ASIA / PACIFIC

PHONG NHA – KE BANG NATIONAL PARK
(Renomination and extension of “Phong Nha-Ke Bang National Park”)

VIET NAM

View from paradise cave path - © IUCN Josephine Langley

WORLD HERITAGE NOMINATION – IUCN TECHNICAL EVALUATION

PHONG NHA-KE BANG NATIONAL PARK (VIET NAM) – ID No. 951 Rev

IUCN RECOMMENDATION TO WORLD HERITAGE COMMITTEE: To approve the extension under natural criteria.

Key paragraphs of Operational Guidelines:
Paragraph 77: Nominated property meets World Heritage criteria.
Paragraph 78: Nominated property meets integrity and protection and management requirements.

Background note: The existing property Phong Nha-Ke Bang National Park (PNKB NP) was inscribed on the World Heritage List under criteria (viii) in 2003. At that time the Committee encouraged the State Party to review the boundaries and engage in dialogue with the People's Republic of Lao (Lao PDR) regarding transboundary opportunities with respect to neighbouring Hin Namno National Conservation Area (Decision 27 COM 8C.8). A review of the State of Conservation was carried out in 2004 and 2005, and highlighted the need for Environmental Impact Assessments being conducted prior to the implementation of development activities. The property was renominated under criteria (viii) and (x) in 2010 and the renomination was referred by the Committee in 2011. The referral was made because the nomination did not meet conditions of integrity, protection and management, with specific concerns related to poor law enforcement and illegal harvest of timber and non-timber forest products (NTFP) including endangered wildlife and also that the proposed extension of the property had not yet happened (Decision 35COM 8B.12). The Committee's attention is drawn to the earlier 2011 IUCN evaluation of PNKB NP (WHC11-35COM-INF.8B2). In July 2013, the national park was expanded to 126,236 ha, and this renomination is for an enlarged nominated area under additional biodiversity criteria (ix) and (x) and an extended buffer zone.

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1. DOCUMENTATION

a) Date nomination received by IUCN: 18 March 2014

b) Additional information officially requested from and provided by the State Party: In September 2014 following the evaluation mission, IUCN wrote to the State Party seeking its response on measures to stop poaching and to provide advice on the status and potential impact of a proposed cable car within the property. The State Party responded in December 2014.

Following the IUCN World Heritage Panel a further letter was sent to the State Party seeking an update on the cable car proposal and requesting documentary evidence of the Environmental Impact Assessment for the development proposal as well as a map showing the route. The State Party provided further responses on 29 January 2015.

c) Additional literature consulted: Various sources, including references accessed at the time of the 2011 evaluation of PNKB. Other references including Moulds, T.A., Pham, D.S., Mouritz, R. (2010) **Preliminary Survey of Cave Fauna in the Phong Nha-Ke Bang World Heritage Site, Viet Nam.** Unpublished report to GTZ, May 2010, pp 34 Golovatch S, Geoffroy JJ & Vandenspiegel D. (2013) **On several new species of the millipede family Glomeridae from Viet Nam (Diplopoda : Glomerida).** Arthropoda Selecta, 22(3): 201-206. Clark, B. (2013) **IUCN Conservation Outlook Assessment, Phong Nha-Ke Bang National Park** http://www.worldheritageoutlook.iucn.org. Accessed March 2015. Worboys, G. (2012) **Phong Nha-Ke Bang National Park, World Heritage Management Planning Requirements Mission Report.** IUCN, Gland. Le Trong D., Do Tuoc, Dinh Huy Tri, Le Thuc Dinh and Dang Ngoc Kien (2009) **Census of Southern white-cheeked crested gibbons in U Bo and adjacent buffer zone forests, Phong Nha-Ke Bang National Park, Bo Trach District, Quang Binh Province, Viet Nam.** Fauna and Flora International (FFI) – Viet Nam Primate Programme. Haus T., Vogt M., Forster B., Thanh Vu N., and Ziegler T. (2009) **Distribution and Population Densities of Diurnal Primates in the Karst Forests of Phong Nha-Ke Bang National Park, Quang Binh Province, Central Viet Nam**. International Journal of Primatology 30:301–312. Vu Dinh Thong et al. (2012) **Biodiversity survey of bats in and around the Phong Nha-Ke Bang National Park, Quang Binh, Viet Nam.** Gebert, R (ed). (2012) **Gender-Poverty-Ethnicity: the challenge of social inclusion conservation planning for the PNKB.** Hubner, A and Truong Si Hong Chau (editors). (2013) **Sustainable Tourism.** Johnson, I, and Nguyen Thi Ngoc Anh (eds). (2012) **Green VDP: Participatory and conservation-oriented village development planning process. Practical experience, challenges and lessons learnt.** Nguyen Thi Ngoc Anh (ed). (2013) **Livelihoods.** Viet Nature (2013) **Action plan for strengthening forest law enforcement and wildlife management in Phong Nha-Ke Bang National Park Region and Quang Binh Province.** Wildlife Conservation Society (2013) **Forest Law Enforcement and Wildlife management status survey in PNKB Region and Quang Binh Province.** Korte, A at al. (2011) **Buffer Zone Development Plan 2011-2020, visioning 2030.** Hubner, A., Phong, L. T.,

Chau, T. S. H. (2014) **Good governance and tourism development in protected areas: The case of Phong Nha-Ke Bang National Park, central Viet Nam.** Koedoe, 56(2).

d) Consultations: 19 desk reviews received. The mission also met with representatives from the PNKB NP Management Board (Directors and senior staff); Quang Binh Peoples' Committee; Vietnamese Border Army; British Cave Explorer Association; German KfW Development Bank; Forest Inventory and Planning Institute of Viet Nam; IUCN Viet Nam; TRAFFIC; and the UNESCO National Committee Viet Nam. The mission met with key staff from the property including ranger staff and staff from the Paradise Cave. Meetings were also held with private sector interests: Oaxalis Company and Sun Spa Resort and with local community representatives.

e) Field Visit: Josephine Langley and Hag Young Heo, 11 to 18 August 2014

f) Date of IUCN approval of this report: April 2015

2. SUMMARY OF NATURAL VALUES

Phong Nha-Ke Bang National Park (PNKB NP) in northern Central Viet Nam lies in the Quang Binh Province and borders Lao PDR in a roughly north-south axis. The renomination, if approved, would extend the property from 85,754 ha to 123,326 ha and would become contiguous on the western boundary with the Hin Namno Conservation Area in neighbouring Lao PDR. The legal recognition of the extension of the national park and its buffer zone arises from a Prime Ministerial Decision of July 2013.

The renomination also proposes an expansion of the buffer zone from 203,245 ha to 220,055 ha, which is outside the nominated property. The buffer zone consists of 13 communes that share their land boundaries with the existing and extension area. According to the nomination the objectives and functions of the buffer zone are identified in the 2002 Investment Plan for PNKB NP and focus on reducing human impacts on the national park.

The property was inscribed in 2003 for geological values which recognise the limestone karst and associated cave systems and features. Since inscription, additional caves have been surveyed and studied. For example, Son Doong cave discovered in 2009 is reported to contain the world's largest cave passage in terms of diameter and continuity, larger than Mulu Caves World Heritage Site in Malaysia. In addition, some of the new caves which have been discovered and explored are in the extension area.

This renomination and extension expands the criteria to include biodiversity criteria (ix) and (x). As the IUCN evaluation of 2011 pointed out, PNKB NP belongs to Udvardy's Indochinese Rainforest province in the Tropical Humid Forests biome. The park has largely undisturbed evergreen primary forest, both karst and non-karst, with rich biodiversity. Almost 94% of the park is forested and 84% of this is primary forest. PNKB NP's forest ecosystems, both karst and non-karst, support a high diversity of plants and animals including many karst specialist species, many endemic species, and a number of species that are globally threatened.

The key features and attributes supporting criteria (ix) include the complex of submontane evergreen forest and tropical moist evergreen forest above 700m and tropical rainforest associated with both limestone and soil mountains. Perennial and ephemeral streams and a complex subsurface riverine system links surface to underground ecosystems for dependant freshwater, bird, bat, invertebrate and fungi species. Cave dwelling habitats have yet to be fully identified and researched though several species new to science have been documented. The hydrological features, the soil habits and elevation provide a complex patchwork of riverine, limestone forest and soil forest habitats and interactions. It is thought that there is a 30% overlap in species between the soil mountain habitats and limestone forests.

Under criteria (x) the values proposed encompass endemism, globally threatened species and high levels of species richness for various taxonomic groups: vascular plants, mammals (primates, bats, small carnivores, rodents and fossil species), fish, birds, reptiles, and amphibians. A variety of arthropods have been observed but not fully inventoried such as butterflies (20% of Viet Nam's 270 species), dragonflies and spiders. New species of cave-dependent species continue to be discovered during scientific studies.

As noted in IUCN's 2011 evaluation, PNKB NP is of particular importance for the conservation of primate species: of the 9 primate species that occur in the park (i.e. 43% of Viet Nam's 21 primate species), 7 are globally threatened, and PNKB NP possibly has the largest protected viable populations of 3 of them (Hatinh Langur (EN), Red-shanked Douc Langur (EN) and Southern White-cheeked Gibbon (EN)). The other primate species are: Bengal Slow Loris (VU), Pygmy Slow Loris (VU), Stump-tailed Macaque (VU), Northern Pig-tail Macaque (VU), Eastern Assamese Macaque and Rhesus Macaque. Other globally threatened mammal species in PNKB NP include Owston's Civet (VU) and the property is home to 46 bat species (43% of Viet Nam's 107 bat species).

Several larger carnivores and other large mammals historically found in the property have had no confirmed observations or documentation of presence for many years (or decades in some cases); this includes tigers, leopards, elephants and bears.

The property belongs to the Northern Annamites Rain Forests ecoregion, as well as two freshwater ecoregions (Northern Annam and Southern Annam). The Annamite ecoregion hotspot is currently a gap on the World Heritage List. This renomination corresponds to the Annamese Lowlands Endemic Bird Area and four Key Biodiversity Areas, three of which are Important Bird Areas.

Table 1 (adapted from the nomination dossier). Number of species by taxon identified in PNKB NP

Taxa	Species in PNKB NP	Threatened species in PNKB NP	Endemic to Annamite Range	Endemic species to PNKB NP
Vascular plants	2651/2,774	116/133	(427 Endemic to Viet Nam)	
Mammal	154	48	9	3
Bird	314	19	4	3
Reptile	117	26	6	5
Amphibian	58	7	2	-
Fish	170	4	17	16/13
Total	**813**	**104**	**38**	**24**

Despite recent and ongoing discoveries of new species it is worth re-emphasizing that knowledge of the PNKB NP remains remarkably limited. Systematic biodiversity assessment began less than ten years ago and many more species are likely to be discovered and recorded in PNKB NP. Indeed, a great number of plant and animal species, including dozens previously unknown, have been recorded in the property over the past 15 years: the number of recorded amphibian and reptile species for example increased from 96 in 2000 to 137 in 2006 and spatial analysis suggested that significantly more bird species could be found within the property than currently identified. Conversely little is known of the current population status of some key large mammals. Little is also known of the biodiversity values of the property's buffer zone and the contiguous Hin Namno National Biodiversity Conservation Area in neighbouring Lao PDR.

Few people live within the nominated area, whilst the surrounding buffer zone has a population estimated at 54,000. Several minority ethnic groups are present in the region and two Arem villages are within the boundaries of the existing property. The total population is estimated to be 401 individuals in 72 households. There are no villages in the extension area. A small area within the property is designated for the two villages, each with specific areas allocated under contract for agricultural use and use of NTFP (medicinal plants, honey and firewood).

3. COMPARISONS WITH OTHER AREAS

The nomination dossier included a global comparative analysis that focuses upon the biodiversity values of the nominated extension, presumably on the basis that the existing property has already demonstrated Outstanding Universal Value under criteria (viii). That said, the nomination points out that the karst landscape system, within which the enlarged property sits, extends into Lao PDR and covers a much larger area of some 920,000 ha. As noted above since the inscription of PNKB NP in 2003 additional caves and karst features continue to be discovered and explored within this remote area. The best publicised of these has been the Son Doong cave discovered in 2009, and other caves which have been discovered and explored within the extension area. The values for criteria (viii) are better documented than previously and the extension of the property has added attributes in support of criteria (viii) and thus strengthened the Outstanding Universal Value of the property.

With respect to biodiversity values the dossier's comparative analysis compares a logical group of properties, and whilst it lacks some detail, most of the information on species richness and endemism is considered reasonably accurate. Furthermore the mission found that most of the reported species are found within the property though some of these are extremely rare or sightings have not been documented for around 20 years (e.g. tigers) and others require confirmation as data is from more than 5 years ago during which time on-going poaching may have resulted in localised extinctions. The analysis does not include information from non-World Heritage sites and protected areas with cave-dependent and limestone-dependent species. However, the comparative analysis is still considered adequate to justify global biological importance.

IUCN recalls that the 2011 evaluation of a then smaller nominated property concluded positively on its biodiversity values based on global comparative analysis. This evaluation concluded that *"at 85,754 ha, which is planned to be extended to 125,000 ha in the near future, PNKB NP is already over 15 times as large as Puerto-Princesa and almost twice as large as Gunung Mulu and South China Karst. PNKB NP, with the neighbouring Him Namno Biodiversity Conservation Area in Lao PDR, is one of the largest areas of intact forest habitat on limestone karst still found in Indo-China. 94% of PNKB NP is covered by forests, 84% of which is primary forest, the highest percentage of primary forest remaining in any Vietnamese protected area.*

In summary, recent research suggests that PNKB NP itself is a regionally and globally significant area for the conservation of biodiversity, including three globally threatened primate species. PNKB NP lies within a very important biodiversity hotspot and is part of an Endemic Bird Area that is not yet represented on the World Heritage List. PNKB NP also captures a considerable part of the biodiversity values of a Global 200 ecoregion and, in terms of both plant and animal species richness and endemism, equals or exceeds a number of other Asian karst properties inscribed on the World Heritage List under biodiversity criteria."

Additional comparative analysis conducted by UNEP-WCMC reinforces the above conclusions that the characteristic biodiversity of the nominated property appears to be of global significance. PNKB NP represents ecosystems which are not yet found on the World Heritage List: the Northern Annamites rainforests ecoregion and the Annamite Range Moist Forests priority ecoregion. It also constitutes one of the last remaining moist forests in Indochina which are in relatively intact condition, although it is under threat from human activities. The nominated property has high levels of biodiversity, similar to the species diversity found in existing World Heritage sites in the same biome. Table 2 below has been updated to focus on comparable karst World Heritage sites with biodiversity values. The property could also host more bird species than currently reported and a number of species new to science (including fish, amphibians and reptiles) have recently been discovered. The nominated property is home to four threatened Primates endemic to the Annamites (the Hatinh Langur and its black form, Red-shanked Douc Langur and White-cheeked Gibbon) and other endangered animal species, including the Large-antlered Muntjac, Clouded Leopard, and the critically endangered Saola.

Finally, PNKB NP has been identified as a gap in representation of World Heritage sites including in a 2013 study as one of the most irreplaceable natural and mixed World Heritage sites not yet recognized under biodiversity criteria.

Table 2. Comparison of PNKB with karst World Heritage properties in the region and Vietnamese protected areas

Property, State Party	**Total area (ha)**	**Natural WH criteria**	**Mammal species**	**Bird species**	**Reptile species**	**Amphibian species**	**Freshwater fish species**	**Vascular plant species**
PNKB NP, Viet Nam	**123,326**	**viii, ix, x**	**154**	**314**	**117**	**58**	**170**	**2,744**
Ba Be, Viet Nam	*23,340*	*Tent. List: viii, ix*	*81*	*234*	*48*		*107*	*1,268*
Cat Tien, Viet Nam (no karst)	*71,935*	*Tent. List: vii, ix, x*	*113*	*348*	*89*	*45*	*168*	*1,610*
Cuc Phuong, Viet Nam	*25,000*	*-*	*97*	*300*	*36*	*17*	*11*	*2,000*
Three Parallel Rivers of Yunnan, China	939,441	vii, viii, ix, x	173	417	59	36	76	6,000+
Lorentz, Indonesia	2,505,600	viii, ix, x	123	411	324	90	100+	?
Gunung Mulu, Malaysia	52,864	vii, viii, ix, x	81	270	55	76	48	3,500
Puerto-Princesa, Philippines	5,753	vii, x	30	91	18	10	?	800
Dong Phayayen – Khao Yai, Thailand	615,500	x	112	392	200+		?	2,500
Thungyai – Huai Kha Khaeng, Thailand	577,464	vii, ix, x	120	400	96	43	113	?
Kaeng Krachan Forest Complex, Thailand (nominated in 2014/15)	*482,225*	*x*	*91*	*461*	*61*	*43*	*48*	*1,199*

4. INTEGRITY, PROTECTION AND MANAGEMENT

4.1. Protection

PNKB NP was established as a national park in 2000 and all of the nominated extended property is state owned land. The property is legally established through a series of government decisions which provide an adequate legal framework. The property is under the control of a Management Board which answers to the Quang Binh People's Provincial Committee (PPC). The PPC coordinates input from a range of national and provincial government Ministries. Provincial and local district authorities manage the property's buffer zone.

IUCN in its 2011 evaluation of the existing PNKB NP raised concerns regarding the effectiveness of law enforcement in combating wildlife poaching and illegal harvest of forest products and this was reinforced in Committee Decision 35COM 8B.12. A Law Enforcement Plan is in place as are inter-agency cooperative arrangements. Several categories of park rangers are involved in enforcement and border patrol police also accompany rangers on joint patrols in border areas between Viet Nam and Lao PDR. The State Party advised in December 2014 of various increased initiatives to enhance protection of the property from poaching and illegal harvest of forest products including a series of legal Directives, improved planning, communication strategies and interagency collaboration. Nevertheless this issue remains a serious concern for the property. Recent reports confirm illegal logging of high commercial value rare forest timber species such as Sua Wood (*Dalbergia cochinchinensis*) and Iron Wood (*Nephelium chryseum*). There are few successful prosecutions with fines being very low compared to the value of the illegally harvested wildlife or timber.

IUCN considers that the legal protection status of the extended property as nominated does, however, meet the requirements of the Operational Guidelines. IUCN notes concern relating to the control of poaching and illegal harvest of forest products, and reiterates that effective control measures are essential in order to protect the biodiversity values of the nominated property.

4.2 Boundaries

The extension to the inscribed property responds to past calls from IUCN and the Committee. It provides a larger more intact ecosystem that offers additional protection to the water catchments which are so critical to the integrity of karst landscapes. The extension increases the size of the existing site by some 46% and is part of the same karst plateau, covering largely undisturbed forest. This adds significantly to the natural values of the site and provides for a much more robust property. The boundaries have been extended northwards to meet the northern boundary of the neighbouring protected area in Lao PDR. PNKB NP has a management zoning system comprising strictly protected, ecological restoration and administrative/service zones. The buffer zone encircles the entire extended property to the north, east and south to further strengthen integrity. The land immediately adjacent to the property is either designated as forest protection area or watershed protection zone. These two land management designations restrict development activities and offer additional buffering from landuse change.

In summary the property represents one of the largest protected karst landscapes in South East Asia. Its boundaries appear to be adequate from an ecological perspective, although the field evaluation concluded that boundaries were difficult to identify on the ground. Furthermore the extension of the property improves connectivity with the karst landscape in Lao PDR.

IUCN considers that the boundaries of the extended property meet the requirements of the Operational Guidelines.

4.3 Management

As noted above the property is managed through the PKNP NP Management Board with a governance system that seeks to coordinate input from various Ministries and levels of Government. The field mission found there is limited stakeholder engagement in decision-making. All the members of the Management Board are government representatives and there is no official advisory body which includes representatives of various stakeholders such as NGOs and the tour operators. The property could improve compliance with regulations if it had greater engagement with local communities and stakeholders, and if benefits were more explicitly directed to local people.

While this site is not a transboundary site, encouraging efforts are underway to increase collaboration with Lao PDR. Currently there are several memoranda of understanding and other agreements between the two countries. There are annual or biannual meetings, and a Transboundary Biodiversity Protection Plan and a 2005-2015 Hunting & Wildlife Trade Control Action Plan are in place.

Concerns were raised by IUCN in 2011 regarding the lack of an up to date management plan for the site. There is now a Strategic Management Plan 2013-2025 which was prepared in 2012 based on existing plans, including the Sustainable Tourism Development Plan, the National Park Operation Management Plan and the Buffer Zone Development Plan. IUCN highlights the importance of revising the Sustainable Tourism Development Plan to include the extension area.

A weakness in management is the absence of systems and a comprehensive approach for data management, research, monitoring and scientific collaboration. A research strategy should be established to address this weakness. There is also a lack of monitoring and assessment to understand the effectiveness of management despite the property receiving technical support on management effectiveness evaluation systems and tools.

For the period 2007-2015 the government allocated about 200,000 USD annually to support payment of salaries, office operations and construction and activities of the Management Board. Given that there are about 202 full-time permanent staff and 266 contract staff, this allocation would appear to be inadequate. Ticket sales and tourism activities generate about 1 million USD per year. In addition, NGOs and international donors have invested considerable funds in several long term projects, most notable the KfW and GIZ project (16 million USD); however, this funding ends in 2016 with no guarantees of further investment.

The State Party advised in December 2014 of a series of measures to combat poaching and illegal activity within the property, however concerns remain regarding a lack of funding, staffing and capacity. There is also a need for building capacity on the management of biodiversity and ecosystems (including in relation to tourism, monitoring and information management). The property has had a history of developments without adequate impact assessment which signals an urgent need to enhance capacity in understanding and conducting Heritage and Environmental Impact Assessments.

Despite the concerns above, the park Management Board has responded to most of the previous decisions of the World Heritage Committee and many of the recommendations from IUCN and previous missions. While the site needs to improve its management effectiveness there has been significant progress since 2011 evidenced by the increased capacity and additional plans and strategies that have been developed and are being implemented. These indicate a commitment to implement previous recommendations.

IUCN considers that the management of the property meets the requirements of the Operational Guidelines.

4.4 Community

There is a small population of around 400 Arem people living in two villages within the property, who rely on agriculture and traditional harvesting. Local communities take part in meetings with rangers and the park Management Board. The evaluation mission concluded that it is mainly the elders of the communities who wish to remain living in the property; the younger generation seeks access to salaried jobs, and modern infrastructure. Unless better opportunities are developed it is likely that the minority communities will leave the property and cease traditional activities. There is the potential to increase minority community involvement in the growing tourism industry by building on experiences in other World Heritage sites on eco-tourism, homestays, community science, or by employing (more) young people as tour guides or rangers.

Whilst there are consultation processes, there appears to be little evidence of real collaborative management of the park or joint decision making. Similarly there is little evidence of benefits from the park finding their way to local communities.

4.5 Threats

IUCN's 2011 evaluation pointed to a number of threats and some of these persist. The property has suffered from past developments and its integrity could be threatened by further uncontrolled tourism developments, notably the development of increased cave access with artificial lighting systems; access roads and trails; and a proposed new cable car. A significant threat emanates from the development of tourism infrastructure, either proposed or implemented without proper environmental impact assessment.

A tourism strategy has been developed for the property and Quang Binh Province has prioritised tourism as a key driver of provincial development. The State Party in supplementary information has advised that the Son Doong Cave cable car development project has been conceptually accepted and that further studies and analyses are continuing, however an EIA has not yet been completed as the project is still in a planning and assessment phase. IUCN has therefore not had an opportunity to review the findings of an EIA. Should the cable car development proceed, it would constitute a significant development being some 10.6 kms in length with 30 towers and accessing the Son Doong Cave within the strict protection zone of the nominated property. IUCN reiterates the point made in its 2011 evaluation that *"mandatory environmental impact assessment must be strictly enforced for all investors and national agencies with either development interests in PNKB NP or mandates to develop infrastructure that may impact on the park's natural values."*

Furthermore, although forest cover is still very high, there are ongoing threats from illegal logging and poaching of wildlife (with a decline in sightings of a number of large mammal species) and there is a need for more systematic monitoring of enforcement activities. A number of commercially valuable hardwood timber species are being logged including Sua Wood (*Dalbergia cochinchinensis*) and Iron Wood (*Nephelium chryseum*). This has been the cause of conflicts between rangers and loggers. Historically there have been very high levels of poaching and this continues although efforts to halt this are increasing.

A further threat includes hydrocarbon pollution of cave streams and sedimentation with some of the caves having also suffered from high visitation, which could lead to the extinction of cave-dependent species.

The State Party has made significant efforts to address the above threats and integrity of the nominated property remains intact. The property includes the necessary elements including an intact watershed and vegetation cover, and habitats for species of conservation importance, including endemic, cave-dependent and threatened species.

In conclusion, for the reasons outlined above, IUCN considers that the integrity, protection and management of the extended property meet the requirements of the Operational Guidelines, but that a range of concerns remain regarding future threats, notably from poaching and the potential for increased tourism and related development to adversely impact on the property's values. Increased attention coupled with strong protection and management measures will be needed to ensure the future integrity of the property.

5. ADDITIONAL COMMENTS

None.

6. APPLICATION OF CRITERIA

Phong Nha-Ke Bang National Park has been nominated as an extension of the existing property inscribed under (viii) to also include natural criteria (ix) and (x).

Criterion (viii): Earth's history and geological features
Since the inscription of PNKB NP onto the World Heritage List in 2003, knowledge of the property's extensive cave systems has continued to increase. This increased knowledge and research includes additional caves found and mapped in the extension area. The values for criteria (viii) are better documented than previously and the extension strengthens the Outstanding Universal Value under criteria (viii).

PNKB NP is part of a larger dissected plateau, which encompasses the Phong Nha, Ke Bang and Hin Namno karsts. The limestone is not continuous and demonstrates complex interbedding with shales and sandstones. This has led to a particularly distinctive topography. The caves demonstrate a discrete sequence of events, leaving behind different levels of ancient abandoned passages; evidence of major changes in the routes of underground rivers; changes in the solutional regime; deposition and later re-solution of giant speleothems and unusual features such as sub-aerial stromatolites. On the surface, there is a striking series of natural landscapes, ranging from deeply dissected ranges and plateaux to an immense polje. There is evidence of at least one period of hydrothermal activity in the evolution of this ancient mature karst system. The Son Doong Cave, first explored in 2009, could contain the world's largest cave passage in terms of diameter and continuity. The plateau is one of the finest and most distinctive examples of a complex karst landform in Southeast Asia and the property is of great importance for enhancing our understanding of the geologic, geomorphic and geo-chronological history of the region.

IUCN considers that the extended property as nominated meets this criterion.

Criterion (ix): Ecosystems/communities and ecological/biological processes
According to the 2001 classification of terrestrial ecoregions, PNKB NP belongs to the Northern Annamites Rainforests ecoregion, which is not yet present in a biodiversity World Heritage site. Similarly, none of the two freshwater ecoregions (Northern Annam and Southern Annam) to which PNKB NP belongs is yet present in a biodiversity World Heritage site. PNKB NP is also part of the Global 200 terrestrial priority ecoregion Annamite Range Moist Forests. There is no existing natural World Heritage site in this Global 200 ecoregion. The extended area provides for a larger, more ecologically intact forest system.

PNKB NP consists of a complex limestone landscape, which includes very large caves and underground rivers. The property includes karst formations which are some of the oldest and largest in Asia, and it has geological, climatic, hydrographic and ecological conditions which are distinct from other limestone karst landscapes. Its cave ecosystems and habitats are unique with high levels of endemism and adaptations displayed by cave-dependent species. The property constitutes one of the largest remaining areas of relatively intact moist forest on karst in Indochina, with a forest cover estimated to reach 94%, of which 84% is thought to be primary forest. Furthermore, the property protects globally significant ecosystems within the Northern Annamites Rainforests and Annamite Range Moist Forests priority ecoregions.

IUCN considers that the extended property as nominated meets this criterion.

Criterion (x): Biodiversity and threatened species
PNKB NP is of global significance for the conservation of biodiversity as its forest ecosystems, both karst and non-karst, support a high diversity of plants and animals including a number of karst specialist species, many endemic species, and a number of species that are globally threatened. The extension represents an increase of almost 46% in the property's area which significantly enhances its value for biodiversity and globally threatened species. Future research is likely to further underline the property's outstanding biodiversity values.

A high level of biodiversity is found within the property, with over 2,700 species of vascular plants and over 800 vertebrate species. Several globally threatened species are also present: 133 plant species and 104 vertebrate species have been reported, including several large mammals such as the endangered Large-antlered Muntjac, Clouded Leopard, and the Critically Endangered Saola. The level of endemism is high, especially in the cave systems. Furthermore, it is estimated that over 400 plant species endemic to Viet Nam are found within the property, as well as 38 animal species endemic to the Annamite range. Several new species to science have recently been found, including cave scorpions, fish, lizards, snakes and turtles, and more species are likely to be discovered. Importantly, 4 threatened primate taxa endemic to the Annamites are found within the property: the Hatinh Langur (specialised in karst forest

and endemic to Viet Nam and the People's Democratic Republic of Lao), the black form of the Hatinh Langur, sometimes considered as a separate species, the Red-shanked Douc Langur, and the White-cheeked Gibbon (with the largest remaining population).

IUCN considers that the extended property as nominated meets this criterion.

7. RECOMMENDATIONS

IUCN recommends that the World Heritage Committee adopt the following draft decision:

The World Heritage Committee,

1. Having examined Documents WHC-15/39.COM/8B and WHC-15/39.COM/INF.8B2;

2. Approves the extension of **Phong Nha-Ke Bang National Park (Viet Nam)** on the World Heritage List under natural criteria (viii), (ix) and (x);

3. Adopts the following Statement of Outstanding Universal Value for the extended Phong Nha-Ke Bang National Park property, replacing the Statement of Outstanding Universal Value approved by Decision 36COM 8E:

Brief synthesis

Phong Nha-Ke Bang National Park is located in the middle of the Annamite Mountain Range in Quang Binh province, Viet Nam, and shares its boundary with the Hin Namno Nature Reserve in the Lao PDR to the west. The property comprises an area of 123,326 ha and contains terrestrial and aquatic habitats, primary and secondary forest, sites of natural regeneration, tropical dense forests and savanna and is rich in large, often spectacular and scientifically significant caves.

The property contains and protects over 104 km of caves and underground rivers making it one of the most outstanding limestone karst ecosystems in the world. The karst formation has evolved since the Palaeozoic period (some 400 million years ago) and as such is the oldest major karst area in Asia. Subject to massive tectonic changes, the karst landscape is extremely complex, comprising a series of rock types that are interbedded in complex ways and with many geomorphic features. The karst landscape is not only complex but also ancient, with high geodiversity and geomorphic features of considerable significance.

The karst formation process has led to the creation of not only underground rivers but also a variety of cave types including: dry caves, terraced caves, suspended caves, dendritic caves and intersecting caves. With a length of over 44.5 km the Phong Nha cave is the most famous of the system with tour boats able to penetrate inside to a distance of 1,500 m. The Son Doong Cave, first explored in 2009, is believed to contain the world's largest cave passage in terms of diameter and continuity.

A large number of faunal and floral species occur within the property with over 800 vertebrate species recorded comprising 154 mammals, 117 reptiles, 58 amphibians, 314 birds and 170 fish. The property clearly has impressive levels of biodiversity within its intact forest cover, however, up-to-date data on large mammal species is needed to confirm the population status of reported large mammals including tiger, Asiatic black bear, Asian elephant, giant muntjac, Asian wild dog, gaus and the recently discovered Saola.

Criteria

Criterion (viii)

Phong Nha-Ke Bang National Park is part of a larger dissected plateau, which encompasses the Phong Na, Ke Bang and Hin Namno karsts. The limestone is not continuous and demonstrates complex interbedding with shales and sandstones. This has led to a particularly distinctive topography. The caves demonstrate a discrete sequence of events, leaving behind different levels of ancient abandoned passages; evidence of major changes in the routes of underground rivers; changes in the solutional regime; deposition and later resolution of giant speleothems and unusual features such as sub-aerial stromatolites. On the surface, there is a striking series of natural landscapes, ranging from deeply dissected ranges and plateaux to an immense polje. There is evidence of at least one period of hydrothermal activity in the evolution of this ancient mature karst system. The Son Doong Cave, first explored in 2009, could contain the world's largest cave passage in terms of diameter and continuity. The plateau is one of the finest and most distinctive examples of a complex karst landform in Southeast Asia and the property is of great importance for enhancing our understanding of the geologic, geomorphic and geo-chronological history of the region.

Criterion (ix)

Phong Nha Ke Bang National Park consists of a complex limestone landscape, which includes very large caves and underground rivers. The property includes karst formations which are some of the oldest and largest in Asia, and it has geological, climatic, hydrographic and ecological conditions which are distinct from other limestone karst landscapes. Its cave ecosystems and habitats are unique with high levels of endemism and adaptations displayed by cave-dependent species. The property constitutes one of the largest remaining areas of relatively intact moist forest on karst in Indochina, with a forest cover estimated to reach 94%, of which 84% is thought to be primary forest. Furthermore, the property protects globally significant ecosystems within the Northern Annamites Rainforests and Annamite Range Moist Forests priority ecoregions.

Criterion (x)

A high level of biodiversity is found within the property, with over 2,700 species of vascular plants and over 800 vertebrate species. Several globally threatened species are also present: 133 plant species and 104 vertebrate species have been reported, including several large mammals such as the endangered

Large-antlered Muntjac, Clouded Leopard, and the critically endangered Saola. The level of endemism is high, especially in the cave systems. Furthermore, it is estimated that over 400 plant species endemic to Viet Nam are found within the property, as well as 38 animal species endemic to the Annamite range. Several new species to science have recently been found, including cave scorpions, fish, lizards, snakes and turtles, and more species are likely to be discovered. Importantly, four threatened primate taxa endemic to the Annamites are found within the property: the Hatinh Langur (specialised in karst forest and endemic to Viet Nam and the People's Democratic Republic of Lao), the black form of the Hatinh Langur, sometimes considered as a separate species, the Red-shanked Douc Langur, and the largest remaining population of White-cheeked Gibbon.

Integrity

The property constitutes one of the largest protected karst landscapes in South East Asia. Covering an area of 123,326 ha and bounded to the west by the Lao People's Democratic Republic, all elements necessary to manifest the outstanding geological values of the property of Phong Nha-Ke Bang National Park are contained within the boundaries of the property. The inscribed property is completely surrounded and protected by a buffer zone of 220,055 ha and is designated into three management zones: a strictly protected, an ecological restoration and an administrative/service zone. The watershed protection forests in the buffer zone also protect the integrity of the property. Furthermore, the extension of the property enhances its integrity and connectivity with the karst landscape in Lao PDR.

There are, however, a number of issues that affect the integrity of the property. Wildlife poaching and illegal harvesting of forest products is a direct threat to biodiversity values. The property has also suffered from past developments and its integrity could be threatened by further uncontrolled tourism developments, notably by the proposed construction of a cable car and access roads. There is a need for the implementation of Environmental Impact Assessments for any projects which could negatively affect the site. This would ensure that the natural landscape, geologic and geomorphic values, and key features such as primitive forest, caves, rivers and streams within the inscribed area remain intact. The property is situated within an area of high population density and as such a number of activities, such as cultivation, tourism, transport and freshwater fisheries could also impact on its integrity.

Protection and Management Requirements

Originally designated as a Nature Reserve in 1986, Phong Nha-Ke Bang National Park was established in 2001 under the Decision 189/QD-TTg by the Prime Minister and is managed by a Management Board. The Management Board is responsible for protection of forest resources and biodiversity and was established in 1994. Cave conservation and the provision of a tourism service are the responsibility of the Cultural and Ecological Tourist Centre under the Management Board. The property is also included in the Special National Heritage List (2009), and the Special Use Forest system (1999). The National Park is effectively protected by a number of national laws and government decisions, which prohibit any action inside or outside the boundaries of the National Park or a World Heritage property that may have a significant impact on the heritage values.

A Strategic Management Plan has been in place since 2012 and is based on existing plans, including the Sustainable Tourism Development Plan, the National Park Operation Management Plan and the Buffer Zone Development Plan. The Management Board oversees law enforcement programmes including ranger patrols and joint law enforcement operations on the border with Lao PDR. Nevertheless, the rugged nature of the country and community dependence on natural resources coupled with relatively limited resources for enforcement means that wildlife poaching and illegal timber gathering are difficult to eradicate and remain a challenging issue.

The Ho Chi Minh highway, constructed outside and to the north of the property is appropriately located and provides important and valuable benefit to the National Park in terms of opening up views of and access to the Ke Bang forest area. However, other road construction and tourism development will require rigorous and comprehensive assessment of environmental impact before decisions are made on whether they should be permitted or not. It is paramount that such developments do not impact on the karst and biological values for which the property has been inscribed. Impacts of increased development pressure and tourism numbers will also require continual consideration, planning and management to ensure that these pressures do not damage the Outstanding Universal Value of the property.

4. Commends the efforts made by the State Party to address the recommendations of the World Heritage Committee regarding the integrity, protection and management of the property.

5. Notes with concern proposals to construct a cable car to provide access to the Son Doong cave within the strictly protected zone of the property and the potential impacts this may have on the property's Outstanding Universal Value and urges the State Party to complete Environmental Impact Assessments, in line with IUCN's Advice Note on Environmental Assessment, prior to a decision on the implementation of any tourism development projects and to ensure that development proposals are not permitted if they would negatively impact the Outstanding Universal Value of the property.

6. Requests the State Party to revise the property's Sustainable Tourism Development Plan to include the property extension and ensure an integrated and environmentally sensitive approach to tourism that ensures visitor use remains compatible with the Outstanding Universal Value of the property.

7. Further requests the State Party to submit to the World Heritage Centre, by **1 February 2016**, a report on the state of conservation of the property, including updated data on the population status of key large mammal species; advice on the status of proposals to construct a cable car to access Son Doong Cave; and advice on sustainable financing for the extended property, for examination by the World Heritage Committee at its 40th session in 2016.

Map 1: Currently inscribed World Heritage property and proposed extension