

Phong Nha Nature Reserve

Alternative site name(s)

Dong Phong Nha, Phong Nha-Ke Bang

Province(s)

Quang Binh

Status

Decreed

Management board established

Yes

Latitude

17°20' - 17°37'N

Longitude

106°09' - 106°23'E

Bio-unit

05c - North Annam



Conservation status

Phong Nha was included on Decision No. 194/CT of the Chairman of the Council of Ministers, dated 9 August 1986, which decreed the establishment of a 5,000 ha cultural and historical site (MARD 1997). The principal objective of this Special-use Forest was not biodiversity conservation but the protection of the extensive cave systems at the site.

In 1992, an investment plan for the site was prepared by Quang Binh Provincial People's Committee. This investment plan proposed that the Special-use Forest category of Phong Nha be changed from cultural and historical site to nature reserve (Anon. 1992). The investment plan was approved by Official Document No. 2538/KH of the former Ministry of Forestry, dated 10 November 1993, and by Decision No. 914/QD-UB of Quang Binh Provincial People's Committee, dated 3 December 1993 (Nguyen Ngoc Chinh *et al.* eds. 1998). Following the approval of the investment plan, a nature reserve management board was established by Quang Binh Provincial People's Committee on 5 December 1993 (Quang Binh Provincial FPD 2000).

In the investment plan, the total area of the nature reserve was given as 41,132 ha, comprising a strict protection area of 28,437 ha, a forest rehabilitation area

of 8,157 ha and an administration and services area of 4,538 ha (Anon. 1992). According to Quang Binh Provincial FPD (2000), the current area and management zoning of the nature reserve are the same as those given in the investment plan.

In 1998, a nomination form to inscribe the Phong Nha caves as a UNESCO World Heritage Site was prepared. As well as the biodiversity value of Phong Nha Nature Reserve, the justification for inscription given on the nomination form included the outstanding cave systems and limestone karst landscape at the site (Nguyen Ngoc Chinh *et al.* eds. 1998). To date, however, the site has not been inscribed as a World Heritage Site.

In 1999, FIPI prepared a revised investment plan for Phong Nha. This investment plan proposed extending the Special-use Forest to incorporate the Ke Bang limestone area to the north-west, and upgrading the management category from nature reserve to national park. The total area of the proposed national park was given as 147,945 ha (Nguyen Ngoc Chinh *et al.* 1998). This investment plan has not yet been approved, and it is uncertain how quickly, or even if, the process to upgrade Phong Nha to national park status will proceed.

Phong Nha is included on the 2010 list as a 147,800 ha nature reserve, under the management of MARD (FPD 1998). However, Phong Nha is included on a

proposed list of protected areas currently being proposed by FPD and FIPI as a 147,800 ha nature reserve, under the management of the provincial people's committee (FPD and FIPI in prep.). In both cases, the name of the site is given as Phong Nha-Ke Bang.

Topography and hydrology

Phong Nha Nature Reserve is located in western Bo Trach district, close to the international border with Laos. The nature reserve is situated in one of the largest areas of contiguous limestone karst in Indochina, which also includes Hin Namno National Biodiversity Conservation Area in Laos, and the Ke Bang limestone area in Bo Trach and Minh Hoa districts, Vietnam. The limestone massif is located in a transition zone between the northern and central Annamite mountains. To the north and south of the limestone massif, the geology of the Annamite mountains is predominantly not limestone.

The topography of the Phong Nha area is characterised by precipitous karst ridges, which rise to elevations of around 400 m. Scattered among these ridges are narrow valleys and pockets of igneous rock formations. Because of the limestone topography, drainage is complex and there are few permanent water courses. There are, however, the Chay, Son and Trooc rivers, all of which are fed by underground streams, which emerge from the En, Vom, Toi and Phong Nha cave systems. All three rivers flow into the Gianh river, which empties into the East Sea, 40 km away at Ba Don town.

Biodiversity value

The three most comprehensive surveys of the wider Phong Nha-Ke Bang area are those of Le Xuan Canh *et al.* (1997), Kouznetsov *et al.* (1999) and Timmins *et al.* (1999). These surveys, together with the work of numerous other researchers, have recorded a high diversity of animal and plant species at the site, including a number endemic to the limestone karst massif.

The nature of the terrain at Phong Nha Nature Reserve has restricted encroachment into limestone areas (Timmins *et al.* 1999). As a result, the limestone

karst is almost entirely forested, apart from steep cliff faces. The only clearance of forest has been in flat valleys within the limestone massif, and in lowland areas bordering it. According to the investment plan, Phong Nha Nature Reserve supports 38,620 ha of natural forest, equivalent to 94% of the total area of the nature reserve. The most widespread forest type is limestone forest, which covers 24,861 ha, while lowland evergreen forest covers 13,617 ha and riparian forest covers 142 ha (Anon. 1992).

The limestone forest ecosystem at Phong Nha supports a high diversity of plant and animal species. Of perhaps the greatest conservation significance are several species found at the site that are endemic to this part of central Vietnam and Laos. These include Sooty Babbler *Stachyris herbeti*, a globally threatened species that went unrecorded between its discovery in Laos in the 1920s and its rediscovery at Phong Nha in 1994 (Eames *et al.* 1995). Phong Nha also supports populations of two endemic primates, Hatinh Leaf Monkey *Semnopithecus francoisi hatinhensis*, and an all-black form referred to as Black Leaf Monkey *S. f. ebenus*. Although Timmins *et al.* (1999) advise caution regarding the exact status and taxonomic identity of the all-black form at Phong Nha.

Timmins *et al.* (1999) recorded a number of globally threatened mammals in the area, including Owston's Banded Civet *Hemigalus owstoni* and Southern Serow *Naemorhedus sumatraensis*. In addition, the globally endangered Red-shanked Douc Langur *Pygathrix nemaeus nemaeus* has been recorded at Phong Nha by a number of authors, although the failure of Timmins *et al.* (1999) to record this species, led them to conclude that there may have been a major decline in the species at the site. Also at Phong Nha, a recently described rabbit species in the genus *Nesolagus* was recorded in 1998 (SurrIDGE and Timmins 1999, Timmins *et al.* 1999).

With regard to the avifauna of Phong Nha Nature Reserve, Timmins *et al.* (1999) recorded several globally threatened species, including Crested Argus *Rheinardia ocellata*, Chestnut-necklaced Partridge *Arborophila charltonii* and Red-collared Woodpecker *Picus rabieri*, Short-tailed Scimitar Babbler *Jabouilleia danjoui*. On the basis of the occurrence of four restricted-range bird species, Phong Nha lies within the Annamese Lowlands Endemic Bird Area

(Stattersfield *et al.* 1998). Timmins *et al.* (1999) consider the Phong Nha area to be of particular importance for bird conservation, because the populations of species of conservation concern are not at immediate risk of extirpation or major population declines.

Conservation issues

Currently, the biggest threat to biodiversity at Phong Nha Nature Reserve is hunting. Hunting takes place throughout the protected area, although it is most frequent within a days walk of habitation. Most hunting is commercially orientated, with a well established wild animal trade in the area. There has been substantial commercial hunting of primates, which have resulted in major population declines. In addition, widespread snaring is of particular concern because of its effects on populations of terrestrial mammals and birds. Some large mammal species may already be on the verge of local extinction as a result of hunting, and Phong Nha is no longer of significance for the conservation of Tiger *Panthera tigris*, Asian Elephant *Elephas maximus* and wild cattle (Timmins *et al.* 1999).

The nature reserve management board currently has too few members of staff to adequately enforce nature reserve management regulations. Because of this, timber extraction is widespread in the nature reserve. The illegal timber trade is highly organised and networked, and it is not unusual to witness the extraction of up to 1,000 kg of timber per day. Extraction is focussed on economically valuable timber species, such as *Diospyros* spp. and *Pterocarpus macrocarpus*, and information from timber cutters indicates that these species are becoming increasingly rare, necessitating longer journeys into more remote areas to find large specimens (J. Hardcastle pers. comm.).

The rate of habitat loss at Phong Nha is currently low relative to other sites in the region, and is restricted to more easily accessible areas around the periphery of the nature reserve (Timmins *et al.* 1999). However, the potential for future habitat loss and disturbance resulting from infrastructure development is high. Two planned roads will pass close to or cut through the nature reserve, one of which will cause high levels of

disturbance to known sleeping areas of Hatinh Leaf Monkey and Black Leaf Monkey (J. Hardcastle pers. comm.).

Tourism development is another threat to biodiversity at the site. Already the Quang Binh Tourism Company is attempting to both promote Phong Nha's natural assets and manage the burgeoning numbers of visitors. Ecotourism studies by the WWF LINC project have warned of the potential risks of uncontrolled tourism development and of opening areas of the forest for picnics and tours. There is, as yet, no adequate provision for ecotourism at the nature reserve (J. Hardcastle pers. comm.).

Phong Nha Nature Reserve is currently managed by Quang Binh Provincial FPD, via a management board established for this purpose. The management board currently has 20 members of staff, including 10 forest guards, who are based at the nature reserve headquarters and three guard stations (Quang Binh Provincial FPD 2000). Access to the centre of Phong Nha Nature Reserve is possible by boat, along the Son and Chay rivers. There are two manned forest guard stations on these rivers, to control access to the nature reserve (J. Hardcastle pers. comm.).

Phong Nha Nature Reserve lies close to Hin Namno National Biodiversity Conservation Area in Laos, and is linked to it by the Ke Bang limestone area. All three areas support similar limestone habitats, and the conservation of biodiversity at the three sites is inextricably linked. Transboundary cooperation is a high priority in the area, as, for example, natural resources in one country may be exploited by people from the other. First steps towards such cooperation have been made by the WWF LINC Project, as part of which, meetings were held between provincial leaders and protected area managers from the two countries in 1998.

Other documented values

The Phong Nha limestone area has a spectacular limestone karst topography and extensive cave systems, which make it one of the most outstanding geological sites in the country. The centrepiece of the site is the Phong Nha cave, through which an underground river flows. The mouth of this cave is 30 m wide and 18 m high, and it is possible to enter up

to 1.5 km into the cave (Limbert *et al.* 1990). In addition to the Phong Nha cave, 16 other caves have been surveyed to date at the site, with a total length of over 60 km (Nguyen Ngoc Chinh *et al.* eds. 1998).

The Phong Nha cave system is an increasingly popular tourist destination, with recent investment in facilities and upgrade of access. Currently, an estimated average of 700 tourists visit the caves daily, stretching the carrying capacity. A large area of the nature reserve has been earmarked for potential tourism development, which could have negative impacts on the limestone forest ecosystem. There clearly exists, however, the potential for successful ecotourism development that brings widespread benefits to the nature reserve and local communities alike (J. Hardcastle pers. comm.).

The Phong Nha-Ke Bang area is home to small groups of the Ruc and Arem sub-groups of the Chut ethnic group. Until recently, these people lived in caves. They have now been settled in villages. The indigenous knowledge and customs of these people have yet to be adequately researched. Their existing or potential role in conservation needs to be assessed.

Related projects

Quang Binh Tourism Company have been operating at Phong Nha since 1995, controlling tourism to Phong Nha cave. In 2000, the operations of this company will expand to include Kho cave also. Quang Binh Tourism Company have had little involvement in conservation activities to date (J. Hardcastle pers. comm.).

With funding from the United Kingdom Department for International Development, WWF are implementing a project entitled *Linking Hin Namno and Phong Nha through Parallel Conservation*. The first phase of this project ran for one year, from 1998 until 1999, and focussed on research. A second phase, which will run for three years, is planned. The activities of this project at Phong Nha Nature Reserve to date have focussed on capacity building for nature reserve staff and collecting baseline data. In addition, the initial planning for an environmental education programme at the site has taken place, and some activities have already been implemented at local schools and Women's Union groups.

During 1998, Fauna and Flora International implemented a two-part project in the Phong Nha-Ke Bang area. The first part consisted of a training course for nature reserve staff, while the second part consisted of a survey of large mammals, bats and birds (Timmins *et al.* 1999).

Koln Zoo plan to implement several activities at Phong Nha Nature Reserve, including carrying out biological surveys, and providing equipment and training opportunities to help nature reserve staff carry out their duties more effectively.

The *Viet-AusAid Malaria Control Project (VAMCP)* has carried out literacy training and basic malaria prophylactic training and distribution throughout Bo Trach and Minh Hoa districts.

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