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# Improving management of wildlife and livestock interfaces in Thailand

By Supaphen Sripiboon, Pierre Echaubard, Anawat Sangmalee, Nikhorn Thongtip and Michel de Garine-Wichatitsky

**KEY MESSAGES**

There have been drastic changes in wildlife-livestock-human interfaces over the past decades

This lead to an increase in human-wildlife conflicts and important health consequences for humans, livestock and wildlife

Currently the issues in interface areas are addressed independently by different government departments.

Local farmers are key players in interface areas but are not associated in the monitoring and management decisions.

Only emergency response to wildlife disease outbreaks is jointly addressed and there is insufficient coordination between departments to jointly carry out surveillance and management outside outbreak situations

We recommend the establishment of Joint Operational Management Units (JOMUs) as a tool for integrated and perennial monitoring and management of interfaces areas

We suggest that provincial decision makers should revise the current rules and regulations regarding access to protected areas and information sharing, and allocate appropriate human and financial resources for JOMUs.

**GLOSSARY**

| | |
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| DLD: | Dept. of Livestock Development |
| DNP: | Dept. of National Parks, Wildlife & Plant Conservation |
| FEVT: | Field Epidemiology Veterinarian Team |
| JOMU: | Joint Operational Management Unit |
| MoPH: | Ministry of Public Health |
| NGOs: | Non-Government Organizations |
| RTA: | Royal Thai Army |
| RTP: | Royal Thai Police |

*Endangered banteng populations in SE Asia are threatened by habitat destruction, poaching and diseases circulating in livestock such as foot and mouth disease (Photo © Michel de Garine-Wichatitsky)*

## Wildlife-livestock interfaces are rapidly changing

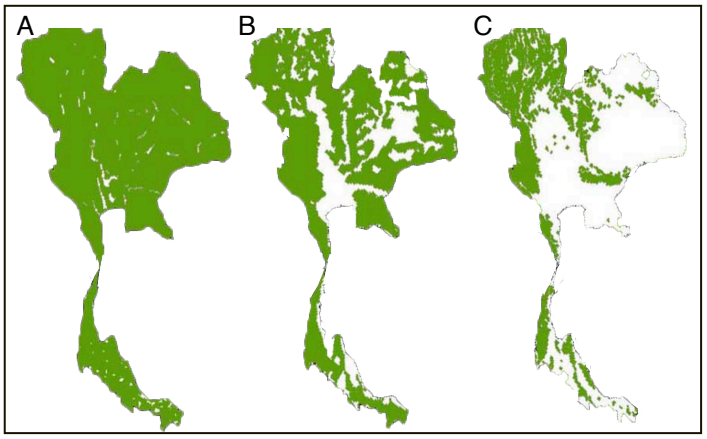
***Increasing human densities and changes in land use***

Over the last decades, SE Asia has experienced an important increase of human population, associated with an increase in food demand and pressure on agricultural lands. These trends lead to changes in land use, which often resulted in the expansion of human-agricultural activities area into wildlife habitats. These changes have enhanced the direct and indirect interactions between livestock and wildlife in areas where they share the same habitats: the wildlife-livestock interface.

***Declining forested area and encroachment into wildlife habitats***

Due to the expansion of human activities, forested areas have dramatically shrinked over the past decades. This decline has contributed to the loss and weakening of wildlife in many areas, which affects directly the conservation of biodiversity. Global and local changes result in the invasion of wildlife habitats, which increases the interactions of human and livestock with wildlife.

IMPROVING MANAGEMENT OF WILDLIFE-LIVESTOCK INTERFACES IN THAILAND




*The changing forest cover of Thailand over the last 50 years. A) 1950, B) 1980, C) 2005. Redrawn after Morand, Lajaunie and Satrawaha, 2017.*

## Altered Interfaces increase conflicts

***Increasing human-wildlife conflicts***

Recent changes of human activities in wildlife-livestock interface areas result in human-wildlife conflicts. This has devastating consequences on health of human and animals, social-economic performances, and biodiversity conservation. Uncontrolled movements of wildlife and livestock in interface areas result in a number of negative outcomes, the 'human-wildlife conflicts', including health hazards, crop or livestock destruction, threats to properties or physical integrity of humans and poaching of wildlife.

***Increasing wildlife-related infectious diseases outbreaks***

Disease transmission is one of the major components of human-wildlife conflicts, although often overlooked. This is illustrated by the major epidemics of infectious disease that have occurred in SE Asia over the past decades:

- *The 2003-2004 Avian Influenza H5N1* outbreak, which occurred in five Southeast Asian countries, including Thailand, have resulted in the culling of 200 million poultry and a loss of over $12 billion to the poultry industry. The complex epidemiology of the pathogenic strains involves contacts and transmission between wild waterfowls, poultry and humans, which result in significant mortalities.

- *Nipah virus outbreak,* that occurred in Malaysia in 1998 and 1999 resulted from the expansion of pig farm activities close to forested areas rich in wildlife (bats), which naturally carry the virus without apparent symptoms. The outbreak that followed the transmission of the virus to farmed pigs resulted in the death of more than 100 humans and the stamping out of more than 1 million pigs.

- *Foot and mouth disease (FMD),* is a very contagious disesease affecting wild and domestic animals, and with a high potential to be transferred between species, especially in shared habitats. While the annual control and loss from trade restrictions is costing Thailand more than $15 million annually, it is also suspected to cause severe mortality in wild endangered ungulate species, which are naïve to the infection and prone to the disease.

## Current Management Practices in Interface Areas in Thailand are inefficient

***Different land-use and different responsibilities for interwaeaved problems***

Wildlife-livestock interface areas include protected areas and adjacent lands with very different land-tenure and land-use. These include private agricultural lands, communal rangeland, military terrain, community forest etc. The responsibilities for the management and access rights of interface areas are therefore shared between various landholders with contrasted views, sometimes opposed interests. Specifically, the responsibilities related to wildlife health lie with the DNP, whereas the livestock health is the responsibility of DLD. Currently, there is no integration of management practice between those authorities for the monitoring and planning of agriculture and conservation activities in the interface area.

***Involving local farmers***

Local farmers are currently excluded from the management and policies development regarding wildlife-livestock interfaces. Farmers are major players at the interfaces and suffer most from the impacts of disease spread and other human-wildlife conflicts. Other important local players, such as research organization and NGOs, are not involved in the monitoring and management decisions of interface areas.

***Lack of joint coordinated management***

The collaboration between government organization regarding interface areas is currently limited to wildlife health. An emergency response team has recently been set up by the Government of Thailand for an effective collaboration between DNP, DLD and MoPH to investigate and control disease outbreak in wildlife.

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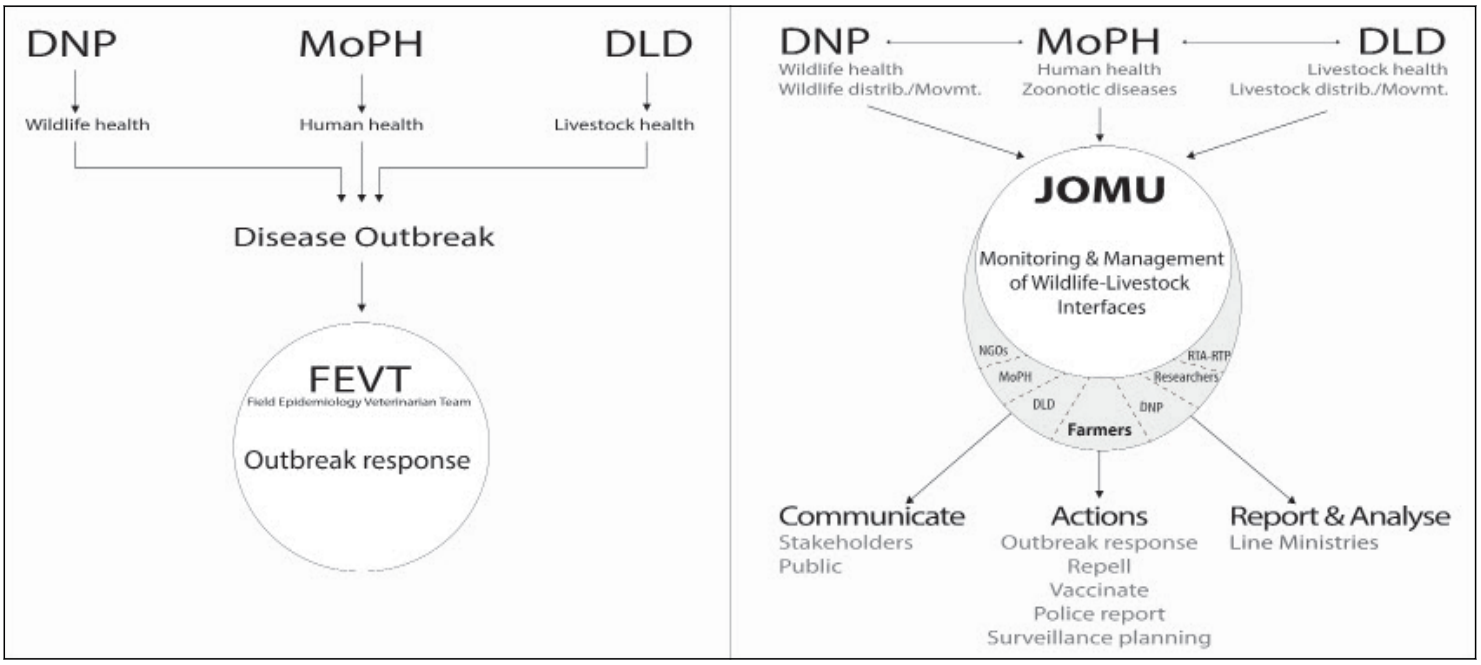


*Model of proposed Joint Operational and Management Unit (JOMU) compared to existing joint collaboration. DLD:Department of Livestock Development, DNP:Department of National Parks, Wildlife and Plant Conservation, FEVT: Field Epidemiology Veterinarian Team, MoPH: Ministry of Public Health, NGOs: Non-Government Organizations, RTA: Royal Thai Army, RTP:Royal Thai Police*

However, this response is only focusing on disease outbreak and it is limited to government organizations. A perennial structure is necessary to organize for a systematic integrated monitoring of wildlife-livestock interfaces, including the monitoring of movements of distribution of both wildlife and livestock populations in interface areas. Similarly, disease surveillance in both wildlife and wildlife, combined with populations monitoring will allow better prevention and rapid control of disease outbreak.

## Proposed Policy Options

Improved integrated management of wildlife-livestock interfaces can be achieved through the revision of existing rules and regulations in Thailand i.e. the land use regulation, disease control policy, and through the establishment of a new inter-sectorial entity, the Joint Operational Management Unit (JOMU).

The inclusion of local farmers in the co-management of the interface areas is of paramount importance, along with authorized government departments, NGOs and research organizations locally involved in health, agriculture and biodiversity conservation

## Policy recommendations

- Review and revise existing rules and regulations that prevent an integrated participatory co-man-

**JOMU: Joint Operational Management Unit**

- What is a JOMU?

JOMU is an inter-sectorial collaborative working group which creation is intended to improve monitoring and management of the interface areas. JOMU will include DNP, DLD and MoPH as well as several other organization or governmental departments.

- What are the tasks and responsibilities of JOMUs?
  - Monitor in real time the distribution and movements of livestock and wildlife in interface areas, including intrusion of livestock in protected areas, and intrusion of wildlife in agriculture lands
  - Monitor health status of livestock and wildlife populations in interface areas.
  - Collate data in a single database shared by the authorized organizations, analyse, and prepare timely reports
  - Communication of information, internally between JOMUs members, to Ministerial hierarchies, and externally to local stakeholders and the general public
  - Elaborate and test strategies for future actions including practical interventions and policy revisions pertaining to animal health and zoonotic diseases, and mitigation of human-wildlife conflicts in interface areas

agement of interface areas in Thailand, by conducting meetings with all stakeholders.

- Facilitate the creation of collaborative JOMU and allocate appropriate human and financial resources for their sustainable operation

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**Further reading**


- *Nghiem LTP, Soliman T, Yeo DCJ, Tan HTW, Evans TA, et al. (2013) Economic and Environmental Impacts of Harmful Non-Indigenous Species in Southeast Asia. PLoS ONE 8(8): e71255. doi:10.1371/journal.pone.0071255 –Map*
- *Pedrono M, Minh Tuan H, Couteau P, Vallejo F. (2009) Status and distribution of the endangered banteng Bos javanicus birmanicus in Vietnam: a conservation tragedy. Oryx, 43(4), 618–625 doi:10.1017/S0030605309990147*
- *Morand, Lajaunie and Satrawaha, 2017. Biodiversity Conservation in Southeast Asia: Challenges in a Changing Environment. Routledge.*


**About the authors**


- *Dr Supaphen Sripiboon is a wildlife veterinarian, lecturer and researcher at Kasetsart University/Faculty of Veterinary Medicine, Thailand.*
- *Dr Pierre Echaubard is an ecologist, research director and project coordinator of Global Health Asia, Bangkok, Thailand.*
- *Dr Anawat Sangmalee is a large animal veterinarian, lecturer and researcher at Kasetsart University/Faculty of Veterinary Medicine, Thailand.*
- *Dr Nikhorn Thongtip is a wildlife veterinarian, Associate Professor and researcher at Kasetsart University/Faculty of Veterinary Medicine, Thailand.*
- *Dr Michel de Garine-Wichatitsky is an ecologist and veterinarian, senior researcher at Cirad-ASTRE joint research unit, based at Kasetsart University/Faculty of Veterinary Medicine in Bangkok, Thailand.*


**A few links**

- *Kasetsart University (www.ku.ac.th) is a leading university in Thailand, training more than (20?)000 students/years in all fields related to agriculture, including wildlife and livestock veterinary sciences.*
- *Global Health Asia Institute (www.globalhealthasia.org) is an action-oriented think tank focusing on the synergies between human health and sustainable development.*
- *CIRAD (www.cirad.fr) is a leading organization for agricultural research for development, operating in partnership in more than 50 low-and-middle-income countries around the world.*
- *GREASE (www.grease-network.org/) is a regional research and training platform in partnership implemented by CIRAD and partners from Thailand, Vietnam, Laos, Cambodia, the Philippines, and Indonesia.*

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