

Wakhi Livestock in Big Pamir
Numbers and Demographic Trends
(2006-2013)

By

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Scope of the report

This report discusses the results of annual livestock counts carried out between 2006 and 2013 in the west of Big Pamir by WCS Afghanistan's veterinary team. Analysis of livestock count results categorized according to age-classes, and grazing areas were not included in this report, but will have added significance after several more years of monitoring. The observed demographic trends are discussed in the frame of sustainable rural livelihoods and landscape conservation.

Background

Accurately estimating numbers and demographic trends of livestock in the fragile habitat of Big Pamir is central to understanding grazing pressures, the extent of competition with wild herbivores for range use, and the risk of disease spill-over from livestock to wildlife. The western side of Big Pamir is used exclusively by the Wakhi people of Afghanistan to feed their livestock during the summer months. They remain here until early October when the vast majority retreats to the Wakhan Valley for the winter. Only recently has a significant portion of the western Big Pamir been designated as a protected area by the Wakhi communities. The area will encompass 1,628.9 km² of the future Big Pamir Wildlife Reserve and its associated buffer zone, with the aim to ensure the protection of key Marco Polo sheep habitat, as well as the main livelihood of local people. Livestock monitoring is therefore a crucial activity developed by WCS in the area, generating important baseline information that will help with the management of this future protected area.

There have been two estimates of livestock numbers in the western Big Pamir in 2006 based on differing methodologies (Mock et al. 2007; Ostrowski 2007). In 2007, Ostrowski et al. (2007) reconciled discrepancies of these two estimates in light of the results of an additional survey, and proposed an adjusted estimate for livestock numbers in the area in 2006. After this initial estimate, livestock censuses were discontinued for the following three years. In 2010, WCS's veterinary team developed a standardized protocol and measured livestock numbers from direct counts at the end of the summer grazing season, each year between 2010 and 2013.

Results

Table 1. Results of livestock counts in the western Big Pamir between 2006 and 2013, Wakhan District, Badakhshan Province, Afghanistan

Year	Month of census	Sheep and goats	Yaks	Total livestock	Rate of growth ¹
2006	July-August	9,395	797	10,192	-
2010	October	10,862	905	11,767	+15.4%
2011	September	14,560	1,171	15,731	+33.7%
2012	September	14,388	1,058	15,446	-1.8%
2013	September	19,457	1,274	20,731	+34.2%

¹Since the previous count

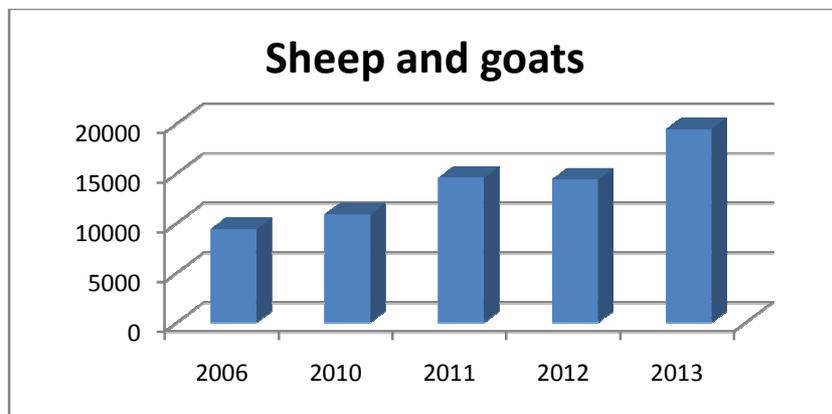


Figure 1. Annual estimates of sheep and goat numbers in the western Big Pamir between 2006 and 2013, Wakhan District, Badakhshan Province, Afghanistan.

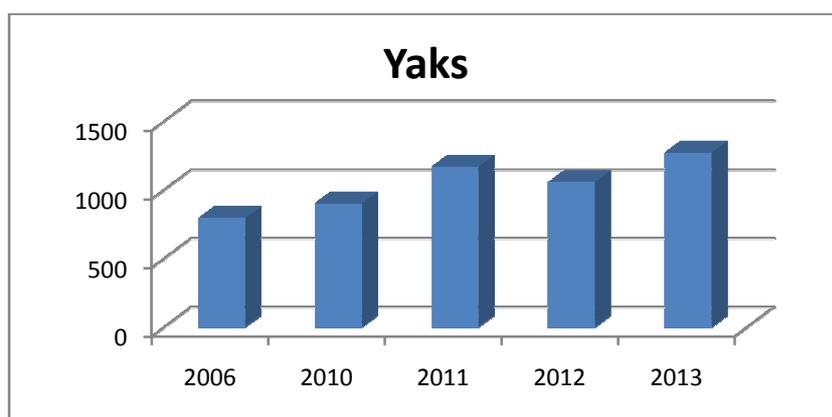


Figure 2. Annual estimates of domestic yak numbers in the western Big Pamir between 2006 and 2013, Wakhan District, Badakhshan Province, Afghanistan.

Discussion

The livestock population growth in western Big Pamir between 2006 and 2013 has been dramatic, at +103%, or an annual average growth rate of 15.5% (Table 1). This demographic increase was reported in all livestock species; sheep, goats (Fig. 1), yaks (Fig. 2) and probably cattle as well, but those have not been accounted for in the surveys because they remain in the Pamirs for only a short period of time (July-August). We think that concomitant to this increase in numbers, Big Pamir also supported locally increased densities. Livestock range-use surveys carried out between 2006 and 2008 suggested that Wakhi people already maximized the use of available pastures for their livestock (Ostrowski 2009). In such circumstances an increase in livestock numbers should inevitably translate into an increase in livestock densities. Using GPS data collected by herders Ostrowski (2009) found that the average home range of 8 of these herds, totalling nearly 5,000 sheep and goats, was 30.2 km² in grazing areas, resulting in an average density of 20.8 animals/km². In the worst case scenario a two-fold increase in livestock numbers, as measured for the last 7 years, could translate in 2013 to a maximum average density of 41.6 animals/km² in these grazing areas.

Although the demographic trend over the past seven years clearly indicates a significant rise in livestock numbers, the inter-annual growth rate was uneven; an aggregated 15.4% estimated between 2006 and 2010 followed by two “explosions” of c. 34% growth in 2010-2011, and 2012-2013 (Fig 1). It is possible that the steep increase in population size between 2010 and 2011 was, to some extent, the result of an underestimation of livestock numbers in 2010 due to a relatively late survey in early October (part of the livestock had possibly already been removed from Big Pamir in response to cooling weather conditions). However, the remarkable population increase between 2012 and 2013 (+34.2%) seems to be genuine and is probably explained by a higher winter survival, and to some extent, by more livestock accepted for grazing - through the local *ʿamanat* system - by those with grazing rights (Ali Madad Rajabi, pers. obs.).

During harsh winters livestock in Wakhan can pay a heavy toll and die en masse due to hunger and hypothermia. In the past four years such severe weather conditions did not prevail in Wakhan Valley, where most livestock overwinter, except in winter 2011-2012. During this winter Wakhi herders lost large numbers of livestock due to extreme coldness and lack of forage (Ostrowski unpublished). In fact, livestock numbers in western Big Pamir were the same in September 2011 and 2012 suggesting for sheep and goats a net ‘winter loss’ of c. 4,800 sheep and goats (data not show) both through sales and mortality. In contrast mild winters in 2010-2011 and 2012-2013 were followed by significant increases in livestock numbers the following summers. Mild winters

¹ Some families with no grazing rights do not take their livestock to Pamir themselves, but instead send them with relatives with grazing rights.

experienced in the Wakhan Valley increase winter livestock survival and offspring productivity in spring. The succession of mild winters has certainly contributed to the increased summer stocking rate in Big Pamir.

Although a succession of relatively mild winters for the last years can explain in part the increase in livestock numbers, the lack of community response to such unsustainable situation is of great concern. It is understood that livestock numbers in Big Pamir have long been elastic as stochastic events such as diseases and heavy winter snow fall can kill significant numbers of them. Mock et al. (2007) mention that herders are constantly engaged in an effort to increase their herd size. They must balance herd size against disastrous loss, sell off livestock every year to meet household requirements, and build on indigenous community knowledge on grazing management. Comparison of livestock numbers counted by Petocz (1978) in Big Pamir in the mid 1970's with results of counts made in 2006, showed surprisingly little variations, comforting the hypothesis that mixed agro-pastoralism, as practiced by Wakhis for centuries, still remained sustainable in 2006 (Mock et al. 2007). However, in view of what could be a recent and considerable increase in livestock numbers, one may legitimately question whether indigenous community knowledge on sustainable grazing practices still operates efficiently in Big Pamir in 2013. The tremendous and novel incentive of maximized and quick profits afforded by a fast developing cash and consumption economy, and driven by an increased market demand for meat has the potential to damage a long track record of sustainability.

The lack of long term continuous monitoring of livestock in Wakhan does not allow rejecting the hypothesis of a "boom-and-bust" livestock demography. The current observed trend could be part of a longer term, possibly cyclic, fluctuation of livestock numbers across Wakhan, which will be followed by a decrease as a result of mass mortality due to food shortage during successive harsh winters. In the meantime however, we believe that immediate consequences on the Big Pamir range quality are substantial. In 2006 and 2007 an exhaustive range land study of Big Pamir showed that the sedge meadow / wet meadow, Alpine grass, and Artemisia steppe vegetation covers, which are the most significant to wild and domestic grazers, suffered the effect of heavy, long-term grazing, which had significantly reduced the standing crop (Bedunah 2009). Seven years later the doubling of the livestock population grazing this landscape inevitably exerts an even higher level of degradation on this fragile and invaluable vegetation cover, threatening the entire ecosystem and exposing populations of wild and domestic herbivores to food shortage. Protection and recovery of vegetation appears nowadays as the main conservation priority in the western Big Pamir. Solutions to tackle the summer overstocking problem in Big Pamir include a community-driven decision to endorse more sustainable grazing practices on how much livestock can be grazed in each particular area, for how long, and by whom, an

increased destocking effort in autumn (through sales), and restrictions imposed on usage of Pamir pastures by non-Wakhi herders.

Conclusion

The first known British visitor to Wakhan, Lieutenant John Wood in 1838, remarked that Wakhi people were rich in livestock but poor in land and grain (Wood 1841 cited by Mock et al. 2007), 175 years later this observation remains absolutely valid. However, in recent years Wakhi people have increased livestock numbers in Big Pamir to possibly unsustainable levels. Whether this seemingly uncontrolled increase is a new phenomenon resulting from new economic incentives, or whether it is part of a long term and possibly cyclic increase of livestock numbers likely followed by a decrease, in the event of successive harsh winters, is not known, and justifies continuing efforts in monitoring livestock in Big Pamir. In the meantime the two-fold increase of livestock numbers as measured over the last seven years in the western Big Pamir threatens the fragile and unique Pamir ecosystem. WCS is well positioned to help reverse this alarming process by promoting sustainable grazing practices channelled through community organizations it has helped to build.

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