IUCN Conservation Outlook Assessment 2017 **(archived)**
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Please note: this is an archived Conservation Outlook Assessment for Thungyai - Huai Kha Khaeng Wildlife Sanctuaries. To access the most up-to-date Conservation Outlook Assessment for this site, please visit https://www.worldheritageoutlook.iucn.org.

Thungyai - Huai Kha Khaeng Wildlife Sanctuaries

SITE INFORMATION

Country:
Thailand
Inscribed in: 1991
Criteria:
(vii) (ix) (x)

Site description:

Stretching over more than 600,000 ha along the Myanmar border, the sanctuaries, which are relatively intact, contain examples of almost all the forest types of continental South-East Asia. They are home to a very diverse array of animals, including 77% of the large mammals (especially elephants and tigers), 50% of the large birds and 33% of the land vertebrates to be found in this region.
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SUMMARY

2017 Conservation Outlook

Good with some concerns

The Thungyai-Huai Kha Khaeng World Heritage site is relatively well protected from threatening processes by its isolation and inaccessibility making it some of the least disturbed forested areas in Southeast Asia. However, a number of current and potential threats persist, illegal logging and wildlife poaching and continued threats from proposed hydro power developments within the buffer zone of the property. Compounding this is a number of management deficiencies including inter-agency cooperation on issues around law enforcement and modest community engagement capacities in Huai Kha Khaeng WS. However, overall the site has a relatively effective legal protection and management regime. The landscape setting of the property continues to be relatively protected from environmental degradation and the site has significant value as a sanctuary for globally significant flagship species such as tigers, Asian elephants, banteng, wild Indian water buffalo, Sumatran serow and rufous-necked hornbill.

Current state and trend of VALUES

Low Concern
Trend: Stable

At the time of the 1991 evaluation the values for which TYHKK was inscribed were fully intact and relatively well protected. The park’s natural features were in excellent condition as were the biological values of the site. While more recent data is limited indications are that the condition of the property remains good due primarily to the area’s isolation and rugged topography, which limits access and human impact.

Overall THREATS

High Threat

In general the site’s remoteness coupled with relatively effective management

and limited tourism have combined to mitigate current and potential threats to the identified values.
Nevertheless many complex and entrenched threats persist which will require vigilance and long-term commitment from the State Party and international partners. Reports continue to emerge of increasing levels of poaching and the ongoing threat from proposed hydro-power developments in the northern buffer zone adjacent to the property which would have a detrimental effect on the site's integrity.

Overall PROTECTION and MANAGEMENT

Mostly Effective

The property has effective legal protection and a sound planning framework. Government support and funding along with investment and support from Non-government organisations and the isolation of the property ensures that the natural resources and values are currently maintained in relatively good condition and threats are considered manageable. The most significant threat relates to the future increase in development pressure and potential increase in poaching. It's rugged inaccessible typography affords some protection from outside human impact and limits any impact on the core zone of the property. However, efforts to ensure effective law enforcement need to be continued.

FULL ASSESSMENT

Description of values

Values

World Heritage values

- **Biological features of outstanding natural beauty and of great scientific value.**
  Criterion:(vii)

  Thungyai – Huai Kha Khaeng Wildlife Sanctuaries (TYHKK) remarkable rock formations distinguish the western edge of mainland southeast Asia and the impact of geological activity on an area of pristine dry tropical forest is exemplified here better than anywhere else. The striking karst topography combines with diverse forest types, small lakes, ponds and swampy areas to create a landscape of exceptional scenic quality. The natural beauty of TYHKK derives from mountains, with some eighteen peaks over 1,000m, and valleys interspersed with small lowland plains. (IUCN Evaluation, 1991; UNEP-WCMC, 2011; UNESCO Retrospective SoOUV, 2013).

- **Stunning landscapes encompassing superlative forest habitats.**
  Criterion:(vii)

  The two wildlife sanctuaries that comprise TYHKK lie alongside the border with Myanmar and encompass two important river systems. The mountains of the site, the tallest of which reaches 1,830m asl, descend into numerous valley bottoms many of which slope up from 250 – 400m asl, creating stunning landscapes that include relatively intact forest habitats. The property incorporates near pristine examples of most of the principal inland forest formations found in continental Southeast Asia. The combination of the spectacularly beautiful and dramatic mountain slopes, enhanced by a host of

tributary streams and waterfalls alongside the unique mosaic forest types and the sweeping spectacles of variations in color, form and foliage emphasise the stunning landscapes of TYHKK. (IUCN Evaluation, 1991; UNEP-WCMC, 2011).

- **An outstanding and unique biome in mainland Southeast Asia, combining Sino-Himalayan, Sundaic, Indo-Burmese, and Indo-Chinese biogeography elements**
  Criterion:(ix)

  TYHKK represents an outstanding and unique biome in mainland Southeast Asia, combining Sino-Himalayan, Sundaic, Indo-Burmese, and Indo-Chinese biogeography elements, with flora and fauna characteristics of all four zones. The property includes dry tropical forest ecosystem, which is more critically endangered than the region’s equatorial rain forest. The highest slopes are covered with hill evergreen forest. Slopes above 600m generally support seasonal dry semi-evergreen forest. At lower altitudes mixed deciduous and bamboo forests predominate, with dry deciduous dipterocarp forest occurring in areas with poor or shallow soil. There is also savanna forest, which with grassland, occurs at every elevation and is the most complete and secure example of Southeast Asia’s dry tropical forest. In lowland areas, mainly near the larger rivers, there are some small patches of open grassland, especially in Thungyai. (IUCN Evaluation, 1991; UNEP-WCMC, 2011; UNESCO Retrospective SoOUV, 2013).

- **Exceptional species and habitat diversity.**
  Criterion:(x)

  The property supports at least a third of all terrestrial vertebrates known for mainland Southeast Asia, almost two-thirds of the region’s large mammals and many of its large birds, including rare riparian and wetland species. Species lists for the property include 120 mammals, 400 birds, 96 reptiles, 43 amphibians, and 113 freshwater fish. In addition to many regional endemic species and some 28 internationally threatened species, at least one-third of all mainland South-east Asia’s known mammals are represented within the boundaries of the property, providing the major stronghold for the long-term survival of many species. (IUCN Evaluation, 1991; Retrospective SOUV, 2013).

Other important biodiversity values

► Other significant biological values

Considered the only conservation area in Thailand large enough to ensure the long-term survival of gaur and banteng, the property lies within a Conservation International-designated Conservation Hotspot, a WWF Global 200 Eco-region, and a WWF/IUCN Centre of Plant Diversity and was listed as an ASEAN Heritage Park in 2005. (UNEP-WCMC, 2011).

Assessment information

Threats

Current Threats

Low Threat

The site’s natural values are in good condition primarily due to its isolation and inaccessible nature. However, encroachment and the associated threats of illegal logging, poaching and agricultural development continue to pose a threat to the site. Current threats are considered manageable although increased implementation of enforcement measures to prevent poaching of wildlife and high valuable timbers is required. Tourism use is relatively low given the isolation of the property but current planning regimes and management responses may need to be reassessed for this pressure should the number of visitors continue to increase. Potential of increased development, particularly for dams, in the buffer zone poses additional potential threats to the integrity of the property.

► Housing/ Urban Areas

Low Threat

Inside site, localised(<5%)
Outside site

At the time of designation for Thungyai Sanctuary some 6,000 ethnic Karen (DNP, 2013) were resident within the reserve with relocation programmes moving all of them out of the property by 1991. Resettlement programmes appear to have been sensitively handled with adequate compensation to affected residents (UNEP-WCMC, 2011). Residential occupation of the property is a growing concern (DNP, 2013)

► Dams/ Water Management or Use

Low Threat
Inside site, localised(<5%)

The construction of the Thap Salao Dam to the east deforested much of the buffer zone. Encroachment increased with the construction of the Sri Nakarin and Khao Laem dams to the south and EGAT's illegal road to the proposed Nam Choan Dam site. The greatest threat was from this proposed dam, a project revived by the Electricity Generating Authority (EGAT), which would have flooded 75km of the valleys of the upper Kwae Yai (UNEP-WCMC, 2011). Similar threats from the proposed Mae Wong dam have also raised concerns because its reservoir would flood habitat considered important for endangered species including tigers.

► Livestock Farming / Grazing

Low Threat
Outside site

With increasing human population pressures, agricultural encroachment is likely to become a more significant threat. Currently considered chronic but not seriously threatening are issues associated with livestock rearing, forest produce collecting and fire (IUCN Evaluation, 1991; UNEP-WCMC, 2011).

► Hunting (commercial/subsistence)

Very High Threat
Inside site, scattered(5-15%)

Poaching is a persistent problem with roads through Umphang WS to the north, agricultural development, logging and dam projects to the east and south facilitating access by poachers (IUCN Evaluation, 1991). Low-level

subsistence hunting is occurring within the boundaries of the property as well as adjacent to the site. In addition poaching of wildlife and high value timbers for commercial trade has been detected and identified as the highest current threat to the values of the property (UNEP-WCMC, 2011). Poaching remains the most significant threat to the values of the property (World Heritage Committee, 2013).

Potential Threats

High Threat

Potential threats to the property relate to the potential for increased poaching within the property combined with development pressure in important existing buffer zone areas. Future hydro-power development will also bring with it related infrastructure and the potential for increased poaching and pressure to develop greater road access. Careful management of the buffer zone is needed to maintain an appropriate setting for the core areas. Climate change impacts on the values of the site are not fully understood and need further monitoring and research.

► Habitat Shifting/ Alteration

High Threat
Inside site
Outside site

The park is potentially vulnerable in part due to the vertical zonation of plants and animals and the lack of connectivity of the area to other natural areas. In the longer term climate change is expected to cause a general shift of vegetation zones to higher elevations. However, details of impacts on the biodiversity are limited and unavailable at the current time.

► Dams/ Water Management or Use

High Threat
Inside site

Concerns have persisted regarding proposed large scale hydro-electric development in the buffer zone and areas adjacent to the property and a lack of transparency in the process associated with approvals. Recently concerns have been raised around the proposal for the construction of the Mae Wong Dam. Construction of this dam would inundate the core area of the Mae

Wong National Park which adjoins the northern boundary of Huai Kha Khaeng and is part of the well-protected and well-managed northern buffer zone of the property.

Protection and management

Assessing Protection and Management

► Relationships with local people

Some Concern

Unclear level of consultation on current management issues but record of disagreement on land tenure and human wildlife conflict in areas surrounding the property. Previous residents of the property were relocated. Concern from local communities over development proposals particularly in regards to dam construction (UNEP-WCMC, 2011).

► Legal framework

Mostly Effective

The property is state owned land and is protected under a number of national laws. The Wild Animal Reservation and Protection Act B.E.2535 (1992), enforced by the Department of National Parks, Wildlife and Plant Conservation (DNP), provides the strongest legal framework for the protection of the property. The property combines two contiguous sanctuaries, Thung Yai Naresuan and Huai Kha Khang, separately established as wildlife sanctuaries in 1972 and 1974, respectively (World Heritage Committee, 2013).

► Enforcement

Mostly Effective

The ranger patrol system inside the WHS in the last decade has been under the most sophisticated and intensive adaptive management regime that is of the highest international standard. Effective law enforcement is a fundamental response to address serious threats such as wildlife poaching and illegal logging. (IUCN Evaluation, 1991; UNEP-WCMC, 2011; DNP, WCS

and Kasetsart University, 2013).

► Integration into regional and national planning systems

Some Concern

The park is subject to a broader Management Plan for the Western Forest Complex. However, planning decisions at a number of levels are not taking into account the values of the site, or worse, ignoring the fact that these areas are protected. For example approval of the Mae Wong Dam adjacent to the property would have significant impact on the integrity of the property. A further example of the lack of coordination between provincial authorities and the Management agency for the property is the ongoing clash between the needs of the site against provincial and local needs which concerns plans for development which would have a detrimental effect on the site's integrity. (IUCN Evaluation, 1991; IUCN SoC, 1998; UNEP-WCMC, 2011). On the positive side, Thailand Tiger Action Plan has used the property as the key site for a success indicator.

► Management system

Some Concern

The current management plan and system does not address issues of management planning or development of long-term management policies (UNEP-WCMC, 2011). Poor inter-agency coordination to address issues of poaching and planned development. However, Thailand Tiger Action Plan that aims to increase tigers by 50% by 2022 is the most effective plan the managers and scientists are aiming for almost decade.

► Management effectiveness

Mostly Effective

Management is constrained by budgetary and staffing levels. Staffing levels are below levels anticipated for a site of this size and complexity. The two Sanctuaries, which make up TYHKK are relatively isolated and despite development of guard stations this creates challenges for coordination. On the other hand, the management effectiveness at the site level has been under the international standard under the SMART patrol system for almost decades (IUCN Consultation, 2014).

▶ Implementation of Committee decisions and recommendations

Some Concern

There has been one State of Conservation report for the property since its inscription and this was in 1998 and there have been no monitoring missions and one Periodic report, again this was some time ago in 2003. There have been no Committee decisions in relation to the property.

▶ Boundaries

Mostly Effective

The park boundaries are appropriately drawn to protect the naturalness of the landscape and the areas required to maintain the scenic qualities of the property and its integrity. The inclusion of a buffer zone around the property assists in providing added protection to the core area. (IUCN Evaluation, 1991). Adjacent to a number of other protected areas, the property’s location provides additional protection (World Heritage Committee, 2013).

▶ Sustainable finance

Some Concern

Resources to more strategically address threats and management needs are increasingly required with pressure from poaching. Long term sustainable financing remains to be secured.

▶ Staff training and development

Mostly Effective

Significant funds have been spent to train rangers of the property

▶ Sustainable use

Data Deficient

Data deficient

▶ Education and interpretation programs

Data Deficient

Data deficient

► Tourism and visitation management

Mostly Effective

Tourists are now allowed to visit designated areas, although the government does not promote the sites for tourism as national parks.

► Monitoring

Mostly Effective

Many local and international institutions monitor aspects of the site and over 300 papers on the geology and ecology of the site have been published (UNEP-WCMC, 2011). The State Party has committed to a regular programme of monitoring for important species and the site has one of the most sophisticated population monitoring systems for tigers in South East Asia. As just one example, all ranger patrol data (and there are thousands of man-hours of data of patrols that cover nearly the entire WHS every year) is collected on SMART, and then there are monthly meetings with all the ranger patrol leaders where the analysis of the threats discovered is used to guide upcoming patrols.

► Research

Mostly Effective

As the prime biological and ecological research sites in Thailand, a wildlife research station is maintained in Huai Kha Khaeng with more than 50 projects having been carried out in the Sanctuary. More research is needed to improve management practices and participation in them by local people. (UNEP-WCMC, 2011). Research within the property remains limited, however, a number of articles have been published recently based on monitoring of some species (see Thunhikorn et al., 2016; Jinamoy et al., 2014).

Overall assessment of protection and management

Mostly Effective

The property has effective legal protection and a sound planning framework. Government support and funding along with investment and support from Non-

government organisations and the isolation of the property ensures that the natural resources and values are currently maintained in relatively good condition and threats are considered manageable. The most significant threat relates to the future increase in development pressure and potential increase in poaching. It’s rugged inaccessible typography affords some protection from outside human impact and limits any impact on the core zone of the property. However, efforts to ensure effective law enforcement need to be continued.

▶ **Assessment of the effectiveness of protection and management in addressing threats outside the site**

Some Concern

TYHKK is a relatively well protected site which benefits from its isolation and remote access. The management measures that have been applied to the property are largely effective at combatting external threats. However, increased resources to prevent poaching of wildlife and high value timbers is needed along with a commitment to limit development of dams in the buffer zone and adjacent to the property.

State and trend of values

Assessing the current state and trend of values

World Heritage values

▶ **Biological features of outstanding natural beauty and of great scientific value.**

Good
Trend:Stable

The 2008 evaluation provided a baseline for understanding the condition and state of the park’s Outstanding Universal Value. Since that time an updated WCMC Site Data sheet and limited stakeholder consultation reports that values are stable. Up to date data is therefore scant however, the park’s natural resources are reported to be in good condition and threats are considered manageable. There is an effective management regime in place for the park, which will ensure that the property retains its aesthetic values, with a delicate balance being found between the provision of visitor access

and the maintenance of the OUV of the property. (UNEP-WCMC, 2011; UNESCO SoOUV, 2013).

- **Stunning landscapes encompassing superlative forest habitats.**
  Low Concern
  Trend:Deteriorating

  No evidence to suggest that the landscape values of the site have been diminished. There is also little evidence of deteriorating forest habitats within the core area of the property although reports of increased poaching and potential removal of high value timbers may be impacting on individual forest species. Most concerns relate to potential indirect threats from large scale hydro-electric development within the northern buffer zone of the property.

- **An outstanding and unique biome in mainland Southeast Asia, combining Sino-Himalayan, Sundaic, Indo-Burmese, and Indo-Chinese biogeography elements**
  Low Concern
  Trend:Stable

  The ranger patrol system of HKK/TY is amongst the most sophisticated in the world. However, poaching has been a consistent problem and agricultural development and dam projects to the east and south have facilitated access (IUCN Evaluation, 1998).

- **Exceptional species and habitat diversity.**
  Data Deficient
  Trend:Data Deficient

  The Government of Thailand and WCS completed a WEFCOM-wide occupancy survey for all large mammals in 2010-2012. There is also annual monitoring of tiger populations in HKK, plus periodic monitoring of tiger numbers in TYE and TYW. In 2010 the tiger population was reported as being stable in Huai Kha Khaeng (WCS, 2010). Increasing levels of poaching of some species are likely to indicate some species are declining. The property is an important conservation area for tigers and may be one of the few areas in Asia able to offer a long-term future for this highly endangered species. Most concerns relate to potential indirect threats from large scale hydro-electric

development plans outside of the site but in close proximity. However, for many key species recent data on their population trends remains very limited (Thunhikorn et al., 2016).

Summary of the Values

▶ **Assessment of the current state and trend of World Heritage values**
Low Concern
Trend: Stable

At the time of the 1991 evaluation the values for which TYHKK was inscribed were fully intact and relatively well protected. The park's natural features were in excellent condition as were the biological values of the site. While more recent data is limited indications are that the condition of the property remains good due primarily to the area's isolation and rugged topography, which limits access and human impact.

▶ **Assessment of the current state and trend of other important biodiversity values**
Low Concern
Trend: Stable

Additional information

Benefits

Understanding Benefits

▶ **Soil stabilisation, Flood prevention**

The site's retention of forest cover significantly helps prevent landslides while is also likely to assist with flood prevention and on a broader scale contribute to climate change mitigation.

▶ **Traditional agriculture**

Sustainable small scale agriculture should be compatible with buffer zones of the site and provide benefits to local communities

▶ **Water provision (importance for water quantity and quality)**

The watershed protection by the site's forests was estimated to be annually worth some US$ 13.8 million.

Summary of benefits

The property provides significant ecosystem services, most notably the provision of valuable water supplies to the surrounding region and the prevention of landslides through retention of forest cover. The values of TYHKK for Thailand's rich assemblages of wildlife and scenic amenity should provide tangible benefits for all stakeholders, particularly local communities wherever possible.

Projects

Compilation of active conservation projects

№	Organization/ individuals	Project duration	Brief description of Active Projects
1	Wildlife Conservation Society (WCS)		Worked on TYHKK issues for many years including on going monitoring of populations of key species with years of camera trapping monitoring and analysis, and SMART patrolling.
2	Elephant Conservation Network (ECN) Belinda Stuart-Cox		Works on elephant conservation issues in the Western Forest Complex including the property.

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