

**Update on Wakhi Livestock Numbers in Big Pamir
(2006-2014)**

By

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Livestock in Big Pamir, September 2014 - @ WCS/Ali Madad Rajabi

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Scope of the report

This report presents the results of annual livestock counts carried out in September 2014 in the west of Big Pamir by WCS Afghanistan's Health Interface Team. Analysis of livestock count results categorized according to settlements / grazing areas were not included in this report, but will have added significance after several more years of monitoring. The observed demographic trends since 2006 have already been discussed in a previous report in the frame of sustainable rural livelihoods and landscape conservation (Ostrowski et al. 2013). The present report briefly discusses results collected in 2014 and compares them with previous census results.

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. WCS Afghanistan's Health Interface Team has been monitoring livestock numbers in western Big Pamir since 2006 as a faster and cheaper alternative to carrying out range condition assessments. 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 they most retreat 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 future Big Pamir Wildlife Reserve and its associated buffer zone will be 1,628.9 km² in size, with the aim to ensure the protection of key Marco Polo sheep habitat, and local livelihoods. Livestock monitoring in the Big Pamir is therefore a crucial activity developed by WCS since 2006, 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 (Table 1). 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 2014 (Table 1). The present report summarizes census results made in September 2014 and updates our knowledge on livestock trends since 2006.

Results

Table 1. Results of livestock counts in the western Big Pamir between 2006 and 2014, Wakhan District, Badakhshan Province, Afghanistan.

Year	Month of census	Sheep and goats	Yaks	Total livestock ¹	Rate of growth ²
2006 ³	July-August	8,749	740	9,489	-
2010	July	12,377	930	13,307	+40.2%
2011	September	14,559	1,171	15,730	+18.2%
2012	September	14,388	1,058	15,446	-1.8%
2013	September	19,467	1,298	20,765	+34.4%
2014	September	19,075	1,108	20,183	-2.6%

¹Excluding cattle usually not present in Big Pamir after early September. ²Since the previous count. ³The survey in 2006 combined two different methods; direct counts (75%) and questionnaire surveys (25%); therefore true numbers of livestock might have been underestimated by 5-10%

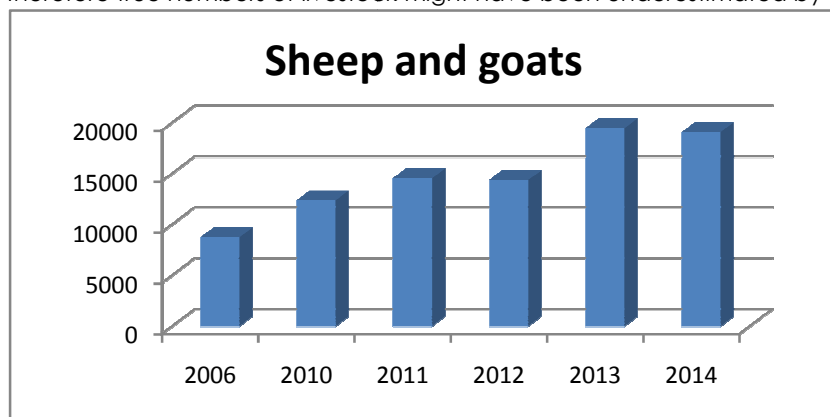


Figure 1. Annual estimates of sheep and goat numbers in the western Big Pamir between 2006 and 2014, Wakhan District, Badakhshan Province, Afghanistan.

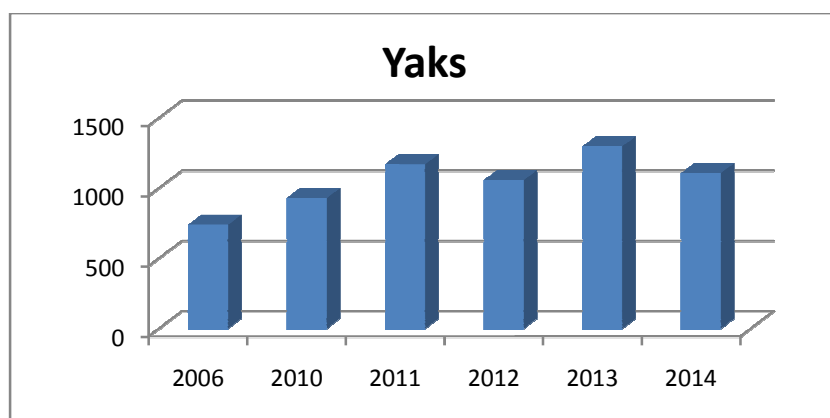


Figure 2. Annual estimates of domestic yak numbers in the western Big Pamir between 2006 and 2014, Wakhan District, Badakhshan Province, Afghanistan.

Discussion

The livestock population growth in western Big Pamir between 2006 and 2014 has been dramatic, at +112.7%, or an annual average growth rate of 14.1% (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 (early July-early September). We think that concomitant to this increase in numbers, Big Pamir also supported locally increased densities (Ostrowski et al. 2013). 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 eight 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 eight years, could translate in 2014 to a maximum average density of ca. 40 animals/km² in these grazing areas.

Although the demographic trend over the past eight years clearly indicates a significant rise in livestock numbers, the inter-annual growth rate was uneven; an aggregated 40.2% estimated between 2006 and 2010 followed by an increase of c. 18% growth in 2010-2011, and an "explosion" at ca. 34% growth in 2012-2013 (Fig 1). The significant population increase between 2012 and 2013 (+34.2%) raised concerns regarding the sustainability of current grazing practices by Wakhis in Big Pamir (Ostrowski et al. 2013).

In Ostrowski et al. 2013, we predicted that livestock populations had reached maximum numbers in the area, which were likely to decrease in the future because of considerably degraded pastures. Aligned with our predictions, livestock numbers in 2014 seemed to have levelled off with a modest (and probably genuine) decrease of 2.6% compared to 2013. Interviews with herders in September 2014 confirmed that pastures were forage-depleted by the end of August; one and half month ahead of the usual end-of-grazing period. Most herders put the blame on low precipitation during the past winter, while others assigned fault to the increasing stocking rates and added grazing pressures caused over the past decade.

During harsh winters, livestock in Wakhan can die en masse due to hunger and hypothermia. This was the case in 2011-2012 where Wakhi livestock owners lost large numbers of livestock due to extreme coldness and lack of forage options (Ostrowski unpublished). Interestingly, livestock numbers (sheep and goats) in western Big Pamir were almost the same in both September 2011 and 2012 suggesting that there was a

net 'winter loss' of ca. 2,000 sheep and goats (equating to an estimated 14% annual increase under classical circumstances) both through sales and mortality.

Over the past 3 years weather conditions in the Wakhan Valley, where livestock are taken over the winter, have been fairly mild and were followed by significant increases in livestock numbers the following summers. Interestingly the mild winter conditions in 2013-2014 did not translate into a significant increase in livestock numbers brought to Big Pamir in summer 2014. Although not openly admitting to the problem of overstocking, communities seem to have acknowledged the issue and decided this year not to increase the stocking rate above summer 2013 levels. Whether this community-initiated management decision will be upheld remains to be seen.

In September 2014 we observed that the livestock fattening level was suboptimal, most probably as a result of overpopulation and prematurely exhausted forage resources. In such circumstances we believe that even a relatively mild winter in 2014-2015 could affect the survival of livestock wintering in the corridor by increasing the risk of early death due to starvation, hypothermia and infectious diseases.

The lack of long term (>10 years) continuous monitoring of livestock in Wakhan does not rule out a possible "boom-and-bust" livestock demographic hypothesis. The current observed trend could be part of a longer term (possibly even cyclic) fluctuation of livestock numbers across Wakhan, which will be followed by a decrease as a result of consecutive winter mass mortality of livestock. In the meantime however, we believe that immediate consequences on the Big Pamir range quality are substantial.

In 2006 and 2007, an exhaustive rangeland 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 from the effects of heavy, long-term grazing, which significantly reduced the standing crop (Bedunah 2009). With the doubling of the livestock population grazing this landscape eight years later, an even higher level of degradation on this fragile vegetation cover, which is essential to wildlife, is noticeable. The increased numbers threaten the entire ecosystem, exposing populations of wild and domestic herbivores to food shortages.

Protection and vegetation recovery is a main conservation priority in the western Big Pamir. Unfortunately solutions to tackle the summer overstocking problem in Big Pamir are few. They all require a community-driven effort to introduce more sustainable grazing practices. limit livestock numbers and the extent of them grazing the 'most valuable areas'. In theory specified grazing periods, durations, and rotations among livestock owners could be proposed and an increased destocking effort in the autumn, primarily via sales could be developed. Restrictions imposed on usage of Pamir pastures by non-Wakhi herders will also have to be taken into consideration. Such management practices will however be very difficult to implement considering the role livestock

production plays in the subsistence of the Wakhi, and the local economy in general. It is currently the only large-scale profitable activity in the district.

We suggest starting implementing more efficiently a no grazing policy within the Big Pamir Wildlife Reserve, using the community ranger forces and according to the management plan endorsed by representatives of the local communities. The most valuable (and sensitive) areas in the buffer zone of the reserve will have to be identified and rehabilitation processes initiated. Erecting enclosure plots within the reserve, in the buffer zone and in non protected rangelands will help monitor the quality and effectiveness of rehabilitation processes and provide to the communities a visual and quantifiable indicator of the benefits produced by sustainable grazing practices.

Conclusion

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 part of a long-term and possibly cyclic increase in livestock numbers, likely followed by a decrease as a result of harsh, successive winters, is not yet known. It does however justify continuing efforts with monitoring livestock, which provides an indirect, yet relatively easy to implement, indicator of rangeland conditions. Livestock number measurements carried out by WCS in western Big Pamir since 2006 have recently been compiled in a unique database and made available to WCS Afghanistan's Monitoring and Evaluation Department.

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