

Research the Current Status of Educational Works on Biodiversity Conservation at Than Sa - Phuong Hoang Natural Reserve, Thai Nguyen Province, Vietnam

Nguyen Thi Hong Vien¹, Nguyen Thu Huyen², Nguyen Thi Bich Hanh³, Nguyen Thi Dong⁴, Chu Thi Hong Huyen⁵

^{1,2,3,4,5} Faculty of Resources and Environment, University of Sciences, Thai Nguyen University

ABSTRACT: Than Sa - Phuong Hoang Nature Reserve is the largest natural forest in Thai Nguyen province, with high biodiversity with 6 types of vegetation, 1,234 plant species, and 346 animal species. The buffer zone Than Sa - Phuong Nature Reserve has about 6,500 households living, with more than 90% being ethnic minorities. Local people are still dependent on the forest, causing many difficulties for conservation. Education to raise awareness for the community is a long-term, highly effective and sustainable solution to biodiversity conservation. During the research process, the authors used a combination of methods of analyzing and synthesizing documents; field survey method. Research results show that: Biodiversity conservation education is carried out at Than Sa - Phuong Hoang Nature Reserve in different forms for diverse target groups. However, the number of educational programs on biodiversity conservation is not much due to lack of funding and low practical effectiveness. The staff in charge of education and communication work of the Management Board of special-use forests and protection forests in Thai Nguyen province have not been professionally trained.

KEYWORDS: Conservation education, biodiversity, local community, Than Sa - Phuong Hoang Nature Reserve.

1. INTRODUCTION

Vietnam is one of the 16 countries with the highest biodiversity in the world with about 61,700 species of organisms identified. In which, there are many endemic and rare species in the World Red Book [1]. In addition to the described species, the biodiversity potential of Vietnam has been determined to be very large and many species have not been enumerated and described. In 2020, the World Wide Fund For Nature (WWF) published the report "New Species Discovered in the Greater Mekong Sub-region", noting 91 newly discovered species. in Vietnam, with 85 endemic species [2]. Wild species play a very important role in ecological balance and maintaining biodiversity. Those are the basic components of natural ecosystems. Their existence helps maintain the food chain, ecological balance, control the overgrowth of other species. When a species goes extinct, it can have negative effects that spill over into the food chain and upset the ecological balance. At the same time, wild animals and plants play an important role in developing and regenerating the natural environment, protecting the soil, minimizing erosion and helping to regenerate the area after being impacted by natural disasters. or human. Wild plants and animals provide many ecological services to humans and the surrounding environment, such as: regulating the climate, providing food and raw materials, and medicinal plants, and creating habitats for millions of species. is the basis for scientific research in ecology, ecology, genetics, biology and many other fields. However, deforestation and over-hunting, illegal trade in wild animals and plants; Environmental pollution and climate change have become more and more serious, leading to the decline of biodiversity, many wild animal and plant species are facing a high risk of extinction [3, 4]. The protection of wild animals and plants is a very urgent issue today, especially wild animals. There are many solutions proposed for conservation such as management and protection of natural ecosystems, areas of special importance and conservation areas, as well as expanding the network of protected areas; control illegal hunting and trade; increase education and create awareness; encouraging sustainable use of natural resources... In which, conservation education is being considered as a long-term, highly effective and sustainable solution.

Than Sa - Phuong Hoang Nature Reserve was established on December 28, 2021 under Decision No. 4143/QD-UBND of Thai Nguyen Provincial People's Committee approving the project "Re-establishing Than Sa – Phuong Hoang special-use forest, Vo Nhai district, Thai Nguyen province". Under the management of the Management Board of Special-Use and Protection Forests of Thai Nguyen Province, Than Sa - Phuong Hoang Nature Reserve covers an area of 19,913.54 hectares, located in 07 communes (Cuc Duong, Than Sa, Thuong Nung, Sang Moc, Nghinh Tuong, Vu Chan, Phu Thuong) and Dinh Ca town, Vo Nhai district [5].

Research the Current Status of Educational Works on Biodiversity Conservation at Than Sa - Phuong Hoang Natural Reserve, Thai Nguyen Province, Vietnam

This is the largest natural forest in Thai Nguyen province, with high biodiversity. Regarding species composition, Than Sa - Phuong Hoang Nature Reserve has 1,234 species of plants (belonging to 660 genera, 171 families, 5 phyla and 02 classes of plants; 56 species in the Red Book of Vietnam and the world are subject to need. must be preserved); 346 species of animals (belonging to 89 families, 25 orders, including 60 endangered and rare species that need to be preserved) [6]. In particular, the red-faced monkey discovered in Than Sa - Phuong Hoang Nature Reserve is a rare animal that has been included in the Vietnam Red Book [6, 7].

The buffer zone of Than Sa - Phuong Nature Reserve has about 6,500 households with nearly 26 thousand people, of which more than 90% are ethnic minorities such as Tay, Nung, Dao, H'Mong. The rate of poor and near-poor households is 15.5% [6, 8]. There is little agricultural production land (mainly one-crop rice land), local people depend on forests for their livelihoods and exploit forest products, and illegally hunt wild animals. In addition, ethnic minorities have customs and practices of exploiting rare and precious timber trees to build houses and firewood; collection of medicinal plants; hunting, shooting, trapping and capturing wild animals for food or trading... This is one of the causes of biodiversity loss, putting great pressure on the management and protection of forests and biodiversity conservation in Than Sa - Phuong Hoang Nature Reserve.

Faced with that reality, in parallel with strengthening the management, protection of forests and developing livelihoods, it is necessary to educate and raise awareness for the community about biodiversity conservation. Studying the current status of biodiversity conservation education will be the basis for building and implementing educational and communication programs on biodiversity conservation for local communities effectively in the future.

2. RESEARCH METHODS

To complete this study, the authors used a combination of methods of analyzing and synthesizing documents; Field investigation method to survey, collect information and solve the issues raised. The results of analysis and synthesis of documents are used to develop a general overview of the diversity of flora and fauna in Vietnam as well as the study site, threats to wild fauna and flora. The field survey method was used in the field study, especially focusing on socio-economic conditions in Vo Nhai district and 8 communes and towns within the boundary of Than Sa - Phuong Hoang Nature Reserve. Along with that, these methods are used to study the implementation of biodiversity conservation education in Than Sa - Phuong Hoang Nature Reserve, Vo Nhai district, Thai Nguyen province.

3. RESEARCH RESULTS

3.1. Current status of biodiversity conservation education for local communities

Realizing the importance of biodiversity conservation, Management Board of Special-Use and Protection Forests of Thai Nguyen Province closely monitor and manage, strengthen the protection of forest ecosystems, and manage activities exploiting forest products, protecting the living environment of animals and plants, especially rare and precious species. In addition, to ensure the effectiveness of forest management, the Management Board has contracted to protect forests and support livelihoods for people in the buffer zone. In addition, propaganda and education activities to raise awareness and awareness of forest protection for the community are also focused.

In 2019, the work of propaganda, dissemination and guidance on forest use, nature conservation, biodiversity, and wildlife protection in accordance with the law was approved by the Management Board of Special-Use and Protection Forests of Thai Nguyen Province conducts regularly. Propaganda activities are organized in the form of radio broadcasts through the commune radio system as well as direct propaganda through leaflet distribution in 8 communes and towns. Propaganda contents include forest law, regulations on forest management and management, and other legal documents related to the management and protection of protection forests, biodiversity conservation, protection of forests and wild animals. In there:

- Propaganda on forest protection, forest fire prevention and fighting, nature conservation, biodiversity, and wildlife protection: Organized 10 classes (implemented in 6 communes) to propagate up to 500 turns of participants family.
- Propaganda on forest development, converting from Acacia plantations to native trees, training on indigenous tree planting techniques, indigenous tree care and protection techniques and biodiversity conservation: Organized 5 classes (implemented in 5 communes) to propagate to 250 participants.
- Propaganda on the policy of payment for forest environmental services combined with wildlife protection: Organized 6 classes (implemented in 6 communes) to propagate to 300 participants.
- Repair 10 propaganda signs on forest protection and development, forest fire prevention and fighting, nature conservation, biodiversity, and wildlife protection in 06 communes.
- Rangers of the Management Board regularly propagate the work of conservation of nature, biodiversity, and protection of wild animals to the people through meetings in communes and hamlets; mobilize households to sign a commitment not to illegally hunt or keep wild animals in the area.

Research the Current Status of Educational Works on Biodiversity Conservation at Than Sa - Phuong Hoang Natural Reserve, Thai Nguyen Province, Vietnam

In 2020, the Management Board of Special-use and Protection Forests of Thai Nguyen Province has propagated, mobilized, and recovered guns to shoot, trap and hunt wild animals. Propaganda on forest protection, forest fire prevention and fighting, biodiversity conservation, and wildlife protection continue to be carried out regularly in villages and hamlets. The management board organizes thematic propaganda sessions for the Mong people living in Than Sa - Phuong Hoang Nature Reserve and actively propagates it widely in the community. The aim is to raise awareness and strictly implement the State's regulations on management, exploitation, breeding, trading and transportation of wild animals in general, especially not hunting, trading or consuming, using endangered and rare wild animals. As follows:

- Installing 02 new signs, repairing 07 propaganda signs on forest management and protection, fire prevention and protection, and wildlife protection.
- Organized 12 propaganda classes on the Law on Forestry, Government Decrees, Circulars of the Ministry of Agriculture and Rural Development, forest management and protection, fire prevention and fighting, and wildlife protection with 1,122 turns Participants.
- Organized propaganda through the commune radio system and direct propaganda through distributing leaflets to people and tourists with content on wildlife conservation. This activity is carried out in Than Sa, Cuc Duong, Nghinh Tuong and Sang Moc communes as well as visitors to explore tourism at Than Sa - Phuong Hoang Nature Reserve with 986 participants.
- Proposed 01 wildlife conservation education plan and selected by the Vietnam Association of National Parks and Nature Reserves, supporting media publications including 200 fans for the community; 200 fans for tourists and 200 sets of wild animal dice games for students.

In 2021, Management Board of Special-Use and Protection Forests of Thai Nguyen Province has built and replicated key and effective propaganda models such as propaganda for village officials, hamlets and communes, and reputable individuals in the community, propaganda for students at schools. The content of propaganda materials focuses on forest management and protection, nature conservation, biodiversity, and wildlife protection. These documents are compiled to follow the actual conditions at Than Sa - Phuong Hoang Nature Reserve, in accordance with the customs and practices of the local people. Some results of education and communication on biodiversity conservation in 2021 include:

- Organized 23 propaganda classes on forest management and protection, nature conservation, biodiversity, and wildlife conservation with 633 participants in 8 communes and towns within the God Nature Reserve. Sa - Phoenix.
- Organized 30 training courses to improve capacity for staff of units and commune forestry boards and contracted forest protection groups on forest management and protection, forest fire prevention and fighting, forest patrol and protection, biodiversity conservation, wildlife conservation... with 682 participants.
- Renew 02 and repair 17 billboards of propaganda on forest protection, nature conservation, biodiversity, and wildlife protection.

In 2022, legal education and propaganda to people in and near forests will be carried out by the Management Board of Special-Use and Protection Forests of Thai Nguyen Province with the following contents: forest management and protection, prevention and treatment. forest fires, nature and biodiversity conservation in communes with special-use and protection forests. With the goal of improving the efficiency of forest management, protection and development. In addition to organizing propaganda classes, the Management Board renewed 03 boards and repaired 06 propaganda boards on forest protection in order to raise community awareness in forest protection and biodiversity. In 2022, 30 propaganda classes on forest management, protection and biodiversity conservation were held in 07 communes of Than Sa - Phuong Hoang Nature Reserve and 02 communes with protection forest of Nui Coc lake with 1,800 number of participants.

In addition, the forest protection force and mass organizations such as the Farmers' Union, the Veterans' Association, the Women's Union, the Youth Union, the village elders, and the families have signed an inter-sectoral agreement to implement the convention. coordinate in propaganda and education to raise awareness of forestry laws and policies among members of their organizations and their families.

Biodiversity conservation education for local communities living in and near forests at Than Sa - Phuong Hoang Nature Reserve is always interested in implementing in many different forms and contents. Awareness of local communities in forest protection and forest fire prevention and fighting, nature conservation, biodiversity, and wildlife protection has been enhanced. People understand the harmful effects of forest loss due to deforestation and forest fires; hunting and exploiting animals and plants. In addition, the community also sees the benefits of nature conservation, biodiversity as well as benefits from effective forest use and rational forest development.

3.2. Current status of biodiversity conservation education for pupils

For the education of biodiversity conservation for pupils in Than Sa - Phuong Hoang Nature Reserve, Thai Nguyen Province's Management Board of Special-use Forests and Protection Forests organizes to integrate them into subjects. regular study, organization of extracurricular activities, extracurricular sessions.

Research the Current Status of Educational Works on Biodiversity Conservation at Than Sa - Phuong Hoang Natural Reserve, Thai Nguyen Province, Vietnam

Biodiversity conservation education is integrated in subjects such as Biology, Geography, Citizenship Education, etc. The integrated contents are topics and lessons related to organisms in the environment or forest protection. However, the content of these lessons cannot meet the needs of pupils to learn and explore. In addition, the not-so-high integration time has not sufficiently provided pupils with biodiversity conservation.

Environmental education and communication programs outside of school hours and extracurricular sessions are quite effective. Pupils have fun while learning about topics related to biodiversity, so they can actively absorb knowledge and learn faster. In 2020, the Management Board of Special-Use and Protection Forests of Thai Nguyen Province held painting contests with the theme of environmental protection and animal protection at Than Sa Semi-Boarding Secondary School and Tran Phu high school with 578 students participating. On November 19, 2020, at Tran Phu High School, the Management Board of Special-Use and Protection Forests of Thai Nguyen Province organized a wildlife conservation education program for students of the whole school. The program's media publications are supported by the Vietnam Association of National Parks and Nature Reserves.

Although education on biodiversity conservation has been paid attention, there are few or no wildlife conservation education programs in schools in the buffer zone of the Than Sa - Phuong Hoang Nature Reserve because of limited funding.

3.3. Advantages and disadvantages in education and conservation of biodiversity at Than Sa - Phuong Hoang Nature Reserve

* Favorable:

- Always receive the attention and timely direction of leaders of Thai Nguyen Provincial People's Committee, Department of Agriculture and Rural Development, Forest Protection Department, specialized departments, relevant agencies, especially the coordination of the bordering forest protection districts, the local authorities of the communes, the enthusiastic participation and support of the people as well as the consensus and determination of the unit's staff.

- Always receive the attention and coordination of local school administrators, specialized departments, pupils' parents and the enthusiastic participation of pupils in schools.

* Difficulties:

- The work of propagating and disseminating the law to people living in and near the forest is still limited, so the acquisition of propagated knowledge has not achieved the expected results; Funding sources for propaganda work are limited, not meeting the demand, quantity and form of propaganda.

- Programs and projects under the state budget with difficult and limited funding sources. People living in protected areas have little access to capital, investment programs and projects, and people's lives are slowly improved; Some people still depend on forest products for their survival, making it difficult for forest management and protection to conserve biodiversity, protect wildlife.

- The forest area allocated for management is large, covering many districts and towns and bordering Bac Kan and Lang Son provinces. This makes it difficult for the education - propaganda of forest management and protection, nature conservation, biodiversity, and wildlife protection.

- The quality of propaganda is still limited, the organization and methods of propaganda are not effective, making people's awareness of forestry laws and policies not really improved.

- The propagandists (reporters, propagandists) are mainly part-time and have not participated in many professional training courses on education - environmental communication, biodiversity conservation.

- There are few organized biodiversity conservation education programs due to lack of funding. This leads to low effectiveness of education on biodiversity conservation.

4. CONCLUSION

Biodiversity conservation education is carried out at Than Sa - Phuong Hoang Nature Reserve in many different forms. The objects of education - propaganda are diverse. However, the actual efficiency is not high. Education programs on biodiversity and wildlife conservation of Management Board of Special-Use and Protection Forests of Thai Nguyen Province are not organized much due to lack of funds, most of them are integrated into propaganda programs. forest protection and development. In addition, the staff in charge of education and communication work of the Management Board of Special-Use and Protection Forests of Thai Nguyen Province have not been trained in depth, which is also a difficulty for biodiversity conservation education at Than Sa - Phuong Hoang Nature Reserve.

REFERENCES

- 1) Ministry of Natural Resources and Environment, Vietnam Environment Administration, Department of Nature Conservation and Biodiversity (2020), *6th National Report to the Convention on Biological Diversity*, Hanoi.
- 2) WWF (2021), *New species discoveries in greater Mekong 2020*.
- 3) Ministry of Natural Resources and Environment (2019), *National Strategy on Biodiversity - By 2020, vision to 2030*. Hanoi.

Research the Current Status of Educational Works on Biodiversity Conservation at Than Sa - Phuong Hoang Natural Reserve, Thai Nguyen Province, Vietnam

- 4) Ministry of Natural Resources and Environment (Institute of Strategy and Policy on Natural Resources and Environment), Union of Science and Technology Associations of Vietnam (Center for Conservation of Biodiversity) (2021), *System assessment report National Ecology*, Hanoi.
- 5) Thai Nguyen Provincial People's Committee (2021), *Decision No. 4143/QD-UBND approving the project "Re-establishing Than Sa - Phuong Hoang special-use forest, Vo Nhai district, Thai Nguyen province"*, dated December 28, 2021.
- 6) Thai Nguyen Provincial Protective and Special-Use Forest Management Board (2021), *Project "Re-establishing Than Sa - Phuong Hoang special-use forest, Vo Nhai district, Thai Nguyen province"*.
- 7) Ministry of Science and Technology, Vietnam Academy of Science and Technology (2007), *"Vietnam Red Book. Part 1: Animals"*, Natural Science and Technology Publishing House, Hanoi.
- 8) People's Electronic Newspaper (2021), *Than Sa - Phuong Hoang Nature Reserve*, accessed August 4, 2023. <https://nhandan.vn/khu-du-tru-thien-nhien-nhien-than-sa-phuong-hoang-post678251.html>