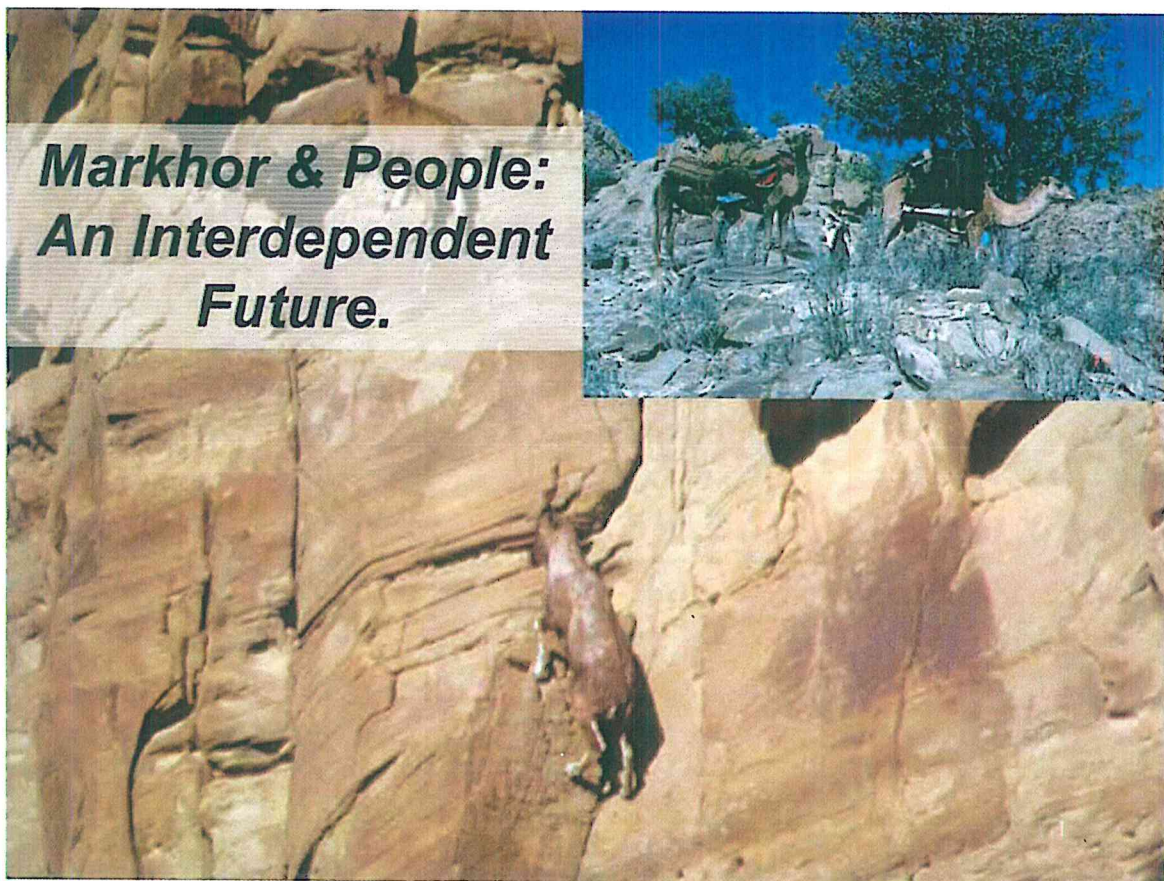


**Straight Horned Markhor and Afghan Urial Population
Monitoring on the Torghar Conservation Project,
Balochistan, Pakistan**

by Michael R. Frisina and Tahir Rasheed



September 2011

*A progress report to Safari Club International Foundation from The Society for
Torghar Environmental Protection and August L. Hormay Wildlands Institute, Inc.*

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Introduction

The Torghar Conservation Project (TCP) is located in the Toba Kakar Range of northeastern Balochistan (Figure 1.) and was initiated in 1984 to save indigenous populations of straight horned markhor (*Capra jerdoni falconeri*) and Afghan urial (*Ovis orientalis cycloceros*) from extirpation (Mitchell and Frisina 2007, Frisina and Tareen 2009). The TCP is managed by the Society for Torghar Environmental Protection (STEP) and has successfully conserved straight horned markhor and Afghan urial inhabiting project lands. Torghar is currently home to the world's largest population of straight horned markhor (Frisina and Tareen 2009). STEP's Conservation accomplishments at Torghar are well documented and the TCP is the most successful and well documented sustainable-use conservation project in central Asia (Frisina and Tareen 2009).

An important aspect of population monitoring within the TCP has been periodic population surveys to monitor population size, structure and health. The first systematic survey was conducted by Kurt A. Johnson in 1994, a professional biologist sent by the U.S Fish and Wildlife Service to determine the status of straight horned Markhor and Afghan urial (Johnson 1997). Subsequent surveys were conducted from 1995 to 2008 by Michael R. Frisina, Charles Woods, and Michael Woodford of the USFWS, Chaudry M. Shafique of the Zoological Survey Department, Pakistan and Masood Arshad WWF-Pakistan (Johnson 1997, Frisina et al. 1998, Frisina 2000, Shafique 2005, Arshad and Hussain Khan 2008). Regular population surveys are needed to determine trend, composition, density, carrying capacity, and population dynamics of both ungulate species. In 2010 Safari Club International Foundation partnered with STEP by providing funding for enhanced population monitoring surveys. Here we report on progress during 2011 resulting from this partnership.

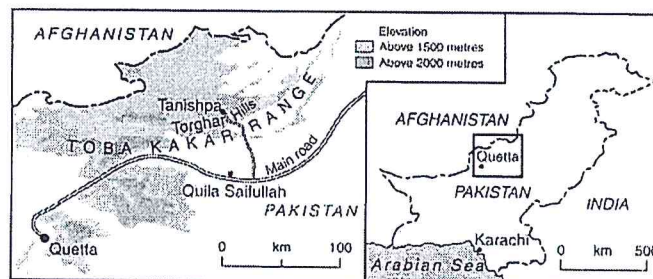


Figure 1. Location of the Torghar Conservation Project.

Urial and Markhor Populations

Spring Survey

The population monitoring protocol for Torghar emphasizes periodic fall surveys during the breeding season to estimate population levels (Johnson 1997, Frisina et al. 1998, Frisina 2000, Shafique 2006, Arshad and Hussain Khan 2008). Frisina et al. (2006) recommended that Torghar staff begin conducting spring surveys shortly after newborns become visible in order to better understand urial and markhor population dynamics and survival of young-of-the year. The first such survey was conducted during June 2005. Here we report results of a second spring survey that was conducted during late-May 2011 by Torghar staff and others involving 6 field teams (Appendix I). Survey data for markhor and urial are summarized in Table 1 and Table 2, respectively.

Table 1. Markhor observed during the spring survey, May 23-26, 2011.

AREA	TOTAL	UNCL	KIDS	FEMALES	TOTAL MALES	Yrlg	<6 years	≥ 6 years
Tanishpa:								
Malao	117	0	20	74	23	16	4	3
Arth	138	13	20	40	65	7	53	5
Shin Narai	0	0	0	0	0	0	0	0
Garai	96	0	13	58	25	0	21	4
Khand	10	0	2	3	5	0	2	3
Total	361	13	55	175	118	23	80	15
Kundar:								
Oria	11	0	1	2	8	0	0	8
Salawata	2	0	0	0	2	0	0	2
Zercha	0	0	0	0	0	0	0	0
Surkham	8	0	0	6	2	0	2	0
Murdar	17	0	3	14	0	0	0	0
Total	38	0	4	22	12	0	02	10
GRAND TOTAL	399	13	59	197	130	23	82	25

Table 2. Urial observed during the spring survey, May 23-26, 2011

AREA	TOTAL	UNCL	LAMBS	FEMALES	TOTAL MALES	Yrlg	<6 years	≥ 6 years
Tanishpa:								
Malao	0	0	0	0	0	0	0	0
Arth	27	2	9	11	5	1	4	0
Shin Narai	36	8	13	11	4	4	0	0
Garai	38	0	9	25	4	0	2	2
Khand	10	0	1	5	4	0	2	2
TOTAL	111	10	32	52	17	5	8	4
Kundar:								
Oria	6	0	2	1	3	0	0	3
Salawata	0	0	0	0	0	0	0	0
Zercha	0	0	0	0	0	0	0	0
Surkham	50	0	16	31	3	0	3	0
Murdar	13	0	4	7	2	2	0	0
TOTAL	69	0	22	39	8	2	3	3
GRAND TOTAL	180	10	54	91	25	7	11	7

Markhor

Of 399 markhor observed 386 were classified by age and sex (15% lambs, 51% females, 34% males). The male population segment consisted of 18% yearlings, 63% <6 years of age, and 19% ≥6 years of age (Table 1).

A late-May 2011 age ratio of 30 kids:100 females was observed for the markhor population, similar to the 27 kids:100 females observed in June 2006 (Frisina et al. 2006). The information reported here will be important for determining mortality rates throughout the year when analyzed in combination with the more comprehensive markhor survey scheduled for November 2011.

While the number of markhor observed during this late-May survey is not directly comparable to November surveys (because of differences in observability), the 399 markhor observed for two main survey areas (Tanishpa and Kundar, Table 1) is higher than the 326 observed in November 2008 for three main survey areas (Tanishpa, Kundar, and Tor Ahgbarg) (Arshad et al. 2008), indicating there has not been a significant population decline since 2008. Data collected during the November 2011 survey may indicate a population increase.

Urial

Of 180 urial observed 170 were classified by age and sex (32% lambs, 53% females, and 15% males). The male population segment consisted of 28% yearling, 44% <6 years of age, and 28% ≥ 6 years of age (Table 2)

A late-May age ratio of 59 lambs:100 females was observed for the urial population, higher than the June 2005 survey when a ratio of 35 lambs:100 females was observed. The information reported here will be important for determining mortality rates throughout the year when analyzed in combination with the more comprehensive markhor survey scheduled for November 2011.

While the number of urial observed during this late-May survey is not directly comparable to November surveys (because of differences in observability), the 180 urial observed for 2 main survey areas (Tanishpa and Kundar, Table 1) is only slightly lower than the 196 observed in November 2008 for three main survey areas (Tanishpa, Kundar, and Tor Ahgbarg) (Arshad and Hussain Khan 2008), indicating there has not been a significant population decline since 2008. The November 2011 survey may indicate a population increase.

Fall Survey

A comprehensive survey of the Torghar area is scheduled to take place during the latter part of November 2011. This survey will closely follow the approach used for other similar surveys and will result in a population estimate for markhor and urial (Johnson 1997, Frisina et al. 1998, Frisina 2000, Shafique 2006, Arshad et al. 2008). Data from the survey will also be used to monitor population trend, age structure by sex, and survival of young. Data from the fall 2011 survey will be analyzed in combination with results of from earlier surveys to provide the most comprehensive analysis of markhor and urial populations to date. Quotas, future needs and recommendations essential for maintenance of the sustainable-use hunting program will also be provided following the fall survey.

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APPENDIX I

List Of Teams During Torghar Survey

May 23 -26, 2011

Survey Team Leader/Co-author: Tahir Rasheed, SUSG-CASia

Team #	Team Members	Position & Organization	Surveyed Areas
1	Mr.Muhammad Mazhar liaqat Mr.Muhammad Afzal Mr.Muhammad Bari dad Mr.Abdul Rauf	Deputy conservator of Forest &Wildlife Department Community Wildlife Watchers (CWW), STEP CWW,STEP	Malao Oria
2	Mr.Sharif uddin Baloch Mr.Khushalkhan, Mr.Mela, Mr.Muhammad Ishaq	DCF Hazargangi -Chiltan Nation Park CWW,STEP CWW,STEP CWW,STEP	Arth Surkhan
3	Mr.Ataullah Pandrani Mr.Abdul Sattar Mr.Abdul Ghafoor Mr.Muhammad Akbar	BCS CWW,STEP CWW, STEP CWW, STEP	Shinnari Zehrcha
4	Mr.Jamal Nasir Mr.Mira jan Mr.Dahood Shah Mr.Abdul Khaliq	Assistant Professor of Zoology (Govt: Science Collage Quetta) CWW, STEP CWW, STEP CWW, STEP	Gari Murdar
5	Mr.Paind Khan Mr.Eass Khan Sumalani Mr.Muhamamd Anwar Mr.Ishaq Mr.Abdul Ahad	Director Environment (STEP) Ranger, Hazarganji Chiltan National Park Ranger,Forest & Wildlife Department,Killa Saifullah CWW, STEP CWW, STEP	Khand Salawata