Camera Trapping Census Background

Namibia has the world's largest free ranging cheetah (*Acinonyx jubatus*) estimated to be between 2000 to 5000 individuals. The species is classified as Vulnerable by the Convention of International Trade of Endangered Species (CITES) and as a protected game species in Namibia. Despite being protected, the cheetah's long term survival remains uncertain due to direct persecution, sociality which enables removal of entire social groups, loss of habitat and prey, as well as poor implementation of current legislative framework. This situation is exacerbated by the fact that the species lack a reliable surveying technique, which presents a limitation when designing and developing conservation and management strategies.

Cheetah abundance and density was previously estimated using direct methods including sightings with photography and radio telemetry. Indirect methods include spoor tracking and interviews and questionnaires. This diversity of methods is partially due to the practical limitations of surveying a wide range, secretive and wary species such as the cheetah. Consequently, derived results may be considered to be less precise and accurate, essentially for those derived through indirect methods. On the other hand, this diversity may be due to individual countries environmental characteristics or simply the lack of conservation planning at large scales (e.g. regional level) for the species. Therefore, the need for identifying a reliable, cost effective and repeatable technique for estimating cheetah abundance or density continues to be a field of further research.

Remote camera trapping (RCT) has been widely used for estimating carnivores abundance and density by many ecologists and conservationists after the pioneering work on tigers (*Panthera tigris*) in India. This technique can be used to estimate cheetah abundance when placed at scent marking posts (e.g. playtrees). However, no studies yet have provided density estimates (thus no indication to whether the closure capture assumptions can be

upheld) and all have been in small areas. Consequently, this study goes a step further, as it evaluates the technique feasibility for estimating not only abundance but density for free ranging cheetahs. This evaluation is vital, as cheetahs on most range countries tend to be outside protected areas.

Therefore, the study aim was to evaluate the feasibility of using passive remote camera trapping for estimating free ranging cheetah abundance and density. The study is part of CCF's long-term cheetah censusing research whose objectives are to (1) investigate different sampling aspects of surveying cheetahs using RCT, (2) test the capture-recapture assumptions, (3) estimate cheetah abundance, and (4) compare density estimates based on effective sampled areas determined using the mean maximum and maximum distance moved to those determined using the home range radius as buffer value. Home range radius would be based on historical radio tracking estimates as well as on those of GSM collared during the 2007-2008 surveys. Other questions being addressed include: the role of scent marking behaviour on cheetahs, effect of social group on marking behaviour, whether (how) marking behaviour is influenced by season, year and inter and intra-specific individuals and trends on demographic aspects (i.e. abundance, density, population composition).

CCF Cheetah Census Data Entry 2010/11

How to enter the data from the photos:

1. Open one of the folders on the DVD. Double click on the first photo so it is enlarged. As you look at each photo, enter it into the spreadsheet.

2. To enter into spreadsheet: Open the attached Excel Spreadsheet. Make sure that "Macros" are enabled.

Once the spreadsheet is open, press "Control L", this should open up the macro screen.

How to fill out the Macro screen:

- **Film Roll Number:** Leave blank (now we are using digital cameras, not film)

- **Station Number:** This is the name of the folder (ex: BBNO1B). Choose from the scroll down options

- **Photo Number:** Enter 0 (zero).

- **Exposure Type:** This describes what the photo is of. If there is an animal in the photo, choose "Animal appears in photo." If there is a person or car, choose "error picture," If the photo is completely white (very overexposed, can't see anything), choose "photo is blank." If the photo is just of grass/the environment (due to the camera being triggered by grass movement), choose "No animals, person, or vehicle." Most of these photos on the DVDs should be of animals (blanks and people should have been already removed, but sometimes one or two slips through accidently).

- **Species:** Click on the box next to the species name that describes the species present in the photo. If you don't know what the species is, then click on the box by "Unsure."

- **Number of Individuals:** Enter the number of individual animals present in the photo

- **Date:** Enter the date when the photo was taken (see bottom right of the photo). Note that for the macro, enter the date as date/month/year, even though for most of the photos, it will show it as month/day/year.

- **Time:** Enter the time when the photo was taken (see bottom right of photo)

- **Comments:** Write the number of the photo (see bottom left). Because these cameras are digital and are set for rapid fire, there will often be multiple photos of the same animal, and the animal hasn't moved. To avoid having to enter each individual photo of that sort, there's a short cut: If, for example, there are photos of the **EXACT SAME** kudu from photo number 22-30, instead of entering the

same information 9 times, under comments, type : photos 22-30. Then continue to the next animal. But, if a second kudu joins that first one, you will have to enter all the information again. (**So for "grouping" photos, the photos in the group all have to have the same individuals**)

However, for entering data on **cheetahs, leopards, serval, caracal, African wild cat and brown hyena**, each photo WILL need to be entered individually. Under comments, please note if the cat has a collar and describe the behavior, for example:

--spraying tree
--spraying camera
--sniffing tree
--sniffing ground
--scratching tree
--scratching ground
--investigating camera
--defecating on ground
--defecating on tree
--climbing tree
--walking
--sitting
--laying down

(This is so we can analyze the behavior of these carnivores at these trees.)

When all the information has been entered into the form, click "Enter Data."

 At this point, the data will be entered into the excel spreadsheet and the form will reset. Please note that the macro will go ahead and assume the number of the next photo being entered, however, most of the time you will be entering a different photo number—so please pay attention and make sure the number that appears in "photo number" is correct.

If you have ANY questions at all, please do not hesitate to ask me via email at katherine.forsythe@gmail.com and I will get back to you immediately. Thanks SO much for your help, it is greatly appreciated!!