

**Report on ecohealth training for veterinarians and paraveterinarians of
Ishkashim, Wakhan and Zebak districts, Badakhshan Province
7 and 8 July, 2013**



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Cover photograph:

Dr Hafizullah Noori (yellow shirt), WCS resident veterinarian, gives a practical presentation on the use of darting equipment for wildlife tranquilization. Paravets and vets from Ishkashim, Wakhan and Zebak districts attended the training, which was hosted by Aga Khan Foundation (AKF) at the Livestock Production Center in Ishkeshim.

Introduction

On July 7th and 8th the Health Interface Team (HIT) of WCS conducted a theoretical and practical training course at AKF Livestock Production Center in Ishkashim for 14 veterinarians (subsequently called vets) and paraveterinarians (called paravets). Seven paravets came from Wakhan District, three from Zebak District and three paravets and one vet from Ishkashim District. Two paravets from Wakhan District were affiliated to WCS while the 12 other trainees report directly to AKF.

The main goal of the training was to introduce to the trainees the concept of ecohealth, to enhance their technical capacity in the field of epidemio-surveillance and to promote health information sharing across the three north-eastern districts of Badakhshan Province. The training started with lectures on the principles of ecohealth using achievements of the WCS work in Afghanistan. It was followed by a series of lectures on a variety of topics that exemplified the variety of activities within ecohealth approaches, such as snow leopard captures in Wakhan as an example of wildlife intervention, or serological screening of target diseases in the Wakhan corridor as an example of epidemio-surveillance activity on livestock. Whenever possible, theoretical lectures were coupled to practical trainings, such as practicing darting and preparing anesthetic combinations for the wildlife immobilization course.

The lack of technical capacity among Afghan practitioners is one of the main constraints on animal health improvement in Afghanistan. The purpose of the training was to increase the capacity of animal health professionals operating at the interface of wildlife, livestock and human beings. The AKF general manager and vets in Ishkashim cooperated actively and provided the conference room and cooking facilities. We thank very much AKF for this in-kind support.

Presentations on Day 1

Summary: General Introduction of WCS and EcoHealth Program

On 7th July 2013 Dr. Ali Madad “Rajabi” gave a lecture on WCS EcoHealth program and projects across the world and in Afghanistan. The Wildlife Conservation has an important zoological health program in the five zoos of New York City at the Bronx, Central Park, Brooklyn, Queen and Aquarium and participates at improving zoological health standards across the world. Globally WCS is also working in numerous countries across Asia, America and Africa, and operates about 500 conservation projects in more than 60 countries. The WCS parks in New York City welcome c. 4 million visitors each year, and help the city to educate millions of schoolchildren in science and conservation issues. Ecosystem and health programs in developing countries are put in place with local counterparts to help improve human and animal health and ecosystem conditions. WCS supports, develops and improves human health and environmental conditions in an equitable and sustainable manner. WCS wildlife health program builds on more than 10 years of experience in improving the capacities of researchers and technical staff around the world in ecosystem approaches to health. This emerging field of research, education, and action recognizes that health and well-being depend on healthy environments, equitable and productive livelihoods.

Summary: The disease risk at wildlife/livestock interface

Still on 7th July 2013 Dr. Ali Madad “Rajabi” gave a lecture on disease risk at wildlife/livestock interface and discussed disease transmission mechanisms between species. He based his lecture on several study cases of recent outbreaks in neighboring countries, such as in northern Pakistan where blue sheep were affected by mange transmitted by domestic sheep and goats in 1996-2006, or markhors in Tajikistan, in 2010, killed in large numbers by *Mycoplasma capricolum* probably transmitted by domestic goats sharing the same habitat. Eventually foot-and-mouth disease serotypes O and Asia 1 outbreak in Mongolian gazelles and livestock in the Eastern Steppes of Mongolia were extensively discussed in light of recent publications. Interestingly these three interspecific outbreaks originated from livestock sharing the same habitat and competing for food with wild ungulates. Close contact between wildlife and livestock seemed to be a prerequisite to transmission and spreading of the infectious agent in valuable wildlife populations.

The risk of transmission of infectious agents between livestock and wildlife depends on many factors. They include poor animal health services, overgrazing, high density of host species, and overlap of host range with other susceptible species. Therefore every year WCS carry out comprehensive livestock counts to monitor population sizes in Big Pamir and promotes a large-scale vaccination campaign of cattle and free ranging yaks in upper Wakhan district against FMD. This operation decreases the number of clinically sick animals and the dissemination of FMD virus across the landscape to susceptible wildlife hosts. The ecological importance of the operation is that it decreases the risk of FMD outbreak in wildlife, yet improves dairy production to alleviate human malnutrition in the area without increasing significantly livestock numbers, which is a cause of overgrazing, range degradation and wildlife disappearance.



Plate 1: Dr. Ali Madad 'Rajabi', WCS resident veterinarian gives a presentation on disease risk at wildlife/livestock interface to a senior vet of AKF and 13 paravets from Ishkashim, Wakhan and Zebak districts, July 7th 2013, AKF Livestock Production Center, Ishkashim, Badakhshan Province, Afghanistan.

Summary: Ecohealth activities in Afghanistan

On July 7th, Dr. Hafizullah "Noori" gave to trainees a presentation on the principles of ecosystem health using as examples the activities and achievements of the WCS Health Interface Team (HIT) in Afghanistan.

In Badakhshan Province, the WCS HIT worked exclusively in the most impoverished and isolated Wakhan District. A large part of the work consisted at detecting the presence of endemic diseases prevailing in livestock using questionnaires, clinical examinations and laboratory investigations on collected biological samples. An important discovery was the endemic presence of foot-and-mouth disease in the area, and the selection of an appropriate vaccine that was used very successfully in mass vaccination operations of cattle and yak between 2009 and 2013. Another important finding that allows to better understand the spatial distribution of diseases in Afghanistan was the very low prevalence, or lack, of a number of diseases allegedly common in this part of the world, such as brucellosis, bovine tuberculosis or glanders. These three diseases being zoonosis, human health services present in the area were informed of these important discoveries, which allow them to optimize their services. An important effort was also devoted to monitor livestock numbers in upper Wakhan Valley and to

learn more on their landscape utilization in connection with the habitat of valuable wildlife resources. This initiative tried to identify the areas of highest risk of disease spill-over between livestock and wildlife.

Outside Badakhshan Province and since 2006, HIT developed the capacity of local technical staff and governmental staff in various expertise, including avian influenza surveillance in wild birds, handling and sampling of wildlife, waterfowl population monitoring, wildlife immobilization, and wildlife medicine practices.

HIT also developed two long term health monitoring initiatives in Kabul. The first intends to monitor the availability of veterinary diclofenac among Kabul veterinary drug retailers (diclofenac residues in dead livestock have caused the quasi-extinction of three vulture species in southern Asia), it has been started in 2008 and will end in 2013. The other initiative consists at monitoring the birdlife trade at Ka Farushi bird market in Kabul, and the occurrence of mass mortality events.

Eventually HIT sponsored and provided training to two paravets and two resident veterinarians, including outside country training to increase their capacity. The goals of this training is to create a specific capacity in the field of wildlife medicine in Afghanistan and educate an as large as possible segment of the population on the ethics of wild animal husbandry.

Summary: Diclofenac threat to vultures in Afghanistan

On 7th July 2013 Dr. Ali Madad “Rajabi” gave a presentation on the threat posed by diclofenac, a non-steroidal anti-inflammatory drug, to vultures. Carcasses of livestock treated with diclofenac bear residues that are potentially toxic to scavenging vultures. By using diclofenac on their livestock, human beings attempt to resolve animal health problems, yet they also contribute indirectly to the destruction of vultures, which are pivotal components of the ecosystem, and participate efficiently in the removal of dead animals from the landscape. Since 2007 WCS HIT has been monitoring the availability and use of veterinary diclofenac in Afghanistan. By raising public attention on the ecological risk posed by diclofenac, WCS tries to highlight the major sanitary service (ie. dead animal removal at no cost) provided by vultures to the society and to livestock health at large. Management of diclofenac exposure risk emphasizes the importance of an integrative approach to health across ecosystems and their human societies.

Presentations on Day 2

Summary: Wakhan district, livestock disease screening results

On July 8th, Dr. Hafizullah “Noori” gave to trainees a half-day detailed update on a number of infectious diseases that HIT has studied for the last 6 years in Wakhan District. He shared new information on prevalence and distribution of bluetongue orbiviruses, brucellosis, bovine tuberculosis, *Peste des Petits Ruminants*, rinderpest, foot-and-mouth disease, caprine

contagious pleuropneumonia, bovine contagious pleuropneumonia, Q fever, chlamydiophilosis, toxoplasmosis and glanders in the area. This lecture was extremely well received by attendants who are facing routinely in their practices infectious disease problems.

Summary: Snow leopard capture and tranquilization

Chemical immobilization of wildlife is one of the most wanted topics requested by veterinary practitioners when introduced to wildlife medicine. WCS already delivered in the past training in this field to numerous Afghan vets, gathered in Kabul, and produced a short document in Dari detailing the main combinations and dosages required to tranquilize most terrestrial wildlife species in Afghanistan. On July 8th, Ali Madad “Rajabi” delivered a presentation on wildlife immobilization using the snow leopard captures recently performed by WCS in Wakhan to illustrate the topic. He introduced the reasons for studying the ecology of snow leopards, explained basics of satellite telemetry and detailed the technical steps of the leopard immobilization, including darting, handling, sampling, health monitoring during the anesthesia and recovery management.

B. Practical trainings

Dart preparation

On July 8th afternoon, trainees were taught principles and usage of darting, dart preparation, and adjustment of the CO2 pressure gauge according to target distance. Each trainee had the opportunity to prepare darts and to practice darting-on-target at different distances from 5 to 10 meters.



Plate 2: Dr. Naquibullah “Qazizadah”, senior vet with AKF, trains on target-darting in the presence of paravet colleagues and under supervision of Dr. Hafizullah “Noori”, WCS HIT, July 8th 2013, AKF Livestock Production Center, Ishkashim, Badakhshan, Afghanistan.

Appendix 1: Training agenda

Attendance: 14 male trainees (11 AKF paravets from Wakhan, Zebak and Ishkashim and the senior veterinarian from Ishkashim,) and two WCS paravets from Wakhan

Topics: Ecohealth training

Duration: 2 days (7 and 8 July 2013)

Main venue: AKF Livestock Production Center, Ishkashim

Trainers: Drs. Ali Madad “Rajabi” & Hafizullah “Noori” (WCS Health Interface Team)

Teaching language: Dari

Time	Description	Lecturer
Day 1 of the training		
08:30-08:40am	Arrival of trainees and filling attendance form	
08:40-09:00am	Welcome speech	Ali Madad “Rajabi”
09:00-09:10am	Recite Holey Quran	Hafizullah “Noori”
09:10-09:30am	Pre-test	
09:30-10:10am	General Introduction about WCS and EcoHealth programs	Ali Madad “Rajabi”
10:10-10:25am	Tea break	
10:25-11:10am	The disease risk at wildlife/livestock interface	Ali Madad “Rajabi”
11:10-12:00pm	General discussions on taught topics	Ali Madad “Rajabi” and Hafizullah “Noori”
12:00-13:00pm	Lunch	
13:00-13:30pm	Pray time	
13:30-14:10pm	The WCS Ecohealth activities in Afghanistan	Hafizullah “Noori”
14:10-14:25pm	Tea break	
14:25-15:00pm	The diclofenac threat to vultures in Afghanistan	Ali Madad “Rajabi”
15:00-15:30pm	General discussion on taught topics	Ali Madad “Rajabi” and Hafizullah “Noori”

Time	Descriptions	Lecturer
Day 2 of the training		
09:00-09:10am	Arrival of trainees and filling attendance form	
09:10-10:35am	Update on livestock diseases in Wakhan	Hafizullah “Noori”
10:35-10:50am	Tea break	
10:50-12:00pm	Update on livestock diseases in Wakhan	Hafizullah “Noori”
12:00-13:00pm	Lunch	
13:00-13:30pm	Pray time	
13:30-14:00pm	Wildlife immobilization: snow leopard captures in Wakhan	Ali Madad “Rajabi”
14:00-15:30pm	Demonstration of darting equipments and free discussions about wildlife captures	Hafizullah “Noori” and Ali Madad “Rajabi”
15:30-15:50pm	Post-test	
15:50-16:10pm	Distribution of the field guide on wildlife diseases in Afghanistan	Hafizullah “Noori”
16:10-17:30pm	Closure and distribution of the attendance certificates	Hafizullah “Noori” and Ali Madad “Rjabi”

Appendix 2: List and affiliation of trainees the 14 male trainees who attended the ecohealth training of WCS, in Ishkashim, on 7-8 July 2013.

No.	Name	District	Affiliations	Phone number
1	Sarwar	Wakhan	WCS Paravet	
2	Mohammad Gul	Wakhan	WCS paravet	934824134
3	Juma Gul	Wakhan	AKF paravet	
4	Mohammad	Wakhan	AKF paravet	
5	Niaz Ali	Wakhan	AKF paravet	
6	Dawran Shah	Wakhan	AKF paravet	937409212
7	Gharib Mohammad	Wakhan	AKF paravet	934832722
8	Abdul Qaium	Ishkashim	AKF paravet	0794658899
9	Abdul Rahim	Ishkashim	AKF paravet	0791313933
10	Dr Naqibullah	Ishkashim	AKF vet	0798431280
11	Juma Gul	Ishkashim	AKF paravet	0793594789
12	Ramazan	Zebak	AKF paravet	0797197800
13	Abdul Hakim	Zebak	AKF paravet	
14	Qurban Ali	Zebak	AKF paravet	

Appendix 3: Results of training evaluations

The Health Interface Team conducted two days of training in Ishkashim. All trainees significantly improved their knowledge during the training as testified by the results of pre- and post-test evaluations:

Pre-test evaluation results: Wrong answers (70.2%), correct answers (26.2%) and unknown answers (3.6%)

Post-test evaluation results: Wrong answers (33.6%), correct answers (63.6%) and unknown answers (2.8%).