The poorest kind of information will come from people who have traveled through an area once, and have some definite information on where elephants or their signs have been seen, but cannot provide convincing negative information. This will particularly be the case where observers are traveling by road. Although the quality of this information may be poor, it may be all that we can get for many counties, and should not be rejected.

STRUCTURE OF THE DATABASE

It is proposed that data for each grid cell be categorised into five types, as follows:

1. Density estimate
2. Elephants or sign observed - give date and type of observation
3. Not elephant range
4. No elephants recorded
5. No information

Data of a higher category will automatically replace previous data in a lower category.

The database will consist of three tables:

1. The first table consists of the basic information from data forms. Each row is a single grid cell. Columns are for county, grid cell boundaries, type of category, date (or year in the case of 'not elephant range'), type of observation (direct, dung, feeding signs, informant), observations made on foot, from vehicle or aircraft.

2. This will link to another table which summarises the above data by year and season, with a separate row for each cell in each year and season. Where there is multiple data for single cells in a particular year and season, ie a definite sign of elephants from one record, and negative data from another, the definite information will take precedence.

3. Information from Table 2 will be summarised in further tables which will be linked to maps. For an update there will be two tables, one for wet season and one for dry season (in counties where this is relevant, or where there is good enough data to make it worthwhile). This will summarise all the information over the previous five years from Table 2, giving positive values for all cells with any positive records over this time, and taking the averages of density estimates where there have been repeated surveys. For counties with poor quality information, it may be necessary to degrade the resolution from quarter degree grids to half degree or even one degree at this stage.

CONCLUSION

The update and improvement of the AED is a constant process, and one which the DRTF is continually striving to effect. By instituting this new system of data collection for distributional data into the AED, it is hoped that objectivity and an indication of data quality for elephant distribution can be introduced into the database. With more accurrate range information, the quantitative analyses which can be done can be increased, improving the accuracy and usability of outputs for users.

PRESENTATION: PREDICTING HUMAN-ELEPHANT CONFLICT

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INTRODUCTION

At its meeting in April 1997, the AfESG Data Review Task Force agreed that the African Elephant Database is ready to be used for analytical purposes, and that it should be applied to particular problems of elephant conservation. It has been suggested that the database, together with other data layers, may be used to predict where human-elephant conflict is most severe, and where it is likely to become a problem in the future.

At the Inaugural Meeting of the AfESG Human-Elephant Conflict Task Force (HETF) on 27-28 January 1997, it was agreed that one of the objectives of the HETF should be to identify existing human-elephant conflict sites. Following this meeting the database manager generated a preliminary model of conflict based on overlap between elephant range, arable farmland, and areas with a high human population density. Preliminary assessment during the AED Task Force meeting indicated that this approach might be useful, but that it would be necessary to refine the measures used to produce maps that closely reflected the situation on the ground. In particular it appeared

that the base map for arable farmland was out of date, which is a problem, because it is often in recently settled farmland that conflict is most severe. It was suggested that just using overlap between elephant range (excluding protected areas) and high densities of human population would be more useful.

OBJECTIVES

The objective of this study is to develop a descriptive GIS model of human-elephant conflict, and to use it to predict areas where conflict is likely to become more severe in the future.

DISCUSSION

A serious problem with attempting to predict areas of human-elephant conflict is that some level of conflict occurs in almost all areas where elephant range overlaps with human settlement. Even if there is no agriculture, there is likely to be some conflict over resources such as water. At present we have no standard measures of the intensity of conflict, and very little quantitative data on conflict at all, we will not be able to take a rigorous approach, and the model will have to be for illustrative purposes only.

The general approach to be used will be to vary the parameters used to predict areas of conflict in countries for which there is good information, until there is a good match with the known situation on the ground. These parameters will then be applied to countries for which there is less information, and can be commented on by representatives of these countries at the next AfESG meeting. As a result of this either modifications may be made to the range maps, or to the parameters in the model. Once we have agreed on the parameters, then we can repeat the process, using human population projections based on known rates of increase to predict areas where conflict is likely to get worse.

The other approach that we should be taking is to look for good, simple measures of intensity of conflict. At a district! provincial level we are not going to be able to get direct measures, such as total economic cost, or the proportion of total crops destroyed by elephants, but data on human deaths due to elephants may be more reliably recorded and may be related to other indices of conflict. lf there are enough data available, we might be able to do a multiple regression of human deaths caused by elephants (per thousand people per year) against human population and elephant population on a district/province basis. If there is a relationship, then one could use this to predict death rates and hence intensity of conflict. One problem with this approach is whether to include elephants within protected areas. If they are not included, the model may generate some odd results if deaths are caused by animals which spend the daylight hours (when they are counted) inside protected areas (PAs), but on the other hand, the majority of elephants inside PAs will not be involved in conflict. There will also be problems in administrative regions with a gradient in human population density, and with elephants only in part of the area, as well as where the input zones for elephant densities are different from the administrative units used for human deaths and human population density.

At this stage of development, the Task Force can do no more than see how much data there are, and decide what to do next.

DISCUSSION OF DRTF TERMS OF REFERENCE AND MEMBERSHIP

The Data Review Task Force (DRTF) is concerned with all issues relating to the management of data on elephant populations and numbers collected by, stored by, managed by, or disseminated by the African Elephant Specialist Group (AfESG). In particular, it oversees the African Elephant Database (AED) on behalf of the members of the AfESG.

As agreed to by the Group, the DRTF members are suggested by the AfESG Chair and presented to the members of the Specialist Group for approval each triennium or meeting. All DRTF members must have appropriate technical expertise in survey work and/or GIS technology. lf the need arises, the Chair can appoint an acting DRTF member until the time arises when the acting member's services are no longer required. While there is no formal Chair for the DRTF, the AfESG Secretariat is responsible for organising and co-ordinating all meetings and communications for the Task Force, and the AfESG Programme Officer is specifically charged with serving as the Secretary to the Task Force.