Status of Suleiman Markhor and Afghan Urial on the Torghar Conservation Project

An Interim Progress Report

By

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and

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Suleiman markhor in the Torghar hills, Balochistan, Pakistan 2011 (© Luc Belon 2011)

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Fall 2011 Torghar Conservation Project survey team, Tanishpa, Pakistan.

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Introduction

The Torghar Conservation Project (TCP) was initiated in 1984 with the goal of conserving the unique biodiversity of a 1,000 km^2 portion of the Toba Kakar Range in Balochistan, Pakistan. Of immediate initial concern was the conservation of rapidly declining populations of Suleiman markhor and Afghan urial. While still an important aspect of the TCP, successful conservation of markhor and urial has evolved into a more diversified approach involving the biota of Torghar. The successful conservation effort within the TCP has also benefited the lives of native peoples living within the Torghar hills. These accomplishments have been well documented; rather than repeat them, we refer readers to Johnson (1997a) and Frisina and Tareen (2009).

Our purpose is to briefly report on progress during 2011 in the ongoing effort to monitor markhor and urial populations to ensure their sustainability. The reader should keep in mind that this is an interim report; some results may change slightly as more comprehensive data analysis is completed.

Fall 2011 Population Surveys

Using protocols for population monitoring established by Johnson (1997b) and Frisina et al. (1998), we estimated population abundance and productivity for markhor and urial during November 2011.

Markhor

The number of markhor observed for each survey site is summarized in Table 1.

Table 1. Markhor observations by survey site for the fall 2011 census.

					MALES				
AREA	TOTAL	UNCL	KIDS	FEMALES	MALES	1-2 Yrs	2-4 Yrs	5-6 Yrs	>6 Yrs
Tanishpa									
Malao	279	0	64	128	87	16	0	24	47
Arth	56		19	28	9	1	3	4	1
Garai	26	0	4	20	2	1	1	0	0
Shin Narai	0	0	0	0	0	0	0	0	0
Khand	6	0	3	3	0	0	0	0	0
TOTAL	367	0	90	179	98	18	4	28	48
Kundar/Uria									
Oria	60	0	13	36	11	0	1	5	5
Salawata	26	0	5	13	8	1	2	2	3
Zercha	0	0	0	0	0	0	0	0	0
Surkham	96	5	25	40	26	0	19	1	6
Murdar	56	0	18	38	0	0	0	0	0
TOTAL	178	5	61	127	45	1	22	8	14
Tor Ahgbarg									
Walla	0	0	0	0	0	0	0	0	0
Saliwata	0	0	0	0	0	0	0	0	0
Whuchakai	0	0	0	0	0	0	0	0	0
Bazili	9	24	2	4	12	6	3	3	0
Saiduchina	5	5	2	3	0	0	0	0	0
Kazhaguzha	8	17	2	3	8	4	2	2	0
TOTAL	22	46	6	10	20	10	5	5	0
GRAND TOTAL	**567**	**51**	**157**	**316**	**163**	**29**	**31**	**41**	**62**

Table 1 data was used to calculate a markhor population estimate for fall 2011 based on protocols used during earlier surveys (Johnson 1997b, Frisina et al. 1998, Frisina 2000, Shafique 2006, and Arshad and Khan 2008). The 2011 estimate was then compared to earlier estimates to monitor population trend. Markhor population trend is upward (Figure 1.); the rate of increase appears to be slowing down which is typical of a population reaching habitat carrying capacity (Krausman 2002). Productivity was good in 2011 with an observed kid:adult ratio of 49.7:100.

Twenty-nine percent of markhor observed were males, with 18% of them greater than 5 years old (Table 1).

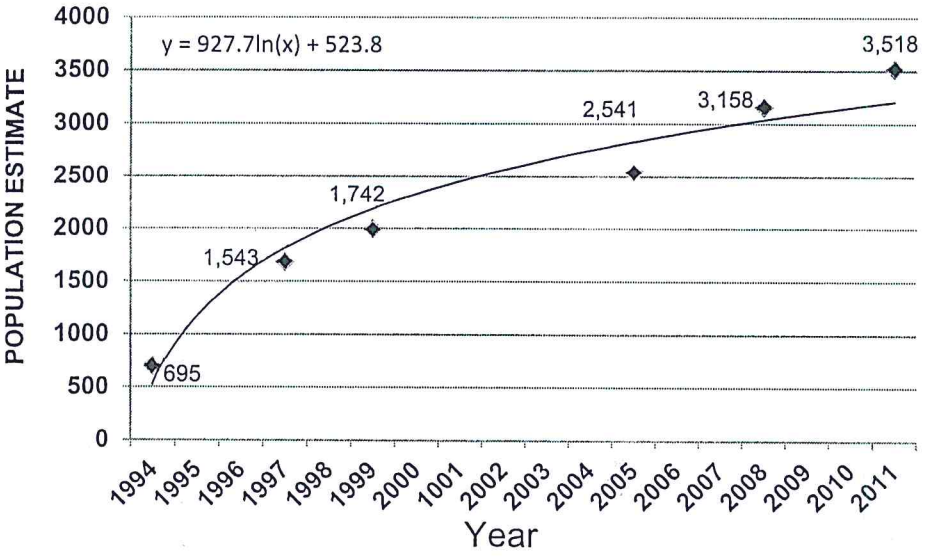

Figure 1. Markhor population trend for the Torghar Conservation Project 1994 through 2011. (Data for 1994-2008 from Johnson 1997b, Frisina et al.1998, Frisina 2000, and Arshad and Khan 20008).

Urial

The number of urial observed for each survey site is summarized in Table 2.

Table 2. Urial observations by survey site for the fall 2011 census.

					MALES				
AREA	**TOTAL**	**UNCL**	**LAMBS**	**FEMALES**	**RAMS**	**1-2 Yrs**	**2-4 Yrs**	**5-6 Yrs**	**>6 Yrs**
Tanishpa									
Malao	31	1	2	19	9	0	0	1	8
Arth	0	0	0	0	0	0	0	0	0
Garai	0	0	0	0	0	0	0	0	0
Shin Narai	23	0	2	12	9	2	2	2	3
Khand	7		2	4	1	0	1	0	0
TOTAL	61	1	6	35	19	2	3	3	11
Kundar/Uria									
Oria	25	0	5	15	5	0	0	3	2
Salawata	0	0	0	0	0	0	0	0	0
Zercha	0	0	0	0	0	0	0	0	0
Surkham	35	0	10	19	6	0	0	2	4
Murdar	79		16	46	17		8	7	2
TOTAL	114	0	31	80	28	0	8	12	8
Tor Ahgbarg									
Walla	16	0	4	8	0	2	1	1	0
Saliwata	0	0	0	0	0	0	0		0
Whuchakai	15		4	9	0	1	1	0	0
Bazili	18	0	5	8	6	3	2	1	0
Saiduchina	6	0	3	3	0	0	0	0	0
Kazhaguzha	0	0	0	0	0	0	0	0	0
TOTAL	55	0	16	28	6	6	4	2	0
GRAND TOTAL	**230**	**1**	**53**	**143**	**53**	**8**	**15**	**17**	**19**

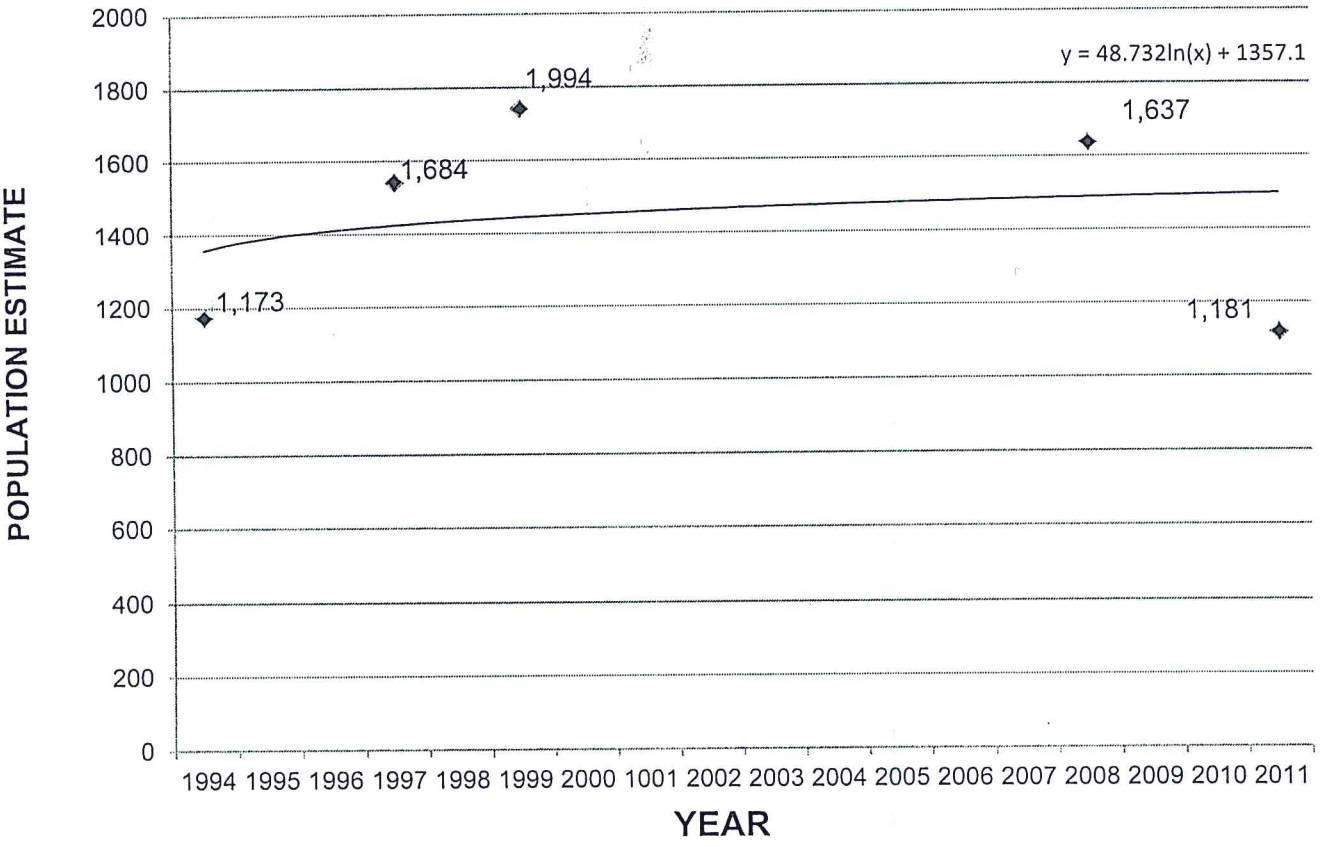

Figure 2. Population trend of Afghan urial within the Torghar Conservation Project. (Data for 1994-2008 from Johnson 1997b, Frisina et al. 1998, Frisina 2000, and Arshad and Khan 2008).

Table 2 data was used to calculate a urial population estimate for fall 2011 based on protocols used during earlier surveys (Johnson 1997b, Frisina et al. 1998, and Frisina 2000). The 2011 estimate was then compared to earlier estimates to monitor population trend. Urial population trend appears to be stable and at carrying capacity, fluctuating between about 1,200 and 2,000 depending on year. This amount of variation is to be expected considering the extreme environmental changes frequently occuring at Torghar. Productivity for fall 2011 was fair with an observed ratio of 37 lambs:100 adult females.

The urial population range overlaps with ranges used by domestic livestock much more than does the markhor range. When environmental conditions are severe (i.e. drought or severe winter) both domestic livestock and urial are stressed. Domestic livestock may have the advantage of consuming forage on urial winter range sites prior to urial arriving at the sites. In other words, in some years urial may be left to eke out an existence on sites where most of the forage resource for the year has already been consumed by domestic livestock. It may be possible to increase the carrying capacity for urial and dampen the magnitude of population size fluctuation if changes in livestock management recommended by Frisina et al. (2002) are implemented.

Markhor populations and domestic livestock have minimal range use overlap and the markhor population does not seem to experience such fluctuations (Figure 1.)

Twenty-three percent of urial observed were males, with 16 percent of them being greater than 5 years old (Table 2). Urial lifespan might not be as long as markhor because of differences in habitat conditions.

Conclusions and Recommendations

1. The markhor population and its habitat are secure under the current management scenario. Maintenance of conservative hunting quotas and continued vigilance in minimizing overlapping habitat use between markhor and domestic livestock are the keys to maintaining sustainability.
2. Since the markhor population appears to be rapidly approaching habitat carrying capacity, removal of some animals as transplant stock to establish a new population of Suleiman markhor within the species historic range should be seriously considered. The appropriateness of this obviously depends on locating an area of suitable habitat with local support. The Torghar population is currently the largest in existence; conservation of the species would benefit from the establishment of additional populations.
3. Implementation of a carefully planned rotational grazing system for domestic livestock should be considered as a means to improving urial habitat. Through a rotational grazing system it would be possible to set aside forage within the rotational system for urial during key times of the year (Frisina et al. 2002).
4. Completion of a detailed survey of markhor and urial habitats within the TCP is advisable (Frisina 2000).
5. Completion of the detailed analysis of population data by survey site, for each survey since the program began, is essential to address any potential adjustments in the survey protocol that might be needed (Frisina 2000).

6. Development of a series of protocols and providing training for locals to collect physical measurements, disease, and parasite information from all markhor and urial harvested by hunters is especially important in order to monitor age structure and horn quality of trophies (Frisina 2000).

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