STATUS AND NEEDS FOR CONSERVATION OF LIONS IN WEST AND CENTRAL AFRICA

An Information Exchange Workshop

Limbe, Cameroon

2-4 June 2001

Hosted by:
Ministry of Environment and Forestry, Cameroon

Organized by:
African Lion Working Group

In collaboration with:
Conservation Breeding Specialist Group IUCN/SSC
Cat Specialist Group IUCN/SSC

Supported by:
Dutch Foundation Zoos Help
IUCN Regional Office for Central Africa
IUCN Regional Office for West Africa
Centre of Environmental Science, Leiden University, Holland
Limbe Botanical Garden, Cameroon

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A contribution of the Conservation Breeding Specialist Group (IUCN/SSC), the Cat Specialist Group (IUCN/SSC) and the African Lion Working Group.

Hosted by Ministry of Environment and Forestry, Cameroon.

Supported by the Dutch Foundation Zoos Help, IUCN Regional Office for Central Africa, IUCN Regional Office for West Africa, Centre of Environmental Science, Leiden University, Holland, and Limbe Botanical Garden, Cameroon.

Organised by Sarel van der Merwe (chair ALWG), Phil Miller (CBSG), Ulysses Seal (chair CBSG), Frank Princée (DFZH), Hans Bauer (CEDC Cameroon and University of Leiden), Hans de Iongh (University of Leiden), Martin Tchamba (WWF Cameroon), Daniel Ngantou (IUCN Central Africa) and Ibrahim Thiaw (IUCN West Africa).

H. Bauer, Dr. H.H. De Iongh, Dr. F. P.G. Princée and D. Ngantou, editors. 2001. *Status and Needs for Conservation of Lions in West and Central Africa: An Information Exchange Workshop Report.* Conservation Breeding Specialist Group (IUCN/SSC), Apple Valley, MN, USA.

Additional copies of the *Status and Needs for Conservation of Lions in West and Central Africa: An Information Exchange Workshop Report* can be ordered through the Conservation Breeding Specialist Group (IUCN/SSC), 12101 Johnny Cake Ridge Road, Apple Valley, MN, 55124-8151, USA.

STATUT ET BESOINS POUR LA CONSERVATION DES LIONS EN AFRIQUE DE L'OUEST ET CENTRALE

Un Atelier d'échanges d'informations

Limbé, Cameroun

Du 2 au 4 Juin 2001

Sous la supervision :
Du Ministère de l'Environnement et des Forêts, Cameroun

Organisé par :
Groupe de Travail du Lion d'Afrique

En collaboration avec :
Groupe de Spécialistes d'Elevage pour la Conservation UICN/SSC
Groupe de Spécialistes des Félins UICN/SSC

Avec l'assistance de :
La Fondation Néerlandaise d'Aide des Zoos
L'UICN Bureau Régional pour l'Afrique Centrale
L'UICN Bureau Régional pour l'Afrique de l'Ouest
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An Information Exchange Workshop

Limbe, Cameroon

2-4 June 2001

Executive Summary

Executive Summary

With the permission of the Ministry of the Environment and Forestry Cameroon, on the initiative of the African Lion Working Group (which is affiliated with the IUCN/SSC Conservation Breeding Specialist Group and the Cat Specialist Group), and with support of the Dutch Foundation Zoos Help (nature conservation fund of the Dutch Zoo Federation), the Centre of Environmental Science, Leiden University and IUCN West and Central African regional Offices, the workshop "Status and Future of Lions in West and Central Africa" was held in the Limbe Botanical Garden, Cameroon, from June 2-4, 2001.

Participants in the Workshop included managers of Protected Areas, representatives of ministries in charge of wildlife, zoos, IUCN, WWF, research and training institutes, national NGO's and other stakeholders interested in the Conservation of Lions. The following lion range countries were represented: Cameroon, Senegal, Mali, Guinee, Benin, Uganda.

The Objectives of the Workshop were:
- Identify the numbers and protection status of lions in West and Central African countries;
- Identify the main threats to lions and the difficulties in their conservation in West and Central African countries;
- Identify gaps in information needed for the conservation of lions in West and Central African countries;
- Understand the goals for lion populations in West and Central African countries;
- Share available information on lions and participants' experiences and actions for lion conservation;
- Come out with recommendations and strategies for lion conservation.

Expected results of the Workshop were as follows:

- Establishment of a regional network for lion conservation;
- Information on Lions is shared between all participants;
- Strategic avenues for the promotion and the conservation of lion are well defined;
- Priority activities for the promotion of lions are established.

The opening ceremony was presided over by Serge Bobo Kadiri, representing the Wildlife Department of the Ministry of the Environment and Forestry of Cameroon. Daniel Ngantou, the Regional Director for IUCN in Central Africa and Frank Princée, project co-ordinator of the Dutch Foundation Zoos Help and representative of the Chair of the African Lion Working Group addressed the participants.

The Workshop was moderated by Ulie Seal, chair of the Conservation Breeding Specialist Group (IUCN/SSC). It was held in French and English, with summarizing translations either way whenever appropriate.

The following presentations were made in the Workshop, all followed by questions and discussions:

- *Workshop approach and methodology* by Ulie Seal;
- *Status of lion conservation in Waza NP, Cameroon* by Hans Bauer;
- *The ecological and veterinary threats to lions in Uganda* by Ludwig Siefert;
- *Co-habitation between populations and Wildlife: The case of Predation of livestock by lions in Pendjari, Benin* by Etotépé Sogbohossou;
- *Lion population survey techniques: methods and protocols* by Margeret Driciru;
- *Methods of surveys used in Waza NP* by Saleh Adam;
- *Lion and Health by* Ludwig Siefert;
- *Administrative aspects of management and conservation of lions* by Per Aarhaug.

Discussions in Working Groups came out with the following:

GROUP I: Cameroon
Status: Probably between 200 and 300 lions, in two populations. Full legal protection, hunting quota available for Benoue area.
Threats: Habitat reduction, poaching, risks inherent to small populations.
Present action: fragmented efforts for survey and research, traditional and participatory conservation actions, legal damage compensation system is not applied
Recommended actions: harmonised surveys, pluridisciplinary research, elaboration and implementation of lion management policy, coordination with neighbouring countries for shared lion populations.

GROUP II: West Africa
Status: Probably roughly around 450 lions in Benin, Mali, Senegal and Guinea, most populations are small and isolated populations. Partial legal protection (annex II). Participants had the impression that other countries in the region had a similar situation.
Threats: Habitat reduction, poaching, traditional practices, migratory (transhumant) livestock encroachment.
Priority actions: censuses, surveys and research, sensitisation of human population and decision makers, conservation activities.

RECOMMENDATIONS FOR THE CONSERVATION OF LIONS

- Make an inventory of human lion conflicts and their solutions by means of a questionnaire to be circulated among countries (circulate drafts first);
- Prepare a Lion Management Handbook (French and English);
- Standardise lion survey methods for the entire African region;
- Feed the lion database with information from west and central Africa;
- Establish national and bilateral lion management and conservation and long term monitoring plans;

- Find contact persons/groups from countries which have not participated in this workshop (with significant lion populations);
- Establish/update lion bibliography;
- Find funds and fellowships for lion research by African PhD and Msc fellows;
- Initiate a study on trade of lions and lion products (TRAFFIC);
- Have a database with institutions involved in Lion research;
- Establish a regional lion network (low cost);
- Sensitise decision makers and donors on problems related to lions;
- Sensitise and involve local population in the management of problems related to lions;
- Reinforce the intervention capacities of conservation managers to better take care of lions;
- Organise a training workshop on survey methods in the near future;
- Organise lion surveys in priority areas for each country.

Participants thanked the Government of Cameroon for accepting to host the Workshop, the Limbe community for such a warm welcome and the Dutch Foundation Zoos Help who partially funded the workshop, as well as the Staff of the Limbe Botanical Garden for logistical/technical support.

STATUT ET BESOINS POUR LA CONSERVATION DES LIONS EN AFRIQUE DE L'OUEST ET CENTRALE

Un Atelier d'échanges d'informations

Limbé, Cameroun

Du 2 au 4 juin 2001

Résumé

RÉSUMÉ

Avec l'autorisation du Ministère de l'environnement et des Forêts du Cameroun, sur l'initiative du Groupe de Travail du Lion d'Afrique (sous tutelle de UICN/SSC Groupe de Spécialistes d'Elevage pour la Conservation et Groupe de Spécialistes des Félins), avec le soutien de la Fondation Néerlandaise d'Aide des Zoos, du Centre des Sciences Environnementales, Université de Leiden et des Bureaux Régionaux d'Afrique de l'Ouest et Centrale de l'UICN, le séminaire « Statuts et l'avenir des Lions en Afrique de l'Ouest et Centrale » s'est tenu dans le Jardin Botanique de Limbé Cameroun du 2 au 4 Juin 2001.

Les participants a l'atelier étaient constitués des dirigeants des aires protégées, des représentants des ministères en charge de la faune, des zoos, de l'UICN, du WWF, des institutions de recherches et de formation, des ONG nationales et de tous ceux qui sont impliqués les enjeux dans le domaine de la conservation des lions. Les pays représentés au séminaire et ayant des lions sur le territoire sont les suivants : le Cameroun, le Sénégal, le Mali, la Guinée; le Bénin, l'Ouganda.

Les objectifs de l'atelier étaient les suivants :

- Identifier le nombre et les statuts des lions dans les pays d'Afrique de l'Ouest et Centrale ;
- Identifier les principales menaces des lions et les problèmes liés à leur conservation en Afrique de l'Ouest et Centrale ;
- Identifier les lacunes d'informations nécessaires pour la conservation des lions dans les pays d'Afrique de l'Ouest et Centrale ;
- Comprendre les objectifs pour le mode de gestion de populations des lions dans les pays d'Afrique de l'Ouest et Centrale ;
- Partager les informations disponibles sur les lions et les expériences des participants en matière de conservation des lions ;
- Formuler des recommandations et stratégies pour la conservation des lions.

Les résultats attendus de cet Atelier étaient les suivants :

- La constitution d'un réseau régional pour la conservation des lions ;
- Le partage des informations sur les lions par tous les participants
- La définition des voies et moyens stratégiques pour la promotion et la conservation des lions;
- L'identification des activités prioritaires pour la promotion des lions.

La cérémonie d'ouverture a été présidée par Serge Bobo Kadiri, représentant de la Direction de la faune du Ministère de l'Environnement et des Forêts du Cameroun. Daniel Ngantou, le Directeur Régional de UICN pour l'Afrique Centrale et Frank Princée, coordonnateur de projets de la Fondation Néerlandaise d'Aide des Zoos (le fonds de conservation la nature de l' Association des Parcs Zoologiques Néerlandais) et Représentant du Président du Groupe de Travail du Lion d'Afrique, ont fait des présentations.

L'Atelier était facilité par Ulie Seal, président du Groupe de Spécialistes d'Elevage pour la Conservation de l'UICN/SSC. L'atelier se tenait en français ou en anglais avec traduction sommaire quand le besoin était exprimé.

Les présentations suivantes ont été faites en Atelier, toutes suivies des questions et débats :

- approche et méthodologie de l'atelier par Ulie Seal
- la conservation des lions dans le Parc National de Waza par Hans Bauer
- Les menaces écologiques et vétérinaires des Lions en Ouganda par Ludwig Siefert
- Cohabitation entre les populations et la faune : Le cas de la prédation du bétail par les lions à Pendjari, Bénin par Etotépé Sogbohossou
- Les techniques de sondages de la population des lions : méthodes et protocoles par Margeret Driciru
- Les méthodes et sondages utilisées au Parc National de Waza par Saleh Adam
- Le lion et la santé par Ludwig Siefert
- Les aspects administratifs de la gestion et la conservation des lions par Per Aarhaug

Les discussions dans les groupes de travail ont produit les résultats suivants :

GROUPE I : CAMEROUN

Statuts : Probablement entre 200 et 300 lions en deux populations. Une pleine protection légale, des quotas de chasse disponible pour la région de la Bénoué.
Les menaces : La réduction d'habitat, le braconnage, les risques liées a la biologie des petites populations.
Actions actuelles : des sondages et recherches par endroit, des actions de conservation traditionnelles et participatives, un système de dédommagement préconisé par la loi n'est pas appliqué.
Actions recommandées : Harmoniser les sondages, la recherche pluridisciplinaire, l'élaboration et l'implémentation d'une politique de gestion des lions, la coordination avec les pays voisins concernant les populations transfrontalières.

GROUPE II : Afrique de l'Ouest

Statuts : Probablement environ 450 lions au Bénin, Mali, Sénégal, et Guinée, la plupart des populations sont petites et isolées. Une protection légale partielle (annexe II). Les participants avaient l'impression que les autres pays de la région avaient des situations similaires.
Les menaces : La réduction de l'habitat ; le braconnage ; les pratiques traditionnelles, l'empiétement des mouvements migratoires du bétail (la transhumance).
Les actions prioritaires : Les dénombrements, les sondages et recherches, la sensibilisation des populations humaines et des décideurs, les activités de conservation.

LES RECOMMANDATIONS POUR LA CONSERVATION DES LIONS

- Faire un inventaire des conflits opposants les lions aux hommes et leurs solutions par le truchement d'un questionnaire qui doit être distribué dans les pays (un premier jet doit circuler) ;
- Produire un Manuel de Gestion des Lions (français et anglais) ;
- Standardiser les méthodes de sondages pour toute la région africaine ;
- Enrichir les bases de données sur les lions par des informations provenant de l'Afrique de l'Ouest et Centrale ;
- Etablir des plans nationaux et bilatéraux de gestion, conservation et suivi à long terme des lions.
- Chercher à avoir des contacts avec des personnes ou groupes dans les pays qui n'ont pas participé à ce séminaire (avec une population des lions importants).
- Etablir ou mettre à jour la bibliographie.
- Trouver des fonds et des bourses pour des recherches sur le lion par des Nationaux, débouchant sur des thèses de doctorat et de maîtrise.
- Initier une étude sur le commerce des lion et ses produits (TRAFIC ?).
- Avoir une base de données des institutions impliquées dans la recherche sur le lion.
- Etablir un réseau régional des spécialistes du lion (coût réduit).
- Sensibiliser les décideurs et les bailleurs de fonds aux problèmes relatifs aux lions
- Sensibiliser et impliquer la population locale dans la gestion des problèmes liés aux lions
- Renforcer les capacités d'intervention des responsables de la conservation pour mieux prendre soins des lions
- Organiser un atelier de formation sur les méthodes de sondages dans un proche avenir.
- Organiser un sondage des lions dans les régions prioritaires pour chaque pays.

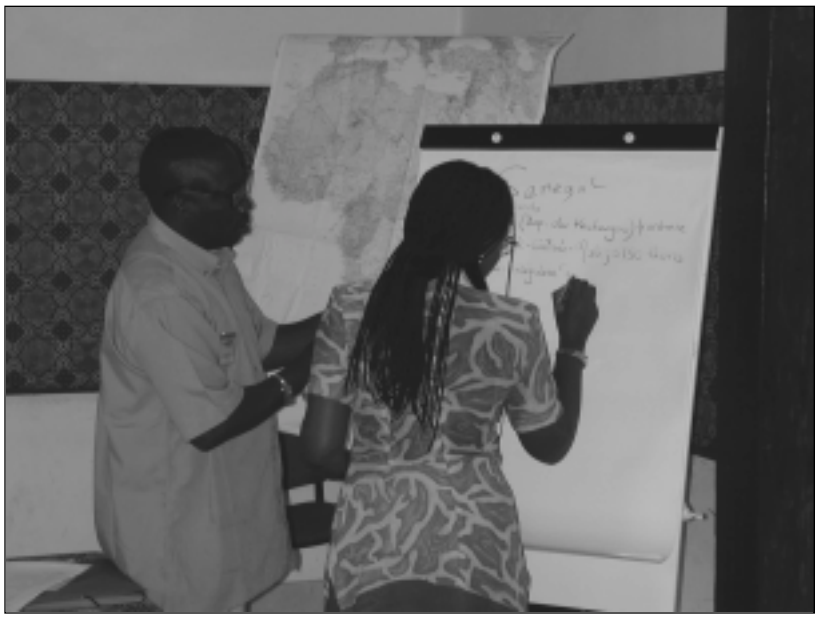
Les participants ont remercié le gouvernement camerounais pour avoir accepté d'accueillir l'atelier, la population de Limbé pour leur accueil chaleureux et la Fondation Néerlandaise d'Aide des Zoos pour leur financement partiel de l'atelier ; ainsi que le personnel du Jardin Botanique de Limbé pour leur soutien logistique et technique.

STATUS AND NEEDS FOR CONSERVATION OF LIONS IN WEST AND CENTRAL AFRICA

An Information Gathering Workshop

Limbe, Cameroon

2-4 June 2001



Participant Goals and Opening Statements

PARTICIPANTS GOALS

- Daniel Ngantou (Cameroon): Lions should not be globally considered, specific emphasis should be given in order to prevent their decline.

- Martin Tchamba (Cameroon): For WWF priority is given to 8 species –Lion is not a priority and is not among them. However, WWF works in areas that conserve lion. WWF might however reconsider its stance in the nearest future.

- Aristide Tehou (Benin): Lions are important. The problem is that of estimation of the lion population- wishes to know the appropriate methodology to count lion population.

- Etotépé Sogbohossou (Benin): To have an idea on the specific problem of countries represented here on the management of lion, and the human-lion interactions around Protected Areas. Also wishes to know more about IUCN and other Organisation as well as the methodology for the estimation of lion population.

- Abdoulaye Sy (Senegal): Lion is very important. What social, economical and political factors can Sénégal consider when drawing up a legislation for the protection of lions.

- Diop Ibrahima (Senegal): Works in an area with many lions, would like to understand the methodology for the management and counting of lions. Wishes to have contacts with those interested in Lions.

- Aboubacar Oulare (Guinea): Wishes to have an idea on the accomplishments of other countries on lion conservation. Also wishes to know how human-lion conflicts are managed and the methodology to count lions.

- Moriba Nomoko (Mali): Lions only found in the south of Mali, their status (number, habitat etc) is not known. Placed on Annex II, the judicial framework makes it very easy to kill or capture lions. How to manage human-lion conflict? Wants to learn from the experiences of other countries.

- Saleh Adam (Cameroon). Wishes to have a methodology for the counting of lions. Many conflicts between lions and pastoralists. A compensatory system could help calm the human population and enhance protection of lions. Wants a management plan for lions.

- Margeret Driciru (Uganda): Involved in lion population assessments and surveys including lions and other large predators.

- Ludwig Siefert (Uganda): Concentrates on Lion and pro-active conservation management; conflicts between people and conservation efforts. Capacity building for Africans involved in lion management is important, they must take over. Wishes

to share his experiences on management efforts with migrating populations and the resulting conflict;. The issues of working under dangerous condition and conflicts is very important (Recently ten students were killed).

- Ali Madi (Cameroon): Works in CEDC: collaboration between Dschang and Leiden Universities. Hopes to know the problems of lion conservation in various countries and the steps for improvement.

- Hans Bauer (Holland): Grateful to participants to come share information, since so little is known in literature on lions in West Africa. International community is hardly aware of the problems, would like a sub-regional network for lion conservationists.

- Hans de Iongh (Holland): Objective: Sharing of research experiences and census techniques and to establish a network in Central and West Africa together with IUCN and WWF. Wishes to contribute to initiate new research and to look for funding for the benefit of African researchers.

- Frank Princée (Holland): Interested in Lions for two reasons: sponsors a lion project in Uganda and understood that very few people knew of lions and because of his profession working in zoos. Need to think of exchanging animals from one area to the other, what to do with population data. It is important to start conserving lions when they are still there. Another objective is capacity building, Africa should be trained to run conservation programmes. And this is very possible in Workshops like this.

- Anne-Marie Dumont Drieux (France) : In contact with IUCN and WWF to create a network for the conservation of lions. Objective is pluridisciplinary. Wish to learn about methodology, relation between man and the predator.

- Nouhou Ndam (Cameroon): Mount Cameroon conservator, interested because he might be transferred to a lion area. Four lions spared his life in Benoué and since then he likes lions.

- Ulie Seal (United States): To assist participants to accomplish their missions in this Workshop.

OPENING STATEMENTS

The Lion Workshop was held in Limbe, Cameroon between June 2-4, 2001 with participants from Benin, Cameroon, Guinea, The Netherlands, Senegal, Uganda, France, USA, and Mali. The following International organisations were also represented: the World Conservation Union (IUCN) and World Wide Fund for nature (WWF).

Ulie Seal was the moderator. The opening address was delivered by Serge Bobo Kadiri of the Ministry of the Environment and Forestry, Cameroon. He emphasised on the fact that the Ministry of Environment and Forestry has prioritised the conservation of Lions as evident in the signature of many International Conventions such as CITES and the Convention on Biodiversity. He expects the workshop to come out with an updated inventory on Lions in West and Central Africa, laying more emphasis on problems encountered during conservation and their solutions. In the name of the Director of Wildlife and the Minister of the Environment and Forestry, he declared open the Lion Workshop.

In his speech, Daniel Ngantou, Regional Director for IUCN expressed his gratitude to the IUCN Director General for facilitating the organisation of the workshop and used the opportunity to present IUCN- a hybrid organisation that is composed of Governments, International and National NGOs, Parastatals, etc. The organisation not only has 900 member organisations and coordinates a network of over 9000 scientists, but also plays an observatory role in the UN.

The Objective of the organisation: is to influence people of the world to conserve their natural resources. IUCN's main force is its five commissions; the African Lion Working group (ALWG) acts under the umbrella of the cat Specialist group of the Species Survival Commission (SSC). The red list of endangered species is also very vital and acts as a yardstick for conservation and exploitation of resources.

IUCN's Secretariat is equally important, and coordinates a highly decentralised programme through regional and national offices such as the Regional Office for Central Africa (ROCA). They implement the IUCN mission within a regional context. They also implement what has been decided in the triennial conferences.

Another role is the support to members, such as the State, for example ROCA's support to the Government of Cameroon in its conservation efforts in the Waza National Park, which harbours most of Cameroon's lions. One of the Projects' major goals is to both conserve the biodiversity and to assist local populations in socio-economic development. He proceeded by outlining the following three main specific problem of lions in the Waza Logone area:

- Food security (prey availability);
- Poaching;
- Conflicts with pastoralists

It is important to keep this in mind during the whole of this workshop. He continued by outlining the following strategic elements for the conservation of lions;

- Research on lion ecology
- The status of the protection of lions in central and west Africa;
- The status of people and their property;
- The long term protection of lion.

IUCN will lobby, politically to obtain support (e.g in CEFDHAC and COMIFAC). IUCN will also sensitise various stakeholders to adhere in this process. Collaboration with WWF in both Central and West Africa is equally vital. He ended his speech by welcoming all participants in Cameroon and in Limbe.

Frank Princée addressed the participants on behalf of the chair of the African Lion Working Group, Sarel Van Der Merwe, whose health did not allow him to come personally. He expressed gratitude to the Ministry of Environment and Forests in Cameroon for hosting the workshop and congratulated the west and central African region with the massive presence, as a sign of the commitment to the conservation of lions.

He proceeded by taking statistics from the IUCN Cat Action Plan, which estimates the number of lions in the wild is between 30 000 and 100 000. Recent insights make specialists believe that the low estimate may be closest to the truth, although the exact number of lions is not known. However, information from Southern and Eastern Africa shows that their population probably around 30 000- 35 000, information on West and Central Africa has been lacking.

The African Lion Working Group, which was established during the annual meeting of the CBSG in 1999 (at Warmbaths, South Africa), reviewed this situation (see Appendix). This working group recommended the organisation of a west and central African workshop to fill the information gaps; to bridge communication barriers; and to allow for a future truly comprehensive African Lion conservation strategy. He thus thanked the organising committee for implementing this recommendation and expressed his confidence in the potential of this workshop to come out with the results that are expected.

Ulie Seal proceeded with an explanation of the expected workshop results and the methodology to be used.
The objectives of the workshop were defined as follows:

- Establish data on the number of free-ranging lions in respective Countries;
- Assess the status in each country;
- Asses numbers estimates for each population;
- Assess threats for each population;
- Gather information on lion conservation efforts and activities by each person;
- Define goals for each population;

- Based on the workshop results, come out with recommendations for the conservation of lions in West and Central Africa.

The final steps will be for each person to say what steps he will take to assist in the conservation of lions in each country.

A workshop report will be prepared that will be distributed to all the participants, to the organising institutions and to all those who are interested in the conservation of lions. The report may be copied and cited and used for the sensitisation of decision makers by workshop participants without restriction, only acknowledgement of the source, so that as many stakeholders as possible may benefit from it.

STATUT ET BESOINS POUR LA CONSERVATION DES LIONS EN AFRIQUE DE L'OUEST ET CENTRALE

Un Atelier d'échanges d'informations

Limbé, Cameroun

Du 2 au 4 Juin 2001

Objectifs Personnels/ Resumes des Presentations D'Ouveture

OBJECTIFS PERSONNELS

Daniel Ngantou (Cameroun) : Les lions ne doivent être globalement considérés, ils méritent une attention particulière afin d'éviter d'atteindre un quota d'alerte.

Martin Tchamba (Cameroun) : WWF avait identifié 8 espèces prioritaires - Les lions ne sont pas parmi ces priorités ; Toutefois, WWF travaille dans des zones où des lions sont conservés. WWF pourrait alors reconsidérer cet aspect dans un proche avenir.

Aristide Tehou (Bénin) : Les lions sont importants. Le problème est l'estimation de la population des lions et souhaiterait connaître la méthodologie appropriée pour compter la population des lions.

Etotépé Sogbohossou (Bénin) : Avoir une idée sur les problèmes spécifique des pays représentés ici sur la gestion des lions et l'interaction entre les hommes et les lions autour des zones protégées. Souhaiterait également connaître plus sur UICN et autres organisations ainsi que la méthodologie pour l'estimation de la population des lions.

Abdoulaye Sy (Sénégal) : Les lions sont très importants. Quels facteurs socio-économiques et politiques le Sénégal peut-il considérer pendant la rédaction de la législation pour la protection des lions ?

Diop Ibrahima (Sénégal) : Travaille dans une zone contenant beaucoup de lions. Voudrait comprendre la méthodologie pour la gestion et le dénombrement les lions. Voudrait aussi avoir des contacts avec ceux qui sont intéressés aux lions.

Aboubacar Oulare (Guinée) : voudrait avoir une idée sur les réalisations des autres pays dans la conservation des lions. Voudrait aussi savoir comment gérer le conflit homme et lion et la méthode de compter les lions.

Moriba Nomoko (Mali) : Les lions ne se trouvent qu'au Sud du Mali ; leurs statuts (nombre, habitat, etc.) ne sont pas connus. Etant sur l'Annexe II, le cadre juridique rend facile de tuer ou capturer les lions. Comment gérer le conflit entre homme et lion ? Aimerait apprendre à partir des expériences des autres pays.

Saleh Adam (Cameroun) : Aimerait connaître la méthodologie pour compter les lions. Il y a beaucoup de conflits entre les lions et les bergers. Un système de compensation pourrait aider pour calmer la population humaine et faire progresser la protection des lions. Aimerait obtenir un plan de gestion des lions.

Margeret Driciru (Ouganda) : Est impliquée dans l'estimation de la population des lions et le sondage des lions et autres prédateurs.

Ludwig Siefert (Ouganda) : Se concentre sur les lions et la gestion pro-active de conservation ; les conflits entre l'homme et les efforts de conservation. Le renforcement des capacités des nationaux en conservation des lions est très important pour la relève.

Aimerait partager ses expériences sur les efforts de gestion avec la migration des populations et les conflits qui en résultent. Les aspects concernant le travail dans des conditions dangereuses et les conflits sont très importants (Récemment 10 étudiants furent tués).

Ali Madi (Cameroun) : Travaille au CEDC : Collaboration entre l'université de Dschang et Leiden. Aimerait connaître les problèmes de conservation dans les divers pays et les étapes pour l'amélioration.

Hans Bauer (Hollande) : Remercie les participants d'être venus partager les informations, d'autant plus que très peu soit connu en littérature sur les lions en Afrique de l'Ouest. la communauté internationale est difficilement consciente des problèmes, et aimerait un réseau sous-régional pour les conservateurs des lions.

Hans de Iongh (Hollande) : Objectifs : Partager les expériences de recherches et les techniques de recensement et établir un réseau en Afrique Centrale et de l'Ouest avec l'UICN et WWF. Aimerait contribuer pour initier une nouvelle recherche et chercher un financement en faveur des chercheurs Africains.

Frank Princée (Hollande) : Etait intéressé aux lions pour deux raisons : Finance un projet des lions en Ouganda et, par son travail professionnel dans les zoos, a compris que très peu de gens connaissent les lions. Il y a besoin de réfléchir sur l'échange des animaux entre différentes zones. Que faire avec les données des populations des lions. Il est important de commencer à conserver les lions lorsqu'ils sont encore là. Un autre objectif c'est le renforcement des capacités. L'Afrique devrait être formé pour tenir des programmes de conservation. Et cela est possible à travers des ateliers de ce genre.

Anne-Marie Dumont Drieux (France) : En contact avec UICN et WWF pour créer un réseau de conservation des lions. L'objectif est pluridisciplinaire. Souhaite apprendre la méthodologie, la relation entre l'homme et les prédateurs.

Nouhou Ndam (Cameroun) Conservateur Mont Cameroun. Est intéressé parce qu'il pourrait être affecté dans une zone avec des lions. Quatre lions ont sauvé sa vie dans la Bénoué et dès lors, il aime les lions.

Ulie Seal (Etats Unis) : Assister les participants dans l'accomplissement de leurs missions dans cet atelier.

RESUMES DES PRESENTATIONS D'OUVERTURE

L'atelier sur les lions s'est tenu à Limbé, au Cameroun entre le 2 au 4 Juin 2001 avec des participants venant du Bénin, Cameroun, Guinée, Pays Bas, Sénégal, Ouganda, France, USA, et Mali. Les organisations internationales suivantes étaient aussi représentées : UICN et WWF.

Ulie Seal était le modérateur. Le discours d'ouverture était prononcé par Serge Bobo Kadiri du Ministère de l'environnement et de la forêt, Cameroun. Il a insisté sur le fait que le Ministère de l'Environnement et de la Forêt a donné la priorité à la conservation des lions, évidemment démontré par la signature de beaucoup de Conventions Internationales avec par exemples CITES et la Convention sur la biodiversité. Il s'attend à ce que l'atelier puisse produire un inventaire à jour sur les lions en Afrique de l'Ouest et Centrale mettant l'accent sur les problèmes rencontrés dans la conservation et leurs solutions. Au nom du Directeur de la Faune et le Ministre de l'Environnement et la Forêt, il a solennellement déclaré ouvert l'Atelier sur les Lions.

Dans son discours, Daniel Ngantou, Directeur Régional de UICN a exprimé sa gratitude au Directeur Général de l'UICN d'avoir facilité la ténue de l'Atelier et a saisit l'occasion pour présenter UICN – une organisation hybride qui est composée des Gouvernements, des ONG nationaux et internationaux, des Sociétés, etc. L'organisation a environ 900 organisations membres, un réseau regroupant plus de 9000 scientifiques, et elle est admise comme observateur au sein des Nations Unies.

Les objectif de l'organisation : influencer les populations du monde sur la conservation des ressources naturelles. La force principale de l'UICN se trouve dans ses cinq commissions ; l'une d'elles est un groupe spécial sur les Lions (ALWG) sous tutelle de la Commission de Survie des Espèces (IUCN/SSC). La liste rouge des espèces en danger est également très importante et figure comme canevas pour les mesures actives de conservation et d'exploitation des ressources naturelles.

Le Secrétariat de l'UICN est également très important et conduit un programme fortement décentralisé a travers ses bureaux régionaux et nationaux, exemple : Bureau Régional en Afrique Centrale (BRAC). Ils s'occupent de la mise en œuvre de la mission de l'UICN dans des contextes régionaux. Ils implémentent aussi les décisions prises lors des conférences triennales.

Un autre rôle est le soutien des membres tels que l'état, par exemple le soutien du BRAC au gouvernement dans les efforts de conservation du Parc National de Waza qui abrite la plupart des lions du Cameroun. L'un des objectifs principaux de ce projet c'est la conservation de la biodiversité et en même temps le soutien aux populations locales pour leur développement socio-économique. Il a relevé les principaux problèmes des lions dans la région de Waza Logone :

- La sécurité alimentaire (disponibilité des proies)
- Le braconnage

- Conflits avec les bergers.

Il est important d'avoir cela en esprit tout au long de cet atelier. Il continua en citant les stratégies suivantes comme éléments de conservation des lions :

- La recherche sur l'écologie des lions
- Les statuts de protection des lions en Afrique Centrale et de l'Ouest
- Les statuts des populations et leurs propriétés
- La protection des lions à long terme

L'UICN fournirait des efforts pour obtenir politiquement le soutien (par exemple avec le CEFDHAC et COMIFAC). UICN pourrait aussi sensibiliser les diverses forces vives à adhérer au processus. La collaboration avec la WWF en Afrique Centrale et Afrique de l'Ouest est aussi vitale. Il a terminé son discours en souhaitant les bienvenues à tous les participants au Cameroun et à Limbé.

Frank Princée s'est adressé aux participants au nom du Président du Groupe de Travail du Lion d'Afrique, Sarel Van Der Merwe, qui s'excuse de ne pas pouvoir assister en personne a cause de son état de santé. Il a exprimé sa gratitude au Ministère de l'Environnement et des Forêts du Cameroun d'avoir accueilli l'atelier et félicite la Région d'Afrique Centrale et de l'Ouest pour la présence massive comme signe de consécration dans la conservation des lions.

Il continua en citant des statistiques du *'Plan d'Action des Félins de l'UICN'* qui donna l'estimation du nombre des lions dans la nature entre 30 000 et 100 000. Des informations récentes font croire aux spécialistes que l'estimation inférieure serait plus proche de la réalité tant il est vrai que le nombre exact des lions n'est pas connu. Toutefois, les informations provenant de l'Afrique de l'Est et l'Afrique du Sud montre que la population des lions pourrait se situer entre 30 000 – 35 000, tandis qu'il manque des informations sur l'Afrique Centrale et de l'Ouest.

Le Groupe de Travail du Lion d'Afrique, crée lors de la reunion annuelle du CBSG en 1999 (au Warmbaths, Afrique du Sud), révisait cette situation. Le groupe recommandait l'organisation de l'atelier pour l'Afrique de l'Ouest et Centrale, afin de fournir les informations supplémentaires ; briser les barrières de communication ; et permettre d'identifier dans un avenir très proche une stratégie cohérente pour la conservation du Lion d'Afrique. Il a ainsi remercié le comité d'organisation pour l'implémentation de cette recommandation et exprima sa confiance au potentiel de cet atelier a produire les résultats attendus.

Ulie Seal a continué avec une explication des résultats attendus de l'atelier et la méthodologie utilisée.

Les objectifs de l'atelier étaient définis comme suit :

- Inventorier les données sur les lions dans les divers pays
- Etablir le statut pour chaque pays
- Produire une estimation en nombre pour chaque population
- Découvrir les diverses menaces de chaque population
- Rassembler les informations sur les efforts de conservation et sur les activités des personnes identifiées
- Définir les objectifs de chaque population
- Basé sur les résultats de l'atelier, produire des recommandations pour la conservation des lions en Afrique Centrale et de l'Ouest.

L'étape finale serait pour chaque personne de prendre des engagements pour assister dans la conservation des lions dans chaque pays.

Le rapport de l'Atelier sera apprêté dans les meilleurs délais et distribué à tous les participants, aux institutions qui l'ont organisé et à tous ceux qui s'intéressent à la conservation des lions. Le rapport pourrait être copié et cité pour la sensibilisation des décideurs par les participants à l'atelier sans aucune restriction, autre que de citer la source, pour qu'autant de parties prenantes que possible puissent en bénéficier.

STATUS AND NEEDS FOR CONSERVATION OF LIONS IN WEST AND CENTRAL AFRICA

An Information Exchange Workshop

Limbe, Cameroon

2-4 June 2001

West African Working Group Report

West African Working Group Report

Workshop I: Inventory

The objectives for this workshop were to:
- indicate the geographical dispersion of lion populations in West Africa on a map;
- share information on lion numbers in each of the known populations;
- share information on legal status and likely demographic scenarios for each of the known populations;
- list the main threats for existing lion populations;
- identify information gaps;

Estimated Lion Populations in Western Africa

SENEGAL

One single contiguous population has been identified, in the Tambacounda area, containing the Niokolo Koba Protected Area (Dep du Kedougou). Lion population extends into Senegal-Guinea-Mali.

- 1970 census: 150 Lions.
- Totally protected inside Protected Area.
- Hunting permits for the rest of the Region can exceptionally be delivered by the President of the Republic.
- The population has probably been reduced since the last census.

Threats:
- Poaching;
- Tranhumance - pastoralism;
- Loss of habitat to agriculture, forestry (timber and firewood) and bush fires;

Priority Action;
- Population census;
- Habitat reconstitution;
- Review of legal status;
- Medical check-up;
- Monitoring of population;

MALI

Lions are found in the South, numbers are not known but probably in several small isolated and decreasing populations. Widespread use of lion parts in traditional practices. Lions are present in:
- The Baoulé Biosphere Reserve;
- The Fauna Reserve of Bafing (border Guinea and Senegal);
- Pockets in the rest of the south (border with Côte d'Ivoire).

The population size has not been estimated, but has probably decreased over the past decades. Partial legal protection, hunting permit costs CFA 100.000 for nationals and CFA 900.000 for foreigners.

Threats:
- Poaching for use of the trophy for medicinal reasons/traditional practices;
- Poaching for conflict prevention (poisoning, trapping);
- Loss of habitat;
- Tranhumant pastoralism, cattle crossing conservation areas;

Priority Action:
- Census and survey;
- Review of legal status;
- Conservation actions in collaboration with surrounding human populations;

BENIN

The following populations exist, numbers are educated guesses:
- Pendjari Biosphere Reserve, ≈ 50
- 'W' National Park (extends into Niger and Burkina Faso), ≈ 10
- Mount Kouffé-Wari Maro Forestry Complex, < 10
- Keto-Dogo Forest Reserve, ≈ 2?

Legal status: partially protected (annex II)

Threats:
- Poaching;
- Transhumance;
- The use of some traditional medical products;
- Destruction of habitats - agriculture, bush fire;

Priority Actions
- Fight against poaching and transhumance;
- Monitoring of lion populations, once identified, in the entire country;
- Estimate the number of lions;
- Medical check-up;
- Research (Predator-prey relations);
- Collaborative management

GUINEE

Several isolated population in the north, total national population estimated at ≈200.

- The Guinea-Guinea Bissau Protected Areas (about 20);
- The Guinea-Senegal Protected Areas (about 10);
- The Guinea-Mali Protected Area (about 120);
- The Upper Guinea National Park (about 30);
- The Partial Fauna Reserve of Kankan (about 20)

The species is partially protected, the population is likely to be declining.

Threats:
- The presence of new pastoralists (also refugees):
- Hunting by pastoralists or local hunters (a sign of prestige, initiation);
- Clearing and local exploitation of wood;

Priority Actions;
- Sensitisation of the population (on the conservation of lions);
- Sensitise decision makers to help advance legislation on lions;
- Inventory to know the population;
- Ecological monitoring

Countries not represented but on which participants had fragmented knowledge (list not exhaustive!):

BURKINA FASO: lions present in Arli, 'W' and Nazinga protected areas;
NIGER: lions present in 'W' complex;
GHANA: lions present in Mole National Park;
COTE D'IVOIRE: lions present in Comoe and Boucle de Baoulé protected areas ;
NIGERIA: lions present in Yankari, Old Oyo and Kaindji protected areas;

SIERRA LEONE: possibly in Tamba Kilimi.

Workshop II: Preliminary design of a lion survey training workshop.

Host: Garoua Wildlife School (Cameroon).
Participants: People responsible for protected areas; researchers and Projects.
Teachers: Dr. Ngog, Dr. Thal and Dr. Traoré amongst others, in addition to recognised lion specialists.
Organising committee: participants to this workshop, presided over by the director of the Garoua Wildlife School.
Coordinators: IUCN ROCA (Daniel Ngantou) and DFZH (Frank Princée).
Obstacles: financial, logistical and communication constraints, selection of participants, selection of professional teachers, involving representatives of countries absent in this workshop.

Participants in this workshop volunteered to be contact persons in their respective countries for lion surveys and compilation of a bibliography and dispersed data.

Workshop III: Recommendations

- Establish a regional lion network (low cost);
- Sensitise decision makers and donors on problems related to lions;
- Sensitise and involve local population in the management of problems related to lions;
- Reinforce the intervention capacities of conservation managers to better take care of lions;
- Organise in a recent future, or training workshop on survey methods;
- Organise lion surveys in priority areas for each country.

STATUT ET BESOINS POUR LA CONSERVATION DES LIONS EN AFRIQUE DE L'OUEST ET CENTRALE

Un atelier d'échanges d'informations

Limbé, Cameroun

Du 2 au 4 Juin 2001

Rapport du Groupe de Travail de l'Afrique de l'Ouest

Atelier I : INVENTAIRE

Les objectifs de cet atelier étaient :

- Indiquer la dispersion géographique des populations de lions en Afrique de l'Ouest sur une carte de la région
- Partager les informations sur le nombre des lions dans chaque population connue
- Partager les informations sur le statut légal et les scénarios démographiques probables de chaque population
- Inventorier les menaces pour chaque population des lions
- Identifier les lacunes d'informations

SENEGAL

Une seule population continue a été identifiée dans la zone de Tambacounda ayant en son sein l'Aire Protégée du Niokola Koba (Département du Kedougou). La population des lions s'étend au Sénégal, Guinée, Mali.

- Recensement de 1970 : 150 lions.
- Totalement protégé à l'intérieur des aires protégées
- Des permis de chasse pour les zones banales de la région sont exceptionnellement accordés par le Président de la République.
- La population a probablement baissé depuis le dernier recensement.

Menaces :

- Le braconnage
- La transhumance
- La perte d'habitat pour l'agriculture ; la sylviculture (Grume et bois) et feu de brousse

Action prioritaire :
- Dénombrement
- Reconstitution de l'habitat
- La revue du statut légal
- Le contrôle médical
- Le suivi de la population

MALI

Les lions se trouvent au Sud, le nombre est inconnu mais ce sont probablement des petites populations isolés et décroissantes. Il y a une utilisation de produits du lion très répandue dans les pratiques traditionnelles.
Les lions sont présents a:
- La réserve biosphère de Baoulé
- La réserve de faune de Bafing (sur la frontière avec la Guinée et le Sénégal)
- Des poignées dans le reste du Sud (Frontières avec la Cote d'Ivoire)

La population n'a pas été estimée; mais les effectifs ont probablement diminués ces derniers décennies. La protection légale est partielle et le permis de chasse coûte 100 000 FCFA pour les nationaux et 900 000 F CFA pour les étrangers.

Menaces :
- Le braconnage pour l'usage des trophées pour des raisons médicales et pratiques traditionnelles
- Le braconnage pour la prévention de conflit (empoisonnement, piège)
- La perte d'habitat
- La transhumance pastorale ; la traversée des régions protégées par le bétail

Action prioritaire :
- Le recensement et le sondage
- La revue du statut légal
- Les actions de conservation en collaboration avec la population humaine environnante

BENIN

Les populations suivantes existent et les chiffres sont des estimations intelligentes.
- La réserve Biosphère de Pendjari, ~ 50
- Le Parc National 'W' (S'étend dans le Niger et le Burkina Faso), ~ 10
- Le Mont Kouffé- Le complexe forestier du Wari Maro, < 10
- La Réserve Forestière Keto-Dogo, ~ 2 ?

Statut légal : Partiellement protégée (Annexe II)

Menaces :

- Le braconnage
- La transhumance
- L'utilisation des produits médicaux traditionnels
- La destruction des habitats – agriculture ; feu de brousse

Actions prioritaires

- Lutter contre le braconnage et la transhumance
- Le suivi des population des lions, une fois identifiées dans le pays entier
- Evaluer le nombre des lions
- Un contrôle médical
- La recherche (les relations prédateurs – proies)
- La gestion collaboratrice

GUINEE

Plusieurs populations isolées dans le Nord, la population nationale totale est estimée à ~ 200

- L'Aire Protégée de la Guinée - Guinée-Bissau (environ 20)
- L'Aire Protégée de la Guinée - Sénégal (environ 10)
- L'Aire Protégée de la Guinée - Mali (environ 120)
- Le Parc National de la Haute Guinée (environ 30)
- La Réserve partielle de Faune de Kankan (environ 20)
-

L'espèce est partiellement protégée et la population pourrait être en déclin.

Menaces :

- La présence de nouveaux bergers (entre autre des réfugiés)
- La chasse par les éleveurs et les chasseurs locaux (un signe de prestige, initiation)
- Le déboisement et l'exploitation locale du bois

Actions Prioritaires :

- La sensibilisation de la population (sur la conservation des lions)
- La sensibilisation des décideurs pour faire avancer la législation relatif aux lions
- Faire l'inventaire pour connaître la population
- Faire le suivi écologique

Les pays qui ne furent pas représentés mais dont les participants possèdent quelques connaissances (liste non exhaustive)

BURKINA FASO : Lions présents dans les AP Arli, 'W' et Nazinga
NIGER : Lions présents dans le complexe 'W'
GHANA : Lions présents dans le Parc National de Mole
COTE D'IVOIRE : Lions présents dans les AP de la Comoé et Boucle de Baolé

NIGERIA: Lions présents dans les AP de Yankari, Old Oyo et Kaindji
SIERRA LEONE : Présence possible dans le Tamba Kilimi

Atelier II : Idées préliminaires sur une formation en sondage des lions

Hôte : L'école de Faune de Garoua (Cameroun)
Participants : Les responsables des Aires Protégées; les chercheurs et les projets.
Les enseignants : Dr Ngog, Dr Thal et Dr Traoré parmi tant d'autres, en plus des spécialistes des lions internationalement reconnus.
Le comité d'organisation : Les participants à cet atelier ; présidé par le Directeur de l'école de Faune de Garoua.
Coordinateurs : UICN BRAC (Daniel Ngantou) et DFWH (Frank Princée).
Obstacles : contraintes financières, logistiques et en communication, la sélection des participants, la sélection des enseignants professionnels, l'implication des représentants des pays absents au présent atelier.

Les participants à l'atelier seront des personnes ressources bénévoles de leurs pays respectifs pour le sondage des lions et la compilation des bibliographies et des diverses données.

Atelier III : Les recommendations

- Etablir un réseau régional des lions
- Sensibiliser les décideurs et les bailleurs de fonds sur les problèmes liés aux lions
- Sensibiliser et impliquer la population locale dans la gestion des problèmes liés aux lions
- Renforcer les capacités d'intervention pour que les responsables de la conservation puissent mieux prendre soins des lions
- Organiser dans un proche avenir une formation sur les méthodes de sondages
- Organiser les sondages des lions dans les zones prioritaires de chaque pays.

STATUS AND NEEDS FOR CONSERVATION OF LIONS IN WEST AND CENTRAL AFRICA

An Information Exchange Workshop

Limbe, Cameroon

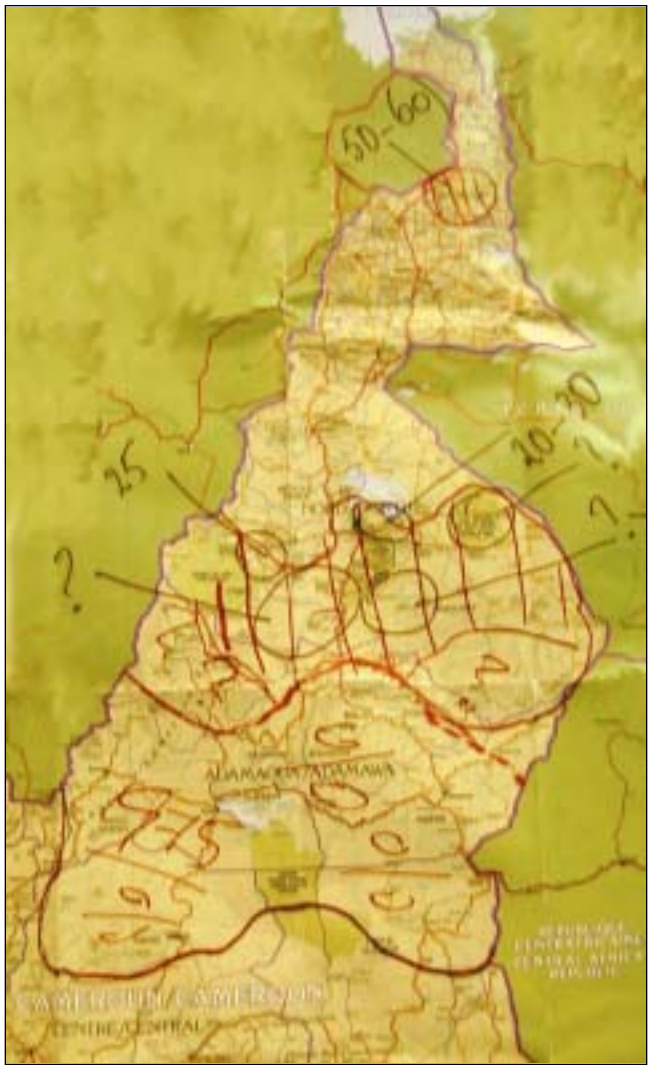
2-4 June 2001

Central Africa Working Group Report

Central Africa Working Group Report

<u>Workshop I: Inventory (Cameroon lion population)</u>

NUMBERS
- Waza National Park: likely to be around 50.
- Benoué Complex (three National Parks and 28 Hunting Zones): 150-250 (educated guess).
- Status: Declining?
- Protection: fully protected, except quota in some hunting zones.



Estimated Lion Populations in Cameroon

THREATS

- Habitat reduction (reduced prey availability, cotton growing expansion, human demographic developments, cattle movements)
- Poaching (poisoning and shooting, for meat, for body parts used in traditional culture, for elimination of actual or potential problem animals)
- Biological threats (inbreeding in small isolated populations, risk of viruses and epidemics spread from cattle and pets to lions)

PRESENT ACTIONS

- Research (Mainly human-Lion conflict, PhD, MSc. And BSc. Levels);
- Census and Monitoring;
- Health and genetic assessment;
- Education;
- Anti poaching;
- P.A.C. problem animal control;
- Community participation (Participatory approach) (Non-specific);
- Medical interventions;
- Damage compensation scheme in the law, but is not applied;

FUTURE ACTION.

- RESEARCH
  - Survey (census)- harmonise methodology;
  - Population structure;
  - Population dynamics (mortality/natality);
  - Spatial and temporal distribution-habitat use;
  - Predator-prey dynamics (carrying capacity;
  - Health status-lion-livestock interactions;
  - Disease reservoirs (domestic animals);
  - Human demography;
  - Livestock predation monitoring;
  - Conflict resolution research;

- MANAGEMENT;
- Increase number of game guards (security and law enforcement);
- Compensation strategy;
- Contingency plan (with emergency actions for captive breeding actions);
- Disease control;
- Conservation oriented education;
- Interactive tourism;
- Logistics and infrastructure;
- Coordinated conservation of lion populations extending into neighbouring countries

Workshop II: Preliminary design of a lion survey training workshop.

This working group started by defining the criteria for the location of the workshop:
- appropriate lion densities nearby (for fieldwork exercise)
- logistic capacity of host institution (for lectures and fieldwork)
- cost efficiency (flights, accommodation)
- possibilities for simultaneous translation of lectures into French
- basic laboratory facilities nearby (for medical and biological analysis)
- agreement from donors

Three possibilities were identified for a possible locations of both fieldwork and host institution:
1. Waza and CEDC.
2. Queen Elisabeth and Uganda Lion Project
3. Benoue and Wildlife School in Garoua

The final choice will be made by the coordinators depending on funding opportunities .

Training should be organised at the beginning of the dry season.

Who will participate: People presently attending this workshop. Lion conservationists from countries in the region that are not participating in this workshop should be identified and added. Participants should be the ones actually involved in the design and implementation of lion surveys. (researchers, ministry staff, conservators…), teachers of Wildlife schools; scientists and Forest guards.

Who will be the coordinator? Difficult to select, however, the Coordinator should be in the host country and the person should be near donors; have his TOR prepared.

Obstacles
- Funding
- Passports
- Communication problems
- Bilingualism
- Priority
    - Inventories in the North Province of Cameroon;
- Methodology;
- Access to zone;
- Co-ordination (maximum efforts should be made to implicate ministries)

INFORMATION ON LIONS

An initiative for lion surveys and compilation of a bibliography and dispersed data is very much encouraged.

The director of IUCN ROCA is prepared to Coordinate the activities of Lions in Africa or Cameroon and will co-ordinate with Governments.

Potential sources of information and collaborators: Agencies; Natural History Museum in Paris, Conservators, WWF, CEDC.

Workshop III: Recommendations

- Circulate a questionnaire on human lion conflicts and solutions with help of specialists, draft should be circulated;
- Prepare a lion Management Handbook (French and English);
- Standardise lion survey methods for whole African region;
- Feed the lion database with information from west and central Africa;
- Establish national and bilateral lion management and conservation and long term monitoring plans;
- Find contact persons/groups from countries which have not participated (with significant lion populations);
- Establish/update lion bibliography;
- Search of funding to support African lion researchers (PhD and Msc);
- A study on trade of lions and lion products (TRAFIC?);
- Establish a central list of institutions involved in Lion research;
- Establish a regional lion network (low cost);
- Sensitise decision makers and donors on problems related to lions;
- Sensitise and involve local population in the management of problems related to lions;
- Reinforce the intervention capacities of conservation managers to better take care of lions;
- Organise in a recent future, or training workshop on survey methods;
- Organise lion surveys in priority areas for each country.

STATUT ET BESOINS POUR LA CONSERVATION DES LIONS EN AFRIQUE DE L'OUEST ET CENTRALE

Un atelier d'échanges d'informations

Limbé, Cameroun

Du 2 au 4 Juin 2001

Rapport du Groupe de Travail Cameroun et Ouganda

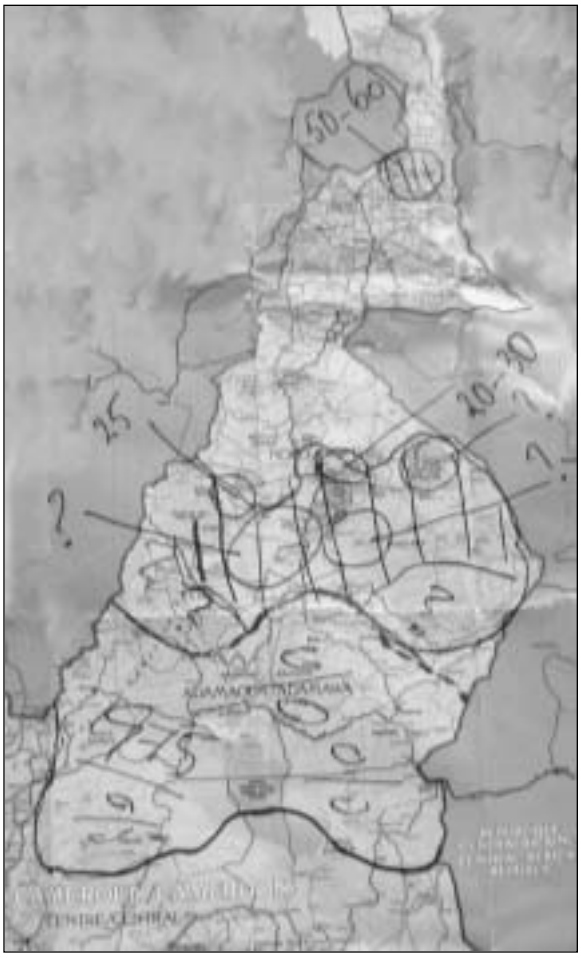
Atelier I : Inventaire (Les lions du Cameroun)

NOMBRES

- Le Parc National de Waza : environ 50
- Le Complexe de la Bénoué (Trois parcs nationaux et 28 zones de chasses) : 150 – 250

(estimation instruit).

- Tendance : Décline ?
- Protection : entièrement protégé, quotas disponible pour certains Zones d'Intérêt Cynegetiques



MENACES :

- Réduction de l'habitat (la disponibilité des proies est en baisse, la culture du coton s'étend, le développement démographique humaine, le mouvement du bétail)
- Le braconnage (empoisonnement et la chasse pour la viande, pour l'usage des parties du cadavre dans la culture traditionnelle ; pour l'élimination des animaux à problèmes réels et potentiels)
- Les menaces biologiques (la consanguinité des petites populations isolées, risques des virus et épidémies provenant soit du bétail soit des animaux domestiques)

ACTIONS ACTUELLES

- Recherche (principalement des conflits homme - lion, niveau Doctorat, Maîtrise, Licence, Ingénieur)
- Dénombrement et suivi
- L'évaluation sanitaire et génétique
- Education
- Lutte contre le braconnage
- Battue administrative des animaux à problèmes
- La participation communautaire (Approche participative)
- Interventions Médicales
- Un système de dédommagement est préconise par la loi, mais il n'est pas appliqué

ACTIONS FUTURES

RECHERCHE

- Dénombrements à méthodes harmonisées
- Structure de la population
- Les dynamiques de la population (Mortalité, natalité)
- L'utilisation de l'habitat et la distribution dans l'espace et dans le temps
- Les dynamiques entre les prédateurs – proies (capacité de charge)
- Statut sanitaire des lions et leurs interactions avec le bétail
- La démographie humaine
- Le contrôle de la prédation du bétail
- La recherche de la résolution des conflits

GESTION

- Augmenter le nombre de gardes-chasse
- Réfléchir sur une stratégie de compensation
- Un plan de contingence (avec des actions de reproduction en captivité en cas d'urgence)
- Contrôle des maladies
- L'éducation orientée vers la conservation
- Le tourisme interactif
- Les infrastructures et logistiques
- Une bonne coordination bilatérale concernant la conservation des population transfrontalières.

Atelier II : Idées préliminaires sur une formation en sondage des lions

Ce groupe de travail a commencé par définir les critères pour le choix du site de l'Atelier :

- Proche d'une zone avec plusieurs densités des lions (pour des exercices pratiques)
- Les capacités logistiques de l'institution pouvant accueillir (pour les cours et les travaux pratiques)
- Coût (Billet d'avion, hébergement)

- Possibilité de traduction simultanée en Français
- Un laboratoire de base en proximité (analyses médicaux et biologiques)
- Accord des bailleurs de fonds

Trois possibilités furent identifiées, on cite la zone d'expérimentation et l'institution d'accueil correspondante :
Le Parc National de Waza et le CEDC
Le Parc National de la Reine Elisabeth et Le Projet Lion d'Ouganda
La Bénoué et L'école de Faune de Garoua

Le choix final serait fait par les coordinateurs en fonction des possibilités de financement.

La formation devrait se tenir au début de la saison sèche.

Qui participera : Les participants a l'atelier-ci et les conservateurs de lions des pays de l'Afrique de l'Ouest et Centrale ici absents. Les participants devraient être des personnes chargées de la conception et de l'implémentation des sondages des lions, (les chercheurs ; les personnels du ministère, les conservateurs…), les professeurs des écoles de faune, les scientifiques et les gardes forestières.

Qui pourra coordonner ? Difficile à sélectionner, cependant, le coordonnateur devrait être dans le pays d'accueil et cette personne doit être proche des bailleurs de fonds, il faudra avoir ses termes de référence.

Obstacles
- Les fonds
- Les passeports
- Les problèmes de communication
- Le bilinguisme
- Priorités
- Inventorier dans la Province du Nord du Cameroun
- Méthodologie
- L'accès à la zone retenue
- Coordination (il faudra fournir beaucoup d'efforts pour impliquer les ministères)

INFORMATION SUR LES LIONS

Une initiative de sondage de lions et une compilation de la biographie et des données dispersées seraient très encouragées

Le directeur de l'UICN-BRAC est disponible pour la coordination des activités de Lions en Afrique ou Cameroun et assurera la liaison avec les Gouvernements.

Les sources potentielles d'information et collaborateurs : Les Agences, le Musée de l'Histoire Naturelle à Paris, Les conservateurs, WWF, CEDC.

ATELIER III : Recommandations

- Faire circuler un questionnaire sur les conflits entre l'homme et les lions et les solutions, avec l'appui des spécialistes. Faire circuler des jets ;
- Préparer un manuel de gestion des lions (Français et Anglais) ;
- Standardiser les méthodes de sondage des lions pour toute l'Afrique ;
- Enrichir les bases de données avec des informations provenant de l'Afrique de l'Ouest et Centrale ;
- Etablir des plans de gestion nationale et bilatérale de gestion et de conservation des lions, et des plans de suivi à long terme ;
- Trouver des personnes/groupes des pays qui n'ont pas participé a cet atelier (qui ont des populations de lion significatives)
- Etablir et mettre à jour la biographie des lions ;
- Rechercher les financements pour les chercheurs Africains des lions (Doctorat et Maîtrise) ;
- Une étude du commerce des lions et des produits de lions (Trafics) ;
- Etablir une liste centralisée des institutions impliquées dans la recherche des lions ;
- Etablir un réseau régional des lions (coût réduit) ;
- Sensibiliser les décideurs et bailleurs de fonds sur des problèmes liés aux lions ;
- Sensibiliser et impliquer la population locale dans la gestion des problèmes liés aux lions ;
- Renforcer les capacités d'intervention des responsables de la conservation pour mieux s'occuper des lions ;
- Organiser dans un avenir proche, un atelier sur les méthodes de sondages ;
- Organiser des sondages des lions dans les régions prioritaires de chaque pays.

STATUS AND NEEDS FOR CONSERVATION OF LIONS IN WEST AND CENTRAL AFRICA

An Information Gathering Workshop

Limbe, Cameroon

2-4 June 2001

Presentations

1. Hans Bauer & Hans de Iongh
2. Ludwig Siefert
3. Etotepe Sogbohossou
4. Margeret Driciruu
5. Saleh Adam

Presentation 1:

Hans Bauer & Hans De Iongh

Current issues on conservation of lions in Waza National Park, Cameroon

Foreword

This paper was written specifically for the African Lion Working Group Regional Meeting for West and Central Africa, 2-4 June 2001 in Limbe, Cameroon. The aim is to give an impression of lion conservation in Waza National Park over the last decades. It gives an overview of knowledge and actions with regard to lions, both formally published data and anecdotal, dispersed or indirect information. We will be quoting opinions, educated guesses and unconfirmed reports of several people. Some of these can be scientifically substantiated, but for most issues we simply have no data.

Introduction

Lions (Panthera leo, Linnaeus 1758) are top predators of the savannah ecosystem. The global population comprises between 30.000 and 100.000 individuals. Their range once extended from Africa and Europe to Southwest Asia, nowadays they are restricted to Sub-sahara Africa and a relict endemic population in the Gir forest in India (Nowell & Jackson, 1996). In northern Cameroon, they ranged throughout the Soudanian region with genetic exchange between the Benoué and Lake Chad basins. Nowadays, they are probably restricted to Waza National Park and the Benoué complex.

Waza National Park (NP) is situated in the Far North Province of Cameroon, with a Soudano-sahelian climate and vegetation. Temperatures range from 15°C (January) to 48°C (April), rainfall is irregular between years, with an annual mean of 700 mm in one rainy season from June to October. Half the park is part of a floodplain ecosystem that retains water until December, the other half is on higher sandy soils. Waza N.P. is a biosphere reserve of approximately 1600 km^2. It is one of the richest parks of West and Central Africa, with large populations of elephant (Loxodonta africana), various species of antelopes and monkeys and an extremely diverse avifauna (Tchamba, 1996; Scholte et.al., 1999).

Lions constitute an asset and a liability for different stakeholders. Considering the uncertain conservation status in West and Central Africa, their intrinsic value and contribution to biodiversity is immense. Valuation with a cost-of-travel method by tourists is not available, but the minimum value is calculated by multiplying the park entrance fees by the percentage of tourists considering lions the most attractive animal, US$ 41.000 x 22%=US$ 9000 (Tchamba, 1996). On the other hand, they constitute a liability to the human population, because of the predation on livestock. Predation is perceived as the third most important problem by the entire population of the area (Mbouche, 1995).

In order to contribute to the mitigation of predation on livestock, a research program was initiated in 1995. Amongst others, twelve students of various levels and disciplines contributed to sub-themes (unpublished theses, Nieuwenboer & Wiegman, 1997; Sonne, 1998; Schoemaker, 1999; Mittouang & Gammi, 1999; Kisjes & Kroese, 2000; Maty, 2000). The result is an understanding of lion ecology, of damage to livestock and of conservation options (Bauer, 2001; Bauer & Kari, 2001; various publications in prep.). Methods ranged from telemetry (using radio collars) to interviews.

Lion Status

The earliest lion population estimates for Waza NP are educated guesses summarized in Bobo Kadiri et al. (1998): 50-60 in 1962 (Flizot), 40-50 in 1986 (Ngog Nje), 50-60 in 1988 (Drijver) and 70 in 1995 (Bauer). Since 1994, park management and the Waza Logone Project have been using various methods to count mammals. Diurnal total counts at remaining waterholes at the end of the dry season resulted in estimates of around 10 individuals. Transect counts using 400 m. on both sides of a straight line came up with around 20 lions (Bobo Kadiri et.al., 1998). Both methods are hardly reliable for lion counts. The first because lions are less active during the day and may visit waterholes only at night. The second because detection rates for lion at 400 m. in savannah habitat are almost zero. If we analyse the report, and do the extrapolation for a band width of 100 m., the result would probably be around 50 lions.
Reliable methods to estimate lion numbers are intensive, expensive and/or hi-tech, such as individual recognition, call mapping or sound playback (Ogutu & Dublin, 1998; Sutherland, 1996). Though these methods have not been used, the above gives us a reliable idea of the order of magnitude of the absolute numbers. More important is an assessment of the evolution of lion numbers. Reliability intervals of numbers cited earlier are too large to do any trend analysis at all. This important monitoring task requires different census techniques, e.g. measuring relative abundance with an 'effort per unit' approach. An indicator could be the average number of km. driven before spotting lion, if done with the help of tourists this could be a cheap addition to the existing monitoring system.
Based on the statistics described above, one would think that this is a dangerously small but stable population. However, I had the pleasure of working with the same tracker that accompanied the early authors. This old man has intimate knowledge of the park's ecology. When faced with the writings of his former bosses he did not agree, he thinks that there must have been many more lions in the 1960's and 1970's, There are unconfirmed reports of 200 lions in 1968 (Scholte, pers.com.). Over the past three years tourists and researchers have the impression that lion encounter rates have dropped (pers.obs.), and my guess is that the population is not stable but dropping. If we would have reliable data over a longer period there might appear to be reason for alarm.

Human Lion Conflict

Lions in Waza are a serious problem for livestock. Predation on livestock is a serious phenomenon, especially to the south of the park (Bauer, 1995). The situation was first assessed with the aid of PRA techniques in 1995, many details were recorded which allowed us to make figure 1 (Bauer, in press). More quantitative information was gathered by structured interviews in 1998. These showed that lions are responsible for more damage than any other carnivore, it is estimated at 700 cattle and over 1000 small stock on average per year, valued at approximately US$ 140.000. The number of domestic animals killed by all carnivores together equals the mortality due to animal disease, 62 % of losses occur to the south of the park (Sonne, 1998). These figures obviously suffer from bias (people may exaggerate), but whatever the 'real' figures are, they are impressive.
Predation patterns of lions in the Gir NP in India were more severe, with approximately 300 lions getting 75% of their food requirements from livestock in 1975 and around 30% in 1995 (Singh & Kamboj, 1996). In southern Africa, however, it is legal in most countries to kill lions when they attack cattle, showing the variation of 'acceptability' in different areas. To the south of Waza NP, losses are obviously not acceptable to the human population, since they are actively illegally hunting them and constantly complaining to the administration (MINEF/DPEN, unpublished reports).

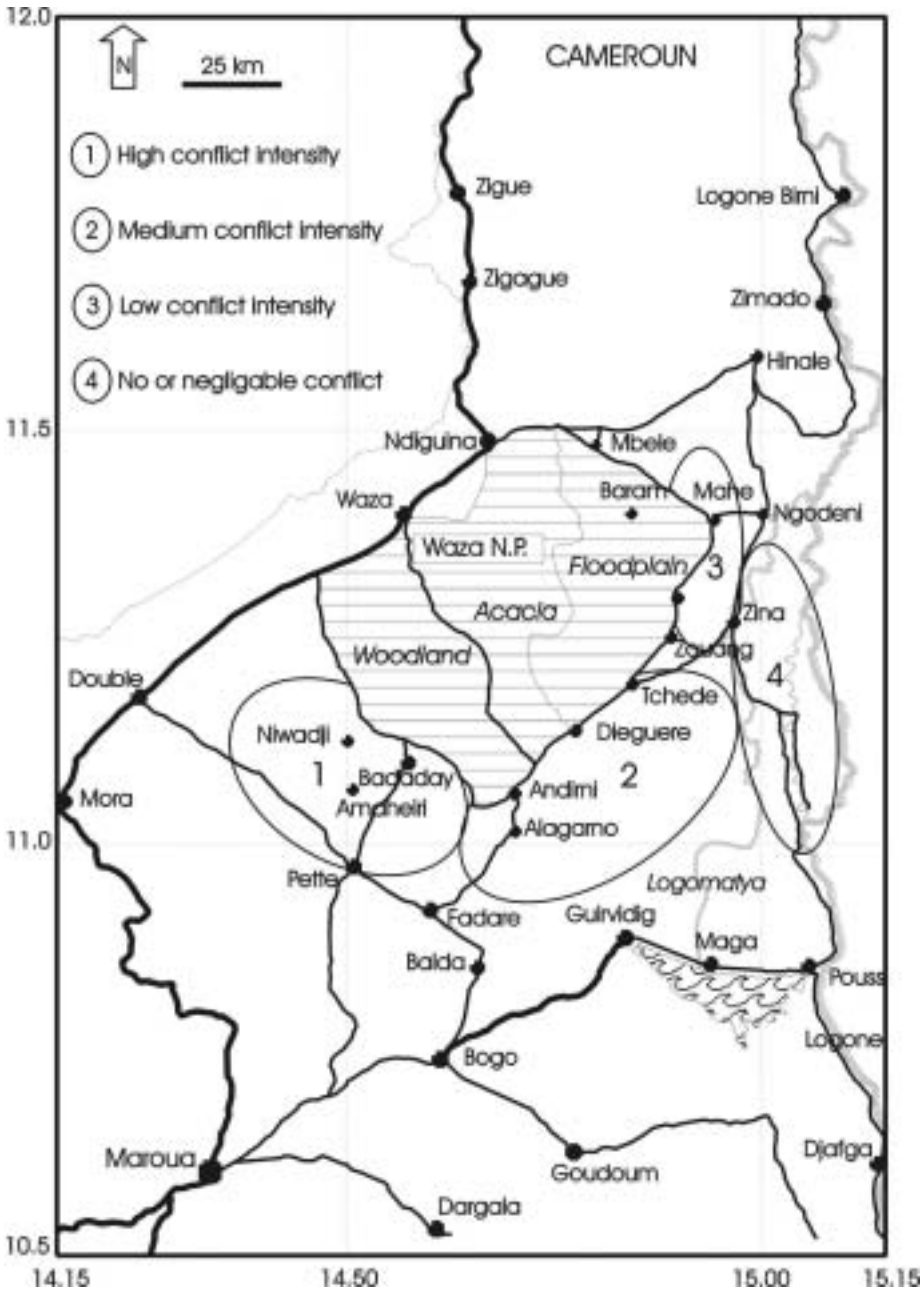


Figure 1: Waza N.P. and the surroundings with zones of different conflict intensity, estimated by loss estimates and ecological knowledge in each zone (from: Bauer, 2001).

People in all settlements gave similar information about the locations and moments at which predation occurred. Lions attack all species of domestic animals on the pastures at daytime. People know that lions also hunt at night, but cattle is then kept in enclosures inside the villages where lions hardly ever venture. Hyenas are exclusively nocturnal, they attack small stock in or near the settlements at night. They enter enclosures and even houses, but are easily chased away if the owner is awake. Jackals and other smaller predators were reported to be very opportunistic and only attack small stock when it's easy for them, certainly not in the presence of man. All forms of predation were said to occur more often in the rainy season, because the grass is tall and

the rain makes noise which makes stalking easier. This is contrary to experiences in east Africa (Butler, 2000; Rudnai, 1979).
People generally did not fear for themselves, extremely few human casualties were reported. Lions attack on the pastures, they can easily be chased off by shepherd before an attack. They only become aggressive when disturbed during or after an attack. Three human casualties were reported in the entire area over a ten year period, all under particular circumstances. Only one settlement, Mahe, reported a lion entering a concession once, without accidents. Hyenas had never been much feared, but since the introduction of the torchlight the problem is entirely solved: they are easily chased off with light.
There is considerable risk of predation on livestock getting worse over the next few years. Lions are specifically known to acquire a taste for prey species, they change their diet depending on prey availability (Singh & Kamboj, 1996). With the decreased monitoring and control by authorities (see below), we have observed increasing presence of cattle inside the park (pers.obs.). In fact, people did not make a great secret of the fact that part of the loss estimates presented above is actually predation inside the park. With lions hunting cattle both inside and outside the park, the entire population could easily be tempted to become stock killer. I think that this phenomenon is increasing and constitutes, in fact, one of the most dangerous complications of human – lion interaction.

Life Histories of Five Tagged Lions

Five lions were tagged with collars containing radio transmitters, information on these individuals is presented in table 1. Homeranges (95% and 50% harmonic mean) are listed in table 2, the 50% polygons are mapped in figure 2. This figure, combined with field observations, shows the following. Hamidou spends most of his time in the large part of his homerange outside the park. Many cases of stock raiding were reported inside his homerange, some cases were confirmed to be kills by Hamidou. Paul has a smaller homerange, with very limited overlap with Hamidou. Whenever outside the park, Paul is a confirmed stock killer, but inside the park he was observed hunting wildlife. Kari and Magali have their homeranges partly inside and partly outside the park. They occasionally leave the park in the rainy season, they spend the dry season inside the park. They have been confirmed to kill stock outside the park. Iris has not been observed outside the park, except one observation to the west of the park where no stock raiding was reported.

Lion	1:Hamidou	2:Paul	3:Iris	4:Kari	5 :Magali
Date tagging	29/1/99	14/6/99	14/6/99	16/6/99	18/4/00
Sex	Male	Male	Female	Female	Female
Total length (cm)	274	294	230	241	229
Shoulder height (cm)	105	109	97	95	81
Weight (kg)	155	140	90	110	80
Age (years)	6-8	10-12	5-6	7-8	6-7
Collar circumf. (cm)	68	65	50	55	54
Tagging time (hr)	6	4	10	1.5	1.5
Remarks	Found on domestic prey, outside park	Bad teeth, might turn into problem animal	Has two cubs of 2 yr, lactating	Observed with another female	Recovering, signs of past ill-health

n.b. Paul was immobilised a second time for 2 hours on 18/4/00, shot wound and bone fracture were treated, he then weighed 130 kg.

Table 1: Specific parameters of lions tagged in or near Waza N.P.

Lion	95%HM	50%HM	# observations
Hamidou	264.4	41.8	72
Paul	577.6	26.5	57
Iris	183.9	22.0	39
Kari	400.0	30.3	53
Magali	45.3	8.3	14

Table 2: Harmonic mean homeranges of lions in Waza N.P. at 50% and 95% levels (in km^2.).

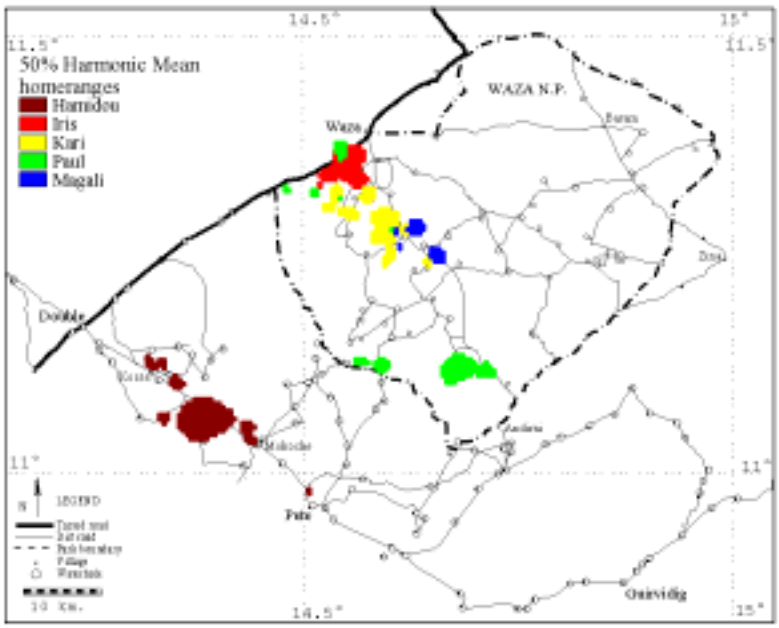


Figure 2: Homeranges of tagged lions in Waza National Park.

Homeranges of the five tagged lions remained stable and movements showed a consistent pattern for every individual throughout the research period. There are differences between individuals, resident individuals had smaller homeranges than those that spent at least part of the time outside Waza NP. The female Iris had two cubs, female Magali was recovering from bad health, this might explain their very limited ranges. The other female, Kari, spent the dry seasons inside Waza NP, but left the park during the wet season, which increased her homerange. Outside the park she stayed in the central area of Hamidou's homerange, field conditions unfortunately impeded observations on possible encounters. Male Hamidou spent most of his time to the south of the park, he made two excursions into the park, during one of which he was observed mating with the female Kari. Hamidou was repeatedly observed killing stock, he was not observed killing wildlife. Even before tagging, he was known as a 'chronic problem animal'.
Paul was shot by poachers in February 2000 resulting in fractures and wounds on his right front leg. Before this incident he was observed killing both wildlife and livestock, with almost equal parts of his homerange inside and outside the park. After the incident, unsuccessful hunts on wildlife were observed, and he obviously lost weight. During this period, reports of stock killing in his homerange increased: he had apparently turned into a 'chronic problem animal'. Paul was operated in April after which he soon recovered. He then took up the old pattern of hunting both wildlife and livestock, he turned back into an 'occasional problem animal'.

With regard to the problem of predation on domestic animals, it is clear that there is differentiation between individuals. Hamidou was clearly a problem animal during this research period, he spent almost all the time outside the park feeding primarily on livestock. Iris, in contrast, has never been observed stock-raiding, whereas Kari and Magali can be qualified as occasional stock raiders. The case of Paul is peculiar. He is old and has degrading dentition, but was not frequently observed stock raiding before he was wounded. After being shot in the leg by poachers, he was only able to hunt livestock for some time, and even that was with great difficulty. After his operation and convalescence, he was much less limp and reverted to occasional stock raiding. These observations are clear proof of the existence of habitual problem animals, occasional stock raiders and lions feeding exclusively on wildlife, the same pattern as in Etosha NP (Stander, 1990). In addition, it was shown that stock raiding can be induced by adverse circumstances.

Management Options

Like many west African countries, Cameroon is faced with an economic crisis. The number of civil servants and their salaries decreased significantly as a result of the Structural Adjustment Program that was adopted for economic recovery. The effects on the management of Waza National Park have been noticeable. The number of guards dropped from 19 in 1997 to 8 in 2001. Road maintenance, surveillance, infrastructure maintenance and tourist accommodations have all suffered from budget reductions. One of the effects is a considerably reduced presence of both guards and tourists in the park, especially in the remote areas.

An Integrated Conservation and Development Project (ICDP, Waza Logone Project) funded by international donors is active in the area since 1993. This assisted park management in the development of new conservation policies, based on the principles of co-management and active participation of the population (Bauer, 2000; Scholte, 2000). Within the framework of these activities, a management plan was adopted in 1997 (Anonymus, 1997). Several management practices changed, amongst others the adoption of a system of 'village guards' and the creation of a management committee with representatives of the ministry, all social groups of the surrounding population and a few other stakeholders. The problem of stock-raiding by lions has already been discussed by this committee, so far without a clear solution.

Killing all lions outside Waza NP cannot be a solution. From population theory, we know that a Minimum Viable Population of lions would be at least 100 breeding adults, and more likely around 1000 individuals for an isolated lion population, unless there is some genetic exchange with other lion populations (review in Nowell & Jackson, 1996, pp.213-216). The adverse effects of inbreeding were well documented for two small isolated lion populations by Wildt et.al. (1987), showing lower lion sperm quality and lower levels of the hormone Testosterone. The Waza lion population is thus at a critically low level, and unless genetic exchange by translocation or introduction from other areas is considered, every single lion counts.

The suggestions made by Stander (1990) about translocation of lions are not feasible in the context of Waza NP. There is no area suitable to move lions to without also moving the problem; moving lions from the surrounding zone to the park itself is not an option since the minimum distance for translocation without risk of reinvasion is 100 km. Another option would have been a damage compensation system, but Tchamba (1996) argued that, in the context of Waza NP, disadvantages outweigh the advantages.

Taking all the above arguments into consideration, the following is recommended to the park warden and the park management committee. Male habitual problem animals must be eliminated. Their role in the maintenance of fertility can be taken over by other males, the balance between conservation and livelihood is skewed. Female habitual problem animals must be tolerated if research shows that they switch between feeding modes and return to the park seasonally or when rearing cubs. Occasional problem animals must be tolerated, since the population is on the brink

of extinction their value must outweigh the damage. To reduce the risk of lions becoming problem animals, cattle must absolutely be kept outside the park, otherwise lions might acquire a taste and develop the habit of stock raiding (Singh & Kamboj, 1996). These recommendations require intensive monitoring and research, it must therefore also be recommended that park management acquires the capacity to do so.

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Presentation 2:

Ludwig Siefert
The Uganda Lion project

THE UGANDA LARGE PREDATORS AND SCAVENGERS RESEARCH & MANAGEMENT PROGRAMME

HEALTH AND SOCIOECONOMIC CONCERNS

By Ludwig SIEFERT, Margaret DRICIRU, David MUWANGUZI

PROGRAMME GOALS

- **BUILD LOCAL CAPACITY at ALL LEVELS**
- **CREATE AWARENESS** of needs & values
- **CONSERVE + MANAGE** predator + prey **populations PROFESSIONALLY**
- **FORGE strong CONSERVATION ALLIANCE**
  - advance international predator conservation efforts
  - **collaborate with suitable partners & ensure quality**
- **DESIGN & TEST multispecies VIABILITY & MANAGEMENT model**
- **BALANCE stakeholders' INTERESTS**

SIGNIFICANCE

PREDATORS are

- ECOLOGICALLY and ECONOMICALLY VERY IMPORTANT & FUN
- THEY MAINTAIN BIODIVERSITY and PREY POPULATION HEALTH
- THEY PROVIDE SUBSTANTIAL INCOME from WILDLIFE BASED TOURISM

CHALLENGES

- Build LOCAL CAPACITY
- REVERSE EXTINCTION VORTEX by
  - PREVENTION of
    - indiscriminate KILLING
    - EMERGING DISEASES
    - INBREEDING

CAPACITY BUILDING

- DATA + MANAGEMENT
  - KNOW & DO
    - What
    - Why
    - How
    - Where
    - When ?
- COLLABORATION
  - With whom
  - How?

NEEDS

- COLLABORATION
  - development of
    - reliable protocols: population & health dynamics of predator, scavenger & key prey populations
    - identity- + health-criteria & -databases
    - spatial & temporal distribution according to geographic information system
      [Uganda's Management Information SysTem]
      - representative ecozone coverage
    - reliable & relevant socioeconomic indicators
  - development of
    - diagnostic field-tests, e.g. for CDV, TB etc.
    - diagnostic + preventive protocols & services:
      - nutritional budgets
      - molecular microbiology, parasitology, pathology, genetics & epidemiology
      - estimation of inbreeding & its impact
      - socioeconomic conflict-appraisal & resolution
  - model & test population viability analysis
  - design contingency plans

SCHEDULE

- *Continue study in QEPA*
- *Intensify / extend study*
  - spatially to MFCA, KVNP, LMNP, SVPA
  - specifically to
    - spotted & striped hyenas
    - leopards & cheetahs
    - jackals & African wild dogs
    - scavengers & key prey animal species
- *Intensify collaboration with UWA*

CURRENT STATUS

- **Baseline study done & ongoing in QEPA**
  - lion-census
  - lion-health assessment
  - predator x livestock x people conflict
  - hyena-protocol & -census
- Many non-predator rescue operations carried out on behalf of UWA
- **Study initiated in MFCA & KVNP**
  - base established
  - study initiated & proceeding

QEPA- results

- Emerging man-made diseases exist!
  - dogs, cats, hyenas, lions exposed to rabies,CD,TB
  - high prevalence rate of FIV+ lions (HIV-similarity!) exists
    - causing mortality in predators if feeding on TB-infected domestic and wild prey species
- Conflicts with people & livestock
  - trigger indiscriminate killing of many predators & scavengers
  - reinforces extinction vortex!

Fig 1.: Human activity associated with loss of human life due to lions in Northern Sector of QEPA (1990 <> 2000)

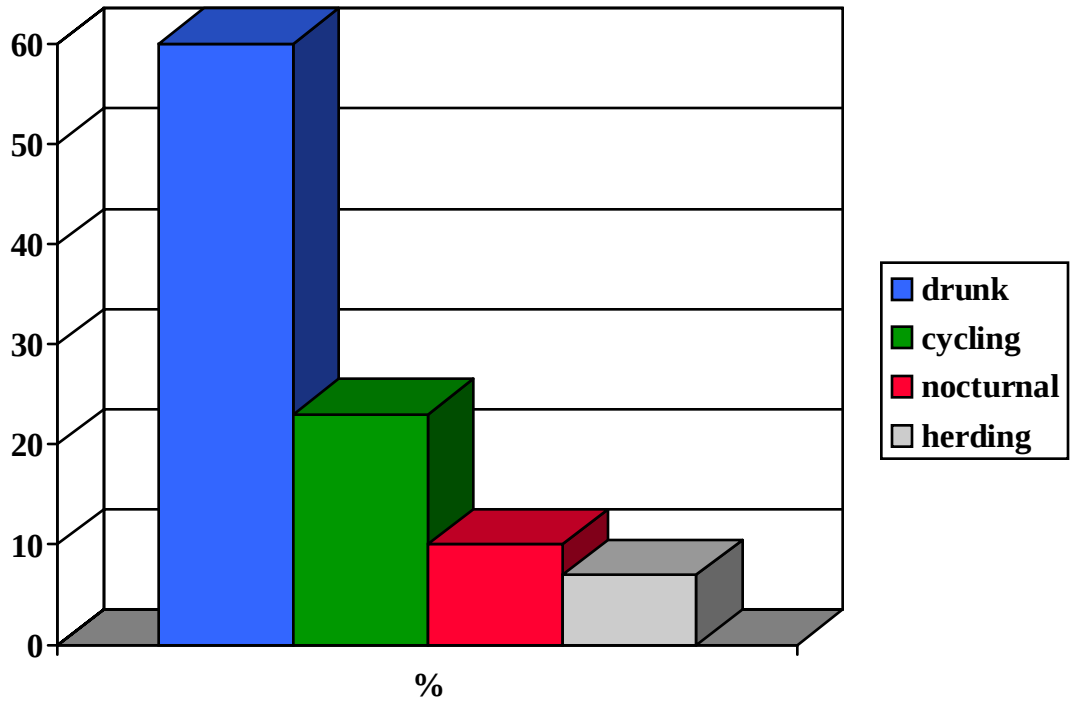
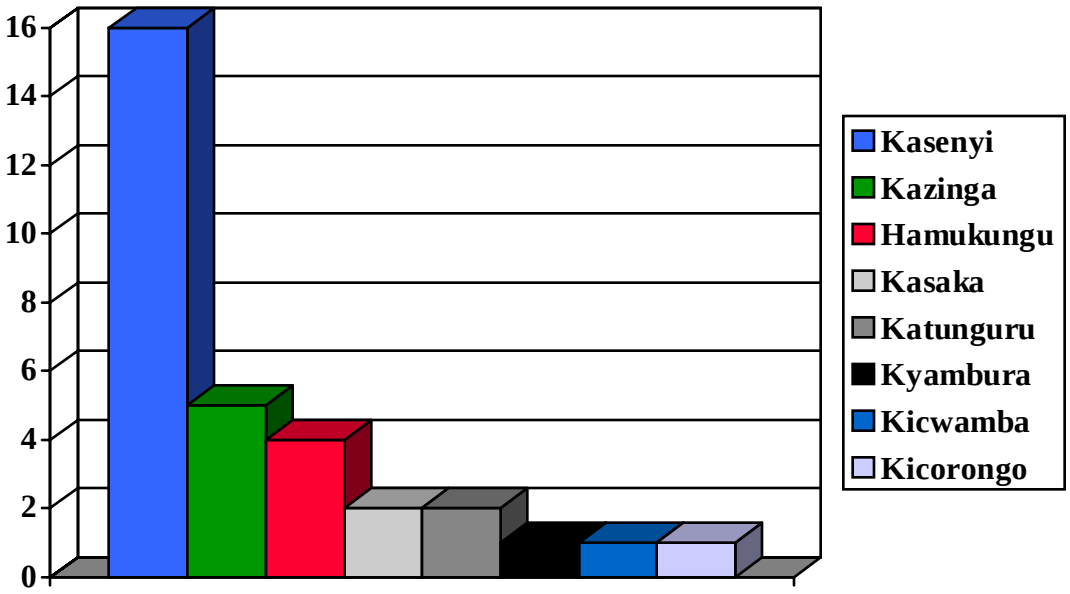


Fig. 2: Origin & number of people killed by lions in Northern Sector of QEPA (1990 <> 2000)



Livestock-Losses in Northern QEPA
Years 1990 <> 2000

Livestock lost:		**Losses caused by:**	
▪ **cattle:**	**3,000 $**	**lions:**	**6,400 $**
▪ **sheep:**	**1,300 $**	**leopards:**	**300 $**
▪ **goats:**	**7,500 $**	**hyenas:**	**5,100 $**
Total	**11,800 $**		

Fig. 3: Livestock lost 1990 <> 2000 in Northern Sector of QEPA

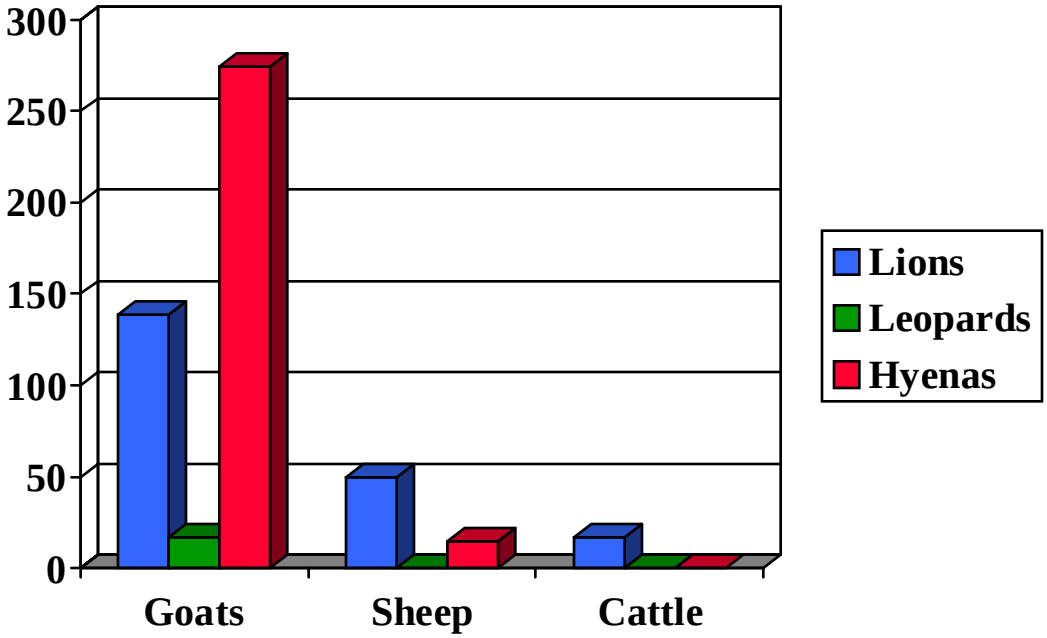
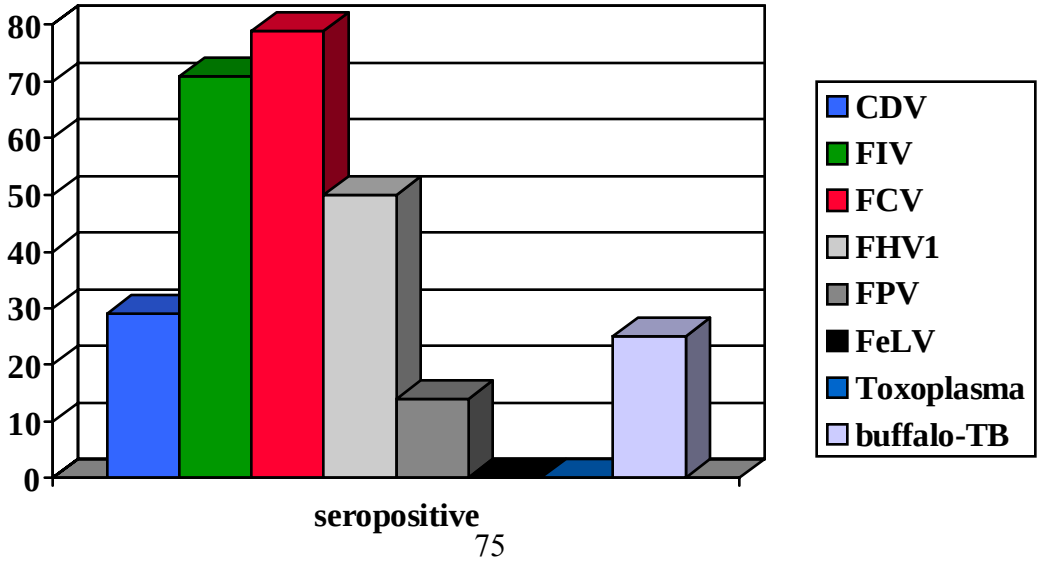


Fig. 4: Lions (in % seropositives) exposed to various pathogens in N-QEPA



The LPP - a MODEL

- ***DEMONSTRATION*** *of*
  - *capacity building*
  - *scientific & pro-active wild life management*
  - *transparent conflict-resolution*
  - *conservation alliance for development*

RESOURCES

FDZ- & awc,-funds:

- USD 40,000 > Murchison Falls CA-component
  - *deficit: ca. USD 50,000 (fuel etc.)*
- USD 20,000 > Queen Elizabeth PA-component
  - *deficit: ca. USD 65,000 (vehicle & fuel & ...)*
- USD 2,000 > Kidepo Valley NP-component
  - *deficit: ca. USD 65,000 (vehicle & equipment & ...)*
- USD 0 > Lake Mburo / Semliki NP-component
  - *deficit: ca. USD 5,000 (fuel & salary & tests & ...)*
- USD 10,000 > other programme activities
  - *deficit: ca. USD 20,000*

TOTAL: needed USD 205,000.=

Human Resources

- Queen Elizabeth PA-component
- *1 researcher: Ludwig SIEFERT +*
  - *1 field assistant: Tom FRIDAY*
- Murchison Falls CA-component
  - *1 researcher: Margaret DRICIRU +*
  - *2 field assistants: Moses ISINGOMA+ Mike ODAGA*
- Kidepo Valley NP-component
  - *2 researchers: Ludwig SIEFERT & Pamela ANYING*
  - *1 field assistant: ranger*
- Lake Mburo NP & Semliki PA-component
- *not yet recruited*

PROTOCOLS

Material & Methods

ASSESS

- POPULATION DYNAMICS
- census of *ALL* LPs
- HEALTH DYNAMICS
- reliable +++
- fast +++++
- management-friendly TESTS & MODELS

Assess

- PREDATOR X
- LIVESTOCK X
- PEOPLE
- *CONFLICTS*

Design & Apply
conflict resolution

ACHIEVEMENTS

- *Multinational support secured*
- *Capacity built & expanding*
- *Protocols designed & in use*
- *Database initiated*
- *Major risks identified & control- / preventive measures proposed*
- *Conservation Alliance forming*

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Presentation 3:

Etotepe Sogbohossou

INTERACTIONS POPULATIONS- FAUNE SAUVAGE: CAS DE LA PREDATION DES ELEVAGES DE BOVINS PAR LES LIONS DANS LA ZONE CYNEGETIQUE DE LA PENDJARI

La proximité des populations des aires protégées crée des interactions entre ces populations et les animaux sauvages habitant ces aires. Dans la Zone Cynégétique de la Pendjari comme dans beaucoup d'aires protégées les animaux sauvages font de fréquentes incursions dans les terroirs villageois et causent des dégâts aussi bien au niveau des cultures qu'au niveau du bétail domestique. Les animaux tels que les primates, les oiseaux, les phacochères, les rongeurs viennent de la période de semis à la récolte endommager d'une manière ou d'une autre les cultures vivrières. Quant aux carnivores à l'instar des lions et hyènes, ils opèrent de fréquents prélèvements au niveau des bovins, ovins, caprins et porcins élevés dans les cours des demeures. Les paysans paient souvent ainsi un lourd tribut à la nature qui les entoure. Ils utilisent quelques méthodes endogènes qui leur permettent de diminuer quelque peu ce prix à payer.

Mots clés: Populations, faune sauvage, aires protégées, interactions.

Introduction

Les aires protégées constituent en Afrique les rares réservoirs de faune sauvage. Avant la création de ces aires, elles étaient des endroits habités et exploités par les populations. A leur création les populations s'en sont vues interdire l'accès mais sont restées aux abords de ces aires. Ces populations sont souvent dérangées par les animaux qui quittent la zone. Le cas le plus rencontré et étudié est celui des éléphants (Tehou et Sinsin 1999, Mubalama 2000, O'Connell-Rodwell *et al.* 2000).

Dans la Zone Cynégétique de la Pendjari au Nord-Ouest du Bénin, les populations souffrent aussi de la proximité de la faune sauvage (Houinato 1997). Le présent exposé vise à présenter les problèmes de la cohabitation de la faune sauvage et de la population dans la Zone Cynégétique de la Pendjari à travers les dommages crées surtout aux activités d'élevage menées par les populations riveraines, à donner une idée sur les méthodes qu'utilisent ces populations pour s'en défendre. Elle mettra l'accent sur les dégâts causés par le roi de la faune sauvage : le lion.

La zone d'étude

Les paramètres climatiques qui déterminent les conditions du milieu dans la zone d'étude (figure 1) sont semblables à ceux du milieu soudanien.
Il faut noter que les sols de la zone sont caractérisés par leur qualité peu bonne à cause de leur fragilité et l'importance de la charge graveleuse ou l'induration d'une partie non négligeable.

Le drainage est assez important mais la majorité des mares s'assèchent en saison sèche. Ce facteur est l'une des principales causes de la fréquentation de la zone cynégétique par

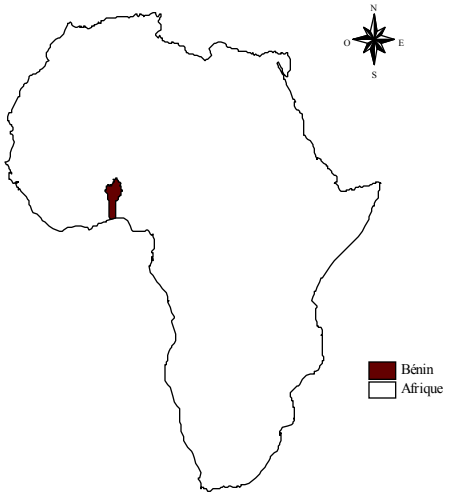

Figure1 : Situation du Bénin dans l'Afrique

Figure 1: Situation de la Zone Cynégétique du Bénin

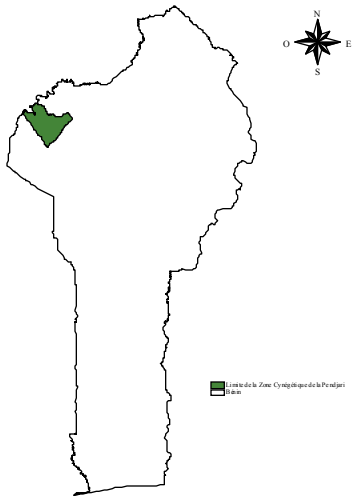

Figure 2 : Localisation de la Zone Cynégétique de la Pendjari dans le Bénin.

les troupeaux bovins en saison sèche car les points d'eau les plus permanents sont concentrés dans la zone cynégétique.

Les principales ethnies sont les Berba sur l'axe Tanguiéta-Porga et les Waama, Takamba, Gourmantché sur l'axe Tanguiéta-Batia et les Peuls sur les deux axes (Sinsin *et al.* 2000; Sogbohossou 2000).

L'agriculture occupe environ 95 % de la population et les pratiques agricoles demeurent encore traditionnelles (CARDER Atacora 2000). L'élevage est l'activité secondaire.

Méthodes

Les données ont été obtenues par des enquêtes semi structurées à base de questionnaires ou des enquêtes informelles au niveau des agriculteurs et des éleveurs.
Pour le calcul de la corrélation entre le nombre de bovins et l'abondance de la faune sauvage, c'est le logiciel SPSS qui a servi au traitement des données.
Le logiciel Arcview a servi à la réalisation des cartes. Les coordonnées des points principaux ont été enregistrées au GPS sur le terrain.

Résultats et discussion

L'élevage autour de la Zone Cynégétique de la Pendjari

L'élevage est la seconde activité des populations riveraines à la ZCP. Aussi bien les éleveurs que les agriculteurs, les commerçants, bref toutes les classes socioprofessionnelles, s'adonnent à cette activité. Mais elle est principalement menée par les peuls : les propriétaires achètent leurs bovins et les confient aux peuls qu'ils jugent plus qualifiés pour s'en occuper. Ces troupeaux jouent essentiellement un rôle de production laitière et économique pour leurs propriétaires et constituent une sorte d'épargne (Sogbohossou 2000). En effet, le revenu généré par la culture du coton est investi presque automatiquement dans l'achat de bovins. En cas de problèmes, la vente du bétail permet de faire face aux dépenses. Elle permet surtout de pallier aux mauvaises récoltes et de survivre en saison sèche et d'honorer aux cérémonies traditionnelles. A cela s'ajoute un rôle de prestige.

Interactions entre la faune sauvage et le bétail domestique

Plus de 90% des paysans élèvent des animaux domestiques. Les nuits, les hyènes viennent régulièrement prélever dans les cours des maisons des ovins, caprins et porcins et même des veaux.

Quant aux lions, ils s'intéressent principalement aux bovins. Dans certaines zones, ces incursions deviennent de plus en plus fréquentes. Or ce phénomène n'était pas connu auparavant. Selon les populations, il remonte à une vingtaine d'années.

A quoi peut-on attribuer ce subit intérêt de la faune sauvage au bétail domestique ?

Autrefois, la protection de la zone n'était pas aussi bonne qu'aujourd'hui. Toutefois, les populations agressaient la zone en y installant leurs champs et en s'y adonnant à la chasse. L'élevage ne présentait pas pour autant une menace pour la mission de conservation de la zone. Mais depuis l'avènement de la culture de coton et de la culture attelée, les paysans investissent leurs économies dans l'achat de bovins. La taille du cheptel bovin ne cesse de s'accroître. Un plus grand nombre de bovins exploite les ressources du milieu qui n'augmentent pas avec le temps mais au contraire diminuent drastiquement avec la poussée démographique et le défrichement des terres arables pour l'agriculture. Aux troupeaux des riverains autochtones s'ajoutent ceux des migrants et des transhumants. En effet, la sécheresse dans les pays sahéliens conduit à la migration périodique ou définitive des troupeaux bovins de ces endroits vers ceux plus humides, mieux pourvus en eau et en fourrage. Les terres inexploitées des aires protégées présentent alors un attrait sans pareil à ces troupeaux à la recherche de fourrage et d'eau.

Les lions attaquent surtout les bovins durant la saison sèche. Pendant la saison pluvieuse, les ressources fourragères et en eau sont disponibles dans tout le complexe et bien réparties aussi bien pour la faune sauvage que pour celle domestique. Les bovins ne se rendent donc pas au pâturage dans la zone ou n'y pénètrent pas en profondeur. Par contre

durant la saison sèche, quand les ressources en eau et en fourrage se raréfient, les bovins se rendent dans la zone cynégétique. Leur présence dans la zone suscite l'attention des carnivores comme le lion qui indirectement subissent eux aussi les dures conditions de la sécheresse. Les lions les suivent car ils constituent d'excellentes proies. Les attaques ne se produisent pas au pâturage à cause de la présence dissuasive des bouviers qui se munissent, pour se protéger et protéger leurs troupeaux, de bâtons et même d'armes à feu (surtout les transhumants). Les attaques se produisent au pâturage uniquement dans le cas où les bovins s'égarent loin du troupeau et du bouvier. C'est la nuit, quand les bovins sont rentrés au campement et que les bouviers sont couchés que les lions pénètrent dans les troupeaux.

Cette situation est plus critique le long de l'axe Tanguiéta-Porga où il a été enregistré plus de cas de morts de bovins suite à des attaques par les lions (près de 30 cas en l'an 2000 contre 0 sur le second axe durant la même période). Sur le second axe, la présence des lions dans les villages a été signalée. Mais les carnivores ont seulement blessé les bovins et n'ont pas pu les achever à cause de l'arrivée inopinée des éleveurs alertés.

Ce constat est explicable par le fait qu'il y a sur cet axe plus de bovins que sur le second et ces troupeaux pénètrent dans la zone plus en profondeur (sur l'axe Tanguiéta-Porga les éleveurs pénètrent jusqu'à 10 km dans la zone contre 5 km sur l'axe Tanguiéta-Batia). Ils empiètent donc beaucoup plus sur le domaine de la faune sauvage. En fait compte tenu de la concurrence entre la faune sauvage en particulier les herbivores sauvages et les ruminants domestiques, le pâturage des bovins dans la zone cynégétique trouble la quiétude des animaux sauvages en dehors du fait qu'il crée une diminution des ressources disponibles et les fait fuir (Sogbohossou 2000). Mais les carnivores eux y trouvent une occasion gratuite de se procurer des proies. Cette hypothèse est confirmée par les analyses statistiques qui démontrent l'existence d'une forte corrélation négative (r^2=0,98) entre le nombre de bovins existant dans des zones définies au niveau de l'aire et l'abondance de la faune estimée par le dénombrement de 2000 de la faune sauvage dans le Complexe de la Pendjari (Sinsin *et al.* 2000). Cette corrélation est effective aussi quand on considère les bovins et les grands herbivores sauvages. Ceci est confirmé par Sayer (1979). Compte tenu du faible nombre de carnivores observé au cours du dénombrement une analyse n'a pas pu être possible à ce niveau pour démontrer la corrélation entre l'effectif bovin et le nombre de carnivores. Néanmoins le nombre de cas d'attaques plus élevé dans les zones de concentration de bovins démontre aisément que cette corrélation positive est réelle.

Méthodes de lutte

Comme cela l'a été déjà évoqué, au pâturage pour protéger les troupeaux des prédateurs, les éleveurs se munissent de bâtons. Les transhumants portent sur eux des armes à feu mais cela peut être aussi un instrument de braconnage. Ils prétendent que cet outil et surtout leur présence fait craindre aux animaux d'attaquer les bovins.

Pour protéger leur bétail contre les prédateurs sauvages, certains éleveurs et agriculteurs font des enclos avec des ligneux épineux (*Acacia spp.*, *Balanites aegyptiaca*,

Dichrostachys cinerea) dans lesquels ils parquent leurs animaux la nuit. Ils allument aussi un feu dans l'enclos ou la cour qui joue le double rôle de dissuasion des animaux sauvages et des mouches et de fourniture de chaleur aux bovins contre la fraîcheur de la nuit. D'autres montent la garde auprès de leur troupeau la nuit. Ces pratiques dissuadent quelque peu les carnivores sauvages.

Les populations face aux multiples agressions de la faune sauvage

Dans leurs principales activités, les riverains rencontrent des problèmes avec la faune sauvage. Les méthodes qu'elles utilisent pour résoudre ces problèmes sont selon les cas peu ou assez efficaces. Mais souvent elles auraient préféré tout simplement éliminer ces animaux qui les perturbent. Or les méthodes destructives sont interdites étant donné que la zone est une aire protégée. Les animaux ne doivent pas être tués car ils contribuent à la diversité dans cette aire protégée et certaines espèces sont très importantes dans le tourisme à l'instar du lion. Ces impacts négatifs constituent le revers de la médaille car les populations sont censées tirer bénéfice de l'existence de l'aire protégée au travers des activités de tourisme et de chasse cynégétique.

Les populations ne perçoivent pas l'intérêt à ne pas tuer ces animaux qui les dérangent et se demandent, comme dans d'autres aires protégées (Mubalama 2000), si les animaux sauvages ne sont pas plus importants qu'eux aux yeux des conservateurs/ de l'administration forestière. Cette pensée est accentuée par le fait qu'on veut les amener à réduire l'aire occupée par leurs champs c'est-à-dire à ne plus cultiver dans la ZCP sous prétexte que ces endroits sont l'habitat de la faune et que leurs activités dérangent la faune sauvage. De plus on leur interdit d'amener leurs bovins dans la ZCP en saison sèche alors que sans cela leurs bovins mourraient de soif surtout et aussi de faim.

Conclusion

Les dommages causés par les animaux sauvages aux riverains de la Zone Cynégétique de la Pendjari sont bien effectifs et pas moindres. Les populations essaient plusieurs moyens pour réduire ces dégâts. Mais elles n'y arrivent pas efficacement dans tous les cas. L'interdiction formelle de tuer les déprédateurs sauvages les irrite et crée en eux le sentiment d'être négligé par les autorités du Complexe. Ces autorités dans leurs récents efforts d'impliquer réellement les populations dans la gestion du Complexe surtout de la Zone Cynégétique doivent essayer de ne pas oublier cet aspect négatif de la faune sauvage. Ils doivent ensemble avec les populations essayer d'y trouver des remèdes.

Concernant le bétail domestique, il faudra continuer à protéger les animaux le soir par un enclos et créer des infrastructures pastorales, améliorer les pâturages dans les terroirs riverains pour mettre à la disposition du cheptel bovin de l'eau et aussi des fourrages et lui permettre ainsi de ne plus aller dans la ZCP sans trop en souffrir. Ceci aidera à réduire les visites des lions dans les villages. Les populations doivent être par dessus tout sensibilisées sur le fait qu'elles doivent au maximum éviter de provoquer la faune sauvage.

A part tout cela, le plus essentiel restera de continuer avec la participation et de mener des actions qui prouvent aux populations que malgré les torts que leur cause cette faune sauvage si proche d'elles, elle leur génère beaucoup plus de bénéfices. Comme cela, elles se sentiront moins lésées et les multiples avantages qu'elles tireront de l'aire leur permettra de combler les pertes causées par cette faune qui en ce moment constituerait pour elles une importante source de richesse.

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Presentation 4:

Margeret Dricuru
Lion survey in Queen Elizabeth National Park, Uganda

(Extracted from the report "The Lions of Queen Elizabeth National Park", Dricuru , 1999. Available at www.african-lion.org/homepage.htm and www.nvdzoos.nl)

The total count method was used (Sutherland, 1996) to determine the total population of lions. This involved a systematic region to region coverage of the park in defined time periods, i.e., Katwe - 10 weeks; Katunguru - 10 weeks; Ishasha ~ 9 weeks, Kyambura - 8 days. Lions were searched and located using the methods outlined below.

Once the lions were found, their number, age and sex were recorded on a data sheet. The grid reference was read from a Magellan GPS system. This grid was eventually plotted on a 1:50,000 map of QENP. With the aid of binoculars the researchers identified the whisker patterns of each individual lion and any specific identification marks, e.g. ear cuts (Figures 3-5). These were recorded on individual lion ID forms. This way, each lion could be identified individually.

Search/sighting techniques for locating lions

The search techniques used to locate lions were:- random searches, tracking, presence of vultures and their behaviour, prey animal behaviour, response to audio calls, reports of tourists, field assistants, researchers, tour guides, local residents, and park workers. These are described in the following section.

Random searches

Searching normally commenced at 05.00 and ended at 11.00 (dawn to mid morning) and resumed at 16.00 until 20.00 (late afternoon). Audio call play-backs were used at night (between 20.00 and 24.00). Together with a field assistant and sometimes a ranger, the research team drove out in a 4WD vehicle to locate the lions. Each of the study areas was searched for periods varying from one to at least three weeks, depending on the size of the area to be covered and the difficulties encountered. These difficulties included the car breaking down, rumours of insecurity in the operation area or heavy rains. The planned time period in a certain area was extended if such difficulties were encountered.

Tracking

Footprints of lions that were found along the roads were critically examined to determine where they were heading, how many lions they belonged to and how old the prints were. If they appeared to be less than half a day old, they were followed until the lions were found. However, if tracks were lost because the lions moved in grass or went down into an inaccessible place, the search would be aborted. In any case, the measurements of the footprints would be taken.

Vultures

Vultures are scavengers and congregate on remains of animals preyed upon by carnivores or those that die of other causes. Their activity patterns were monitored (especially after 09.00) every time searches were undertaken to locate lions. Whenever vultures were sighted they were followed and the area thoroughly searched for remains of dead prey animals or kills. If such remains were found, they were critically examined to see if they were lion kills. If found to be so, the area was thoroughly searched until the lions were found or the search aborted.

Prey animal behaviour

Prey animals become alert, worried, run away, look in a specific direction or make alarm calls, e.g., whistling of kob, to alert each other whenever they sight or smell predators or other dangers. Kobs have been observed to portray a very characteristic jumping pattern whenever they see lions. They jump up to a moderate height, with all four legs at once, neck straight up, and leap progressively forward, then stop and glance back, repeating this until they are at a safe distance, when they stop and whistle, while looking steadily in the direction of the lion(s). During the searches, whenever this behaviour was noticed, the area was properly searched for lions. This was always successful.

Audio calls with or without baiting:

Recorded sounds of attacked prey animals; hyaena calls; or lion roars, were played using a public address system for 5-15 minutes at intervals of 3-5 minutes to allow us to listen for a response. The various responses of lions to these calls are fully described by Ogutu (1987).

Reports of Tourists, Guides, other Researchers, Park Employees and Local people

Simple questionnaires were prepared, asking whether people had seen lions, when, where, how many, the structure of the group that they had seen and what the group was doing. These forms were put into a file at Mweya Safari Lodge, distributed to tourists or left at the Park gates for anyone to fill in who was interested in helping the project to achieve its objectives. The forms were checked every day and any reports of sightings of unfamiliar groups of lions were followed-up immediately. Some people reported their sightings directly to us; such reports were also followed-up immediately.

Figure 1: Four rows of whisker spots visible on the left hand side of the face. The first row has 2 spots, the second has 8, with the first of the top row above the third spot of the second row and the second spot of the top row in between the fourth and fifth of the second row.

Once lions were located, time was spent with them, trying to habituate them in order to get close enough to identify each individual. The length of time spent with each group varied considerably from 30 minutes to 6 hours, depending on the behaviour of the lions. Some were so shy that they simply ran away on every attempt to approach them, others stayed in view for varying periods of time.

Identification of Individual lions

As already mentioned, individual animals were identified using any or all of the following features: whisker spots (Figure 1); ear cuts; scratch marks; mane patterns and extent of development; colour of nares; sex; age estimate; body size and any other striking features observed. For those animals that were darted, specific cuts were put on their ears in distinct places to assist identification. These were descriptively recorded and drawings made for the patterns of the features in question. ID forms were compiled for every coded animal, together with photographs for those animals, which could be photographed. Whisker spots of lions, according to Van Orsdol (1981), are like human finger prints, i.e. specific for each individual and varying from the right side of the same

individual to the left. He gives a comprehensive description of how they can be used to differentiate the animals.

Age estimation

This was only comfortably used for young animals up to 3 years of age by comparing the parameters seen with what is described by other authors like Van Orsdol (1981) and Schaller (1972), and following up the cubs that were born during the study period, or just before the start of the study, and comparing their growth with those whose ages were known. The following criteria were used:

Young lions: Size in relation to the mother; approximate body weight estimate in comparison with the mother's, progress in development of tail tufts and first appearance of mane hair, childhood spots (presence or absence and intensity – they fade with age); for those seen repeatedly, teeth eruption pattern if observable;
Adults Males: Development of mane; size or length of mane and colour;
All Adults: Teeth discolouration, wear and tear.

The age estimates associated with these characteristics are described by Van Orsdol, (1981).

Data recording

Data appropriate for population viability assessment as listed below were recorded on data sheets specially made either for morphometry, individual animal identification, physical examination, immobilization or any other observations, by ticking options, noting measurements, comprehensively describing features for identification seen on the animal, or by drawing.

Population information was also recorded, especially when indication of pride membership, on plain sheets of paper or forms. This included population structure, health status, activity, weather and vegetation data; and any other information that could give a clue as to population viability.

Presentation 5:

Saleh Adam
Mammal counts in Waza National Park

(No paper submitted, this text is based on the workshop minutes)

Methods of surveys used in the Waza National park: line transects.

Area: 170 000ha and road network of 600 km and the method used to survey is based on the roads. The park has been divided in Five Sectors. During dry seasons, many animals leave the Park (in the east of the park) towards the water and this explain why we divided the outer part in to sectors. GPS is used to mark transcends with a red rope.

The number of people implicated in this is enormous, each transcends is comprised of two people. We also receive the support of the Wildlife School in Garoua. CACID helps us in funding. Marking phase takes about 4 days. Data are population estimates, male, adults, female , time, human activities, etc. The length of transects varies. A one day survey in the park is very expensive because more vehicles are needed, Surveyors, guards etc.

Concerning lions, and because we already know where lions are, we distributed experienced people to count the lions for this seminars; that is why we came to know the number of lions.

Comment from audience: this method is not very useful for counting lions

STATUS AND NEEDS FOR CONSERVATION OF LIONS IN WEST AND CENTRAL AFRICA

An Information Gathering Workshop

Limbe, Cameroon

2-3 June 2001

Appendix

ALWG Warmbaths Meeting
Abbreviations
Programme
Participants

Lion Working Group Report

CBSG Annual Meeting, Warmbaths, South Africa, 15-17 October 1999

Introduction:

Lions are emblematic of the significance of both carnivores and predators on the continent of Africa. At the special request of constituents of the CBSG, a Lion Working Group was convened at the 1999 annual meeting to identify and discuss issues relevant to conserving this keystone species into the new millenium. The following are the results and recommendations of these 3 days of discussions.

Working group members:

Pieter Kat, Kate Nicholls, Frank Princée, Hanlie Winterbach, Christian Winterbach, Petri Viljoen, Savvas Vrahimis, Gus Mills, Sean Austin, Sarel Van der Merwe, Richard and Shirley Hickman-Smith, Mompoloki Lettie Sechele, Lucas Rutina, Paul Bailie, Lee Stewart, Ian Espie, David Wildt (Facilitator)

Initial process of issues identification:

The group initially was surveyed for personal goals and to identify lion issues. A roundtable approach was used to ensure that everyone participated. Identified individual issues/questions were as follows (in random order):

- Lack of existing information on lion biology and what regulates pride structure; what is true reproduction and what holds groups of lions together
- What do we know about lion biology and how can we improve the database
- Sharing information to identify high priority research areas and to form partnerships
- Better assessment of wild populations, including high priorities
- Impact of disease on lion populations
- Learning who else is working in the field and what partnerships might be available
- What are the best survey techniques
- Learning more about safari or trophy hunting
- Learning more about managing small populations
- Relocating or introducing predators into expanded reserves
- Need for standardized survey/census techniques
- Identifying geographic areas where there are problems, especially the need for surveys
- Identifying ways to solve human/lion conflicts
- Learning how lion issues/problems are addressed and being able to extrapolate this information to other habitats, including into the tropics for species like the tiger
- What is known about lions that can be used to create eco-parks that offer tourism opportunities (easier siting of lions) and what are some of the management needs (including nutrition) for such parks

- How to assemble field workers, scientists, zoo professionals and the like together to discuss issues
- How can the management of wild lions be connected to community issues
- The biology of lions living in captivity
- Role of captive breeding, including the need for genetic management
- Is there a need to identify lion subspeciation
- What is the genetic structure of lions in South Africa
- What is the status (i.e., number) of lions in Africa
- How best to control problem animals
- How to determine quotas for lion hunting
- Understanding lion reproductive biology
- Is it necessary and how would it be possible to create joint management plans across boundaries for adjacent countries in southern Africa

The facilitator then collapsed all of these issues into five general areas with specific subgroups within each. These high priority areas are presented below (in random order).

Life history issues
1. Survey and monitoring
- What is the status of lions in:
    - Southern Africa
    - Africa
- What are the best methods of survey and monitoring?
- What are problems associated with extant methods of surveying and monitoring?
- How can these problems be overcome?

2. Reproduction and pride structure

Diseases in wild population issues
1. What is the significance of disease in wild lion populations?
2. How best do we conduct disease surveillance?
3. How do we prevent disease in wild populations, or is there a need to do so?

Information sharing and forming partnership issues
1. How do we monitor our priorities for conservation across people and organizations?
2. Is it necessary to develop cross-boundary plans for lion management?

Genetics issues
1. For wild lions
- Is there true lion subspeciation?
- Is there a need to become concerned about genetic diversity?

2. For captive lions
- Should genetics be managed for captive populations?

3. Managing genetics
- Is it possible or necessary to manage genetics in isolated populations (both wild and captive) through various means, including relocation?
- How can lions be added into new and/or expanded reserves?

General lion management issues
1. Hunting (including trophy)
2. Community conflicts
3. Creation of eco-parks

After the collapsing exercise, it was realized that it would be impossible to effectively address all of the above issues and questions during the next 3-days. Therefore, a matrix was created for the five topic areas that allowed all participants to vote on the order of topic discussion. Each topic was ranked 1-5 with the topic area receiving the lowest overall average score being selected as the first topic for discussion. Order of selected discussions was as follows:

1. Life history issues
2. General lion management issues
3. Genetics issues
4. Diseases in wild population issues
5. Information sharing and forming partnership issues

Life history issues (Topic #1, survey and monitoring)

Why survey?

The group addressed the basic question -- what is the purpose of conducting a survey of lions in nature?

- To monitor population trends over time to:
  - determine conservation and research priorities;
  - develop and/or modify management plans; and,
  - ultimately to determine the demographic and genetic viability of lions in nature.

The group also agreed that one time surveys can be valuable for providing baseline information (a snapshot of current status).

What are the goals of conducting a lion survey?

The group agreed that, in general, every survey should attempt to achieve the follow **goals**:

1. To be as accurate as possible in census technique, realizing that not every animal can be counted (thus the result is a 'best estimate').
2. It is more important to monitor population numbers/trends over time in the same geographic area than to attempt comparing population numbers across different areas (where survey techniques may be different, thus preventing data from being statistically compared).
3. Survey data should be supplemented, whenever possible, by additional data from diverse, but reliable sources, including the local community, rangers and even

tourists. This should be especially considered when the expected lion population is small.

4. Survey data should include, whenever possible, information beyond total animal numbers, including data on age structure, sex ratio, condition and individual identification photographs.
5. Detailed information should be shared with others planning or conducting surveys which, in turn, will gradually enhance the reliability of lion census methodology. It is important that negative as well as positive experiences, methods and results be shared.

What is the conservation status of lions in Africa?

The group agreed that the current IUCN categories of threat are useful for assessing lion 'status' in those countries in which the Working Group members had adequate expertise. Those formal categories of threat are as follows:

- Extinct
- Critically endangered
- Endangered
- Vulnerable
- Low risk –conservation dependant
- Low risk – near threatened
- Low risk - data deficient

Using these categories, the following countries were reviewed by the group (in random order).

1. South Africa

- Estimated lion numbers:
  - Kruger National Park, about 2,000
  - Private areas adjacent to Kruger National Park, about 1,000
  - Kalahari Gemsbok National Park, about 120
  - In captivity, about 500 (40 in zoos, the rest held privately)
- Therefore, as an entire country, lions probably are at 'low risk' (conservation dependent, unlikely to go extinct in next 50 years).
- However, certain areas are likely to be 'geographic-specific' and require more attention (i.e., Natal has only about 80 lions making this particular population 'vulnerable').

2. Namibia

- Estimated lion numbers:
  - Entire country, about 340, including Etosha National Park with about 170 lions (estimated that perhaps 35-45 lions are lost from this population annually)
- Therefore, as an entire country, lions range from being at 'low risk' (conservation dependent) to 'vulnerable'.

3. Botswana

- Estimated lion numbers:
  - Okavango Delta, 1,200 to 1,600
  - Makgadigadi, about 50
  - Outside protected areas, many animals
- Therefore, as an entire country, lions are 'low risk' (conservation dependent).
- However, certain areas are likely to be 'geographic-specific' and require more attention (i.e., 'vulnerable' in Central Botswana).

4. Uganda

- Estimated lion numbers:
  - Entire country, less than 250
- Therefore, as an entire country, lions are 'endangered'.
- Certain areas are highly 'geographic-specific' (e.g., critically endangered in Murchinson Falls where there may only be 50 individuals and in Kidepo Valley where there are only 10-15 lions). The Murchinson Falls area will be surveyed in January 2000 by Makerere University. Queen Elizabeth National Park has ± 120 lions, and this report will be available in November 1999.

5. Zimbabwe

- Estimated lion numbers:
  - Data deficient given the experts at this workshop
- However, for the entire country, lions are likely to be 'low risk' (conservation dependent).
- Exceptions for geographic-specificity include the Zambesi Valley and Hwange areas.

6. Tanzania

- Estimated lion numbers:
  - Data deficient given the experts at this workshop, but information is available, especially for the Serengeti, Selous and all national parks
- For the entire country, lions are likely to be 'low risk' (conservation dependent).
- However, lions are likely to be 'vulnerable' in hunting concession areas.

7. Kenya

- Estimated lion numbers:
  - Data deficient given the experts at this workshop, but information is probably available
- For the entire country, lions are likely to be 'low risk' (conservation dependent). :

8. Nigeria

- Estimated lion numbers:
  - Approximately 200 lions remaining, but a survey is needed
- Lion populations are restricted to game reserves, with few individuals living outside protected areas. Prey availability is low, so the killing of cattle is a problem. There is a loss of lions from Nigeria to the Cameroon where there is better protection.

General comments on conservation status of lions:
It is recognized that West and Central Africa likely has few lions and is deserving of high priority surveys. There are definite gaps in available survey data for the lions of Africa, especially in Zambia, Mozambique, Central African Republic and Cameroon. These areas should be the focus of serious survey work. Smaller lion populations are not necessarily more vulnerable than larger populations. A larger area for lions does not necessarily increase the security for an extant population. There were 500 lions in the Kgagalagadi Transfrontier Park with 10% of these lions shot during a 2-year period. There are questions about how available census data are to the conservation community. The IUCN Cat Action Plan appears vague regarding numbers of cats in nature, thereby supporting the need for more surveys.

Recognition and recommendation on the issue of surveys:

First, it is recognized that there have been, or currently are, significant lion survey and research activities in progress in southern and eastern Africa. Nonetheless, this Working Group is concerned about the overall status of African lions and, therefore, recommends that this species requires need more proactive conservation attention, especially in western and central Africa. Within the known geographic range of lions (excluding countries specifically identified as having adequate information; see above), urgent data are required to assess lion conservation status. Furthermore, there are selected areas in southern Africa that require more lion surveys, with high priorities being:

- Mozambique, south of the Zambezi;
- Central Kalahari in Botswana; and the
- Zambezi Valley in Zimbabwe, specifically lower Zambezi Valley from Kariba to the sea.

Survey techniques

General comments on survey techniques: Survey methods will likely vary with geographic area. It is more important to monitor population numbers in a specific area over time, than to compare data among areas, in part, because differences in survey methods among areas prevent accurate statistical analysis. Calling stations are commonly used for lions, but do not work in low-density areas. In Makgadigadi success in terms of known lions responding to calling stations is 4%, but is 60% in the delta. Calling stations can be used to repeat assessment, thereby offering an approach for producing individual lion identifications. However, the group agrees that this approach remains problematic. A technique being tested in the Kalahari Gemsbok National Park involves spoor transects. Like for calling stations, spoor transects also require effective ground truthing. Aerial surveys for lions are not useful. There is a need to identify new techniques and to ensure that field workers are adequately trained before surveys are begun. Generating a total lion population number can be problematic when presented to the public who can easily 'misinterpret' increasing or decreasing trends. Therefore, it is important to limit the amount of information provided to the public or to ensure that the public is

adequately educated to understand the significance of the numbers generated. Prey availability is not necessarily connected/correlated to lion densities.

Is there an acceptable method for surveying lions?

There is no one survey method that is universally acceptable.

What are the current survey methods for lions?

1. Calling stations without bait

- Advantages:
  - It is unnecessary to collect bait (i.e., shoot animals to lure lions).
  - It is a quick to use method that can cover a large geographic area.
  - It can assist in surveying individuals that have been marked for identification purposes.
- Disadvantages:
  - Lions may respond, but observation reliability is likely to be lower than when bait is available.
  - Lions are observed for only a brief time, making it difficult to make accurate counts or to determine population structure.
  - There is a need for sophisticated equipment to allow quick identification.
  - There may be social disruptions from using this technique.

2. Calling stations with bait

- Advantages:
  - There is more time available to identify individual lions and to collect related data on population structure (demography).
  - The method can cover a large geographic area.
  - The method is especially useful in cases where there is a need to monitor lions over time.
- Disadvantages:
  - There is a need obtain and prepare bait, often requiring the killing of another animal.
  - The method is more costly compared to the nonuse of bait.
  - Some parks have policy against using bait to lure lions to calling stations.
  - There may be social disruptions from using this technique.

General comments on the Calling Station Method: There are many unknowns about what factors influence the success or failure of the method. Time of night, season, effect of prey availability, temperature, quality of equipment and frequency of playing sound all may play a role, but there are no quantitative data. Quality of the equipment used for sound projection appears unimportant. Lions also appear to be less active on nights with a full moon. Type of bait may be important, and the Working Group agrees that use of domestic livestock should be avoided. For example, this is a means of introducing parasites as well as allowing lions to become familiarized with livestock smells that could later cause human/lion conflict. Calling stations can result in data that are age-class and

sex-biased. In terms of types of calls, lion roars generally should not be used as these attract more territorial males. Hyena and distress calls appear equally effective. However, lions with cubs rarely respond to hyena calls. In general, the presence of bait versus no bait has no impact on the total number of lions arriving at a calling station. The impact is on time of presence of the lions at the station to collect adequate data (i.e., shorter times with no bait). Overall, calling stations have the potential of causing social disruptions within lion groups. However, this Working Group agrees that this risk is worth taking to obtain crucial data. Finally, it is recognized that both calling station methods will be ineffective in low-density areas, except when linked to the tracking of spoor.

3. Spoor transects (50 km)

Advantages:

- This technique allows traditional methods that also empower local expertise and people.
- The technique is economical, but time-consuming.
- This technique can cover large geographic areas.
- This technique can sometimes be used to recognize individual lions.

Disadvantages:

- The technique is substrate-specific (e.g., will not work on hard ground and will not work in many lion habitats).
- It is difficult to determine population structure in terms of sex and age.
- It is more likely that animals will be 'double-counted'.
- There is a need for research and refinement (currently being done by Mills et al.).

4. Aerial surveys

Advantages:

- None, with the exception that it occasionally can indicate presence/absence of lions.

Disadvantages:

- This is a low efficiency, expensive technique that provides little information.

5. Mark/recapture

Advantages:

- This technique can be combined with other survey techniques.
- It provides statistically useful data.
- It allows collecting ancillary data (e.g., on movement and dispersal).

Disadvantages:

- The technique entails marking lions which is time consuming and expensive.
- It makes assumptions that there are no births, deaths, immigration or emigration.
- Branding is a controversial subject.
- This method only shows presence of lions; no other data are collected.

6. Radiotelemetry

Advantages:

- This technique allows intensive data collection, including significant amounts of demographic data.

Disadvantages:

- It is labor intensive, and expensive equipment is required.
- There is a need for information on individual lions before radiocollars can be placed (i.e., prior knowledge on pride structure before the project can commence).

7. Fecal counts

Advantages:

- Fecal material contains much information, especially if DNA can be extracted or hormone metabolite concentrations can be measured. Also, feces are a rich source of information on parasite load.

Disadvantages:

- The material is difficult to collect due to almost immediate consumption by vultures.

8. Lion vocalizations

Advantages:

- It is easy to listen for lion vocalizations and requires no sophisticated equipment.
- It has the potential of providing information on minimum number of lions available.
- It may reveal the location of a pride or if an area has become re-populated, thereby allowing implementation of other survey methods.

Disadvantages:

- It is impossible to interpret data collected using this technique, and it is difficult to control and validate.

9. Interviewing local people (questionnaires)

- Advantages:
  - This is an economical method that takes advantage of the knowledge of local people.
  - It provides first-cut information.
- Disadvantages:
  - The process is not accurate, and reliability is low.

Recommendations on survey techniques:

1. What survey method is used depends on:
   - project objectives
   - geographic site
   - time availability
   - funds available
   - information needed
   - level of statistical reliability wanted
   - repeatability

2. In general, this Working Group does not recommend aerial surveys, fecal counts or lion vocalizations as effective survey methods.
3. The other described methods above are endorsed. However, there is a need to more systematically study survey techniques **and** especially attempt to combine at least two survey methods wherever possible for any given effort. .
4. High priorities for further considerations in the wildlife community are:
   - statistical analysis of survey data, an area that has been neglected.
   - determining and improving confidence limits/reliability of specific techniques.
   - ensuring awareness on limitations of specific methods while continuing to emphasize that the purpose of a survey is to determine **population trends** over time.
   - recognizing that more detailed information requires intensive, on-the-ground monitoring teams.
   - promoting cooperation among different stakeholders.
5. Technical options for the future need to be considered, including:
   - determining the potential of identifying individuals via spoor.
   - effective training of on-the-ground survey teams in appropriate methods.
   - exploring alternative survey methods (e.g., dogs searching for feces, pheromone monitoring, improved electronic-tracking equipment, infrared photography and other innovative ideas).

How often should lion surveys be done?

Recommendation on frequency of lion surveys:

Frequency of monitoring of lion populations is need-specific. There is no single recipe for how often a population should be surveyed. However, threatened populations certainly should be surveyed more frequently. Regardless, it is recommended, for any given geographic area, that the survey technique should be pre-selected and not changed over time, thereby allowing data to be statistically analyzed from one survey to another.

Life history issues (Topic #2, Reproduction and pride structure)

General comments on reproduction and pride structure: There is an assumption that we know all that is needed to be known about lion social structure and reproduction. Strong comments were made that we do not fully understand the basic biology and sociology of lions. Lion norms determined for one geographic area may differ from another. Examples cited were the findings of Kat et al. in Botswana which differ from previous observations by others. In these studies, there are some interesting variations from the norm, especially in terms of females returning to estrus within 4 months of birth (in contrast to normative data that this interval usually is about 18 months), and the failure of these females to become pregnant. Also new data are available to challenge traditional beliefs about the role of infanticide in this species. There also are powerful new techniques available to provide a more detailed understanding of the reproductive success, the role of Flehmen and even what holds prides together. Feces are an important

source of biomaterials for measuring steroidal metabolites (both gonadal and adrenal [stress] hormones) to address both old and new hypotheses.

Recognition of the need for more studies on reproduction and pride structure:

It is useful to challenge extant theories on lion biology because (1) there are gaps in knowledge, (2) there indeed may be geo-specific differences among lion groups and (3) new techniques are available (especially hormone metabolite monitoring) that, when combined with more traditional behavioral approaches, allow a more intensive, integrative understanding of reproductive success and pride structure in this social felid. Such basic information should be collected, as new knowledge in this area has the potential of influencing lion management actions.

General lion management issues (Topic #1, Trophy hunting in wild populations)

What are the key issues relevant to trophy hunting in wild populations?

- There is a general question of whether hunting is a legitimate management tool.
- There already are problem geographic areas where the impact of trophy hunting on large populations has been detrimental. These include Luangwa in Zambia and Mashwa in Tanzania.
- There are early data from Mashwa that hunting is disruptive to the lion social system.
- There is inadequate information on whether nomadic males (usually the 'targets' of such hunts) are really extra or 'spare' animals. Do these males play an, as yet, undiscovered role?
- There are inadequate data on the formulation or setting of hunting quotas.
- There is the question of whether ecotourism is more effective/useful than trophy hunting for helping conserve lions and other wild game.

General comment on trophy hunting: Winterbach studies suggest that population structure in hunting versus nonhunting areas is unaffected by trophy hunting activities. However, results may be biased by the survey techniques used.

Recommendation on trophy hunting:

Although it is recognized that inordinately high trophy hunting quotas are likely having a negative impact on lion populations in several areas (e.g., in Zambia and Tanzania), this Working Group recognizes that this approach may be a legitimate form of sustainable use. However, there is a gap in knowledge about developing appropriate, conservation-orientated trophy hunting, including developing quotas that do not harm lion population viability. This is a high priority issue that needs addressed in a systematic fashion, especially through more detailed discussions perhaps in a general lion conference to occur during the next 3 years (see below).

Due to time constraints, the Working Group elected to by-pass other issues identified under this topic (i.e., community conflicts and the development of eco-parks) and to move on to the next general issue.

Genetic issues (Topic #1, Lion subspeciation)

For wild lions, is there true lion subspeciation?

General comments on subspeciation: This Working Group identifies only *Panthera leo leo* and *Panthera leo persica* as lion subspecies. However, there is adequate comparative data from other species (e.g., wild dogs) that suggests that perhaps the lions of western Africa have a chance of being genetically distinctive (i.e., intermediate).

Recommendation for lion subspeciation:

There is a lack of information on the level of genetic distinctiveness of the lions of western Africa. A finding a genetic uniqueness has important management implications. Therefore, a high priority is to assess the lions of western Africa genetically. This recommendation also lends support to the Working Group's strong recommendations to survey the numbers of lions of these geographic regions. Thus, the survey should be designed to collect adequate biomaterials to allow molecular assessments. However, it also is realized that there are a significant number of western lion specimens in museums, and this material also should be used to address this issue.

Genetic issues (Topic #2, Genetic diversity)

Is there a need to be concerned about genetic diversity/inbreeding effect?

General comments on genetic diversity and inbreeding depression: It is difficult to associate declining populations with inbreeding depression. For an effect to be observed, there is a need for the population to decline to extremely low numbers, which is then followed by incestuous matings. There are significant examples from zoos showing the detrimental effects of inbreeding. Cats in general appear to be highly susceptible to inbreeding, with adverse effects occurring after one generation of sib-to-sib or parent-to-offspring mating. One of the first problems is a reduction in fertility traits, but not necessarily fertility per se. For example, inbreeding can increase the number of abnormal sperm produced by a male cat, but many sperm malformations (perhaps more than 90%) are required before fertility is actually affected. There are wild lion populations that have been influenced by inbreeding depression, including lions in Umfolozi, the Ngorongoro Crater and the Gir Forest Sanctuary. However, many suppositions are being made, and this topic often captures the attention of the public. Inbreeding may occur occasionally in natural populations, but genetic variation can be quickly restored by the introduction of a few individuals. The problem is consistent inbreeding in a small population over successive generations. There appears to be a need to pay more attention to the overall isolation of a given population. There also needs to be avoidance of the 'artificial' mixing lions of different geographic origins without appropriate genetic testing.

Recommendation on genetic variation and inbreeding depression:

Inbreeding is recognized as a real biological phenomenon that can occur in felids, including lions. However, in general, inbreeding depression is not affecting lions in nature, with the possible exception of the lions in Umfolozi, Ngorongoro Crater and the Gir Sanctuary. However, realizing that (1) many lions exist in isolated populations and (2) this fragmentation is a growing trend, then the Working Group recommends vigilance, including genetic monitoring during all scheduled surveys. To allow consistent analyses of all data, molecular assessments should be conducted in a single laboratory experienced with both felids and all modern technologies.

Genetic issues (Topic #3, Genetic analyses of prides)

General comments on genetics of prides: There appear to be significant gaps in knowledge about pride genetics. For example, the level of genetic relatedness has been studied among females, and occasionally in male coalitions and for assessing paternity. However, some studies by Kat et al. are showing that two unrelated males mate with females, but resulting cubs have only a 1% genetic relationship. Thus, such relationships are not necessarily holding prides together. Alternative hypotheses on kinship or group membership need to be tested, all of which has management implications.

Recommendation:

Research into pride structure via molecular analysis is encouraged to understand genetic relatedness effects among females, coalitions of males and for sorting out paternity. Such scholarly knowledge may have significant management value in the future.

Genetic issues (Topic #4, For captive populations)

Should genetics be managed for captive lion populations?

General comments on captive lions in southern Africa: There are approximately 500 lions in captivity in South Africa alone. Only 40 of these are in zoos, with the remainder being maintained privately for various purposes. There is no official lion studbook, although each zoo does maintain an adequate record-keeping system. It is difficult to consider the genetic management of African lions because the species is so common in this country, and because zoos commonly exchange with private holders who will refuse to cooperate with a studbook system. It also is recognized that there is a growing problem with lions being imported from other countries (often European circus origin) to be used in private breeding programs for 'trophy' hunting.

Recommendation for captive lions in South Africa:

1. Lions in captivity in South Africa maintained under the umbrella of the Pan African Association of Zoos and Botanical Gardens (PAAZAB) should be genetically

managed. This will require breeding of lions of known origin from South Africa in cooperation with the North American Species Survival Plan (SSP; with a mission of genetically managing *Panthera leo leo* from southern Africa for North American zoos). Sarel van der Merwe of this Working Group will follow-up with PAAZAB and with Tarren Wagener, North American SSP Coordinator for lions. Lions of unknown origin should be removed from South African zoos, or at the least not used for breeding programs.

2. The Working Group strongly opposes the importation of lions of unknown origin from other continents or regions of Africa for the purposes of mixed breeding with South African lions (either for zoos or for future reintroduction programs). The importation of lions is sanctioned only if there is a well-defined and positive conservation impact.

Further actions for the future

At this point in the discussion, time constraints allowed the Working Group to deal with several final concerns and actions for the future.

Concern about complacency by the public regarding the status of lions in nature

General comments about complacency and the need for more action: During earlier discussions, the Working Group made strong recommendation on the need for conservation community to pay more attention to the status of lions in nature. The IUCN Cat Action Plan indicates that lions are a high priority for conservation action. Nonetheless, no data are available indicating that the situation is deteriorating. Most importantly, the public perceives that lions are common and are not a threatened species. This attitudinal problem needs to be resolved.

Recommendations on increasing data and public awareness:

There is a need for two formal meetings, a workshop to discuss and hopefully structure a survey plan for determining lion status for western and central Africa and another larger conference to discuss in more detail many of the lion issues that were identified here in this CBSG Lion Working Group. We see the larger conference as a unique opportunity to also educate the public about the tenuous status of lions in nature. We recommend that the IUCN-World Conservation Union's Cat Specialist Group, with assistance of CBSG, lead these two initiatives. The larger lion conference should occur approximately 3-years from now, at a time coinciding with the completion of several ongoing field studies. However, the Lion Survey Workshop for Western and Central Africa is of utmost priority and should occur as soon as possible, preferably in Year 2000.

Purpose of the Lion Survey Workshop for Western and Central Africa:

To develop a **plan** for understanding conservation and genetic status of wild lions in western and central Africa.

Potential goals for the Lion Survey Workshop:

- Assemble known information by representatives bringing any available knowledge data
- Identify high priority areas for survey (where habitat is likely viable and/or sustainable populations still exist)
- Identify characteristics of extant surveys
- In cases where surveys have not been done, identify obstacles and solutions to allow surveys to proceed
- Arrive at consensus on highest priorities for immediate attention
- Construct a plan with stakeholders. Issues may include training, geo-specific methodologies, identifying resources and time lines.

General comments on Lion Survey Workshop: There is a need to conduct extensive pre-workshop discussions to identify range states and stakeholders. There is a large targeted area of countries (Cameroon, Senegal, Nigeria, Chad, Buikiufaso, Mali, Ivory Coast, Ghana, Togo, Benin, Niger, Central African Republic, Sierra Leone, Angola, Congo, Sudan, Ethiopia, Somalia, Zambia, Malawi, Mozambique, Zambia), but not all of these have adequate lion habitat, so this is important preemptive information (screening who should attend). The idea was put forth that perhaps someone should be hired to visit all range countries to identify all sources of knowledge and the stakeholders. This later was rejected as too costly and a 'top-down' approach. A workshop is likely to be more effective, even if the first meeting fails to be attended by all stakeholders. This may have to occur in small, sequential steps. There will need to be incentives to attend such a workshop. There is a need to contact the IUCN Regional Office to determine interest in participating and/or coordinating. Another approach is to consider identifying an intern to assist. This needs to be coordinated through Peter Jackson. Possible sources of funding including corporations (Lion Beer and MGM Studios) and NGOs (African Wildlife Foundation).

How to proceed with the Lion Survey Workshop

1. David Wildt, Gus Mills and Sean Austin (as members of the Cat Specialist Group) will contact Peter Jackson for comment and advice within the next 2 weeks, with emphasis on identifying a 'champion' who can take this process further.
2. A high priority is to identify a champion who can make appropriate telephone inquiries to identify appropriate stakeholders to invite and to identify a venue. A wide variety of institutions should be phoned, including governmental agencies in the range countries, NGOs and hunting organizations. Peter Jackson will be asked to identify such a person, but the Lion Working Group agrees to provide assistance, whenever possible, through its newly identified chairperson, Sarel van der Merwe. Hanlie Winterbach will be coordinator for email addresses and will work closely with Sarel (see below for email addresses).
3. It is recommended that the Cat Specialist Group, in partnership with CBSG, facilitate the Lion Survey Workshop for Western and Central Africa, and that this workshop be conducted as soon as possible, preferably in Year 2000.

ABBREVIATIONS

ALWG	African Lion Working Group
ALWG	Groupe de Travail du Lion d'Afrique
CBSG	Conservation Breeding Specialist Group
CBSG	Groupe de Spécialistes d'Elevage pour la Conservation
CEDC	Centre for Environment and Development studies in Cameroon
CEDC	Centre d'Etudes de l'Environnement et du Developpement au Cameroun
CML	Centre for Environmental Science, Leiden, The Netherlands
CML	Centre des Sciences Environnementales, Leiden, Pays Bas
CSG	Cat Specialist group
GSF	Groupe de Spécialistes des Félins
DFZH	Dutch Foundation Zoos Help
FNAZ	Fondation Néerlandaise d'Aide des Zoos
MINEF	Ministry of Environment and Forests
MINEF	Ministere de l'Environnement et des Forets
ROCA	Regional Office for Central Africa (IUCN)
BRAC	Bureau Régional en Afrique Centrale (UICN)
IUCN	World Conservation Union
UICN	Union Mondiale pour la Conservation

PROGRAMME

Saturday 2 June, 2001

9h00-12h00: Morning Session

- Welcome by Dr. F. Princée (DFZH) (Chair Organising Committee)
- Introduction by Mr. Bobo Kadiri (Direction de Faune, MINEF)
- Introduction by Mr. Daniel Ngantou (Director, IUCN Regional Office for Central Africa)
- Background information by Dr. F. Princée (DFZH)
- Workshop approach and methodology by Dr. U. Seal (CBSG)
- Introduction participants

- Coffee break

- Status of lions in Waza N.P by Mr. Bauer
- The Uganda Lion Project, by Dr. L. Siefert and Mrs M. Driciruu ;
- Human-Lion Conflicts in Benin by Mrs Etotepe Soghbosou

12h00-14h00: Lunch

14h00-18h30 Afternoon Session (Working Groups)

Sunday 3 JUNE, 2001

9h00-12h00 Morning Session (Working Groups)

12h00-14h00 Lunch

14h00-17h00 Afternoon Session (Working Groups)

17h30-19h00 Plenary

LIST OF PARTICIPANTS

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