

FROGGING: PROMOTING FROG WATCHING AS AN ECO-TOURISM ACTIVITY; EVIDENCE FROM STAR HOTELS IN SRI LANKA

H.P.R.I. Senevirathna

Sustainable Tourism & Destination Management

University of Colombo

ishanyes@yahoo.com

Abstract

Tourism is the second largest growing industry after information technology in the global economy. Many national economies have been able to generate plentiful amounts of foreign exchange from tourism industry by relentlessly marketing and promoting tourist destinations in their respective countries. Sri Lanka is blessed with a very rich biodiversity and its amphibian diversity has been recognized as exceptionally rich. As at now, the amphibian fauna of Sri Lanka comprises 119 species including 106 endemic species. With such advantageous prospects, Sri Lanka is naturally endowed with an encouraging potential to promote frog watching as an eco-tourism activity. In order to examine this potential, the present study adopted online survey research methods to collect experiential data from 100 individuals who had participated in frog watching. A separate survey was conducted to collect empirical data from in-house guests who had been residing during the period from June 01, 2018 to March 01, 2019 at the Jetwing Hotels in Sri Lanka and participated in the frog watching as a part of their ecotourism itineraries. It has been observed that European tourists and young adults are enthusiastic to participate in frog watching with their family or friends as an outdoor activity, and that they were willing to pay up to 20-30 US\$ for a two-hour frog watching tour in Sri Lanka. Frog watching is as an Eco tourism activity comprising all sustainable tourism aspects – planet, people and profit. It has the prospects of generating more foreign exchange in the meantime maintaining an emphatic contribution for the frog conservation as well as creating job opportunities in tourism industry.

Keywords: Eco tourism, frog watching, amphibian diversity, sustainable tourism

1.0 Introduction

In terms of number of species, genera and ecosystems, Sri Lanka has a very high biodiversity and is considered one of the 34 hotspots in the world (Myers et al. 2000). Frog watching has also become one of the popular ecotourism activities in some countries. Costa Rica, for example, offers frog watching as one of its main ecotourism activities. It is therefore a popular and sustainable revenue generator for the development of the ecotourism industry. Two hundred years ago, the Sri Lankan rainforest was home to more than 90% of Sri Lanka's known amphibians (Senanayake et al., 2008), but this vast area of once extensive forest has been destroyed in the last 150 years. However, they are believed to still harbour many undiscovered species (Bopage et al., 2011). As a result of its unique diversity of frogs, Sri

Lanka can promote frog watching as an ecotourism activity in Sri Lanka. Due to its geological evolution and diverse geography, Sri Lanka has an incredible diversity of frogs, which also creates a rich endemism. As a result of the diversity and density of these frogs, it is not difficult to find frogs in urban areas and some species like to live in anthropogenic areas.

Tourist arrivals have increased rapidly following the situation of the covid pandemic and the economic crisis in Sri Lanka, and many of them are actively interested in nature (Ministry of Tourism website, 2019). When we consider these points, Sri Lanka has great potential to promote frog watching as a successful ecotourism activity. Due to the lack of knowledge and awareness about frog watching, it has not been used as an ecotourism activity in Sri Lanka.

This research project examines the current status and attitudes towards frog watching among international tourists to assess the potential for promoting frog watching at Jetwing hotels spread across different climate zones in Sri Lanka. This includes an assessment of travel agents, tour operators, national guides, web marketing and also involving local guides to promote frog sighting in their tour itineraries. This research is expected to highlight the importance of frog monitoring for the Ministry of Tourism, Ministry of Wildlife Development and Ministry of Environment.

2.0 Literature Review

Frogs are a group of various carnivorous amphibians belonging to the order Anura. It is believed to have originated about 265 million years ago (Pough et al., 2016). Frogs live in all tropical and subtropical regions, with the highest concentration living in tropical rainforests. Frogs are the most diverse group of vertebrates, with a total number of recorded species currently at 7,662 individuals (AmphibiaWeb, 2017). They have heavy bodies, forked tongues and bulging eyes. They are known to live in fresh and dry water and are perfectly adapted to live on land and in trees. Most species have hideous skin. The color of the frog's skin varies from bright red to yellow, which is believed to be a mechanism to deter predators (BBC Earth, April 22, 2015). Amphibious fauna of Sri Lanka includes 120 species, including 107 (~90.0%) endemic species. It belongs to five families: Bufonidae, Dicroglossidae, Ichthyophiidae, Microhylidae and Rhacophoridae. Based on their distribution, we recognize five zoogeographic zones for them, Central Hills, Dry Zone, Knuckles Range, Lowland Wet Zone and Rakwana Hills.

Sri Lanka is an island landmass in the South Asian region with a high level of biodiversity. Sri Lanka is also considered a reservoir of unique evolutionary history (Myers et al., 2000; Bossuyt et al., 2004). In this high biodiversity, amphibians can be considered one of the best-studied groups among other vertebrates (Manamendra-Arachchi and Pethiyagoda, 2012; Frost, 2018; Meegaskumbura et al, 2019). The amphibian fauna of Sri Lanka includes 120 species, including 107 (~90.0%) endemic species.

Natural tourism is a pragmatic synergy between protecting the environment and improving the welfare of the local population in the contemporary context. "Anuran Tourism", a new nature tourism product for frogs and toads, provides new attraction to improve the current product (KUEH Boon-Hee et al, 2003)

3.0 Methodology

Jetwing is a premier resort brand and a leading name among Sri Lanka hotels with distinctive properties spread around the country. Among these hotels, five hotels were selected (Figure 01) as sampling sites representing different bio-climatic zones and topographical zones in Sri

Lanka (Table 01). All these selected hotels are large-scale hotels having good guest occupancy levels.

Figure 3.1: Locations of the selected sampling sites



Table 3.1. Locations of sampling sites

Name of sampling site	Location	GPS Coordinates	Elevation	Bio-climatic zone
Jetwing St. Andrew's Hotel	NuwaraEliya	6.9793 N 80.7638 E	1,868 m	Highland Wet zone
Jetwing Kaduruketha Hotel	Wellawaya	6.7549 N 81.1043 E	711 m	Midland Intermediate zone
Jetwing Kurulubedda Hotel	Galle	6.0483 N 80.1960 E	0 m	Lowland Wet zone
Jetwing Yala Hotel	Yala	6.2513 N 81.3960 E	30m	Lowland Dry zone
Jetwing Vil Uyana Hotel	Sigiriya	7.9308N 80.7207 E	160 m	Midland Dry zone

Two questionnaire surveys were conducted to collect feedback from tourists regarding frog sightings. The first survey was conducted through online interviews with frog watchers. The survey was conducted on the Internet using the social media platform "Facebook" and by

email sent to members of the IUCN Amphibian Specialist Group. Attached is a sample Google survey form under the Amphibian-related Facebook page. Frogs of the World, Save the Frogs, Amphibians of Africa, Amphibian Research Center of Costa Rica, Frogs of India, Amphibian Survey & Monitoring, Friends of Frogs, Amphibian Keepers Forum, Frogs of Western Australia, Amphibians of Madagascar. In the same way, the email details of the "Arenal Oasis Frog Sanctuary" Costa Rica, were taken and asked for their feedback for the survey.

The second survey was conducted with guests who visited each Jetwing location. The first survey was conducted on the Internet with one hundred guests who had seen frogs around the world. Two hundred (200) guests staying at 5 Jetwing hotels including Nuwara-eliya, Wellawaya, Yala, Sigiriya and Galle were selected for the second survey. Forty (40) guests were randomly selected from each hotel. This questionnaire was created to assess guests' curiosity to see frogs.

4.0 Findings

The first survey was conducted on the Internet as a screening assessment (Appendix iii), collecting responses from 100 guests on frog-watching tours around the world. The guest nationalities include 28 countries: England, Australia, Sri Lanka, Mexico, Hong Kong, Germany, Great Britain, Norway, Singapore, Bhutan, India, USA, Belgium, Hungary, Canada, France, South Korea, Netherlands, Lithuania, Malaysia, South Africa, Denmark, Kenya, Sweden and Egypt and provides some representation of all six continents (Africa, Asia, Australia, Europe, North and South America). 100% of these participants admitted that they enjoy watching frogs as a nocturnal activity and all have some interest in visiting Sri Lanka.

According to the survey, participants went on frog-watching tours to various countries, including Bangladesh, Malaysia, Costa Rica, Singapore, Australia, Canada, Tasmania, Lithuania, Peru, Ecuador, Madagascar, South Africa, India and Brazil.

The majority of participants were male (60.6%) and 39.4% were female (Chart 4.1). 40% of the participants were in the 25-34 age group, and 24% are in the 35 to 44 age group (Chart 4.2). The dominance of the 25-44 age group suggests that frog watching is more popular among young adults than other age groups. The chart shows that the breakdown of the frog-watching population includes 12% in the age group of 45-54, 7% in the age group of 55-64, 5% in the age group under 18 and 2% in the age group of 65 - 74. years. group.

Chart 4.1: Participants According to Gender.

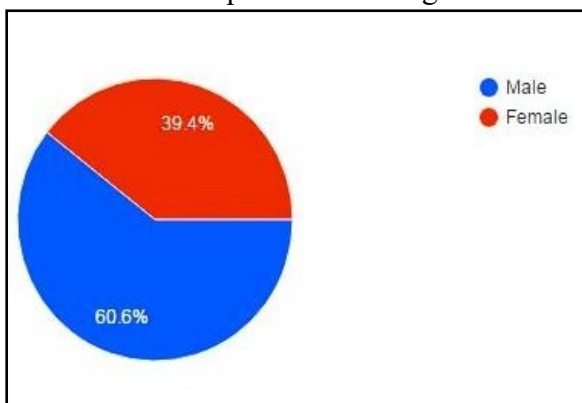
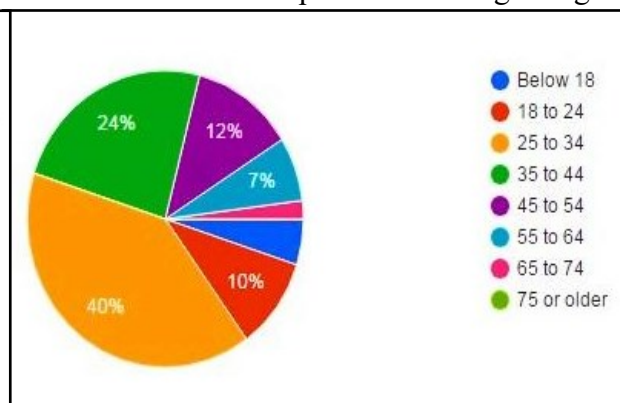


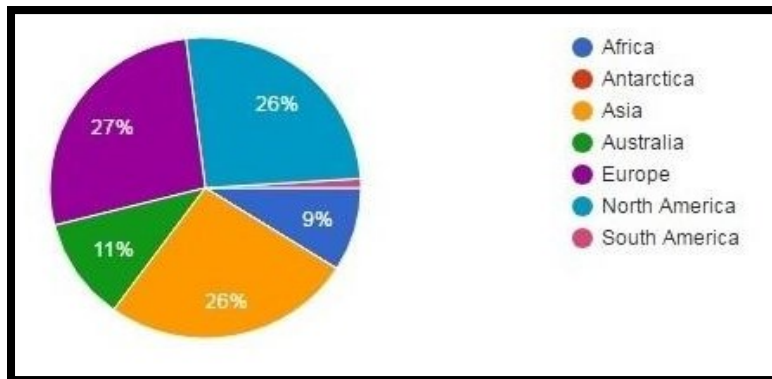
Chart 4.2 Participants According to Age.



Analyzing which continent survey participants come from, a very narrow majority of the frog watchers are Europeans (27%). North Americans and Asians also show equal interest

in frog watching (26%). South Americans who participated in the 1st survey showed least interest in frog watching than any others (1%) (Figure 4.3).

Chart 4.3 Participant According to Continents



Even though these people had done previous frog-watching tours, not every person had an interest in frogs. It was found that 7% of the 1st survey had no interest in frogs (Figure 4.4). In the same way, 9% of participants are scared or uncomfortable with frogs (Figure 4.5).

Figure 4.4 Participant interest in frogs

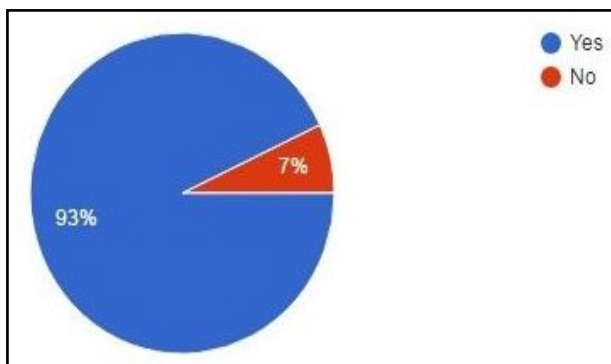
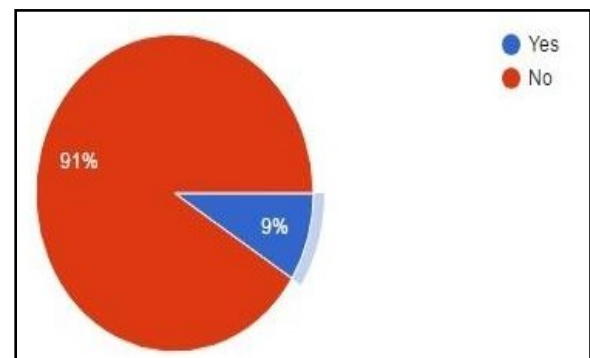
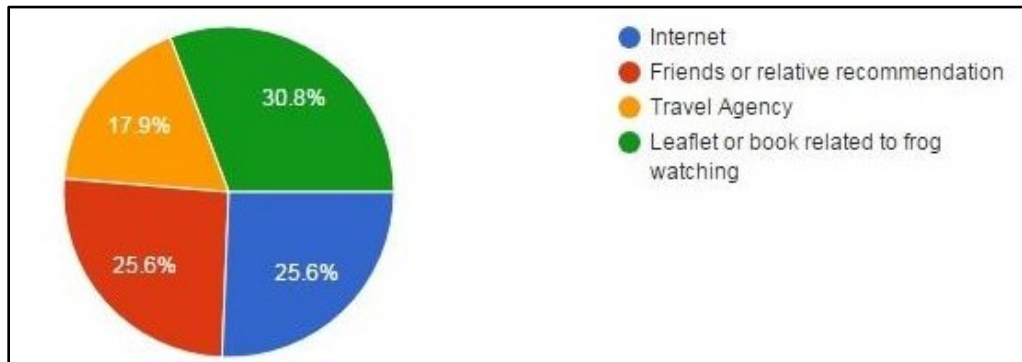


Chart 4.5 Participant uncomfortable/ scared of frogs



A small majority (30.8%) of these participants had information about seeing frogs from leaflets or books. About 25.6% of participants use the Internet to obtain information about frog viewing; and also about 25.6% get information from other people. Travel agencies now provide less information about frog sightings than other sources. According to the first survey, only 17.9% of participants received information about frog sightings from travel agencies; which shows that word-of-mouth promotion from previous participants (either directly or in different types of media) is a more important and reliable source of information than from travel agencies (Figure 4.6).

Figure 4.6 Channels of information for frog watching

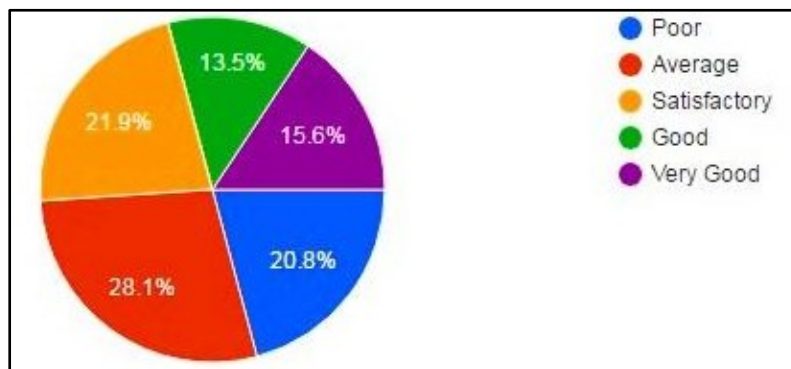


The first survey showed that most participants (34.1%) took a tour to see frogs with friends. It also shows that most participants prefer to see the frogs with family and friends than alone (11%) or with other tourists (7.3%).

Frog monitors are also interested in doing other nature activities if possible; and they like to visit as many different parts of the world as possible. These frog watchers also like to do this activity with their family and friends as a family activity. They don't want to see frogs as a competition, but they want to see more new species as well as rare endemic species on frog viewing tours. According to the results of this survey, they like to share their knowledge around community groups, however they like to share their knowledge and watch other frogs less. They see frogs to escape their daily routine. The survey results show that most of them do it to enjoy and experience outdoor life. It also shows that almost every frog watcher who participated in this first study is interested in contributing to conservation. In short, the chart above shows that frog watching is one of the best nature adventure activities, but it is most often done by nature lovers.

According to this first survey, most of the participants (28.1%) who watched frogs have average knowledge (in their own opinion) about frogs. It also showed that 20.8% had poor knowledge about frogs, while a smaller percentage (15.6%) was found to have good knowledge about frogs (Figure 4.7).

Chart 4.7 Rate of frog knowledge



Analyzing this data further, it shows that the participants in the first survey spent about \$10-\$30 for a 2-hour frog viewing tour (picture 10). It also shows that there is a small percentage of participants who spend around \$30-\$50 for a 2-hour frog viewing tour. Most of them plan to spend \$20-30 and some agree to pay more than \$50 for a 2-hour frog viewing tour.

Chart 4.8 Fee spend for the frog watching (2h)

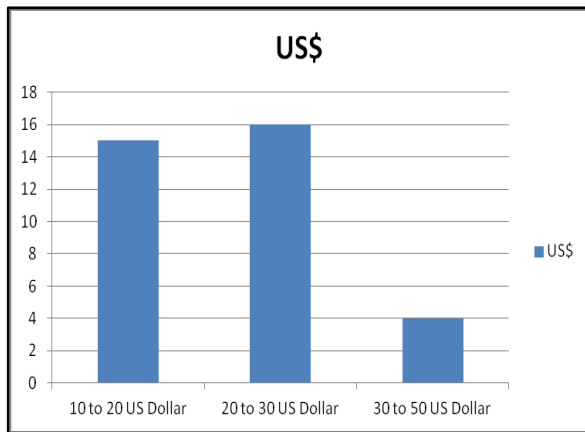
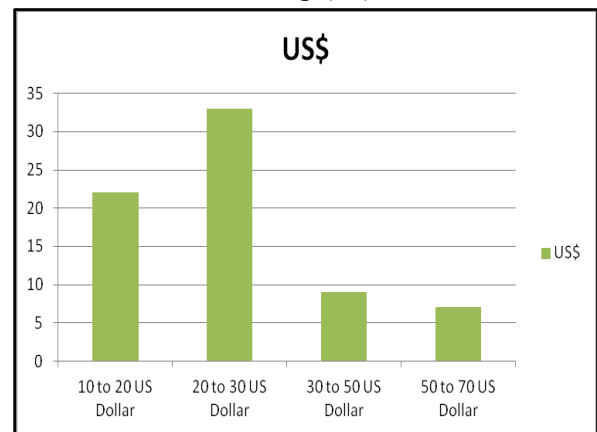


Chart 4.9 Fee planning to spend for frog watching (2h)



The second survey was conducted with 200 guests staying at 5 Jetwing hotels including Nuwara-eliya, Wellawaya, Yala, Sigiriya and Galle. These visitors are from 24 countries including India, Austria, Sri Lanka, United Kingdom, Germany, Norway, Singapore, Bhutan, Japan, USA, Australia, New Zealand, Mexico, Russia, Singapore, Switzerland, Lithuania, Sweden, Chile, Norway, Argentina; which represents six continents: Africa, Asia, Australia, Europe, North and South America.

A valuable part of this project is conducting a survey to obtain feedback from clients (guests) currently engaged in ecotourism activities to gauge their interest in frog watching. The survey was conducted at Jetwing St. Andrew's Hotel - Nuwara Eliya; Hotel Jetwing Kaduruketha - Wellawaya; Hotel Jetwing Vil Uyana - Sigiriya, Hotel Jetwing Yala - Yala and Hotel Jetwing Lighthouse - Galle.

After analyzing the data from the 2nd survey, the majority of participants were male (54.9%) and 45.1% were female (Figure 4.10). Most participants are in the 25 to 34 age group (28%), while 24% are in the 45 to 54 age group. 18.3%, (Figure 4.11).

Chart 4.10 Participant according to Gender

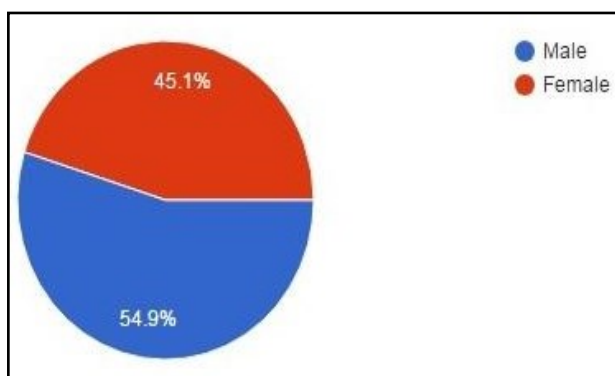
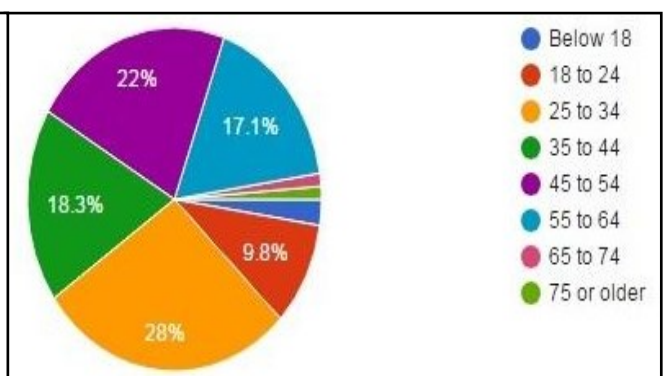
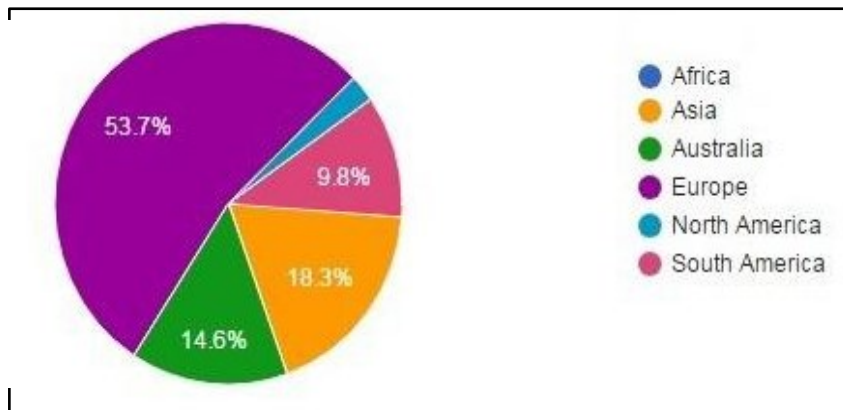


Chart 4.11 Participant according to Age



According to the first survey, the majority of people who watch frogs are Europeans, while North Americans and Asians also show the same but slightly lower interest in watching frogs. South America who participated in the first survey showed the least interest in watching frogs compared to other continents. The second survey also showed that the majority of participants (53.7%) came from Europe (Figure 4.12). This means that most visitors to this hotel should focus on frog spotting.

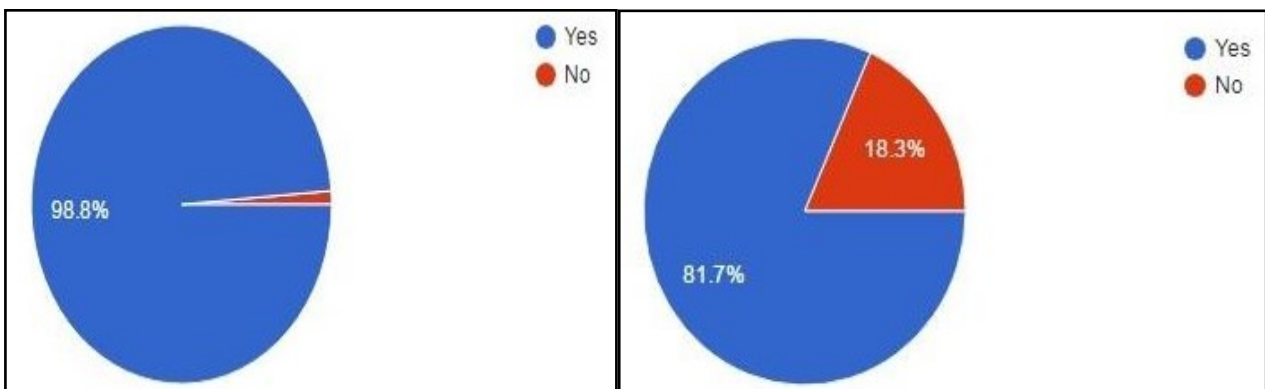
Chart 4.12 Participant according to Continents.



The data from the 2nd survey clearly shows that almost all people who participated in the survey (98.8%) have an interest in nature (Figure 4.13). There are also many participants (81.7%) who like to walk in nature and at night. However, about 18.3% of the participants in the second survey did not like walking in nature at night (Figure 4.14).

Chart 4.13 Participant Interest in nature.

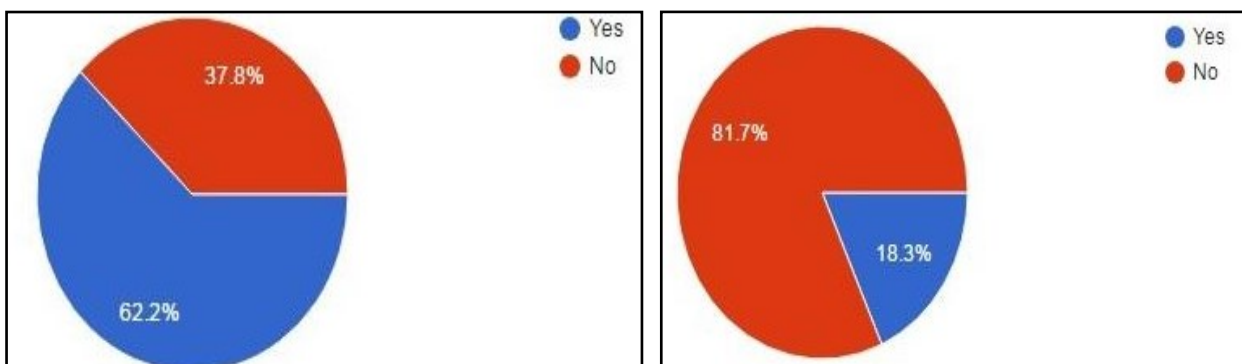
Chart 4.14 Participant Interest in night walks



The analysis of the second survey showed that the majority of guests (62.2%) in the Jetwing premises are interested in frogs, but 37.8% apparently have little or no interest in frogs (Figure 4.15). Also, 18.3% of participants are afraid or uncomfortable with frogs (Figure 4.16).

Chart 4.15: Participant interest in frogs.

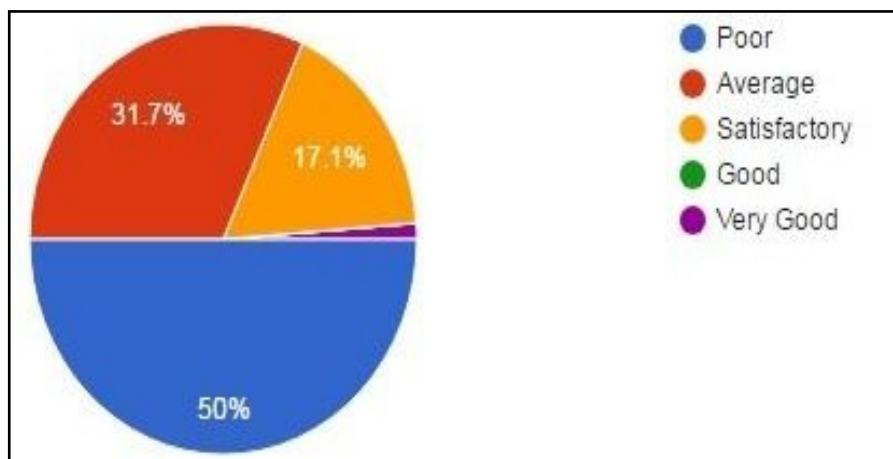
Chart 4.16 Participants uncomfortable/scared of frogs



The second survey showed that although most of the participants were nature lovers, most of them did not want to participate in frog watching. Although 40.7% do not like to participate in frog viewing, 59.3% like to do it. Only a few of these participants had ever taken a frog-seeing tour before (7.3%), so most participants (92.7%) had no direct experience. from the frog's eyes.

Data analysis from the 2nd survey clearly shows that their knowledge about frogs is very poor (50%) and there are only a few people (1.8%) who have very good knowledge about frogs. Other people only have average knowledge (31.7%) and satisfactory knowledge (17.1%) about frogs (Figure 4.17).

Char 4.17: Participants' knowledge on frogs



5.0 Conclusions & Recommendations

After an initial online assessment of visitors who had previously seen frogs, there was interest in visiting Sri Lanka to observe frogs. Frog watchers also enjoy doing other nature activities and prefer to watch frogs with family and friends as a group activity. According to internal guest ratings, 59.3% indicated that they were interested in participating in the frog viewing tour. According to the survey, it clearly shows that Sri Lanka has great potential to promote frog watching as a unique ecotourism activity.

According to the frog diversity study of five selected Jetwing hotels, the highest number of species was found at Jetwing St. Brother Andrew. There are about 10 species that are commonly found in the Jetwing St. Andrews and 8 of them are endemic to Sri Lanka, most of which are confined to the mountains. Jetwing Yala headquarters is home to 9 species and Jetwing Kaduruketha, Jetwing Vil Uyana and Jetwing Lighthouse are home to 8 species of frogs in each of their locations. The results of this research lead to the proposal of the frog viewing route in the five precincts of the selected Jetwing hotel. Man-made wetlands, ponds, bushland, fields, etc. can be used to develop the sight line of frogs.

Watching frogs is an ecotourism activity that contributes to the conservation of frogs as well as the generation of livelihoods. As a result of generating income for local residents, this activity will convince them to protect their habitat. For example, they will stop using pesticides for agriculture and also stop deforestation because it will severely affect their frog population. If they use pesticides and deforestation, it will negatively affect their ability to generate income when they see frogs in their home gardens. Ultimately, this sustainable project will pave the way to protect natural habitats and provide more man-made habitats for frogs and directly help conserve these creatures.

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