

# Population size and genetic variability of lions in Nigeria

End of year report 2010

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Field work was carried out between October 2009 and June 2010, and then again in November and December 2010. In total 118 days (944 hours) was spent for data collection in the field in Yankari Game Reserve and 14 days (112 hours) was spent in Kainji for data collection.

TT spent the period 25<sup>th</sup> June to 1<sup>st</sup> Nov in Lund to carry out data analysis.

During fieldwork in Kainji Lake National Park there was no observation of lion while in Yankari there were seven different observations of single male with a mane (once) and female (thrice) as well as an observation of a pride made up of a male with a well developed mane and a female with two cubs. This pride could be same individuals splitting up at different times within the same core area.

All in all a total of 350 samples were collected both from Yankari Game Reserve and Kainji Lake National Park. Between mid June and end of October analysis was carried out in Lund where 308 samples were extracted, 228 were checked for the presence of DNA and 198 were found to contain high quality DNA, while 30 samples did not amplify at all.

The samples found to contain DNA were run for species identification, in order to ascertain samples that belong to lion due to the presence of other carnivores in the field. 66 samples were found to belong to the spotted hyaena (*Crocuta crocuta*) while 132 were lions.

Microsatellite analysis has so far been performed on 93 of the samples that were found to belong to the lion, for individual identification in order to estimate number. Two new individuals were identified in Yankari in 2010, while 5 new individuals were identified in Kainji lake National Park with "retraps" of some individuals that were sampled in 2008 and 2009 encountered again in 2010.

Between 2008 and 2010, a total of 17 unique individuals have so far been identified from Yankari Game Reserve, with 2 retraps of samples collected in 2008 and 8 retraps from 2009 with two new individuals identified. If you use a trap re-trap approach on these you will get an estimate of about 20-25 individuals in Yankari. This is lower than the 30 estimated last year, though it's hard to tell if this is a real decrease due to the small sample size.

In Kainji Lake National Park a total of ten individuals have so far been identified between 2009 and 2010 where 5 individuals that were sampled in 2009 were resampled again in 2010, while 5 were new individuals. You can use the trap re-trap approach here too and the result will be a population size within the same range as in Yankari.

Through collaboration with some colleagues in Holland, samples have been received from Waza National Park. These collected samples are pending until June or there about when I return to Lund, for analysis for individual identification and determination of the level of gene flow between the population of lions that are found within there and the Nigerian lions, since the North eastern part of Nigeria shares border with the Northern part of Cameroon where these lions are found.

80 of the extracted samples is yet to be confirmed for species identification and about 42 faeces yet to be processed are still in the freezer for completion of analysis. This will be done when I return to Lund in June

Apart from faecal sampling collections, normal observations and photos have been taken to identify individual lions from whisker patterns. A pilot project using camera traps have also been initiated, where an adult male with a well developed mane was captured on one of the mounted cameras.

Thanks to a generous contribution from the Van Tienhoven Foundation, The Netherlands, we could purchase two satellite transmitters which we had planned to fit two female lions in June. A collaring team with a veterinary doctor and a researcher from Holland will be involved for this collaring. However, the mission had to be postponed in the last minute because we did not get the permission from the Bauchi State authorities. This collaring is now planned for 2011 instead.

In May we found a lioness with two relatively new born cubs, together with these an old male with a mane were also seen frequently.

In December one young male, likely one of the ones above was found impoverished and with scars and later dead, probably because of injuries sustained in a fight either with another lion or maybe a prey.

Break down of costs, apart from salary and costs in Yankari which are paid by APLORI.

<b>Topic</b>	<b>Naira</b>	<b>Euro</b>	<b>SEK</b>
Lab costs in Lund			82000,00
Travel to Lund, partly using UO air miles		828,26	7500,00
Stay in Lund 8500 SEK/month			25500,00
Trip to Kainji	168000		8200,00
Trip to Kameroun	160000		8000,00
<b>Total</b>			<b>131200,00</b>

Kehlen, Thursday, 31 March 2011

Ulf Ottosson