

Conservation of Spot Billed Pelican in North Central and Central provinces of Sri Lanka

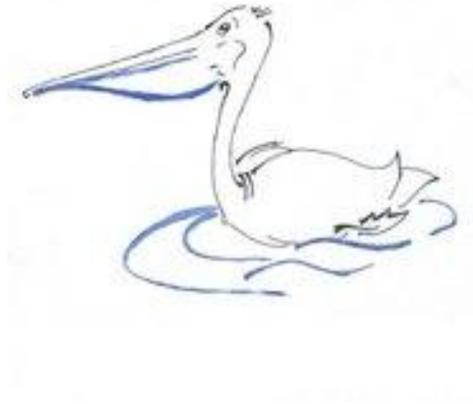


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Eco Friendly Volunteers (ECO-V)

Sri Lanka

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Final Report of project Pelecanus 2003

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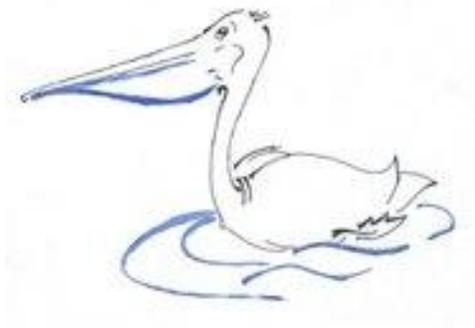
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Project Pelecanus 2003

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Executive Summary (English)

Spot-billed Pelican became a candidate for the IUCN Red Data list in 1988 and it is the second pelican of the world to become threatened. The Known breeding populations of SBP are now confined to India (c.2000 birds) Sri Lanka (500-3000 birds) and Cambodia (more than 5000 birds around Tonle Sap Lake). However the situation of Spot-billed Pelicans in Sri Lanka is more poorly documented.

There were no systematic studies carried out in Sri Lanka on this globally threatened bird species. The present study is the first ever systematic field study and awareness programme carried out on the Spot Billed Pelicans in Sri Lanka.

Although the Pelicans were seen among the fresh water man made tanks in Sri Lanka, for most of the people it's a very rare bird and also nobody knows the bird by the name "Pelican". The overall objective of the project was to find out the distribution of Spot-billed Pelican in North Central & Central Provinces of Sri Lanka where there were many man made tanks presented and also to create awareness on this globally threatened bird species among the general public. The study was carried out from January 2004 to December 2005. Pelicans were counted using scan sampling method in the tanks and at roosting places using 8x40 binoculars. By conducting the initial survey and referring the past filed records, Nuwara Eliya and Kandy districts were omitted from the study due to lack of records of Pelicans.

Out of 822 tanks surveyed, Pelicans were recorded in 732 tanks. Ninety tanks were covered with vegetation (aquatic species) where no Pelicans were observed. More than 50 birds were recorded at a time only in 13 tanks. However, thirty three tanks were identified as frequent habitats of SBP where pelicans were observed at any time of the year. There were no breeding habitats observed during the study however, Mahakandarawa Tank in Anuradhapura District and “Bethkewa tank” in Polonnaruwa District were the two suspected breeding habitats according to the information given by villagers and wildlife officials.

Hunting for meat, vanishing of tank habitat (due to human caused factors and invasive plant species), disturbances to feeding, roosting and breeding were the identified threats.

Awareness component became the most important and the effective part of the whole project. People showed a great enthusiasm towards more unknown facts about the bird in the vicinity of their daily routings. Therefore, 38 lectures, 11 workshops, 4 youth camps, 9 exhibitions were organised and 6 News paper articles, 5 Television programmes and 7 Radio programmes were produced during the study period.

Two Research and Information centres were established with the help of the largest NGO in Sri Lanka and they are still functioning as permanent libraries for the local community.

Conclusions and Recommendations

The distribution of Spot-billed pelicans is confined to the dry zone of Sri Lanka. The water level, density of aquatic plants in the water surface and fishing activities of the local fishermen, are the factors affecting the distribution of SBP in the area. Lack of awareness (increases human caused threats), hunting and invasive aquatic plant species are major threats within the study area.

Kokilai Lagoon in the Northern Province should be categorised as Important Bird Area (already suggested for the IBA Sri Lanka Programme).

More awareness is recommended not only about Pelicans but also on other aquatic birds and their habitats. Government attention towards tank habitat is highly recommended as tank habitat is vanishing rapidly.

Organisational Profile

Eco friendly Volunteers (ECO-V)

Eco Friendly Volunteers (ECO-V) is a voluntary organization which has been involved in conducting scientific research and creating awareness on Environmental Conservation in Sri Lanka. ECO-V started in 2001 by Kanchana Weerakoon after winning a Rufford Small Grant from Whitley Fund For Nature, UK (Former Whitley Laign Foundation). Today it has a membership of more than 400 in different part of Sri Lanka and working on different projects. Conservation of Globally threatened Spot-billed Pelican, Conservation of 23 Natural Springs and Conservation of Peak Wilderness Sanctuary are ECO-V's main projects.

ECO-V conduct school lecture, exhibitions, workshops and seminars on various environmental issues for different stakeholders and organize monthly meetings and field trips for its members. Today ECO-V is a registered Voluntary organization in Sri Lanka and working towards a better environment by creating environmental consciousness among the individuals in the society.

ECO-V started the pilot project for Pelicans in Sri Lanka in 2002 with the financial support of the Oriental Bird Club UK and now it has become one of the main projects focusing on all over Sri Lanka. This is the first time a detail scientific project is initiated

for Spot-billed pelicans in Sri Lanka. where most of the people do not know the name for the bird, where it comes from, their habitats or the current population estimation. Due to the lack of awareness people kill them for meat and do not care for their habitats. Their survival is highly dependent on the community who lives around the man made tanks, estuaries and lagoons of the country especially fishermen, villagers and security forces. Stakeholders like Buddhist priests, hoteliers, school principles and government agents can directly participate in the conservation of this charismatic species. As a short term conservation action ECO-V identified and mapped their feeding, breeding and roosting habitats within six districts of the country. Creating awareness among stakeholders and especially among the school children, and forming pelican friendly youth teams in villages will be a long term conservation action for safeguarding the current population that could lead to increasing the population density.

Team Members

Kanchana Weerakoon	-Team Leader/Ornithologist
Harsha Athukorala	-Field researcher
Chandralal Kumara	-Treasurer/Ecologist
Sujani Premawardane	-Field researcher
Sudarshi Perera	-Field Researcher
Akila Shanaka	-Field Assistant
Prabhashini Amarasinghe	-Field Assistant

Acknowledgements

ECO-V would like to thank Dr. Nigel Collar of Birdlife International for his encouragement and identifying priorities for the project. Sincere thanks goes to Conservation Leadership programme (Former BP Conservation programme) and Whitley fund for Nature for granting us funds for the project. Thanks are due to Prof. Sarath W. Kotagama of Field ornithology Group of Sri Lanka for his continuous support and advices in making our surveys feasible. Sincere thanks to the Department of Wildlife Protection for granting us permission for the surveys. We are always grateful and pay respect to the Sri Lanka Army, Particularly The Army Commander for granting us permission to enter the war toned areas, Brigadier Sanath Karunaratne, Col. Udayantha Wijeratne of 224 Brigade, Col. Anura Perera of 223 Brigade, Late Col. Gunaratne, Col. Sarath Thenne, Major Nawaratne Banda, Col Bonifes Perera of ITC Minneriya, Col. Ekanayake, and many other officers and soldiers of Welioya, Kokilai, Kokkuthudai, Janakapura, Ethawetunuwewa army bases for their unbelievable commitments and enthusiasm towards nature protection, providing us security, and information on Pelicans.

Sincere thanks go to the Sarvodaya District Coordinator Manel Kulathunga and Nanayakkara for their commitment and enthusiasm towards the project and with out his support establishing the research and Information centres would have been a dream.

We are grateful to the Nuwara Wewa Rest house for providing us accommodation and food free of charge during our field studies and also for giving us opportunity to organise an exhibition, and sales outlet within the rest house premises.

We are always grateful to all volunteers who joined us during the field work and who provided us information on pelicans by post and telephone. The National TV and Radio Channels and News papers in Sri Lanka who helped us to create awareness Island wide are always remembered with great appreciation.

Lastly we would like to thank all ECO-V members for their commitment and encouragement given through out the project.

Abbreviations

SBP	–	Spot billed Pelican
ECO-V	–	Eco Friendly Volunteers
ERIC	–	ECO-V Research and Information Centre
FOGSL	–	Field Ornithology Group of Sri Lanka
SL Army	–	Sri Lanka Army
DWLC	-	Department of Wildlife Conservation
CLP	-	Conservation Leadership Programme

1. INTRODUCTION

1.1 Pelicans of the world

Pelicans belong to the Family Pelecanidae in the Order Pelecaniformes are one of the most distinctive birds of the world. Genus *Pelecanus* comprise of seven species with large body with long, heavy bill and a voluminous distensible pouch. They could be found in all regions except Antarctic. (del Hoyo et.al 1992). All seven species in the world could be divided into three groups (Table 1) and these can be found in all aquatic habitats both costal and inland.

Group	Scientific Name	Common Name	Distribution
Large birds nest & roost on ground	<i>P. onocrotalus</i>	Great White Pelican	Europe, Africa
	<i>P. crispus</i>	Dalmatian Pelican	Yugoslavia to China
	<i>P. conspicillatus</i>	Australian pelican	Australia, Tasmania
	<i>P. erythrorhynchos</i>	American White pelican	N. America
Smaller birds nest & roost on trees	<i>P. philippensis</i>	Spot-billed Pelican	S. Asia
	<i>P. rufescens</i>	Pink-backed Pelican	Africa
Plunge-dive for food	<i>P. occidentalis</i>	Brown Pelican	America (Coastal)

Table 1 Pelicans in the world

Pelicans are among the heaviest flying birds. The largest pelican is Dalmatian Pelican and the smallest is Brown Pelican (del Hoyo et.al, 1992). The unique feature of the pelicans is the bill along with the extensible pouch where they use it for catching and also for transporting of food for the nest. Most pelican species are highly gregarious as they breed in colonies, show communal feeding and flying in flocks.

1.2 Spot Billed Pelican - *Pelicanus philippensis*

Pelecanus philippensis is a bird with a length of 152cm and it has a long neck, a long wing and short legs. Lower mandible of its long flattened bill has a pouch made up of very elastic skin. Its bill is pale yellowish fleshy with blue black spots on each side of upper mandible and pouch is pale fleshy with bluish grey spots. A bare skin around eye is purplish grey or dusky flesh. Plumage somewhat sullied white with lower back rump flanks and under tail coverts greyish pink. Primaries and their coverts are brownish-black and secondaries are brownish-grey. In juvenile the wing coverts are brownish grey the pinkish tinge on back flanks etc. is absent and the beak facial skin and feet are pale yellowish fleshy.



Figure 1 Spot-billed Pelicans in its usual fresh water man made tank habitat

1.3 Habitat of Spot-billed Pelican

It inhabits a variety of deep and shallow wetlands either at man-made and natural, freshwater, saline, open and forested habitats. It breeds colonially in tall trees or palms and feeds in open water, primarily on fish. Some populations appear to be sedentary (BirdLife International, 2007).

1.4 Status and Conservation of Spot billed pelicans

Spot-billed Pelican is known to be first recorded in Philippine Islands and has been named by Gmelin (1789) and was first recorded in India over a century ago (Blyth 1844, quoted by Lamba 1963, in Riyazuddin 1994). It was formerly common across much of Asia. However it has suffered a widespread decline in the recent past, such that in 1997 its population was estimated at 11500 birds with fewer mature individuals. Known breeding populations are now confined to India (c.2000 birds) Sri Lanka (500-3000 birds) and Cambodia (more than 5000 birds around Tonle Sap Lake). It probably breeds in small numbers on Sumatra, Indonesia, but probably no longer breeds in Myanmar. There are recent records of wanderers from these populations in Myanmar, Nepal, Thailand, Laos, Vietnam and Philippines but no longer occur in China (Collar et.al 2000).

“Like many large birds, Pelicans are in a state of decline all over the world” (del Hoya et.al, 1992). It became a candidate for the IUCN Red Data list in 1988 and it is the second pelican of the world to become threatened (S. Riyazuddin 1994 Mayura vol.II). Spot-billed Pelican was stated as vulnerable (IUCN, 2006). According to the Asian Red Data

book on birds (BirdLife International, 2001), the condition in Sri Lanka is much better when compared to the other countries but a concerted effort is required to monitor population trends, safeguard remaining colonies and control hunting, habitat and population of this bird in Sri Lanka (BirdLife International, 2001). However the situation of Spot-billed Pelicans in Sri Lanka is more poorly documented.

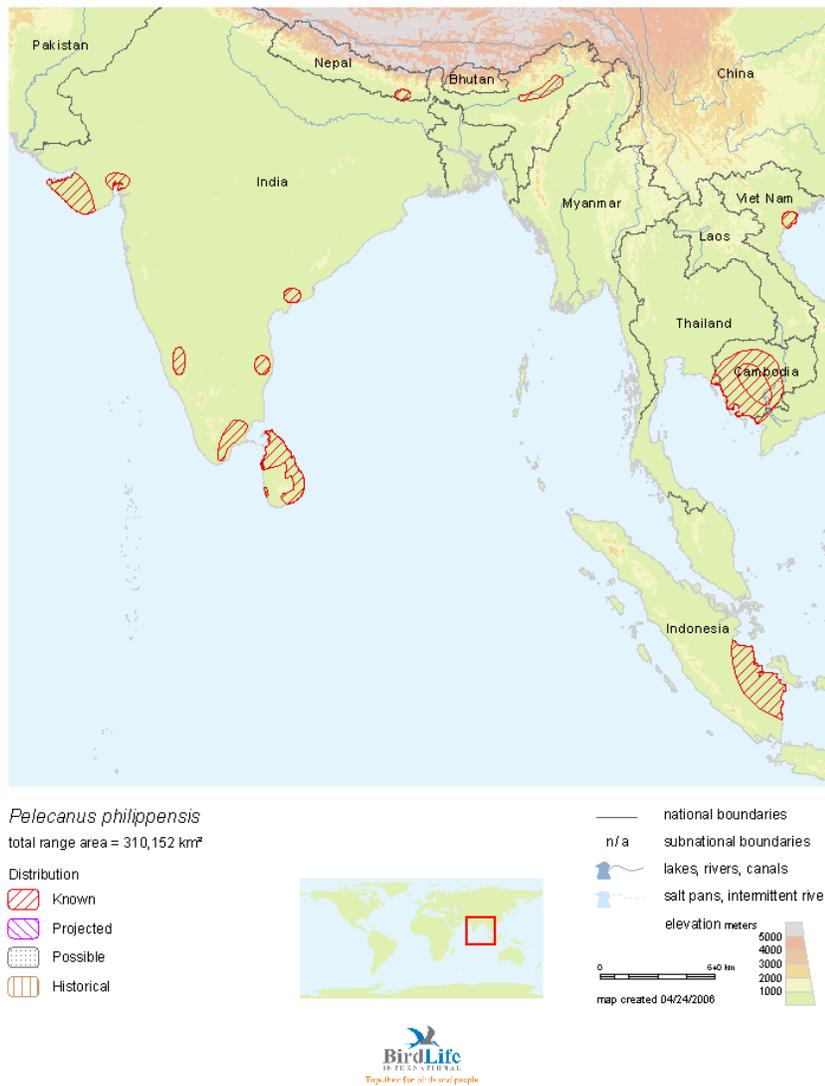


Figure 2 Global Distribution of Spot-billed Pelican
Source BirdLife International (2006)

1.5 Justification

There were no systematic studies carried out in Sri Lanka on this globally threatened bird species. Field observations done by different bird watchers had given an idea of distribution and numbers but lack of reliable data handicapped taking the conservation actions within Sri Lanka. The pelicans counted during the Asian Waterfowl census were recorded from the Southern part of the country and no such counts for the North of Sri Lanka. The present study is the first ever systematic field study and awareness programme carried out on the Spot Billed Pelicans in Sri Lanka.

2. OBJECTIVES

Although the Pelicans were seen among the fresh water man made tanks in Sri Lanka for most of the people it's a very rare bird and also nobody knows the bird by the name "Pelican". Therefore the objectives were set prioritizing the importance of creating awareness among the public.

The overall objective of the project was to find out the distribution of Spot-billed Pelican in North Central & Central Provinces of Sri Lanka where there were many man made tanks were present and also to create awareness on this globally threatened bird species among the general public.

2.1 Specific Objectives

1. To identify the breeding, feeding & roosting habitats in North Central Province and the Central Provinces in Sri Lanka.
2. To produce a distribution map in the above provinces
3. To find out threats they face
4. To take action to conserve this threatened bird
5. To create awareness among the community
6. To conduct further research island wide taking this as a pilot project

3. METHODOLOGY

A detail study on the Spot-billed pelicans in the North Central and Central Provinces of Sri Lanka was carried out from January 2004 to December 2005. As the study was mainly aimed at finding out the information on habitats and creating awareness among the community, following four methods were adopted for data collection.

1. Reference of past publications
2. Public survey using a questionnaire
3. Scan sampling method
4. Awareness Campaigns

3.1 Reference of past publications

Many ornithologists have observed SBP in the dry zone of Sri Lanka. Therefore these records were used as baseline data to initiate mapping the localities. Once the past records which were available at ARDB programme at FOGSL were referred all the localities within the study area were marked on Topography maps of Sri Lanka (1:50,000). In addition to those records all the possible water bodies such as man made tanks, villus (Seasonally inundated with water) and lagoons were marked for possible habitats. All the habitats marked on the topo-sheet were visited using a motorbike during the study period to record the presence of SBP.

3.2 Public survey using a questionnaire

A questionnaire was prepared to discover the available information from public living around the tanks and other possible habitats marked on the Topo-sheet. An enlarged flying and swimming photographs of Pelicans were used in the survey as most of the villagers did not know the bird by name.

3.3 Scan sampling method

Pelicans were counted using scan sampling method (Martin & Bateson, 1993) in the tanks and at roosting places using 8x40 binoculars. When the water body was large inland fisherman boats were used to reach the middle of the water body and to count the birds.

3.4 Awareness Campaigns

Informal (face to face talks, on site speeches at the tanks) and formal awareness campaigns (Lectures, workshops, exhibitions) were organized for the villagers whenever possible. All possible schools in the study area were visited and organized awareness programmes with the permission of the school principles. Awareness programmes for military personal were organized with the permission of the commander of the area or the base camp in the forms of residential workshops, exhibitions, lectures and film shows.

Electronic media campaigns in different channels of Television and Radio were conducted as live interviews with the team leader, or recorded programmes or short duration media clips through out the study period. Articles were published in different News paper and magazines of Sri Lanka.

5. STUDY AREA

The ecology of Sri Lanka mainly depends on the availability of rainwater. The mountains and the south-western part of the country, known as the "wet zone," receive ample rainfall (an annual average of 250 centimetres). Most of the southeast, east, and northern parts of the country comprise the "dry zone, which receives between 1200 and 1900 mm of rain annually.

The current study was conducted by selecting two provinces belonging Wet Zone and Dry Zone which included five districts (Anuradhapura, Polonnaruwa, Matale, Kandy and Nuwara Eliya).



Figure 3 Major climatic zones of Sri Lanka
Source Wikipedia.com (2007)

5.1 North Central Province of Sri Lanka

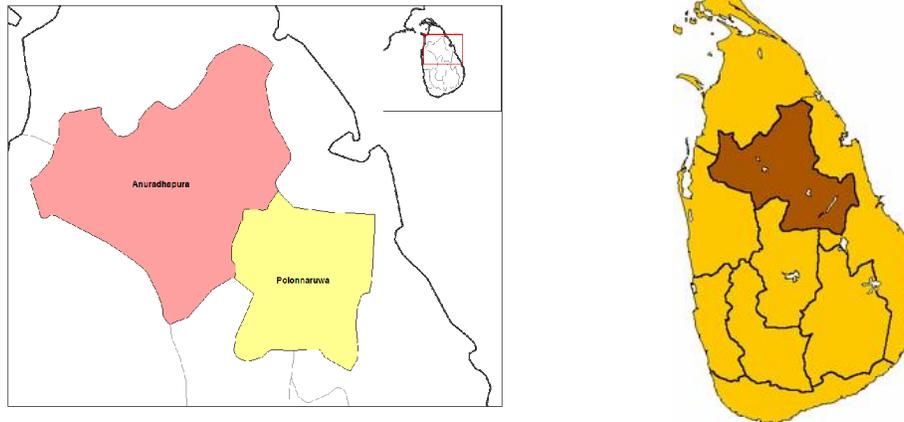


Figure 4 Map showing the North Central Province and the two Districts

Source Wikipedia.com (2007)

North Central Province belongs to Dry Zone and consists of many man made tanks. Anuradhapura and Polonnaruwa are the two districts in this province and these two districts were ancient kingdoms of Sri Lanka where the people depended on agriculture. Both districts belong to the dry zone of Sri Lanka. Therefore many tanks built by ancient kings who ruled the area are still used for irrigation and are the main source of water for the community in the area. Some of these tanks were full of vegetation (water plants and invasive species) due to poor maintenance but larger tanks which are under Maheweli development programme are well maintained. Today, people use these tanks for fishing, bathing, washing, agriculture and as a drinking water source. Many Aquatic birds could be found in these tanks and the surrounding forest patches that are the catchment areas for the tank.

4.2 Central Province of Sri Lanka

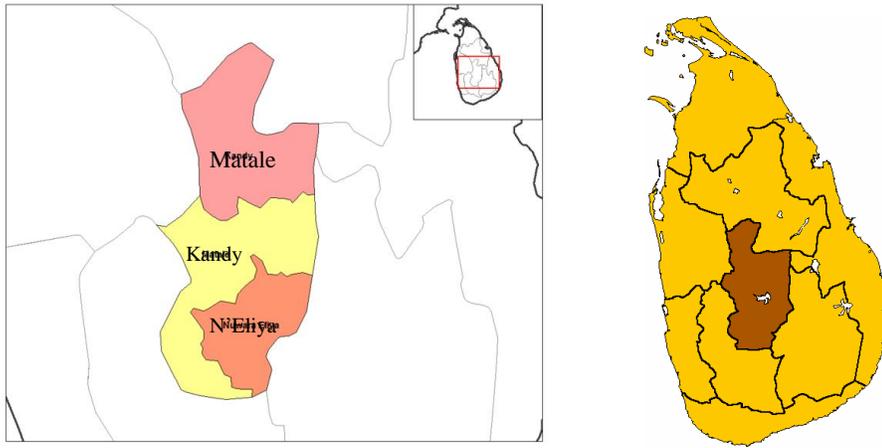


Figure 5 Map showing the Central Province and the three Districts

Source Wikipedia.com (2007)

There are three districts in the Central Province of Sri Lanka where two districts belong to the Wet Zone (Kandy and Nuwara Eliya) and the other (Matale) belongs to both Wet Zone and Dry Zone. Therefore compared to North Central Province, only few man made tanks were available in this province.

5. RESULTS

5.1 Habitats of Spot billed pelicans in North Central and Central Provinces of Sri Lanka.

Total of 822 tanks were surveyed within 3 districts during the study period. The tanks mapped on the national Topo sheet were surveyed except some tanks which were not able to found following the roadmap. 90 tanks were covered with vegetation (aquatic species) where no Pelicans were observed (Table 2).

District	No of Tanks Surveyed	Covered with vegetation	Less than 10 SBP	Between 10-20 SBP	Between 20-50 SBP	Over 50 SBP
Anuradhapura	593	78	491	13	2	9
Polonnaruwa	213	12	195	2	0	4
Matale	16	0	13	2	1	0
Mullative	5	0	4	1	0	0

Table 2 Tanks surveyed at each District and number of pelicans observed

5.2 Distribution of Spot-billed pelicans in North Central and Central Provinces

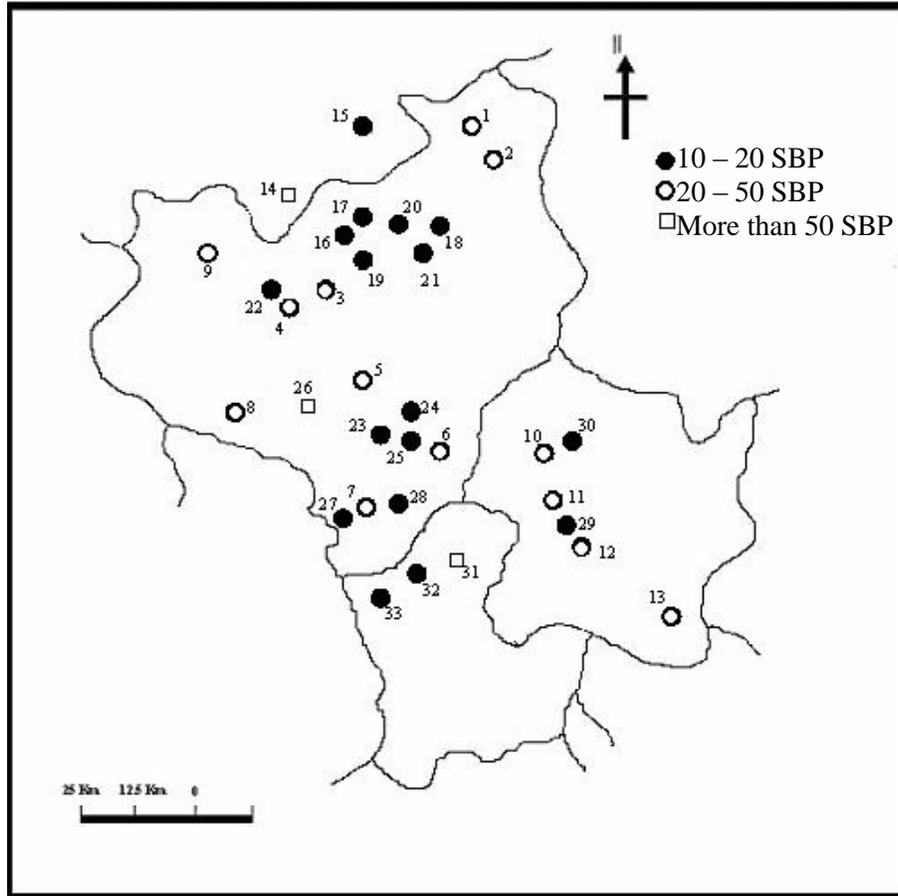


Figure 6 Main tanks in three districts where Pelicans were observed during the study (Annex 1 for tank names)

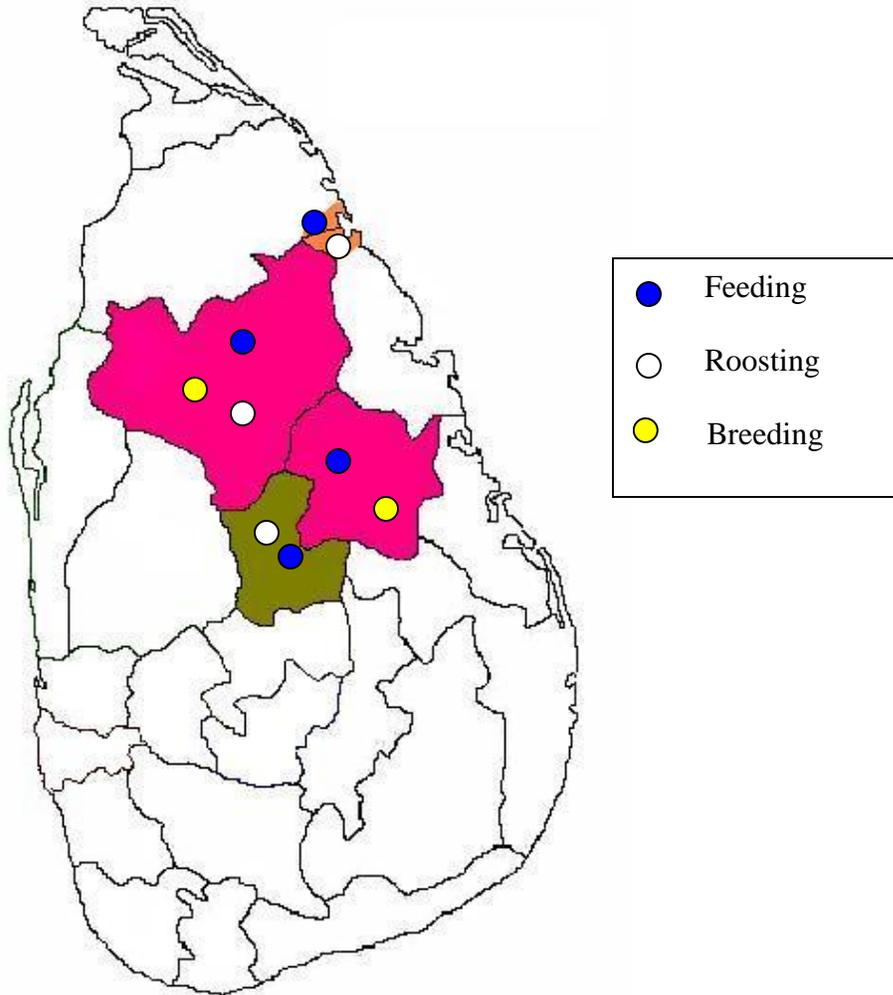


Figure 7 Identified Pelican habitats in the study area

5.3 Awareness Programme

Awareness was carried out in the form of lectures, workshops, exhibitions, youth camps within the districts where survey was conducted. Electronic media programmes and paper articles were also produced which created awareness Islandwide.

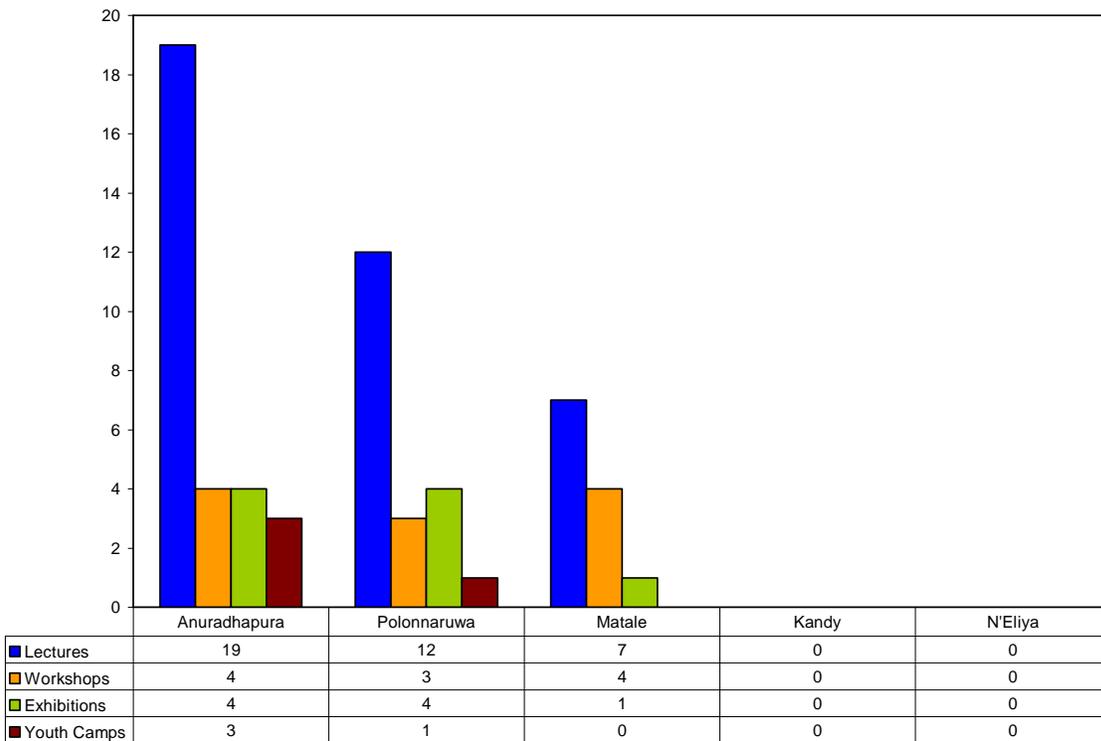


Figure 8 Number of awareness programmes carried out within the study area

Type of programme	Public	Schools	Military forces	Hoteliers	youth
Lectures	Over 15	Over 25	8	2	4
Work shops	3	3	1	1	3
Exhibitions	4	4	2	1	4
Environmental camps			1		4
Posters	Over 500	Over 300	Over 400	Over 100	Over 100
Leaflets	Over 2000	Over 1000	Over 1000	Over 100	Over 100
Stickers	Over 200	Over 300	Over 200	Over 100	Over 100
News paper Articles	6				
TV Programmes	5				
Radio Programmes	7				

Table 3 Type of awareness programme and the target groups within Sri Lanka

5.4 Erecting Bill boards

Three bill boards highlighting the importance of the Spot billed pelican and its habitat were erected at the entrance to the Kebithigollawa tank (Anuradhapura District), Parakrama Samudraya and Sarvodaya District centre in Polonnaruwa (Polonnaruwa District).



Figure 8 Bill- boards which contain information of Spot-billed Pelicans (erected at two tanks where pelicans were present).



School Children



Fishermen



Sri Lanka Army



Hoteliers

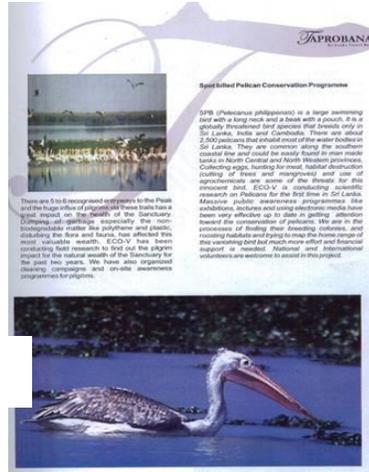


Buddhist priests

Figure 9 Awareness programmes for different stakeholders



Formation of Friends of Pelican Groups



Magazine articles



Tree planting campaigns



TV programmes



T-shirts



Tank visits



On site awareness



Youth camps

Figure 10 Various activities undertaken during the project

5.5 ECO-V Research and Information centres (ERIC)

Two ECO-V Research and Information Centres (ERIC) were established in collaboration with Sarvodaya District Centres Kebithigollawa and Polonnaruwa. Environmental books, periodicals, journals, collection of Newspaper articles on Nature and research findings were readily available within these centres. People who were interested on Nature could come and use the place as a reference library. Many of the school children visited these places frequently as this was the first ever facility available for the local community in the areas. ERIC at Kebithigollawa was situated at the vicinity of the Kebethigollawa tank where few pelicans were observed periodically. A government owned forest reserve was also situated close to the ERIC and few nature trails were established within the forest patch where visitors could enjoy nature and learn the bio-diversity of the area. All the tree species were identified and named with permanently attached metal boards. Checklists of birds, butterflies and other animals were printed and kept available at the ERIC for the use of the visitors. A collection of traditional equipments used for organic farming in ancient Sri Lanka was available at the Sarvodaya centre which provided additional information about the environmental friendly life style.

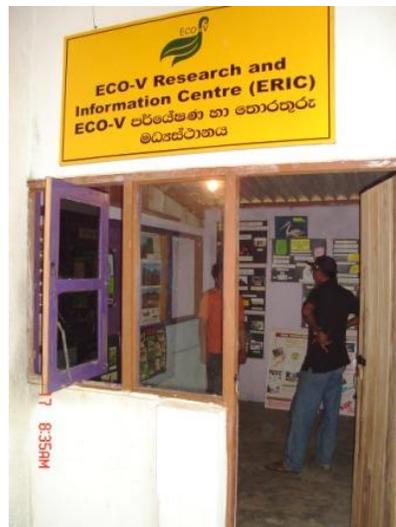


Figure 11 ERIC at Polonnaruwa

5.6 Publishing leaflets, stickers, T-shirts and posters



Figure 12 T-Shirt with the cartoon image of a Pelican

A Leaflet containing all the available information on Spot Billed Pelican was published in Sinhala and English languages and distributed among all the participants during the awareness programmes. A colourful poster printed in Sinhala language with photographs of SBP was also distributed among the schools and displayed in the public places within the study area.

T-shirts, caps and stickers with a message of SBP were printed and sold as a fund raising event and some were given free of charge according to the situation.

5.6 Video film on the Pelecanus 2003

A 8 minute documentary film on SBP habitats and activities of ECO-V Pelecanus 2003 project was produced and showed it during the awareness programmes.

6. DISCUSSION

Initial survey using the toposheets and past field records was done in all five districts in the two provinces. According the results of the initial survey, only three districts (Anuradhapura, Pollonnaruwa and Matale) were selected for further surveying and for creating awareness.

Due to the immense support given by the Sri Lanka Army, the study team did able to visit the Mullativ District in Eastern Province of Sri Lanka which is out of the study area. Many awareness activities were carried out in these areas according to the request of Army and it was the first time a research team had visited the area since the war started in Sri Lanka.

6.1 Distribution of Spot-billed pelican

According to the past field records, pelicans were distributed only in the dry zone of Sri Lanka. The selected three districts were also belonging to the dry zone (Except part of Matale). Only one Pelican was present in the “Bogambara tank” in Kandy District who was introduced to the tank long time before. Other than this introduced individual, no pelicans were recorded in Kandy and Nuwara Eliya districts. Therefore Pelicans were distributed in three out of five districts within the study area (Figure 6).

6.2 Feeding habitats

Out of 822 tanks surveyed, Pelicans were recorded feeding in 732 tanks. The recorded number in these tanks was mostly less than 10. However, 33 tanks in all three districts were identified as frequent feeding habitats (Figure 6). More than 50 birds during one sampling period were recorded in 13 tanks (Table 2). According to available literature (Henry 1955, BirdLife International, 2001) Pelicans show internal migration. This was clear during the current study. Availability of food, disturbances by fishermen and the water level of the tank may be the reasons for the mobility of pelicans within these districts. Evidence was found that they migrate between Minneriya Tank in Polonnaruwa District and the Mahakanadarawa tank in Anuradhapura District for feeding within the same day where the air distance is around 52 km.

6.3 Roosting Habitat

Three roosting habitats were observed in Anuradhapura and Polonnaruwa Districts. All these habitats were far away from human habitation and usually more than 20m high from the ground. The tree species used as roosts were Banyan (*Ficus bengalensis*), *Ficus religiosa* (Bo), Tamarind (*Tamarindus indicus*) and Kumbuk (*Terminalia arjuna*) situated close to tank habitats. One roosting habitat was observed in Mullativ jungle about 10km away from the Kokilai lagoon in Northern Province. Usually Herons, Cormorants, Egrets, Painted storks and Open billed storks were observed sharing the

roosting habitat with pelicans. The observed number in one roosting habitat varied among 3 - 20 within the study area.

6.4 Nesting Habitat

Successful breeding habitats were not found during the study period but some juveniles were observed within the study area after the breeding months (March to July). Two places were identified as suspected breeding colonies. Mahakandarawa Tank in Anuradhapura District and “Bethkewa tank” in Polonnaruwa District were the two suspected breeding habitats according to the information given by villagers and wildlife officials.

6.2 Threats for Pelicans and its habitat

6.2.1 Invasive Plant species

Out of 822 man made tanks surveyed, 90 tanks were covered with vegetation and no Pelicans were recorded there. According to villagers they have seen some Pelicans in some of these tanks long time ago but not observed recently. Almost everybody knew that tank habitat is vanishing due to fast growing plant species (They have no idea about the alien invasive species). Only small area of the water surface close to the land was cleared by the people for bathing and washing. However pipe born water supply provided by the development projects of the government has done a significant difference to the

habit of using the tank water. People who have used the tank water for bathing, washing and drinking have given up using the tank since pipe born water is more clean and convenient to use. Since the water is not largely used, people do not see a reason for cleaning the tank and this has lead reducing the feeding and breeding habitats for many aquatic birds in the area.

Therefore Pelicans who depend on fish may have aggregated in the main tanks which were not covered by vegetation. This may increase the competition for food between Pelicans and fishermen which ultimately cause threat for Pelicans.

6.2.2 Hunting

Almost all the animals in Sri Lanka are protected by law except few species who are pests to the cultivation. Hunting animals is clandestine but still not commonly reported. Somehow the study team was informed about hunting water birds for meat within the study area. It was reported that people who were not having weapons were climbing the trees in the evening and catching the birds from the roost or from the nests and strangle them to death. Asian Open bills, Cormorants and Egrets were the common targets for this method. Eggs were also collected by the villagers for food and we were told that eggs of Cormorants had been collected for a medicinal value. Hunting Pelicans at both provinces was reported. Many fishermen have done it as an additional source of food and few have complained Pelicans been killed to reduce the competition for fish. It was discovered selling Pelican and some other stork meat in front of a main tank in Anuradhapura

District. Later this was stopped after reporting to the government officials. Many fishermen who have killed the pelicans accepted that they would have not killed them if they would have known about Pelicans. They all had thought, pelicans were migratory birds and had not seen any harm of killing them before going back. Therefore lack of awareness would be the main reason for Pelicans being hunted.

A woman (a wife of a fisherman) was volunteered to describe the method of killing and cooking the Pelican soon after one of the awareness programmes. It was also reported killing of more than 100 cormorants at Kokilai lagoon and supplying the meat for a wedding ceremony as bites to serve along with liquor.

6.2.3 Fishing Activities

Though there were regulations for fishing activities to maintain the sustainability of the tank habitat and the tradition, there are few people who were breaking such traditions and rules. Fishermen were not allowed to fish during night, using artificial nets, or by making more powerful noises. However all these illegal methods were reported during the study. The main malpractice which mostly disturbed pelicans was making powerful noises. Fishermen beat the water by a stick while going around the laid net and it made a powerful noise. The pelicans and other birds who were feeding on the edges or at a different part of the tank were observed flying away soon after the fishermen started this method. This may possibly reduce the feeding time for the water birds and it may affect the chicks if available. It was observed in few occasions when fishing was done using this

method, pelicans flying away and landing other side of the tank but some of them flew over and never came back during the observation period.

6.3 Awareness programme

Awareness component became the most important and the effective part of the whole project. People showed a great enthusiasm towards more unknown facts about the bird in the vicinity of their daily routings. Therefore the team did able to conduct more programmes not only within the study area but also Island wide (Table 3) and it was a new experience for the remote communities. Volunteerism involved with ECO-V also helped to conduct the awareness programme effectively. Learning about a bird species and its habitat was not a major issue for the people especially they had more other issues like war, poverty, health etc. therefore creating awareness was challenging initially but gradually school children and teachers paid much attention on awareness programmes. Showing any visual (film show or a slide presentation) was more effective in creating awareness but lack of electricity was an obstacle for such effective awareness programmes. Therefore we used the colour photographs and posters and used electronic visuals where ever possible. Having camp fires was effective in creating awareness among the fishermen as all of them were enabled to participate in the night as no inland fishing activities took place during the night. Organising such camps were more challenging when there were threats like elephant attacks, snake bites and trap guns (for wild animals) in the surrounding areas. However two camp fires were organised for

fishing communities in the study area and both were very successful. All the awareness activities were summarised in table 3 and Figure 10.

With the interest showed by the Nuwara wewa rest house; one of the leading rest houses in the Anuradhapura District an information centre on Pelicans was established at their gift shop. Many ECO-V products were sold in this shop including T-shirts, bags, key tags, and stickers with the image of Pelican which helped the project to raise additional funds. The rest house management provided free food and accommodation during the field surveys and gave the opportunity to talk to the visitors every time the ECO-V team stayed at the rest house. This also helped to create awareness Island wide and even among the International community. The Pelecanus 2003 project initiated a programme at the rest house which led the rest house towards eco tourism.

The awareness programme initiated through the project is still continuing with other activities of ECO-V and many school children and two university students conducted projects on SBP with the support (technical and information) of ECO-V.

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8. Budget

Received CLP Funds = US \$ 7500

Expenses	Cost in US \$
Pre Project expenses	
<i>Binoculars</i>	475
<i>Measuring tape</i>	12
<i>Tally counter</i>	11
<i>Survey maps</i>	122
<i>Communication</i>	777
<i>Printing(posters, stickers, leaflets)</i>	820
<i>Photocopy</i>	140
Field expenses	
<i>Living cost</i>	2916
<i>Pelican teams</i>	760
<i>Travel allowances</i>	395
<i>Fuel cost for motor bike</i>	750
<i>Hiring boats /vans</i>	822
<i>Awareness programmes</i>	1200
<i>Photography/film</i>	490
Post Project expenses	
<i>Administration</i>	822
<i>Data compilation & Report production</i>	1970
Total budget	12482
Contingency	1000

