

Evidence-based Conservation

Lessons from the Lower Mekong

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3 Song Thanh Nature Reserve

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The proposed Song Thanh Nature Reserve (STNR) is located in Nam Giang and Phuoc Son districts, within Quang Nam province along the Vietnam–Laos border. It has one of the largest areas of tropical forest in Vietnam (Lê Nho Nam, 2001) and is situated at the intersection of multiple bio-geographical areas. Song Thanh will be one of the few nature reserves to have diverse groups of ethnic minority people living in the core zone. In addition, STNR is situated in an area where many large and small hydropower projects are being planned. STNR is still not officially gazetted as a nature reserve, and at present forms part of the special-use forest system of Vietnam. This lack of recognition by the central government means that there has been inadequate funding for management activities.

Environmental context of the landscape

Biophysical features

STNR is located between coordinates 15° 13' to 15° 41' north and from 107° 21' to 107° 50' east (STNR *et al.*, n.d.). It covers parts of ten communes in two districts: Nam Giang and Phuoc Son. In the north, it borders 14D highway, which runs from east to west between Thanh My and Dak Oc, along the Vietnam and Laos border. In the south, it adjoins Kontum province at the crest of Lo Xo Mountain and the 14D highway. To the west it is bordered by Lao PDR and to the east by the waterways of the Thanh and Cai rivers (FIPI, 1999). The altitude of the area ranges from 80 to 2,032 metres above sea level (masl) (STNR *et al.*, n.d.).

STNR belongs to the central coastal climate zone. With an average temperature of 24.6°C and a minimum temperature of 20°C, the weather is hot in comparison with northern Vietnam (FIPI, 1999). The rainy season in the areas is two or three months later than in the north of the Truong Son mountain range. It starts in August and finishes in December or in January, with the most intensive rainfall season occurring between September and November. The dry season coincides with a hot, dry western wind, which speeds up the evaporation process, and reduces the humidity and has a negative impact on agriculture and forestry production as well as on the floristic composition of the forest (FIPI, 1999).

Song Thanh is in the upper reaches of the Vu Giang River, which flows from east to west to its mouth at the Dai seaport. There are two main watersheds, the Bung river in the north and Cai river in north-east (BirdLife International, 2001). Three hydroelectricity dams are planned for the catchment, one each in three communes in the reserve's buffer zone (STNR *et al.*, n.d.). Earlier, two more hydropower plants were proposed for the Giang River 4 and Thanh River. However, these were not approved by the Quang Nam People's Committee because they were located in the core zone of the nature reserve (FIPI, 1999).

There are three main soil types in the area: ferralite humus on rocky mountains (49.7 per cent), typical ferralite in low hill areas (48.9 per cent) and alluvial soils in valleys. Alluvial soil is used by local people for agriculture. This land type, however, accounts for only 1.2 per cent of the total land area and not enough to support the agricultural needs of all the people in STNR.

Biodiversity

STNR is an important component of the Priority Central Truong Son landscape of the Truong Son ecosystem (WWF, 2001). The rich biodiversity and the high numbers of endemic species makes STNR one of the high-priority biodiversity areas nationally, internationally and regionally (STNR *et al.*, n.d.). The reserve is situated in the Endemic Bird Area in Kon Tum highland (Stattersfield *et al.*, 1998) and the southern part of the reserve, named Lo Xo, is an Important Bird Area (BirdLife International, 2002). STNR is large and borders with Ngoc Linh district of Kon Tum province, which in turn borders with Ngoc Linh district of Quang Nam province, creating one of the largest continuous stretches of forest in Vietnam (Lê Nho Nam, 2001). The fauna and flora of Song Thanh is diverse; however, the exact number of species has not been determined. Therefore the numbers presented below need to be treated with caution (BirdLife International, 2001).

The majority (95 per cent) of the STNR is covered by evergreen forest (BirdLife International, 2001). There were 831 higher plants recorded in the investment plan prepared by FIPI in 1999, of which 23 were endemic species and 49 were listed in the Red Data Book of Vietnam and the IUCN Red List (FIPI, 1999). In a more recent survey carried out by WWF in 2004, only 329 plant species were recorded. The reasons for this discrepancy are unclear but are probably due to different data collection methods. An additional explanation could be that the investment plan may include some species expected to occur at the site based upon their known ranges but not actually recorded (BirdLife International, 2001).

In the investment plan undertaken by FIPI in 1999, the diversity of fauna in Song Thanh was reported to consist of 53 species of mammals, 183 species of birds, 44 species of reptiles and 21 species of amphibians (FIPI, 1999). According to the 2005–2010 Management Plan prepared by the STNR management board, the Forest Protection Department and WWF, the reported number of species in Song Thanh was 29 mammals, 154 birds, 22 reptiles, 12

amphibians, 10 fish, 106 butterflies (STNR *et al.*, n.d.). These plans emphasized the need to pay special attention to three of the mammals in Song Thanh, notably the douc langur, muntjac and tiger. The reason for this priority is that these species are Endangered, and if there is effective protection, STNR could be a source for rehabilitating these populations elsewhere in Central Vietnam (STNR *et al.*, n.d.).

Socio-economic context of the landscape

The population of Song Thanh Nature Reserve is approximately 40,000 people (STNR *et al.*, n.d.). There are four main ethnic groups, the Kinh, Ka Tu, Mo Nong and Gie Trieng (BirdLife International, 2001), and some representatives of the Muong, Thai and Nung groups (Bird *et al.*, 2005).

The total area of STNR core zone is 84,524 hectares. The people inhabiting the core zone of STNR are mostly located in three remote highland communes, named La Dee, Dakpring and Phuoc My of Nam Giang and Phuoc Son district. A total of 115 households with 598 persons live in the core zone of STNR, and all are indigenous. The livelihood of the local people depends on the forest, but they are not allowed to extract resources from the nature reserve. The indigenous groups retain their own distinctive traditional customs and cultures, which can be seen in the diversity of languages, dress and life styles, and in the methods of rice cultivation, buffalo rearing, rice wine ceremonies, the making of fine arts and crafts and brocade weaving.

The buffer zone spans 107,928 hectares. It includes twelve communes and one town in Nam Giang and Phuoc Son districts. The buffer zone of STNR is one of the poorest areas in Quang Nam province. It has a weak economy, poor infrastructure and limited transportation links. Moreover, the people's education levels and their agricultural skills are low (BirdLife International, 2001). Local people in STNR are involved mainly in agriculture and forest-based activities, and most of their income comes from agriculture (STNR *et al.*, n.d.), including shifting cultivation, livestock rearing and fisheries (Bird *et al.*, 2005). In the buffer zone, the main products cultivated include rice, cassava, corn and beans (Bird *et al.*, 2005). These agricultural practices remain underdeveloped, with no soil and water conservation measures used, and no soil fertility management other than burning of forest residue (IUCN, 2007). Livestock graze freely, and local communities have limited facilities for disease control (Bird *et al.*, 2005). In addition, the 1.2 per cent of the natural land area that is suitable for cultivation is too small to sustain the need of local people (FIPI, 1999). Therefore, many people suffer from a lack of food for six months per year (STNR *et al.*, n.d.).

Low agricultural production is the main reason for forest exploitation activities by local people, especially by the minority ethnic groups. Their forest activities include hunting, fishing and the extraction of NTFPs such as bamboo, rattan and honey (Bird *et al.*, 2005; IUCN, 2007). The level of subsistence exploitation by local communities is not significant, but market demands seem to be increasing the pressure on the natural resources (STNR *et al.*, n.d.).

Demand has driven local people to get increasingly involved in wildlife trade, illegal logging and gold mining, which contributes to pressure on forest and water resources. Together with population growth, economic development and wildlife trade, the pressures on the reserve are increasing, threatening the biodiversity and landscape of the area.

Infrastructure in the area is poor, but is spreading. National and local authorities are building roads and reservoirs, and redeveloping the administrative centre in Nam Giang district. Furthermore, a new economic zone is being planned at the international border crossing of road 14D, which is within the core zone of STNR (STNR *et al.*, n.d.). There are medical facilities in some highland communes in Nam Giang districts. In addition, there is also a health group supported by the border guard force, which helps local people when necessary.

Institutional context: background and main issues

In 1999, the Ministry of Agriculture and Rural Development (MARD) listed Song Thanh-Dakpring Nature Reserve in the system of Vietnam special-use forests. This proposal was sent for approval to the Prime Minister even though its nature reserve status had not been recognized nationally (STNR *et al.*, n.d.). This is part of Prime Ministerial Decision 845/TTg dated May 1995 on the Vietnam Biodiversity Action Plan. This aimed at increasing Vietnam's special use forests from 1 million to 2 million hectares.

Following this decision, from May to September 1999 the Forest Inventory and Planning Institute (FIPI) together with Quang Nam Forest Protection Department conducted surveys and developed the proposal for the area to be set aside as Song Thanh Nature Reserve (FIPI, 1999). The proposal, however, was not approved by MARD (BirdLife International, 2001). Nevertheless, in 2000, Quang Nam People's Committee recognized Song Thanh as a nature reserve, and it started being administered as such by Quang Nam People's Committee (Quang Nam People's Committee, 2000). It is currently being proposed that STNR be upgraded to a national park and listed in MARD's special-use forest category. As yet, however, it lacks any proper conservation designation.

The Song Thanh management board was established by Decision of the People's Committee to implement the management, protection, and use regulation of this special-use forest. The management board is part of Quang Nam province's Forest Protection Department (FPD). The nature reserve is managed and operated according to special-use forests management regulations, and has an important role in strengthening the legal basis for forest protection, biodiversity conservation and economic development in the area. Based on the special-use forest management regulations, ecosystem recovery and strict protection of the forest are priorities, and all activities that have the tendency to change the natural landscapes, affect wildlife, exploit natural resources or

pollute the environment are prohibited. Development projects such hydropower dams in the core zone of the nature reserve have therefore been rejected. There are also many government policies that have positive impacts on the nature reserve. These include the Prime Minister's Decision on managing three forest categories (Decision 186/2006/QĐ-TTG dated 14/8/2006), a proposal on investment in developing and completing Vietnam's special-use forest infrastructure, 2008 to 2020 (issued in Decision 2370/Q-BNN-KL dated 05/8/2008 of MARD minister), and a range of laws on punishments such as fines for violation of regulations dealing with forest protection, environmental protection and biodiversity conservation.

The main issue that Song Thanh faces is the lack of funding from the government, since it is not yet recognized as a national nature reserve and is still operated by the local authority. This currently limits the enforcement of laws and regulations for conservation. Furthermore, Quang Nam province, where Song Thanh is located, is one of the poorest areas in Vietnam (BirdLife International, 2001), hence the plans to develop increased hydropower in the area. Hydropower plants have a large impact on the environment and on the livelihoods of local people in the area. This requires a range of compensation measures to provide livelihood improvements for the affected population as well as to pay for the opportunity costs that local people incur from biodiversity protection measures. Hydropower development also requires the formulation and implementation of an environmental management plan (Bird *et al.*, 2005), which is not within the capacity of Song Thanh management board or Quang Nam People's Committee.

Major threats to environment and conservation

Hunting, trapping and fishing are considered the main threats to Song Thanh. Large animals are the main species under threat, as they are in demand for bushmeat, medicines, pets or decoration. Different groups of people have different hunting and trapping purposes. Hunting for selling is often done by people from outside Song Thanh region. They trap high-value animals such as bears, turtles and ungulates. The majority of local people, however, hunt and sell forest animals only to generate extra income to supplement their nutrition and to protect their crops. Some species, especially wild pigs, deer, monkeys, porcupines and civets, are considered to be a threat to agriculture, and hence are trapped in order to protect crops. However, the current hunting intensity, combined with hunting for trade, is above the sustainable extraction level. Freshwater fishing is also an important source of nutrition for local people. Over-exploitation using destructive methods has reduced the fish stocks in many rivers.

In spite of control efforts, illegal logging is still a problem in the area both for trade and for household use. Logging in the buffer zone is not managed, and there is no agroforestry programme to encourage timber plantations for future

needs. Many people also take advantage of the government programmes, for example programme 134, which allows households to harvest 10 m³ of timber for house construction.

Non-timber forest products are exploited by local people, and these include firewood, honey, rattan, seeds and bamboo shoots. They use these for making roofs and for firewood, food and small-scale trading. NTFP extraction for basic needs continues, even in the core zone of the nature reserve. Nevertheless, there are also some authorized companies that collect NTFPs for trade in the area and use hired labour from other places. Unsustainable NTFP extraction ultimately reduces the availability of natural resources for local people's use and has long-term livelihood implications.

Gold panning and road building in Song Thanh is causing extensive water pollution. Combined with overfishing, the biodiversity of the fresh water areas has decreased. Illegal, small-scale gold panning happens in STNR, and combined with larger-scale gold mining is creating a problem of siltation in the streams. It is not clear how this problem affects biodiversity, but the amount of siltation in small caves along the streams shows that they have some effects on aquatic animals. Even local people no longer fish in these affected streams. It is necessary to solve pollution problems in these streams to protect both the biodiversity and human health. Furthermore, gold panners also hunt for food in the forests. Road building in the buffer zone, as well as in the south and west of the core zone, also contributes to siltation of the waterways. It is not clear what impact this has on biodiversity, but it is surely detrimental to the environment. The high siltation levels in streams at STNR may increase flooding in lowland areas of the province. The road upgrading across the nature reserve core zone also increases the danger of timber poaching and potentially poses a threat to conservation programmes for large animal species, such as tigers. Moreover, the 14A route (also named 'Hồ Chí Minh road') has many spots where access is easy for poaching, such as Phuoc Duc, Phuoc Nang and Phuoc My. On the 14D route (road to Dak Oc Vietnam-Laos border crossing), poachers can enter forests anywhere, from Nam Giang district centre to the Dak Oc border gate.

Currently, forest conversion to agriculture is only occurring on a small scale because the population density is low and there is little immigration. Nevertheless, the establishment of a new economic zone at the border gate has increased land conversion in the core zone. The expansion of rubber plantations is being promoted by the provincial government in Chaval and Lade communes, Nam Giang district. Under this plan, agricultural land will be converted to rubber plantations. As a result local people are starting to encroach upon forest land in the core zone for agricultural purposes.

The landscape initiatives

Operating under the forest protection unit, the management board of STRN is in charge of law enforcement and forest management and protection. Law

enforcement activities are implemented regularly in the nature reserve to prevent illegal forest exploitation and wildlife hunting. Patrols are undertaken by rangers in collaboration with the local police, army and village forest protection groups. The management board has also signed agreements with local communities and communes in defining the border of the nature reserve, in setting up a sustainable forest protection plan and in co-management of natural resources in the nature reserve. Nevertheless, illegal logging and wildlife trade remains. Forest management and protection was implemented through the Vietnamese Government funded reforestation programme “Programme 661” and the “Five Million Hectares” programme). This programme was operating in Song Thanh between 2001 and 2006. The forest plantation and forest protection payment scheme contributed to both forest protection and income generation for local people (STNR, 2006b).

Song Thanh’s management board has 26 staff and employs 75 rangers. This number is too low when compared to a government regulation that states that there should be one ranger per 1,000 hectares of special-use forest. This lack of human resources has a negative impact on the enforcement of laws and regulations in the area. Furthermore, the annual government budget for conservation activities is only enough to pay for salaries and other general administration activities, with little or no funding left for scientific research and other wildlife protection activities (BirdLife International, 2001).

In recognition of the high value of the biodiversity in the area, STNR has attracted the attention of international and national biodiversity conservation organizations. They support programmes and projects in Song Thanh that are managed by Song Thanh management board, in collaboration with the Forest Protection Unit.

The WWF Greater Mekong initiative has contributed significantly to conservation in this area. Before the establishment of the nature reserve, WWF initiated a tiger protection project (1999–2006), and chose this as the main area to implement the “Central Vietnam Tiger Corridor – Species based landscape conservation” project. This was the first project in the area to focus on tiger conservation. The main activities implemented were community awareness raising; capacity building for the community, support for rangers and management board staff, and the establishment of a tiger database using remote sensing. The project received positive support and participation from different local authorities and relevant sectors, and was welcomed by local people; illegal exploitation was reduced. Local people also participated in forest protection, biodiversity conservation and tiger conservation activities. The project played an important role in Quang Nam ranger activities and particularly enhanced collaboration between rangers, local people and other sectors for forest protection and biodiversity conservation (Quang Nam FPD, 2001, 2002b).

WWF also focused on strengthening the capacity of rangers through training courses and enhancing management capacity. Furthermore, the project contributed to improving awareness for students and communities and supported nature reserve staff in the initial stages of reserve establishment. It created opportunities

for the STNR management board to fulfil their tasks in protecting and developing the unique biodiversity features of the area (Quang Nam FPD, 2002a).

A further project, on Biodiversity Conservation for Poverty Alleviation (2006–2007), aimed at improving local livelihoods, developing forest protection regulations and promoting policies related to nature reserve co-management. This project was funded by the UK's Department for International Development (DFID) through the Asian Development Bank (ADB) and was one of the regional sub-components in the framework of the Biodiversity Corridor Initiative ADB-GMS (Anon, n.d.). Through funding from ADB, IUCN implemented a Biodiversity Conservation Corridor Initiative project (2007–2009) (IUCN, 2008), which involved participatory surveys and biodiversity monitoring in the buffer zones of STNR. The project aimed at community-based natural resources management, evaluation, biodiversity monitoring, improved management of the nature reserve, strengthening of law enforcement, wildlife propagation, programmes to raise awareness of biodiversity values, and the establishment of a village development fund. With project support Tabhing commune in Nam Giang district has developed a traditional weaving enterprise, which attracts many women workers and contributes to generating income for local people.

Funded by the MacArthur foundation, WWF implemented a further project (2003–2009) focusing on capacity building for rangers and the management board, strengthening law enforcement and developing community-based management. Local hunting and the trapping of wildlife has been reduced by law enforcement and wildlife monitoring. However, there were still some instances of hunting and trapping by local people to protect crops. NTFP exploitation – for instance, for rattan – continues in the nature reserve because local authorities still authorize exploitation by corporations. Law enforcement also applies to gold panning and is conducted in collaboration with relevant authorities and has achieved positive results (STNR, 2005, 2006a, 2007).

Future vision

To confront the threats to the biodiversity and ecology of STNR, the province and relevant departments are pushing for investment and increased attention from international organizations. To achieve biodiversity and ecology conservation, the management board plans to: (a) define borders, negotiate and sign contracts with communities for demarcation; (b) set up and implement law enforcement campaigns to eliminate illegal gold panning in the core zone of the nature reserve; (c) proceed with applications to upgrade STNR into Song Thanh National Park; (d) implement community-based natural resources management and forest protection by providing knowledge, empowering communities and involving relevant stakeholders in each village in STNR (training, land and forest allocation) and supporting sustainable economic development in buffer zones; (e) implement conservation education campaigns; and (f) monitoring areas where poaching is likely to happen, especially along the 14A and 14D routes.

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