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AN ECOLOGICAL SURVEY OF THE BIRDS OF THE MWEKA WILDLIFE COLLEGE CAMPUS AT KIBOSHO, TANZANIA.

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ABSTRACT

An ecological survey of the birds of the Campus of the College of African Wildlife Management Mweka at Kibosho, in northern Tanzania is presented. It includes an annotated checklist of birds found within the habitats of the Campus and its milieu. The work is a result of one year of study from August 2004 to August 2005. During movements on foot around the Campus and its milieu birds were observed. This work revealed a record of sixty (60) bird taxa in 30 families. These records are compared with previous work of 1997. The records represent 47.6% and 73.2% of the bird species and families of the 1997 records. Fourteen (23.33% of the observed number) species breed at the Campus, and nine species are documented as pests of either chicken and or crops. Furthermore, the paper shows the composition and diversity of the present bird fauna, of which ten are migratory bird species with specific migratory patterns, and locally extinct species of ecological specialists with narrow and restricted ranges due to multiple factors including infrastructure development that resulted to core habitat loss for avifauna. The existence of an alien species, House Sparrow may pose human health problems by contamination of food supplies with parasites in faecal material. The monitoring of their demographic figure and integration of management measures are recommended. We further recommend that both infrastructure and agriculture developments should take into account conservation policy.

Keywords: Annotated checklist, alien birds, Ethiopian pattern, milieu, taxon

INTRODUCTION

The Campus of the African Wildlife Management, situated in Mweka outside Moshi, was founded in 1964 with the purpose to train African Wildlife Managers in the management of protected areas, mainly in Africa. The Campus is located on the slopes of Mount Kilimanjaro, the famous tallest mountain in Africa, a World Heritage Site, an Important Bird Area (IBA-3) in Tanzania and an Endemic Bird Area (EBA-109) of the Kenyan mountain region (Baker and Baker, 2002). The Campus is nestled at an altitude of 1, 400m a. s. l. (Wambura, 2004; C.A.W.M., Mweka 2006), 14 km north of Moshi Municipal town a long a newly constructed road, and 70 km from Kilimanjaro International Airport (KIA).

The Campus comprises an area of 76 acres (51 ha), (Wambura, 2004). At the investigation the campus consisted of buildings, roads, clean and mowed lawns, and playing grounds and interspersed stands of natural and exotic trees such as *Ficus thonningii, Spathodea camanullata (nilotica), Pinus radiata*, and *Ficus benjamina,* respectively (Wambura, 2004). The Campus experiences bimodal rainy seasons; the short one from November to January and the long rains from March to June. The cold season is between April and August of each year (C.A.W.M., 2006).

History of the survey and its conservation importance

According to Luke, (2005), few if any, survey that results into checklists begin from 'scratch' irrespective of any profession, and that includes his own. Hassan, *et al.,* (1997) however, started their work at Mweka from the scratch, as there was none to base their work upon. More often, authors use other people's work as their foundations, e.g., Wambura, (2004). The work of Hassan, *et al.,* (1997) forms the base of the attempt to search for eventual changes in the bird fauna of Mweka Campus. It is equally important to publish this investigation and comparison as an article. This work, amongst others, hopefully will contribute directly to the conservation of the biodiversity of Mweka Campus as part of a hotspot in IBA-3 and EBA 109 in Africa, in particular Tanzania. It also may be a part of a foundation for academic and professional training, in research and monitoring, and for community-based tourism in the area.

METHODOLOGY

The physical limits for this work lie on the formal boundaries primarily set by an Act.8 of 1964, at the establishing of the College of African Wildlife Management, (Manongi, 2004). I used random movements on foot around the campus and its milieu in due course of birdwatching. To my help to obtain this list I had a Carina binocular, 7x 8, otherwise only my own sensory organs, naked eyes and sharp ears. Tools at the bird field identification included the books by Zimmerman, *et al.,* (1999) and by Perlo, (1995). The information was gathered during one year from August 2004 to August 2005. A comparison between this list (Wambura, 2004) with that of the previous period Hassan, *et al.,* (1997), give the change in the bird fauna.

Annotated checklist

The families are arranged and the nomenclatures are according to Mlingwa's Kiswahili checklist of (2000), where families and name sequence were listed in as in the volume of birds of Africa (1993). The genera and species, with both their common and scientific names, are arranged alphabetically after their scientific names, within each family. Thereafter follows the author's sight records within the investigated area as well as a description, including some further information such as migratory, pest, conservation, and breeding status (see Appendix. 1).

RESULTS

Species composition 2004-2005

During the investigation a total of 60 birds in 30 families were recorded. That included all species, common, indigenous, or these considered naturalized, resident, migratory, pests on either livestock or crops, and endemic in the region (Table 1, 2*;* Appendix 1*).* Although this is considered to be a complete list of the present bird fauna at the investigation, the total number are only represent 47.6% and 73.2% of the bird species and families of the findings by Hassan, *et al.,* (1997), respectively. Thus, the species number is reduced by more than 50%.

The largest families represented in this checklist are Estrildidae, with six species, followed by Sturnidae and Columbidae, each with four species. Each of the following five families were represented with three species, the Accipitridae, Alcedinidae, Nectariniidae, Malaconotidae and Ploceidae. The other families in the list were represented, with two or one species (Appendix 1).

Ten of the migratory bird species showed a specific migratory pattern, either a northern, an Ethiopian, combined northern/Ethiopian patterns or had an altitudinal migration pattern (Table 1).

Nine of the species are documented as pests of either livestock (chicken) and/ or crops (Table.2).

Only one endemic bird species, Kenrick's Starling, *Poeoptera kenricki*, was identified and recorded. The Kenyan Mountain Endemic Bird Area (EBA-109) represents higher mountains in both East African countries with 5 endemic bird species. In addition, an alien species, House Sparrow, *Passer domesticus*, is among the list of breeding bird species of the area, and this forms as an addendum to Hassan, *et al.,* (1997), (Appendix 1).

Table 1 : Migratory bird species recorded at the Campus of the College of African Wildlife Management, Mweka, observed during year 2004-2005, grouped in four different migratory patterns

Species name	Migratory pattern			
	Northern	Ethiopian	N/Ethiopian	Altitudinal
Black (Yellow-billed) Kite			√	
Olive Pigeon				√
Green Pigeon				√
Hartlaub's Turaco				√
Slivery-cheeked Hornbill				√
Brown-hooded Kingfisher				
Eurasian Bee-eater	√	√		
Black Roughwing		√		
Pied Crow		√		
Bronze Mannikin		√		
Total number	1	4	1	4

Table 2: Bird pests on either livestock or crops at the Campus of the College of African Wildlife Management, Mweka, observed during one year 2004-2005 Area

Species	Pests on	
	Livestock	Crops
Augur Buzzard	√	
Black (Yellow-billed) Kite	√	
Red-eyed Dove		√
Green Pigeon		√
Speckled Mousebird		√
Dark-capped Bulbul		√
House Sparrow		√
Red-headed Quelea		√
Pied Crow	√	√
Total number	3	6

Table 3: Species breeding on the Campus of the College of African Wildlife Management, Mweka, observed during one year 2004-2005, see also (Appendix 1)

Bird species		
Augur Buzzard	African Pied Wagtail	Red-Winged Starling
Black Kite	Dark-capped Bulbul	House Sparrow
Speckled Eagle Owl	Pied Crow	Grey-headed Sparrow
Spotted Eagle Owl	Kenrick's Starling	Rufous-Backed Mannikin
Speckled Mousebird	Bronze Mannikin	

Sixteen (16) species of birds in 11 Families (Hassan, *et al.,* 1997) were not recorded in this survey, but they are treated as ecologically-specialized species of birds. This means they have a narrow range of tolerance, and are therefore considered locally extinct in the Campus in regards to this study (Table 4).

DISCUSSION

During the initial period (August 30th and 2nd November 2004) of this survey, 55 species of birds were identified, recorded and documented, which was 43.7% of 1997's checklist (Wambura, 2004). Considering the grand total of 47.6% of species of birds observed during the whole period of study (2004/2005). It is only 3.9% of bird species added during the rest period of the observations. The initial period had higher diversity of bird species than the rest of period of study. Hassan, et al., (1997) observes high diversity and abundance of birds during the same initial period and underscores attributes of the availability and diversity of food. A number of families of birds of the area looked healthy (73.2%) against that of 1997, only a small drop of 26.8%. Bonier, et al., (2007) recorded and published 44 families of birds common native breeders in 73 cities in 42 countries worldwide, including Dar-es-Salaam. Here, I record and document, fifteen (15≈34.09%) of the families of the birds found at Mweka, which are also found in Bonier, et al., (2007). In addition, I record 19% of congeners out of 100 congeners by Bonier, et al., (2007).

Fourteen (14) species of birds were confirmed as breeding species (Wambura, 2004; App.1), and are here considered as broad environment tolerant. Considering 126 number of bird species recorded in 1997, there is a clear drop of a number of bird taxa (52.2%), which is over the half, during the period of seven years.

Since this is a college campus which is growing in terms of a number of students and staff and their families and the infrastructure development. These human demographic increases and developments coupled with general cleanliness that involve grass mowing, slashing and clearing of many vegetation in within the campus. In addition, infrastructure development outside the campus such as Nzoho Secondary School, other human habitations and their activities have contributed to habitat loss for birds. This in turn reduced availability and diversity of food shelter and cover important for avi-faunal species. Bonier, *et al.,* (2007) underscores human-dominated environments as being prominent features of the earth's ecosystems, as habitat alteration and disturbances due to urbanization, species of assemblages change. Most species do not tolerate urban or sub-urban habitats, however some are able to persist and thrive in them.

In addition, Bonier, *et al.,* (2007) observed that species of any faunal biodiversity including birds dramatically vary in their breadth of environmental tolerance in particular patches of ecosystem. For example, urbanization can change the composition and diversity of biotic communities. Moreover, ecological generalists survive and reproduce across a broad range of climatic conditions, use of a diverse array of resources and can be found occupying many distinct habitats. Behavioural and physiological flexibilities may also contribute to this group (generalists) to tolerate a broad array of environmental conditions, including disturbed habitat. Empirical data of many authorities support this idea (Swihart, *et al.*, 2003; Ishitami, *et al.,* 2003). On the contrary, ecological specialists may tolerate narrow ranges of climatic conditions, specialize on few resources or occur in a limited range of habitats (Table

4). Reasons alluded elsewhere justify these absences and or local extinction.

Table 4 : Ecologically-specialized bird species that used to utilize Mweka Campus but considered locally extinct in the area

S/N	Family/Common name	Scientific name	Remarks
1	Ciconiidae		
1.1	Abdim's Stork	*Ciconia abdimii*	AM
1.2	White Stork	*Ciconia ciconia*	NM
2	*Phasianidae*		
2.1	Harleguin Quail	*Coturnix delegorguei*	
2.2	Hildebrandt's Francolin	*Francolinus hildebrandti*	
2.3	Scaly Francolin	*Francolinus squamatus*	
3	*Rallidae*		
3.1	African Crake	*Crelopsis egregia*	
3.2	Black Crake	*Limnocorax flavirostra*	
3.3	White-spotted Flufftail	*Sarothrura pulchra*	
4.	*Otididae*		
4.1	Black-bellied Bustard	*Eupoditis melanogaster*	
5.	*Coraciidae*		
5.1	Broad-billed Roller	*Eurystomus glaucurus*	AM
6.	*Phoeniculidae*		
6.1	Green-wood Hoopoe	*Pheoniculus purpureus*	
7.	*Bucerotidae*		
7.1	Ground Hornbill	*Bucorvus cafer*	
8.	*Turdidae*		
8.1	Stone Chat	*Saxicola torquata*	AM/NM
9.	*Prionopidae*		
9.1	White Helmet shrike	*Prionops plumatus*	
10.	*Ploceidae*		
10.1	Red-headed Weaver	*Anaplectes rubriceps*	
11.	*Emberizidae*		
11.1	Golden-breasted Bunting	*Emberiza flaviventris*	

This paper also upholds Bonier *et al.,* 2007's definition of 'environmental tolerance' to be "the ability of species of birds to survive and reproduce in a given environment and to control for potential confounds associated with differences in migratory tendency".

Flexibility may constitute of traits such as bird's ability to adjust behaviour in response to novel conditions, to resist detrimental physiological effects of breeding in urban habitat or to use novel resources, such as food types, nest or roosting sites. For example, Schoech *et al.,* (2004) documented Florida Scrub Jays (*Aphelocoma coerulescens*) was found with lower stress hormone levels than rural conspecifics in suburban. Sol *et al.,* (2005) found that relative brain size and frequency of foraging innovations in these

birds were positively correlated with a measure of potential for successful invasion into novel habitat. Characteristics of the behaviour, physiology and ecology of urban or suburban birds in combination or separate and other attributes may be keys to their tolerance of a wide array of environments, predisposing them to succeed in human-disturbed area.

The Campus is visited by variety of migratory, mainly Intra-african (Ethiopian) and altitudinal migrants. Out of four species depicting local altitudinal migration in Kilimanjaro Mountain, two species (i.e, Olive Pigeon and Silvery-cheeked Hornbill), were noted to have similar habit of descending

montane forests (3000m) into lowland forests and secondary vegetation in Arusha National Park and ascending during the early evening (Wambura, 2002b). These movements are tools for dispersion of seeds that germinate to form hemi-epiphytic *Ficus thonningii* and *Olea africana* tree species obvious in that particular park. Only one Paleartic (Northern) migrant Eurasian Bee-eater (Tab.1), out of several paleartic migrants used the area in the past (Hassan, *et al.,* 1997). The area now forms an important destination for both Ethiopian and altitudinal migrants, during certain period of the year than the paleartic ones.

Moreover, nine bird pests of livestock (Chicken) and or crops (such as maize, fruits-pawpaw, guava, and banana), (Tab.2) pose economic conflicts with peasants. Thus, reduce economic power from creating more wealth for the development of the local communities. In addition, an alien species (House Sparrow), an addendum to birdlist of the area since 1992 (Wambura, 2002a; *App.1*), plays diversity of roles including crop post-harvest pest due to faecal materials, dropped feathers and dead bodies in stored facilities. This was observed in Morogoro municipality in combination with Grey-headed sparrows or a separate species (Tarimo, *et al.,* 2004). It does feed on insects (invertebrates) that are pests to unripened crops thus reduce loads of parasites for healthy yields. It is also a reservoir for internal and external parasites including *Salmonela* that are capable of causing food poisoning (, Bell et al., 1988; Tarimo, *et al., 2004;* Wambura, 2005). House sparrows were restricted in cafeteria areas and staff quarters where there are plenty of spillage grains and food leftovers in dustbins. Wambura, (2002a) underscored its ability to use variety of nest-sites, food and feeding habits. For example it learnt to copy peanuts and other foods suspended from bird tables (Moreau, 1956; Holden and Sharrock, 1992,).

The only endemic Kenrick's Starling, which represents 20% of Endemic Bird Area (EBA-109) Kenyan Mountains, Mweka Campus is also within this area. This does qualify the Campus as EBA as uniquely set by Birdlife International, (Baker and Baker, 2002), but also serves to awaken the entire Mweka area communities over significance of the species and its habitat for its survival.

Policy Implications

It is not only this country and elsewhere; conservation and development are not compatible. Developments outweigh conservation especially when priorities previously set cannot easily rethought and reprioritize for conservation. Mweka Campus will continue to grow in terms of staff and their families, students' enrolments, and further development of infrastructure and facilities. The Mweka Campus was set for training conservationists and managers for biodiversity (Wildlife), since 1963 to date; no area on her vicinity was primarily set aside for practical biodiversity training especially birds. Although, students have been trained for four decades, using both bird skins at taxidermy from the area and elsewhere, and outdoors training in and her milieu are significant.

With this trend of avi-faunal changes (composition, diversity and abundance) to the sharp decline, brought up college infrastructure and facility developments, escalating demographic figures of students and staff and families, training costs that were minimized by indoor training will definitely increase by taking students afar field for practical training. On the other hand, Pasiansi Wildlife Training Institute (PWTI) in Mwanza, has already suffered by the same factors, trend, and now training is far from her site. Another vivid example, Kilimanjaro International Airport (KIA) was previously set aside for conservation of wildlife in the lower

grade category of Wildlife Controlled Area (WCA) was revoked and re-established the KIA for economic ventures.

CONCLUSION AND RECOMMENDATIONS

Indeed, the wealth of the area depends on a compilation of the checklist of birds of the area. The basic foundation of (Hassan, *et al.,* 1997 and Wambura, 2004) brought these careful observations, thoughts and thorough analysis that effected to this paper. This article challenges the ornithologists of the Campus whether staff and or students and amateurs (the will be students in the subject area), to continually further observations and documentation of the same especially when new changes occur or other observations. This will again help us to further test environmental tolerance hypothesis, at this particular patch. I also highlighted ecological, economic threats of the alien species and other pests and underscore its monitoring for pre-determined losses and seek for its control and management. I recommend at this juncture, that the college authority to reconsider proper sanitation for the control and management of an alien species by removing food such as leftovers, spillage grains and water at students'cafeteria and placing food to inaccessible stores to avoid food contamination. I recommend protecting the breeding site(s) of the endemic Kinrick's Starling, which is probably necessary for its survival. Finally, I recommend continuing observations and documentation of the bird fauna and paralleled with documentation of changes in the milieu of Mweka Campus. In case of policy implications, future developments should reconsider conservation areas within them for proper conservation and professional demonstrations.

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Appendix 1: Annotated Checklist of birds of Mweka Campus observed during period of August 2004 to August 2005.

The Checklist is preceded by a numbered family taxon, followed by common English names, a genus, and an epithet. I also present a list of species under each family taxon, and a more or less precise locality within the checklist area, a short description of its habits and diagnostic characteristic, migratory and or pest status, as well as some notes on breeding and conservation status.

Ardeidae

Grey Heron (*Ardea cinerea*). This bird was seen singly flying from west to east of the campus on 27/9/04. It was then perched on a tree canopy of *Khanyanyasica* spp before proceeding with its journey in the same direction.

Scopidae

Hamerkop (*Scopus umbretta*). This was first observed on 5/9/04, and then it was seen throughout the year. This species due to its presence all year round, is regarded as common resident.

Threskiornithidae

Hadada Ibis (*Bostrychia hagedash*). Seen on 27/9/04 and heard on January 6/2005

Accipitridae

Augur Buzzard (*Buteo augur*) Common birds of prey (Raptors) at the campus, first observed on 31/8/2004. It breeds on two eyries at campus. Pale chanting Goshawk (*Metabates canorus).* This was seen on 22/9/04

Black (Yellow-billed) Kite (*Milvus migrans*). First seen 31/8/2004 at 1:30 PM, a normal and common circling and soaring raptor at campus. Seen in two different eyries on 13 to 20/9/2004. This is also a common resident species at the Campus. It has both migratory status of being African migrant (Ethiopian) and or Northern migration (Paleartic).

Falconidae

African Hobby (*Falco cuvierii).* Seen on 19th/10/2004 mobbing spotted eagle owl (*Bubo africanus*).

Columbidae

Olive Pigeon (*Columba arquatrix).* Seen on August and September, 2004, and Seen on altitudinal migration, from Kilimanjaro mountain onto plains and back on the mountain during the afternoon and evening throughout the period.

Speckled Pigeon (*Columba guinea*). Seen on 30/8/04, is also a common resident species at the Campus, it also breeds there.

Green Pigeon (*Treron calva).* Seen on 30/904 passing on the wing and on 29/10/04

Musophagidae

Hartlaub's Turaco (*Tauraco hartlaubi).* Seen on 20/10/2004 on *Ficus benjamina* calling and jumping from branch to another at 6.56 AM

Centropidae

Yellow-bill (*Ceuthmochares aereus).* Seen on 9/09/2004 alone.

White-browed Coucal (*Centropus superciliosus*). Seen 30/8/2004 and 31/8/2004 and throughout the year, at

sometime of the year, it calls at dawn at 5:15-6:30 AM.

Tytonidae

Barn Owl (*Tyto alba).* Seen on 15/9/04 and 10/4/05

Strigidae

Spotted Eagle Owl (*Bubo africanus).* Seen throughout of August and September, 2004 with a chick on students' dormitories eaves then in trees in the evening.

Apodidae

Little Swift (*Apus affinis).* Seen on September, 2004 Nyanza Swift (*Apus niansae*). Seen August and September, 2004

Coliidae

Speckled Mousebird (*Colius striatus).* Seen on 3/9/04 on electric cables and barbed wires, and is a common resident bird at the Campus on hedgerows. Breeds on riparian vegetation between the private and college lands.

Alcedinidae

Brown-hooded kingfisher (*Halcyon albirentris*). Seen on 19/8/04 on tree branch perch and is an Intra-african migrant (Ethiopian). Striped kingfisher (*Halcyon chelicuti*). Seen on 29/8/2004 to 20/9/2004

Pygmy kingfisher (*Ceryx picta*). Seen on 1st/9/04

Meropidae Eurasian Bee-eater (*Merops apiaster).* Seen on 9-11/October 2004 and 24 January 2005 and were fifteen in number. It's a paleactic migrant (NM)

Little Bee-eater (*Merops pusillus).* Seen on 14 August, 04

Bucerotidae

Silvery-cheeked Hornbill (*Bycanistes brevis*). Seen on 31August, 2004, a common resident species and also had a remarkable altitudinal migration at Kilimanjaro Mountain, same as Olive Pigeon.

Crowned Hornbill (*Tockus alboterminatus).* See also 31/8/04

Lybiidae (Capitonidae)

Brown–breasted Barbet (*Lybius melanopterus*) Seen on 28/9/2005 and on the same date on October, 2004 on *Pinus radiata* and *Ficus benjamina* at College kitchen.

Moustached Green Tinkerbird (*Pagoniulus leucomystax).* Seen once on 16/1/05 at 3:35 PM on the *Ficus thoningii* at the main entrance gate of the Campus.

Hirundinidae

Black Roughwing (*Psalidoprocne holomelas).* Seen on September, 19, 2004.The bird is also an Inter-african Migrant (Ethiopian), here acronyms as "AM".

Motacillidae

African-pied Wagtail (*Macronyx aguimp).* Seen on 31/8/04 and is also common resident species at the Campus. Breeds at buildings at the campus.

Pycnonotidae

Dark-capped Bulbul (*Pycnonotus tricolor*). First seen on 30 and 31, August, 2004 and is a common resident and ubituquous. It's a dawn chorus at 6:00 AM and also breeds at the area in the hedgerows of *Cuppressus lustanica*

Turdiade

Northern Olive Thrush (*Turdus olivaceus).* Seen on 23/10/04 on *Cuppressus lustanica* hedgerows at the Campus. White-browed Robin Chat (*Cossypha heuglini*) Seen once on 25/9/2004

Muscicapidae

White–eyed slaty Flycatcher (*Melaenornis chocolatina).* Seen from August throughout the year, mainly at the main entrance gate perching on hemi-epiphytic *Ficus thoningii*, from where it feeds on its prey either on wing. It is a common resident species and also dusk and dawn chorus bird at 5:45 and at 6hours.

Dusky Flycatcher (*Muscicapa adusta).* Seen on 1-3 September, 2004, and is also a common resident species at the Campus

Platysteiridae

Chin-spot Batis (*Batis molitor).* Seen on 28/10/04 other hedgerows of *Cuppressus lustanica*

Netariniidae

Amethyst Sunbird (*Nectarinia amethystina).* Seen once on 24 September 2004

Malachite Sunbird (*Nectarima famosa)* Seen on 31st August, 2004, and is a common resident at Campus Variable Sunbird (*Nectarima venusta).* Seen on 31 August – 2/9/04 near the kitchen's gate on the hedgerow of *Cuppressus lustanica*.

Laniidae

Common Fiscal (*Lanius collaris).* Seen on 21st September 2004 perched on barbed fenced wire at Campus.

Malaconotidae

Black-backed Puffback (*Dryoscopus cubla*). Seen on 29 September about 6:58 AM

Tropical Boubou (*Laniarius aethiopicus).* Seen on 13 - 31 August, 2004, and is a common resident on hedges at the campus and riparian. Black – crowned Tchagra (*Tchagra senegala).* Seen only once on 24/11/2004

Corvidae

White-necked Raven (*Corvus albicollis*). Seen only once on 2 September, 2004

Pied Crow (*Corvus albus*). Seen on 1/9/2004, and is a common resident crow and breeds at the campus and was also seen mobbing an Augur Buzzard on 27/September, 2004 at 7:20 PM. It is also categorized as intra-african (Ethiopian) migrant, shortly acronym as "AM".

Sturnidae

Violate–backed Starling (*Cinnyricinclus leucogaster).* Seen on 13/9/2004 seen at the kitchen's area on *Ficus benjamina* feeding on fruits

Waller's Starling (*Onychoganthus walleri).* Seen August and September, 2004 on Campus buildings and a common resident bird.

Kenrick's Starling (*Poeoptera kenricki).* Seen on 23 October 2004, at the southern edge of the Campus and also breeds at the campus. It is an endemic in Kenya Mountains (EBA-109) that includes Kilimanjaro Mountain. Mweka Campus is on the edge of the mountain.

Red-winged Starling (*Onychoganthus morio*). Seen on 31st August, 2004, and is a common resident and breeding species at the Campus.

Passeridae

House Sparrow (*Passer domesticus*). An alien species seen throughout the year, a common resident at the campus and a new species in the list of Hassan, *et al.,* (1997). Breeds in staff quarters and at students' kitchen. Grey-headed Sparrow (*Passer griseus). A c*ommon resident and breeding species seen on 31 August 2004 and through out the year.

Ploceidae

Baglafecht Weaver (*Ploceus baglafecht).* Seen on 31st August, 2004 and September 2004

Red – headed Weaver (*Anaplectes rubriceps).* Seen on 13/1/05 at 10:5 AM feeding on insects on wings in open areas from Major Knilock's window ledges, sometimes mixed with Baglafecht Weavers.

Red- Headed Quelea (*Quelea erythrops*). Seen on 25 November 2004 on the wing

Estrildidae

Common Waxbill (*Estrilda astrild). S*een on 28/10/2004

Red – checked Cordonbleu (*Uraeginthus bengalus).* Seen on 19/9/2004

Rufous–backed Mannikin (*Lonchura nigriceps*). Seen on 31/8/2004, a common resident and breeding species in hedgerows Bronze Mannikin (*Lonchura cucullata). Seen* on 13/8/04 and uncommon, and is intra-african (Ethiopian) migrant. African Firefinch (*Lagonosticta rubricata*). Seen on 13-14/9/04 at hedgerows of kitchens' Hall.

Red-billed Firefinch (*Lagonosticta senegala*).

Seen on 28/10/2004.