
THE DISTRIBUTION OF ELEPHANTS IN NORTH-EASTERN GHANA AND NORTHERN TOGO

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RESUME

La population d'éléphants (*Laxodonta africana*) du Togo est répartie dans deux zones dont, l'une est située au centre, et l'autre à l'extrême nord (MET, 1991; Okoumassou, 1997). Les éléphants de l'extrême nord, se déplacent souvent et traversent la frontière jusqu'au nord est du Ghana et des deux côtés de la frontière, il y a des plaintes concernant les dégâts de cultures. Quelques informations datées de 1990 sont disponibles sur les éléphants du nord du Togo (MET, 1991; Stalmans et Anderson, 1992), mais il y a très peu d'informations au stade actuel. Du côté Ghanéen, très peu de connaissances existaient sur les éléphants. Cependant, les administrations des districts étaient de plus en plus inquiètes des dégâts de cultures (Sam, 1994). Une étude préliminaire a donc été entreprise d'Avril à Juin 1996 par les autorités des deux pays. L'objectif était de déterminer le statut des éléphants et d'évaluer le problème des dégâts. Ce rapport décrit les changements récents sur la distribution des éléphants, et un autre rapport (Sam *et al.*, ce volume) fait une description des conflits homme - éléphant.

INTRODUCTION

Togo's elephant (*Laxodonta africana*) population is found in two ranges, one in the centre and one in the far north (MET, 1991; Okoumassou, 1997). The northern elephants often move across the border into northeastern Ghana, and on both sides of the border there are complaints of crop-raiding. Some information is available on the northern Togolese elephants up to 1990 (MET, 1991; Stalmans and Anderson, 1992), but there is little current information. On the Ghanaian side little was known about the elephants and the district administrations were becoming concerned about crop-raiding (Sam, 1994). Therefore a preliminary study was undertaken from April to June 1996 by the wildlife authorities of the two countries. The objective was to determine the status of elephants and evaluate the crop-raiding problem. This paper describes recent changes in the distribution of elephants, and a second paper (Sam *et al.*, this volume) describes human-éléphant conflicts.

STUDY AREA

The Ghanaian portion of the study area consisted of the Upper East Region plus a small part of the Northern Region. The Togolese part consisted of the Région des Savanes plus the prefecture of Kandé in the Région de Ia Kara (Figure 1) (The Ghanaian Regions are divided

into districts, while those in Togo are divided *into prefectures*).

The mean annual rainfall for 1976 to 1995 was 958mm for Navrongo in Ghana, and 1,039mm for Mango in Togo. There is a single wet season lasting from about April to November. The vegetation is Sudanian savanna woodland (White, 1983) but some authors have called it Guinea savanna (eg. Taylor, 1952; Boateng, 1970). It consists of deciduous short trees, usually less than 15 metres tall, and shrubs. The canopy is not closed and there is a dense medium or long grass layer in the late wet season. Fires are frequent. Forest Reserves protect the banks of the major rivers on the Ghana side (Figure 2). Outside the reserves the vegetation has been transformed by human activities (Boateng, 1970; White, 1983). On the Togolese side there are two National Parks (Fosse-aux-Lions and Kéran); the Oti-Mandouri and Galangashie Game Reserves; the K hunting reserve; and the Forêt de Doung and Barkoissi Forest Reserves (Figure 2).

The Koulagouna river rises near the Fosse-aux-Lions NP and flows westwards, becoming the Moraga river on the Ghanaian side of the border. This river continues westwards, meeting the White Volta and then the Red Volta rivers (Figure 2). The Koulagouna-Morago-Volta rivers flow along the foot of the north-facing Gambaga Escarpment (see Figure 1 of Sam *et al.*, this volume).

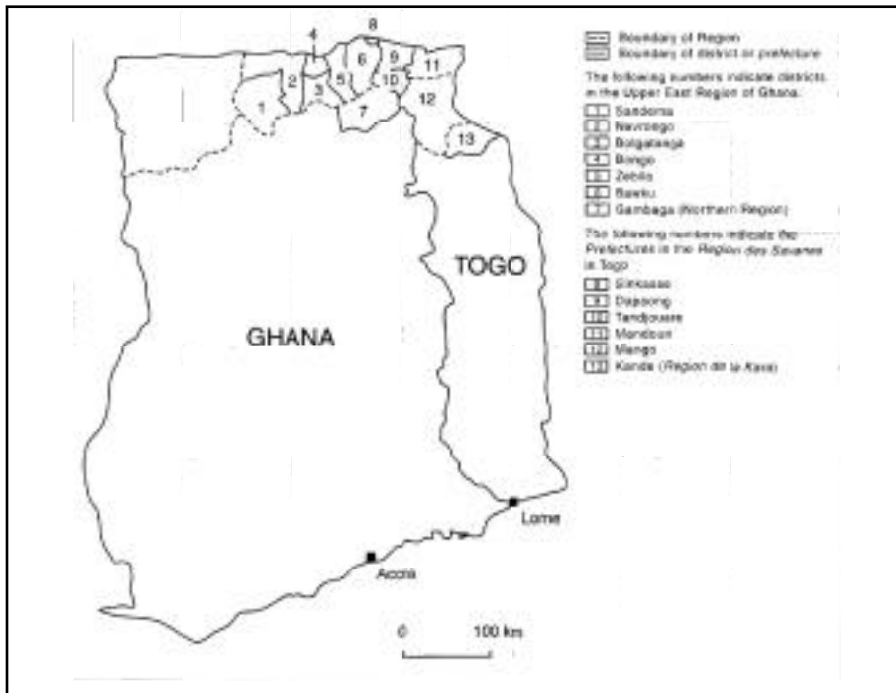


Figure 1. Map of the northern parts of Ghana and Togo showing where this study was conducted.

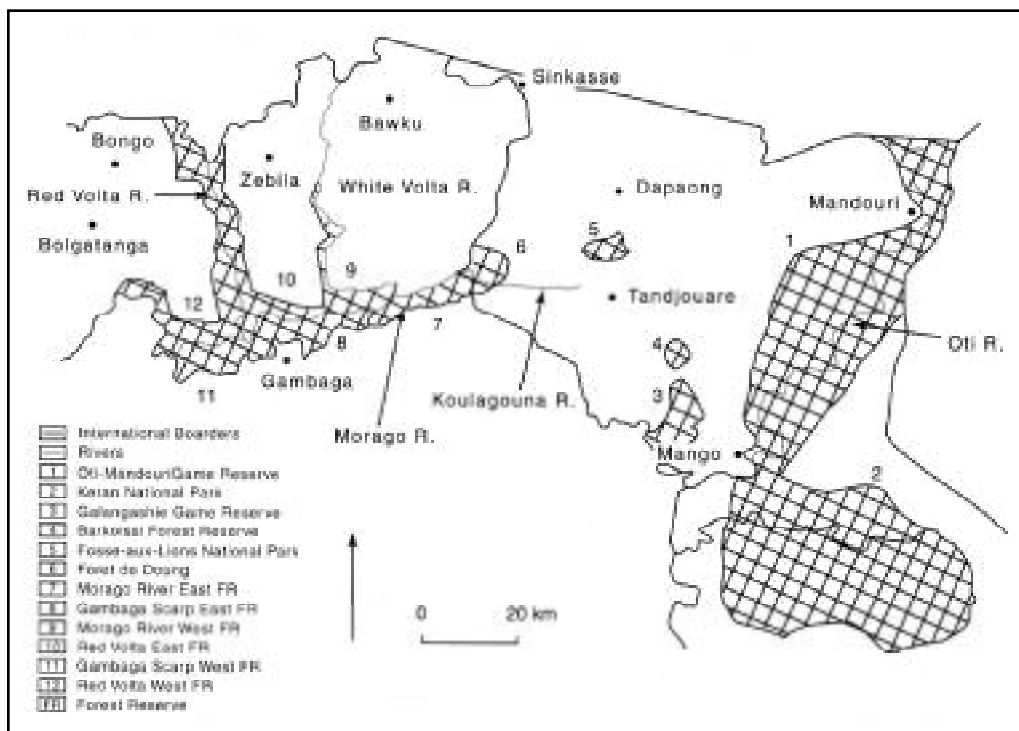


Figure 2. Map showing the most important protected areas (cross-hatched) for elephants in north-eastern Ghana and northern Togo.

The human population density of Ghana's Upper East Region is about 118 per km² (Sam *et al.*, this volume). Worked and fallow fields cover almost half the land area of that region in 1989 (DCA, 1992). Human population densities ranged from 25 to 201 per km² in the *prefectures* of northern Togo (data provided by la Direction de Statistique in Dapaong).

The rural populace practices rain-fed mixed cropping. The most important crops in the study area are millet, sorghum (guinea-corn), groundnuts, beans, rice, maize, and yams (DCA, 1992). Small amounts of other crops, such as vegetables, sweet potatoes, and cotton, are also grown.

METHODS

Data were collected by interviewing villagers. The villages were selected on the basis of pre-existing information about the distribution of elephants (eg. Sam [1994] and personal knowledge), features which suggested the probable presence of elephants, and from information given by the district administrations. Towards the end of the study the distribution of interviewed villages was examined and additional villages were selected to fill the gaps.

The interview in each village was an informal conversation with a group that usually consisted of the chief, his elders, and other villagers. The number of participants varied from four to about two dozen; in one case 70 took part. The interview was usually

conducted through an interpreter because few villagers spoke English or French. A standard list of open-ended questions was designed to uncover the history of elephant occupation of the area around the village, trends in elephant numbers, whether elephants are or had been permanently resident or seasonal migrants, the season when they appeared, whether they damaged crops, and how they were warded off. Attempts were also made to determine whether elephants formed part of the culture of the local people, and what attitudes the people had towards elephants.

The validity of the data collected depends upon the honesty of the respondents and their willingness to be questioned by outsiders. For the most part the interviewers were greeted warmly and villagers replied willingly to our questions. Sometimes they talked frankly about topics one would expect them to conceal.

RESULTS

Elephant distribution in Ghana

We visited 42 villages in Ghana (Table 1), and according to villagers elephants occurred in many parts of the Upper East Region early this century. But by Independence elephants had disappeared from most parts west of Bolgatanga Today they are found in two parts of the Region. They occur seasonally along the Sissili river in the extreme west and south-west (Figures 3 and 4).

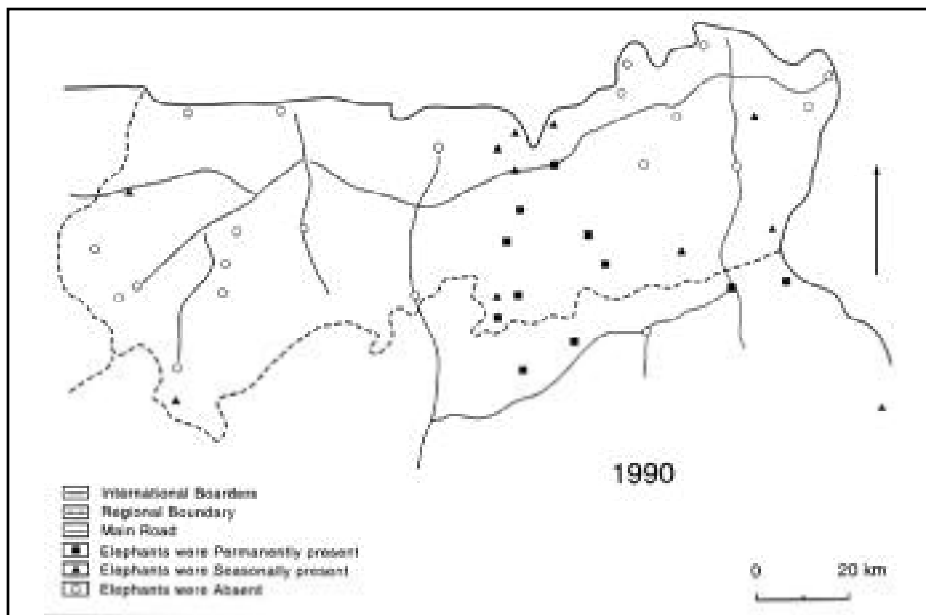


Figure 3. Elephant distribution in north-eastern Ghana in 1990.

Table 1. The communities that were interviewed in Ghana (n = 42).

District	Village	District	Village
Bawku East	Garu	Sandema	Doninga
	Sinebaga		Wupensa
	Worikambo		Bachonse
	Bugri		Chiok
	Zabzundi		Fumbisi
	Pulimakom/Widana		Weisi
	Nafkoliga		
	Binduri		Navrongo
Mognori	Kayoro		
Bawku West	Tilli		Nakong
	Kusanaba		Kologo
	Zongoiri		Naga
	Widinaba	Gambaga	Samene
	Gogo		Gbangu
Sapeliga	Nakpanduri		
Bolgatanga	Nangodi		Nalerigu
	Sekoti		Gambaga
	Datoko		Nabulik
	Tolla		Kambatiak
	Akulmasa		Kinkagu
	Pwalugu		
Bongo	Bongo		
	Soe		

The Sissili river may form part of a movement corridor southwards from Burkina Faso towards Mole NP, Ghana's largest savanna park. Elephants also occur in an L-shaped area along the Red Volta and Morago river valleys (Figure 4). The banks of these rivers (except for part of the north bank of the Morago river) are protected by Forest Reserves which provide elephant habitat. Elephants move between Ghana and Togo along the Morago/Koulagouna river. Elephants are seen most frequently in the Red Volta valley during the wet season, especially as harvest-time approaches. They seem to move northwards into Burkina Faso for the dry season, and southwards again in the early wet season.

Eighteen villages complained of crop damage during the last ten years, and ten said that elephant numbers had increased during that time, especially during the last four or five years. Two villages close to the border attributed the increase to elephants moving from Togo

following political events there.

Elephant distribution in Togo

Twenty four villages were visited in Togo (Table 2). According to information provided by villages, both the number of elephants and consequent crop damage increased during the 1970s and 1980s due to added protection in the new National Parks and Reserves. Protected Areas covered 20% of the area of Région des Savanes (IUCN, 1987), and by 1990 elephants were common and permanently resident in the area between Forêt de Doung, Tampialim, Fosse-aux-Lions NP, and Pana (Figure 5). One hundred and thirty were counted from the air (Stalmans and Anderson, 1992), and there may have been as many as 200 in the dry season (MET, 1991). They moved regularly between Fosse-aux-Lions NP and Forêt de Doung and into Ghana.

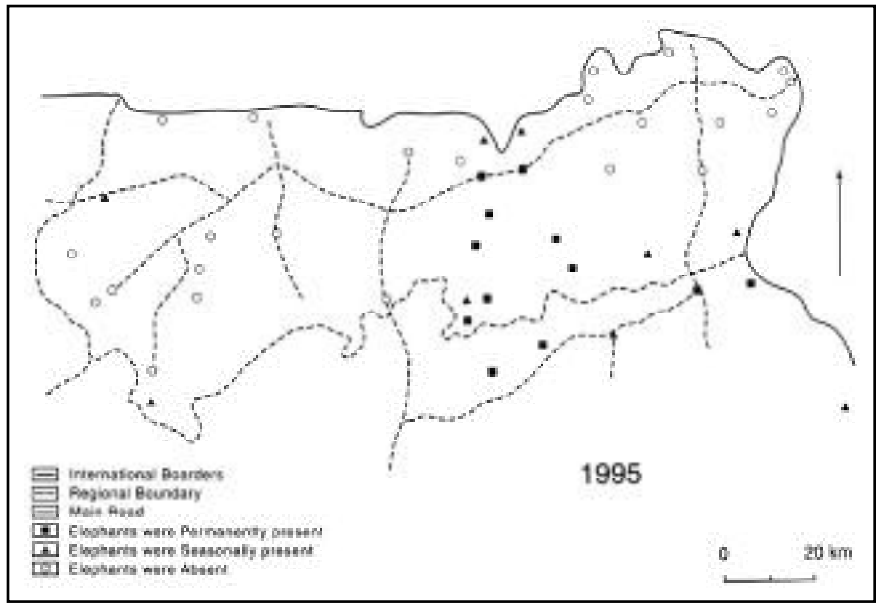


Figure 4. Elephant distribution in north-eastern Ghana in 1995.

Table 2. The communities that were interviewed in Togo (n = 24).

Prefecture	Village	Prefecture	Village
Oti	Takpamba	Tône	Warecambo
	Takpaveni		Pana
	Bakoissi		
	Gando	Kpendjal	Borgou
	Galangashie		Panserie
	Mogou		Koudjouaræ
	Mango		Donga
Tandjouaræ	Nandiki		
	Bombouaka	Sinkassæ	Timbou
	Nano		Sinkassæ
	Sissiak	Kæran	Ossacræ
	Tampialim		Naboulgou
	Nayergou		Kpessidæ

Elephants were present south of the Doung-Pana area, to Galangashie, Mango and the Kéran NP. Elephants were also seasonally present along the Oti river in the north-east, moving down the river valley towards the Kéran NP (Figure 5). They seem to have been absent from the northern part of the Région des Savanes.

By 1989 people were becoming so frustrated with the crop damage caused by elephants that they

encouraged hunters to come from Ghana to shoot them. Ghanaian hunters were selected because they were experienced and had powerful rifles. Then in 1990 to 1992 there was a prolonged political crisis and civil disturbance in Togo (Tanzidani, 1993). The opposition identified the country's protected areas as representative of the unpopular government and it encouraged the local people to invade the protected areas and kill the animals (Tanzidani, 1993). Once again, hunters were hired from Ghana to kill

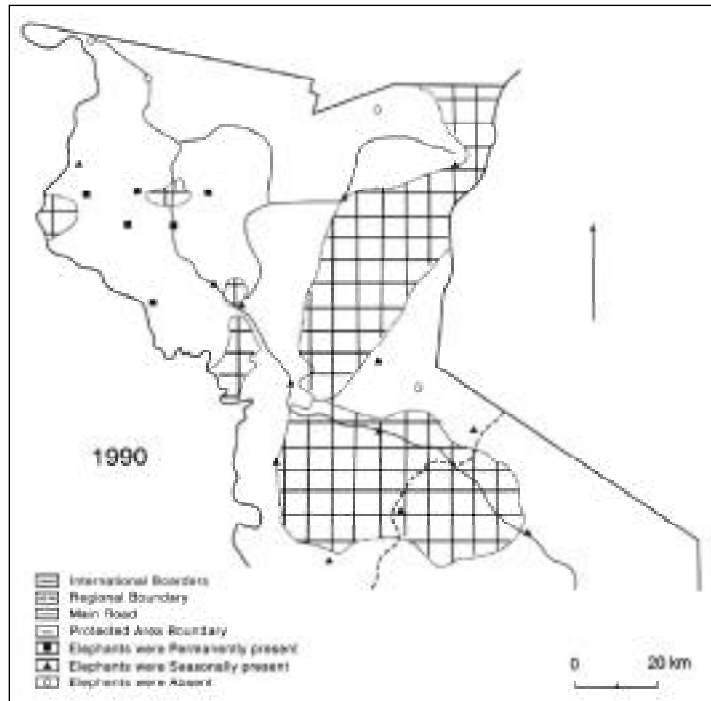


Figure 5. Elephant distribution in northern Togo in 1990.

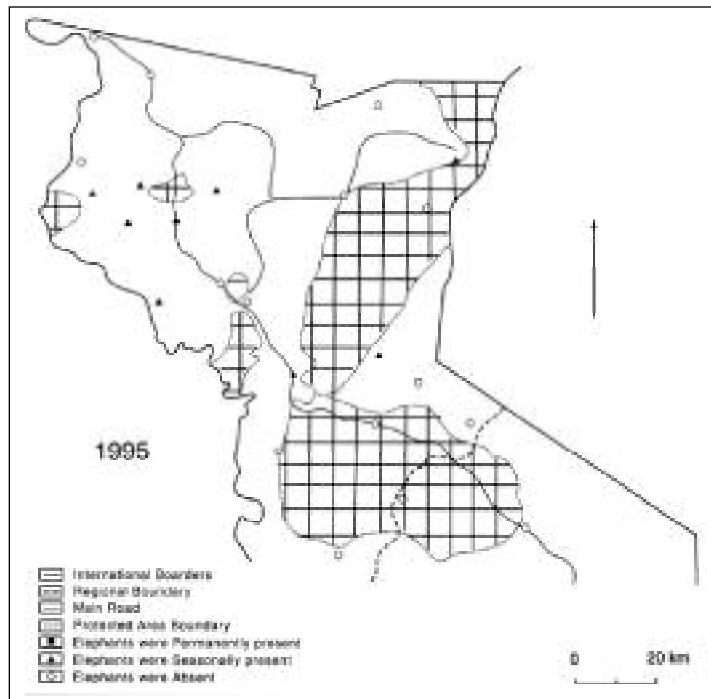


Figure 6. Elephant distribution in northern Togo in 1995.

elephants. One chief spoke of a “massacre of the elephants” with 200 killed over a two-year period which started during the Conference Nationale in July-August 1991.

Those elephants that survived fled to adjacent countries: Benin, Burkina Faso, and Ghana. Today elephants have disappeared from the Kéran NP, and also from the Galangashie and Barkoissi Reserves (Figure 6). In the Doung-Pana area, where formerly they were abundant, they are now seen only seasonally and in small numbers. They still seem to move seasonally along parts of the Oti river in the east.

There has never been a formal census of Togo’s elephants, but guesses or extrapolations of the total population before 1990 ranged from 100 to 400 (Burrill & Douglas-Hamilton, 1987; MET, 1991; Douglas-Hamilton *et al.*, 1992). If those figures were accurate, then the elephants killed between 1990 and 1992 represented a large proportion of the national population.

Migration corridor

The Red Volta-Morago-Koulagouna river system and the escarpment form the natural boundaries of a long corridor for elephants to migrate between Ghana and Fosse-aux-Lions NP in Togo (Figure 7). This was described by Stalmans and Anderson (1992) who saw

it and the Fosse-aux-Lions NP before the civil disturbances.

On the Ghana side, the area above the Gambaga escarpment is densely cultivated, except for the Forest Reserve on the escarpment edge. Elephants still use this forest, as their signs are seen regularly above the escarpment to the east of Nakpanduri (the Morago East Forest Reserve), and they sometimes climb from the White Volta into the hills near Gambaga and Samene. Migrating elephants usually move along the bottom of the valley, between the river and the escarpment, because it is part of the Forest Reserve and relatively undisturbed.

The corridor is protected from cultivation on the Ghana side by the Forest Reserve but the Togolese side is not so protected. Although the Forêt de Doung is sometimes marked on maps as a *forêt classée*, its present status remains unclear. In any case, the Forêt de Doung covers only the small part of the migration corridor near the frontier (Figure 7).

Near the bonier on the Togolese side, in the Forêt de Doung, a path has been worn by migrating elephants. Further east, there are natural bottlenecks to the corridor where promontories from the escarpment approach the river. One of these, about 10km from the border, could be partially blocked if a field on

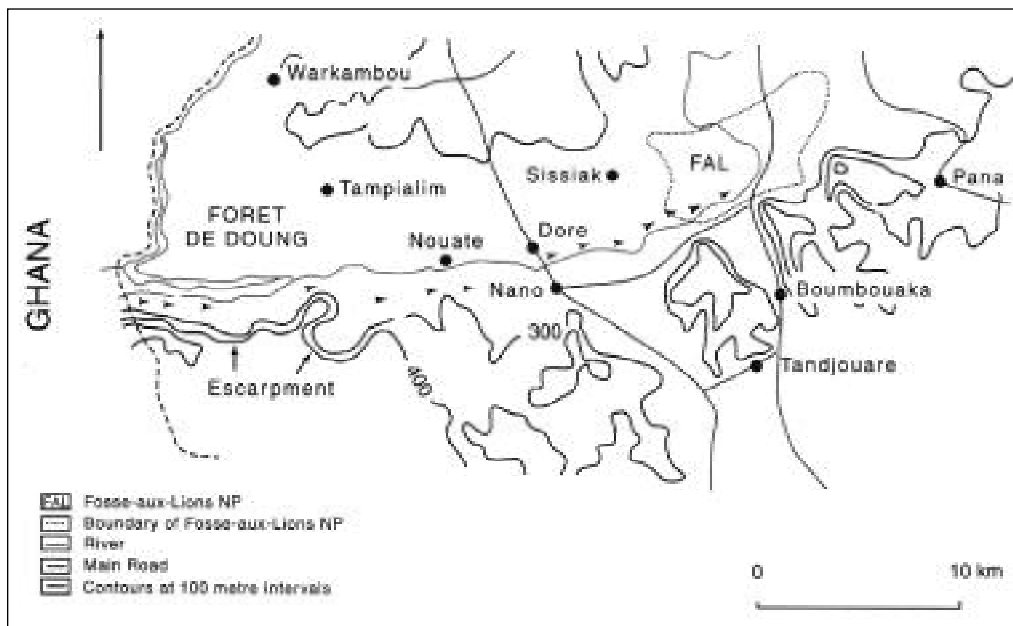


Figure 7. Map of the elephant corridor on the Togolese side. The arrows show the elephant migration route between Forêt de Doung and Fosse-aux-Lions NP.

that side of the river were expanded. Near Nouat, (Figure 7) there are a number of fields in the middle of one of these potential bottlenecks. Further east, at Kona, cultivation extends across the corridor from the river to the foot of the escarpment. From Kona to the Fosse-aux-Lions NP the corridor is a mosaic of cultivation and fallow.

Since the 1990 to 1992 crisis much of the Fosse-aux-Lions NP has been cultivated and settled. Immediately adjacent to the marsh in the heart of the Park is a huge farm that is not visible from the main Mango-Dapaong highway.

DISCUSSION

Elephant distribution and crop-raiding

During colonial times elephants were widespread in the Upper East Region but their range decreased as the human population grew. By 1990 they were restricted to the Sissili river and the L-shaped zone formed by the Forest Reserves along the Red Volta and Morago rivers. In contrast, it seems that elephants were becoming more common in northern Togo during the 1970s and 1980s due to the expanding network of Protected Areas (Figure 5). Since 1990 there has been a major change in elephant distribution in the study area: a net movement from northern Togo into north-eastern Ghana. Today elephants are not seen in the area south of Mango (Figure 6). The increased complaints of crop-raiding in the Red Volta area are a consequence of the collapse of the Protected Area system in Togo due to political disturbances.

For the most part, elephants play no role in the lives or culture of the rural people, except in a negative sense as a destructive and dangerous pest. Against the backdrop of poverty and declining natural resources (described in Sam *et al.*, this volume), the risk of crop losses caused by elephants is becoming intolerable, and the most important short-term threat facing elephant populations is the local people's hostility, an inevitable reaction to crop-raiding.

Remaining habitat

Much elephant habitat remains in Protected Areas on both sides of the border (Figure 2). On the Togolese side the Kéran NP and the Oti-Mandouri Game Reserve together form a block of about 3,000km². Both are occupied to some extent by farmers but negotiations are under way to persuade them to move out. Even if, as part of the compromise with the locals, the Kéran NP is reduced in size, the Kéran-Oti-Mandouri block will still be the largest contiguous elephant habitat in Togo.

On the Ghanaian side the forest reserves provide several functions. First, they protect the river banks (Figure 2). Second, they form elephant habitat covering approximately 900km². Third, they form a migration corridor between Burkina Faso, Ghana, and Togo. The Ghanaian side of the corridor is secure at present because Forest Reserve status prohibits cultivation. However, wood-cutting, grass-burning, grazing, or hunting could become threats if pressure for resources were to increase.

On the other hand, the corridor is seriously threatened on the Togo side and may already be blocked by cultivation. At the eastern end of the corridor, a large part of Fosseaux-Lions NP is now cultivated and settled. If Fosse-aux-Lions NP is no longer suitable for elephants, then there is little point in worrying about the Togolese part of the corridor.

Change in soil fertility is an important issue in the study area (Sam *et al.*, this volume). Farmland that has been continuously cultivated is becoming progressively less fertile (PNUD/FAO, 1991). This illustrates a potential future danger for all Protected Areas in both Ghana and Togo; as land is degraded through over-cultivation, the Protected Areas will become islands of fertile soil in a sea of unproductive land. Farmers will turn hungry eyes towards those fertile soils and it will be difficult to keep them out.

Rehabilitation of the Togolese protected areas

The rehabilitation of the Togolese Parks will face some serious problems if it can be affected. If the Togolese parks were improved enough that elephants moved back to Togo, then the numbers of elephants in the Red Volta area would decrease. However, the farmers on the Togolese side are grateful that the elephants have gone, and they will not be happy to see them return. They would argue that the crop-raiding problem had simply been transferred from Ghana back to Togo.

The growth of the human population and the resultant loss of habitat is the most important medium-term threat which elephants face in the study area. The occupation and cultivation of the Togolese parks in 1992 may have satisfied the hunger for land in the short term. The root problem - increasing demand but a shrinking supply of land - remains, and the day of reckoning for the human population has merely been postponed rather than cancelled. For when the people have cultivated all the conservation areas, then where will they go next?

CONCLUSIONS

Elephants move between three countries - Ghana, Togo, and Burkina Faso - but the traditional migration route between the Ghana border and the Fosse-aux-Lions NP is disappearing. Elephants also move up and down the Sissili and Red Volta valleys between Ghana and Burkina Faso. A study of their distribution and ecology is needed on the Burkina Faso side of the border, as well as an assessment of their movements between the two countries. At present there is no estimate of numbers of elephants, and a joint aerial census of the Ghanaian and Burkina Faso portions of the Red Volta and Morago valleys is essential.

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