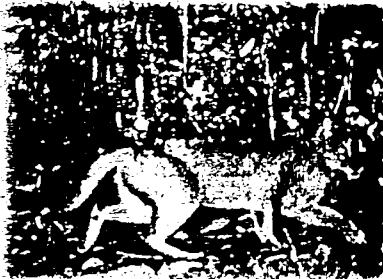
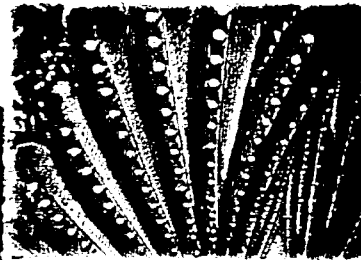


FINAL REPORT

Project Title:

PROTECTION OF RHINOCEROS AND TIGER POPULATIONS
IN THE LEUSER ECOSYSTEM



Leuser Development Programme
Co-operation between the Government of Indonesia and European Union

2003

FINAL REPORT

**Project title:
PROTECTION OF RHINOCEROS AND TIGER POPULATIONS
IN THE LEUSER ECOSYSTEM**

**Project Manager:
Ridwan A. R.**

**Organization:
LEUSER INTERNATIONAL FOUNDATION**

**Current Address:
Jl. Dr. Mansyur No. 68
Medan 20154
North Sumatra, Indonesia**

**Telephone number:
+62 61 8216800**

**Fax number:
+62 61 8216808**

**E-mail address:
Leuser7@attglobal.net**

**Grant agreement number:
98210-2-G265**

**Project closing date:
31 August 2003**

**Reporting period:
1 September 2002 – 31 August 2003**

Protection of Rhinoceros and Tigers in the Leuser Ecosystem

CONTENTS

Executive Summary

Background

1. Activities undertaken to achieve objectives
2. Quantified results on measurables
3. Summary of most important results
4. Conservation and management of rhinoceros and tiger populations
5. Development of human resources
6. Collaboration among local institutes
7. Other sources of information

Annexes:

- | | |
|----------|--|
| Annex 1 | Report of Ecosystem Rangers, September 2002–January 2003 |
| Annex 2 | Report of Ecosystem Rangers, February 2003–August 2003 |
| Annex 3 | Report of camera-trapping programme, September 2002–January 2003 |
| Annex 4 | Report of camera-trapping programme, February 2003–August 2003 |
| Annex 5 | Ministerial Support for the LIF Debt Swop proposal |
| Annex 6 | Military Command to stop illegal logging in Leuser Ecosystem in Aceh |
| Annex 7 | Tempo article on Ladia Galaska |
| Annex 8 | Color slides of the project (14) |
| Annex 9 | Prints of slides with legend on back |
| Annex 10 | Financial Statement of expenditure of funds |
| Annex 11 | Statement of matching funds and in-kind contributions |

EXECUTIVE SUMMARY

1. This report summarises a collaborative project between the Leuser International Foundation (LIF), the US Fish & Wildlife Services, and the Leuser Management Unit, to implement "Protection of Rhinoceros and Tiger Populations in the Leuser Ecosystem", northern Sumatra, Indonesia. The report layout follows the format of the grant agreement with USF&WS.
2. The Leuser International Foundation is an NGO of local origin that has been granted the right to implement the conservation management of the Leuser Ecosystem. The LIF was founded in 1994 by some traditional leaders of Aceh and North Sumatra. Its first founding Chairman was AR Ramly, the former Indonesian Ambassador to the USA of Acehnese origin. In 1995, the LIF was granted the right to manage the Leuser Ecosystem for a period of seven years by a Decree from the Minister of Forestry No. 227/1995. In 1998, this right was extended to thirty years by Presidential Decree No. 33 / 1998. In 2001, Usman Hasan, the former Indonesian Ambassador to Mexico, also from Aceh, became Chairman during the period the LIF changed its organizational structure to comply with the new 2001 law on foundations. In 2002, Sarwono Kusumaatmadja, a former Minister of Environment, became Chairman of the LIF's Board of Trustees, whilst Ramly Ridwan, a former Governor of Aceh, became Chairman of the Board of Directors.
3. The Leuser Management Unit (LMU) is a technical management body appointed by the Government of Indonesia and the European Commission to implement the Leuser Development Programme (LDP). The objective of the LDP is to create the conditions for the long-term conservation of the Leuser Ecosystem. After a two-year extension, the LDP will finish on 9th November 2004. For the duration of the LDP, the right to manage the Leuser Ecosystem was delegated from the LIF to the LMU. A central element of this nine-year programme was to develop the capacity of the LIF to take over its responsibilities to manage the Ecosystem from the LMU. This required the trained staff of the LMU to be taken over by the LIF, and crucially, for the LIF to attain the financial capability to implement the necessary conservation actions.
4. The Leuser Ecosystem is an area of mainly primary tropical forest in northern Sumatra covering some 2.6 million hectares. It was declared by Ministerial Decree in 1995, then extended by Presidential Decree in 1998. The whole area has now become a legally defined conservation area after its 2,135 km of boundaries were first delineated in the field, then gazetted by a series of decrees at the local, provincial and central government levels; first in Aceh in 2001 (covering 85% of the Ecosystem), then in North Sumatra in 2002 (covering the remaining 15%).
5. The designated Mount Leuser National Park comprises less than one third of the total area of the Leuser Ecosystem. Population Viability & Habitat Analyses (PVHA) have shown that the National Park, which mainly comprises steep montane forests, is not large enough to safeguard viable populations of its spectacular large mammal populations, whereas the Leuser Ecosystem was able to do so. Accordingly, the

proposal for the National Park to be nominated as a Natural World Heritage Site, that is currently being deliberated by UNESCO/IUCN, fails to meet the criteria established by the World Heritage Commission compared to an alternative area comprising all the protected forests inside the Leuser Ecosystem, including the designated National Park.

6. The Leuser Ecosystem contains the largest remaining population of the Sumatran Rhinoceros (*Dicerorhinus sumatrensis sumatrensis*), considered by some the most critically endangered large mammal on earth. Previous studies by van Strien indicated there were only some 60-80 individuals left in Leuser. Nevertheless, if poaching can be prevented, since the population is still breeding, it has a chance of recovering to viable levels.
7. Whilst poaching using overhead spear traps was the greatest threat to the survival of the Sumatran Rhino in Leuser, a deadly intermediary threat has arisen in the form of encroachment and road building in the Luk Luk area of South-east Aceh, on the lower eastern slopes of the Mamas area. This would open up an almost uncontrollable wave of encroachment into their main core area.
8. Since the rhinos only occur in remote mountainous refugia, the most critical action required to protect them is to conduct routine anti-poaching patrols in core areas, by trained and loyal local rangers. For this purpose, the LMU established a special Anti-poaching Unit, comprising ten field patrol teams of four rangers, together with one team of ground intelligence and supervisors.
9. The Leuser Ecosystem contains the largest population of the Sumatran tiger (*Panthera tigris sumatrae*). This is also the most important population of tigers in South-east Asia. The greatest threat to the population of tigers in Leuser comes from poaching and removal of problem animals around the periphery – usually by poisoning or trapping. A special Tiger Anti-poaching Unit could not be established due to lack of sufficient funds. Accordingly, the main Anti-poaching Unit specializing in rhino protection partially doubled up with tiger protection duties.
10. During the period of implementation of the grant from the US Fish & Wildlife Service, the LIF co-operated with the LMU to implement the project on the 'Protection of Rhinoceros and Tiger Populations in the Leuser Ecosystem'. The main results of the four objectives are as follows.
11. *Objective 1: Prevent poaching in and around core zones of the Leuser Ecosystem.* Despite adverse field conditions in some parts of the Leuser Ecosystem, the Anti-poaching Unit implemented routine patrols in as many areas as resources and safety allowed. During the period, there were no known instances of poachers successfully trapping any rhinos or tigers in any part of the Ecosystem reported by the patrols, or reported by independent sources – including other informers, press statements, information from government agencies, or information from local communities or local NGO's. One old rhino, however, that was so sick it could hardly move, was

killed by poachers who came across it by chance. Despite the success of the Anti-poaching Unit's efforts, this does not by any means indicate any let up in the threat posed by poachers. A major outbreak of rhino poaching in one of the core zones near the Mamas was foiled by the Anti-poaching teams after they did not patrol there for two weeks due to administrative reasons (gap at end of second annual contract).

12. *Objective 2: Initiate a camera-trapping programme in one of the core zones.*
This objective could not be implemented due to concerns about losing field equipment. A helicopter drop off was arranged with the military, but due to the security situation in Aceh, the helicopter was fully in use for military emergencies. Subsequently, the target location became subject to military operations against separatist rebels and this activity was suspended.
13. *Objective 3: Initiate camera-trapping programme in sample habitat types throughout the Leuser Ecosystem.*
This objective was successfully carried out in a range of habitat types in relation to determining altitudinal variation. Preliminary findings are confirming the initial assumptions that tiger densities are highest in the lowland forests and decrease strongly with altitude, meaning that most of the interior of the Leuser Ecosystem is sub-optimal habitat for tigers, making efforts to protect the lowlands an urgent priority. Conversely, 5,504 camera trap nights confirmed the initial assumption that the rhino population has been wiped out from most of the lowland areas and only exists in high altitude montane refugia – i.e., due to poaching pressure, not because of habitat preferences.
14. *Objective 4: Seek funding for the long-term sustainability of the Anti-poaching Unit*
It is estimated that a funding gap of only 3-6 months is sufficient for the largest population of the Sumatran rhino to be poached out to levels unlikely to recover (i.e., below 30-40 individuals). The need to secure funds to support the continuing operation of the Leuser Anti-poaching Unit is therefore urgent. During the project period, the LIF submitted a proposal for 11.5 million euro over five years to fund conservation of the Leuser Ecosystem that the government endorsed and formally proposed to the German Government as part of a Debt Swap. This proposal failed, unfortunately, although the LIF was successful in obtaining a small grant from IUCN. The LIF is currently conducting intensive fund-raising efforts to ensure all the achievements made through the LDP are not lost once the LDP closes on 9th November 2004.
15. Major obstacles were encountered during the implementation of the project. They relate mainly to the security situation and a road network system called Ladia Galaska, as summarized in the following two sections.
16. Aceh came under a State of Military Emergency for one year from 19th May 2003, mid-way during project implementation, after the breakdown of the peace negotiations between the Government and the Aceh Freedom Movement (*Gerakan Aceh Merdeka*, or GAM). The conflict made it difficult to access several important

areas in the Ecosystem. At least 44 patrol missions were aborted due to security concerns. Nevertheless, in areas where the conflict was balanced, poachers could not operate either. This was a golden opportunity to re-assign three teams of anti-poaching patrols to intensify the camera-trapping programme as well as strengthen patrolling in one of the core areas. Without the conflict it would have been too risky to leave the western flank exposed. All field patrols are now co-ordinated with the local Military Command.

17. Funds from USF&WS amounting to \$24,000 were expended on expedition costs of the anti-poaching teams, in accordance with the grant agreement. The remaining \$5,760 allocated for anti-poaching law enforcement operations was not expended because of a mixture of concerns relating to its implementation:
 - (i) initially, the prevention patrols were operating effectively, and no poachers had breached core zones;
 - (ii) after the need arose, the right moment and the availability of certain key facilitators could not be synchronized, and caution with regard to future back-up required this activity to be delayed (many members of the enforcement apparatus had been involved in illegal logging and it is a delicate issue to prevent a boomerang effect);
 - (iii) after expiry of the project period, the project required authority to continue (carry-forward) this activity.

18. Encroachment and illegal logging were reduced significantly in most areas of the Leuser Ecosystem subject to the security conflict. In areas mainly free of conflict, illegal logging was still out of control, backed up by rogue members of the security apparatus, especially in Aceh Singkil, Aceh Tamiang, South-east Aceh, Langkat and Dairi. None of these outbreaks were considered to have serious long-term effects on the survival of the tiger population, but serious encroachment inside the National Park in the Luk Luk area of South-east Aceh, that is ignored by National Park staff, is a major problem for the rhino population. The Military Liason Advisor to the LIF, under contract to the LMU, arranged for a Command from the Commander of the Military Emergency in Aceh to prohibit all illegal logging in the Leuser Ecosystem in Aceh. It was issued on the 6th August 2003 and had a major impact in reducing illegal logging in the Aceh part (85%) of the Leuser Ecosystem for the rest of that year.

19. The LIF, LMU, Walhi (Indonesian Forum for the Environment), Skephi (Indonesian NGO's Network for Forest Conservation), and an Alliance of NGO's have been at the forefront of a major campaign against a road network through the Leuser Ecosystem called *Ladia Galaska*. Proponents argue the roads are necessary to help development of isolated areas. These roads will increase habitat fragmentation of the Leuser Ecosystem, however, that is a major factor leading to extinction of endangered species. NGO's suspect that the road scheme is a wasted investment that will mainly benefit a few corrupt individuals and their backers. Whilst a few thousand isolated people may benefit in the short-term from better road access, several million impoverished Acehnese will suffer the cost of the wasted investment relative to other more urgent priorities for the reconstruction of Aceh, including schools, hospitals and

infrastructure for the main development zones. In addition, the direct costs of increased destruction of public infrastructure and loss of life from the resulting floods and drought that will arise have not been taken into account.

20. The *Ladia Galaska* road network poses a serious threat to the survival of the Leuser population of tigers and rhinos. These are probably the only populations of Sumatran tigers and Sumatran rhinos with the potential of recovery to levels of viable population size >500 individuals. Since the US Government has made no formal statement to the Government of Indonesia to express its concern over this road network, USF&WS may want to consider whether this policy could be deemed to be in violation of its duty to help protect tiger and rhino species from extinction, and as a result, whether it should propose that the US government makes an official statement of concern.
21. In addition to delays in completing the Final Report as a result of the necessity to focus limited human resources on the *Ladia Galaska* issue, further delays were incurred in dealing with the effects of the Bahorok flash flood that killed more than 250 people in the internationally renown orang-utan tourist resort of Bukit Lawang, Langkat, North Sumatra. Extensive helicopter and ground surveys by the LMU revealed that the flood was caused by natural dams resulting from several hundred landslides on steep slopes in the Leuser Ecosystem that are highly sensitive to erosion. It had nothing to do with illegal logging, as claimed by many politicians and NGO's.
22. Sustainability: The sustainability of the project depends on the ability of the LIF to procure sufficient funding to continue the activities of the Anti-poaching Unit, and to continue to involve local communities and local NGO's in the implementation of conservation activities in accordance with the Management Plan for the Leuser Ecosystem. Up to now, however, the LIF has not yet procured sufficient funds to do so.
23. At the end of the LDP on 9th November 2004, it is assumed that the LIF will, as previously agreed between the EC and the Government, be granted most of the assets of the LDP, to be able to continue the conservation management of the Leuser Ecosystem. This will include the vehicles, motor-bikes, GIS, computers, GPS's, camera-trapping equipment, etc. By that time also, the LDP should have completed construction of specially designed Leuser Conservation Centres in each provincial capital for use by the LIF under 25-year leases: one in the campus of the University of North Sumatra in Medan, the other in the campus of the University of Syiah Kuala in Banda Aceh. With such assets and a proper legal basis, the LIF will have a solid foundation from which to carry out the necessary conservation activities to conserve the Leuser Ecosystem.
24. It is recommended that the USF&WS support the operation of the Leuser Anti-poaching Unit for the next two-years to cover the period when the LIF has not yet sufficient funds of its own.

BACKGROUND

This report is the Final Report of the joint project carried out between the Leuser International Foundation, the US Fish & Wildlife Service, and the Leuser Management Unit under the title "Protection of Rhinoceros and Tiger Populations in the Leuser Ecosystem", conducted between 1st September 2002 – 31st August 2003.

In November 2002, the boundaries of the Leuser Ecosystem in North Sumatra Province were gazetted. The boundaries of the Ecosystem in Aceh had previously been gazetted in June 2001. This now means that the Leuser Ecosystem has full legal status. It covers some 2.6 million hectares of mainly primary tropical rainforest, and harbours the largest populations in the world of both the Sumatran rhinoceros and the Sumatran tiger.

Sumatran Rhinoceros

The Leuser Ecosystem in northern Sumatra, Indonesia, contains the largest remaining population of the most critically endangered mammal on earth, the Sumatran rhinoceros, *Dicerorhinus sumatrensis sumatrensis* (van Strien, 1997). Although there are only about 60-80 individuals left, the population is still breeding, and current protection measures have prevented further serious losses. With continuous effective protection measures, the population of rhinos in the Leuser Ecosystem has the potential to be built up gradually to its carrying capacity of up to 1,000 rhinos over the next 50 years (van Strien, 1997).

The greatest threat to the survival of this population comes from poachers that use overhead spear-traps (van Strien, 1985, 1997; Griffiths, 1995; Rijksen & Griffiths, 1995). These traps are set on known rhino trails. When a rhino trips the twine across the trail, its own momentum releases a catch that in turn releases a heavy log suspended overhead. A metal spear is attached to the front of the log. The force of a 100 kg log falling down drives the spear through the back of the rhino. The poachers return several weeks after setting up traps in an area to inspect each trap and search for any dead rhinos that managed to struggle short distances away before dying. They only take the horn and bones.

Van Strien established the first rhino protection unit in Leuser in 1975, but without continuity of funding, this unit was disbanded by the National Park management. When Griffiths revived the system in 1990 under the ICDP, half the population of rhinos in the main core zone had already been exterminated. Since then, Leuser's remaining rhino population has been saved from extinction only due to the efforts and dedication of members of the Leuser Management Unit's Ecosystem Rangers (1995-present), who patrol the rhino core zones and destroy all traps encountered. This Anti-Poaching Unit currently comprises eleven teams of four rangers. Since the rhino population is so small, it is highly vulnerable to small outbreaks of poaching. If these areas are not continuously patrolled, therefore, the core of the rhino population could be exterminated within a few months, triggering the process of extinction of this flagship population as the last few scattered individuals eventually die out naturally.

Sumatran Tiger

The Leuser Ecosystem also contains the largest and most important population of tigers in South-east Asia (Carbone, 1998). Recent genetic studies by J. Cracraft suggest that the Sumatran tiger, *Panther tigris sumatrae* should be re-classified as a separate species, increasing the urgency of efforts to conserve it. A Population and Habitat Viability Analysis (PHVA) showed that the Leuser Ecosystem could support a viable tiger population, even if it became sub-divided into two sub-populations (Carbone, 1998).

The greatest threat to the survival of Leuser's tiger population comes from poaching and removal through trapping of 'problem' animals (Rijksen & Griffiths, 1995). The poachers mainly operate around the periphery of the Ecosystem, which covers some 2,135 km of boundaries. The solution is to establish a specialised Tiger Anti-poaching Unit, mainly comprising under-cover informants and specialised Anti-poaching Teams, based on the successful Rhino Protection Unit format. This would require additional annual operating costs, outside the scope of all current conservation programmes operating in the area.

References

- Carbone, C. (1998) The monitoring of tigers and other large mammals at Gunung Leuser National Park. Leuser Management Unit, Medan.
- Griffiths, M.O. (1995) The densities of tigers in Leuser and indications of their distribution. In 'Biodiversity range evaluation: Project 3.2.2 of the ICDP'. Integrated Conservation and Development Project for Lowland Rainforest in Aceh, Indonesia.
- Rijksen, H.D. & Griffiths, M.O. (1995) *Leuser Development Programme Masterplan*. Institute for Forestry and Nature Research (IBN-DLO), Wageningen, Netherlands.
- Van Strien, N.J. (1985) *The Sumatran rhinoceros- Dicerorhinus sumatrensis (Fischer, 1814) – in the Gunung Leuser National Park, Sumatra, Indonesia; its distribution, ecology and conservation*. Wageningen University, Netherlands.
- Van Strien, N.J. (1997) Sumatran Rhino Conservation Plan. Leuser Management Unit, Medan.

1. ACTIVITIES UNDERTAKEN TO ACHIEVE OBJECTIVES

This section describes the activities undertaken to achieve each objective, and problems encountered that created obstacles to achieving each objective.

The project had two objectives:

1. To prevent poaching in and around core zones of the Leuser Ecosystem; and
2. To initiate a camera-trapping programme in one of the core zones.

Since these objectives form a small part of a much larger conservation strategy for the Leuser Ecosystem, two further objectives were outlined in the original project proposal that did not form part of the grant agreement, but were necessary for a more complete understanding of future directions for rhinoceros and tiger conservation in Leuser. They were:

- 3: To initiate a camera-trapping programme in sample habitat types throughout the Leuser Ecosystem;
- 4: To seek funding for the long-term sustainability of the Anti-poaching Unit.

In accordance with the overall objective to protect endangered rhino and tiger populations in the Leuser Ecosystem, the primary focus of the project was the implementation of Objective 1.

1.1 *Objective 1: Prevent poaching in and around core zones of the Leuser Ecosystem*

Activities undertaken to achieve this objective were implemented by two means. First, direct action on the ground to prevent poaching through the operation of an Anti-Poaching Unit. Second, technical analyses and lobbying to prevent unsuitable infrastructure projects, illegal logging, and encroachment, that were now destined to have a major impact on opening up access to much greater levels of poaching.

Activities of Anti-poaching Unit

This unit comprised field patrol teams, each of four members, which patrolled key areas to seek and destroy all traps encountered, and thereby prevent poaching of endangered animals within the Leuser Ecosystem. The Anti-poaching Unit was successful in preventing any poachers trapping rhinos or tigers in the areas patrolled.

During the period, the Anti-poaching Unit was operational in South-east Aceh, South Aceh, and Langkat. This included continuous monthly cover in one of the core zones for rhino protection.

The teams were under the control of two Section Leaders, as well as a Field Supervisor. Unfortunately, the Section Leader for South Aceh passed away during the period. The Field Supervisor made monthly field visits.

A summary of the results obtained during these patrol missions is presented below in Sections 2 and 3, in accordance with the required report format.

During the last quarter, support for back-up law enforcement operations to deter rhino poachers in South-east Aceh was required. Normally, this would have been implemented under the direct control of the Head of the Mount Leuser National Park Agency (BTNGL), or Head of the Agency for Conservation of Natural Resources (BKSDA). The implementation of Martial Law on 19th May 2003, however, put the military in charge. Some of the poachers were suspected of being backed up from a rogue member of the army's Kostrad unit (Strategic Reserves) based in the area, who was suspected of bringing in skilled rhino poachers from West Sumatra. Local military personnel and National Park staff previously had a long and strong involvement in many illegal activities in South-east Aceh, especially illegal logging, and there was strong negative sentiment against the project because of the project's stance against the *Ladia Galaska* road project, which the army publicly strongly supports. Thus, the project had to handle the situation with great care, and had to wait for its Military Liaison Expert to make direct contact with Military Command concerned. Due to a deterioration in the security situation, however, and lack of time to synchronise activities against other major threats, it was not possible to implement this aspect of the project during the project period.

Problems Encountered

The long-standing civil unrest in the Province of Aceh looked like it was going to be resolved after a series of meetings in Tokyo during November 2002 between government representatives and rebel leaders of the outlawed Aceh Freedom Movement (*Gerakan Aceh Merdeka*, or GAM). A timetable for the separatist movement to surrender their weapons was drawn up and an incentive was provided by the Donor Group for the Reconstruction of Aceh held in Tokyo in December 2002. After GAM did not comply with the terms of the Cessation of Hostilities Agreement, the government declared Martial Law in Aceh on 19th May 2003, about two months after the start of the Iraq War.

The Regional Military Commander for Aceh was appointed as the Regional Military Commander of the Military Emergency. The initial operations were mainly focused in the northern part of Aceh and had limited impact on the Anti-poaching patrols. As the rebels lost more and more of their bases in the north, some escaped to South Aceh and strengthened their base in the Kluet Valley. All Anti-poaching patrols in the Kluet were then suspended, and patrol teams here re-assigned to extend the camera-trapping programme surveys in Langkat (North Sumatra Province) to 90-day continuous surveys for each habitat type. As long as the war continued in patrol areas the rhinos were safe, since it was too dangerous for poachers to go in the forest. This was a major break of good luck that gave the project the opportunity to re-assign more personnel to intensify

the camera-trapping work – without the conflict, it was too dangerous to take out three patrol teams that were covering the western flank.

During the period of project implementation, 44 patrol missions in South Aceh were cancelled for security reasons. Authority to abort patrols was delegated to the Section Leaders from the very start of the change in the security situation. As a result, a lot more patrol missions were conducted because the field teams had their pulse on the local security situation – just like the ever-present poachers waiting for their opportunity.

South-east Aceh had normally never seen any major rebel activity. This is because the Alas tribe here does not speak the Acehnese language, and does not have strong ties with the Acehnese. Nevertheless, as a result of the success of the army's operations in northern Aceh, some rebels fled the north to take up refuge in South-east Aceh towards the end of the period. This began to have a disruptive effect on anti-poaching patrols in South-east Aceh, and some had to be cancelled due to security concerns.

All field patrols are now co-ordinated with the local Military Command.

Even so, there are still several skilled rhino poachers ('pawang') who live in South-east Aceh, and who are still prepared to go into the forest again to set up mass spear traps to try and kill as many rhinos as they can.

Lobbying against habitat destruction and fragmentation

Campaign against Ladia Galaska

The LIF, LMU, Walhi (Indonesian Forum for the Environment), Skephi (Indonesian NGO's Network for Forest Conservation), and an Alliance of NGO's have been at the forefront of a major campaign against a road network through the Leuser Ecosystem called *Ladia Galaska*. The road network is the pet project of the current Governor of Aceh, Abdullah Puteh (Golkar), and is strongly supported by the military, the Minister of Regional Infrastructure (President's PDI-P party), an Acehnese representative of the national parliament, and local party regents (*Bupati*'s). They argue the roads are necessary to help development of isolated areas. These roads will increase habitat fragmentation of the Leuser Ecosystem, however, that is a major factor leading to extinction of endangered species. An Alliance of local NGO's oppose the roads on the grounds that: the proper legal processes have not been followed; there will be a net impoverishment of local communities from destruction of water-catchment areas; the roads are not a priority compared to infrastructure development for hospitals or schools (about 450 of which were burned down during the conflict); and as a result of the secrecy surrounding its financial administration, will lead to massive corruption that only increases the Aceh conflict. The Minister of Environment (not affiliated to any political party) is strongly opposed to the roads, whereas the Minister of Forestry (President's PDI-P party) has been generally silent.

Under pressure from the Governor, Abdullah Puteh, the government issued contracts to commence construction before the proper Environmental Impact Assessments (EIA's) had been conducted. Even though the government is being sued by Walhi for this violation of the law, construction is still on-going, highlighting the political pressure behind support for the road project.

This campaign has been going on for several years and has involved a major investment in time, complicated by the money politics that cloud the *Ladia Galaska* project. On the one hand, it has brought about a major conflict between the main political leaders in Aceh backed by the military that support the roads, against the NGO Alliance that oppose the roads (especially LMU, LIF, Walhi, Skephi) – a situation not conducive to open dialogue and sustainable development. On the other hand, the NGO Alliance consider that if they lose, the corrupt elements in power will continue to flout the law and open up Leuser to uncontrolled encroachment, illegal logging and conversion – all in the name of (unsustainable) 'development for the people'.

Walhi Aceh has sued the Governor of Aceh and the Minister of Regional Infrastructure for issuing construction contracts before proper environmental impact assessments (EIA's) were approved. As a result, the situation in Aceh has become more difficult, with NGO's against the roads being terrorized. Some government officials supporting the roads are suspected of funding phony NGO's to discredit members of the NGO Alliance, buying out local newspapers, and funding a dirty tricks campaign. Some proponents of the roads have considerable wealth to support their case (e.g., one official's voluntary declared wealth to the Audit Commission was over US \$1.5 million, derived mainly from the logging business).

The *Ladia Galaska* road network poses a serious threat to the survival of the Leuser population of tigers and rhinos. These are probably the only populations of Sumatran tigers and Sumatran rhinos with the potential of recovery to levels of viable population size >500 individuals. Since the US Government has made no formal statement to the Government of Indonesia to express its concern over this road network, USF&WS may want to consider whether this policy could be deemed to be in violation of its duty to help protect tiger and rhino species from extinction, and as a result, whether it should propose that the US government makes an official statement of concern.

Campaign against illegal logging

Encroachment and illegal logging were reduced significantly in most areas of the Leuser Ecosystem subject to the security conflict. In areas mainly free of conflict, illegal logging was still out of control, backed up by rogue members of the security apparatus, especially in Aceh Singkil, Aceh Tamiang, South-east Aceh, Langkat and Dairi. None of these outbreaks were considered to have serious long-term effects on the survival of the tiger population, but serious encroachment inside the National Park in the Luk Luk area of South-east Aceh that National Park staff have not stopped, is a major problem for the rhino population. The Military Liason Advisor to the LIF, under contract to the LMU,

arranged for a Command from the Commander of the Military Emergency in Aceh to prohibit all illegal logging in the Leuser Ecosystem in Aceh. It was issued on the 6th August 2003 (see Annex 6), and had a major impact on the reduction of illegal logging in the Aceh part (85%) of the Leuser Ecosystem for the rest of that year.

1.2 Objective 2: Initiate a camera-trapping programme in one of the core zones

Under Objective 2, it was intended to establish a camera-trapping programme in one of the core zones to provide information to assist the conservation efforts, starting in South-east Aceh. This would allow individual rhinoceros and tigers to be identified, thereby assisting estimations of range use and size of sub-population. Experience gained from this would then be evaluated to assess the merits of establishing the same routine in South Aceh. An important part of this activity was to obtain independent feedback on the success of the anti-poaching teams themselves, which over the long-term, must include independently verifiable cross checks. In addition, the results would be of great importance for promoting the success and necessity of the work of the anti-poaching teams in order to obtain funds from other donors for the long-term continuity of the protection measures (see also Objective 4, section 1.3, on Sustainability).

Problems Encountered

During the implementation of fieldwork, the security situation initially improved, related to the signing of the Cessation of Hostilities Agreement. Then after the failure of the peace process, it became too dangerous to organize a camera-trapping programme in South Aceh: soldiers on road-blocks were confiscating GPS units, so it was too risky to take camera-trap equipment in. South-east Aceh was initially still free from rebel activity. Taking in camera-trapping equipment, however, was still risky. Two expeditions were aborted, including one helicopter drop-off co-ordinated with the military due to recall for emergency use. After armed rebel separatists from the Free Aceh Movement fled to parts of the southern South-east Aceh, Objective 2 was temporarily suspended.

1.3 Objective 3: Initiate camera-trapping programme in sample habitat types throughout the Leuser Ecosystem

Although the camera-trapping programme in core areas in Aceh (Objective 2) had to be suspended, the camera-trapping programme to sample habitat types and altitudinal variation was successfully carried out in North Sumatra. This programme was initiated jointly between the LIF and the LMU, with technical inputs from Dave Augeri (Wildlife Research Group, University of Cambridge, sun bear ecology project), and consultation with the Sumatran Tiger Project. The objective was to sample representative habitat types, including swamp forest, lowland dry forest (Bengkung, Sikundur, and Jambo Aye), lowland hill dipterocarp forest (Ketambe, Lesten), mid-altitude montane forest (Kemiri,

encroachment, illegal logging, habitat conversion, and road developments can be controlled. This requires continuous integration of conservation in the development plans of the fifteen local governments around the Ecosystem, and a continual awareness and lobbying campaign by local NGO's to ensure that long-term conservation efforts are not sabotaged by short-term political gains that undermine local sustainable development opportunities.

During the period, the LIF submitted a grant application for 11.5 million Euro over five years as part of a Debt Swap between the German Government and the Government of Indonesia. An essential part of this proposal was to seek sustainable funding mechanisms for the necessary conservation management activities to be paid for by revenues generated from the ecological services of the Leuser Ecosystem. This included revenues from water and carbon sequestration. The project was supported by the main Indonesian Government agencies concerned, but the German Government allocated the funds to the education sector instead.

Copies of the letters of support for the project from the government agencies concerned are shown in Annex 5, including letters of support from:

- the National Development Planning Board (Bappenas)
- the Co-ordinating Ministry for the Economy
- the Ministry of the Environment

The LIF were requested to re-submit a different proposal in 2005 for funding in 2006. The Sumatran rhino will of course be ecologically extinct by then if alternative sources of funding for the Anti-poaching Unit are not secured.

After the end of the project period, the LIF received technical assistance from the LDP to develop a fund-raising strategy, and was expected to have funds available to commence other international fund-raising activities during April-May 2004. Nevertheless, the results of these fund-raising visits are not expected to generate liquid funds in time for a proper hand-over from the LMU to the LIF when the LDP closes on 9th November 2004.

2. QUANTIFIED RESULTS ON MEASURABLES

This section covers quantified data to be reported according to the grant agreement on the following measurables:

- The number of patrol days per team per month
- The distance traveled by patrols per team per month
- The number of traps for rhino and other wildlife detected and destroyed
- The number of intruders interdicted or offenders apprehended
- The number of rhino tracks or other signs recorded
- The number of camera-trap nights conducted

2.1 The number of patrol days per team per month

During the 12-month period from September 2002 through August 2003, 53 patrol missions were conducted by seven units of Ecosystem Rangers in eight areas within the interior of Leuser Ecosystem, in the districts of Aceh Tenggara, Aceh Selatan, and Langkat. All patrol missions that were carried out are as follows:

- 22 missions in the area of Mamas, Aceh Tenggara
- 15 missions in the area of Kompas, Aceh Tenggara
- 2 missions in the area of Simpali, Aceh Tenggara
- 3 missions in the area of Aunan, Aceh Tenggara
- 1 mission in the area of Bengkong, Aceh Tenggara
- 6 mission in the area of Krueng Inong, Aceh Selatan
- 3 missions in the area of Sikundur, Langkat
- 1 mission in the area of Tangkahan, Langkat

During the year of the project period, the patrol missions of the Anti-poaching Unit were focused in the area of the Mamas. This was the result of two factors. First, a major outbreak of poaching activity was detected in this area in January 2003, with many rhino traps detected. Since the Mamas area forms a crucial part of the core zone for rhino conservation in the Leuser Ecosystem, two teams of Anti-poaching Rangers worked intensively on protection patrols in the Mamas.

Second, the patrol missions in the Kluet District of South Aceh Regency were only conducted until May 2003, before Martial Law was declared in Aceh on 19 May 2003. After the Military Emergency started, it was no longer safe to conduct any patrol missions there.

The 53 patrol missions conducted by seven teams of Anti-poaching Rangers resulted a total of 706 patrol days. Of these, a total of 289 patrol days were spent in the Mamas area. Over the 12-month period, this gave an average of 13.32 patrol days per team per month (see Table 1).

Each mission takes several days to organize, and several days for mobilization and demobilisation of team members.

Patrol site	Number of patrol missions	Average patrol days per mission
Mamas	22	13.13
Kompas	15	13.13
Sikundur	3	15
Tangkahan	1	15
Aunan	3	13.33
Bengkong	1	15
Krueng Inong	6	12.5
Simpali	2	15
Total	53	13.32

Table 1: Summary of patrol days per patrol mission conducted by Anti-poaching Rangers during the period 1 September 2002 – 31 August 2003.

2.2 The distance traveled by patrols per team per month

A total of 2361.8 km distance was traversed by the seven Anti-poaching teams during the period from September 2002 through August 2003. The longest distance of 1033.3 km was traversed in the Mamas area. Thus, from 53 patrol missions conducted during this period, the average distance walked per patrol team was 44.56 km per month (Table 2).

Patrol site	Number of patrol missions	Average distance walked (km)
Mamas	22	46.97
Kompas	15	45.9
Sikundur	3	41.33
Tangkahan	1	27.5
Aunan	3	38.67
Bengkong	1	40
Krueng Inong	6	42.83
Simpali	2	37.75
Total	53	44.56

Table 2: Summary of average distance traveled per patrol mission per month by the Anti-poaching Rangers during the period 1 September 2002 – 31 August 2003.

The distance patrol teams walked in areas other than the Mamas was 1328.5 km, giving an average distance traveled of 42.85 km per team per month for the other 31 patrol missions. This compares with the Mamas where the average distance traveled was 47 km per team per month. The greater average distance traveled in the Mamas reflects a big difference in topography or familiarity between the patrol sites. The other areas are either steeper, or less familiar to the patrol teams.

2.3 The number of traps for rhino and other wildlife detected and destroyed

During the 12-month period, a total of 55 wildlife traps were detected and destroyed by the Anti-poaching teams whilst on patrol missions in the interior of the Leuser Ecosystem. Of this total, 12 traps specifically targeting rhinos were found - all of these were in the Mamas area. The other 43 wildlife traps were specifically designed to catch deer and birds; of these, eight traps were found in the Mamas, two traps in the Kompas area, and 33 traps in the Sikundur area.

2.4 The number of intruders interdicted or offenders apprehended

Rhino poachers are highly skilled at jungle craft. Not surprisingly, therefore, no wildlife poachers were encountered by the Anti-poaching Rangers during their 53 patrol missions in the Ecosystem Leuser. Rhino poachers usually leave the forest secretly as soon as their traps have been set up, and return a few weeks later to check their traps. Nevertheless, 21 flying camps left by rhino poachers and other intruders were destroyed by Anti-poaching Rangers during the period.

2.5 The number of rhino tracks or other signs recorded

The Sumatran rhino is now restricted to certain areas within the Leuser Ecosystem, having been poached out of the remainder, except for the presence of wandering individuals. The Mamas, Kompas, and Krueng Inong areas are known as rhino habitat in the Leuser Ecosystem. During the project period, a total of 613 signs of rhino were recorded from the Mamas and Krueng Inong areas, and most of them (577 signs) were found within the Mamas. Of these total rhino signs, 76 signs were recorded from tracks (68 rhino tracks found in Mamas), 33 signs from wallows (22 rhino wallows found in Mamas), 103 signs from dung (90 rhino dung clumps found in Mamas), and 401 from other signs, including characteristic rhino twisting of saplings ("plintiran"), scratching ("kaisan"), etc. (see Table 3).

Patrol site	Rhino signs							Total
	Footprint	Wallow	Dung	Food	Twisting	Scratching	Others	
Mamas	68	22	90	54	45	159	139	577
Kr. Inong	8	11	13	1	1	0	2	36
Total	76	33	103	55	46	159	141	613

Table 3: Summary of rhino signs recorded by Anti-poaching Rangers during September 2002- August 2003.

2.6 The number of camera-trap nights conducted

Three teams of Ecosystem Rangers supported the remote camera-trapping programme. Two areas, each of 6400 ha, covering lowland primary forest and montane primary forest, were sampled using 32 sets of camera-trapping equipment.

After extensive surveys for wildlife signs and micro-habitats, 32 sets of remote camera-trapping equipment were placed in each area of 6400 ha. During the period from September 2002–August 2003, a total of 5,504 camera-trap nights were conducted in the areas of Sei Birah and Ketambe Atas in the interior of the Leuser Ecosystem. These surveys resulted in 861 photographs of 39 terrestrial wildlife species, including at least four different individually recognisable Sumatran tigers (*Panthera tigris sumatrae*).

3. SUMMARY OF MOST IMPORTANT RESULTS AND PRODUCTS

3.1 Summary of most important results

The most important result of the project was that the largest and most important populations of the Sumatran rhinoceros and Sumatran tiger- the Leuser Ecosystem populations – were protected from extinction for the period of the project implementation (1st September 2002 – 31st August 2003).

Since these populations are critically endangered, all efforts were focused on protection as the primary aim, through the implementation of monthly field patrols covering as much as possible of the known rhino core zones within the limited funds provided.

During the period of implementation, no poachers were encountered in the field, but a major outbreak of poaching occurred in January 2003 inside one of the core protection zones. All the rhino traps encountered were destroyed, and none of the spear traps had killed any animals.

In July 2003, an interview with a local person that regularly collected edible swift nests uncovered that he had killed one rhino for its horn, inside a core zone. The rhino was not trapped using any of the usual traps, but was old, sick and just about to die anyway. They encountered it as they walked through the forest and since it could not escape them, they killed it easily.

Besides this one incident, there were no other records of any rhinos or tigers being poached or killed in the Leuser Ecosystem during the project period. In addition, there were no independent reports of any other cases involving tigers or rhinos from newspapers (that usually report any cases of problem tigers) or from government agencies, local communities or local NGO's.

Although at least five tigers were known to have been poached in Leuser between 1996-1999, the last tiger known to have been killed in the Leuser Ecosystem was a male in its prime, discovered by an anti-poaching team in August 2000. It had drowned in a river in the Mamas area after it accidentally got a leg trapped in a fallen tree while it crossed the river. [Note that most of the tigers traded illegally in Medan originate from provinces further south – Riau, Jambi and West Sumatra. This is not because these provinces have more tigers than Leuser, but because the tiger habitat there is more fragmented and disturbed, leading to more human-wildlife conflicts there and more pockets of unviable population fragments.]

Since 2000, the patrol teams from the Anti-poaching Unit have discovered five prints of rhino calves in separate water-catchments. These are thought to represent five different individual calves.

Whilst this is highly encouraging, there should be no complacency about the urgency of the need for continuous protection. The threat of poaching is still obvious, and the level of anti-poaching patrols still far below that required. It seems that the war in Aceh made much of the northern part of the Leuser Ecosystem too difficult for poachers to operate. This situation was often weakly related to the forests themselves being too dangerous for the poachers to operate, but more due to the danger that if poachers were frequently absent from their villages for long periods, they stood the risk of being accused of belonging to the separatist movement, and then could easily be 'taken out'.

3.2 Products attained

The main products expected as outlined in the project proposal, followed by products attained, and any deviations between expected and attained, are as follows:

3.2.1 Maps showing locations of patrol routes

These have been plotted for individual patrol missions.

3.2.2 Maps showing locations of poaching activities

These have been plotted also (note, GPS co-ordinates are normally difficult to obtain inside primary forest).

3.2.3 Pictures of spear-traps and wire snare traps confiscated or destroyed

The outbreak of poaching by spear traps is shown in the accompanying Report of the Ecosystem Rangers (Annex 3 and 4).

3.2.4 Reports on the legal processing of poachers convicted of illegally trying to kill rhinoceros or tigers

No poachers were caught in the field. Only one person was discovered having killed a rhino (that was terminally sick), after members of the Ecosystem Rangers posing as buyers interviewed him. The suspect was subsequently arrested for a different crime (running marijuana), and this incident is still being followed up.

3.2.5 Information on minimum numbers of rhinoceros and tiger in rhino core zones

Whilst information from tracks was obtained, the original plan to establish a camera-trapping programme within a core zone failed (see Section 1.2).

3.2.6 Information on population recovery in core zones

Although one adult tiger was lost in the Mamas area in August 2000, tigers still regularly use this area. There was no evidence of any cubs being reared in the Mamas, but this is in accordance with the general behaviour of tigers in Leuser that cubs are reared in the lowlands, not in the montane zones.

Tracks of rhino calves were recorded in the Mamas, bringing the total number of rhino calves detected to five since 2000. It is suspected that these are all different individuals

from the distance separating each record and the fact they were found in different water-catchment areas.

3.2.7 Information for mapping distribution and habitat preferences of rhinoceros or tigers

Vital information was obtained on locations of records of presence, to be able to map distribution and habitat preferences of rhinoceros and tigers. Unlike many other species that are not targeted specially by poachers, it is not possible to make sound assumptions on presence from habitat preferences, since in certain areas, their forest habitat could be undisturbed, but the rhinoceros and tigers all poached out.

3.2.8 Pictures of individual rhinoceros or tigers with information on their ranging patterns and poaching pressure

Pictures of snare traps and spear traps set by poachers were obtained (see Annex 1 and 2).

Pictures of tigers were obtained in most of the areas sampled long enough by the camera-trapping programme (see Annex 3 and 4). This data is being analysed statistically to give further information on ranging patterns.

No pictures of rhino were obtained after 5,504 camera-trap nights. This negative result was entirely predicted for non core zones. It was not expected to obtain any pictures of rhinos except from core zones, and the camera-trapping programme there failed to be established (section 1.2). Pictures of rhino signs (tracks, dung, tree-marking, etc.), were regularly obtained on normal patrol missions (see Annex 1 and 2).

3.2.9 Maintenance of the enthusiasm and dedication of the anti-poaching teams

The project was conducted under very difficult field conditions. Consequently, maintaining the enthusiasm and dedication of the anti-poaching field teams is a crucial element, together with funding, for long-term success and sustainability.

Factors that played a key role in maintaining their enthusiasm and dedication included:

- Salaries and expedition allowances tracking the rate of inflation
- External training courses in Way Kambas NP and Bukit Barisan Selatan NP
- Refresher training courses in Langkat
- Provision of sufficient necessary field equipment
- Implementation of camera-trapping programme.

4. CONSERVATION AND MANAGEMENT OF RHINOCEROS AND TIGER POPULATIONS

Conservation and management of rhinoceros and tiger populations in the Leuser Ecosystem involves many interlinked aspects, including:

- Establishing an overall conservation area based on ecological criteria that is sufficient to harbour viable populations;
- Ensuring this area is proper zoned, based on ecological functions and legal criteria, and includes proper buffer zones that help safeguard the conservation zones, and that the zonation is legally endorsed in the spatial plans at the regency, provincial and national levels;
- Increasing the amount of interlinked conservation area within this overall area, by designating new conservation areas and buying out land if necessary to re-establish ecologically crucial wildlife corridors, and ensuring boundaries for these areas are proper delineated, gazetted and maintained;
- Strengthening the capability of the NGO of local origin with the legal mandate to help the government manage the conservation area, i.e., the Leuser International Foundation; (this unfortunately also involves re-directing the efforts of misguided international conservation NGO's with local connections from unsustainable management projects to technical support, to prevent them undermining long-term conservation goals);
- Support the technical management unit of the LIF to enable it to carry out proper monitoring of the state of the Leuser Ecosystem and its endangered wildlife, including ground monitoring teams, information networks, GIS satellite monitoring, and aerial patrols;
- Support the technical management unit of the LIF to enable it to establish an Anti-poaching unit of sufficient size to ensure that all the endangered species are properly protected through implementation of anti-poaching patrols;
- Strengthening the capability of local government and non-government organizations that contribute to the overall conservation objectives;
- Increasing awareness of conservation issues among government agencies, parliamentarians, non-government organizations, and media;
- Increasing the effectiveness of law enforcement through increasing the capability of law enforcement agencies, through awareness, training courses, provision of equipment, operational support, technical guidance, and lobbying to create new mechanisms to ensure that enforcement is properly carried out, including obtaining funding for a Special Task Force to eradicate illegal logging;
- Increasing the participation of local communities and local NGO's in protecting the conservation estate;
- Creating the proper networks of support from government and non-government agencies to lobby against unsustainable infrastructure projects that degrade the function of the Leuser Ecosystem as a life-support system;
- Creating the proper investment climate, legal framework and monitoring mechanisms for sustainable eco-tourism ventures to develop;
- Establishing a suitable mechanism to increase fund-raising efforts to provide long-term financial support for the conservation efforts.

Of these major aspects necessary for the proper conservation and management of rhinoceros and tiger populations, this project just dealt with the anti-poaching aspect.

Nevertheless, the anti-poaching aspect is considered one of the most important aspects since, without it, these endangered populations would be poached out to extinction locally. The project, therefore, provided a crucial input to the conservation of rhinoceros and tiger populations in the Leuser Ecosystem during the period of the project implementation.

There is great concern, however, that without the continuation of support for the Leuser Anti-poaching unit, this major achievement will be undermined due to the continual threat from poachers. In South-east Aceh, in particular, there are still a lot of skilled rhino poachers ("pawang"), waiting for their chance to make themselves rich if this protection programme is terminated, by carrying out their mass trapping techniques to hunt the rhino for its horn and bones.

5. DEVELOPMENT OF HUMAN RESOURCES

All the Anti-poaching Rangers had previously attended several training courses in relevant fields, including navigational and data recording. This included a skills assessment and training course at Way Kambas NP and Bukit Barisan Selatan NP organized and instructed by the Indonesian Rhino Conservation Programme. During the project period, they undertook one further refresher training course in Deli Serdang, North Sumatra, to increase their skills in navigation and data recording. In addition, many of the field teams were trained in implementation of a camera-trapping programme, including surveying micro-habitats, setting up and monitoring the equipment.

6. COLLABORATION AMONG LOCAL INSTITUTES

The main objective of this project was the implementation of preventative anti-poaching patrols under relatively dangerous conditions. Accordingly, the focus was not on visibility and partnership building. Exposing the perilous state of rhino populations locally can easily backfire under conditions of weak law enforcement and rampant corruption among government agencies.

Co-operation with the army necessarily increased during the implementation of the project after the security situation deteriorated. All patrols in South-east Aceh are now co-ordinated with the local Military Command. Nevertheless, this must now be followed up with awareness programmes, to prevent any regression.

By contrast, co-operation, partnership building and visibility regarding the campaign against the *Ladia Galaska* road network through the Leuser Ecosystem, involved hundreds of local, national and international NGO's, together with tens of thousands of individuals from all over the world.

7. OTHER SOURCES OF INFORMATION

Pertinent information to help in the final evaluation of the project is given in the accompanying annexes, as follows:

- Report of Ecosystem Rangers for September 2002–January 2003 (Annex 1) and February 2003–August 2003 (Annex 2).
- Report of camera-trapping programme for September 2002–January 2003 (Annex 3) and February 2003–August 2003 (Annex 4).
- Ministerial support for the LIF Debt Swap proposal (Annex 5).
- Military Command to stop illegal logging in Leuser Ecosystem in Aceh (Annex 6).
- Article from Tempo magazine on *Ladia Galaska* (Annex 7).

There are well over a thousand newspaper articles on the *Ladia Galaska* road network issue, illegal logging, and the Bahorok flash flood. Since they are not directly connected with this project, though intimately related to efforts to conserve the Sumatran tiger and Sumatran rhino from extinction, only the last mentioned Tempo article is provided for an overview.

The project was by its nature a low key, highly focused effort prioritized on anti-poaching patrols to prevent the extinction of the Sumatran rhino and Sumatran tiger. Many other national and international conservation NGO's that do not support anti-poaching patrols are allocating large amounts of resources to production of products, press releases and news articles concerning conservation of Sumatran tigers and, to a lesser extent, rhinos. The null hypothesis that all their efforts are geared to self-promotion for financial gain, with negligible contribution to real conservation to prevent poaching or habitat loss, is difficult to disprove.

Poaching of endangered species in Leuser is not a locally isolated phenomenon, but has networks to poaching networks in southern Sumatra and to international illegal trade outlets. Thus, there are dangers of producing too many products for the local market, as the intended interpretation can have a boomerang effect, advertising to poachers the existence of target species, and advertising to the public and security forces that instead of remaining in poverty, they can get rich quickly by dealing in poaching of endangered species.

It is important, therefore, that the promotion of the work of the Anti-poaching Unit can be controlled properly so that no sensitive information is leaked out, and so that the target groups get a chance to support directly the operational costs of the Anti-poaching Unit. In particular, whilst time did not yet allow, it is hoped that the pictures obtained from the camera-trapping programme can be used to promote the work of the LIF, to build up a sufficient source of annual income on a sustainable basis to offset the significant costs necessary to fund an effective and efficient Anti-poaching Unit for the Leuser Ecosystem.