RESOURCE SURVEY OF XIMENIA SPECIES IN GEORGE MUKOYA AND MUDUVA NYANGANA CONSERVANCIES IN KAVANGO REGION

10-12 MARCH 2010

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INTRDUCTION

This report is of the resource surveys that was carried out on Ximenia species at George Mukoya (GMC) and Muduva Nyangana (MNC) Conservancies in Kavango Region from 10th- 12th March 2010. The survey was conducted to estimate population density of Ximenia species in above-mentioned Conservancies.

The surveys were conducted by Mbazo Motlhaping, assisted by the Senior Resource Monitor and Ximenia secretaries from the villages, at GMC and by members of the Conservancy Management Committee and Ximenia secretaries at MNC. Ranger Willy Makena from MET Rundu (Ministry of Environment and Tourism) assisted with transport.

SURVEY OBJECTIVE

To obtain an estimate of populations quantities on Ximenia species in the above- mentioned Conservancies. The surveys were done randomly and not in areas were the ongoing phenology survey is done. Four villages in George Mukoya and two villages in Muduva Nyangana were surveyed.

METHODOLOGY

As the survey objective is to obtain an estimate of population quantities, transects in 2 compass directions (North-South and East-West) were conducted. Each transect was a multiple of 100m steps long (100 steps= 65m) and 2m wide. Transects length was either 300 steps or 200 steps depending on the number of plant found during the first 100 steps walked: if less than 4 or 5 plants were found, transects were shortened to 200 steps only. At each site, two transects (one cross) were conducted.

Transects were semi-random, i.e. starting points were selected randomly but nearby village's areas where Devil's Claw occurs. This is because Ximenia survey was done in addition of a Devils' Claw survey. This is also the reason why not all the villages were included in this survey.

The field survey was conducted between 4th and 12th March 2010, the same time with the Devils' Claw surveys.

The two different species of Ximenia shrubs found in this region was distinguished based on local knowledge of the Ximenia secretaries.

RESULTS

There were 114 *X. americana* and 40 *X. caffra* shrubs recorded in GMC villages and 40 *X. americana* and 13 *X. caffra* shrubs in MNC villages during the surveys.

A total of 24 transects were carried out. This represents a total collection area 329550 sq. m. and transects area of 3900 sq. m.

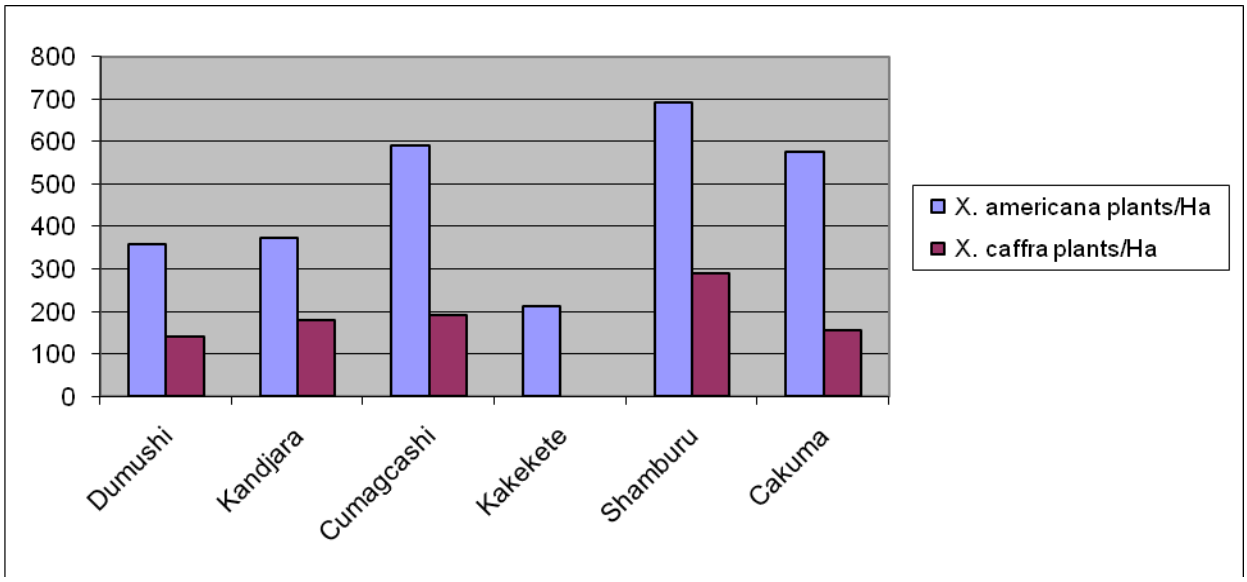
Calculations

To estimate the population density of Ximenia plants per hectare, certain calculations were made.

The collection area was first calculated to get area covered during the survey. This is calculated by dividing the total length walked per site by the number of transects which gives the mean length of all transects and which in turn is multiplied by itself.

The number of plants per transect differs, so average of plants per transect is needed to calculate the average plants per hectare. To get the average plants per hectare, one should divide all plants counted in all transects per sites by the number of transects walked. To get the sum of the mean plants per square meter, divide the average plants per transect with sum of the mean length of all transects that is multiplied itself. For the sum of total plants per hectare, mean plants per square meter are multiplied with 10000.

Below are the results of total plants per square meter that has been calculated from the data from the conducted surveys:



SUMMARY/COMMENTS

This survey was done randomly and did not focused at areas were Ximenia is usually harvested by local communities. Species of Ximenia, *X. americana* and *X. caffra* were distinguished, and the identification of varieties in the species was not done.

The survey data is considered adequate for the purpose of the study, but it does not represent all villages in both Conservancies, although it shows that both species do occur and are abundant in both Conservancies. It also indicates that *X. americana* is more widespread and abundant than *X. caffra*. This finding coincides with findings from West Caprivi (Burke, 2009).

It might be a necessity to conduct a thorough resource survey in both Conservancies to estimate the average population density, covering, age class, traditional harvesting areas and non harvesting areas picked randomly.

REFERENCE

Burke, A 2009. Ximenia Survey in East Caprivi. IRDNC intern report.

Appendix 1

	CO ORDINATE														
VILLAGE	**S**	**E**	**Multiples of 100 steps N/S**	**Multiples of 100 steps E/W**	**TOTAL N/S (m)**	**TOTAL E/W (m)**	**TOTAL N/S & E/W**	**No OF TRANSECT DIRECTIONS**	**No OF TRANSECTS**	**MEAN LENGTH OF ALL TRANSECTS**	**COLLECTION AREA (SQ M)**	**No OF PLANTS**	**AVERAGE NUMBER OF PLANT PER TRANSECT**	**TRANSECT LENGTH X TRANSECT WIDTH**	**MEAN PLANT NUMBERS (SQ M)**
Dumushi	18.1458	20.5149	3	3	195	195	390	2	2	195	38025	28	14.00	390	0.04
Kandjara	18.1058	20.4652	3	3	195	195	390	2	2	195	38025	29	14.50	390	0.04
Cumagcashi	18.2321	20.4844	3	3	195	195	390	2	2	195	38025	46	23.00	390	0.06
Kakekete	18.1902	20.5658	2	2	130	130	260	2	2	130	16900	11	5.50	260	0.02
Shamburu	18.1649	20.5858	2	2	130	130	260	2	2	130	16900	36	18.00	260	0.07
Cakuma	18.0751	20.5658	2	2	130	130	260	2	2	130	16900	30	15.00	260	0.06