

Wildlife Vets International Amur Leopard Project update: Autumn 2007

Background

The Amur leopard is the world's most endangered cat, with as few as 25 - 35 individuals now surviving in southwest Primorski Krai in the Russian Far East. This population is in grave danger of extinction due to numerous factors including ongoing development in the region, logging activity, hunters and poachers in the forests, forest fires, inbreeding depression due to low genetic diversity within the remaining leopard population, and the potential for disease transmission from domestic animals.



A wild Amur Leopard (courtesy WCS-Russia)

However, a large coalition of foreign non-governmental agencies (NGO's) and regional agencies of the Russian Federation are currently working together to secure a future for this leopard, and **Wildlife Vets International is responsible for providing much of the veterinary expertise** in the process through the activities of its veterinary director Dr John Lewis. The future of the Amur leopard rests on vigorous conservation activities to protect the existing small population and an imaginative reintroduction scheme to establish a second population in former leopard habitat in the southern Sikhote-Alin mountain region of Primorski Krai. There are many veterinary aspects of this effort and WVI is committed to supporting it in the long term. The reintroduction process may take up to 15 years so long term support is essential.



Amur leopard habitat in winter (J.Lewis, WVI)

More details of the background to WVI's increasing involvement with this project can be found in our previous two reports ("*WVI - Report on Amur Leopard project 2006 – Oct*" and "*WVI - Report on Amur Leopard project 2007 - Apr-May*"). For the sake of brevity these details will not be repeated here. However, John Lewis's role in the overall Amur leopard conservation activities through WVI can be summarised as follows:

- To advise and assist in the catching and clinical assessment of wild leopards and other species in Primorski Krai. This component includes the use of advanced field anaesthetic techniques.
- To train Russian vets and veterinary students about various aspects of wildlife medicine and facilitate the development of a wildlife medicine component to the veterinary course in the Ussurisk Academy in the Russian Far East.
- To advise on the design and implementation of a wildlife health monitoring unit being developed at the Ussurisk Academy. (This is part of the Zoological Society of London's Amur Leopard Wildlife Health Project)
- To advise on the design and implementation of a disease survey of existing wild leopards, their prey and domestic species in Primorski Krai.
- To develop a disease management programme for the proposed reintroduction scheme.
- To provide veterinary advice on the design and management of the proposed reintroduction centre.
- To act as veterinary advisor to the breeding programme for Amur leopards in European zoos.
- To assess the health of captive Amur leopards in European zoos with particular focus on animals that may be seconded to a breeding centre in the Russian Far East in the reintroduction zone.
- To facilitate investigations into any significant disease issues in the wild Amur leopard population and in the captive European Amur leopard population.
- To liaise with the veterinary advisor of the North American captive Amur leopard breeding population (once appointed) and standardize screening protocols.

In all these activities WVI works in partnership with a variety of organizations including the Wildlife Conservation Society - Russia (WCS Russia), the Zoological Society of London (ZSL), Phoenix, Tigris, the Henry Doorly Zoo Omaha, the Russian Academy of Sciences Institute of Soil and Biology, the University of Cambridge Veterinary Department, the Far Eastern Leopard Conservation Fund, the World Wide Fund for Nature (WWF), the Laboratory of Genomic Diversity at the National Cancer Institute USA and others.

Visit to the Russian Far East on behalf of WVI, October 4th to November 20th 2007.

Leopard trapping:

John Lewis worked with the WCS-Russia/Institute of Soil and Biology field team from October 6th to November 4th, camping in a river valley in Nezhinskoye Hunting Lease area, immediately adjacent to Borisovkoe Zakaznik. Two leopards were caught during this period – one male and one female – and as in previous trapping periods a full medical appraisal of each animal was made and samples taken to investigate their current disease status. Dr Melody Roelke from the US National Cancer Institute was also able to be present throughout the catching period bringing with her a portable ultrasound machine which was used to assess cardiac structure and function. Interestingly both leopards had obvious heart murmurs (abnormal heart sounds) although no structural abnormalities were found to account for this. (See below for more comments on heart murmurs in captive and wild Amur leopards).



Recently caught male wild Amur leopard (A Cernih)

One Asiatic black bear was also caught during our attempts to trap leopards and samples were taken as part of the ongoing survey of wildlife diseases in the area.



Teaching gas anaesthesia techniques – Black bear (A. Cernih)

Catching 2 leopards in a month may not seem very many for the amount of effort necessary. However, when it is considered that only 25 – 35 wild leopards live in an area of approximately 20,000 square kilometres this trip can be considered very successful!



Preparing a leopard for release with John Goodridge of WCS (A Chernih)

Training workshops:

After the trapping period came to an end John Lewis participated in workshops at the Ussurisk Academy – as part of a team teaching vets and vet students about handling wild animals, and wildlife diseases and their investigation. A week long course of illustrated lectures was run at the Academy in Ussurisk followed by a few days with selected students and staff at a rehabilitation centre in Utyios (near Khabarovsk) to teach carnivore anaesthesia, wildlife pathology, aspects of epidemiology and some practical laboratory techniques. The teaching at Utyios was strictly hands-on – made possible as the rehabilitation centre needed medical check-ups carrying out on their many bears and lynx. The feedback from students and staff alike was extremely positive from the workshops and it is hoped that further workshops covering a wider variety of topics can be run in future. These workshops are run with funding from the US Trust for Mutual Understanding, ZSL's Darwin Initiative grant, WCS-Russia and WVI, and are an essential part of veterinary capacity building in the region. One indicator of progress in this year's workshops was the fact that the teaching team included some Russian staff members from the Ussurisk Academy and expert Russian field biologists so that the process has become far more collaborative.

Meeting of the ALWHP, Ussurisk:

A steering committee meeting of ZSL's Amur Leopard Wildlife Health Project (to which John Lewis is veterinary advisor) was held after the workshops at the academy in Ussurisk. Various issues concerning the training of local vets and vet students, the wildlife component of the veterinary curriculum and the development of the Wildlife Health Monitoring Unit (WHMU) were discussed with the Academy's academic staff. Progress in these areas is slow but positive. A site visit to the WHMU was made to review progress. Although the unit is not ready to receive its first samples yet, considerable progress has been made in refurbishing the building and organising how it will operate.

Amur Leopard and Tiger Alliance (ALTA) meeting, Vladivostok:

The modern face of conservation is one of multiple organisations working in concert towards a common goal. ALTA is an alliance of international and Russian conservation organisations working together to protect the Amur leopard and tiger. Some members are fundraisers whilst others implement projects on the ground. Between them ALTA partners manage over half the leopard and tiger conservation projects in the Russian Far East. When so many individual organisations are working towards the same end it is essential that close communication and cooperation is established to ensure efficiency and effectiveness. Given WVI's growing involvement in leopard conservation in the Russian Far East an application was made to join ALTA at their annual meeting in Vladivostok to which John Lewis was invited. This was successful and we look forward to an even greater degree of integration in the endeavours to protect these fabulous cats.

Reintroduction programme meeting, Vladivostok:

John Lewis on behalf of WVI was also invited to attend a meeting of all the conservation organisations concerned with the planning of the establishment of a second population of Amur leopards in the Russian Far East. The momentum behind this reintroduction is gathering pace and as it does so the need for veterinary input increases almost daily. Organisations attending included WCS, WWF, ZSL, Phoenix, the Ministry of Natural Resources of the Russian Federation, the Lazovski State Zapovednik and others. John presented a preliminary account of the veterinary status of captive and wild leopards to the attendees, and since the meeting has agreed to draft the disease management strategy for the reintroduction process. This is a crucial piece of work and will form part of the detailed submission of plans to the government of the Russian Federation which has the final say in whether the project goes ahead or not.

Activities relating to the European captive Amur Leopard breeding programme

Significant progress has been made since spring 2007 in the development of a veterinary database for the captive Amur leopard population in Europe. Apart from the ongoing gathering of veterinary data, a post-graduate student at Imperial College, London, studying for her MSc in Conservation Science (Samantha Earle), has chosen to build the database as her dissertation project. This is a considerable boost to our efforts, not least because the dissertation is time limited which means that we should be able to meet a deadline of September 2008 to have the database up and running. Given that Ms Earle will be able to dedicate herself fulltime to the task over a period of 5 – 6 months progress should be far more rapid than initially anticipated.

Abnormal heart sounds (cardiac murmurs) were detected in the 2 wild leopards caught this autumn, without a satisfactory explanation being found (see above). Similar murmurs have also been detected by John Lewis over the past few years in several captive leopards during routine medical checkups. Such murmurs can be totally benign (e.g. as a result of certain anaesthetics), but others are caused by structural abnormalities in the heart (e.g. so-called "hole in the heart"). The presence of serious structural abnormalities would be of grave concern and animals suffering from any such condition could not be allowed to participate in any reintroduction programme. Therefore all such murmurs warrant detailed investigation. This is no simple matter, so a cooperation with Professor Malcolm Cobb at the new Nottingham veterinary school in the UK has been established to study the problem. Standards of veterinary care for Amur leopards must be

of the highest quality and we are extremely grateful for the expert help of Prof. Cobb.



Examining wild Amur leopard (J.Goodridge, WCS)

The captive Amur leopard population in Europe is generally healthy, but another problem which is seen very occasionally is a cub born with an abnormally short tail. This is likely to be a genetic defect and if it is, animals carrying the gene should neither be bred from nor included in any reintroduction attempt. However, identifying which gene is responsible is a very technical and expensive business! Some preliminary investigations were carried out in 2006 at the Cambridge University vet school by Dr David Sargan and his team, but no conclusions were reached and lack of funding precluded further work. However, to pursue the issue further a grant application has now been submitted to the Wellcome Trust to fund a detailed study in Dr Sargan's department. Time will tell whether this application will be successful, but it is extremely heartening that another UK veterinary school has been sufficiently interested in our work to allocate time and expertise in the struggle to save the world's rarest cat!

Outcomes - Summary:

- By supporting John Lewis's work on Amur leopards, **WVI has rapidly become the main agency providing veterinary support for conservation efforts to save the Amur leopard.**
- By becoming a member of ALTA, WVI has become further integrated into the network of organisations working to save the Amur leopard and tiger from extinction.
- By engaging the interest and expertise of specialists from UK universities, a wider range of veterinary issues concerning the leopard can be addressed.
- By supporting ongoing efforts to train Russian veterinarians in wildlife health issues, WVI is playing an active role in creating future conservation-minded professionals locally.
- By cooperating and communicating with as wide a range of conservation agencies as is possible in the Russian Far East, WVI is engaging in the highest standards of modern conservation practice.

Our commitment to the Amur leopard is sincere and with the ongoing support of our sponsors we should be able to provide the highest quality of veterinary support for the Amur leopard for many years to come.



We would like to thank our sponsors for funding, equipment and expertise:

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