

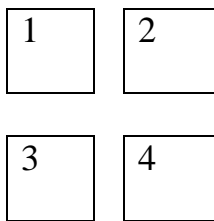


**Result of Foot-and-Mouth Disease Vaccination Campaign and  
ear-tag identification of livestock  
in Wakhan District, Badakhshan Province,  
Afghanistan, April 2013**



**Drs. Hafizullah Noori & Ali Madad Rajabi**  
Supervised by Dr. Stephane Ostrowski  
Afghanistan Health Interface Team, WCS  
June 2013

**Wildlife Conservation Society**  
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### Cover Photos:

1. Mr. Mohamad Gull vaccinates a cow against FMD with the help of two Wakhi villagers in Abgarch, Wakhan District, 25 April 2013.
2. A newly vaccinated yak and its new born calf in Dehqan Khana area, near Sarhad-e-Broghil, Wakhan District, 17 April 2013.
3. Mr Sarwar fixes a metal ear-tag while Mr. Mohamad Gull vaccinates a female yak with the help of a herder. Dr. Musa records tag number and observes the procedure, Ptukh Village, Wakhan District, Badakhshan Province, 18 April 2013.
4. Dr. Hafizullah Noori interviews a Wakhi livestock owner on the occurrence of FMD in his livestock during the past year, Wakhan District, 18 April 2013.

All photographs: WCS Health Interface Team  
Maps: Mr. Haqiq Rahmani, WCS

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# **Result of Foot-and-Mouth Disease Vaccination Campaign and ear-tag identification of livestock in Wakhan District, Badakhshan Province, Afghanistan, April 2013**

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**Summary** — Between 16 and 28 April 2013, Dr. Hafizullah Noori, WCS resident veterinarian, supervised the vaccination against foot and-mouth-disease (FMD) of 2,136 cattle and 558 yaks in upper Wakhan District, Badakhshan Province, Afghanistan. The target was to vaccinate 2,750 animals; the objective was therefore reached at 97%. The two local Wakhi paraveterinarians who have been trained by WCS at implementing mass vaccination campaigns, implemented by their own the vaccination campaign. The participation of local communities and their level of appreciation were deemed optimal. Paravets were also trained to identify yaks with metal ear-tags. All vaccinated yaks were therefore also ear-tagged.

Dr. Noori interviewed 213 Wakhi herders and livestock owners selected randomly all along the Wakhan corridor, on the status of FMD in their vaccinated or non-vaccinated cattle/yak herds. This monitoring will help assess the quality of the vaccination work carried out by paravets in 2012.

## **General introduction**

Foot-and-mouth disease (FMD) is an extremely contagious viral (family Picornaviridae) disease of cloven-hoofed domestic and wild animals. It is endemic in most of Asia (including in the Middle East and Central Asia), Africa, and South America. There are seven immunologically distinct serotypes and over 60 subtypes of the FMD virus (FMDV). The disease is endemic in Afghanistan where it occurs as regular epizootics. It has a direct effect on food security as it drastically reduces milk production in cows, reduces their fertility rate and incapacitates breeding bulls and oxen. A new serotype (Asia 1) was identified in Afghanistan in March 2001 (S. Yingst / CVL–Kabul pers. comm.), bringing the total of known serotypes to three for the country (A, O and Asia 1). The virus is very stable at low temperatures and can survive in frozen tissues. It may persist for days to weeks in organic matter under moist and cool temperatures. It is however inactivated on dry surfaces and by UV radiation (sunlight). Transmission primarily occurs by respiratory aerosols and direct or indirect contact with infected animals. Sheep and goats are occasionally considered maintenance hosts, and sometimes present very mild signs. Cattle are generally the first species to manifest signs of FMD

and are therefore considered ‘indicators’ of this disease. Recovered or vaccinated cattle exposed to diseased animals can be healthy carriers for 6 to 24 months; sheep can be carriers for 4 to 6 months.

Because of their remoteness, the Pamirs in the Wakhan District of the province of Badakhshan, have rarely been surveyed for infectious diseases in animals. Four days drive from Kabul, often on a rough track just to access the outreaches of this infamous mountain range has rendered health investigations in this region arduous and logistically expensive to carry out. In 2008, we have shown in a punctual serological survey that 51.3% and 75% of the sheep and domestic yak (*Bos grunniens*), respectively, had antibodies against FMD (Ostrowski et al., 2009). In addition two yaks tested with virus neutralization test (VNT) had positive antibody titers against Asia 1 Shamir serotype (and not against serotypes A and O) indicating that at least this FMDV type actively circulated in Wakhan/Pamirs in 2008. Yet apart of this fragmentary information little is known about the epidemiological status of the disease in this remote stretch of land bordered in the south by Pakistan, in the east by China and in the north by Tajikistan.

The purposes of the present work were: 1/ to implement the vaccination campaign of cattle and yaks against foot and mouth disease in Wakhan district, 2/ achieve for the first time ever identification of vaccinated yaks with metal numbered ear tags, 3/ undertake a questionnaire survey among Wakhi herders in order to better understand the status of FMD with and without vaccination and evaluate the quality of previous mass vaccination campaigns carried out in the area.

## Methods

We purchased 2,750 doses of FMD vaccine<sup>1</sup> from DCA Kabul (same vaccine brand since 2009). We stored vaccine vials at WCS office in Kabul between +1°C and +8°C, according to manufacturer’s recommendations. Vaccines were then transported between Kabul and Feyzabad (the administrative center of Badakhshan Province) by car, in cool boxes with ice packs, and a day later to Wakhan. Half of the vaccines were stored in a solar-powered refrigerator in the field veterinary unit of Kand Khan Village and the other half was kept in cool boxes for immediate use. Storage temperature was monitored throughout transportations by temperature range indicators. We vaccinated only healthy cattle and yak older than 3 months. We started the vaccination campaign in Sarhad-e Broghil, the easternmost village in Wakhan, and ended in the village of Qila-e Panja.

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A<sup>1</sup> liquid inactivated sorbed foot-and-mouth disease vaccine (virus grown in BHK-21 cells) against A Iran-05, O PanAsia-2 and Asia 1 types, produced by the Federal Centre for Animal Health, 600901, Yur’evets, Vladimir, Russia. At DCA headquarter in Kabul the vaccine was stored at +1°C–+8°C according to manufacturer’s recommendations and monitored throughout transportations by a temperature range indicator. After purchasing vaccines we stored them within the same temperature range at WCS headquarter in Kabul, car-shipped them to Feyzabad, the provincial capital of Badakhshan, and transported them by car to upper Wakhan in cool boxes with ice packs. Eventually they were stored in solar-powered refrigerators in Kand Khan field veterinary unit.



**Plate 1.** Mr.Mohammad Gull, one of the WCS’s paraveterinarians, vaccinates cattle against foot-and-mouth disease in Wakhan. The involvement of people including women from local communities in gathering animals was invaluable. Wakhan District, Badakhshan Province, Afghanistan, April 2013.

**Plate 2.** A female domestic yak restrained by a local herder and a paravet is vaccinated against foot-and-mouth disease, Wakhan District, Badakhshan Province, Afghanistan, April 2013.

On April 15, 2013 the health interface team (HIT) traveled from Qalay-e-Panja to Sarhad-e-Broghil by rented car and trained Mr Mohamad Gull and Mr Sarwar, the two paravets, in ear-tagging techniques. The FMD vaccination of cattle and yaks started from Sarhad-e-Broghil and Dehqankhana area where paravets succeeded to vaccinate and tag 285 yaks in one day. The brilliant cooperation of local community on the successful achievement of vaccination and tagging should not be ignored. On the 18<sup>th</sup> of April we proceeded in three groups, Hafizullah Noori undertook the FMD questionnaire survey between Sarhad-e Broghil and Futor Village, Mr. Sarwar with his helper (Jumakhan) vaccinated cattle and yaks between Sarhad-e Broghil and Kharich villages, Mr. Mohamad Gull with Dr. Musa (one of the vet from the Department of Agriculture in Feizabad) did the vaccinations between Kret and Qalay-e Panja villages.

Before proceeding with vaccinations, we consistently met with the elders (head of shora) of the village, and explained to them our program and the importance of vaccination. Also we emphasized to community that vaccination of cattle will be charged 10Afs/cattle head from autumn 2013, while vaccination of yak will remain free of charge provided they accept that their animals are ear-tagged when vaccinated. The heads of Shoras forwarded these propositions to the populace. Because vaccination concerned large-size, untied livestock species, the collaboration of local people was essential to gather, capture, and restrain often uncooperative animals. In most of the villages, animals were gathered by women in individual barns and corrals.

Each animal regardless of its age and size was injected with 3 ml of vaccine subcutaneously in the middle of the neck. We did not vaccinate animals younger than three months because of the likelihood of interference with protective antibodies they passively acquired from their mothers. During vaccination operations no injury or mortality related to handling of animals occurred.

For the questionnaire survey, Dr. Hafizullah Noori moved between villages by car, meeting with heads of shoras to explain to them the Wakhan program of WCS's health interface team (HIT). He delivered to them the message that during the current mission vaccinations of cattle and yaks will be made free of charge provided people accept to have their yak ear-tagged (ie. identified). In autumn 2013 cattle owners will be asked 10Afgs/animal as a subsidized fee for FMD vaccination. Yak will still be vaccinated for free, yet against compulsory identification. All heads of shoras and local communities agreed with this protocol.



Plate 3: Dr.Hafizullah Noori interviews a local herder on FMD and health issues that affected his livestock for the last year in Wakhan District, April 2013.

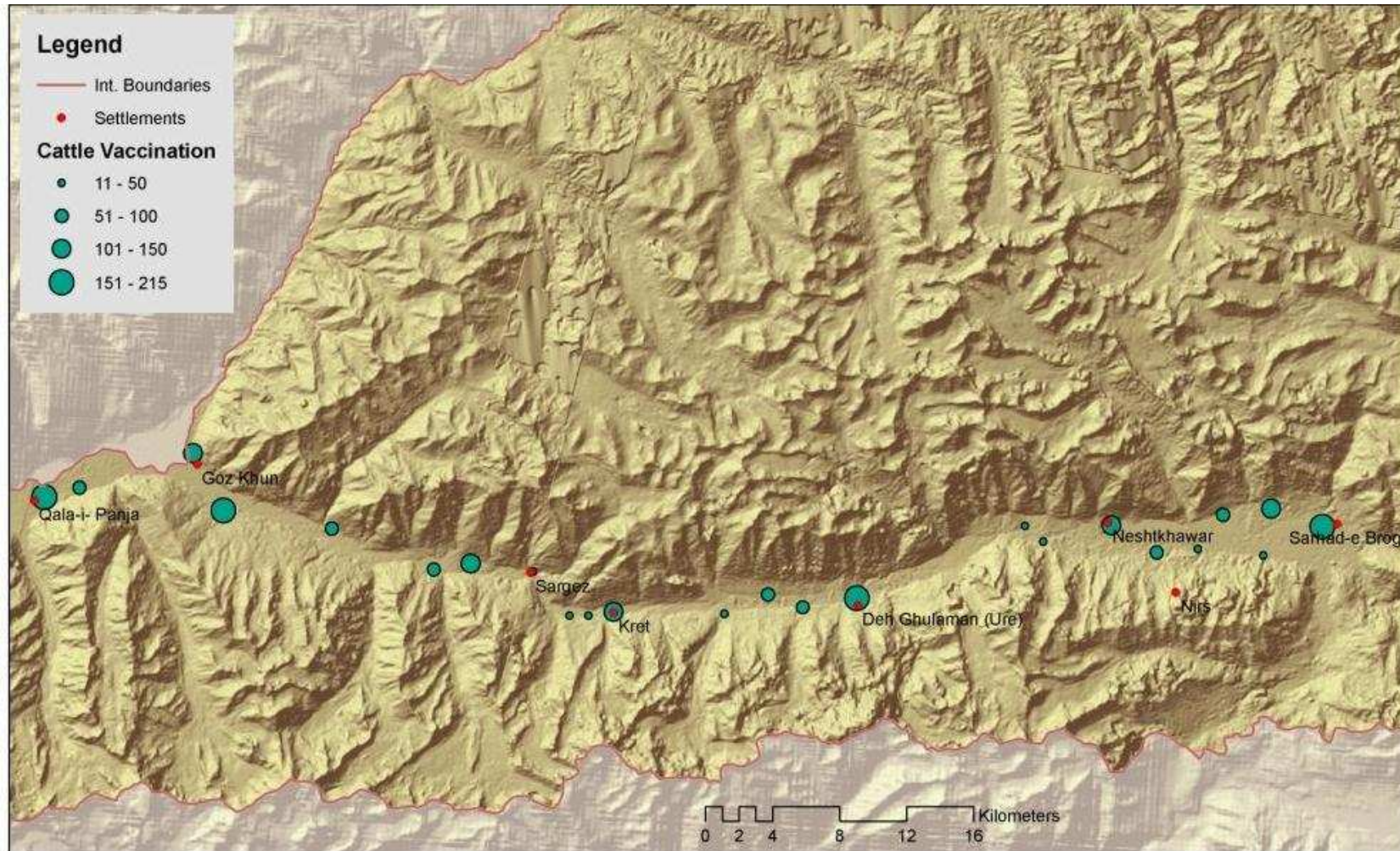


Figure 1: Map of upper Wakhan Valley showing locations and sizes of cattle herds vaccinated against foot-and-mouth disease by the WCS health interface team in April 2013.

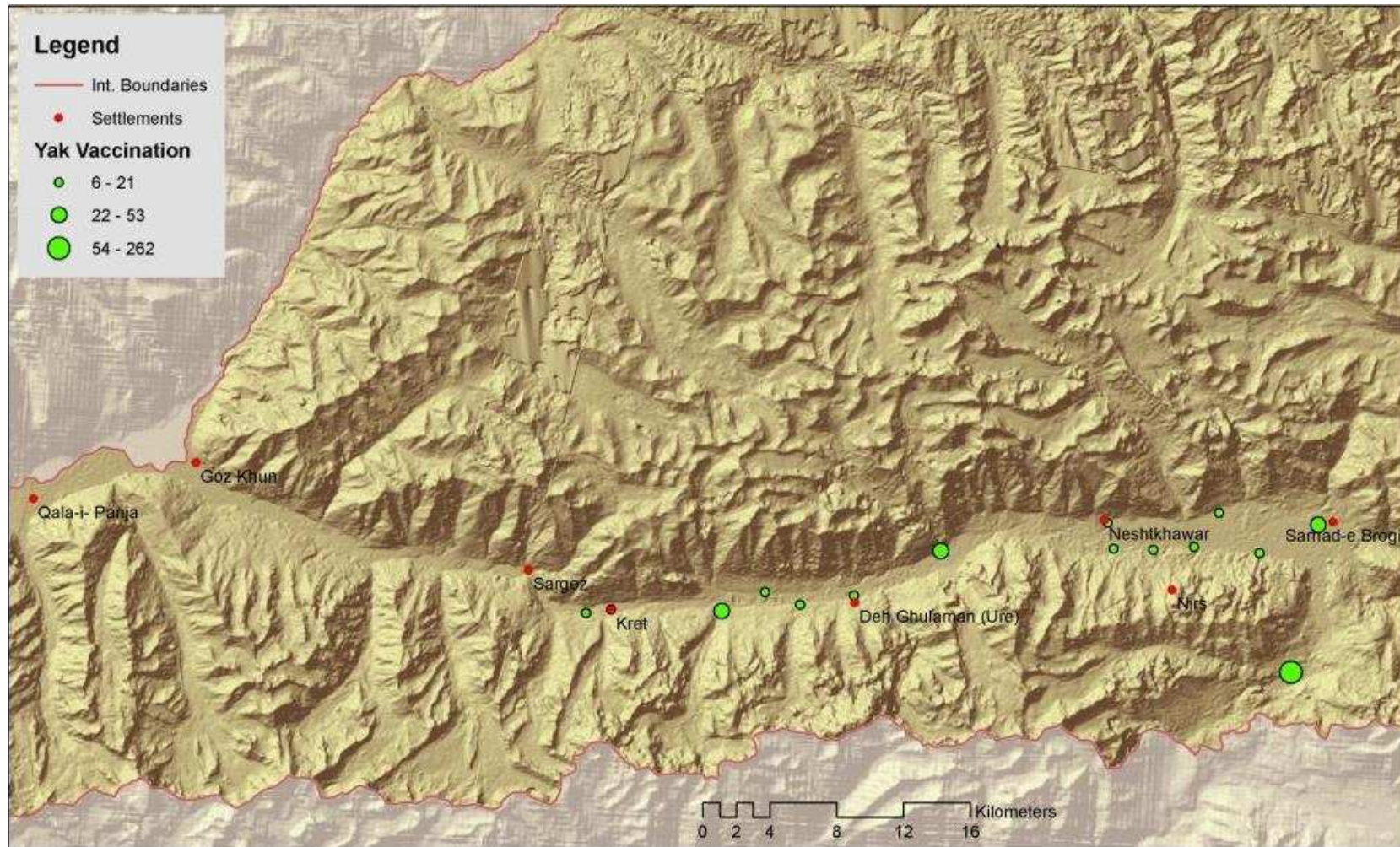


Figure 2: Map of upper Wakhan Valley showing locations and sizes of yak herds vaccinated against foot-and-mouth disease by the WCS health interface team in April 2013.

## Results

Paravets and their helpers vaccinated 2,694 cattle and yaks in 27 villages and settlements between Sarhad-e Broghil and Qila-e Panja over a period of 14 days (Figures 1 & 2). The vaccinated population included 2,136 cattle (Table 1) and 558 domestic yaks (Table 2), the later were also tagged with a metal numbered tag fixed to the right ear. The participation of local communities in the mass vaccination campaign was excellent. For cattle the median number of vaccinated animals per village was 55 with a minimum of 11 in Karkat and a maximum of 215 in Sarhad-e Broghil (Table 1). Livestock tagging is rarely practiced in Afghanistan, as people fear that it opens the door to taxation attempts by the government. We could achieve tagging because we worked through local paravets and carefully explained the process to village leaders. We regard the tagging achievement as a great testimony of the level of community-trust WCS has built in the area. Identification of yak is the first step towards a better monitoring of this livestock population also known to come in contact with valuable wildlife ungulate species and disseminate diseases to them.

Dr. Noori also interviewed a random selection of 3-7 local herders across the corridor. In total he interviewed 213 livestock owners/herders across the totality of the Wakhan corridor length.

Table 1. Location, number, gender and age of cattle vaccinated by the WCS health interface team in Wakhan District, April 2013.

Village name	Date	adult male	adult female	young unsexed	Total
Sarhad-e Broghil	16/4/2013	92	97	26	215
Ptukh	18/4/2013	24	18	20	62
Chilkand	19/4/2013	53	31	30	114
Karkat	19/4/2013	5	5	1	11
Kret	19/4/2013	34	49	21	104
Baba Tangi	19/4/2013	7	11	5	23
Kuzget	19/4/2013	13	17	9	39
Sekonj	20/4/2013	8	8	7	23
Nirs	20/4/2013	31	21	12	64
Shilk	20/4/2013	20	18	4	42
Sargaz	21/4/2013	5	8	6	19
Qalay-e Wost	21/4/2013	16	23	16	55
Wuzed	21/4/2013	33	45	17	95
Nishtkhor	21/4/2013	63	40	23	126
Archa	21/4/2013	15	9	4	28
Rachon	22/4/2013	20	13	12	45
Sast	22/4/2013	28	92	29	149
Dehghulaman	22/4/2013	73	65	49	187
Gozkhan	23/4/2013	44	72	13	129
Abgarch	24/4/2013	67	76	31	174
Kand khan	24/4/2013	20	23	16	59
Kharich	25/4/2013	12	10	12	34
Rorong	26/4/2013	41	40	18	99
Peakot	26/4/2013	18	32	8	58
Qalay-e Panja	27/4/2013	51	110	21	182

Table 2. Location, number, gender and age of vaccinated yaks in Wakhan Valley, Wakhan District, in by WCS health interface team, April 2013.

Village name	Date	Adult male	Adult female	Young unsexed	Total
Sarhad-e Broghil	17/4/2013	3	0	30	33
Dehqankhana <sup>1</sup>	17/4/2013	146	64	52	262
Ptukh	18/4/2013	1	1	4	6
Karkat	20/4/2013	13	2	6	21
Nirs Payen	21/4/2013	7	0	1	8
Sekonj	20/4/2013	12	5	2	19
Nirs Bala	20/4/2013	7	2	7	16
Nishtkhor	21/4/2013	7	1	6	14
Dehqankhana Nishtkhor	21/4/2013	25	8	13	46
Dehghulaman	22/4/2013	3	4	5	12
Kand khan	23/4/2013	4	1	4	9
Kharich	25/4/2013	26	17	10	53
Rorong	25/4/2013	10	6	4	20
Kret	19/4/2013	9	4	6	19
Kuzget	19/4/2013	7	5	8	20

We have estimated, based on previous livestock counts (2009), that more than 80% of the cattle population in upper Wakhan was vaccinated in April 2013.

Concerning domestic yak, the median number of vaccinated animals per village was 6 in 12 villages with a minimum of 6 in Ptukh and a maximum of 262 in Dehqankhane pasture, an area where all animals from Chilkand, and a large proportion of those from Ptukh and Nishtkhor villages are left for winter.

It is not possible to draw robust information concerning the structure and distribution of the yak population in upper Wakhan. Based on past livestock counts, we estimate that no more than 30-35% of the yak population in the area have been vaccinated during April. As previous vaccination campaigns relatively few yaks are accessible in spring compared to autumn. A second vaccination session is therefore scheduled to take place in Wakhan and Pamir pastures in September/October 2013.

## Discussion

We successfully vaccinated against foot-and-mouth disease 2,136 cattle and 558 yaks owned by the Wakhi community in upper Wakhan. It shows that even in very remote and neglected areas of Afghanistan, such as Wakhan, it is feasible to conduct large scale vaccination campaigns that ensure significant protection of the livestock population against the currently circulating strains of FMDV. An additional vaccination shot six months later on animals already vaccinated would indeed provide the highest level of protection for adult cattle and yak, so we plan to vaccinate the cattle and yaks in the Wakhan corridor and Big Pamir on September-October 2013. Based on previous year results we initially targeted to vaccinate 2,750 animals. Our objective was therefore reached at 97%. Because winter 2013 was said to have been “mild” in the area, most of the domestic yaks had already been moved to Pamir pastures by the time we reached Wakhan. These animals will be specifically targeted in September-October.

Dehqankhane<sup>1</sup> is a pasture area located close to the international boundary with Pakistan, almost 3 hours walk from the village of Sarhad-e Broghil. Yaks are left to pasture the area during winter. During that time they may come into contact with populations of wild ungulates known to live in the area. Most of yak owners live in the villages of Chilkand, Ptukh, and Nishtkhor in the upper Wakhan Valley.

In addition to its main prophylactic benefit, FMD vaccination is also used as a very efficient and largely non-controversial entry point to the remote human community of upper Wakhan (about 550 households were indirectly concerned by this operation or c. 6,500 people). It helps building a decent level of trust towards vaccination, animal health in general and even the presence of foreign expertise sometimes regarded with suspicion by local people. WCS has been supporting financially and logistically two paraveterinarians in upper Wakhan and the long-term sustainability of vaccination campaigns will have to rest on their shoulders. We are developing their capacities with this objective in mind. In 2011, we handed-over to paraveterinarians the technical implementation of mass FMD vaccination campaigns and we develop large scale identification of yak herds.

In addition to delivering vaccination shots to yaks, we have identified 558 yaks with a metal numbered tag fixed to the right ear. The tag numbering started from 0001 and ended to 0639. The first sequence with one of the two paravets included numbers from 0001 to 0519 and the other sequence, with the second paravet, from 0601 to 0639. From 0001 to 0285, Dr. Hafizullah Noori was involved in tagging, then Mr Sarwar used tags 0286 to 0519 (233 yaks), tags 0520 to 0600 were not used and left for autumn operation, and tags 0601 to 0639 were fixed by Mohamad Gull who had few opportunities to vaccinate and tag yaks, which were already gone to Pamir pastures.. In autumn we will start from 0520 to 0600 and then incrementally from 0640. Identification of yak is the first step towards a better monitoring of this livestock population known to come in contact with valuable wildlife ungulate species. We will continue ear-tagging yaks in Big Pamir and western Littla Pamir during the autumn vaccination campaign in Wakhi settlements. We hope that at the end of this second operation, at least 75% of the yak population in the area will be vaccinated and identified.

According to the response of interviewees, because of mild weather conditions during winter, there was very little reported diseases among livestock in upper and mid Wakhan. FMD is nevertheless still present in lower Wakhan Valley, where no mass vaccination campaign is implemented, as well as in a few places in upper Wakhan in unvaccinated areas.

### **Acknowledgments**

This mission would not have been possible without the generous support of USAID, which we gratefully acknowledge here. We thank all WCS staff in Kabul for logistical support throughout the missions. A special thank goes to Mr. Haqiq “Rahmani”, GIS manager of WCS in Kabul, who monitored regularly the geographical progress of the mission and produced the two maps in this report. We thank Dr. Musa, state veterinarian with the department of MAIL in Feyzabad, who joined us during the mission and helped us to efficiently implement the FMD vaccination campaign.

Eventually, I acknowledge the invaluable input of Mr. Sarwar and Mr. Mohammed Gul, the two paraveterinarians in upper Wakhan Valley, and of all the Wakhi community. Without their help and interest no work would have been possible in this very remote area.

## Appendix 1.

List of bird species observed during the April 2013 veterinary mission (Hafiz, make this table smaller, no extra line space is needed)

Common name	Scientific name
White-winged woodpecker	<i>Dendrocopos leucopterus</i>
Common hoopoe	<i>Upupa epops</i>
Rock pigeon	<i>Columba livia</i>
Hill pigeon	<i>Columba rupestris</i>
Black-billed magpie	<i>Pica pica</i>
Red-billed chough	<i>Pyrrhocorax pyrrhocorax</i>
White-winged redstart	<i>Phoenicurus erythrogastrus</i>
Black redstart	<i>Phoenicurus ochruros</i>
Skylark	<i>Alauda arvensis</i>
Horned lark	<i>Eremophila alpestris</i>
House sparrow	<i>Passer domesticus</i>
Eurasian tree sparrow	<i>Passer montanus</i>
Citrine wagtail	<i>Motacilla citreola</i>
Fire-fronted serin	<i>Serinus pusillus</i>
Rock bunting	<i>Emberiza cia</i>
Northern wheatear	<i>Oenanthe oenanthe</i>
Short-toed lark	<i>Calandrella cinerea</i>
Yellow-breasted tit	<i>Parus flavipectus</i>
Red-tailed wheatear	<i>Oenanthe xanthopyrma</i>
Common sandpiper	<i>Actitis hypoleucos</i>

Isabelline wheatear	<i>Oenanthe isabellina</i>
Twite	<i>Carduelis flavirostris</i>
Crimson-winged finch	<i>Rodopechys sanguinea</i>
Spotted great rosefinch	<i>Carpodacus severtzovi</i>
Carrion crow	<i>Corvus orientalis</i>
Wall creeper	<i>Tichodroma muraria</i>
Mountain chiffchaff	<i>Phylloscopus sindianus</i>
Ruddy shelduck	<i>Tadorna ferruginea</i>
Barn swallow	<i>Hirundo rustica</i>
Himalayan snowcock	<i>Tetraogallus himalayensis</i>
Mallard	<i>Anas platyrhynchos</i>
Grey heron	<i>Ardea cinerea</i>
Pintail	<i>Anas acuta</i>
Grey wagtail	<i>Motacilla cinerea</i>

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## Appendix 2.

### Summary of daily activities:

09/04/2013: We traveled from Kabul by local rental car and had to wait 7 hours by Salang Tunnel which was blocked. We passed the night in Baghlan Province.

10/04/2013: We traveled from Baghlan to Feizabad and stayed at Wakhan Coffee Guesthouse.

11/04/2013: We met with the head of MAIL and the director of veterinary services in Feyzabad and explained them our mission program. They nominated Dr. Musa as our collaborator for the mission. We rented two local cars to transport our equipment from Feyzabad to Ishkashim.

12/04/2013: We traveled from Feyzabad to Ishkashim with two cars, one loaded with our equipment and the other with us. We encountered no problems during this leg of the trip.

13/04/2013: We stayed in Ishkashim and got a permission letter from border police. In the afternoon we purchased food.

**14/04/2013:** We moved from Ishkashim to Wakhan Valley with a WCS car and met with the Woloswal at Khandod and explained him our program. Then we traveled to Qalay-e Panja and stayed at WCS guesthouse.

**15/04/2013:** We traveled to Sarhad-e Broghil by rented car and picked-up Mohamad Gull and Sarwar, the two paravets, at Abgarch and Kand Khan villages, respectively.

**16/04/2013:** We met with the head of shora in Sarhad-e Broghil and explained to him the purposes of our visit and intended works. Also en route we interviewed livestock owners in Sarhad-e Broghil, Chilkand, Ptukh, Nishtkhor, Shoshp, Archa, Nirs, Sekonj and Karkat about occurrence of FMD. In Sarhad-e Broghil, Sarwar and Mohamad Gull vaccinated the accessible cattle.

**17/04/2013:** We tagged and vaccinated 23 yaks in Sarhad-e Broghil and 262 yaks in Dehqankhana Sarhad and stayed during night in the village.

**18/04/2013:** We moved from Sarhad to Ptukh Village, tagged and vaccinated 6 yaks, left Sarwar with his helper in Ptukh and we headed down to Rachon, Wardif, Rorong, Dehghulaman, Kandkhan, Kharich and Kret by car. In each village we met with the head of shoras, explained to them the purposes of our work and requested their help to ask communities to cooperate with the paravets in the implementation of tagging and vaccination. In all visited villages we did FMD questionnaire interviews.

**19/04/2013:** Sarwar with his helper vaccinated cattle and yaks and tagged the later ones in upper Wakhan, Mohamad Gull with Dr. Musa worked in mid Wakhan and Hafizullah Noori continued the FMD questionnaire survey between Kret and Qalay-e Wost.

**20/04/2013:** Sarwar with his helper vaccinated cattle and yaks in upper Wakhan, Mohamad Gull with Dr. Musa worked in mid Wakhan and Hafizullah Noori continued the FMD questionnaire survey between Qalay-e Wost and Gozkhan Villages.

**21/04/2013:** Hafizullah Noori continued the FMD questionnaire survey in Gozkhan, Peakot and Qalay-e Panja villages and after lunch moved to Lower Wakhan and interviewed people in Sarkand, Pak, Pukuy, Ishmorgh, Izok, Khandud and Yamit villages. In upper Wakhan Sarwar with his helper and in mid Wakhan Mohamad Gull with Dr. Musa vaccinated cattle and yaks against FMD.

**22/04/2013:** Hafizullah Noori conducted the FMD questionnaire survey between Yamit and Futor villages and headed back to Qalay-e Panja. In upper Wakhan Sarwar with his helper and in mid Wakhan Mohamad Gull with Dr. Musa vaccinated cattle and yaks against FMD.

**23/04/2013:** Hafizullah Noori moved from Qalay-e Panja to Wozud village where he joined Mohamad Gull and Dr. Musa, then all moved to Abgarch Village but their cattle were free-ranging in the riparian forest so they moved to Gozkhan Village. Sarwar continued the FMD vaccination campaign in upper Wakhan.

**24/04/2013:** The team moved from Gokhan to Abgarch and conducted the FMD vaccination campaign in this village. Sarwar with his helper vaccinated cattle and yaks in upper Wakhan.

**25/04/2013:** Mohamad Gull with Dr. Musa vaccinated cattle and yaks in Abgarch Village and Hafizullah Noori went to Kand Khan Village to get the vaccination report from Sarwar. When he reached Kand Khan, Sarwar was vaccinating cattle and yaks in Kharich Village and still Rorong Village remained to be vaccinated so part of the team overnighted in Kand Khan.

26/04/2013: The team vaccinated cattle and yaks in Rorong Village and then moved back to Abgarch and Qalay-e Panja villages. On the afternoon the team vaccinated cattle in Peakot Village.

27/04/2013: The team vaccinated cattle in Qalay-e Panja but due to rainfall and coldness, the cattle in several houses could not be vaccinated.

28/04/2013: The team completed the FMD vaccination campaign in Qalay-e Panja, and on the afternoon inventoried veterinary assets at WCS headquarter, then they headed west to Ishkashim.

29/04/2013: Hafizullah Noori with Dr. Musa traveled from Ishkashim to Feizabad with a locally rented car.

30/04/2013: Hafizullah Noori stayed in Feizabad and reported in details the outcomes of the vaccination campaign to the veterinary authority.

01/05/2013: Hafizullah Noori traveled from Feizabad to Kabul with a rented car.