5.4 Conducting Interviews in the Field

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Interviews of people living in great ape range areas can provide a valuable complement to field surveys based on ecological sampling. Although interviewing people to gain information on great ape distribution and abundance may seem, and can be, a straightforward means of data collection, it can also produce useless, inaccurate information if some care is not given to methods of data collection and analysis (Werner & Schoepfle 1987). This section outlines elements of successful oral interviewing in research; written interviewing, such as through questionnaires, is not considered.

5.4.1 Research Goals

Like ecological sampling, successful use of interviewing requires a clear determination of research goals before fieldwork begins. In short, interviews can be used to gain general, qualitative information or specific, quantitative data about focal topics (Cotton 1996; Werner & Schoepfle 1987). In situations where the goal of a great ape survey is to identify areas of ape distribution or relative abundance, qualitative data collected in a semi-systematic way—in other words, opportunistically asking people where apes occur in a given area—will probably suffice, especially if interview data is meant simply to support ecological sampling. In other situations, though, when less time or other resources are available for ecological sampling, more attention should be given to collecting quantifiable interview data in a systematic manner, so that time spent in the field can yield the maximum amount of useful information. In these situations, researchers should develop formal interview scripts including question formats that can yield quantifiable responses (described below).

5.4.2 Positionality and Ethical Considerations

Interviewing is highly personal research method. Successful interviewing depends on the interviewer understanding his/her positionality (Flowerdew & Martin 1997), or the way in which personal identity and social status create an unbalanced power relationship between interviewer and interviewee. Individual researchers may be more or less effective interviewers depending on the person interviewed and the subject addressed (Burawoy et al. 2000; Werner & Schoepfle 1987). For instance, a formally dressed interviewer accompanied by a forestry agent will probably not succeed in gaining accurate information about poaching from rural farmers, but an informally dressed interviewer accompanied by a respected local resident may be more successful. Race, gender, nationality, and native language introduce much more complicated interview dynamics with regard to positionality (Burawoy et al. 2000; DeLyser & Starrs 2001). Each researcher must consider his/her personal characteristics and social standing before beginning research, and assess how these may limit his/her effectiveness in collecting interview data in foreseeable situations.

Finally, effective interviewing requires that researchers protect the identity of interviewees in situations where their participation may expose them, or seem to expose them, to any sort of risk (Rabinowitz 1993). Questions about wildlife will suggest to many potential interviewees in great ape range states the risk of being reported to conservation law enforcement officials, whether or not there is a real risk of this based on the goals and administration of a research project. Researchers should state clearly before an interview that no identifying information will be collected about the interviewee. Researchers should not collect any information about an interviewee that will allow anyone other than the interviewer to identify the source of information.

5.4.2 Linguistic Accuracy

Interviews are essentially focused, formal conversations (Cotton 1996; Rabinowitz 1993; Werner & Schoepfle 1987), and thus require accurate and well-informed use of language—potentially a significant hurdle in the linguistically diverse great ape range states. Even if a translator will facilitate interviews, researchers must independently confirm that interviews will yield the desired information—on the abundance of 'gorillas', for instance, and not 'chimpanzees' or 'monkeys'. Several steps should be taken to ensure accurate language use (Tab. 1). First, before arriving in the field, use sources such as published dictionaries and grammars, or speakers of relevant languages, to translate key words and to develop questions. Second, once in the field, test the accuracy of language identified through these sources. Third, if the vocabulary you developed prior to entering the field does not prove accurate for your purposes, collect locally appropriate terminology. To identify names for 'chimpanzee', for instance, two options exist: a) eliciting names by showing images of chimpanzees, and b) asking informants to name and describe all animals known in a given area, and identifying likely terms for 'chimpanzee' based on these descriptions (Cotton 1996). Finally, the accuracy of the language you use must be continuously reassessed. While it is easy to understand the importance of saying 'chimpanzee' accurately when interviewing, similar effort is required to determine the best way(s) to ask about great ape abundance (e.g. 'many'? 'ten'? 'more than last week'?) and distribution (e.g. 'north'? 'across the creek'? 'over there'?) because such terms may carry significantly different meanings in different languages.

5.4.3 Question Structure

Vocabulary is only the most obvious source of language-related error when interviewing. Question structure poses less obvious, but serious, problems (Rabinowitz 1993; White & Edwards 2000). In short, questions should be structured in a way that does not

suggest an answer. In other words, *leading questions*—such as "We'll find a lot of orangutans across the river, right?", or "Shouldn't we be looking on that hill for gorillas?"—should always be avoided. Similarly, questions should always be *neutral* and not include or imply judgment about local activities, regardless of how these activities may impact conservation goals. For instance, questions such as "People who hunt chimpanzees are bad, aren't they?" should always be avoided because clearly expressed opinions will influence how interviewees respond to subsequent questions.

Additionally, questions must be structured in a way that will yield usable types of information, as determined by research goals. In situations where interviews are meant only to support ecological sampling by suggesting areas of chimpanzee distribution and abundance, *open-ended questions*, which do not suggest a format or any specific content, may be most effective. These questions allow respondents to freely provide the information they deem relevant. Examples of open-ended questions include: "Do you see any patterns of where and when people encounter chimpanzees in the forest?" or "Has bonobo abundance changed since you were a child?". In contrast, *closed questions* seek specific information and often suggest a format for responses: "What is the cost of a pet chimpanzee in the regional capital?" or "Do people eat gorilla meat in your village?". Closed questions that suggest an answer format can yield specific types of quantifiable data. For instance, questions that ask informants to compare two (or more) items (e.g. "Are baboons or chimpanzees more destructive of tree crops?") can yield a similarity matrix if each informant is asked to compare several items in a series of questions, while questions that ask informants to list more than one item (e.g. "What are the most abundant animals in the forest here?") can yield a rank ordering of all responses (Cotton 1996).

Whatever question format is used, the wording of questions should be standardized so that every interviewee is asked exactly the same question (Rabinowitz 1993). Two steps are necessary to ensure the uniformity of research questions. First, draft questions should be tested with a small number of people comparable to anticipated interviewees in terms of language spoken, education, age, occupation, and gender to determine if the questions are clear and understandable. Second, once the questions have been tested and their wording finalized, this wording should be written for use as a reference in all interviews.

5.4.4 Sampling Knowledge

Successful research interviews rely on an appropriate sampling protocol (Werner & Schoepfle 1987). When interviewing is meant to support ecological sampling by identifying general areas of great ape distribution or relative abundance, the goal of research is to seek the most accurate, and not the most representative, local knowledge of great apes. Thus, in such cases, a *stratified* sample of the local human population should be interviewed—that is, informants should be selected only from the social group that has the most accurate knowledge of great ape distribution, abundance, and behavior. Keep in mind that the most accessible individuals—those willing to speak and who speak languages shared by researchers—may not have the most accurate local knowledge of great apes. In Mali, for instance, older indigenous hunters—men aged 40-60—have the best knowledge of chimpanzees, but few of these men speak French, and all are wary of speaking to outsiders about their knowledge of wildlife, for fear of legal consequences. The personal and social characteristics (e.g. age, gender, occupation, education) of stratified samples should be recorded and provided along with interview data. Information that could allow someone other than the researcher to identify an interviewee should never be recorded.

In other situations, where more representative knowledge is sought through interviewing, researchers need to develop a sampling protocol to ensure a randomly collected sample with minimal bias. In other words, all individuals in a human population should have an equal chance of being selected for an interview, because different social groups may have different knowledge of focal topics. For instance, to survey bushmeat availability in a local market, researchers should interview men and women, and people of different ages since gender or age groups may have differing familiarity with temporal, economic, or other aspects of the market. Large samples have the benefit of increased accuracy, but the drawback of increased cost in terms of time and money, so researchers must carefully evaluate research goals and limitations before establishing a sampling protocol (White & Edwards 2000). Formal sampling protocols need not be complicated, but should provide a clear, reproducible basis for generalizing about the knowledge of a whole population (Cotton 1996; Flowerdew & Martin 1997; Werner & Schoepfle 1987).

5.4.5 Interview Formats

Finally, attention must be paid to who attends and participates in interviews (White & Edwards 2000). Four formats can be recommended for interviews used in great ape surveys. First, one-on-one interviews allow an interviewer to collect information from a single interviewee. This format is best in situations—such as in studies of hunting practices—where an interviewee may avoid fully or accurately sharing information in the presence of peers or other community members. Social pressures that are invisible to a researcher can strongly affect how an interviewee reports information (Cotton 1996; Werner & Schoepfle 1987). Thus, successful one-on-one interviews depend on the exclusion of all observers.

Second, small group interviews are useful for rapidly collecting information from a specific group of people knowledgeable on a particular topic. For instance, to rapidly assess settlement history for a given area, the chief and senior counselors of a village in the area can be interviewed as a group. This format allows interviewees to correct one another and produce accurate information on topics that they feel comfortable discussing openly. The main disadvantage of this format is that differences in opinion between interviewees may remain hidden due to social dynamics amongst interviewees, so that the information yielded on some topics may remain incomplete without one-on-one interviews. Similarly, large group interviews—sometimes called village meetings (White & Edwards 2000)—are also effective for rapidly collecting much information on a given topic. However, since the composition of increasingly large groups is increasingly diverse, the results of large group interviews are more likely to be incomplete or inaccurate because the viewpoints of marginalized social groups—particularly women—may be excluded.

Lastly, interviews may be conducted in a written format through use of questionnaires. The present discussion focuses only on the use of oral interviews; the use of questionnaires in conservation research is discussed by White and Edwards (2000) and Rabinowitz (1993).

5.5 Data entry and databasing

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Recording and storing data in usable formats is crucial to successful field research. Although data entry, analysis, and storage necessarily follow data collection, researchers must consider these research steps while planning fieldwork. Planning data entry, analysis, and storage before beginning fieldwork serves several purposes. First, by carefully assessing what

information will be needed to conduct necessary and desired analyses, researchers can increase the efficiency of data collection and avoid situations where the data collected during a period of fieldwork proves insufficient to meet research goals. Second, by planning how to record and store data, researchers can reduce the risk of data loss during and after fieldwork. Third, researchers can plan data collection in ways that facilitate data entry and manipulation using computer software, speeding the analysis process. This section provides guidelines for collecting, recording, and storing data used in great ape surveys.

5.5.1 Recording observations

Taking legible, clear, and accurate field notes is the first, and perhaps most important, step in successfully field research (White & Edwards 2000). Good field notes must be understandable to others and to the researcher when used later as a reference for field observations. Legibility, of course, is crucial, but how observations are made and the language used to record observations is equally important {Rabinowitz, 1993 #1782}.

Researchers should follow several general principles when making observations and recording data {Rabinowitz, 1993 #1782}{White, 2000 #1081}. First, an absence of observation is very important information in studying animal distribution and abundance, especially when recorded properly as part of a long-term monitoring effort. If nothing relevant is observed, this absence must be recorded accurately; novice field researchers often feel unsuccessful if they fail to observe evidence of the focal species of a research effort. Second, observational uncertainties must be accurately recorded. Field researchers must record what they observe, and not what they think they observe. For instance, if a large, dark, terrestrial animal is observed during a gorilla survey, this observation should not be recorded as a gorilla sighting if the animal is not identifiable as such. Every effort should be made to

identify observed animals, but inconclusive observations can be tabulated and analyzed in the same manner as unequivocal great ape observations, thus allowing more detailed conclusions about focal populations. Third, criteria for interpreting observations must be clearly established before beginning fieldwork, written for reference during and after fieldwork, and followed throughout data collection and analysis. This guideline is especially important in great ape surveys because indirect evidence is frequently used to identify great ape presence. Individual interpretation of observed phenomena varies, and an individual's interpretation of similar phenomena may vary from day to day. By clearly defining criteria used to interpret observations—such as how chimpanzee feces is identified, why bonobo nests are considered 'fresh', or how gorilla tracks are recognized—field researchers can reduce variation in how similar observations are interpreted and recorded.

Clear and understandable field notes arise from well-planned data sheets, which help researchers collect information in a standardized way {White, 2000 #1081}{National Research Council, 1981 #1783}. Whether printed or drawn by hand, data sheets must be designed to include space for specific, general, and unanticipated information (Tab. 1). General data on the conditions of observation must be recorded for every session of data collection—for instance, each day, morning and afternoon sessions, or on different transects—and a new sheet should be used for each session. The types of specific data included on a data sheet will vary depending on research goals and methods; researchers should carefully assess how data will be collected and, if possible, test and revise the format of data sheets before beginning fieldwork. A sample data sheet for line-transect surveying is shown in Table 2 (reference to table/checksheet in Fionas chapter might be better?). Space

should be reserved on each data sheet and for each data entry for unanticipated information, under the heading ‘notes’, ‘comments’, or ‘remarks’.

In designing data sheets, researchers should make the order of data blanks as logical as possible, to facilitate both data collection and data entry on the computer. In any case, there is no single, optimum layout for a given data sheet, and researchers should adopt a format that best suits their specific needs. For instance, if a researcher finds that he/she has regularly forgotten to record a GPS point for wildlife observations, the data sheet format should be changed so that locational data is the first information written for each new observation. However, changing the format of data sheets should be avoided until fieldwork has ended for a given season or project, because such changes may lead to errors during data entry on the computer. Data sheets must be also designed to accommodate specific data on any environmental covariates that will be recorded.

5.5.2 Environmental covariates

In great ape surveys, several types of environmental data are often recorded in addition to great ape or nest observations. These environmental covariates may include vegetation, fauna, human activities, topography, and soil {White, 2000 #1081}{Rabinowitz, 1993 #1782}. In choosing which covariates to record and how these will be recorded, researchers must balance the benefits of added detail and informative value of environmental data with the costs of additional time and effort required to collect these data. Even if little time is allotted for surveying an area, some environmental data can, and should, be collected, but rarely can, or should, researchers attempt to combine a great ape survey with detailed sampling of complex covariates, such as vegetation. At the minimum, researchers should collect information on vegetation structure (e.g. terra firma forest, swamp forest, woodland,

grassland, etc.) and topography (e.g. slope <2°, slope 2-10°, slope 10-36°, etc.) for each great ape or nest observation, and on any interactions observed between great apes and other wildlife. In most cases, however, more detailed information—such as vegetation composition and all observations of other animals—should be collected.

5.5.3 Storing data

Great care should always be taken to store data, both in the field and after fieldwork is concluded. In the field, several steps should be taken to safely store and preserve data. First, all data sheets and notebooks should be stored in a secure location, protected from water damage, animals, and theft. Second, each day, copies of field data and notes should be made and stored separately from the original data sheets. Copying data by hand may be tedious, but is invaluable if the original data is lost, and is helpful for locating and correcting erroneous or illegible information while this may still be possible. If possible, data can be copied in the field by entering it into a computer, but this means of storage requires a secure power source; handwritten copies are more secure. GPS data should always be copied by hand or to a computer, and not simply stored on a GPS unit. Third, in cases where several researchers will collect data independently over the course of several seasons or years (such as an established research station), log books of observations of ventral ape infants, unusual wildlife observations, or other information should be maintained and stored in the field, so that subsequent researchers can access earlier information {White, 2000 #1081}. Maybe harmonise in the concerned sections how to store data between you and Fionas chapter!

Once fieldwork is completed, the data must be entered into the computer. At this point, computer data storage must be considered. There are numerous software packages in which data analyses relevant to great ape surveys can be performed—especially geographic

information system (GIS) and statistical software packages. Field data should be stored in a format associated specifically with the appropriate software(s), but also in a format that does not require specialized software to open. For instance, if GPS points are collected for chimpanzee observations, these data can be stored as a MapSource file (this software downloads data from Garmin brand GPS units) and as an ArcView shapefile (this GIS software performs spatial analyses), but it should also be stored in a more widely recognized format, such as a text file or an Excel spreadsheet. Whatever the formats chosen, a text file including metadata on the data files should be stored with the files, and given a descriptive name, such as "2006 Cross River gorilla survey metadata". Metadata includes information such as when and where the data was collected, the subject of the data (such as "Gorilla nest survey, Transect 5"), the name(s) of the observer(s), and the software format in which the data is stored. For larger data sets that will be used by multiple researchers, data should be stored in database software, which offers greater functionality for querying data. Researchers using such software can extract relevant data, then input this into other software formats for more specialized analyses. Once field data has been input into appropriate formats and made ready for analysis, these should be saved on CD or DVD to back-up files kept on computer hard drives. Whatever computer storage option is chosen, researchers must maintain necessary software and hardware to access digital data in the future.

Same for data naming and safing…harminise between you and Fiona.

5.5.4 GIS data

GIS software has become increasingly important in wildlife surveys. As a result, special attention should be paid to how spatial data are collected and stored. Spatial data are collected primarily through on-the-ground use of GPS units, analysis of remotely sensed

images, digital maps, and publicly accessible databases (although few of these are available for great ape range states) {Burrough, 1998 #1210}. If satellite images, digital maps, or public databases are used in research, some level of ground truthing must be conducted to ascertain the accuracy of these data sources {Chen, 2001 #1078}. On-the-ground use of GPS units is an extremely important means of collecting spatial data in great ape surveys, and locational data should be collected for every great ape and nest sighting during a survey. As with any data, care is necessary to ensure the safe storage and future usability of spatial data. However, due to its unique nature, additional metadata is required to successfully and appropriately use spatial data, such as the map datum and coordinate system used in each data source {Burrough, 1998 #1210}{Chen, 2001 #1078}.

Figure Legends:

Figs. 1a and 1b. Front and back views of a GPS with the external antenna firmly taped onto the body of the unit, protecting the connection and preventing movement.
This refers to the photos "scotching the antenna on- back" and "scotching the antenna on-front"

Fig. 2. Side view of the GPS unit in its canvas case, showing how the antenna lies flush with the body of the unit.
This refers to the photo "GPS canvas bag and belt loop"

Figs. 3a,b,c. Use of GPS with external antenna passing under shirt and under hat: note cap bill faces backwards to allow maximum detection of tree nests; hands are free for taking notes; GPS unit in carry case on belt within easy reach.

This refers to the three photos "GPS antenna under hat and hands free", GPS cable under shirt at back of head" and "GPS cable under shirt".

Fig. 4. External antenna should be carefully folded around unit, not bent double or knotted.
This refers to the photo "Storage of antenna cable"

Table 1. Assigning a tracklog interval to field trips.

Field days at 8 hours / day	**Minutes of continuous use**	**Tracklog interval (minutes: seconds)**
1	480	0:30
2	960	1:00
7	3360	3:20
10	4800	4:50
14	6720	6:40
30	14400	14:20
60	28800	29:00

Table 1. Steps to accurately identifying local terms used for interviews. In this example—the actual experience of conducting an assessment of chimpanzee distribution in Mali based on interviews of Maninka-speaking hunters—each research step (further described in the text) is illustrated by the research effort undertaken and its result. Italicized words are Bamanan or Maninka terms used in the research. Similar effort is necessary to identify quantitative or locative terms used in interviews, not just nouns.

Research step	Research effort	Result
1: Published sources	Dictionaries of a related language, Bamanan, used to identify possible Maninka terms	*woronin* identified
2: Field test	Informal interviews used to determine if	*woronin* rejected

possible terms	"*woronin*" recognized	
3: Collect local terms	Images of chimpanzees from a field guide used to elicit Maninka terms	*démoun* identified
4: Reassess local terms	Interview results studied to assess accuracy and clarity of "*démoun*"	*démoun* accurate, but *dégémoun* ('ratel') identified as confounding term

Table 1. General, specific, and unanticipated data. The data categories listed below are not exhaustive, but only provide an indication of categories that should be included.

Type of data	Categories	Use
General	• Date • Name of observer • Name(s) of assistant(s) • Transect/area surveyed • Start time of observation • End time of observation • Weather conditions (record changes in specific data columns) • Habitat type (record changes in specific data columns)	• Include on every data sheet • Record for every new observation session
Specific	• Observation number • Time • Location (GPS coordinates) • Habitat type • Species (or ape nest) observed • Number observed • Number observed per sex • Condition of nests • Tree species hosting nest	• Specific data categories depend on research goals and methods, including environmental covariates
Unanticipated	• Notes/comments/remarks	• Include for every sheet and entry

Table 2. Sample data sheet for line-transect surveying. This format is meant for data collection in a line-transect survey, and is adapted from Burnham et al. {, 1980 #1784: 34}, National Research Council {, 1981 #1783: 229}, and Buckland et al. {, 2001 #1785: 277}. Abbreviations: observ.=observation; no.=number; juv.=juvenile; unk.=unknown.

Date: _____	Start time: _____	End time: _____	Data sheet no.: _____
Observer: _____	Assistant(s): _____		
Transect no.: _____	GPS start point: _____	GPS end point: _____	Length: _____
Study area: _____	Habitat type: _____		

Weather conditions: _____
Notes: _____

Observ.	Group size				Perpendicular distance (m)					Notes
no.	Adult	Juv.	Unk.	Nest	0-10	10-20	20-30	30-40	40-50	
1										
2										
3										
etc.										

Works cited

White, L. J. T. & A. Edwards, eds. 2000. *Conservation research in the African rain forests: a technical handbook*. New York, Wildlife Conservation Society.