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AERIAL CENSUS OF BIG GAME IN NIOKOLO NATIONAL PARK AND FALEMÉ REGION IN EASTERN SENEGAL

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Dedicated to Prof. K. Otto, who died during field studies in Senegal

SUMMARY

The first aerial and ground census was then performed in Falemé which resulted in following findings: 9 species of larger mammals and only 2 large antelope species were found (roan antelope and bubal hartebeest) in numbers amounting tens of animals. Giant eland has apparently completely disappeared from this area. Aerial counts of game in Niokolo N.P. showed the presence of 12 species of larger mammals including 5 antelope species: giant eland, roan antelope, hartebeest, kob, defassa waterbuck. All species were again present in numbers around few tens, only kob and roan antelope numbers can be as high as 200 individuals. All these numbers are very much lower than those given by earlier estimates (in 1990-1995 several thousands of all above mentioned antelope species were listed in available literature). These results are rather alarming and it seems, that earlier numbers were either exagerated or that animal populations have decreased dramatically during the last few years. All species studied were not distributed evenly neither in National Park nor in Falemé region, individual sectors differed considerably. It has been noticed that especially north-eastern part of the Park and the whole Falemé except two southernmost sectors (i.e. Sectors 3 and 4) were practically deprived of all antelopes.

It has been concluded that for more detailed and precise data more counting flights would be necessary, but due to the shortage of funds this was not possible. Even if the actual values would be 2-3 times higher than recently found, the general picture will be very similar. Practical recommendations will be sent the Senegalese institutions.

Keywords: Game census, antelopes, national park, Senegal

INTRODUCTION

As the first stage of the Project: Breeding of Antelopes in Several African Countries for Economical Utilization, game census in Niokolo National Park and adjacent region of Falemé took place in April 2000. The main objective of the project is to help African countries to diversify and develop the local food sources – African antelopes, by introducing game farming and ranching and by protection of biodiversity in natural reserves (on the basis of ecological and economical aspects). The task of the first stage was to inventarize the most important species of game species especially the Giant Eland by air and ground census, perform the valorization of populations and areas, study the anthropogenic effects, evaluate the potencial sites for game farm or ranch and suggest the improvements of protective measures.

The group of specialists from the Institute of Tropical and Subtropical Agriculture, headed by the project coordinator K. Otto, with M. Beran, J. Kostík and I. Hájek as participants, visited Senegal in April 2000 to perform the field studies.

METHODS

Aerial counting

Aerial observation took place 17th – 20th April in Falemé (from airfield Kedougou) and 24th and 25th April in Niokolo National Park (from airfield Tambacounda). Piper Saratoga aircraft was used at speed 200 km/h and minimum flight heigth 200 m. Game was counted in two strips 250 m wide on either side of the flight route by two observers. Markers on the wings ensured the width of the strip. For higher efficiency of the counting the rear door of aircraft was dismounted. Flights took place in the morning (7.00 – 9.00 a.m.) and late afternoon hours (4.30 – 6.30 p.m.), individual transects were flown 1 km apart, for orientation GPS flight instruments were used. Counting in Falemé was performed by 3 Czech and 1 Senegalese observers, in Niokolo N.P. by 2 Czech and 2 Senegalese observers using the method originally described by Jolly (1969, see also Eltringham, 1979).

In Falemé one orientation flight took place along the borders of the area and 6 counting flights in following areas:
1st Section: Kedougou – Bembou – Saraya, area 960 km^2, counted 200 km^2, i.e. 21%,
2nd Section: Saraya – Nafadji – Falemé River, area 1.152 km^2, counted 200 km^2,i.e. 17%,
3rd Section: South of Kedougou – Falemé River, area 624 km^2, counted 200 km^2, i.e. 32%,
4th Section: Southermost – along Guinea border, area 780 km^2, counted 200 km^2 , i.e. 26%,
5th Section: Kedougou – Khossanto – Kayan – Missira, area 2.108 km^2, counted 285 km^2, i.e. 13,5%,
6th Section: Kedougou – Khossanto – eastern border of Niokolo N.P., area 1.400 km^2, counted 100 km^2, i.e. 7%.
Total area of all Sections was 7.024 km^2, counted area represented 1.185 km^2.

In Niokolo N.P. 3 flight vs were performed in following sections:
1st Section: Tambacounda- Kouar – Tabadian – Simenti – Lingué Kountou, area 370 km^2, counted 200 km^2, i.e. 54%,
2nd Section: Tambacounda – Tabadian- Simenti – Gué Malapo – Gambia River – Wouroli – Mont Assirik, Dar Salam, area 525 km^2, counted 240 km^2, i.e. 46%,
3rd Section: Tambacounda – Tabadian – Badi – Niokolo Koba – Diénoundola, area 1.200 km^2, counted 120 km^2, i.e. 10%.
Total area of sections 2.095 km^2 , counted area represented 560 km^2.

Ground counts

For ground observations Toyota Land Cruiser (4-wheel drive) was used. In Falemé area drives on route Kedougou – Bembo – Saraya and to Koumboutrou were organized. On a foot reconnaissance trip to several waterholes footprints were followed, samples of plants and faeces were collected. In Niokolo N.P. the observation of game took place on park roads, on marshes, inundated areas and from observation points, and also from the boat on Gambia River. Due to the density of vegetation, results of counting have only orientation value.

RESULTS

Aerial counting

Numbers of large animals as the result of aerial counting are given in Table 1. As can be seen from this Table, animal population are very low in numbers in both areas studied. In Falemé dominant game species is the warthog, which in fact is the only animal hunted by hunters from Europe. Antelope species are very rare, apparently due to heavy poaching especially in eastern and western sections of the region. Giant eland was no more recorded in this region. In Niokolo N.P. animal counts were slightly higher, but still quite low. Giant eland is still present here, one heard was observed in the central part of the park. Even in the park, animal populations suffer from the poaching, especially along the eastern and northern park boundary.

Ground observations and counting

Falemé

During game drives no big game species were seen. When waterholes were inspected near Koumboutrou, footprints and faeces of roan antelope, bushbuck, red-flanked duiker, warthog, bush-pig and lion were found. Samples of 6 plant species, consumed by giant eland were taken for identification and further analysis (Isoberlinia doka was not found neither in Falemé nor in Niokolo N.P., which is in agreement with the recent literature). Last observation of 3 herds of giant eland came from DEFCCS rangers in 1999 in Koumboutrou
and two places near Saraya – Nafadji road.

Niokolo N.P.

During game drives near Simenti we recorded the presence of individual specimens of small antelopes species (red-flanked duiker, bushbuck) in dense vegetation. Small groups of kob, defassa waterbuck and bushbuck were observed on marshes and inundated areas. One heard of roan antelopes was seen from a distance. Total numbers of individual species represent few tens of animals. Warthogs appeared with a similar frequency. The important factor which could negatively influence the populations of antelopes is the presence of huge groups of baboons. Their numbers near Simenti were estimated as high as over 600 heads. Observation of game from the boat on Gambia River resulted again in individual specimens of defassa waterbuck, kob, bushbuck and two hippopotamus groups (4 +

2). It has been noted, that the animals, especially kobs, showed no apparent teritorial behaviour (e.g. territorial breeding ground formation, which is typical for East Africa, see Buechner, 1961, Verner and Hájek, 1984, Hájek *et al.*, 1995). This finding is apparently due to low densities of antelope populations. In comparison with literature data regarding animal population size in Niokolo N.P. (Bouard et al., 1993), the numbers even in the park decreased considerably during the last decade. The reason for decline is again heavy poaching taking place even in the park area and probably also overpopulation of baboons, wjhich was observed around park headquarters.

Table 1. Recorded species of game, their numbers and estimates

Species	Falemé		Niokolo N.P.	
	Recorded	Estimate	Recorded	Estimate
Giant Eland Taurotragus derbianus	0	0	17	63
Kob Kobus kob	0	0	34	139
Bohor Reedbuck Redunca redunca	2	16	0	-
Defassa Waterbuck Kobus defassa	0	0	11	41
Bubal Hartebeest Alcelaphus buselaphus	11	93	8	35
Roan Antelope Hippotragus equinus	14	139	60	140
Bushbuck Tragelaphus scriptus	58	508	18	58
Buffalo Syncerus caffer	4	39	125	513
Oribi Ourebia ourebi	6	58	2	-
Red-flanked Duiker Cephalopus rufilatus	6	51	3	14
Warthog Phacochoerus aethiopicus	248	2.081	11	48
Hippopotamus Hippopotamus amphibius	8	-	22	-
Lion Panthera leo	0	0	2	-

Note: Estimates were based on actual counts, multiplied by the visibility factor (due to the density of vegetation this equals 2) and by the value obtained from the total area of the sections divided by the area of transects.

Parasitological examinations

Faeces collected in the field were examined in the laboratories of the Czech Agricultural University in Prague using flotation technique. Relatively good state of animal health was found, as the incidence of endoparasites was low. In samples studied, eggs of trematodes from Paramphistomatidae family , flatworms from Anoplocephalidae family and roundworms (5 families) were found.

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