

# EAZA Tiger Campaign

## Project Report

### “Fire-Fighting in Amur tiger habitat in the Russian Far East”

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## 1. Introduction

EAZA is contributing USD \$12,000 of the funds raised in the Tiger Campaign to fire-fighting efforts by Tigris Foundation and Phoenix Fund in tiger habitat in the Russian Far East. A five-member team fights seasonal forest fires during the two fire seasons; late autumn and early spring. More than 95% of the fires are human-induced.

This report consists of the following components:

1. Overview of fire-fighting activities (Summer 2003 – April 2004)
2. Analysis of the impact of fires
3. Discussion and plans for the future
4. Financial information

## 2. Overview of fire-fighting activities

In January 2000, with funds provided by Tigris, a five member fire-fighting team began to fight the fires that have already destroyed large tracts of habitat in this part of the Amur tiger range. The team is based in the capital of Khasan, the main district in the range of the remaining 30 Amur leopards, where the members can be reached by phone 24 hours a day. The fire-fighters wear protective clothing and use high-pressure air blowers and an army truck fitted with a water tank. Andrei Yurchenko, the leader of our main anti-poaching team in Khasan, supervises the activities of our fire-fighting team.

The team had a set-back: the engine of the truck broke down and the truck had to be fitted with a new engine. Three high-pressure airblowers were purchased, a chain saw and 5 sets of protective clothing.

An overview of the fires that were extinguished can be found in the following table.

<i>Location of fire</i>	<i>Fires extinguished March 10- May 25, 2003</i>	<i>Fires extinguished by September 17 – December 10 2003</i>	<i>Total</i>
<i>Kedrovaya Pad reserve</i>	<i>4</i>	<i>-</i>	<i>4</i>
<i>Wildlife refuges(zakazniks)</i>	<i>5</i>	<i>-</i>	<i>5</i>
<i>Forestry lands/ hunting leases</i>	<i>14</i>	<i>-</i>	<i>14</i>
<i>Deer farms</i>	<i>2</i>	<i>-</i>	<i>2</i>
<i>State land</i>	<i>5</i>	<i>3</i>	<i>8</i>
<i>Other</i>	<i>6</i>	<i>10</i>	<i>16</i>
<i>Total</i>	<i>36</i>	<i>13</i>	<i>49</i>

The spring season had a more than average number of fires, and hence the team focused on the most valuable forested habitat in protected areas and hunting leases. In the autumn season there were few fires, and few of the fires reach valuable habitat. Therefore the team could afford to work near towns, on agricultural fields and near dachas ("State Land" in the table).

### **3. Analysis of the impact of fires and the effectiveness of fire-fighting**

WCS, TiGis and Tigris Foundation conducted a thorough analysis of fires in Southwest Primorye (the range of the Amur leopard). The funds for the analysis were provided by Tigris Foundation. The fire report is attached in a separate document. For six of the eight years between 1996 to 2003 the G.I.S. laboratory "TiGis" determined the extent of the areas burned with use of satellite imagery (Landsat 7 after 1999 and other images before 1999). The images show the study area in late April or early May, before the habitat greens-up and areas burned in autumn and early spring become indistinguishable. For two years (1999 and 2002) we could not find suitable images without extensive clouds or fog.

The analysis shows that a total of 46% (!) of SW Primorye burned at least once during the six years for which images are available. Not only open landscapes burn; fires cause extensive damage to forest lands as well. We believe that historically fires have been responsible for the conversion of a large percentage of SW Primorye from forested lands to shrublands and meadows. Continued burning of these lands prevent forests from regenerating and the "creepage" of fires into forests causes a continuing, slow but steady, destruction of even more of the forest lands on which both Amur leopards and tigers depend. It is clear that the available habitat is diminishing due to fires, pushing especially the Amur the leopard ever closer to extinction.

The effectiveness of the fire-fighting was estimated by comparing the correlation between burns in the south and north part of the study area (where the fire-fighting team does not operate) and the central part of the study area (where the team operates) for the period before the team became active (before January 2000) and the period in which the team has been active (after January 2000). Unfortunately, the analysis proved that the effects of the project have been insignificant. The poor results are partly caused due to the fact that the team tried to protect a too large area. As a result, in many cases the team managed to extinguish a fire in a certain area several times, before at a later stage in the fire season this particular area burned all the same.

### **4. Discussion and plans for the future**

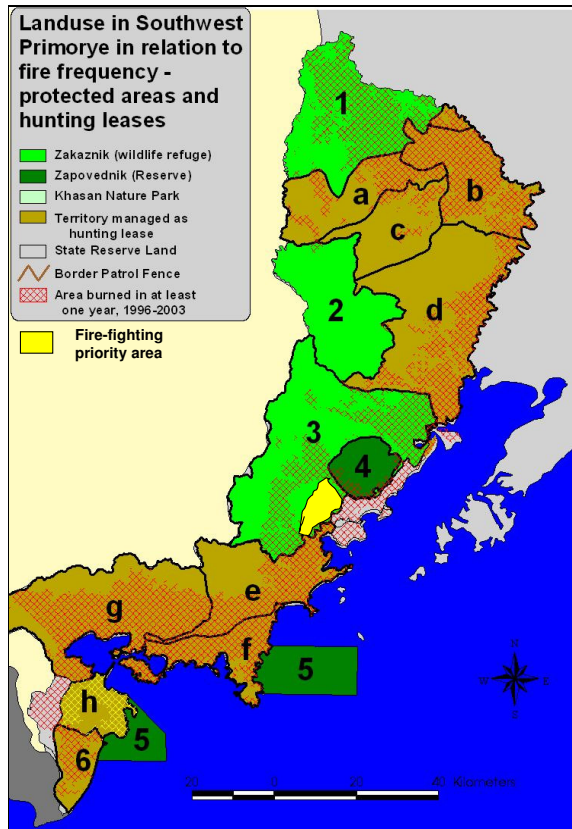
We originally planned to expand the project by establishing two "fire-fighting outposts" in order to shorten reaction time. One outpost was planned to the North of the base-camp (located in the main town of SW Primorye) and one to the South. This plan was included in our proposal to EAZA. However, the disappointing results demand more rigorous measures and changes in our approach.

Instead of creating outposts, the following changes have been implemented:

1. A relatively small priority area for fire-fighting was determined. The area is indicated on map 1 (in yellow). The area is located in the wildlife refuge Barsovy ("zakaznik"). The area forms a triangle between a small river that is the southern boundary of the reserve Kedrovaja Pad (Northeast boundary of priority area), the main road through SW Primorye (West boundary) and a railroad (East boundary). The area suffers frequently from fires and as a result the dominating habitat type is open "parkland" forest. If the frequency of burns is very substantially reduced during a number of years, a natural forest regeneration and recovery process will occur. Leopard -and to a lesser extent tiger- tracks were relatively frequently encountered in the priority area during several snow track counts in the winters from 1997 and 2000. However, during the most recent count (February 2003) only one tiger track was found. The attractiveness of the area to leopards and tigers has been severely reduced since the large deer farm enclosures, located in the central part of the priority area, closed down one by one between 2000 and 2003. The density of wild ungulates in this -and other- open parkland forests is low, probably as a result of the fact that ungulates form easy targets for poachers and hunters due to a lack of cover.
2. The fire-fighting team will work exclusively in the priority area. The team set up camp in the area during the spring 2004 fire season. When there are no fires in the priority area, the team members

create fire-protection lanes through controlled burning of grass and shrubs. This is done along the rail road, the main road and a road that intersects the area.

- The salaries of the team members are no longer fixed payments. Starting with the spring 2004 season, the members can earn a maximum additional premium of 60% of their previous salary. The level of the additional payment will depend on their success in defending the priority area against fires. (The salaries have always been determined in USD. Recently the dollar-rouble rate dropped considerably, while prices in roubles continue to rise. As a result, the “buying power” of the salaries will only increase by approximately 20% if the full premium is paid. If the members do not earn a premium the “buying power” of their salary drops by approximately 20% compared to the previous year.)



Map 1. Extent of areas burned with the new fire-fighting priority area.

The priority area is small, but if protected well during a number of years, it will become attractive tiger and leopard habitat again. More important, our focus on the priority area provides a test-case that will allow us to determine how effective intensive fire-fighting can be. TiGIS will analyse the results of the protection of the priority area. We expect the results of the analysis in June 2004.

However, while we focus on the priority area, the remainder of the habitat continues to burn. We believe that six major steps need to be taken to reverse the present situation fundamentally:

- Conduct a survey in Southwest Primorye to determine more precisely who sets fires and why, and to determine public opinion towards fires.
- Based on the results of the public survey, initiate a mass media campaign to increase public awareness and reduce the amount of land burned on a yearly basis. We believe that public

education could be a key tool in reshaping behaviour of people in Southwest Primorye. One of the measures will be to place fire-warning signs at regular intervals along the main roads.

3. Improve fire-fighting capacity in Southwest Primorski Krai by improving co-operation between Forest Service, Hunting Department, Hunting lease managers, deer farms and District officials. Development of a strategic approach to fire fighting that increases effectiveness of efforts will be vital.
4. Integrate the activities of our fire-fighting team and make it part of a strategic co-operative plan that includes creation of fire breaks in key areas.
5. Enlist the assistance of local administrations, police and judicial branches to arrest and prosecute arsonists.
6. Identify 2 more areas to initiate intensive fire suppression efforts, and simultaneously initiate forest restoration efforts. These areas should act as "model restoration sites" and demonstrate that it is possible to restore healthy forests to this region.

These plans are very ambitious, and will take considerable time and effort to develop and implement. However, such a comprehensive approach is needed to reverse the current trends in habitat deterioration.

The fire impact analysis is presently being translated into Russian and will be printed in the form of a booklet. The analysis will form a powerful tool in raising awareness and mobilise support among authorities and other stakeholders (see point 3) that have an impact on leopard habitat. Surprisingly, at present civil servants and scientists often express the opinion that fires are not a problem. An opinion that is frequently expressed can be summed up as 'there have always been fires, the intensity of fires is diminishing and as a result both the size of the forested lands and the volume of the forests per hectare are increasing in SW Primorye'. This opinion is reflected in official data. In our opinion, these official data are fabricated by the forestry service. After a period of intensive logging commercial logging was banned in SW Primorye in the early seventies, mainly to allow the forests to recover. Therefore the forestry service has to show data that indicate that a recovery process is ongoing, or else the service has to admit that it is incapable of managing their forests properly.

One of the first steps in the process will be to organise a meeting in order to raise awareness and start a dialogue among stakeholders, and work towards a strategic plan that is supported by all parties.

We believe it is possible to reverse the present trends and actually increase forest cover in Southwest Primorski Krai. To do so will require significant effort, but that effort is essential to save the Amur leopard and the forests that leopards and tigers depend upon. Additionally, we believe it is to the advantage of the Krai and District to support such initiatives, as the present situation also destroys economic potential of the region, including harvest of forest products as well as ecotourism potential. Southwest Primorye is acquiring international recognition as home of the last Amur leopards, as well as a biodiversity hotspot. Eventually, this will be a source of both pride and revenue for Russia that should not be wasted.

### 3. Financial information

Purchases at the end of 2002: 3 high-pressure airblowers and a chainsaw (\$3.000 total)

<b>Total costs 2003 in USD</b>	<b>18567</b>
Salaries	9967
Fuel	4330
New engine for GAZ-66 (13.Febr.04)	2995
Posters	250
Protective clothing and boots	1025