eastern and North Eastern Africa.
- Skeen, R., Nalwanga, D., Opige, M. & Byaruhanga, A. (2015). Survey on the Fox's Weaver, the only Ugandan Endemic bird species; Final Survey Report.
- Nalwanga. D. W, Opige, M. & Skeen. R., Q. (2016). Status of the population of Karamoja Apalis *Apalis karamojae* in north-eastern Uganda.
- Stephenson, T. & Fanshawe, J. (2006). Field Guide to the Birds of East Africa. London: T & A.D. Poyser.
- Steven J. Phillips, Miroslav Dudík, Robert E. Schapire. [Internet] Maxent software for modeling species niches and distributions (Version 3.4.1). Available from URL: http://biodiversityinformatics.amnh.org/open_source/maxent/. Accessed on 4th Nov 2019.
- van Breugel P, Kindt R, Lillesø JPB, Bingham M, Demissew S, Dudley C, Friis I, Gachathi F, Kalema J, Mbago F, Mushi HN, Mulumba, J, Namaganda M, Ndangalasi HJ, Ruffo CK, Védaste M, Jamnadass R and Graudal L (2015) Potential Natural Vegetation Map of Eastern Africa (Burundi, Ethiopia, Kenya, Malawi, Rwanda, Tanzania, Uganda and Zambia). Version 2.0. Forest & Landscape Denmark and World Agroforestry Centre (ICRAF). URL: <http://vegetationmap4africa.org>
- Zenkroko Oginosako., Roeland Kindt., & Simon. G. Mathenge. (2005) An ecological analysis and characterization of species in Kenya. Retrieved from: https://www.jstage.jst.go.jp/article/tropics/14/4/14_4_357/article/-char/ja/. DOI: <https://doi.org/10.3759/tropics.14.357>