CZECH UNIVERSITY OF LIFE SCIENCES PRAGUE

Faculty of Tropical AgriSciences

Influence of Wildlife Organisations on People's Ecological Knowledge: The Case of Talarak Foundation, Philippines

BACHELOR'S THESIS

Prague 2024

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Declaration

I hereby declare that I have done this thesis entitled "**The Influence of Wildlife Organisations on People's Ecological Knowledge: The Case of Talarak Foundation, Philippines**" independently, all texts in this thesis are original, and all the sources have been quoted and acknowledged by means of complete references and according to Citation rules of the FTA.

In Prague 18th April 2024

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Kristýna Vlasáková

Dedication

In loving memory of my grandmother, Marie Pokorná, who taught me that the greatest happiness in life often hides in little things.

You will never be forgotten.

Acknowledgements

Abstract

The Philippine biological diversity belongs to one of the richest on the Earth. However, it is facing several threats, including a lack of environmental awareness among Filipinos. The nation's government together with multiple non-governmental organisations aim to address this serious issue by educating the public. The objectives of the thesis are to estimate people's knowledge of key Philippine species, the long-term influence of the Talarak Foundation on it as well as the environmental attitude of visitors to its captive-breeding facility. We used a quantitative method and distributed a questionnaire in the Negros Forest Park, Bacolod, Philippines. We have collected a total of 86 answers. The results made clear that the knowledge on biodiversity and conservation is highly linked to the individual attitude towards nature conservation. However, the analyses selected three models as equally good, two of them detecting a direct effect of attitude on knowledge but the third one suggesting that this effect is mediated (improved) in respondents with a better understanding of the activities of the Talarak Foundation. On the other hand, socio-economic factors were found to have very little effect on the studied system. The thesis concludes by recognising the positive effect of conservation NGOs like Talarak Foundation on influencing the knowledge on biodiversity and conservation of the local population and by suggesting possible measures for future studies.

Key words: Attitude, Biodiversity, Ecological Knowledge, Wildlife Conservation, Philippines, Talarak Foundation

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List of the abbreviations used in the thesis

BMB	Biodiversity Management Bureau
DENR	Department of Environment and Natural Resources
KBA	Key Biodiversity Area
LPI	Living Planet Index
NGO	Non-Governmental Organisation
PCFI	Parsimony-adjusted Comparative Fit Index
RLI	Red List Index
RMSEA	Root Mean Square Error of Approximation
SES	Socio-economic Status
SRW	Standardized Regression Weight
SSII	Species Status Information Index

1. Introduction

The special and diverse Philippine ecosystem is now among the most seriously endangered in the world since it faces massive environmental destruction (Myers et al. 2000). The exploitation of numerous essential habitats has driven the Philippines at risk of ecological collapse. The archipelago was originally almost entirely covered by forest. The situation changed with the arrival of Spanish colonisers in 1565 and their agricultural expansion along with timber harvesting, followed in the 20th century by widespread commercial logging. These factors significantly reduced forested areas to less than 25 percent of the land (Bankoff 2007).

According to Novacek (2008), the extent and severity of the biodiversity crisis seeks innovative approaches to raise awareness about conservation challenges to the larger society. Nowadays, the need for effective social engagement through influential tools arises more than ever (Soga & Gaston 2018).

Due to the increasing importance of conserving wildlife habitats and protecting biodiversity, animal-based attractions have been recognized for their significant role in these global efforts. While often seen as places for entertainment and leisure, zoos, natural parks, aquariums, and other captive-breeding facilities providing observation and interaction with wildlife are actively working towards promoting ecological sustainability. These establishments have worked diligently to present themselves as organisations that promote ecological sustainability mostly by employing environmental education and the preservation of wildlife (Shani & Pizam 2010).

A primary objective of nature education is to reduce the level of environmental illiteracy (Szabó & Macalik 2020). Using nature education can assist conservation biology in reaching the target 21 ("*Ensure that knowledge is available and accessible to guide biodiversity action*") of the Kunming-Montreal Global Biodiversity Framework for the year 2030 (CBD 2024).

The fact that non-captive and captive wildlife tourism attractions contribute to the long-term preservation of wildlife and to spread of awareness to the general public is one of the main justifications for their persisting development. While it is anticipated that various encounters with wildlife have varying benefits and drawbacks (for tourists,

wildlife, and the environment), the relative merits and demerits of different methods for wildlife tourism and nature education are still unexplored (Packer & Ballantyne 2012).

A major part of the effort powering the Philippine environmental movement comes from dedicated members of civil society initiatives. These groups typically consist of non-profit organisations that address the various elements of biodiversity conservation, one of these elements being the education of the public. Their ultimate goal is to advocate policies at a governmental level. Luckily, many projects run by non-governmental organisations and local groups have had a tangible effect on habitat and species conservation (Posa et al. 2008).

The thesis aims to examine the environmental knowledge of the local population about endangered key Philippine species. The emphasis is provided on the West Visayan endemic wildlife. The second goal is to seek an understanding of the impact of the Talarak Foundation on the local community and the impact of its wildlife conservation activities, especially those for education and biodiversity awareness.

This paper is composed of six parts, starting with a literature review that provides basic information about the country of the Philippines, its climate and demographic features. After the definition of biodiversity with a specific focus on the Philippine archipelago, ecological perception and knowledge are inspected. The last section of the literature review enlightens readers about the significance of conservation organisations and their role in fighting against biodiversity loss. Talarak Foundation is mentioned given the subject's importance for this study. The goals and methodology are covered in detail in the upcoming chapters. The study is concluded with a presentation of the findings and their discussion in the final parts, ending with a conclusion of the whole study.

2.   Literature Review

2.1.   The Philippines

The Philippines is a country located in the western Pacific Ocean. Geographically it is considered as a part of Southeast Asia. Despite the region forming not more than 3 percent of the total surface of the earth, it is home to 20% of all known fauna and flora. The Philippines comprises more than 7,100 islands, which makes it the second largest world archipelago with an estimated area of 300,000 km^2 (Ambal et al. 2012). The country is formed by three major island groups, in particular by Mindanao, Luzon, and Visayas. Luzon is the biggest island with a size of 104,688 km^2, forming approximately 35% of the archipelago's total area. The country comprises 73 provinces distributed in 13 political zones in the nation. Manila is the capital. Seismic activity, active vulcanism, and strong isostatic imbalance are typical for the Philippines (Shi & Gula 2022).

2.1.1.   Climate

The tropical and maritime climate of the Philippines is characterised by high humidity, high temperatures, and heavy rainfall. The country's insularity influences its climate on a larger scale. However, the country's division into multiple islands and the interaction of ocean, land, and mountainous terrain all contribute to the daily and regional variations in weather and temperature. The seasons are mainly defined by the pattern of precipitation, as is characteristic of tropical regions in many cases. In the Philippines, rainfall is the most significant component of the climate (Boquet 2017).

The range of average annual precipitation is from 960 mm (General Santos) to 4465 mm (Hinatuan). The archipelago's eastern regions tend to be wetter than the western ones. However, that is not the case in the central and western Visayas, where the opposite applies. The Philippines experiences year-round warm weather, with an average annual temperature of 28.1 °C (Manila). There is no extreme change in temperatures from east to west and from north to south. Owing to their warm climate and being surrounded by bodies of water, the Philippines has high levels of relative humidity. March has an average relative humidity of 71%, while September has an average relative humidity of 85% (Boquet 2017).

The Philippine archipelago is severely affected by extreme weather conditions, especially tropical cyclonic disturbances named typhoons because it is situated directly on their main paths as they head west (Shi & Gula 2022).

2.1.2. Demography and Culture

As reported by The World Bank (2022), in 2022 the Philippines accounted for briefly 115 million inhabitants, making it the 13th most populated nation in the world. Out of all the people living there, nearly one half resided on Luzon Island.

Despite being geographically isolated from the rest of Southeast Asia, the Philippines is recognised as a member of this region. The Philippines shares three physical and cultural realms due to its location: the Asian, Pacific, and Western worlds. Influences from other Asian nations, including Malaysia, China, Japan, and others, have contributed to Philippine culture as we know it today. In addition, the main sources of early and modern contact were travellers from Spain and the United States who also significantly influenced the cultural events. The Philippines is frequently alluded to as the least oriental country in the Orient and for a valid reason (Shi & Gula 2022).

It is every so often believed that the Philippines is the only Christian nation in East Asia. The country converted to Christianity back in the year 1565 (Shi & Gula 2022). At present, it is the prevailing religion within the Philippine borders; 78.8% of households reported religious affiliation to Roman Catholicism. The second place belongs to Islam with 6.4%, followed by Iglesia ni Cristo (2.6%). Other religions present in the archipelago are Seventh Day Adventist (0.8%), Aglipay (0.8%), Iglesia Filipina Independiente (0.6%), Bible Baptist Church (0.5%), and United Church of Christ in the Philippines, Jehovah's Witness, and Church of Christ, each of them accounting 0.4% (Philippine Statistics Authority 2023).

2.2. Biodiversity and Wildlife

As stated by Rawat and Agarwal (2015), *biodiversity* covers a wide range of living organisms on the planet, be it diverse genes, species, ecosystems, or ecological processes. It is a fundamental concept in ecology and environmental preservation, with sustainable development relying on its effective conservation. Biodiversity is a vital component of

nature's valuable resources that fulfil numerous human needs and provide protection against environmental catastrophes (Heydari et al. 2020).

Wildlife is a significant part of biodiversity and is acknowledged as a complex natural resource that affects human needs in both positive and negative ways. For the benefit of the local population, it must be handled professionally and scientifically (Roth & Merz 1996). Furthermore, wildlife serves as a valuable source of food, clothing, recreational activities, tourism, culture, rural development, land-use planning, scientific research, and aesthetic enjoyment, all of which are based on its ecological, social, and economic characteristics. The decrease in wildlife populations can result in adverse socio-economic impacts and disrupt fundamental ecological processes that support biodiversity. Through generating money and protecting human and environmental health, wildlife may play a significant role in the reduction of poverty when managed sustainably (Doley & Barman 2023).

2.2.1. Biodiversity Indicators

The biodiversity continues to decrease worldwide and there is a need for biodiversity indicators to help determine the status of biological diversity throughout time. Following the adoption of the United Nations' Convention on Biological Diversity in 1992, several political figures vowed to support both biological diversity conservation and sustainable development. Countries incorporated the specific goals into national action plans and strategies for biodiversity. A variety of both new and already existing indicators were employed to track the achievements of these biodiversity targets, which were set in 2010 during the Convention of the Parties in Japan (Westveer et al. 2022).

The *Living Planet Index* (LPI) was introduced by the Wildlife Fund for Nature in 1997, at a time with very few biodiversity indicators (Ledger et al. 2023). The LPI displays an average pattern in the size of the population for selected region and/or species group. Put another way, it indicates whether total population trends for one or multiple species have increased or decreased on average when compared to data from 1970, which serves as a baseline for the sizes of the population. By all means, a decline in global LPI cannot be interpreted as a decline of all species and populations, which can be seen as one of the disadvantages of this indicator. Between 1970 and 2018, the Asia and Pacific LPI

displays a nearly steady reduction in monitored populations, with an average decline of 55%. In this area, average declines are seen in all taxonomic groups (Westveer et al. 2022).

The Red List Index (RLI) displays historical patterns in a group of species' aggregate risk of extinction. The IUCN Red List of Threatened Species, which is regarded as the most reliable and unbiased system for classifying the extinction risk of taxa, provides the data used to calculate the RLI. Global RLIs for mammals, birds, amphibians, and warm-water reef-building corals have been calculated, displaying trends in extinction risk for all species within a given taxonomic group. The RLI is intended to contribute to the development of a global biodiversity indicator that can determine if the pace of biodiversity loss has decreased (Young et al. 2014).

The *Species Status Information Index* (SSII) assesses how accurate data are about the distribution of individual species as well as the composition of species assemblages within a given area. Its goal is to present an annually updated measure of how filling in local and global information gaps is being accomplished by increasing the quantity and quality of digitally accessible data on species occurrences in the sense of location and time. It was created to track and document accomplishments made towards CBD Aichi Target 19: "*Sharing information and knowledge*" (GEO BON 2021).

2.2.2. Biodiversity Hotspots

There are regions on Earth that are biologically diverse and significant but unfortunately face severe threats. Certain areas are home to a high number of native species that are unique to that location and are at risk due to human activities such as habitat destruction (Myers et al. 2000). These areas are known as biodiversity hotspots, encompassing 36 regions. Protecting the species in these areas is believed to be crucial for global biodiversity maintenance. Two requirements must be satisfied for an area to be categorised as a hotspot:

1. It should have a minimum of 1,500 endemic vascular plant species exclusive to that area.
2. Its original vegetation must not have more than 30%

Only 36 regions meet these hotspot conditions, covering 2.4% of our planet. Despite their relatively small covered area, they are home to over 50% of the world's plant

species and roughly 43% of mammal, bird, reptile, and amphibian species are present as endemic species in these biodiversity hotspots. While biodiversity conservation is important worldwide, special attention needs to be given to hotspots as they represent the most diverse yet highly threatened regions on Earth (Heydari et al. 2020).

2.2.3. Biodiversity and Its Threats in the Philippines

On account of its diverse geographic features and tropic location, the Philippines is designated as one of the 17 mega-biodiverse countries worldwide (Myers et al. 2000). The country is globally recognized for its abundance of plant species, ranking fifth globally, and hosting 5% of the world's flora. More than 2000 different species of fish are estimated to occur within the Philippine maritime environment. No less than 40 species of mangroves are found in its intertidal zones. Given the diversity of these marine species, the nation appears to have one of the richest maritime ecosystems. In fact, the Philippines tops the global list of hotspots for marine biodiversity likewise (Galang 2004). The archipelago is home to a vast array of vertebrate and invertebrate animal species, with over 38,000 species documented within its borders (Sinha & Heaney 2006). The country can take pride in remarkably high species endemism, meaning species found exclusively within its geographic boundaries, ranking fourth globally in bird endemism. As can be observed in Table 1, almost half of the Philippines' roughly 1,100 species of terrestrial vertebrates are unique to the archipelago.

Table 1. Philippine forests and biodiversity.

Original extent of primary vegetation (km²)	Remaining primary vegetation (km²)	Area protected (km²)	Plant species	Endemic plants (% of plants worldwide)	Terrestrial vertebrate species	Endemic vertebrate (% of plants worldwide)
300,800	9,023	3,910	7,620	5,832 (1,9%)	1,093	518 (1,9%)

Source: Ambal et al. (2012).

The Philippines has a high level of endemicity, but it is also fragile owing to the nation's division into numerous small islands. With over 700 species classified as threatened, the Philippines is now among the top priorities for global conservation efforts.

The corruption of previous administrations and the Philippine government's inability to enforce protective policies are the main causes of the degradation of forests –

a habitat of many animal species. This particularly applies to the second half of the 20th century, when the forested area decreased from 50% in 1950 to less than 25% today, with less than 3% of the original forest remaining (see Table 1 above). The two significant risks at the moment are persisting logging and small-scale, continuous illicit logging. The majority of the remaining woods are covered in mining applications due to extractive mining, which poses a great concern as well (Galang 2004).

Galang (2004) put stress on the vast population base in the Philippines, which is perhaps the biggest current danger to biodiversity. In 2004, nearly 25% of Filipinos resided in the upland areas that are encroaching on the remaining patches of fragmented forest. The government's macroeconomic policies, which failed to boost economic growth, reduce poverty, and create jobs for the lowland population, are to blame for this comparatively high ratio. As a result, these people are invading the outer limits of the forests and frequently engage in slash-and-burn techniques to create plantations of common crops. Sadly, these unsustainable agricultural methods progressively diminish the amount of forest cover and biodiversity by wildlife hunting and trapping. Political discussion about the nation's population problem has not been able to fix the problem, particularly when the discussion forwards a slowdown or stabilisation of population growth. This is because there is a tremendous and vigorous Christian population that views any programme aimed at population decline as being against Christianity.

Scientists have advocated for a variety of strategies to protect the biological diversity in the Philippines, such as:

- Preventing the introduction of invasive species.
- Avoiding introductions into new habitats.
- Captive breeding of in-nature extinct species and their reintroduction following strict guidelines.
- Establishing protected areas and preserving remaining forests.

2.2.3.1.   Key Biodiversity Areas

Ambal et al. (2012) stated that identifying conservation priorities is needed for reducing biodiversity loss, ensuring that efforts focus on species most at risk of extinction and critical habitats important for species' protection. Toward that end, the implementation of the key biodiversity area (KBAs) approach in the Philippines was

established and aimed at assisting the government and stakeholders in prioritising conservation action and creating location-specific plans to conserve species and their habitats effectively (Edgar et al. 2008). An overview of KBAs existing in the Philippines is displayed in Table 2.

The process of defining KBAs in the Philippines was commenced by Conservation International Philippines, in collaboration with the Haribon Foundation and the Protected Areas and Wildlife Bureau (currently Biodiversity Management Bureau) of the Department of Environment and Natural Resources. This initiative received support from the Critical Ecosystem Partnership Fund (CEPF), an international program that offers grants to non-governmental and private sector organisations to protect some of the world's most biologically diverse yet vulnerable areas. KBAs are now a commonly used approach for establishing conservation goals for CEPF investments both in the Philippines and abroad. The Philippine government is currently utilizing KBAs to pinpoint areas where biodiversity conservation projects should be implemented (Ambal et al. 2012).

Table 2. Overview of Philippine Key Biodiversity Areas.

Type	Area (km^2)	Number of KBAs	% of KBAs	Number of KBAs protected	Number of KBAs partially protected	Number of KBAs unprotected
Terrestrial	51,249	101	44%	27	25	49
Marine	19,601	77	34%	8	6	63
Terrestrial and marine	35,702	50	22%	15	10	25
Total	**106,552**	**228**	**100%**	**50**	**41**	**137**

Adapted from Ambal et al. (2012).

2.3.   Ecological Attitude and Ecological Knowledge

2.3.1.   Ecological Attitude

An *attitude* is a consistent bias of a particular thing or problem that arises from evaluations and convictions derived from underlying, individual values. Emotional reactions connected with personal significance and prior encounters with wildlife serve as the foundation for evaluations. Evaluations are influenced by emotional responses and personal experiences with wildlife. Attitudes towards wildlife can vary in strength and resistance to persuasion, depending on the consistency and ambivalence of beliefs. Emotions play a significant role in shaping strong attitudes, affecting attention, perception, and memory. Factors such as age, gender, and education level contribute to the variation in attitudes towards wildlife. Personal relevance, economic impacts, fear, affection, and enjoyment of wildlife also influence attitudes. Local factors, encompassing wildlife encounter occasions, agreement with management systems, cultural background, and socially shared stands all play a role in attitude formation. Environmental education can help shape and alter attitudes toward wildlife, particularly by targeting local communities, the general public, and students. To do so, effective communication, understanding audience attitudes, and promoting environmental responsibility are used as a key to foster positive attitudes. While providing factual information on their own may not lead to attitude change, positive experiences with wildlife that evoke positive emotions (as shown in Figure 1) can positively influence attitudes (Dalum 2013).
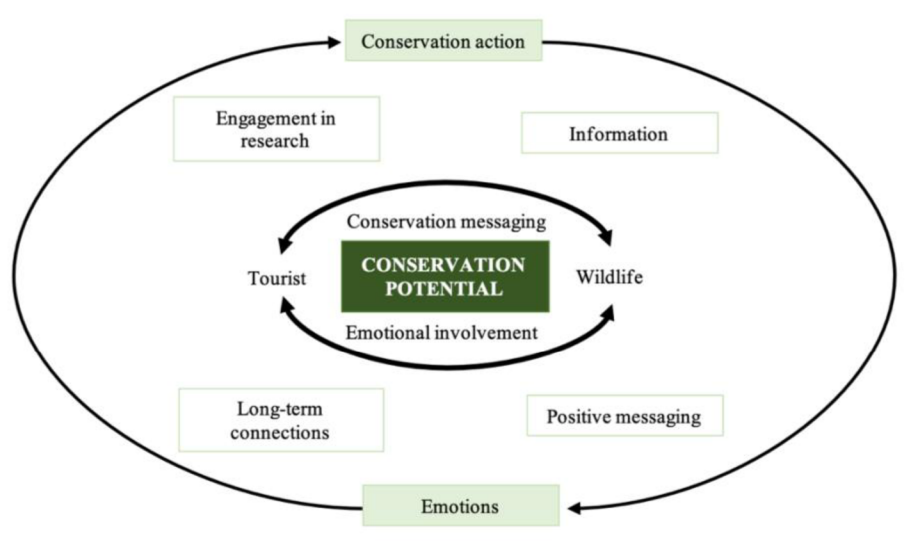

Figure 1. Conservation-based tourism and the influence of emotions.
Adopted from Fernández-Llamazares et al. (2020).

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2.3.2. Ecological Knowledge

The indigenous population is familiar with nature surrounding it, values its great diversity, and uses it to obtain materials for its livelihood. In contrast, many modern people are either ignorant or are not knowledgeable of the biodiversity of the Philippines. This ignorance leads to a lack of awareness, which in turn causes a lack of concern. The aforementioned together with widespread corruption in the government and other sectors making decisions lead to no real pressures against environmentally damaging practices like wildlife trade, dynamite use, cyanide fishing, illegal logging, and others.

Most Philippine media are not interested in covering this urgent topic. While it is true that media attention is now more frequently given to illicit actions towards the environment and biological diversity, these are usually exceptions rather than a standard. Incorporating local biodiversity in the school curriculum and publishing a larger number of textbooks about Philippine nature are the most efficient ways to educate the Philippine people in vast quantities. Because the majority of Filipinos nowadays are more aware of the biodiversity of other, precisely Western nations, and not their own, they are victims of so-called scientific imperialism (Galang 2004).

2.3.3. Biodiversity Communication

Scientific evidence and research are crucial for understanding the consequences of biodiversity loss and can be an effective catalyst to take action for conservation. To bridge the communication gap between science and society, there is a need for a surrogate for biodiversity communication to lay people for learning experiences that capture the scientific significance of biodiversity while being understandable to non-scientists. As suggested by Meinard and Quétier (2014), in the best case it needs to be transdisciplinary in character (meaning that it should apply to other disciplines), be non-quantitative, easily approachable and understandable by a wide audience, and be practical in communicating biodiversity issues. The incorporation of science into policy with the goal of strengthening decision-making and efficacy has been the most significant component of biodiversity, conservation, and environmental governance at national and international levels (Turnhout & Purvis 2020). Policymaking requires the application of biodiversity science, which is the foundation of our knowledge. Raising public awareness, persuading

decision-makers, and inspiring the general public to take conservation action are all necessary.

To enhance the role of biodiversity in the lives of ordinary people, it is a good idea to identify best practices in biodiversity communication. One of the primary goals of biodiversity communication is to educate stakeholders and public decision-makers about the value of sustainable use in addition to the preservation of biodiversity and its different elements. The solution to effectively communicating biodiversity is to turn complex scientific information into uncomplicated messages that inspire people to act (Doley & Barman 2023).

Captive-breeding centres are increasingly using a range of instructional techniques and communication tactics to encourage environmental sustainability. Programmes for conservation education are one example. These services usually involve the provision of a range of experiences, interactions, activities, or interpretations (touch tables, educational screens, static signage displays, animations, keeper presentations, and so on) that deliver knowledge regarding a particular conservation topic (Mellish et al. 2021).

Community engagement is critical for conservation activities. According to Ward (2021), it has several functions including:

- Reducing risks
- Encouraging conservation activities
- Increasing knowledge about conservation
- Developing livelihood schemes
- Developing network-based monitoring

Ecotourism can play a beneficial role by generating revenue to financially support conservation actions and by increasing public awareness of the value of biodiversity (Boquet 2017).

2.3.4. Ecotourism and Wildlife Tourism: Tools for Conservation

Ecotourism involves making use of wildlife species in a non-consumptive, revenue-generating way to make profits, which can help encourage the preservation and sustainable use of biodiversity in suitable locations (Doley & Barman 2023).

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The broad definition of *wildlife tourism* involves travelling undertaken to observe or interact with wildlife. It may take place in a variety of captive facilities, such as zoos, aquariums, and wildlife centres, while also occurring in environments like national parks and ecotourism spots where animals are not kept in captivity (Packer & Ballantyne 2012).

While ecotourism is typically linked with non-consumptive forms, wildlife tourism encompasses both consumptive (for example hunting and fishing) and non-consumptive (for instance wildlife observation and photography) forms. Similar to ecotourism, the primary component of wildlife tourism is the interaction between visitors and wildlife; however, the management of wildlife tourism focuses on its sustainability, the advantages it offers to local communities, and the result of visitors acquiring conservation messages from the experience (Borges De Lima & Green 2017).

Captive-breeding centres (such as zoos, aquariums, etc.) and natural parks fall under a broad category called wildlife tourism. Depending on a facility's type, these places provide interactions between visitors and non-domesticated animals, both free-ranging in nature or in captivity. The wildlife tourism industry shows an expanding tendency through the range and number of activities available as well as the number of institutions providing them. Its rising popularity has the potential to significantly affect species and their habitats together with local economies. Thus, it can aid in conservation by managing wildlife directly, funding research, and teaching tourists about conservation. Its revenue is also thought to be a growing means of conserving wildlife, especially for threatened or endangered species, and in situations where government funding for conservation is scarce or non-existent (Borges De Lima & Green 2017).

2.3.5. Measuring the Impact of Captive Sites' Educational Activities

Assessment of captive-breeding centres' educational activities is not an easy task and opponents of these establishments argue that their effectiveness remains unclear. The evaluations often discovered that encounters with wildlife combined with interpretation tend to show increased support for the protection of the target species as well as wildlife in general. The kind of educational activity appears to be crucial in spreading the conservation message of the zoos. For instance, keepers' talks are more effective than static displays. Interactive presentations are considered as successful educational methods.

However, even despite demonstrating a high degree of awareness, it is still not certain if the knowledge assessed in evaluation programmes is gained during the captive-breeding site experience or whether the visitors were enlightened about the topic prior. Hence, zoos' educational efforts should be clearly described and determined with specific outcomes and consequently appropriate tools must be developed to understand the impact of educational programmes on visitors' attitudes and ecological knowledge.

It is believed that zoos should work to raise awareness among their visitors by explaining the problem of endangered species and then giving them concrete knowledge about environmental advocating so they can see how their own activities can have an impact. It can more successfully connect *in-situ* conservation projects in nature with the *ex-situ* experience in the captive facility. Even smaller zoos may structure their teaching messages in this manner to create an impact.

To promote the contributions of wildlife tourism to biodiversity conservation, several measures can be performed (Scott & Higginbottom 2004):

- Increasing usage of different financial tools
- Informing about the economic potential connected with wildlife tourism
- Rewarding operators supporting Conservation
- Improving donation systems
- Using volunteers more
- Supporting attractions created to promote nature conservation
- Assisting landowners seeking to establish ethical wildlife tourism
- Education of the tourism sector

2.4. Wildlife Management, Organisations and Wildlife Conservation

Wildlife management, as defined by Roth and Merz (1996), is an organized and purposeful human effort to protect and promote wildlife conservation, control, and utilization based on technological, scientific, and traditional knowledge. Riley et al. (2002) further explain that wildlife management involves making decisions and implementing policies to influence interactions between the environment, wildlife, and people in order to achieve desired outcomes that also satisfy stakeholders.

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Conservation organisations greatly aid in the preservation of wildlife and its habitats. Through their work, they advocate for laws and policies that protect wildlife, carry out research and monitoring programmes, execute conservation programmes, and work with local communities to support long-term conservation actions. Increasing public awareness of the value of biodiversity is one of the main responsibilities of conservation organisations. These organisations inform the general public about the dangers that endangered species are facing through a variety of techniques, including social media, public gatherings, and educational projects. What is more, they strive to promote the conservation of animal species and clarify myths and misconceptions about them (Riley et al. 2002).

Non-governmental organisations (NGOs) play vital roles by offering services to various sectors of society engaged in conservation. By establishing connections between the governments, funding organisations, and local communities, and serving as researchers, project implementers, facilitators, and trainers, NGOs can drive effective action in conservation. Their efforts are often focused on a local level but are nonetheless significant, offering significant potential for replicating successful conservation strategies for highly endangered species (Posa et al. 2008).

If the animals are not confined to a fenced reserve (especially flying or marine animals) or if species escape from a reserve, it is important to have a system in place where communities and persons can report sightings, news, and images of the individuals. This can be crucial and help with building strong connections between NGOs and communities (Ward 2021).

2.4.1. Biodiversity Management and Organisations in the Philippines

The Department of Environment and Natural Resources (DENR) is an executive department under the Philippine government. The department was reorganised into its present form in 1987. It oversees protecting, managing, developing, and appropriate use of the nation's natural resources, including public domain lands, forests, grazing areas, and mineral resources (along with those found in watershed and reservation areas). Among its responsibilities are licensing and regulating all natural resources as permitted by law to guarantee their equitable and sustainable distribution.

DENR is divided into six bureaus (DENR 2014):

1. Biodiversity Management
2. Ecosystems Research and Development
3. Environmental Management
4. Forestry Management
5. Land Management
6. Mines & Geo-Sciences

Biodiversity Management Bureau's (BMB) ultimate goal is to provide natural resiliency and sustainable usefulness to all people through biodiversity. Table 3 shows the values and visions of the Philippine BMB.

Table 3. Activities, aims, and functions of the Biodiversity Management Bureau.

Activities	- Protecting wildlife - Establishing and maintaining protected areas, - Fostering and institutionalising ecotourism, - Managing wetlands ecosystems and coastal biodiversity, - Preserving caves and cave resources, - Disseminating information and education about biodiversity and nature conservation - Negotiating multilateral environmental agreements related to biodiversity - Overseeing national implementation
Goals	- Impeding the extinction of species - Encouraging practices that benefit biodiversity - Integrating biodiversity into national, sectoral, and local development strategies and programmes
Major functions	- Developing and enforcing policies, guidelines, rules, and regulations - Creating and administrating of an Integrated Protected Areas System - Creatin a current list of endangered Philippine plants and animals - Suggesting and propagating conservation programmes - Creating and suggesting laws, regulations, and policies to preserve the three elements of biological diversity: genetic resources, ecosystems, and threatened Philippine plant and animal species

Created by the author, based on BMB (2020).

Furthermore, six divisions are completing BMB (BMB 2020):

1. National Parks Division
2. Wildlife Resources Division
3. Costal and Marine Division
4. Caves, Wetlands and Other Ecosystems Division
5. Biodiversity Policy and Knowledge Management Division
6. Ninoy Aquino Parks and Wildlife Center

Laudably, a growing number of Filipino conservation biologists and international organisations focusing on conservation are committed to reducing the severe ecological illiteracy of the majority of Filipinos through implementing community-based conservation projects. Hence, the main goal of these programmes increasing awareness is to inform Filipinos about the significance of the Philippine biodiversity to the entire planet given that it includes various unique species (Galang 2004). Table 4 provides an overview of some of these international and local organisations operating in the Philippines.

Table 4. A selection of conservation organisations active in the Philippines.

Name	Year	Type	Activities
World Wildlife Fund Philippines	1997	NGO international	Environment and biodiversity conservation, plastic pollution reduction, renewable energy
Wildlife conservation Society Philippines	2014	NGO international	Biodiversity and marine conservation, community engagement, policy advocacy, research
PhilBio	1990	Governmental	Biodiversity conservation, captive breeding, education
Mindoro Biodiversity Conservation Foundation Inc. (MBCFI)	2008	NGO local	Environment, biodiversity and natural resources conservation, research, sustainable tourism, biodiversity monitoring, education
Haribon Foundation	1972	NGO local	Biodiversity conservation, community empowerment, policy advocacy, research, forest restoration, education

Created by the author using websites of named organisations.

Ensuring that the public is actively involved in captive conservation centres necessitates different levels of engagement. Various marketing approaches are essential depending on the type of engagement that is sought:

- Educational purposes: infographics, images, live displays
- Generation of income: fundraising, souvenirs and merchandise, adoption packages
- Entertainment and returning: active interactions, games, surveys, use of feedback forms

Maintaining public interest in enclosures and facility features is crucial if education and/or revenue is desired from visitors. This can involve visual elements, games, making photos, and more (Ward 2021).

2.4.2. Talarak Foundation Inc.

The Talarak Foundation is a wildlife conservation NGO located on the Negros Island, Philippines. It was founded by Fernando Gutierrez and Pavel Hospodářský in 2010 in Kabankalan, Negros Occidental. The main goal is to help protect the endemic species of Negros. At present, the Talarak Foundation operates two captive breeding centres on Negros to help increase the populations of rare endemic species native to the West Visayan Faunal region. The Negros Forest Park facility is open to the public for entertainment, educational purposes, and it showcases the importance of conservation for Negros' wildlife, as well as the foundation's conservational efforts.

"The Talarak Foundation Inc. is committed to protecting populations of regionally endemic species through collaborations, conservation education, research, and restoration of endemic species and habitats, while developing sustainable livelihoods and fostering harmony between communities and the environment" (Talarak Foundation 2020).

In addition to the captive breeding sites, Talarak is involved in preserving the endemic wildlife of Negros in the remaining habitats of the island (Talarak Foundation 2020).

2.4.2.1. Activities

Talarak Foundation aims to conserve Negros' wildlife by:

- Identifying the remaining forest patches with high native biodiversity.
- Performing ecological and environmental research on the biodiversity and associated species residing in Talarak centres to acquire data on the best husbandry practices.
- Strengthening wild populations by relocating captive-bred or rescued individuals into new wild areas where the species is not currently present. This process is known as conservation translocation.

Educating people about the species in the collection ought to be one of the top priorities. By educating visitors about the species in their care, captive animal institutions can help inspire a connection and a commitment to protecting the species in the wild. Examples of educational activities implemented by the Talarak Foundation are the following (Ward 2021):

- Educating children and young people about biodiversity and conservation, whether on-site or at schools/camps
- Offering local and foreign individuals training and opportunity for skill development in either captive or wild settings
- Interacting with the public at events to spread knowledge about local biodiversity and the value of conservation in daily life

2.4.2.2.   Priority Species – The West Visayas Big 5

Conservation programmes frequently designate an ambassador species to serve as a symbol of the relevant environmental issue (Mellish et al. 2021). Although the Talarak Foundation aims to conserve all native fauna of the West Visayan region, it has a special focus on five target endemic species, known as the West Visayan Big 5. These species are:

1. Visayan Hornbill (*Penelopides panini*)
2. Rufous Headed Hornbill (*Rhabdotorrhinus waldeni)*
3. Visayan Spotted Deer (*Rusa alfredi*)
4. Visayan Warty Pig (*Sus cebifrons*)
5. Negros Bleeding Heart Dove (*Gallicolumba keayi*)

These endangered species are considered as the rarest, most unique, and important for the region's ecosystem (Talarak Foundation 2020).

3.   Aims of the Thesis

The objectives of the bachelor thesis are:

1) To evaluate people's knowledge about endangered key Philippine species and overall ecological knowledge
2) To understand the impact of the Talarak Foundation on the local community and the impact of its long-term wildlife conservation activities

The hypothesis was created in addition to the aims:

H0: Individuals who had previous experience with Talarak Foundation have higher ecological knowledge than those who have never encountered this organisation.

4.   Methods

4.1.   Data Collection

The theoretical framework of the research drew from the existing literature based on the following keywords: biodiversity, wildlife conservation organisations, and ecological knowledge. The secondary data was retrieved from the Talarak Foundation website, archives, and scientific journals available in databases such as Science Direct, Ebsco, Web of Science, Sage publications, Google Scholar, and Wiley Online.

The thesis employed a quantitative method, based on a structured questionnaire comprising 26 questions in total (see Appendix 1). To ensure that the questionnaire is efficient and reliable, a pilot test was carried out with a total of 15 employees and visitors of the Talarak Foundation. All questions can be divided into four parts. The first, made of five questions, aimed at depicting respondents' attitudes towards nature as such, their interest in protecting the environment, as well as their level of familiarity with important Philippine species. The following section's purpose was to assess the initial ecological knowledge of visitors to later analyse the organisation's influence on respondents. The number of questions for this part accounted for four. The third part of the questionnaire was an educational knowledge test composed of nine questions, evaluating visitors' level of education about endemic Visayan animal species. The final section asked eight questions about socio-economic aspects, such as the age, gender, the latest achieved education, occupation, and religion of respondents.

The questionnaires were distributed in two forms – on paper and online, accessible through Survio. The questionnaires were distributed in Negros Forest Park with the help of the facility's employees and interns, who were trained prior.

The data collection lasted from 20.12.2023 to 27.3.2024. The number of answers was 86, against an expectation of 50. Due to a slow internet connection, 10 responses were received in electronic form compared to 76 in paper.

4.2.   Target

The research was conducted in a facility of Talarak Foundation, Inc. – Negros Forest Park, Bacolod, Philippines (Figures 2, 3). Negros Island is located in the West Visayan region of the Philippines. The island is divided into two parts: Negros Oriental and Negros Occidental. The capital is located in Negros Occidental and its name is Bacolod city. The target group were visitors of the park upon their entrance into the facility to verify their non-influenced knowledge by the visit.

Figure 2. Bacolod city**.**
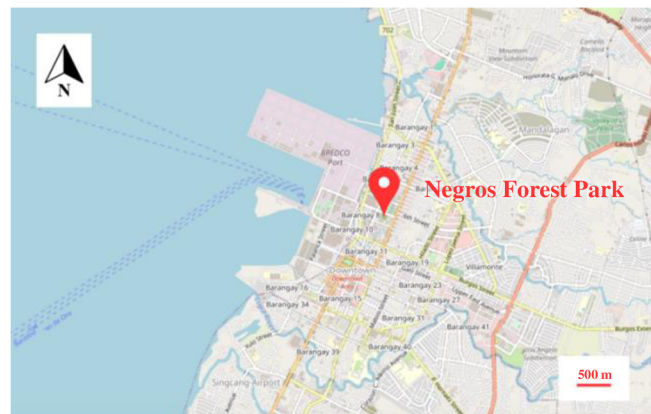
Figure 3. Location of Negros Forest Park

4.3.   Data analysis

Excel was of use to transcribe the collected data to electronic form. Afterwards, path analysis was utilized as a confirmatory, multivariate tool to confirm the hypothesis that people who engage with a conservation NGO, like Talarak Foundation, improve their knowledge about biodiversity and conservation. Path analysis provides a set of univariate equations that are solved simultaneously and, therefore, are better suited for studying multiple processes in complicated systems (Shipley 2002), especially when the studied variables (answers from the questionnaires) are highly correlated (Schumacker & Lomax 2004). The path diagram was conceptualised to understand the contribution of the questions in the questionnaire on four latent variables (Socio-economic, Attitude, Talarak, and Conservation knowledge). Questionnaires with missing values were excluded from the dataset to fit the requirements of the model. Thus, the final dataset was n=83. Maximum Likelihood was used as an estimation method (Shipley 2002). In the

final design of the model, only the paths connecting the latent variables were kept as optional (violet in Figure 4).
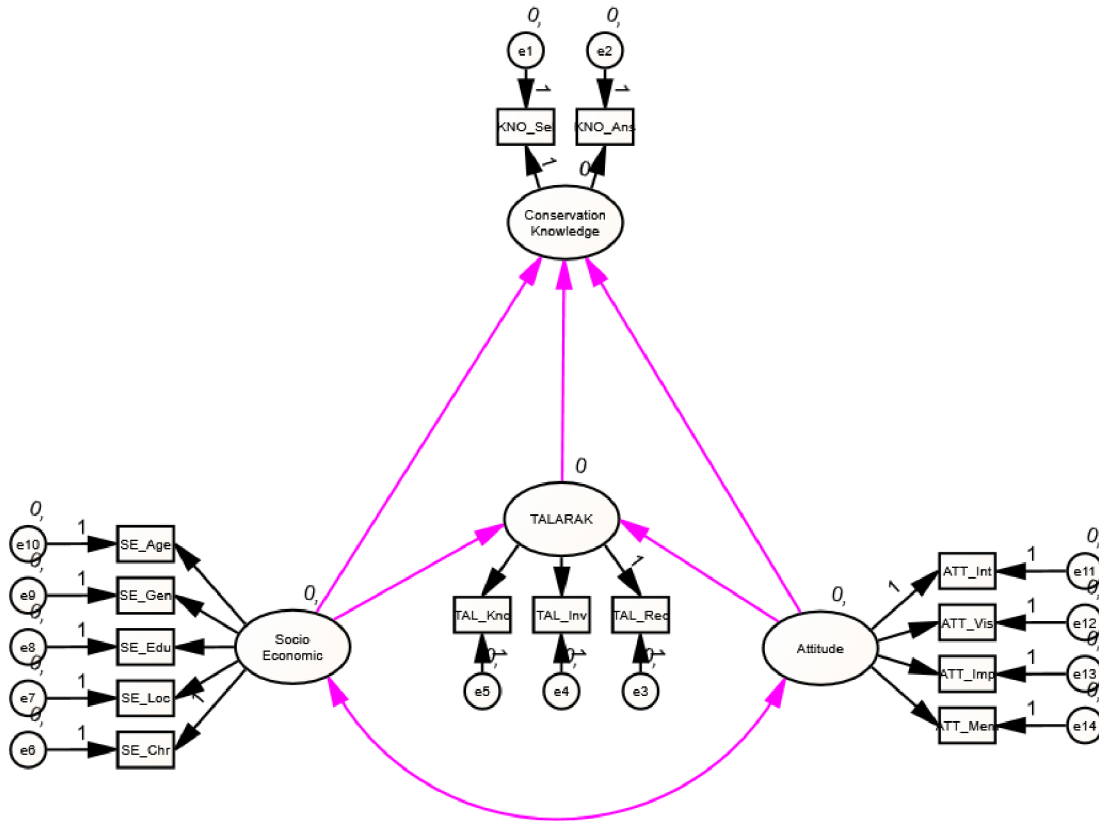
Figure 4. Path analysis model showing the variables affecting the Conservation Knowledge.

Socio-economic factors, Attitude, and Talarak were computed as latent variables based on grouped answers after 86 questionnaires. The relationships between the studied variables in the path are represented by arrows; optional paths are indicated by violet arrows, while fixed relationships are indicated by black arrows. Errors in the model's variable measurements are represented by circles.

The statistical significance of the variables included in the solved models was assessed through critical ratios (the ratio mean/SE, which gives a z score allowing assessment of the P value for each variable; Schumacker & Lomax 2004). Selection of the most plausible models was based on χ^2, and goodness-of-fit was assessed by two indices: Parsimony-adjusted Comparative Fit Index (PCFI) and Root Mean Square Error of Approximation (RMSEA). PCFI ranges between 0 and 1 and is better the higher the value, preferably over 0.9. In contrast, RMSEA shows a better goodness of fit, preferably lower than 0.05 (Schumacker & Lomax 2004). Path analyses were performed in Amos 26 for IBM SPSS Statistics.

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5.   Results

5.1.   Socio-demographic Profile of the Participants

Out of 86 respondents, 61 identified themselves as female (70.9%), the 25 (29.1%) remaining as male. The ages of participants ranged from 16 to 62 years with an average of 27.2 years old and a median of 21. The vast majority were Filipinos (97.7%, n=84), and the rest were from Hungary and the United States of America (1.15% each). Out of Filipino respondents, 80.95% (n=68) lived on Negros Island, 15.48% (n=13) in another area, 3.57% (n=3) did not specify. 96.3% (n=78) lived in a city contrary to 3.7 (n=3) in municipalities. Nearly 7 out of 10 people affiliated themselves as Roman Catholics (69.8%, n=60), Baptists created 8.1% (n=7), followed by Iglesia ni Cristo with 5.8% (n=5), Atheists gained 3.5% (n=3), Protestants and Aglipayan each 2.3% (n=2). Religious affiliation to Judaism was reported by one person (1.2%). The rest of the respondents (7%, n=6) did not state their religion.

The occupation of nearly half of the respondents was a student (46,5%, n=40). 91.8% of participants have completed either a high school education or a bachelor's degree. The complete data of the highest achieved education can be seen in Figure 5.
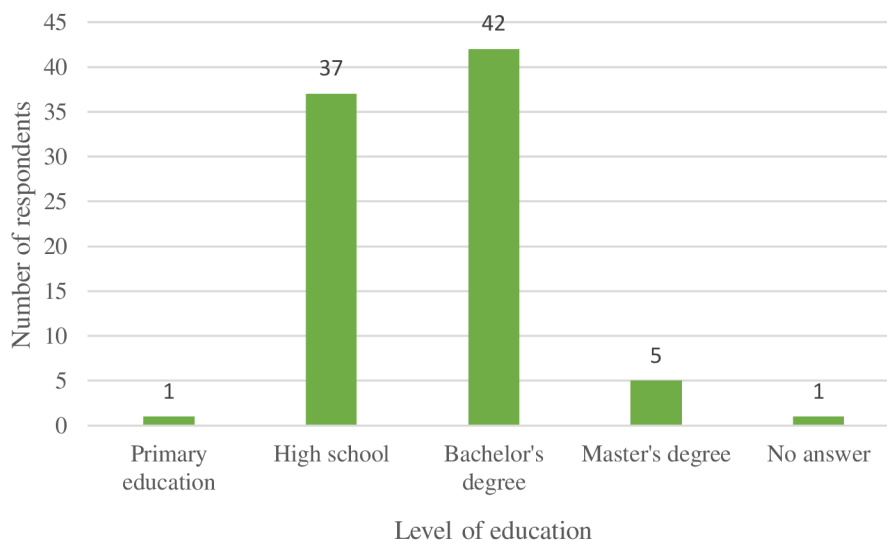
Figure 5. The highest achieved education of respondents.

5.2. Talarak Foundation and Ecological Knowledge

Most visitors were visiting Negros Forest Park for the first time (74.4%, n=64). The rest did visit Negros Forest Park at least once in their life (25.6%, n=22). 10 (11.6%) visitors were members of one NGO, and only one person (1.2%) reported being a member of two or more NGOs. The most common initial encounter with the centre was through social media or they encountered it at school or at a workplace. Participants saw the Talarak Foundation's role in conservation as important, the average value was 4.46 on a scale from -5 to 5 (-5 = the lowest knowledge, 5 = the highest knowledge). The average self-estimated knowledge of respondents on the same scale was 2.6.

A single solution of the path diagram was not achieved, and the 3 best models, with very similar statistics and goodness of fit metrics (see Table 5) were selected (Figures 6, 7, 8). These models share certain characteristics. There is always an interaction between personal attitude and socio-economic factors with and standardized regression weight between (SRW) 0.30 to 0.39. The socio-economic factors were just retained in one of the models (model 28) with an SRW of -0.32. Age (SRW = -0.83), education (SRW = -0.59), and being local (SRW = -0.46), meaning that young local people with lower education level (probably connected to the age) have better knowledge about Talarak Foundation. However, these socio-economic factors do not directly affect the knowledge of biodiversity and conservation, neither directly or indirectly through the Talarak Foundation.

Table 5. Statistics and goodness of fit of the three selected models.

Model	χ^2/df	P	RMSI	CFI
1	1.754	<0.001	0.094	0.959
2	1.754	<0.001	0.094	0.959
3	1.758	<0.001	0.094	0.959
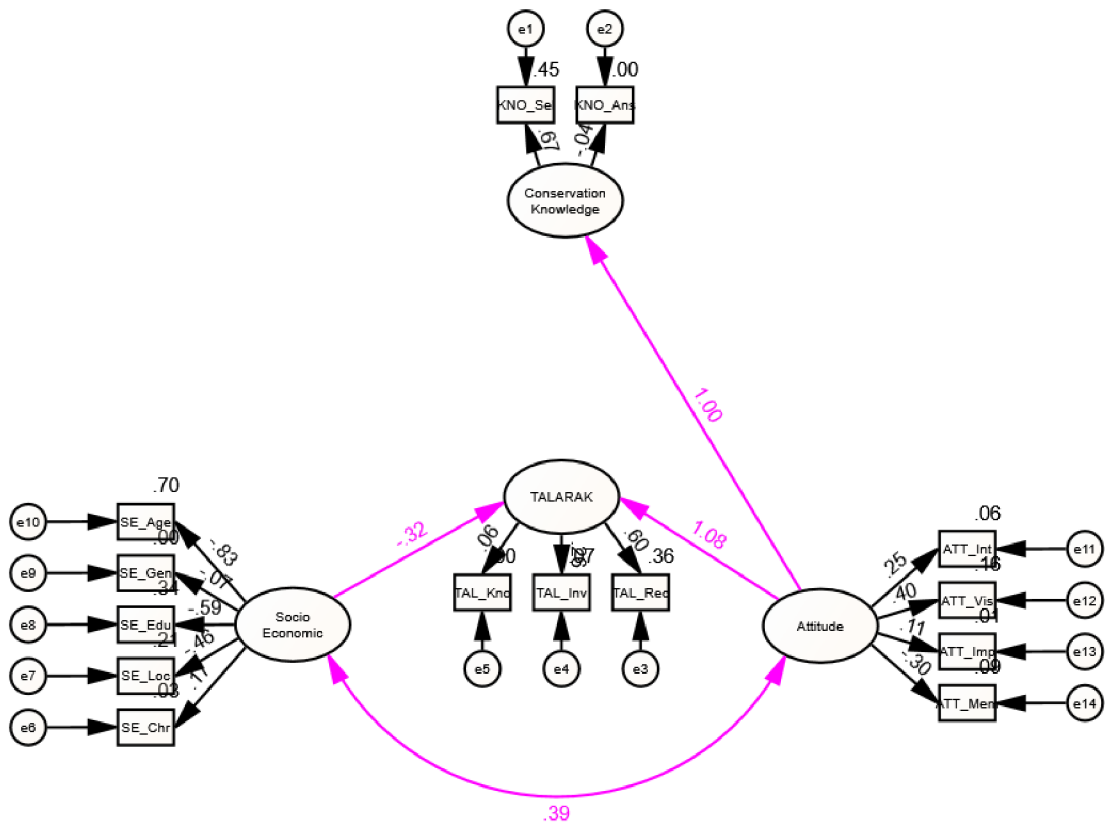
Figure 6. Model 1. Standardized regression weights are shown beside each arrow.
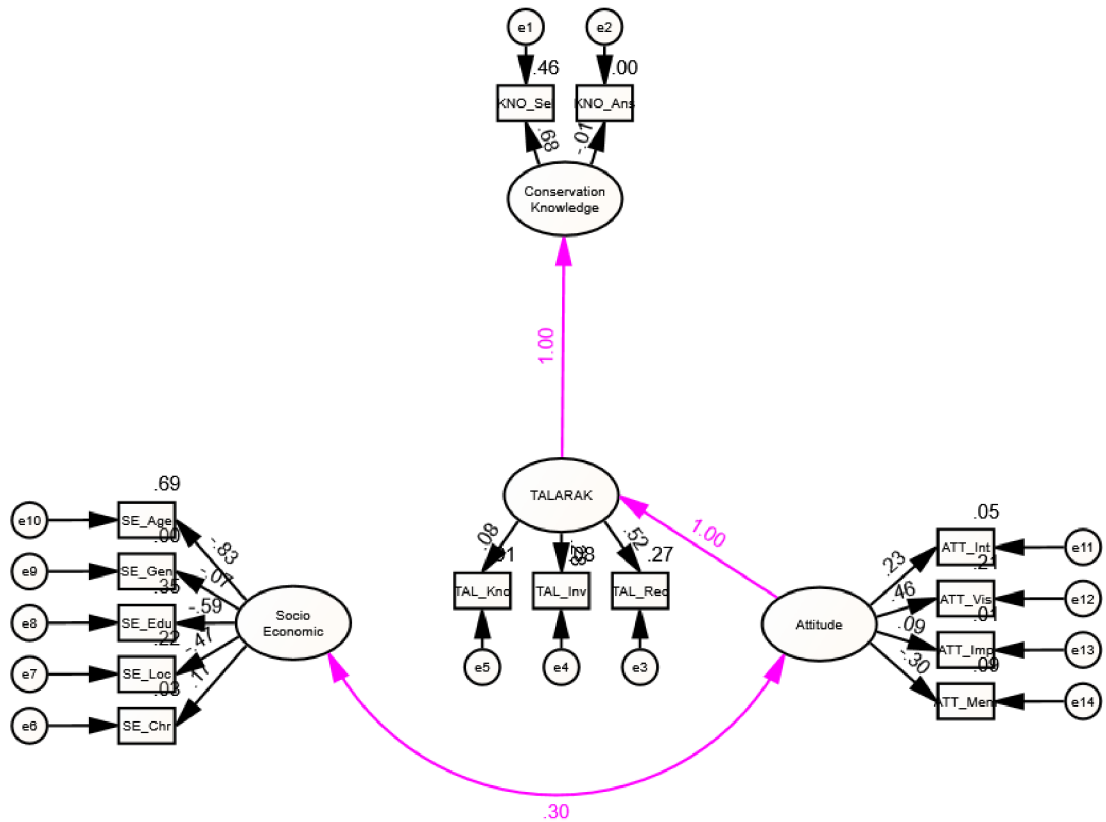
Figure 7. Model 2. Standardized regression weights are shown beside each arrow.
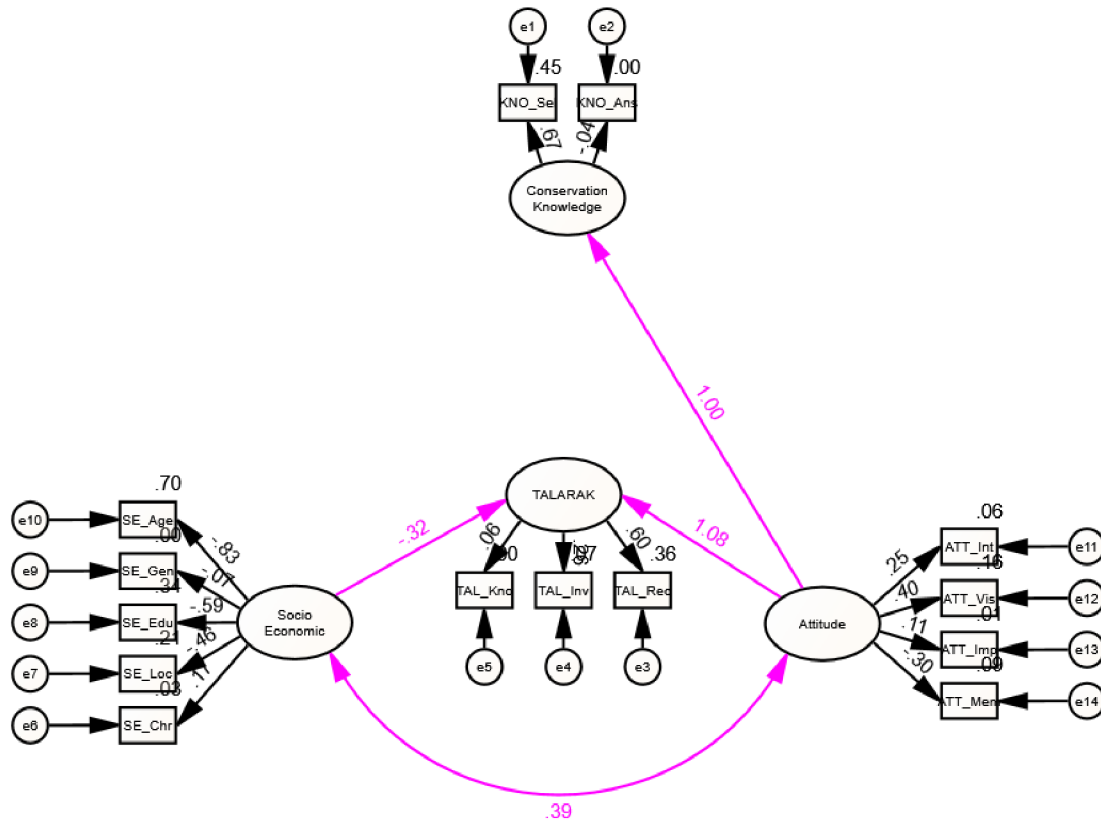
Figure 8. Model 3. Standardized regression weights are shown beside each arrow.

Regarding the understating by the respondents about the Talarak Foundation, the main contribution in the three models comes from the recognition of their activities (SRW ranging 0.52 to 0.60), followed by being directly involved (SRW from 0.26 to 0.28) and scarcely by the knowledge about the localities where the foundation works (SRW from 0.6 to 0.8).

The personal attitude towards conservation was revealed as the most important part of the model. It had an effect on the biodiversity and conservation knowledge with a standardized regression weight of 1 in models 1 and 3. Moreover, in these two models the personal attitude affected the understanding of the Talarak Foundation (SRW 1.00 and 1.08, respectively), but this did not have a significant effect on the biodiversity and conservation knowledge. However, in model 3 the effect was indirect through affecting the understanding of the Talarak Foundation and this affecting the biodiversity and conservation knowledge.

The most important factor affecting the personal attitude was the visit to zoos (SWR from 0.40 to 0.46), followed by membership (SRW = -0.30; surprisingly, respondents with a better personal attitude towards biodiversity and conservation are not

members of conservation NGOs) and interest in nature conservation (SWR from 0.23 to 0.25), while the importance of nature conservation had a lower weight (SWR from 0.9 to 0.11).

Finally, it is also interesting that the latent variable describing the knowledge on biodiversity and conservation by the respondents was better explained by the self-assessment (SWR from 0.67 to 0.68) than by our "exam questions" (SWR from -0.04 to -0.01).

6. Discussion

6.1. Main Findings

6.1.1. Socio-economic Status

The models did not show any correlation between the socio-economic status (SES) such as gender, age, achieved education, religion, occupation, and income of respondents on their conservation knowledge. This finding opposes research by Da Silva Nogueira Santos et al. (2020), which argues that socio-economic characteristics have a significant impact on the knowledge of local animal species. However, there was no link between SES and acknowledgment of the species' ecological significance in their study.

One of the possible explanations of our finding can be explained by a self-selected population. Adelman et al. (2000) have reported that visitors of captive-breeding sites are in general more interested, aware, and prone to be more concerned about conservation issues than the general public. In addition, they often had more knowledge about wildlife protection. Furthermore, visitors had a strong positive attitude towards conservation concerns and understood how important it is for individuals to take responsibility for the local and global environmental conditions of the environment, no matter what their SES level was.

Although it can have consequences in certain areas and backgrounds, there is no significant proof that lower SES always leads to lower levels of knowledge compared to high SES (Kahta et al. 2022). Cases of willingness to learn even despite a lower SES exist. A person who is showing mentioned characteristics is often referred to as a high achiever. Low SES does not have to be a limiting factor in acquiring knowledge (Yan & Gai 2022).

6.1.2. Individual Attitude Towards Nature Conservation

We found out that visitors' attitudes were a significant factor in overall knowledge about wildlife and conservation. Several studies across different fields agree with our finding. Reid and Amanat Ali (2020) discuss the essential role of attitudes on all factors of knowledge because individuals' attitudes affect behaviour and desire to learn by

influencing people's interactions with information and learning processes. Hamidizadeh and Meibodi (2017) highlight that positive attitudes increase the likelihood of knowledge exchange, thus improving learning outcomes. Developing positive attitudes towards learning and information sharing is vital for fruitful knowledge memorisation and acquisition.

6.1.3. Talarak Foundation's Impact

The hypothesis of the thesis was not clearly supported or rejected based on the results – it cannot be estimated whether previous awareness of the Talarak Foundation affected people's knowledge.

Research in captive and non-captive wildlife tourism environments have shown that interaction between people and animals can improve attitudes and environmental knowledge, as well as have a beneficial effect on their intentions to engage in environmentally conscious behaviour (Ballantyne et al. 2018). However, drawing on the results from Adelman et al. (2000), there is a lack of studies related to post-visit impact. It was observed that after six to eight weeks, visitors' interest in wildlife conservation and attitudes came back to their original (prior visit) levels, indicating that despite the fact that Talarak Foundation might have had a positive impact on people that have visited Negros Forest Park before, over time visitors' knowledge and conservational concerns returned to normal (meaning before the visit) level.

Correspondingly to our finding about SES (see chapter 6.1.1. Socio-economic Status) and the possible explanation provided, our respondents could have been biased as coming to the Negros Forest Park they were probably already aware of the Talarak Foundation. That is confirmed in a study by Ibrahim et al. (2022). In the study, results showed differences between visitors and the general public. The attitude, knowledge level, and experience of visitors surpassed those of the local community. This fact should be taken into consideration by NGOs and local stakeholders who try to promote conservation actions.

6.2. Study Limitations

In this study, we gathered a relatively small amount of data, so the results cannot be applied to a wider public. Only visitors before entering the facility were chosen. What is more, students and young people created a dominant group of respondents, which could have negatively affected the results' reliability.

7.   Conclusions

This thesis aimed to evaluate the conservational knowledge about endemic and ecologically irreplaceable Philippine animal species. Additionally, it pursued a deeper understanding of the Talarak Foundation's impact on the public. An expected result was that visitors who knew about the Talarak Foundation had higher knowledge about conservation and the environment than those visitors that never heard of this organisation.

Nevertheless, the research hypothesis could not be confirmed nor rejected with certainty. Based on the data analysis from a questionnaire it can be concluded that socio-economic status does not influence gained knowledge. The results indicate that the personal attitude had the most impact on ecological knowledge. The attitude was greatly affected by the frequency with which participants reported visiting captive-breeding centres, and by being part of an NGO. To our surprise, visitors who were not members of any NGO had a better attitude towards wildlife conservation.

Suggestions for future studies include a bigger study size, which could generate more accurate results. Extending the research to the general public by distributing questionnaires in the city would help to better understand the actual positive effect of the organisation. Also, it would be beneficial to gather more data from an older generation since students created almost 50% of all participants. In the future, the same questionnaire could be distributed after the visit to understand the immediate, short-term impact of the organisation.

The research is relevant because the field of biodiversity conservation organisations, in particular education efforts of captive-breeding centres and their impacts, remains largely unexplored to this day. The paper's most significant contribution is mainly to the Talarak Foundation, for it has never conducted a similar analysis of its impact on the local community.

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Appendices

List of the Appendices:

Appendix 1: Questionnaire

1. **HOW MUCH ARE YOU INTERESTED IN NATURE? (CIRCLE A NUMBER)**

   -5 -4 -3 -2 -1 0 1 2 3 4 5

   NOT AT ALL   VERY MUCH

2. **HOW OFTEN DO YOU VISIT ZOOS?**
   - A) MORE THAN ONCE A MONTH
   - B) ONCE A MONTH
   - C) ONCE IN 6 MONTHS
   - D) ONCE A YEAR
   - E) ONCE A FEW YEARS
   - F) NEVER

3. **HOW IMPORTANT DO YOU THINK IS TO PROTECT NATURE?**

   -5 -4 -3 -2 -1 0 1 2 3 4 5

   NOT AT ALL   VERY MUCH

4. **WHICH OF THESE NAMES HAVE YOU HEARD BEFORE?**
   - A) TALARAK FOUNDATION
   - B) NEGROS FOREST PARK
   - C) BAYAWAN NATURE RESERVE
   - D) NONE

5. **WHERE DID YOU HEAR ABOUT IT?**
   - A) ON SOCIAL MEDIAS
   - B) ON THE WEBSITE/ GOOGLE MAPS
   - C) AT SCHOOL / WORK
   - D) AT AN EVENT
   - E) I AM LIVING IN THE AREA
   - F) SOMEBODY TOLD ME
   - G) I HAVE NEVER HEARD ABOUT IT
   - H) OTHER

6. **ARE YOU A MEMBER OF SOME NGO (NON GOVERNMENTAL ORGANISATION)?**
   - A) NO
   - B) YES, I AM A MEMBER OF ONE
   - C) YES, MORE THAN ONE

7. **HAVE YOU EVER PARTICIPATED SOMEHOW ON TALARAK ACTIVITIES? IF YES, HOW?**
   - A) I HAVE VISITED NEGROS FOREST PARK BEFORE
   - B) I VISITED BAYAWAN NATURE RESERVE
   - C) I AM / WAS A VOLUNTEER
   - D) I AM / WAS AN EMPLOYEE
   - E) I HAVE NOT PARTICIPATED

8. **DO YOU BELIEVE TALARAK IS GOOD FOR WILDLIFE CONSERVATION?**

   -5 -4 -3 -2 -1 0 1 2 3 4 5

   I STRONGLY DISAGREE   I STRONGLY AGREE

9. **ON A SCALE FROM -5 TO 5, HOW WOULD YOU DESCRIBE YOUR KNOWLEDGE ABOUT PHILIPPINE ANIMAL SPECIES?**

   -5 -4 -3 -2 -1 0 1 2 3 4 5

   I KNOW NOTHING   I AM VERY EDUCATED ABOUT IT

10. **WHAT IS THE WEST VISAYAN BIG 5?**
    - A) FIVE TALLEST TREE SPECIES IN WEST VISAYAS
    - B) FIVE IMPORTANT HABITATS OF WEST VISAYAN REGION
    - C) FIVE ENDEMIC ANIMAL SPECIES OF WEST VISAYAS, IMPORTANT FOR THE REGION
    - D) I DO NOT KNOW

11. **PLEASE NAME AS MANY WEST VISAYAN BIG 5 ANIMALS AS YOU CAN:**

12. **WHICH ANIMAL <u>DOES NOT</u> BELONG TO THE WEST VISAYAN BIG 5?**
    - A) VISAYAN SPOTTED DEER
    - B) VISAYAN LEOPARD CAT
    - C) VISAYAN TARICTIC HORNBILL
    - D) I DO NOT KNOW

13. **THE WORD "ENDEMIC" MEANS:**
    - A) RESTRICTED TO A CERTAIN PLACE
    - B) ENDANGERED
    - C) IMPORTANT FOR THE ENVIRONMENT
    - D) I DO NOT KNOW

14. **THE VISAYAN SPOTTED DEER'S DIET <u>DOES NOT</u> CONSIST OF:**
    - A) BRANCHES
    - B) EGGS
    - C) FRUITS
    - D) I DO NOT KNOW

15. **THE LARGEST OWL IN THE PHILIPPINES IS THE:**
    - A) PHILIPPINE EAGLE OWL
    - B) NEGROS SCOPS OWL
    - C) EASTERN GRASS OWL
    - D) I DO NOT KNOW

16. **THE LARGEST MAMMALIAN CARNIVORE IN THE PHILIPPINES IS THE:**
    - A) VISAYAN LEOPARD CAT
    - B) VISAYAN WARTY PIG
    - C) PHILIPPINE CROCODILE
    - D) I DO NOT KNOW

II

17. DOES THIS ANIMAL SPECIES NATURALLY OCCUR IN THE PHILIPPINES?

A) YES
B) NO
C) I DO NOT KNOW

18. DOES THIS ANIMAL SPECIES NATURALLY OCCUR IN THE PHILIPPINES?

A) YES
B) NO
C) I DO NOT KNOW

19. YOUR AGE:

20. GENDER:

21. WHAT IS YOUR HIGHEST ACHIEVED EDUCATION?

A) NONE
B) PRIMARY SCHOOL
C) HIGH SCHOOL
D) BACHELOR'S DEGREE
E) MASTER'S DEGREE
F) PH.D.

22. WHAT IS YOUR OCCUPATION?

23. HOW MUCH APPROXIMATELY DO YOU EARN PER MONTH?

A) 0 ₱
B) 1 - 10 000 ₱ (0,01 - 176 $)
C) 10 001 - 30 000 ₱ (176,01 - 528 $)
D) 30 001 - 50 000 ₱ (528,01 - 881 $)
E) 50 001 - 70 000 ₱ (881,01 - 1 223 $)
F) MORE THAN 70 000 ₱ (1223 $)
G) I DO NOT WANT TO ANSWER

24. NATIONALITY:

25. CITY:

26. RELIGION:

III