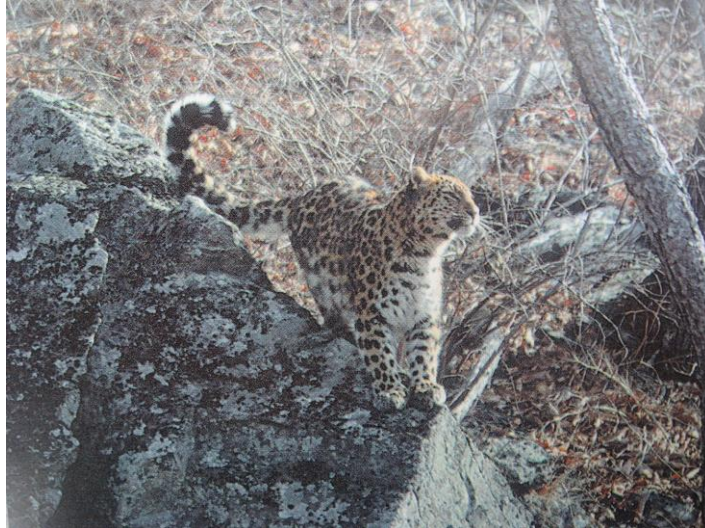


# **Wildlife Vets International Amur Leopard Project update:** **Autumn 2010**

## **Introduction**

**2010 has been another busy year** for WVI's Amur Leopard Project, with activities both in Russia and the UK. *(Detailed information of WVI's involvement with the Amur leopard to date can be found in previous reports posted on our website [www.wildlifevets.org](http://www.wildlifevets.org) and obtainable from WVI on request. For the sake of brevity these details will not be repeated here.)*



Wild Amur leopard - WCS

**Throughout the year**, on behalf of WVI, John Lewis continues to act as veterinary consultant to the leopard project in the RFE run by WCS-Russia and The Institute of Biology and Soil (part of the Russian Academy of Sciences), and to the Zoological Society of London's Amur Leopard Wildlife Health Programme (ALWHP) which seeks to identify potentially dangerous infectious diseases in prey species at the proposed leopard reintroduction site. In addition John acts as veterinary advisor to all members of the European Amur leopard captive breeding programme (or EEP) which operates in a range of zoos across Europe from the UK to the Russian Federation.

As often as possible John also gives illustrated lectures on Amur leopard conservation to veterinary interest groups, animal professionals, university departments, etc. In 2010 presentations were made to the Nottingham University Veterinary School, the Durrell Institution for Conservation Education at Kent University, the Association of British Animal Keepers and supporters of Colchester Zoo's Action for the Wild Programme.

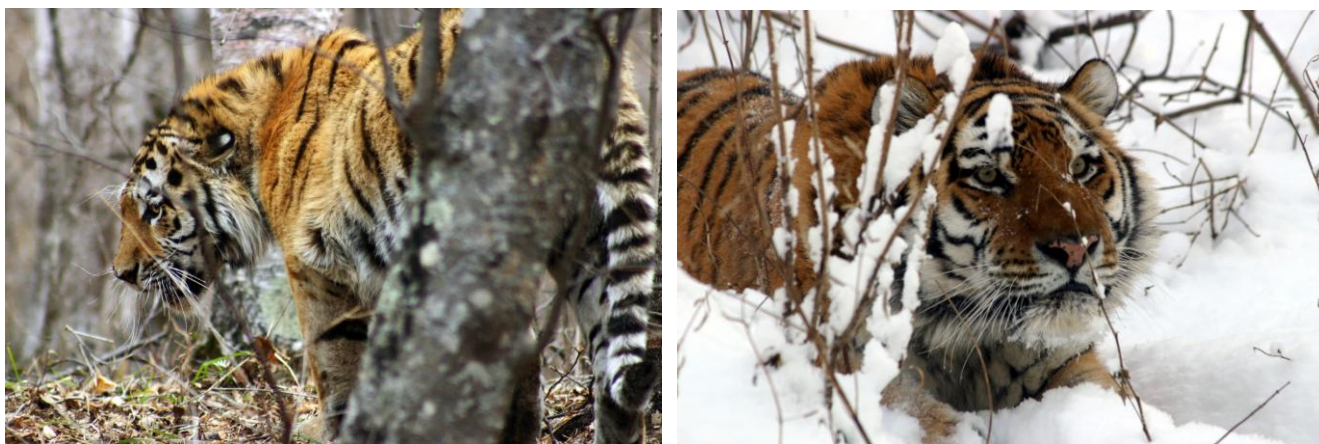
## **The field season in the Russian Far East, 27-Sep-10 to 07-Nov-10.**

**It was not possible** to arrange another trapping season in the Far East of Russia in 2010 due to problems with obtaining capture permits. Therefore no wild Amur leopards were radiocollared or medically assessed this year. It is realistically hoped that this situation will be resolved for 2011.

**In the Russian Far East** leopards share their habitat with tigers, and following a request from WCS-Russia, John Lewis visited their tiger project in Terney to assist with investigating a possible new disease problem emerging in the tiger population (see Appendix 1). Infectious diseases affecting tigers can equally affect leopards and therefore any such investigations have relevance for both the tiger and the leopard.

The first step in gaining an understanding in the impact of disease on tigers is to analyse and publish the results of serological screening. WCS-Russia has been radiocollaring tigers since the early 1990's and have accumulated a number of disease screening profiles for over 40 animals. Reviewing this data with WCS biologist Dr John Goodrich was one of the key tasks of this year's field season. The data has been analysed and a manuscript is now in preparation. It is anticipated that this can be submitted to one of the major wildlife disease journals by the end of the year. Interestingly the pattern of disease exposure experienced by tigers in the Sikhote-Alin closely parallels that detected in the wild Amur leopards, although there is less data for the latter.

**The specific issue of whether canine distemper** virus is causing mortalities in the Russian tigers received particular attention. Discussions were held with local veterinarian Dr Yevgeny Slabiy who reported seeing clinical cases in a significant number of domestic dogs in the area every year. Further discussions were held with senior WCS personnel and the associate director of WCS's Asia Global Health Program - Martin Gilbert - to explore ways to improve local diagnostic capacity for tiger disease. Improvements achieved in this area would have a direct benefit for leopards as the same laboratory in Ussurisk is responsible for investigating both leopard and tiger deaths.



Copyright J. Goodrich, WCS

Indirect investigations into what tick-borne diseases tigers are exposed to can be studied by probing ticks found on tigers for the presence of pathogen DNA. A collection of such ticks has now been made available to WVI for investigation in the UK over the coming few months.

**In addition to the disease investigation** activities, John Lewis worked every day for 6 weeks with WCS's experienced tiger trapping team in an attempt to radiocollar more tigers for research. Due to various logistic constraints it may have been necessary to conduct a long gas anaesthetic in the field – a job that would have fallen to John. Somewhat frustratingly only one tiger was caught – one hour after he had left the area to return to the UK!

**During the season in Terney training** in wildlife disease issues was continued for Dr Misha Gonchuruk who was based there for the duration. The opportunity arose to demonstrate practical techniques of post mortem examination (seal, raccoon dog, wild boar and birds), and to examine bones of a radiocollared research tiger that had died recently. Assistance was also provided in analysing Dr Gonchuruk's disease screening and prevalence data in prey and domestic species in the Laso area.



The ulna bones of a recently dead tiger showing bony damage consistent with a shotgun wound (arrow)

Dr Gonchuruk also spent a three week study trip in the UK in the June 2010, supported by the Zoological Society of London (ZSL) for whom he works. During this time he spent several days with John Lewis anaesthetising captive leopard, tiger and lion for various purposes. Experience in captive cats is invaluable when working in the field on their free-ranging counterparts.

**WVI was able to provide WCS-Russia** with a number of veterinary consumables necessary to collect appropriate samples from tigers caught for radiocollaring in the future, plus a limited amount of drugs to be used in the unlikely event of anaesthetic crises.

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**On the 13<sup>th</sup> October** the people of Terney held their annual “Tiger Day”. This colourful festival celebrates the existence of the tiger in the Russian Far East and highlights threats to its continued survival. A range of events were arranged for the day, but the most spectacular by far was the parade through the streets of hundreds of children in tiger fancy dress. A wonderful sight!!



Tiger Day in Terney

## Amur Leopard Veterinary Database

Funded entirely by Wildlife Vets International (WVI), further progress with developing the database of veterinary information on captive and wild Amur Leopards has been made in 2010. The first version was tested by entering a limited data set to check its functionality. This revealed a number of data input glitches which have now been resolved by our consultant database designer Ms. Mala Ram. All fields are now functioning correctly and comprehensive data input is well underway. Once that has been completed the analysis can begin!

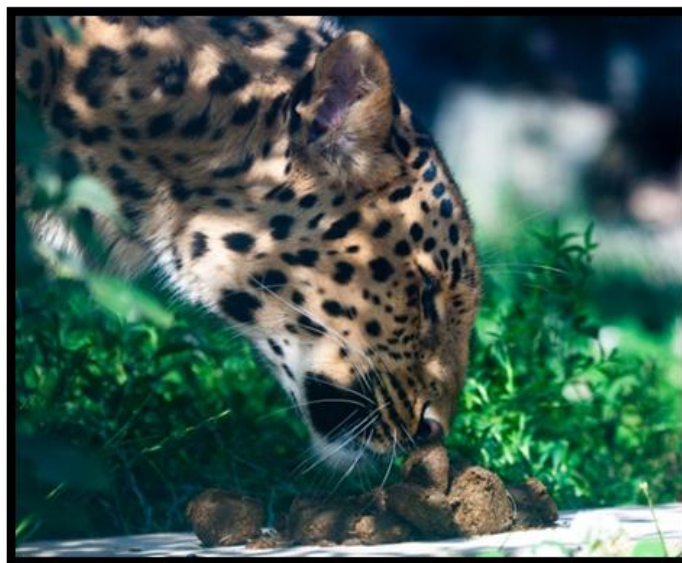
Gathering and collating data from all the European zoological collections that have ever held Amur Leopards is a complicated and long-winded business. Data has been sought from over 26 countries. The translation of reports into English alone takes up a considerable amount of time and our thanks is extended to Drs Tanya Arzanova, Claudia Schoene, Heike Weber, Hanspeter Steinmetz, Guillaume Douay, and others for their patience and hard work in this endeavour.

## Project by MSc student Ricardo Sa:

*“Surviving Reintroduction: Behavioural responses of captive bred Amur leopard, Panthera pardus orientalis, to Amur tiger, Panthera tigris altaica, faeces”*

A lot can be done in support of wild Amur leopards within zoological collections in the UK. In part fulfilment of the requirements for an MSc in Wild Animal Health (London University), veterinarian Ricardo Castro Cesar de Sa carried out an investigation into how captive Amur leopards reacted to the presence of tiger faeces in their enclosures, a project supervised and facilitated by John Lewis and Charlotte Burn. When planning the reintroduction of captive bred leopards into the Russian Far East it is extremely useful to know whether these cats exhibit innate avoidance behaviours to evidence of tigers in the vicinity as to survive in the wild leopards must avoid conflict with tigers at all costs.

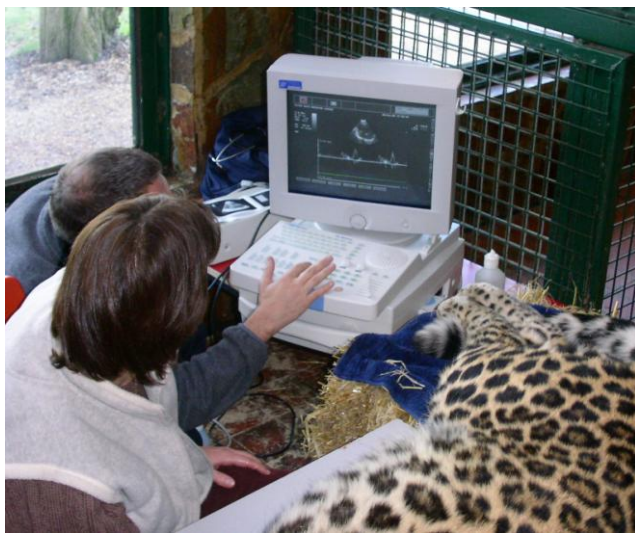
**Ricardo’s project demonstrated** that captive Amur leopards may indeed not have sufficiently robust avoidance reactions to tiger faeces and may well require aversive training before release to the wild in Russia. This is an extremely valuable piece of practical work and a manuscript is in preparation for publication in a scientific journal. It is our intention to facilitate and supervise other projects within UK zoological collections in support of our attempts to provide the very best of veterinary care and advice for the remaining wild Amur leopards.



Copyright Ricardo Sa.

## Heart murmurs in Amur Leopards – New equipment

**Heart murmurs** detected in Amur leopards are difficult to study without electrocardiography (ECG) and echocardiography. Simple ECG equipment is available and is used regularly by WVI in investigations on wild leopards, but to date echocardiography machines have been rather too cumbersome to use under field conditions – until now! GE Healthcare has recently launched a pocket-sized ultrasound machine – the VScan – which is capable of performing echocardiography. WVI has now obtained permission to trial the machine on captive leopards in the UK to test its suitability in wild leopards, and if it lives up to its promise we will be seeking funds to buy one for the project. This is a very exciting development which could markedly improve our understanding of the significance of these murmurs in the wild population.



Conventional echocardiography equipment



The GE Healthcare VScan

## Conclusion

2010 has been a productive year for WVI's Amur Leopard Project, and we remain committed to this programme in the long term as that is the only way to have lasting impact. Many of our activities are carried out in the UK throughout the year, but our involvement in Russia was extended in 2010 to include investigation of disease exposure in tigers. This is a welcome development which should enable us to gain a more comprehensive understanding of the disease issues faced by all large cats in the Russian Far East – including the leopard.

Dr John Lewis  
Veterinary Director,  
Wildlife Vets International

## **Previous reports on WVI activities with Amur Leopards**

These reports are all available on request from WVI:

1. Report on WVI activities in the Amur Leopard Project, Russian Far East, October 2006
2. WVI Amur Leopard Project update - Spring 2007
3. WVI Amur Leopard Project update - Autumn 2007
4. WVI Amur Leopard Project update - Autumn 2008
5. WVI Amur Leopard Project update - Autumn 2009

***We would like to thank our sponsors for their generous and continued support of the Amur Leopard Project:***

Aeroflot Russian Airlines  
Colchester Zoo's "Action for the Wild" programme  
The Friends of Paradise Wildlife Gardens  
Idexx Laboratories, Wetherby  
Marwell Zoological Park  
Private Charitable Trust (anonymous)  
Thrigby Wildlife Park  
Twycross Zoo  
Wildlife Heritage Foundation

## Appendix 1

### **TIGERS, UNDIAGNOSED MORTALITY - RUSSIA: SIBERIA, REQUEST FOR INFORMATION**

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A ProMED-mail post

<<http://www.promedmail.org>>

ProMED-mail is a program of the

International Society for Infectious Diseases <<http://www.isid.org>>

Date: Tue 22 Jun 2010

Source: The Guardian [edited]

<<http://www.guardian.co.uk/environment/2010/jun/20/siberian-tiger-mystery-disease-extinction>>

A mystery disease is driving the Siberian tiger to the edge of extinction and has led to the last animal tagged by conservationists being shot dead in the far east of Russia because of the danger it posed to people.

The 10-year-old tigress, known to researchers as Galya, is the 4th animal that has had a radio collar attached to it for tracking to die in the past 10 months. All had been in contact with a male tiger suspected of carrying an unidentified disease that impaired the ability to hunt. "We may be witnessing an epidemic in the Amur tiger population," said Dr Dale Miquelle, the Wildlife Conservation Society's (WCS) Russia director.

Galya had recently abandoned a 3-week-old litter of cubs and come into the town of Terney looking for an easy meal. Following a series of all-night vigils by researchers, attempts to scare the tigress away failed. She was reported to the Primorsky State Wildlife Department as an official "conflict tiger," and a state wildlife inspector was called in to destroy her earlier this month [June 2010].

"This tiger had lost its fear of humans; typically, Amur tigers will never expose themselves for observation. It was like seeing someone you know turn into a vampire," Miquelle said.

Scientists are attempting to understand what compromised the tigress's ability to capture wild prey, which she had lived upon almost exclusively since birth. Her cubs, which were subsequently found dead at the den, are likely to have had their mother's disease transmitted to them through the placenta. "Initial necropsy results show an empty digestive tract, which is highly unusual. We're still waiting for results of further tests, but the abnormal behaviour suggests disease, possibly neurological," said Miquelle. "We are extremely concerned about the possibility of an epidemic that could be sweeping through this region. Animals we have studied extensively, and known well, have demonstrated radically changed behaviour, which is extremely disconcerting."

Weighing only 91 kg at death -- down from an estimated 140 kg at full health -- the tigress's death represents the end of an 11-year lineage of related "study" tigers and leaves the WCS's Siberian Tiger Project with no radio-collared animals for the 1st time in 18 years.

WCS Russia has tracked more than 60 tigers since inception in 1992.

In March this year [2010], Miquelle raised the prospect of disease as a potential threat to an already endangered Siberian tiger population. WCS Russia reported in October 2009 that there had been a 40 percent decline in numbers since the last full survey in 2005, from 428 to as little as 252 adult tigers. The tiger's range has been reduced to a small pocket in the corner of the country within the region of Primorsky Krai. Speaking at a conference in Vladivostok, Miquelle said that anything above a 15 percent mortality rate in adult females could kill off all Amur tigers. With around 150 adult females in the population, any more than 22 deaths of adult females per year may wipe out the species. Poaching accounts for about 75 percent of all Amur tiger deaths, with 12 to 16 adult females killed annually. "We're in a new era where disease could seriously affect the Amur tiger."

The Russian draft federal tiger conservation strategy has recently been amended to take account of disease, including a section on vaccination against canine distemper, a viral disease which is common in the Russian far east in domestic dogs and cats. "The addition of disease-related deaths to existing sources of mortality could push this population over a tipping point," said Miquelle.

The federal strategy, which is being designed by a number of scientific groups including WCS Russia, is being prepared for the 1st global Tiger Summit due to take place in St Petersburg this September 2010. Along with World Bank president Robert Zoellick, Vladimir Putin is due to preside over the conference. WCS Russia hopes to recommence the capture of study tigers in September 2010. "We aim to change the focus of why we study tigers, with a new emphasis on disease," said Miquelle. "The only consolation in this grisly process is that, for once, a serious threat is not originating from human actions, although even that, for now, is open to debate."

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