

Mahouts and their elephants working as Conservation Response Unit in Sumatra

Wahdi Azmi¹, Heidi S. Riddle², Agung Setyabudi³, Wiratno⁴, Andi Basrul⁵, Edy Sunardi¹, Diding M. Ichsan¹, and Selamat Hardi¹

The importance of Sumatran Elephants

Due to the large home range and its ecological requirements, the elephant is an ideal flagship and indicator species for the conservation of forest and associated biodiversity in Sumatra. Elephants are also an umbrella species in that they use a variety of habitats occupied by other charismatic species such as Sumatran Rhino, Sumatran Orang Utan and Sumatran Tiger.

Regarding the Asian Elephant, high conservation priorities should be given to populations harbouring the greatest proportion of the species' genetic variability, and to genetically unique populations. Mitochondrial DNA analysis of the Sumatran Elephant has suggested that it represents a separate Evolutionary Significant Unit (ESU), thus supporting their separate sub-specific status. Recent work conducted by Fernando et al. using micro satellite analysis has confirmed the unique ESU status of both the Sumatran Elephant and the Borneo Elephant (Fernando *et al.*, 2003).

Lack of a conservation vision in the land use planning process

As found in other Asian elephant range countries, the fragmentation of elephant habitat in Sumatra is a well-recognised problem. Habitat patches are becoming smaller and are more isolated from each other, increasing the vulnerability of elephant populations. Two thirds of current Asian elephant range is in non-conservation areas (Sukumar, 1989). Most of the current conservation/protected areas in Sumatra are inadequate in their design to effectively protect Sumatran elephants because they do not protect prime elephant habitat. Most wild elephants are present in blocks of forest outside of conservation/protected areas, invariably creating a high potential for incidents of human-elephant conflict. These issues reflect the failure of the current land-use planning system to take into account elephant habitat requirements and the long-term benefits of forest conservation. Ramono (2000) stated that the conversion of primary forest into

agricultural holdings has been one of the main causes of conservation problems in Sumatra and the elephant has been among the large mammals most seriously affected by it. Development programmes have led to the annual elimination of tens of thousands of hectares of elephant habitat.

Economic incentives have dominated land use planning in Sumatra, resulting in a substantial loss of highly bio diverse forest to cultivation. Most of the lowland forests that are well recognised as containing the richest biodiversity and prime elephant habitat have been allocated for other purposes such as logging concessions, transmigration sites and large-scale plantations. In North Sumatra Province, 900,000 hectares of lowland tropical rain forest has been converted into small-scale and large-scale oil-palm plantation in the period of 1990-2005. This development movement has led to substantial and higher pressure on Gunung Leuser National Park in the form of land encroachment for small-scale oil plantation.

Despite containing some of Sumatra's most extensive forests only 10% of Aceh is protected as Gunung Leuser National Park and habitat loss continues through legal forest conversion activity, illegal deforestation and settlements both outside and within Protection Forest and Protected Areas. Habitat fragmentation is the by-product of this process and now is threatening to break the chain of forest running along and flanking the central mountainous range of Bukit Barisan from the North in Aceh to the South. As a result, elephant habitat has been scattered and some of the small populations are being isolated in a block of forest, increasing the risk level of extinction. The overlapping of elephant habitat with human activities in the same area also significantly increases the number of human-elephant conflict incidents.

Human-elephant conflict

In the recent past, human-elephant conflict in Sumatra has been handled by capturing the raiding elephants, driving them or scaring them off using sound and fire, while a few plantations use modern technology such as electric fences.

Biological considerations of elephant demography indicate much lower intrinsic rates of population growth in rain forest habitats as compared to drier forests. This means that capturing elephants from rain forests, as a means of containing depredation or for other reasons, is more likely to result in a depletion of the populations as these recover only at a very slow rate. Capture should

Corresponding author

Wahdi Azmi

Fauna and Flora International,
Jl. Garuda No. 61 A Sei Sikambang,
Medan, Indonesia

¹Fauna and Flora International - Sumatran Elephant Conservation Program;

²International Elephant Foundation;

³BKSDA Bengkulu,

⁴Gunung Leuser National Park;

⁵BKSDA Aceh.

thus be the last resort of management and should be confined to non-viable populations preferably for translocation, or for identified “rogue” elephants which are a serious threat to human lives (Sukumar, 1999).

The long-term conservation of the elephant in Sumatra, however, requires that elephants and people co-exist with minimal conflict. Otherwise demands for the removal of elephants will be politically difficult to ignore, resulting ultimately in the depletion of elephant populations on the island. Thus we have to find appropriate methods to mitigate elephant-human conflict in Sumatra before the situation reaches a point of no-return for the elephant.

Elephant camps as a result of human-elephant conflict

As a result of escalating human-elephant conflicts in the 1980s, the Indonesian Directorate General of Forest Protection and Nature Conservation (PHKA) ordered the capture of wild problem elephants and Elephant Training Centres (ETCs) were established in six provinces throughout Sumatra. These were later renamed Elephant Conservation Centres (ECCs). In 2001, in collaboration with FFI, PHKA registered 482 elephants in captivity in Sumatra (Janis *et al.*, 2001). The low survival rate in the capturing and training process implies that a higher number of elephants have actually been captured. Most of these elephants are located in government managed Elephant Conservation Centres. An unexpected result of the capturing policy has been over-crowding in all ECCs in Sumatra. To add to this, all the centres lack funds for good management enforcement so camps cannot demonstrate their roles in the global effort of in-situ elephant conservation, which was part of their original purpose.

Establishing Conservation Response Units

The Conservation Response Unit (CRU) concept is founded on the belief that diversity is only secure when diverse conservation strategies are employed. In-situ and ex-situ approaches are not mutually exclusive; no single method of conservation is optimal for all situations, and no single method can succeed alone. Different conservation systems can complement each other and provide insurance against the shortcomings of any one method. Ultimately, the success of both in-situ and ex-situ approaches depends on forging strong links between the two.

The CRU model is but one method that provides a strong link between *in-situ* and *ex-situ* elephant conservation. This model is utilising once neglected captive elephants and their mahouts for direct field based conservation interventions to support the conservation of wild elephants and their habitat, and achieve positive outcomes for both elephants and people. By creating this link, and ensuring that these elephants are seen as an important resource and doing positive deeds, it is expected that local communities, decision-makers and

other stakeholders will recognise their contribution and hopefully focus greater attention on protecting Sumatran Elephants, in the wild and in captivity.

This philosophical background of the CRU concept has been positively received by both the national and international elephant community, and the concept is being implemented in a wider part of Sumatra, in a collaboration between Fauna and Flora International (FFI), International Elephant Foundation (IEF) and Balai Konservasi Sumber Daya Alam (BKSDA) as part of the Sumatran Elephant Conservation Strategy with a multiple year partnership commitment.

Local governments and communities should be convinced that Sumatran elephants are worthy assets and genetically important for global elephant conservation. Elephants can play a significant role in generating income for local people through ecotourism and by protecting the function of the forest, which is elephant habitat. Without making this connection and ensuring that these elephants are seen as an important resource, there will be a continuing welfare problem and the important genetic resource that these animals represent (as a high proportion of an ESU of the Asian elephant) will be lost.

Structure and goals of the CRU

The CRU teams are composed of 14 captive elephants from two ECCs (Aceh and Seblat) and 14 of their mahouts, 14 government forest rangers, and 3 FFI conservation officers spread over three CRU posts placed in targeted working areas. Working in partnership with local government, local communities and NGOs, the CRU project has 4 main objectives: 1) mitigating human-elephant conflict; 2) reducing wildlife crime activities in the important elephant habitat through forest patrol and monitoring; 3) raising awareness among local people of the importance of conserving elephants and their habitat; 4) establishing community-based ecotourism to ensure long-term CRU financial sustainability. Working towards field-based conservation intervention, both captive elephants and mahouts have been offered a new alternative future. Captive elephants play an important role by providing transportation during forest monitoring patrol activities, as a tool for gaining local community interest during awareness events, and driving away crop raiding wild elephants should conflict incidents arise. Mahouts, as part of the CRU team, not only take care of the elephants but are involved in all CRU activities and have gained training in wildlife observation techniques and basic use of navigation devices and mapping.

CRU as a site specific project

During the early stages of the CRU operation, various problems and issues specific to each working area were identified and will be the focus of activities in the next phase of the CRU project.

One of the CRU sites, in Bengkulu Province, successfully addresses the land encroachment and illegal logging issue inside the ECC area and identified the need to increase the protection status of the ECC area, as well as expand the protected area and establish a corridor to the Kerinci Seblat National Park. The proposed corridor will increase the protected forest area from 6865 ha. to 18.000 ha. The Bengkulu Nature Conservation Agency (BKSDA) has taken the leading role in proposing this increased protection status to the Indonesian Forestry Ministry, with the endorsement of the local government. Establishing a good management plan for the new proposed protected corridor and elephant camp forest has become the focus of the CRU work in this area.

The CRU in North Sumatra, in collaboration with Gunung Leuser National Park, is working to empower the National Park resort posts in Langkat district through the implementation of CRU activities. Illegal logging and land encroachment still remain the main issues to address. Working closely with the local community, the CRU is also involved in developing eco-tourism in the Tangkahan area, as one way to maintain the CRU objectives by the community itself with support from eco-tourism activities.

In the Tangkahan area, adding revolving positions for three local villagers to the CRU team to learn, assist, as well as provide contributions to all CRU activities on a daily basis offers an opportunity for the CRU team to transfer their skills and share knowledge locally.

Training and capacity building

With the establishment of each CRU team, capacity building has been an initial focus for staff and project partners. Training sessions have been conducted with topics covering:

- Survey and forest monitoring techniques, including basic navigation techniques using a hand held GPS
- Human-elephant conflict mitigation
- Wildlife data recording
- Community awareness

Some CRU staff has been sent to other elephant projects, such as the ones managed by the Wildlife Conservation Society (WCS) to learn about the Way Kambas ECC in Lampung Province, and to share skills with the Crop Protection Unit Team operating under the supervision of WCS.

With the support of IEF, one of the CRU team leaders was sent to the elephant camp at the Jaldapara Wildlife Sanctuary (India) to learn different methods for similar projects (i.e. patrols, camp management, etc). IEF is also committed to support the first mahout workshop in Sumatra to be held in 2006, to establish a communication forum and share knowledge amongst representative mahouts from each of the various camps in Sumatra.

Most of the CRU team members have little educational background, yet through a series of capacity building activities have been trained in assessing and selecting priority areas for CRU activities and field patrols, operating hand held GPS units, filling in standardised data-sheets for forest patrolling and conducting HEC assessments. This empowerment has provided a sense of dignity to the mahouts, a yet unexplored potential source of human resources working for field based conservation.

In the future, with identified field work requirements gathered from experience during implementation of the program, further training needs will be assessed to best approach site specific issues.

Elephant back patrols

Each CRU post is divided into teams who conduct patrols for 7-10 consecutive days a month, during which CRU team members record sightings or evidence of illegal activities, human-wildlife conflicts and wildlife presence. Communities in these critical conservation areas are exposed to elephants in a positive context through their physical presence whilst passing through villages on patrols. The team carries hand-held GPS units to properly identify sighting locations, and a digital camera for documentation purposes. They also fill out report sheets and a narrative when they return from patrol and this data is provided to the partner BKSDA and GLNP offices.

Whilst on patrols, the CRU team records findings as follows:

1. Forest crimes which include illegal logging, land encroachment, illegal hunting, fish bombing, etc.
2. Areas where wild elephants and other wildlife are present, including saltlicks and other means of verification.

Assisted by the data processing group of FFI's Sumatran Elephant Conservation Programme (SECP), information captured on the GPS devices is downloaded and digitally mapped to record patrol routes, illegal activities and wildlife presence in order to best focus patrolling efforts and to explore new areas. Project activities have provided important basic and baseline data about the current extent of forest cover and the status of key biodiversity components in each CRU working area, and this data has been a strong justification for the new forest protection area proposed in Bengkulu-Seblat.

Mitigating human-elephant conflict

The CRU concept addresses human-elephant conflict mitigation not only as an effort to avoid further risk of property loss, but of equal importance is parallel consideration of elephant conservation aspects.

The current CRU teams have been trained and subsequently developed their own capacity to assess HEC mitigation options in their specific working areas. The teams have collected detailed information from field based assessments on various aspects of the issues of conflict.

The pattern of human-elephant conflict, as expected, is intermittent. Teams are responding on a regular basis in the working areas, often driving wild elephants back into the forest and also undertaking detailed assessments of any site damage, especially in the Bengkulu-Seblat area. The presence of the CRU has done much to dispel local fears, and the existence of CRU teams is helping keep the HEC issue under control. The continued presence of the CRU posts will ensure that HEC issues do not create animosity in the local community, which has already led to large-scale elephant killings throughout Sumatra.

Awareness programs

Communities in critical conservation areas are exposed to elephants in a positive context through their physical presence as CRU patrols pass through villages, and as they reduce human-elephant conflicts. These visits are used to reaffirm positive attitudes towards elephants and the link between elephant and habitat conservation, promoting a message of tolerance and understanding of the needs of wild elephants, as well as improving attitudes towards the intrinsic value of wildlife.

Conservation awareness programs conducted by the CRU teams include school visit activities, village visits, slide and film programs, games and competitions for visitors and communities living in surrounding locations. The partner NGOs (FFI and IEF), BKSDA and GLNP have developed flyers with general information about elephants, conservation and the CRU project, as well as similar themed children's booklets which are handed out during these community awareness activities.

Elephant related eco-tourism

Sumatra has a large potential for nature-based tourism to generate income for local communities. Many of Sumatra's megavertebrates, such as elephants, rhinos and tigers, are difficult to view because of their low densities,

dense vegetation and difficult terrain. Wild Sumatran elephants, for instance, have rarely been seen by tourists or even researchers. However, at some CRU sites there is the potential to set up elephant related tourism projects. The CRU teams in Tangkahan and Seblat are developing a plan for long-term sustainability, as well as a publicity campaign to promote the issue of eco-tourism.

Conclusion

For Indonesia the CRU concept is intended to be one step in reviewing and adopting a new culture of managing elephants, in the wild and in captivity, with the view to ensure acceptance of improved human-elephant relationships within the framework of the country's development programs.

Acknowledgements

We are grateful to the villagers of Tangkahan for their enthusiasm, to all the field staff for their dedication, to the management of BKSDA and Gunung Leuser National Park for their collaboration and support, and to our donors for financial support.

References

- Fernando P., Vidya T.N.C., Ng L.S.G., Schikler P., Melnik D.J. (2003). Conservation Genetic Analysis of the Asian Elephant. *Proceedings of the Symposium on Human-Elephant Relationships and Conflicts, Sri Lanka*.
- Ramono W. S. (2001). Integrating Sumatran elephant conservation with development programmes. Paper presented at Workshop on the Management of Elephant Conservation Centres in Sumatra, 9-11 April 2001.
- Sukumar R. (1989). *The Asian elephant, ecology and management*. Cambridge University Press Cambridge, UK.
- Sukumar R. (1999). Report On Elephant-Human Conflicts In Aceh Province. Fauna & Flora International.
- Janis R., Taufik A., Azmi W., Yusuf I., & Suprayogi B. (2001). Registrasi Individu Gajah Pada Pusat Latihan Gajah. PHKA, Jakarta.