

INTRODUCTION

Biodiversity include variety of plants, animals ,ecological communities, ecosystem and landscape which are being threatened by Anthropogenic activities like agriculture practice ,land conversion, water diversion, pesticides, continues to be the leading causes of species endangerment particularly ground nesting birds due to land use change resulting from agriculture, and all Anthropogenic activities which has altered the abundance of various native birds species to loss of habitat.(Blann,2003).

Jackson widow birds distributed much on Northern parts of Tanzania particularly Ngorongoro conservation area authority,Maswa game Reserve and Serengeti National park only, And some parts of Kenya southern parts and prefer to live on high land grassland around 1,500meters above sea level and mainly on grass and gregarious in flocks when feeding.

So the study aimed to identify those anthropogenic activities affecting Jackson widow birds, To identify land use pattern of Ngorongoro conservation area and assessing habitat requirement for Jackson widow birds in the study area, so as to come up with the impacts and solutions on the survival of Jackson widow birds in Ngorongoro conservation area.

PROBLEM STATEMENT / JUSTIFICATION

The specie Jackson widow birds is classified as vulnerable (Near threatened IUCN-Red list) Appendix two. As this study will enable us to understand preferable specie ecology which is necessary for the Conservation of the specie and their habitat.

So the single greatest threat to ground nesting birds worldwide about 82% were significantly threatened by habitat loss, habitat destruction often cultivation, as little field conservation measurements has been under taken that many questions remained

Unanswered regarding Jackson widow birds population at the present in East Africa which forces the specie to vulnerable because of limited range of her habitat (www.birdlife.org/datazone/species/index.html).

Despite Oloirobi in under Management of Ngorongoro Conservation Area Authority, there is little base data's on this bird Jackson widow birds as well as threats to her habitat range, So this study will contribute to the base data's thus providing a basis for proper Ecological Management to various birds species habitat preferences upon careful monitoring by Ngorongoro Conservation Area Authority.

As most of ground nesting birds suffers much higher rate of extinction than canopy birds species that more ground nesting birds were vulnerable than those of tree canopy due to Anthropogenic stress upon them, and natural catastrophes.(*Lovejoy,T,E and D,C. Oren, 1977*)

Anthropogenic activities being the major factor that contribute to threats to ground nesting bird's species in the World which hinder population to increase for most of ground nesting birds in the world. Information about birds habitat and their threats facing them is very important in understanding their population dynamic among the interesting habits of may ground nesting birds that lays eggs near to the ground

GENERAL OBJECTIVE

To assess Anthropogenic activities on the survival of Jackson widow birds in Ngorongoro conservation area (Oloirobi village).

SPECIFIC OBJECTIVES.

(1)To identify types of anthropogenic activities around the area. (Oloirobi village in Ngorongoro Conservation Area Authority).

(2)To Identify land use pattern of Ngorongoro Conservation Area Authority.

(3) To assess habitat (Ecological) Requirements for Jackson widow birds (*Euplectes jacksoni*).

HYPOTHESES

Null hypothesis - Jackson widow birds do not prefer all habitats equally.

Alternative hypothesis - Jackson widow birds do prefer all habitats equally.

LITERATURE REVIEW

-The Impacts of Anthropogenic activities towards ground nesting birds like Jackson widow birds is consequently may be vulnerable to predators that use scent-trails or paths to find nest, Its nest success is also extremely low and therefore considered a good specie to test the effects of human disturbance(*Blakers, et al 1972*).

Also there is speculation that human activities may attract predators to the nest (*Skutch, 1996*).

Number of Jackson widow birds in Kenya have been decline and may still declining and most often suggested that destruction of habitat by development of human activities like cultivation, settlement are the major factors accounting for the decreasing of ground nesting birds etc.(*Stafford,Sharrock,1976 and Gribble,1981*)

Human visitation can increase nest predation and this has implication for bird protection, care should be taken visiting nest of this birds which nest close to the ground. (*Cramp, 1995*)

The generalization that ground- nesting birds suffer higher nest predation than tree-nesting species by largely by Human influences. (*Cramp, 1955*)

Although some works has been done on ground nesting birds which have large clutch and eggs but few studies have attempted to test the effects of human disturbance on nest predation of *Euplectes jacksoni* in Samburu in Kenya.(*Livezey,et al 1980*).

Map of Ngorongoro Conservation Area



STUDY AREA DESCRIPTION

LOCATION

The Ngorongoro Conservation Area Authority is situated in Northern part of Tanzania approximately 3°, 15' south and south 35°30' East and 186 kilometers from Arusha city. The area covers about 8,292 square kilometers and ranges in altitude from 1020 meters to 3,587 meters. And has topographical –ecological zones and varying number of wildlife species and support the interest of local communities engaged in cattle ranching and promote tourism.

However the area is of biological and archeological interest which is inhabited by 60,000 residents pastoralist (*National census, 2002*)

TOPOGRAPHICAL

The diverse terrain promote a wide spectrum of birds habitats varying from open-grasslands, montane forest and Acacia woodlands to heath in high altitude in which present Ngorongoro conservation area with a list of 560 species of birds in which Jackson widow birds are among these species which prefer short grass land habitat above 1,500 meters and rarely seen in some parts of Ngorongoro conservation area highlands, particularly in the Village of Oloirobi which is popular for economic activities and small business, settlements, livestock keeping, smallscale agriculture are taking place.

So the study on the Assessment of Anthropogenic activities on the survival of Jackson widow birds (*Euplectes jacksoni*) was conducted at Oloirobi village due to the nature of the activities practiced over there as specie is vulnerable because of limited range depend on grass-lands which are being altered by Anthropogenic activities in the area.

RAINFALL.

Wet season is from November to May with short rains from November to December and long rain from March to May dry season is from June to October with chilly at night, Rain is about 700mm on the crater and over 1,500mm on the rim

TEMPERATURE

It is mist wet morning and evening most of the year. Early morning can be cold (10°/50°f), Days are warm but not as other places in Tanzania minimum temperature is (8°/42°f) while maximum temperature is (30°/80°f)

DATA ANALYSIS

Data collected in the field study area were analyzed by Chi-test and presented by tables and graphs.

METHODS USED

Preliminary survey was done for two days by vehicle to get general picture of the study area, hence I walked on foot, the study site was developed basing on accessibility and physical landscapes in Oloirobi village were identified.

A base line of eight kilometers was developed which divided the area into two parts of four kilometers equally. Then the transects lines were established from the baseline to each sides of direction. The transect width was 500 meters from one transect to another and observation of Anthropogenic activities were recorded and identified and number of Jackson widow birds were identified and counted on either sides of the transects.

The total area of Oloirobi village is 250 kilometers square and sampled area was 64 kilometers square which present 25.6% of the total area of Oloirobi village. The survey and observation were made to identify types of land uses and human activities performed in the study area which threats habitat for Jackson widow birds (*Euplectes jacksoni*).

Direct field observation – The Observation was done prior to all areas in my study sites through observing the direct impacts of human activities in the areas.

Literature review into different books, journal, websites etc to get full information's on other works done to support my ideas in my Hypothesis.

MATERIALS USED.

Field guide books, Note books and pens, pencils, papers, Binocular.

RESULTS

The study which was conducted in Oloirobi village in Ngorongoro Conservation Area Authority from 13 July, 2008 to 14th August, 2008 shows that the main anthropogenic factors in the area include cultivation settlements, grazing, and burning.

Figure 1. Shows anthropogenic factors identified in the study area

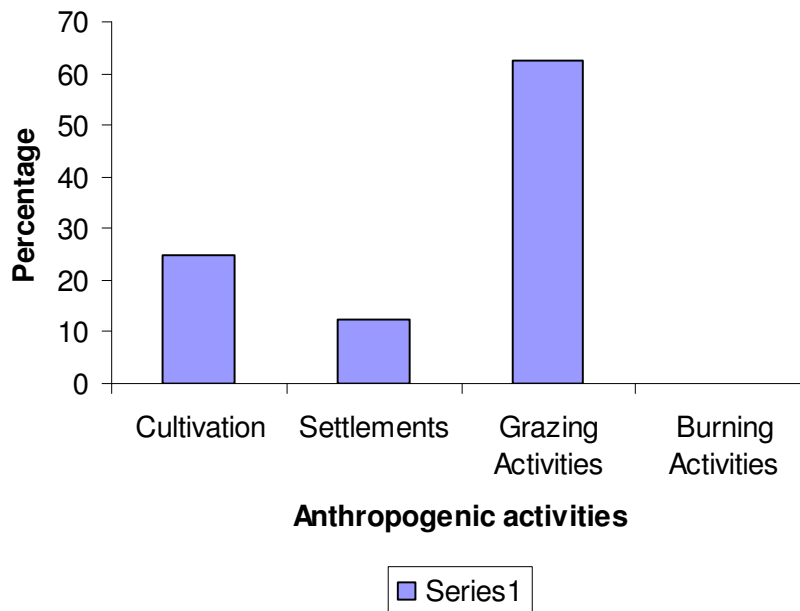


Figure 1, indicates the Anthropogenic activities in the study area, grazing area ranks the first(62.5%) followed by cultivation with 25% and the least is burning activities with (0%).

Table 1, Land use practices in Oloirobi village

Serial number	Anthropogenic activities	Area covered (estimated in km)	Percentage
1	Settlements	10 km	40%
2	Cultivation	5km	20%
3	Burning	4km	16%
5	Livestock grazing activities	6km	24%
Total		25km square	100%

Table 1 shows that settlement areas are mostly activities in the study area, followed by grazing activities and the minority is burning activities.

Table2. Habitat preference for Jackson widow Birds in the study Area.

Serial number	Anthropogenic activities	Birds observed	Percentage (%)
1	Cultivation Areas	2	25
2	Settlement Areas	1	12.5
3	Grazing Area	5	62.5
4	Burnt Area	0	0
Total		8	100

Source: field data, 2008.

Table.2. revealed that Jackson widow Bird prefer mostly in grazing areas (62.5%) followed by cultivation areas (12.5%) and the last preferable habitat is burning areas.

Table 3 shows number of Jackson widow birds observed in different habitats in Oloirobi village

Serial number	Habitat	Jackson widow birds observed	Expected value	O-E	(O-E)²	(O-E)²/E
1	Cultivation areas	2	2	0	0	0
2	Settlements areas	1	2	-1	1	0.5
3	Grazing areas	5	2	3	9	4.5
4	Burnt area	0	2	-2	4	2
Total		8				7

The results showed that Jackson widow birds prefer grazing areas more than other forms of land use.

$$X^2=7, P<0.005Df 3$$

6.0 DISCUSSION:

The study indicates that main anthropogenic activities practiced in the area are settlement, grazing, cultivation and burning activities, *Lovejoy, T, E and D.C Oren,1997*) reported that all the activities have direct effects on ground nesting birds. These activities have negative impact to the diversity and abundance of the birds' species.

6.1 Grazing activities- The study indicates that, these are shifting from one area to another searching for pasture and water for their livestock. However during this process affects the habitat for birds. It leads about 62.5% as community living in Ngorongoro Conservation Area is Maasai tribe. Traditional they are nomadic people (pastoralist)

Skutch, 1996 pointed out that there is speculation that pastoralist movements may attract predators to the nest and predators may take eggs and eat young ones nest left unguarded through trails/paths to find nest e.g. snake after parents have been flushed away by pastoralists grazing into their habitats. *Spending (1965)* points that grazing is often less controlled than cutting in agricultural practices. However grazing has often considered disadvantageous because grasses have to be grazed both frequently and severely.

James et al (1969) explore the relationship between the ground nesting birds diversity and land use-practices changes is the landing factor for extinction of species over spectrum of grassland types in Samburu in Kenya. *Recher (1969)* points out her observation that the influence of habitat preference leads to diversity of Jackson widow birds distribution due to preferable foliage into different habitat based on resources use and limiting factors in Molo grassland in Kenya.

6.2 Cultivation Activities-The study revealed that cultivation occupy about 25% of Anthropogenic activities observed in the study site ,The population of people increase as the land becomes constant, Majority of people depends much on the agricultural products for their survival, this calls for agricultural practices.

The study also revealed that estimated farms size in the study areas is five kilomeres, therefore this leads to habitat degrading hence grassland is burnt and cleared to allow cultivation. This degrades much habitat for this birds, some areas observed to have large patches of *Hyperemia ruff* have now being replaced by maize farms in Oloirobi village. So in doing so the preferable habitat for Jackson widow birds is being altered by burning and expansion of farms to meet resident substance requirements for food.

*Tiffen,(1994)*pointed out that as increasing pressure of growing demand on a limited land base may cause farming to expand onto fragile soils which changes the grassland area to a farming grounds. Therefore removal of grassland was detrimental to the species survival (*Mwangi, 2006*).Seasonal variation in the diversity of ground –nesting bird’s species habitats in Mau-Norok Kenya decrease with increasing intensive cultivation complexity. (*Karry, 1976*).

Land cover changes have many environmental consequences, mostly immediately for the species it accommodate itself, Ground nesting birds may be affected where they exist or they may be forced to leave the area(*Meyer,W.B,1996*).

6.3Burning Activities-The lest Anthropogenic activities identified was burning activities ,burning is controlled though it destroys habitat for Jackson widow birds and accelerate population decline for these birds species hence burning is done at night due to fear from law –enforcer from Ngorongoro Conservation Area Authority as the specie is short runner and diurnal so this accelerate also population decline for these birds species and degrade habitat as it occupy 16% in terms of kilometers burnt observed in the study area as shown in Table 1.

6.4 Settlements-The study revealed that, settlements occupy 40% of the area sampled Majority of local community in Ngorongoro conservation area are depending much on natural resources for their buildings, grasses as well as other building materials are used for construction of their houses (buildings) this leads to habitat destruction and increase disturbance for these birds due to increase demand for grasses for roofing there are houses and most grasses utilized are *Hyperemia ruff* which is conducive habitat for Jackson widow birds in Ngorongoro conservation area.

6.5 Social cultural practices (other activities) The study indicates that, traditional way of life in the area affects or threaten the survival of Jackson widow birds in the area, it was observed that Maasai warriors wears bunches of feathers of Jackson widow bird on their heads as the sign of good sharp shooter, This situation was always done after circumcision where by Jackson widow birds are killed and remove their feathers. Also this situation seemed to be dominant inside Ngorongoro conservation area.

However this leads to deterioration for these birds population in the area as this bird lays only two to four eggs and for this reason forces this species to be vulnerable due to limited range on the grassland which is being altered by all these anthropogenic activities.

RESEARCH OUTPUTS

The results of my research will help to assist the Ngorongoro conservation area authority with the information in protection of entire habitat for Jackson widow birds as ground nesting birds so as to regain its recovery within the ecosystem.

Also the information collected will give the Ngorongoro conservation area authority to review its multiple land use policy in implication to some areas where by existence of other birds species depend on other activities not to be done like cultivation, burning of grasses which destroy habitat for Jackson widow birds habitat particularly nest, eggs even killing the young one in the nest.

The research work has help to come up with remarkable series of Anthropogenic activities on the survival of Jackson widow birds in which in turns the Ngorongoro conservation Ecological and Conservation Departments have to do plans for provision of conservation education through Pastoralist council to convince communities living in the area to change some culture aspects particular killing of this bird as sign of good sharp shooter in which in conservation is decreasing the population to extinction in the future as the specie is only found in East Africa but Ngorongoro conservation area ,Maswa game reserve and Serengeti are the leading protection for this birds where it is found.

PICTURE SHOWS PARTS OF OLOIROBI VILLAGE IN NGORONGORO CONSERVATION AREA (Anthropogenic activities practiced in the area).



CONCLUSION

But all of these Anthropogenic activities which altered habitat and population for this birds, if not proper Ecological Management not being taken because Ngorongoro conservation area authority General Management Plan did not consider about ground nesting birds with influence to human activities towards protection of ground nesting birds habitats like Jackson widow birds as the specie is vulnerable/near threatened(Iucn-red list appendix two).As the major threats to ground nesting birds worldwide is habitat loss ,habitat destruction, cultivation, if not proper managed due to acceptable land use change(*Temple,1996*).

RECOMMENDATION

The Anthropogenic Activities continue as economic growth places more and more land under intense use for human purposes even the species that are protected seem doomed to exist in limited ranges requiring proper Management in controlling the habitat preferred by various birds' species like Jackson widow birds which prefer short grass land which is intensive being utilized by Maasai community in Ngorongoro Conservation Area Authority.

As alteration of Ecosystem is disastrous not only in biological but also in human terms, failure to protect biological diversity is closely connected with failure to maintain a reasonable standard of living for human in habitats. (*Lovejoy, T.E, D.C.Oren, 1977*)

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