

# Survey of the current status of Aberdare *Cisticola Cisticola aberdare* in the central moorlands of Aberdares National Park

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## 1.0 Introduction

Aberdare *Cisticola* is classified as endangered in the IUCN red list of threatened species. The species is endemic to central Kenya where it is locally common in suitable habitat<sup>6</sup> on both sides of the Rift Valley, at Molo, Mau Narok and the Aberdare Mountains. Recent surveys also confirmed their presence from suitable habitat on the Kinangop Plateau, at the base of the Aberdare Mountains, (P. Adhiambo *in litt* 2008). The species range has been gradually decreasing over the years, much of its habitat being lost rapidly and becoming severely fragmented, owing to agricultural development and intensified livestock production. Past studies undertaken (L. Bennun *in litt*. 1999, 2000; W. Gatarabirwa *in litt*. 1999, 2000) in the Aberdares estimated its population at c.50,000 birds, thus the population is placed in the range bracket for 50,000-999,999 individuals. The rapid loss of grassland at Mau Narok and Molo, which now covers less than a third of the extent estimated in the late 1990s (P. Adhiambo *in litt*. 2007), suggests that the population is experiencing a rapid and ongoing population decline due to intensive agricultural production converting grasslands into large wheat and barley farms.

Recent studies undertaken also confirm the presence of the species in Kinangop grasslands at the base of the Aberdare Mountains, (P. Adhiambo *in litt*. 2008) where they had been earlier reported to occur, though in very low numbers. The main threats in all its suitable habitat still remains habitat loss and fragmentation due to expanding cultivation and intensified livestock husbandry. Burning of grasslands to improve grass quality, often repeatedly with the onset of the rainy season, and fires experienced almost annually in the northern sector of Aberdares National Park has significant negative impact on grass tussocks used for nesting. The nests may also be vulnerable to damage by livestock and tractors.

The baseline information on the current survey on population status and habitat requirements will be useful for future monitoring of the species. The study gathered information essential for specific management plans for ensuring the survival of the species and its habitats. This shall act as a baseline study for a longer and explicit study of this species, and would enable ecologists and conservationists to deploy appropriate measures to conserve this species from extinction.

## 2.0 Objectives

The main aim of the present investigation was to study the ecological and conservation status of the Aberdare Cisticola in the Aberdares National Park.

### ***Specific objectives***

The specific objectives of the research were:

- (i) To confirm presence and estimate the numbers of Aberdare Cisticola in the Aberdares National Park
- (ii) Conduct field studies to establish and ascertain habitat requirements.
- (iii) To determine the spatial distribution of the species in the Aberdares National Park.
- (iv) To evaluate the current extent, quality and rate of loss of the species habitat in the Aberdares National Park.
- (v) To identify and quantify specific threats facing the species in the Aberdares National Park.

## 3. Methods and Material

- Aberdare Cisticola census was done to estimate their populations in the study site. Population was estimated and distribution determined through repeated counts, randomised across the study site (Pomeroy, 1992) by date and time. This was established by walking along transects which ranged from 0.8 km to 1.5 km depending on the size of available stretch of suitable and accessible habitat. The same transects used for recording habitat parameters were used for census survey. All the Aberdare Cisticolas encountered as well as other bird species were counted and their perpendicular distances to the transect estimated following Buckland *et al* (1993). Transects were established in the study area and mapped using GPS. Majority of the surveys were conducted between 07:00 and 11:30 hrs while a few were done in the afternoon. Individuals were confirmed from both calls and visual observations using a 8-10x42 binoculars. The percentage area covered by the grassland and other habitat types was estimated at sample points spread throughout the study sites. The current status, location, size, current use of moist grassland patches encountered was recorded. This helped in quantifying the extent, quality and rate of loss of the Aberdare Cisticola habitat.
- All the Aberdare Cisticola locations were plotted on land-use map of the study sites. Vegetation structural attributes (grass height and type, ground cover, trees/shrubs number and type plus cover, herb density) where the species were encountered was recorded.
- The field visit coincided with the rains and therefore restricted the survey to within the central moorlands and most roads were inaccessible (though this weather was advantageous as it was also the time most birds were pairing up, displaying and building nests).

- The following were the areas surveyed within the central moorlands and number of transects at each site: Chania (4), Gikururu (2), Fishing Lodge (3), Kiandongoro (1), Magura Bridge (1), Magura Falls (1) and Mutubio (1).

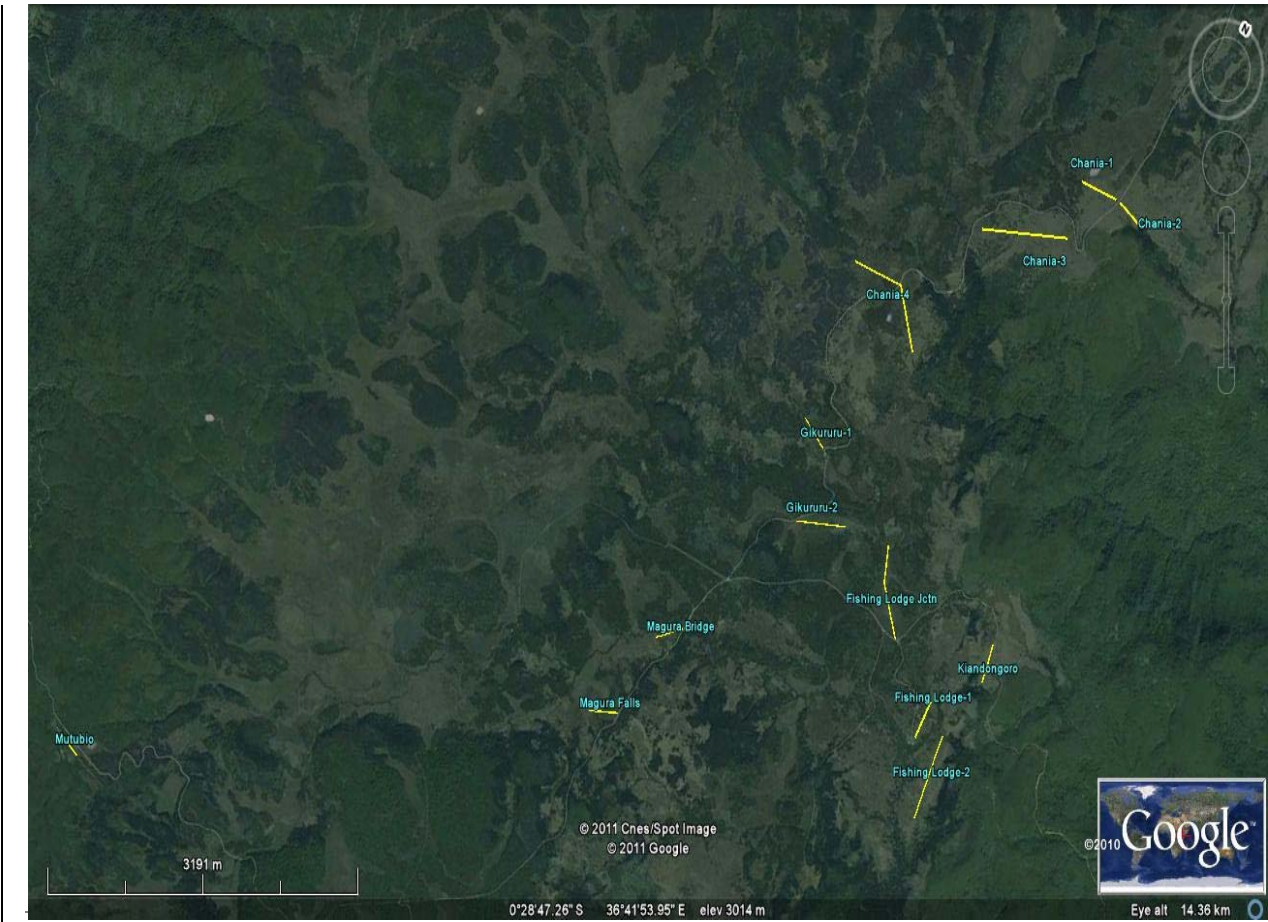
#### 4. Results and Discussion

This mid March 2011 survey was undertaken to confirm the trends on the species in the Aberdares NP where the species is known to occur in large numbers. Results confirmed the presence of the species in suitable habitat in the Aberdares in fairly good numbers. A total of 137 (10% young) individuals were counted during the current survey within an area of 35.6 hectares giving an estimated density of 4 birds/ha.

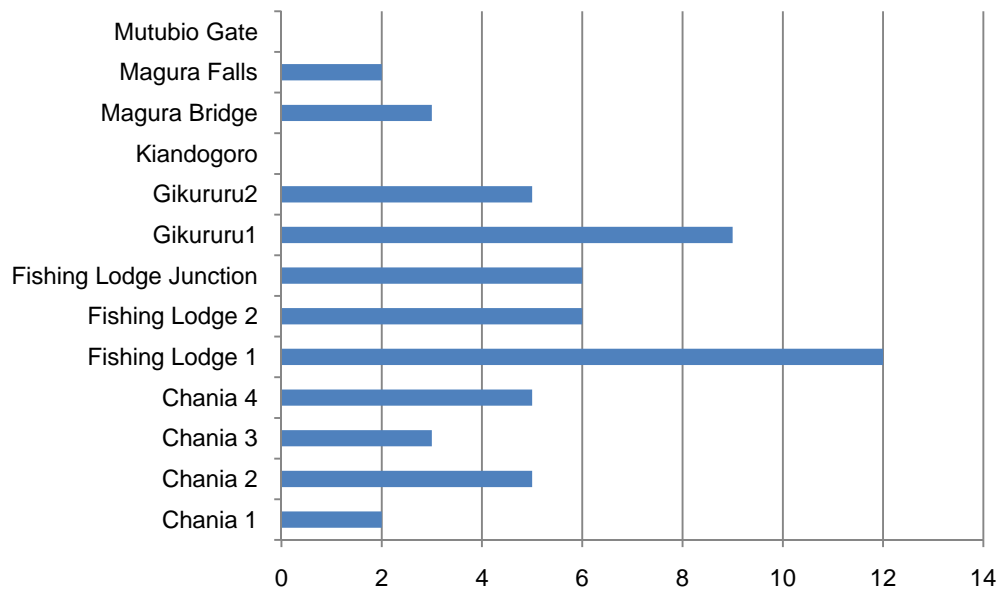
The target species, Aberdare Cisticola, was recorded in fairly good numbers at all parts visited except for Kiandongoro and Mutubio Gates (Fig. 1) where a single transect was done at each of these two sites. A pair of the species had been severally previously recorded at Kiandongoro prior to survey day while suitable habitat was observed at Mutubio area at the gate and along Karimu River valley. There are also unpublished sighting records of the species at Mutubio (Kimani *pers. comm.*)

Majority of the Aberdare Cisticolas were recorded at Fishing Lodge and Gikururu while none was recorded at Kiandagoro and Mutubio gates (Fig. 2). The encounter probability for the species was very high as the species was observed in >80% of the transects survey. This observation clearly confirms that the Aberdares National Park still provides adequate and suitable habitat for the species; hence management of the preferred habitat through time is required to avoid bushes and shrubs naturally encroaching grasslands.

Our results also confirm that Aberdares NP still remains a safe habitat for the species in having a legal protection, hence management of the park should focus on maintaining the populations of the species. The study also shows the impact of different management systems on species populations, in this case protected areas verses private lands. The results further suggest that good numbers of the Aberdare Cisticola exists in the remnant grasslands of the studied parts of the Park and probably in most of unvisited areas. This park too is important for other bird species. Thirty three (33) species with three hundred and forty two (324) individuals were recorded during the survey (see the table below). Most of these birds are characteristic of the Afrotropical highland biome (Bennun & Njoroge, 1999).



**Fig. 1:** Map of Aberdares National Park showing the survey transects for the Aberdare *Cisticola* in the central moorlands.



**Figure 2:** Number of individuals of *Aberdare Cisticola* counted in each transect

**Table: List of all bird species recorded during the survey**

	<b>Species Common Name</b>	<b>Species Scientific Name</b>	<b>Notes/Remarks</b>
1	Aberdare Cisticola	<i>Cisticola aberdare</i>	Endemic to Kenya, Breeding (Br)
2	African Citril	<i>Serinus citrinelloides</i>	
3	Augur Buzzard	<i>Buteo augur</i>	
4	Black Saw-wing	<i>Psalidoprocne albiceps</i>	
5	Black-shouldered Kite	<i>Elanus caeruleus</i>	
6	Collared Sunbird	<i>Anthreptes collaris</i>	
7.	Common Bulbul	<i>Pycnonotus barbatus</i>	
8	Common Buzzard	<i>Buteo buteo</i>	Palaeartic Migrant (PM)
9	Common Greenshank	<i>Tringa nebularia</i>	PM
10	Common Sandpiper	<i>Actitis hypoleucos</i>	PM
11	Common Stonechat	<i>Saxicola torquata</i>	
12	Eastern Double-collared Sunbird	<i>Cinnyris mediocris</i>	
13	Eurasian Marsh Harrier	<i>Circus aeruginosus</i>	PM
14	Golden-winged Sunbird	<i>Drepanorhynchus reichenowi</i>	
15	Hunter's Cisticola	<i>Cisticola hunteri</i>	
16	Jackson's Francolin	<i>Francolinus jacksoni</i>	Endemic to Kenya, Br.
17	Montagu's Harrier	<i>Circus pygargus</i>	PM
18	Montane White-eye	<i>Zosterops poliogaster</i>	
19	Moorland (Alpine) Chat	<i>Cercomela sordida</i>	Br.
20	Moorland Francolin	<i>Francolinus psilolaemus</i>	
21	Olive Pigeon	<i>Columba arquatrix</i>	
22	Olive Thrush	<i>Turdus olivaceus</i>	
23	Pallid Harrier	<i>Circus macrourus</i>	PM
24	Pin-tailed Whydah	<i>Vidua macroura</i>	
25	Purple-throated Cuckooshrike	<i>Campephaga quiscalina</i>	

26	Quail Finch	<i>Ortygospiza atricollis</i>	
27	Rattling Cisticola	<i>Cisticola chiniana</i>	Requires further observations
28	Streaky Seed-eater	<i>Serinus striolatus</i>	
29	Tacazze Sunbird	<i>Nectarinia tacazze</i>	
30	Whinchat	<i>Saxicola ruberta</i>	PM
31	Wing-snapping Cisticola	<i>Cisticola ayresii</i>	
32	Wood Sandpiper	<i>Tringa glareola</i>	PM
33	Yellow-billed Duck	<i>Anas undulata</i>	Afrotropical Migrant (am)

### Habitat survey (grassland cover and species distribution and threats)

Measures of grassland quality were recorded within a plot of 25m radius using a system developed for monitoring grassland habitat in Kinangop Grasslands (Muchai, 1998). At the centre of the plot, different vegetation characteristics were measured: i.e. grass height, cover and percentage cover of tussocks, tussock height, average grass height, bush height. The same attributes were also recorded where the species was encountered in order to establish habitat selection for the species. The species was common in areas with more dense low vegetation on undisturbed grasslands where they also placed their nests.

The Aberdare National Park still has extensive grassland that occurs as large and nearly continuous patches favouring the presence Aberdare Cisticola. The species was found to occur more in areas of extensive grasslands in the Park especially along the river valleys. The birds were mostly associated with areas of tussock that was either evenly or sparsely distributed, often with bushes and tussock grass.

### Other observations

Opportunistic nest searches were conducted in the grasslands for evidences of breeding birds. The survey established the significance of the Park as an Important Bird Area not only for the study species but also for other species in the grassland and non-grassland habitats. Breeding attempt by the study species in the habitat was also confirmed by this survey (photo below) through nest searches and observation of juveniles. The field visit was perhaps the best timing as it coincided with the onset of rains and birds breeding season. During the survey, we recorded the Aberdare Cisticola at five breeding stages: displaying, nest building, incubation, feeding young (at the nest), and dependent young out of nest. There were only two observations of the latter at Fishing Lodge area.

## 6. Conclusion and Recommendations

Suitable Aberdare Cisticola sites should be managed to maintain the populations and habitats of this species, and the sites given appropriate recognition in park management planning including monitoring of encroaching undesirable vegetation that would eventually eliminate grassland habitat especially along the river valleys. The Aberdares NP may have limited habitat available for Aberdare Cisticola, but is of particular interest as the only known site in Kenya with such extensive habitat for the species with legal protection, hence rendering the species a brighter future. Given the significance observed in the Park for the survival of the species, it is to be hoped that the park management will play an active role in the monitoring and management of this suitable species' habitat.

There is presence of a great diversity of tussock grassland communities in relatively good condition. Management should therefore consider factors such as impacts of invasive weeds, fire, and herbivory. It is not known up to what extent herbivore grazing and grassland fire especially in the northern areas might have contributed to the current decline in population of the species. Protection should nevertheless be sought for the site with the aim of preserving not only the endemic Aberdare Cisticola's population, but also other bird communities, landscape and vegetation setting of montane tussock grassland.

Conclusions so far on the ecology of Aberdare Cisticola have been based on field surveys at a preliminary level. In order to better understand the ecology and conservation needs of the species in details, further field studies are needed to concentrating on understanding breeding aspects of the species, dispersal and nesting success. Collaboration between NMK and KWS would be suitable to conduct surveys in the northern (Satima & Shamata) and southern (Elephant peak) moorlands as well as areas in between. Research on the potential impacts of fire in the northern moorlands on some ecological aspects e.g. nesting behavior, predation, and dispersal of Aberdare Cisticola would be an interesting subject especially if compared with non-fire induced grasslands in the central moorlands (Fishing Lodge). To be studied also is interaction of Aberdare Cisticola with other bird species in areas such as competition for nesting sites, food and home ranges.

## 7. References

**Bennun, L. & Njoroge, P.** (1999). *Important Birds Areas in Kenya*. Nature Kenya – the East Africa Natural History Society, Nairobi.

Pomeroy, D.E. (1992). *Counting Birds: A Guide to Assessing Numbers, Biomass, and Biodiversity of Afro - Tropical Birds*. Chapman and Hall, London.



## **8. Acknowledgements**

This survey was financially supported by African Bird Club to whom we are greatly indebted. We would also like to convey our appreciation to the Headquarters of Kenya Wildlife Service for having granted permission to access and conduct research in the Aberdares National Park. We acknowledge the help we received from the Park's Ag. Senior Warden, Mr. Felix Mwangangi, and Customer Service Officer, Ms. Lucy Kobia, not forgetting the staff at Tree Tops Gate, Kiandongoro Gate, Fishing Lodge and Mutubio Gate. We are very happy that each one of you facilitated and enormously contributed to the success of our research activity.

**Photos of Habitat and species**



**Suitable habitat at Fishing Lodge**



**Suitable Habitat at Karimu Valley**



**Habitat at Mutubio Gate where there are past records of Aberdare Cisticola**



**Aberdare Cisticola nest and eggs**



**Aberdare Cisticola's dependent young out of nest at the fishing lodge**