

Ecosystem Management in the Forest Monasteries of Northeastern Thailand*



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Abstract

The aims of this research were 1) to study the history and background of ecosystem management in the forest monasteries of Northeastern Thailand; 2) to study the current conditions and problems concerning ecosystem management in the forest monasteries of Northeastern Thailand; and 3) to synthesise the body of knowledge concerning ecosystem management in the forest monasteries of Northeastern Thailand. The investigation combined document analysis and field research in three locations.

The results show that *Wat Puttanimi (Pukao)* in Kalasin Province is situated on a mountain and covers a large area with a diverse ecosystem. Many animals are raised in the local temple and surrounding forest. The main problem with ecosystem management is a lack of manpower. *Wat Tham Pa Mak Haw* in Loei Province was constructed during the Ayutthaya period of Thai history and is located at the foot of a mountain. The local ecosystem has deteriorated due and there is not enough food for local wildlife. Animals are forced to eat food brought by temple visitors, causing them to lose their instinct to find food themselves. There is also a lack of human resources. The area surrounding *Wat Phraputtabat Panom Din* in Surin Province is limited. Each of the three temples are in a similar situation regarding the management of their ecosystems. There must be greater

*Received July 3, 2017; Accepted December 25, 2018.

networking and planning in place to help the temple administrators with the management of the local environment. There should be specific management of planning, community participation, environmental laws and religious activities. There should be physical and biological consideration of the impact of the temples on the environment and tighter management of human interaction with wildlife. These measures will help the forest monasteries of Northeastern Thailand conserve the local environment and improve the situation of the ecosystem in their locality.

Keywords: Ecosystem; forest monastery; management; Northeastern Thailand

Introduction

It is the responsibility of all people on Earth to conserve and protect the natural environment (Abhijato, 2015). This is particularly true, given the role of humanity in the decline of natural resources, which have diminished due to exploitation and overuse (Ghimire and Pimbert, 2013; Plieninger et al., 2015; Spaargaren, 2011). In order to identify effective methods to reduce the level of damage that humans inflict upon the environment, there must be a multidisciplinary approach (Crook et al., 2015).

Although there are multiple reasons for the degradation of natural resources in Thailand, some of the major causes include overexploitation for manufacture, climate change and deforestation (Bunruamkaew and Murayama, 2012; Sutthichaimethee et al., 2016). Controls have been put in place to curb destruction of the natural environment, which include national laws and royal bills on conservation (Bamrungphak, 2017). However, such measures are only restricted to designated wildlife reserves and protected areas.

Loss of natural habitats is arguably the greatest problem with overexploitation of natural resources by humans and it causes the displacement of countless species of wild animal. In 1960, the Thai government declared a wildlife protection policy through a royal bill, which stated that two categories of wildlife protection site would be designated across the country: wildlife reserves and wildlife sanctuaries. If these sites were treated improperly, there would be sanctions for all individuals involved (Tongsawan, 1994). The government has continuously tried to increase local participation in these measures of conservation and protection, although the biggest hurdle has been a lack of general understanding throughout the communities.

As the national religion of Thailand observed by an overwhelming majority of Thai citizens, Buddhism has been crucial to developing greater understanding among people in local society (Mahatthanadull, 2017). Respect for the natural environment is a prominent feature of Buddhist doctrine and there are a number of traditional Thai beliefs tying monks, spirits and the forest. Due to the perceived sin of chopping wood on holy land, some of the best protected and pristine examples of local forest are on and around temple-owned property. Consequently, temples are safe havens for many wild animals.

In Thailand, there are two categories of Buddhist temple. *Wat ban* are community temples located near or in communities. They have a responsibility to educate people about Buddhist scripture and ceremonies. The other category is forest monasteries,

which are strongly focused on religious practice and simple living. The forest monasteries are sparsely decorated and near natural environment. In Northeastern Thailand, also known as Isan, there are 374 registered forest monasteries (Kenaphoom, 2017; Panmanee, 2007), which cover 73km² of land (Kunurat, 1993). These forest temples were primarily founded to protect local wildlife. There are also some unofficial and unrecognised forest temples. Both legitimate and illegitimate forest temples often cover a larger area than community temples and occasionally host forest-related activities involving visiting communities. These include tree worshipping ceremonies and tree planting activities. In addition to their protection of forest flora, forest monasteries also have a responsibility for three types of fauna: 1) wild animals with habitats within temple grounds; 2) wild animals driven to the temple through starvation or displacement; 3) domesticated animals brought by local residents unable to care for them (Daniels, 2015).

Although forest monasteries do some extremely positive conservation work, there is an argument that they facilitate the domestication of wild animals, which become unable to find food independently. In response to this accusation, the clear research problem is to identify an effective process of managing the ecosystem for forest and wild animal conservation in Northeastern Thailand.

Research Aims

The aims of this research were:

- 1) To study the background and history of forest and animal conservation by forest monasteries in Northeastern Thailand.
- 2) To explore the problems and current conditions of forest and animal conservation by forest monasteries in Northeastern Thailand.
- 3) To identify an effective process of managing the ecosystem for forest and wild animal conservation in Northeastern Thailand.

Research Methodology

Data for this qualitative study was collected from documents and field investigation. The methodology was adapted from the principles outlined by Supang Chantawanit (2005). The research area was purposively selected based on 5 criteria:

1. It comprised a Buddhist forest monastery with a fertile surrounding area containing an abundance of varied flora and fauna.
2. The area was a minimum of twenty rai (seven point nine acres).
3. The temple area was protected and regulated by an environmental conservation policy.
4. The temple was either a community learning centre or a local tourist attraction.
5. There was a system in place for management of local ecology.

Three locations were finalised as the research area, which were: *Wat Puttanimitt (Pukao)* in Kalasin Province, *Wat Tham Pa Mak Haw* in Loei Province and *Wat Phraputtabat Panom Din* in Surin Province. The research population was composed of the communities in each of the three locations and a sample was purposively selected from within that population. The research sample was categorised into three groups: 27 key informants (local and provincial government leaders, heads of clerical institutions and representatives of conservation groups), 75 casual informants (monks and community representatives) and 54 general informants (congregation members, temple visitors and community members). The tools used for data collection were qualitative survey, structured and unstructured interviews, participant and non-participant observations and focus group discussions (Chantachon, 2006). The results were subjected to both methodological and theory triangulation for validation (Chantawanit, 2005). The collected data was then grouped according to the main research objectives before inductive and typological analysis.

Results

The background and history of forest and animal conservation by forest monasteries in Northeastern Thailand

Ecological systems are the result of interactions between living organisms and their surroundings. These complex sets of connections are composed of three things: animate objects, inanimate objects and the local area. Initial surveys and observations at the three research sites allowed the researchers to draw a general image of the specific ecosystems at each location. *Wat Puttanimitt (Pukao)* is constructed on mountain and covers a 220 rai area. The temple is surrounded by four types of forest, which are the original wild forest, newly-planted forest, forest maintained as a public park and a forest

of traditional herbs. Local wildlife is categorised into three groups, which are pre-existing wild animals, wild animals that migrated to the temple for shelter and animals raised by the monks at the request of other people. The main feature of the temple is the two-millennia old reclining Buddha carved from local stone, which is an especially sacred idol for the Kalasin people. *Wat Tham Pa Mak Haw* is surrounded by and its 70 rai of land includes part of a local mountain. The temple was founded during the Ayutthaya Kingdom. Poorly maintained until 1983, the temple has benefitted from recent restoration projects. There are both wild and man-made forests in the surrounding area, resulting in an abundance of wildlife. One of the species to thrive since the establishment of the temple is the crab-eating macaque, and there are over 1200 individuals in the area. *Wat Phraputtabat Panom Din* is situated next to a community forest and covers an area of about 50 rai. The local environment is similar to the aforementioned temples and includes original and newly-planted forests, as well as forest area designated for merit-making, a public park and forest area reserved for learning and research. There are three categories of local wildlife: wild animals already living on-site, wild animals seeking refuge in the temple grounds and animals brought to the temple to be raised.

The problems and current conditions of forest and animal conservation by forest monasteries in Northeastern Thailand

The research locations studied during this investigation have faced similar challenges. There is a lack of dedication from the local communities and consequently there are not enough people responsible for site maintenance. This means that care for the ecosystem and local wildlife is inadequate. Additionally, there are limited financial resources to maintain the temple and surrounding environment, which restricts the efforts of volunteers and monks considerably. Much of the funding for maintenance initiatives and religious activities comes from the benevolence of local people or private donations by temple administrators. Efforts to maintain the sites are not aided by the specific geographical conditions of the region. This is particularly true of both *Wat Puttanimit (Pukao)* and *Wat Tham Pa Mak Haw*, which are built on mountains and the ground and soil are difficult for the growth and cultivation of trees and plants to grow. One further consideration is the size of the temple sites, which cover large tracts of land and are therefore difficult to manage. The Thai climate, particularly the lofty temperatures during the dry season, is not conducive to the growth of local flora and the lack of rain at certain times of the year causes frequent droughts. As the plants wither and die from the extreme conditions, animals find it increasingly difficult to locate food and give the

temples an additional burden. There is a lack of continuation of people in administrative roles and leadership regularly changes in *Wat Tham Pa Mak Haw* and *Wat Phraputtabat Panom Din*. This contributes to a lack of continuity in temple policies, and, thus, management of local ecosystems. The two temples concerned set wide-ranging objectives, which, while admirable in their ambition and intent, are not seen through by individual administrators and are often changed or unfulfilled when the people responsible leave office. As Thailand pushes for further urban development, there is gradual encroachment by surrounding communities, which has caused both direct destruction of the surrounding wildlife and an increase in pollution, caused by larger communities, inadequate infrastructure and increased levels of tourism. Poaching, deforestation and destruction of rare plants are ongoing threats.

These problems are all a product of a lack of local understanding and poor communication from the temples in educating their parishioners. The local animal population has increased over time but the area of the temples has not been extended to accommodate the larger population. This has led to a lack of available food and has caused many wild animals to seek human help. The greater affinity and familiarity with humans has caused many wild animals to become domesticated or at least more at ease in human presence. As a result, it has become easier for poachers to trap and kill local wild animals. The increased pressure on the local ecosystem and higher population density of animals in the temple area has led to more frequent instances of disease and higher mortality rates among local wildlife populations. The temples are poorly equipped to deal with such problems. Tourism is a huge threat to local wildlife, particular as some tourists stray from designated public areas and pester the animals in their natural habitat.

Each of the three temples have particular ecological strengths and weaknesses. The strengths of *Wat Puttanimi (Pukao)* are the biological diversity, wide area and high number of local species. Its weakness is the loss of wild instinct in local animals. For *Wat Tham Pa Mak Haw*, the notable strength is the large population of crab-eating macaques but the resultant weakness is the lack of food available for the monkey population. The strength of *Wat Phraputtabat Panom Din* is the organization of ecological management but the temple weakness is excessive interference with the local ecosystem.

A synthesis of the process of managing the ecosystem for forest and wild animal conservation in Northeastern Thailand

The management plan at each of the temples covers both data management and procedural management, which will help conserve the status of the forest and wild animals in the long term. There are four aspects of management: 1) physical, 2) biological, 3) beneficial human relationship with the ecosystem, 4) social, religious and cultural. The process of managing the ecosystem for forest and wild animal conservation in Northeastern Thailand is similar in each of the three locations studied.

1) The management of infertile land is achieved by either enriching the soil or using the area to store water for times of drought. The soil is enriched by one of five different methods. First, plant or animal matter is used as compost to increase the nutrient composition of the soil. Second, natural living organisms are introduced to the area, such as worms, insects, fungi and bacteria. Third, natural gases are used to increase the nutrient composition of the soil. Fourth, the moisture content of the soil is increased. Fifth, plants preferring local conditions are planted in the affected areas, which enrich the soil even if they perish. These five methods increase the quality of local soil. Rainwater is collected in manmade pools or containers. If this water is insufficient to water the plants, water will be drawn from wells. Excess water is stored in tanks for use in times of need. To maximise sunlight in the forest, the upper tree branches are cut to thin the canopy and allow natural sunlight to reach the ground-level plants.

The temples make an effort to understand the benefits and obstacles in their surroundings. This enables them to better care for the ecosystem and adapt to local peculiarities. For example, *Wat Tham Pa Mak Haw* is located on many levels and the surrounding hillside is prone to landslides. This puts additional stress on plant roots and makes it difficult to manage plant growth on the slopes surrounding the temple. Additionally, if the physical ecosystem is overbearing, there will be an effect on the biological ecosystem. In other words, if there are too many man-made structures, plant and animal life will suffer. The temples have a policy of reforestation to replace any trees that they use for wood. Any buildings are carefully regulated to harmonize with the natural environment and not encroach upon natural habitats, this includes fences, walls and lighting. Moreover, amenities do not affect the local natural environment. For instance, roads must not require the destruction of plant life and the number of access roads must be limited to reduce the number of cars and pollution.

2) There are three procedures for biological management of the ecosystem: integration, forest management and animal management. Integration involves five steps, which are classification of each type of living thing, naming the population of living things, categorizing each living thing as one of either producer, consumer or decomposer, identifying the society of each living thing and recognizing the life factors of each living thing. Forest management is achieved by maintaining existing forest, identifying areas in decline and addressing those areas, protecting the forest from human and natural degradation, identification of suitable flora for the local environment, controlling flora that is a hindrance to the growth of other species and increasing plant diversity. These steps are easier to achieve by dividing the forest into areas, such as 'deep forest' for wild animal habitats, 'light forest' for research purposes, 'herb forest' as a cultural zone for the growth of traditional herbs, 'decorative forest' for rest and relaxation, 'activities forest' for the holding of various temple events and 'residential forest' for monk residences. Animal management is more dynamic because it involves the relocation and adoption of animals on a regular basis. The main objective is to limit the human impact on the lives of local wildlife.

3) There are seven key areas where the temple and forest management seeks to maintain a beneficial relationship between the forest and humanity. These are: i) benefit for the ecosystem, ii) benefit for residents, iii) benefit for Buddhism, iv) benefit for visitors, v) benefit for local communities, vi) benefit for academia and vii) benefit for related public institutions.

4) Social, religious and cultural management of the forest temples is done from within the temple organisation, as well as from the clerical committee, the local community and the Buddhist leadership. At the same time, local and national religion, laws, culture and traditions are the principles upon which the temple management is built.

Discussion

Ecological management requires understanding of the individual circumstances and problems of that particular ecological system (Fryxell, Sinclair and Caughley 2014). For this reason, the ecological system in each area must be specifically studied and organized by responsible bodies and networks. As a result, the findings of this research are limited in the scope of their potential implementation. In the temples studied, short

and long term plans were in place to contribute to the integrated management of the entire ecosystem. These included managing the soil, water, wild animals, religion, community, tourism, education and cooperation among organizations. Additionally, the process of managing temple ecosystems for forest and wild animal conservation in Northeast Thailand includes the management of plans, participation, law and Buddhist philosophy. The whole management process is designed to lead to integrated ecosystem management and has been proven to efficiently conserve the ecosystem for forests and animals in the three locations studied here.

The members of the forest temple organisations have a responsibility to perform their duties towards the temples (Dhammasudho, 2016). This is largely due to the close connection between Buddhism and the environment. Many reasons have been given for the Buddhist interest in maintaining strong ecosystems, including its *weltanschauung* that stresses the ‘essential unity of human beings and the natural world’. An alternative theory is that ‘the true connection between the religion and environmental thought is to be found in Buddhist accounts of the virtues, those traits, such as compassion, equanimity and humility, that characterise the life of a spiritually enlightened individual’ (Cooper and James, 2005). Regardless of the philosophical reasons, temples must be considered an integral part of the local ecosystem. As the temples must be considered an integral part of the local ecosystem, temple monks therefore have a duty to care for the local environment. Religion, specifically Buddhism, is thus an important tool in caring for the environment in these areas. By ordaining into the clergy, forest monks are also ordaining into the forest and the ecosystem. This is reflected in the sacred cloth tied around trees as worship (Darlington 2012). Actions and customs such as this, as well as the *su khwan* ceremony performed in the forest, increase the perceived holiness of the forest. As a result, the forests become associated with spirits and people believe in higher powers protecting the area, which in turn deters further deforestation or destruction of the ecosystem. Local affinity with the forest and reluctance to damage the ecosystem will be more prevalent with greater community participation in temple events and rituals. Continuous and successful care, management and growth of the local ecosystem is thus determined by three relationships: the relationship between people, the relationship between people and the ecosystem and the relationship between people and belief systems.

Suggestions

The researchers wish to make a number of suggestions based on the results of this investigation. Ecosystem management at forest temples must not focus solely on the management of living organisms because this is just one aspect of the ecosystem. Instead, management must focus on the soil, water, minerals and local gas reserves, as well as the plants and animals.

Further research is required into the maintenance and management of ecosystems at Buddhist cemeteries in Thailand because many are in a state of disrepair. There are no organisations deemed specifically responsible for the upkeep of local cemeteries and most are only used for funeral ceremonies. There needs to be greater benefit felt by the local communities as a result of positive use and management of cemeteries. A similar study should also be conducted into the ecosystem management of temples in the inner cities and towns. Presently, urban temples are very built up and there needs to be a system in place for effective management of temple ecosystems that does not oppose Buddhist values. The final piece of further research to be suggested as a result of these results is an investigation into the roles of different organizations regarding the management of temple ecosystems. Currently, if there are problems with temple or forest management, the general public does not know who the responsible governing body is. This should be made clearer as a result of academic research.

References

- Abhijato, Phra S. (2015). The Buddha's temperance: A comparison of Epicureanism and the Dhamma. *Journal of the International Association of Buddhist Universities* 8(2): 17-25.
- Bamrungphak, S. (2017). An Analysis of Buddhist Ethics in Synshai Literature. *Journal of International Buddhist Studies*, 8(1): 103-111.
- Bunruamkaew, K. and Murayama, Y. (2012). Land use and natural resources planning for sustainable ecotourism using GIS in Surat Thani, Thailand. *Sustainability*, 4(3): 412-429.
- Chantachon, S. (2009). *Cultural qualitative research*. Mahasarakham: Research Institute of Northeastern Art and Culture.
- Chantawanit, S. (2005). *Documentary analysis in qualitative research*. Bangkok: Chulalongkorn University Press.
- Cooper, D. and James, S. 2005. *Buddhism, virtue and environment*. Aldershot: Ashgate.
- Crook, D.A., Lowe, W.H., Allendorf, F.W., Erős, T., Finn, D.S., Gillanders, B.M., Hadwen, W.L., Harrod, C., Hermoso, V., Jennings, S. and Kilada, R.W. 2015. Human effects on ecological connectivity in aquatic ecosystems: Integrating scientific approaches to support management and mitigation. *Science of the Total Environment*, 534: 52-64.
- Daniels, P. 2015. The Sustainable Management of the Mekong River Basin: Insights from Buddhism. *Journal of the International Association of Buddhist Universities*, 8(2): 46-62
- Darlington, S.M. 2012. *The ordination of a tree: The Buddhist ecology movement in Thailand*. Albany, NY: State University of New York Press.
- Fryxell, J.M., Sinclair, A.R. and Caughley, G. 2014. *Wildlife ecology, conservation, and management*. London: John Wiley & Sons.
- Ghimire, K.B. and Pimbert, M.P. 2013. *Social change and conservation: Environmental politics and impacts of national parks and protected areas*. London: Earthscan Publications.

- Kenaphoom, S. 2017 .The Influences of Political Utility Affecting the Democratic Political Decision, Central Northeast Thailand. *Journal of MCU Peace Studies*, 5(2): 17-38.
- Kunurat, P. 1993. *Ethnic groups and change in Northeastern Thailand*. Khon Kaen: Khon Kaen Office of National Culture.
- Mahatthanadull, S. 2016. Examining Saṃyojana (Fetters) in Theravāda Buddhist Scriptures. *Journal of Graduate Studies Review*, 12(2): 1-17
- Panmanee, J. 2007. *Laws of the Sangha*. Bangkok: National Office of Buddhism.
- Phrakhrubaidika Aphichat Dhammasudho, 2016. Innovation Leadership Roles for The Sangha Administration Ministry in the next decade. *Journal of MCU Peace Studies* 4(2): 313-325
- Plieninger, T., Kizos, T., Bieling, C., Le Dû-Blayo, L., Budniok, M.A., Bürgi, M., Crumley, C.L., Girod, G., Howard, P., Kolen, J. and Kuemmerle, T. 2015. Exploring ecosystem-change and society through a landscape lens: recent progress in European landscape research. *Ecology and Society*, 20(2): 5.
- Spaargaren, G. 2011. Theories of practices: Agency, technology, and culture. Exploring the relevance of practice theories for the governance of sustainable consumption practices in the New World-Order. *Global Environmental Change*, 21(3): 813-822.
- Sutthichaimethee, P., Tanoamchard, W., Sawangwong, P., Pachana, P. and Witit-Anun, N. 2016. Model of environmental problems priority arising from the use of environmental and natural resources in construction material sectors of Thailand. *Advanced Engineering Forum*, (14): 76-85.
- Tongsawan, T. 1994. *Thai society*. Bangkok: Department of Social Studies.