



Wilpattu Protected Area Complex  
Strategic Management Framework  
2017 -2021

Department of Wildlife Conservation





## Strategic Management Framework

2017-2021

## Acknowledgement

Enhancing Biodiversity Conservation and Sustenance of Ecosystem Services in Environmentally Sensitive Areas is a GEF funded project, implemented by the Ministry of Mahaweli Development and Environment and supported by UNDP with the objective of operationalizing Environmentally Sensitive Areas (ESA) as a mechanism for mainstreaming biodiversity management into development in areas of high conservation significance. The project focuses on integrating biodiversity conservation into the mix of diverse land use patterns in environmentally sensitive areas. In this context, the project supports the Department of Wildlife Conservation to effectively mitigate threats emanating from outside the protected areas and create better linkages between wider landscape management and protected areas. Accordingly, this strategic management framework was prepared for Wilpattu protected area complex.

An ecologically sensitive area is tentatively defined as “Landscape/ seascape with a mosaic of mixed land/marine uses that merit special management considerations on account of their high national and global significance based on biodiversity, natural and cultural features and/or ecological functions that warrants its special management in the best long-term interest of people and the environment, as it is particularly susceptible to irreversible negative impacts from mismanagement or overuse. Wilpattu fits perfectly to this definition and having managed this area without a management framework to date, this strategic management framework will now allow formation of management plans and other directives.

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### List of abbreviations

B & B	Bread and breakfast
CBO	Community Based Organizations
CCD	Coast Conservation Department
CEA	Central Environment Authority
CMS	Convention on Migratory Species
DCC	District Coordinating Committee
DFAR	Department of Fisheries and Aquatic Resources
DMC	Disaster Management Centre
DoA	Department of Agriculture
Dol	Department of Irrigation
DoSW	Department of Social Welfare
DS	District/Divisional Secretariat
DWC	Department of Wildlife Conservation
EAM	Ecosystem Approach to Management
EIA	Environmental Impact Assessment
ESA	Environment Sensitive Areas
HAC	Human Animal Conflict
HEC	Human Elephant Conflict
IEE	Initial Environmental Evaluation
IUCN	International Union for the Conservation Nature
MEPA	Marine Environment Protection Authority

MoMDE	Ministry of Mahaweli Development and Environment
MOU	Memorandum of Understanding
NAQDA	National Aquaculture Development Authority
NARA	National Aquatic Resources Research and Development Agency
NGO	Non-Government Organizations
NP	National Park
NPIC	National Program Implementation Committee
PA	Protected Area
PAC	Protected Area Complex
RDA	Road Development Authority
RPIC	Regional Program Implementation committee
UNDP	United Nations Development Programme
VPA	Viable population analysis
WPAC	Wilpattu Protected Area Complex

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## Executive summary

Wilpattu Protected Area Complex (WPAC) in this strategic management framework refers to Wilpattu National Park, Wilpattu North Sanctuary, the proposed Wilpattu Marine sanctuary (which comprise of western boundary of Wilpattu Ramsar site), proposed zone IV for Wilpattu National Park and the periphery of this protected area complex. The strategic framework was prepared using Ecosystem Approach to Management (EAM) model (Staples & Funge-Smith, 2009). Accordingly, a consultative process was conducted and all stakeholders from grass root level to policy makers were contacted and were invited to stakeholder meetings. Methodologies suggested by EAM approach namely Matrix analysis, Venn Diagrams and snow balling were used in identifying the key stakeholders of WPAC. The interactions, their intensity and the type of interaction (positive, negative, neutral) were analysed. The results were used in identifying the management structure of the proposed strategic management framework as well as key stakeholders that can assist Department of Wildlife Conservation (DWC) in implementing the strategic framework. Similarly, threats and issues of the WPAC and the peripheral areas were collected using published data, information from the DWC and stakeholder consultation. Threats and issues were analysed using matrix analysis. The proposed strategic management framework was prepared considering the prioritised threats and issues.

The strategic management framework under the vision of “Wilpattu: A thriving Protected Area Complex rich in wildlife, habitats and its services for all, forever” was prepared for the period of 2017 - 2021. The enabling policies, legislature and relevant conventions are presented. Two management committees are proposed. Regional Project Implementation Committee (RPIC) which is headed by the Assistant Director of the region and Park Warden of Wilpattu National Park and a Regional Project Implementation Committee (RPIC) will report to DG of the DWC, National Project Implementation Committee (NPIC) and District Coordinating Committees (DCC) of Puttalam, Anuradhapura and Mannar in implementing the activities of strategic action framework. National Project Implementation Committee (NPIC) headed by the Deputy Director (Operations) should operate a special project implementation office established either in the region or in Colombo. NPIC should report to DG and the heads of key stakeholder institutes and Ministry of Wildlife and Sustainable Development. This committee will be responsible for disbursement of funds, Procurement of goods and services, monitoring and evaluating and obtaining national level clearance for activities.

In order to achieve the above mentioned vision, four goals are set. An operational goal (to operationalize an enabling WPAC management environment to effectively serve ecological and human needs), an environment goal (to ensure a thriving ecosystem rich in wildlife with long term integrity and resilience), a socioeconomic goal (to safeguard optimum living conditions to community and satisfaction from services derived by WPAC to all) and a governance goal (to warrant an enabling governance framework strengthened to manage WPAC and beyond with

committed participation from stakeholders) are proposed. For each goal, expected outcomes are presented. Thus each goal is divided into objectives and strategic actions. Time frame indicates expected year of implementation and completion.

The objectives set for each goal intend to address the threats identified as of having the highest likelihood of occurrence and the highest impact. Hunting/ poaching, land grab, lack of inter-agency coordination, lack of updated baseline data, constructions and developments within and in development restricted zone without environmental impact assessment, undue political pressures, inadequate staff/skilled staff, inadequate infrastructure, boundary disputes and land encroachment, scarcity of water, damaging the archaeological sites & removing the artefacts, spread of invasive species, lack of information on visitor carrying capacity, human and animal deaths due to HAC , illegal fishing activities, occupation of Sri Lanka Navy in unsuitable locations, destruction of migratory paths and seasonal movement patterns of wild animals, unskilled safari operators/guides/bungalow keepers, insufficient communication between DWC, DS, & NGO and inadequate coastal buffer are the key threats addressed in this strategic framework.

The main strategic actions proposed are creating WPAC with a new marine sanctuary, new Wilpattu zone IV thus expanding the ecological sensitive area with due protection for the maximum benefit for peripheral community and other stakeholders. Additionally, two core areas are proposed, one for the most important and sensitive inland villus and associated ecosystems and inhabitants of such ecosystems, and the other for coastal villus, shallow coastal sea including sea grass and mangrove ecosystems. Collating already published data and conducting a thorough baseline study to establish the current status of ecosystems, inhabitants and socio economics of peripheral community, estimating the population status and distribution of key stone species (both marine and terrestrial), coordinated boundary patrolling and systematic surveillance of the area with Forest Department, restoration of degraded habitats, invasive management, habitat enrichment including access to water, visitor carrying capacity management, closure of areas during sensitive periods such as breeding, removal of disturbances to wild fauna from illegal settlements and illegal land use including unsustainable developments inside the PA as well as in one mile development restricted zone, removal of existing hindrances to animal movement are some of the proposed strategic actions.

For the socio economic outcomes, peripheral communities should be engaged in activities that provide them with a sustainable income and elevated living conditions. This includes liaising with District Secretaries and Department of Agriculture to introduce wildlife friendly culture techniques, organic agriculture, value addition of products, a Helabojun restaurant system near visitor centres, value addition and post-harvest management of marine resources that are sustainably harvested, establishing home- stay facilities for visitors, temporary and permanent employment for peripheral community and better protection from wild animals to reduce

human animal conflict. Peripheral community will be made aware and empowered to live alongside protected areas.

The strategic framework also proposes a new entrance from Rathmalgama area and developing conservation tourism, species specific tourism such as for birds, archaeological heritage focused tourism and developing visitor facilities and state-of-the-art visitor centres with sanitary facilities, animal watch huts and strategic points to view wild animals. Also empowering visitors, safari jeep operators, hoteliers along with facilities and knowledge are planned. Strategic actions for upgrading the accommodation maintained by DWC and training the staff to meet visitor expectations are proposed

Several infrastructure developments, cadre increase, establishment of new beat offices in strategic locations, national and international training and short term study visits are proposed as strategies to empower staff serving WPAC. An independent revolving scheme of funds to ensure sustainability of the proposed framework is mentioned.

Additionally, indicators of change have been decided and the targets have been set. This strategic plan also contains, communication, monitoring and evaluation and sustainability plans. A compilation of current information on species and ecosystems is given as annexures.

## 1. Wilpattu National Park: past and present status

The Wilpattu National Park was declared as a reserve forest under the Forest Ordinance in 1905 and was later upgraded to a national park on 25<sup>th</sup> February 1938 under the Fauna and Flora Protection Ordinance. Hence, this is one of the oldest national park of the country. The current extent of the park is 130,000 ha. For administrative purposes, the park is divided into five zones. The boundaries of the park lie in the administrative districts of Puttalam, Anuradhapura and Mannar (Figure 1). The Wilpattu National Park (WNP) spans across the north-western, and north-central provinces in Sri Lanka, 30 km west of the city of Anuradhapura and 165 km North of Colombo. Geo coordinates of centre of this national park lies at 8° 12' – 8° 32'-NL and 79° 52' – 80° 10' EL in the dry zone coastal region. The altitude ranges from mean sea level to 152 m. This area belongs to Indo-Malayan biogeographic realm and can be classified as Tropical and Subtropical Dry Broadleaf Forests (Olson et al., 2001; Udvardy, 1975). The site supports at least 347 vertebrate species, which includes 23 species of fresh water fish, 17 species of amphibians, 57 species of reptiles, 204 species of birds, and 41 species of mammals (Wilpattu RIS annexures submitted for Ramsar, 2012).

Wilpattu functions as a unique ecotone that consists of a mixture of natural coastal and inland wetlands, terrestrial vegetation types, and ancient man-made irrigation systems and possibly secondary vegetation, as ample evidence is present to indicate ancient civilizations. The Villu wetlands in particular are a unique wetland type in Sri Lanka restricted to Wilpattu and Mahaveli catchments (Wilpattu RIS annexures submitted for Ramsar, 2012).

The landscape of WPAC is diverse. From shallow coastal zones containing sandy and rocky bottoms interspersed with coral reefs, Wilpattu spans into dry zone high forest with lianas and thorny scrub. The coast line is dotted with mangroves both at Modaragam Aru and Kala Oya river mouths. Several sand dune patches are present along the coastline. However, the unique feature is the flat saucer-shaped basin like depressions on the earth surface containing rain water, locally known as villus. Though they resemble oxbow lakes, the physical features are different. These shallow water bodies have fluctuating water levels giving way to either grasslands or meadows at certain times of the year. Some villus are rimmed by sandy plains. The western section of Wilpattu is covered with dense forests, plains, grasslands and a few large water bodies commonly known as Uppu (salt) villus. The vegetation in close proximity to shore line includes littoral vegetation, including salt marsh and low scrub immediately adjacent to the beach and further inland, monsoon forest.

Two main perennial rivers border Wilpattu National Park – Kala Oya in the South, and Moderagam Ara in the North. Mangroves form the prominent coastal vegetation type in Wilpattu, mainly confined to Kala-oya estuary in the south-western border of the park. This

healthy estuarine mangrove system is the largest mangrove forest in the island and extends upstream up to 2 km from the river mouth, with its extent estimated to be ca. 621.1 ha. The near-shore marine area is a highly productive area for fisheries, while it also harbours sea grass beds that attract the globally endangered Dugong for feeding.

The characteristics of the vegetation in Wilpattu is influenced by the two catchments of rivers that supply water to this area. Whilst Kala Oya catchment extends up to Naula hills, catchment of Modaragam aru is generally flat except for some scattered in selbergs in the upper catchment. Geologically eastern part of the lower catchment belongs to the Wanni complex lithotectonic unit while the western coastal areas are underlain by Miocene limestone and Red beds. Flood plains and estuaries of these rivers are filled with alluvial clay and beach sand (Irrigation Department Sri Lanka, 1988). The catchment area of both Kala Oya and Modaragam aru rivers belongs to the dry zone of Sri Lanka. North-eastern monsoon and inter monsoon are the main sources of rainfall in the area. Mean annual rainfall of the lower catchment is approximately 1000 mm (Pomparippu) whereas in the upper catchment it increases up to 1265 mm (Naula). Mean annual temperature varies between 27.2 °C (Pomparippu) and 25.6 °C (Naula) across the catchment area.

#### **Geology and mineralogy:**

On the west coast a high cliff of two strata of tertiary sandstone forms Kudiremalai. It overlays with littoral sands forming some dunes, but interspersed with rich alluvial earth. Towards the interior, the rocks change in character from Jaffna limestone to Vijayan series, which is a complex conglomerate of super-crystal rocks, including crystalline limestone and granitic gneiss (Cooray, 1984; Modder, 1908). Other soil types include clays, in areas of major river systems and their tributaries (Eisenberg and Lockhart, 1972).



Figure 1: Boundary demarcation of Wilpattu National Park ©DWC

### **Climate:**

The climatic features of WPAC is typical of dry coastal and near coastal areas of the country. Based on rainfall, the year can be subdivided into four periods; (1) the great dry season extending from about the beginning or middle of May to middle of October; (2) the first rains from the middle of October to end of December; (3) the lesser dry season from the beginning of January to the middle or end of March; and (4) the latter rains from that time till the beginning of middle of May (Modder, 1908). The mean annual temperature, mean relative humidity and total annual precipitation of the area based on long-term records at Pomparippu (Mueller-Dombois, 1968) are 27.2 °C, 85 % and 1000 mm respectively.

Surface water resources of WPAC include natural villus, rivers and ancient irrigation water sources. The water in coastal villus are slightly brackish whilst other villus are mostly fresh water. Several tributaries crisscross the PA and except Pomparippu Aru which partly falls into sea off Kumburavi, others join either Kala Oya in South (Dangaha Aru, Uttu madu Aru, Pan Ela) or Modaragam Aru in North (Kuttian Aru, Uppu Aru, Halmilla Ela, Mahawewa Ela). Part of the northern boundary of Wilpattu zone IV is served by Kal Aru to which Kalkuli Aru joins in. In addition, the Department of Wildlife Conservation has dug up several water holes and mini reservoirs. Additionally, several man made ancient reservoirs, most of them abandoned and silted, are present within the PA.

Table 1: Major perennial and seasonal water sources \*

Perennial	Seasonal
Kokkariya Tank	Maila Villu
Maradan maduwa Tank	Periya Villu
Marawila (Marai Villu)	Maha Pathassa
Lunuwila	Periya Naga Villu
Thalawila	

\* Data extracted from DWC (2007), Tank refers to an ancient irrigation reservoir

A cluster of more than 20 large and small villus and water holes are accessible through motorable roads. This cluster of water bodies includes Kokkariya villu, Kanchuran villu, Kumbuk vila, Maha Pathassa, Kuda Pathassa, Demata vila and Lunu Vila. Large mammals are concentrated in and around these water sources and adjacent ecotones, hence, in this cluster of water bodies form the main touristic routes within the park.

### Main ecosystems:

As per the classification adopted by Ministry of Forestry and Environment (1999) tropical dry mixed evergreen forests, tropical thorn forests, riverine forests, dry patana grasslands, flood plains, swamps, streams and rivers, reservoirs, wet villu grasslands, mangroves, salt marshes, sand dunes and beaches, sea grass beds, lagoons and estuaries are the main types of habitats found in Wilpattu National Park (DWC, 2007). A detailed description of flora in each habitat type is given in Resource Inventory of Wilpattu National Park (DWC, 2007).

The mangroves of Wilpattu are mainly confined to the south-western part of the park where Kala Oya river meets the sea. This healthy estuarine mangrove system is one of the largest patches in the country and extends upstream approximately up to 2 km from the river mouth. As in many other mangrove ecosystems in the dry coastal regions of Sri Lanka, *Rhizophora mucronata* and *Avicennia marina* are the dominant species. Apart from Kala Oya estuarine mangrove system, some other smaller isolated pockets of mangroves could be located along the western coastal belt, especially at Palugahature.

Saltmarsh is an intertidal complex plant community dominated by herbs (up to 0.25 m) and low growing shrubs (up to 1.5 m). The sites become extremely dry during the prolonged dry period (April-August) and consequently excessive evaporation intensifies salinity. Plant communities in these habitats include perennial herbs including *Salicornia brachiata* and *Suaeda maritima* as the dominant ones that cover the bare ground, with prostrate and upright shoots. Usually, the ground is 75 % bare soil and sedges such as *Cynodon dactylon* and *Cyperus* spp. are found in an intermixed manner.

In Wilpattu extensive sea grass patches are common around river estuaries and shallow sea bed off the coast Wilpattu park and around. Two off shore islands Battalangunduwa and Palliawatta sea grass communities are regarded as one of the most productive ecosystems in the world previously supporting extensive populations of Dugong. Here, *Siringodium isoetifolium* are found in the deeper area. Shallow areas up to 1-4 m are mostly dominated by *Enhalus acaroids*, and two *Cymodocea* species. Among those smaller *Halodule uninervis* and *Halophila ovalis* grows much shallower area (< 0.5). The community changes to much smaller species such as *Halodule pinifolia* and *Halophila decipiens* around coastal waters in Battalangunduwa a rare sea grass species *Halophila baccarii* was recorded.

The species recorded in shallow estuaries and seas near Wilpattu are as follows,

*Enhalus acaroids* (Hydrocharitaceae)

*Thalassia hemprichii* (Hydrocharitaceae)

*Halodule uninervis* (Cymodoceaceae)

<i>Halodule pinifolia</i>	(Cymodoceaceae)
<i>Siringodium isoetifolium</i>	(Cymodoceaceae)
<i>Cymodocea rotundata</i>	(Cymodoceaceae)
<i>Cymodocea serrulata</i>	(Cymodoceaceae)
<i>Halophila ovalis</i>	(Hydrocharitaceae)
<i>Halophila decipiens</i>	(Hydrocharitaceae)
<i>Halophila baccarrii</i>	(Hydrocharitaceae)

Typical beach vegetation is found in western part of the park in places where the land gently slopes towards the sea. The physiognomy and floristic composition of the beach flora and associated minor sand dunes depend on the extent and steepness of the shore and the degree of ground stability. The vegetation is located in the zone beyond the direct impact of waves and tides and supports a tree cover (4 m-6 m), scattered creepers (0.5 m) and small shrubs (1 m) which help consolidation of surface soil by restricting wind induced erosion and by providing resistance to removal of sand by occasional sea water. The main species found in sandy beach area of Wilpattu and two islands *Scaevola sericea* (*S. thakkada*), *Scaevola plumieri* (Goodeniaceae), *Pemphis acidula* (Lythraceae), *Speniphex littoralis*, (Poaceae) *Ipomia pescapre*, (Covolvoulaceae) *Canavalia rosea* (Fabaceae), *Sesuvium portulacastrum* (Aizoaceae), *Trianthema decandra* (Aizoaceae) *Hydrophylax maritima* (Rubiaceae) *Spermacoce hispida* (Rubiaceae) and *Evolvulus alsinoides* (Convolvulaceae).

### Marine mammals

Fifteen (15) species of Marine mammals are recorded within the Ramsar boundary and adjoining Kalpitiya bar reef sanctuary area and off the coast of Kandakuliya, Talawila area. Among them, Blue Whale (*Balaenoptera musculus*) and Bryde's Whale (*Balaenoptera edeni*) sightings have also been confirmed recently. About a 1000+ pod of resident Spinner Dolphin (*Stenella longirostris*) also dwells in the sea migrating between continental shelf and slope. Rare Rough-toothed Dolphin (*Steno bredanensis*) was also recorded recently in this area. The area around Kalpitiya recorded an unusually large gathering of 200+ Sperm whales (*Physeter macrocephalus*) in recent years. Gulf of Mannar is also the home to Dugong.

Marine cetaceans recorded around Wilpattu Ramsar site

#### Balaenopteridae

*Balaenoptera musculus* (Blue Whale)

*Balaenoptera edeni* (Bryde's Whale)

*Balaenoptera acutorostrata* (Minke Whale)

Delphinidae

*Tursiops truncatus* (Bottle-Nosed Dolphin)

*Steno bredanensis* (Rough-toothed Dolphin)

*Stenella longirostris* (Spinner Dolphin)

*Orcinus orca* (Killer Whale)

*Lagenodelphis hosei* (Fraser's Dolphin)

*Grampus griseus* (Rissos Dolphin)

*Feresa attenuata* (Pygmy killer Whale)

*Sousa chinensis* (Indo-pacific hump-back Dolpin)

*Peponocephala electra* (Melon headed Dolphin)

*Globicephala macrorhinchus* (Short finned pilot Whale)

Physeteridae

*Physter macrocephalus* (Sperm Whale)

*Kogia simus* (Dwarf Sperm Whale)

Apart from the marine mammals the largest fish in the world, Whale shark (*Rhincodon typus*) frequently visits this area for feeding activates. Another rare deep sea living shark species, known as crocodile shark (*Pseudocarcharias kamoharai*) which is a specialized inhabitant of the mesopelagic zone (ca. 200 m) was also recorded several times from this area.

**Invasive species**

In recent years several species of invasive flora and fauna have made their way into WPAC. They are increasingly becoming a threat to native species and the mat forming aquatic invasives are changing the hydrological regimes of the aquatic systems. Invasives were documented during the studies carried out for preparation of Resource Inventory of Wilpattu National Park (DWC, 2007). Since then several invasives have expanded their range mainly along roads and human occupations. A recently conducted invasive species distribution assessment by Biodiversity Secretariat under Alien Invasive Species Project in North-western Province has not assessed the national park. Hence, updating the species and their distribution in WPAC is required. For an example, from the northern tip of WPAC, *Prosopis juliflora* is gradually invading the park. A checklist of invasives described by stakeholders during the preparation of this framework and species listed by Wilpattu Resource Inventory (DWC, 2007) is given as annexure 11.

## **Archaeological importance**

A total of 68 archaeologically important sites were recorded in Wilpattu during the survey carried out by IUCN at the time of preparing Resource Inventory of Wilpattu National Park (DWC, 2007). As per the adopted classification, the archaeological sites could be divided into Fossil sites, Prehistoric sites, Proto-historic sites, Historic monastery sites and Irrigation or agricultural sites. Prehistoric sites have been divided into Palaeolithic and Mesolithic stone tool sites. Protohistoric sites were also further divided into megalithic burial and Black and Red Ware (BRW) sites.

Much legend and history is associated with the park and its immediate surroundings. Tammanna Nuwara, where King Vijaya is said to have landed in about 500BC and founded the Sinhalese race, is said to be between Kudiramalaya point and Moderagam Ara mouth in Wilpattu. According to legend, Vijaya married Kuveni, the Yaksha Princess, whose palace lies in ruins at Kali Vila (a villu wetland in Wilpattu), and ruins near the Kokmotai bungalow are also known have been sojourned by Kuveni. Galbendi Neeravia which is located north-east of Maradanmaduwa tank, is supposed to be the place where the Prince Saliya, the son of King Dutugamuu, lived with his bride, Asokamala, some 2000 years ago (Samaraweera, 1970). Modder (1908) provides very detailed records including legends of this area. For an example Annius Plocamus during the reign of Emperor Claudius of Rome is known to have visited Kudiremalai, or "*Hippurus protum*". Several tribal groups such as Mukuwas have also made this area their home.

## **Socioeconomics of people**

Wilpattu bears evidence of human habitation in the past as mentioned above and today the peripheral communities are diverse in culture and livelihood. Sinhalese, Tamil and Muslim communities live in close proximity. Buddhism, Christianity, Hinduism and Islam are the main religious believes followed by people. While most of them are paddy and other agricultural product farmers, coastal side is occupied by fishermen both resident and migratory. Livestock is practiced by some and few individuals are self-employed. Annual income and literacy are generally low compared to the rest of the country as most people had been displaced during war. At present infra-structure facilities are fast developing. Fisheries societies, farmer societies and few scattered women organisations are present.

In recent years tourism has fast developed in the area surrounding Huniwilagama entrance to PA and several households are engaged in tourism related activities. A coalition of Safari jeep operators serve the tourists and operate vehicles inside park. Involvement of women directly with park related activities is not seen.

This park suffered the impacts of war from the onset of it and in 1985 many park activates were abandoned though park was served by some officials mainly from Southern side of the park. Several massacres occurred at different periods notably in 1985. The park was opened in 2003 but the entire infrastructure within the park was badly damaged and the road system was not in a motorable condition. In 2007 the park was closed again after the slaughter of DWC staff. Park was reopened for visitors only in 2010. Although PA was reopened in 2010, DWC was not in a position to provide adequate man power and also there was no formal plan or mechanisms to address the new issues. Infra-structure as well as former man power were both lost.

### **Wilpattu Protected Area Complex (WPAC)**

In the context of this strategic management framework, Wilpattu protected area complex is defined as follows,

- a. Wilpattu National Park
- b. Wilpattu North Sanctuary
- c. Wilpattu Ramsar site which is the proposed marine sanctuary in this strategic management framework
- d. Proposed zone VI for Wilpattu National Park which will include parts of Wilpattu North Sanctuary, forested land managed by Department of Forest and identified crown lands

Since there are several communities and industries with land rights living in the periphery, WPAC has included those communities in this strategic management framework as they will be benefitted.

## 2. Current legal framework for management

Table 2 summarises the main policies, legislations and international conventions to which Sri Lanka is signatory, that would be relevant in implementing the strategic action framework. The provisions of Fauna and Flora Protection Ordinance (Amended) Act No 32 of 2009 enables preparing Management Plans and executing them in protected areas.

Table 2: Summery of policies, legislature and conventions related to strategic action framework

Type	Name	Year	Major Area
Policies	National Wildlife Policy	2000	Wildlife
	National Forest Policy	1995	Forest Resources
	National Physical Planning Policy and Plan	2007	Land Resources
	National Environment Policy	2003	Environment
	National Policy on Solid Waste Management	2003	Solid Waste Management
	National Air Quality Management Policy	2000	Air Pollution
	National Watershed Management Policy	2004	Water Pollution
	National Policy on Wetlands	2006	Wetlands
	National Fisheries Policy	2006	Fisheries Resources
	National Soil and Mineral Policy	2007	Minerals and Sand
	National Sand Policy	2005	Sand use
	National Policy on Elephant Conservation	2006	Elephant Management
	Proposed Alien Invasive Species Policy		Invasive species
	Proposed Mangrove Policy		Mangroves

Legislations and regulations	National Environment Act No 47 of 1980	1980	Environment
	Irrigation Ordinance No 32 of 1946 and Act No 1 of 1951	1951	Water Resources
	Fauna and flora Protection Ordinance (Amended) Act No 32 of 2009	1937	Wildlife and protected areas
	Soil Conservation Act of 1951	1951	Soil
	Plant Protection Act No 35 Of 1999	1999	Plant Protection
	National Aquatic and Development Agency Act No 54 of 1981	1981	Aquatic Resources
	Coast Conservation Act of 1981	1981	Coastal areas
	Fisheries and Aquatic Resources Act No 2 of 1996	1996	Fisheries and Aquatic Resources
	Seed Act No 22 of 2003	2003	Plant Protection
	Control of Pesticide Act No 33 of 1980	1980	Environment Protection
	Felling of Trees Control Act No 9 of 1951	1951	Environment
	Water Hyacinth Ordinance No 9 1909	1909	Aquatic Resources
Conventions	Mines and Minerals Act No. 33 of 1992	1992	Mineral extraction
	National Environmental Act	1980	
	Ramsar Convention	1971	Wetlands
	Convention on Migratory Species	1979	Migratory Species
	Convention on Biological Diversity	1992	Bio Diversity
Management Plans/ Strategies	International Plant Protection convention	1951	Plant Protection
	Plant Protection Agreement for Asian and Pacific Region	1955	Plant Protection
Management Plans/ Strategies	National Coastal Resource Management Plan (2004) No Existing Management plan for WPAC	2004	Special Area Management

### 3. Stakeholder analysis

Stakeholder analysis conducted using the matrix given below and the Venn diagramming of the existing relationships resulted in identifying the key stakeholders and their current level of communication. Data were gathered by conducting two regional level consultations and two national level consultations followed by a validation meeting (Annexure 12). Stakeholders from grass root level to policy makers participated in all consultations. Stakeholders were categorised using following criteria.

- Importance : how important a stakeholder is for management process  
Influence : how much influence (power) a stakeholder has over management process

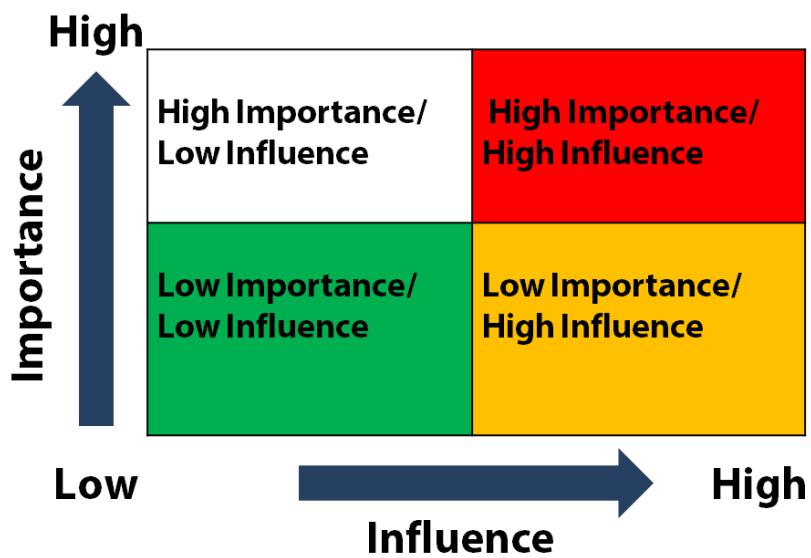


Figure 2: 2\*2 matrix scheme used in identifying the stakeholders

The results of the consultations are compiled below;

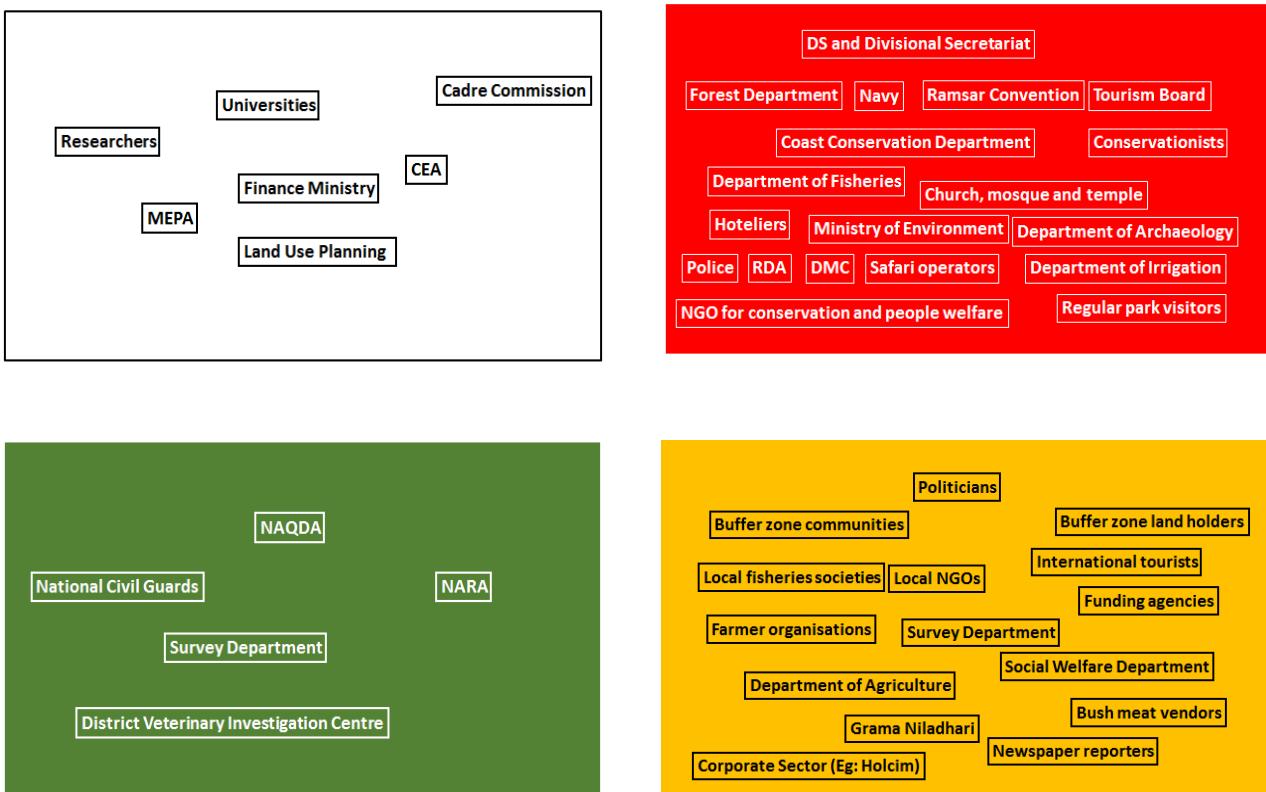


Figure 3: Outcomes of stakeholder analysis

“High Importance-High Influence “stakeholders should be included and consulted in preparation and implementation of this strategic action framework. They are,

- District Secretariat and Divisional Secretariat
- Forest Department
- Sri Lanka Navy
- Tourist Board
- Coast Conservation Department
- Department of Fisheries
- Conservationists
- Church, mosques and temple
- Hoteliers
- Ministry of Environment
- Department of Archaeology
- Police

- Road Development Authority
- Disaster Management Centre (DMC)
- Ramsar Secretariat
- Safari operators
- Department of Irrigation
- NGOs for conservation and people welfare
- Regular park visitors

“Low important – High influence” stakeholders should be made aware and should be brought to the system for effective implementation of strategic action framework. They are;

- Politicians
- Buffer zone communities
- Buffer zone land holders
- Local fisheries societies
- Local NGOs
- International tourists
- Farmer organisations
- Survey Department
- Funding agencies
- Department of Agriculture
- Social Welfare Department
- Grama Niladhari
- Bush meat venders
- Corporate Sector (E.g.: Holcim)
- Newspaper reporters

“High Important-Low influence” stakeholders should be consulted in implementation and their service should be obtained through out. They are;

- Universities
- Cadre Commission
- Researchers
- Finance Ministry
- CEA
- MEPA
- Land Use Planning

“Low importance- Low influence” Stake holders can be made aware about the process. They are;

- NAQDA
- NARA
- National Civil Guards
- Survey Department
- District Veterinary Investigation Centre

The current relationships of the stakeholders (Figure 4) were analysed by Venn diagramming and the results indicated that DWC is already working with several regional bodies in terms of park management, notably through DCC. However, most relationships were either neutral or negative and as such lack of inter-agency coordination emerged as a significant threat (See Chapter 5). Also, the influence of political authorities was very much evident and the influence was from both regional level and national level political authorities. The absence of a proper communication mechanism to coordinate at the regional level was the main reason followed by absence of documented minutes of discussions. Stakeholders also had no access to a formal diary either maintained at DS level or park level, as such cooperation at regional level currently remains edgy.

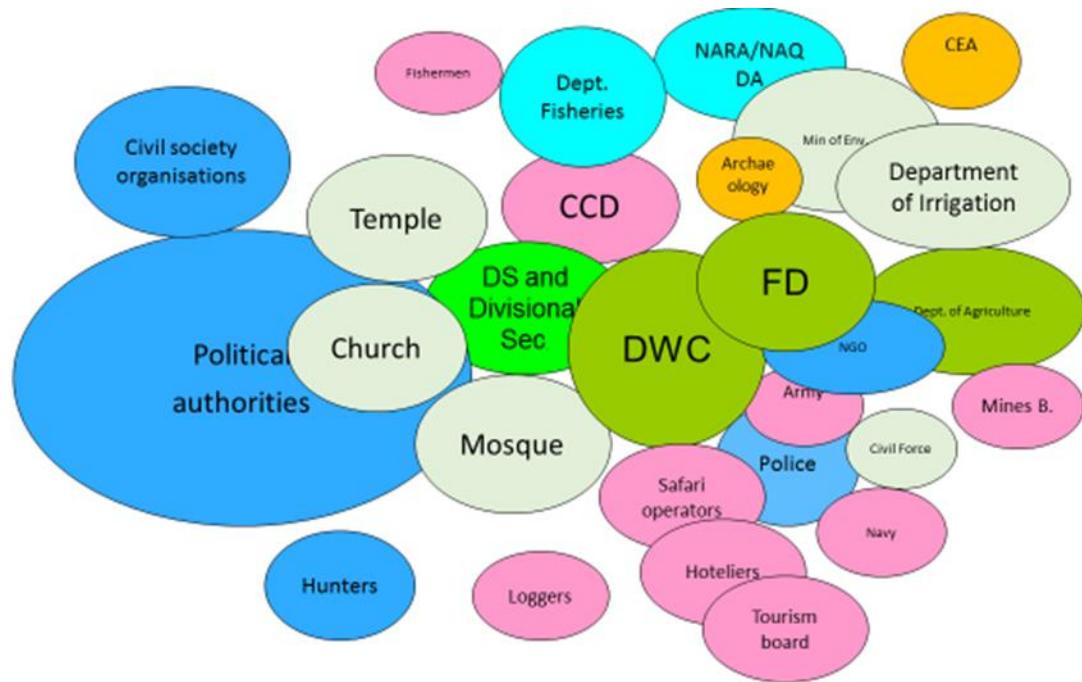


Figure 4: The current relationships of the stakeholders

#### 4.

#### **Current participatory frameworks and their mechanisms in relation to park administration**

At National level, DWC is a member of all national level committees that have been appointed by other ministries and departments in relation to environment, biodiversity, water and other natural resources development, land use, land reclamation, road development etc. Additionally, DWC is serving as a member of project approving agency in relation to IEE and EIA. Hence, national level participatory framework for decision making is in place. Additionally, DWC also has several committees established at both ministerial and department level including Wildlife Advisory Committee.

At the regional level participation of DWC officials to District Coordinating Committees (DCC) chaired by District Secretaries for the regional matters is practiced. DWC is also a member of environment committee of each divisional secretariat. Although no formal mechanism is present for collaboration with communities, civil societies and educational sector, depending on the situation and the need, loose mechanisms are in operation. However, for the future management of WPAC, a new collaborative management structure is proposed in the strategic action plan.

5.  
Current threats and issues of Wilpattu Protected Area Complex

The threat and issue analysis was conducted using following matrix. Both the likelihood of occurrence and significance of the impact were considered in identifying the threats that need to be addressed in this strategic action plan. Analysis were conducted at two regional level stakeholder consultations, two national level consultations and the outcomes were validated at a national level consultation (Annexure 12).

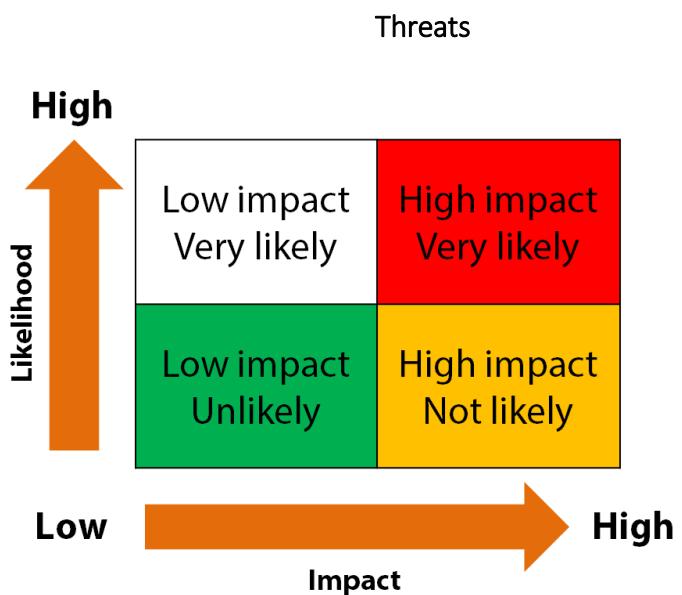


Figure 5: 2\*2 matrix scheme used in identifying significant threats

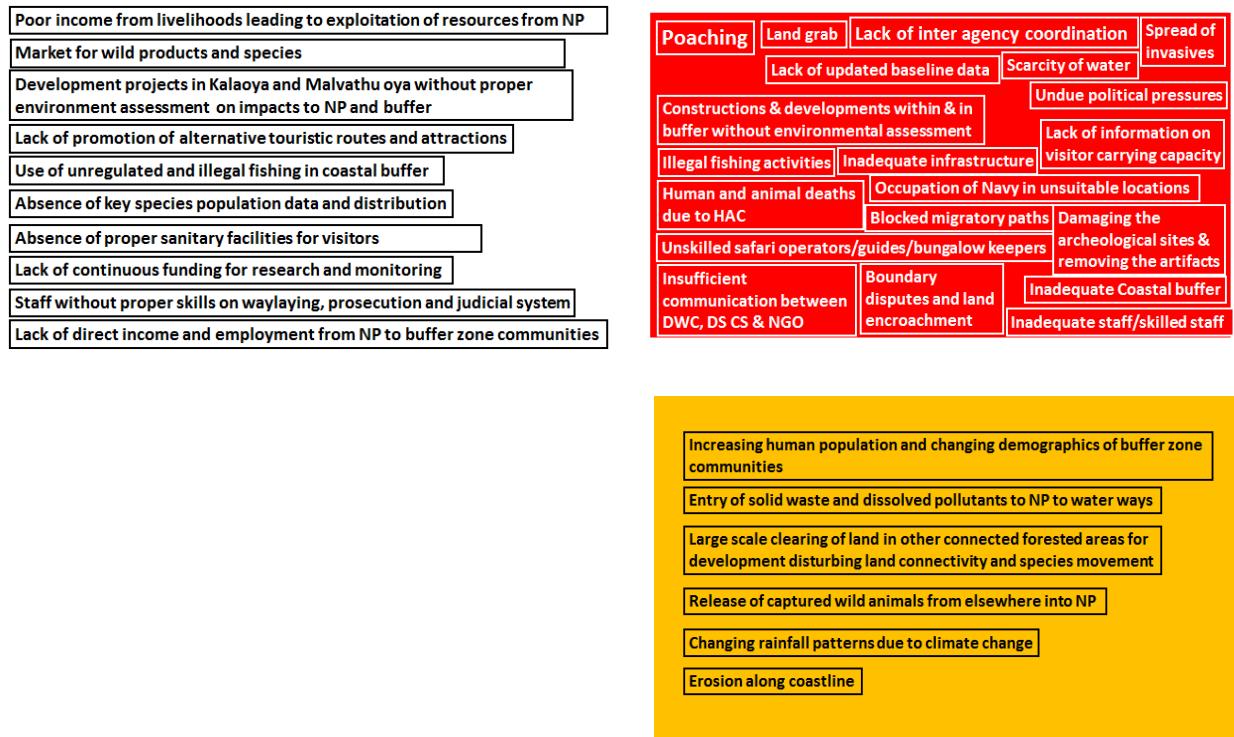


Figure 6: Results of threat analysis

None of the threats and issues discussed by the stakeholders were identified as not having an impact. Within high impact and very likely threats and issues, poaching/hunting emerged as the most important threat to the system.

"High Impact-very likely "threats & issues are the key threats that are addressed in this strategic action plan. In order of importance they are given below;

- Poaching/hunting
- Land grab
- Lack of inter-agency coordination
- Lack of updated baseline data
- Constructions and developments within and in development restricted zone without environmental impact assessment
- Undue political pressures
- Inadequate staff/skilled staff
- Inadequate infrastructure
- Boundary disputes and land encroachment
- Scarcity of water
- Damaging the archaeological sites & removing the artefacts
- Spread of invasive species

- Lack of information on visitor carrying capacity
- Human and animal deaths due to HAC
- Illegal fishing activities
- Occupation of Navy in unsuitable locations
- Destruction of migratory paths and seasonal movement patterns of wild animals
- Unskilled safari operators/guides/bungalow keepers
- Insufficient communication between DWC, DS, & NGO
- Inadequate coastal buffer

“Low Impact-highly likely” threats and issues

- Market for wild products and species
- Poor income from livelihoods leading to exploitation of resources from NP
- Development projects in Kala Oya and Malvathu Oya without proper environmental assessment on impacts to NP and buffer
- Lack of promotion of alternative touristic routes and attractions
- Use of unregulated and illegal fishing in coastal buffer
- Lack of data on population sizes and distribution of key species
- Absence of proper sanitary facilities for visitors
- Lack of continuous funding for research and monitoring
- Staff without proper skills on waylaying, prosecution and judicial system
- Lack of direct income and employment from NP to buffer zone communities

“High Impact-not likely” treats & issues;

- Large scale clearing of land in other connected forested areas for development disturbing and connectivity and species movement
- Increasing human population and changing demographics of buffer zone communities
- Entry of solid waste and dissolved pollutants to national park water ways
- Release of captured wild animals from elsewhere into NP
- Changing rainfall patterns due to climate change
- Erosion along coastline

## **Issues**

The main issues caused by the identified threats were habitat deterioration, habitat fragmentation, population decline, species extinction, unproductive ecosystems, reduced environmental services, community/stakeholder unrest, declined/unstable income and absence of evidence based management in WPAC. As these issues are all important and need to be resolved the main threats that resulted in the identified issues were mapped. It was evident from the results that habitat deterioration was caused by threats such as illegal fishing activities, unsustainable constructions and developments around and within WPAC, poaching/hunting and spread of invasive species. Similarly, habitat fragmentation was caused by unsustainable constructions and developments around and within WPAC, land grab, boundary disputes, and lack of inter-agency coordination. Figure 7 provides the results of threat-issue mapping.

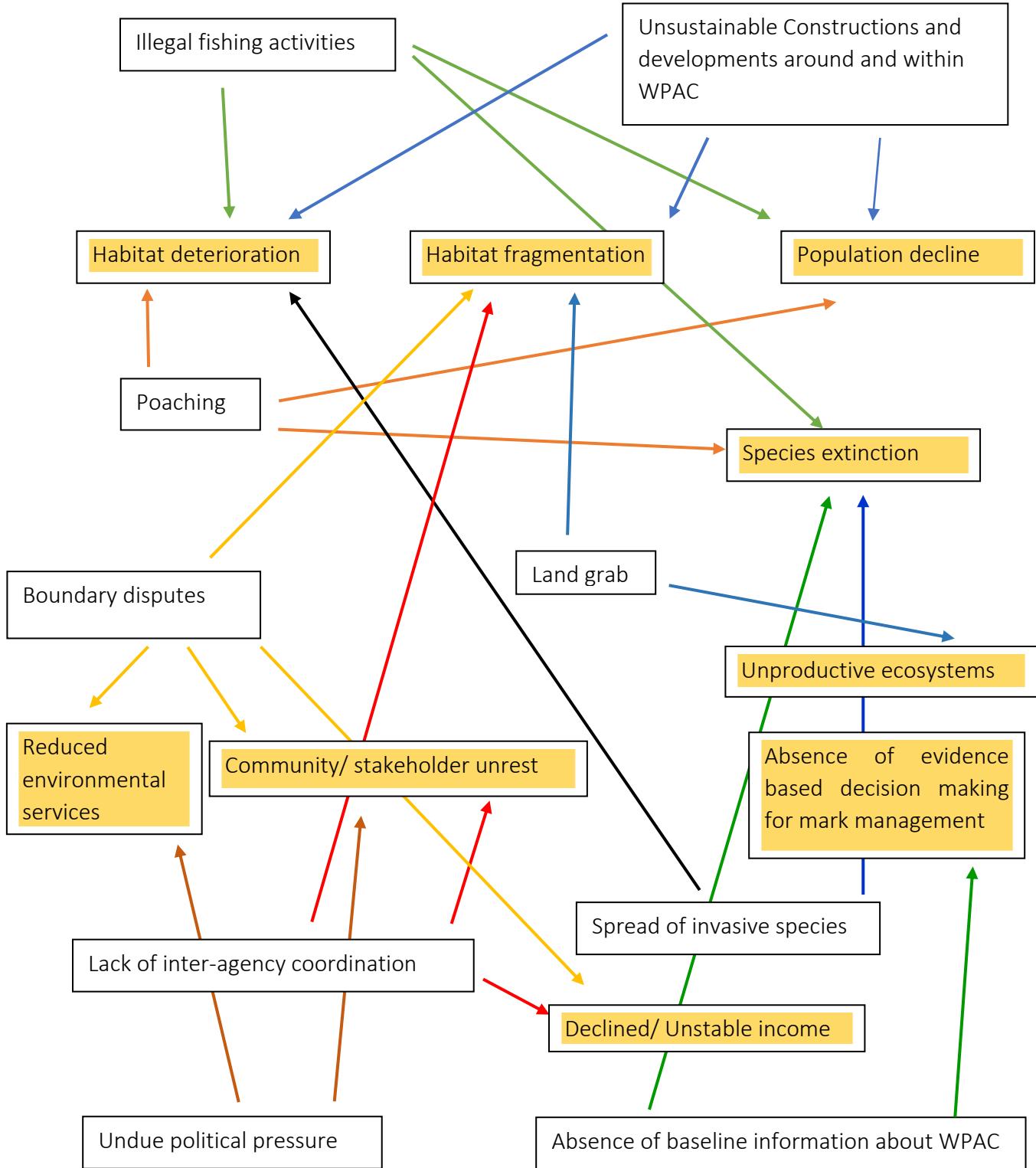


Figure 7: Threat. Issue mapping for some selected threats faced by WPAC. The issues arising due to the threats are given in yellow text boxes

At present four main entry points are located in the national park. Hunuwilagama gate is the current main entry point. With the construction of the illegal road, two entry points at Eluwankulama and Mullikulum are also being operated. Additionally, one entry point is also located in Rathmalagama in zone IV of PA. Two camping sites and several bungalows are operated within the NP (Figure 8).

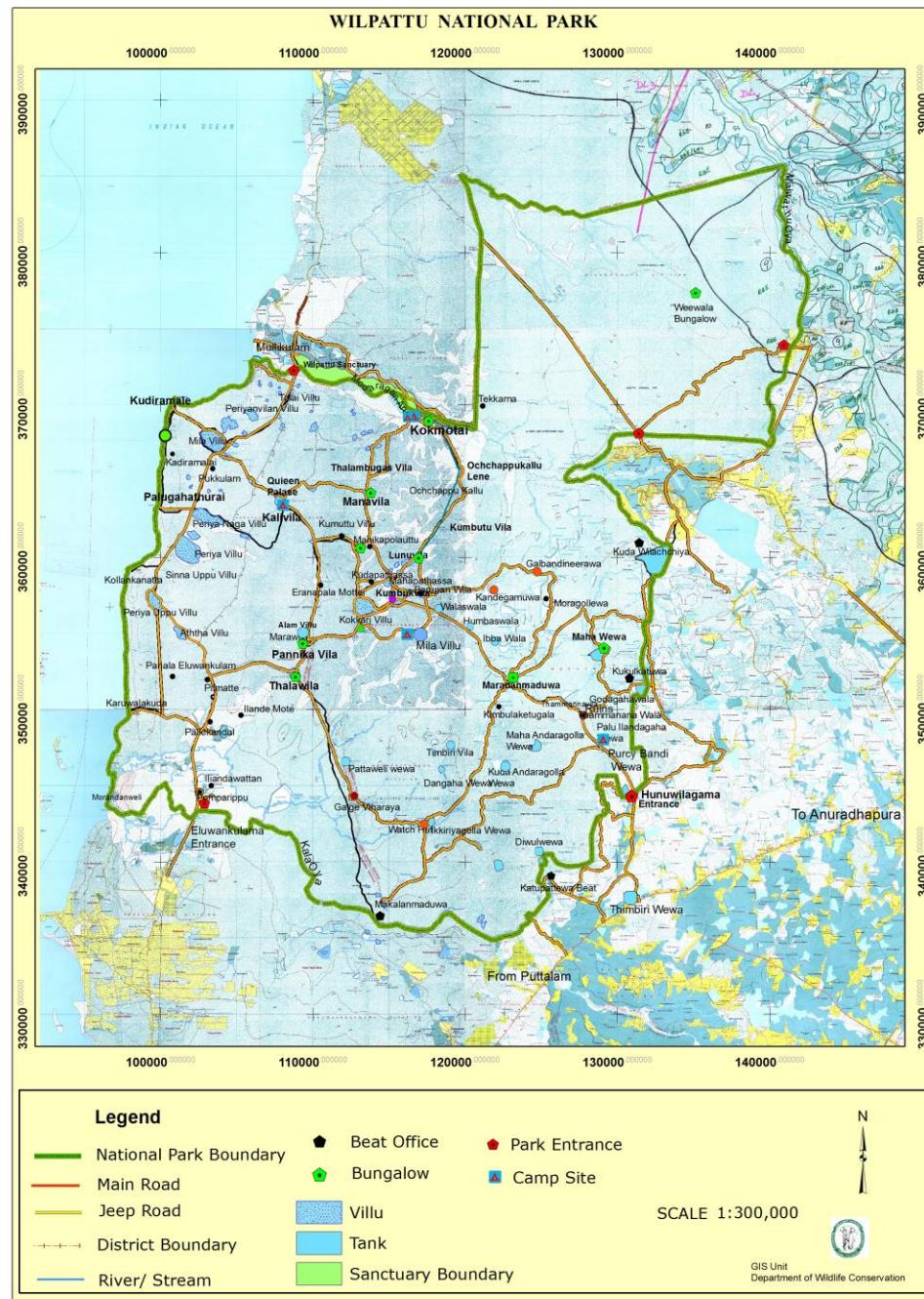


Figure 8: Map of Wilpattu National Park, Wilpattu North sanctuary and coastal boundary

Figure 9 indicates the main areas from which poaching are operated within the national park. Hunters are known to enter via land and sea routes. Poaching emerged as the most serious threat and species are being poached for bush meat as well as for other commercially important body parts.

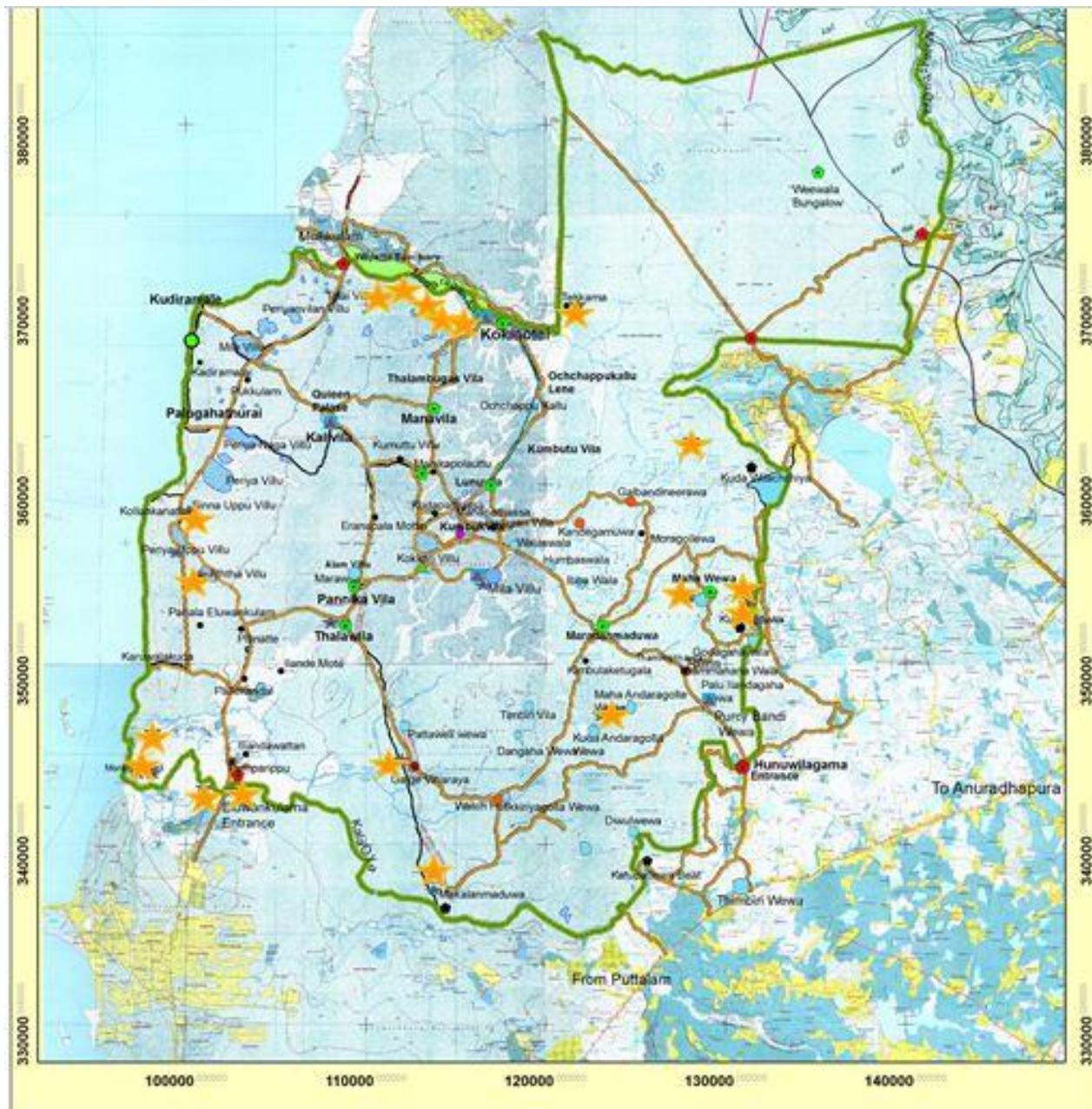


Figure 9: Key areas of poaching (denoted by yellow colour stars)

Figure 10 indicates the main areas of tree felling and fire wood collection. As per the records of regional police offices, Forest Department and DWC, trees are felled both for timber and fire wood. Additionally, in recent years, mass felling and clearance of forested areas have happened due to illegal settlements and resettlement initiatives above northern side of PA.



Figure 10: The main areas of tree feeling and firewood collection (denoted by the green colour arrows)

Intentional fires are set in the periphery as well as within the PA mainly during dry season and during the times of clearance of cultivated land for cropping (Figure 11). Fires are also frequent along Mannar – Medavachchiya road.



Figure 11: The areas of fire incidents (denoted by yellow colour symbol)

Settlements in various forms have become an issue in Wilpattu National Park. Palugahathurai traditional fishing village is outside the boundary of the national park and communities are permanently settled. There is no land right to the community and at present the land ownership is being verified by Divisional Secretariat. Several communities have in recent years settled in lands belonging to Forest Department above Wilpattu North Sanctuary. Settlements are also present in Thanthirimale area within the national park. Pallekandal church located within the national park is another settlement issue mainly due to increasing number of devotees and illegal expansion of buildings (Figure 12).



Figure 12: The main areas of encroachment and human settlement (denoted by yellow colour arrows and blue colour arrows respectively)

Main human animal conflicts occur due to encounters with elephants and snakes (Figure 13). Compared to other national parks, Wilpattu has less human elephant conflicts. However, in the periphery along Thabbowa, Nochchiyagama and Wanathavilluwa areas as well as in Thanthirimale, damages to elephants as well as to humans and their property and crops are reported. Hence, human animal conflict can be considered as a main threat to both animals and human in WPAC. Additionally, in coastal waters spinner dolphins and turtles are killed as by-catch. In addition to incidental catch, dolphins and Dugongs are killed for meat. Use of banned fishing gear and dynamite fishing both in the sea and river mouths. Specially, the use of nylon nets prevails at large scale.



Figure 13: The areas of human animal conflict (denoted by black colour arrows)

Illegal cattle grazing is mainly confined to areas above Wilpattu North Sanctuary (Figure 14).



Figure 14: The areas of grazing (denote by yellow rectangle)

Several invasive species are currently spreading within the national park. They are both aquatic and terrestrial. Resource Inventory prepared by PAM project of DWC (DWC, 2007) has documented invasives of the park. Yet, little is known about marine invasives. Since the preparation of above mentioned document, several invasives mainly *Prosopis juliflora* have started spreading rapidly in norther boundaries.



Figure 15: The areas of spread of alien invasive species (denote by the red colour boundaries)

## Current status of tourism in Wilpattu

Visitor statistics at Wilpattu National Park from 2008- 2015 indicates the increasing popularity of the area among both national and international tourists. At present 24.4 % are foreign tourists (Figure 16).

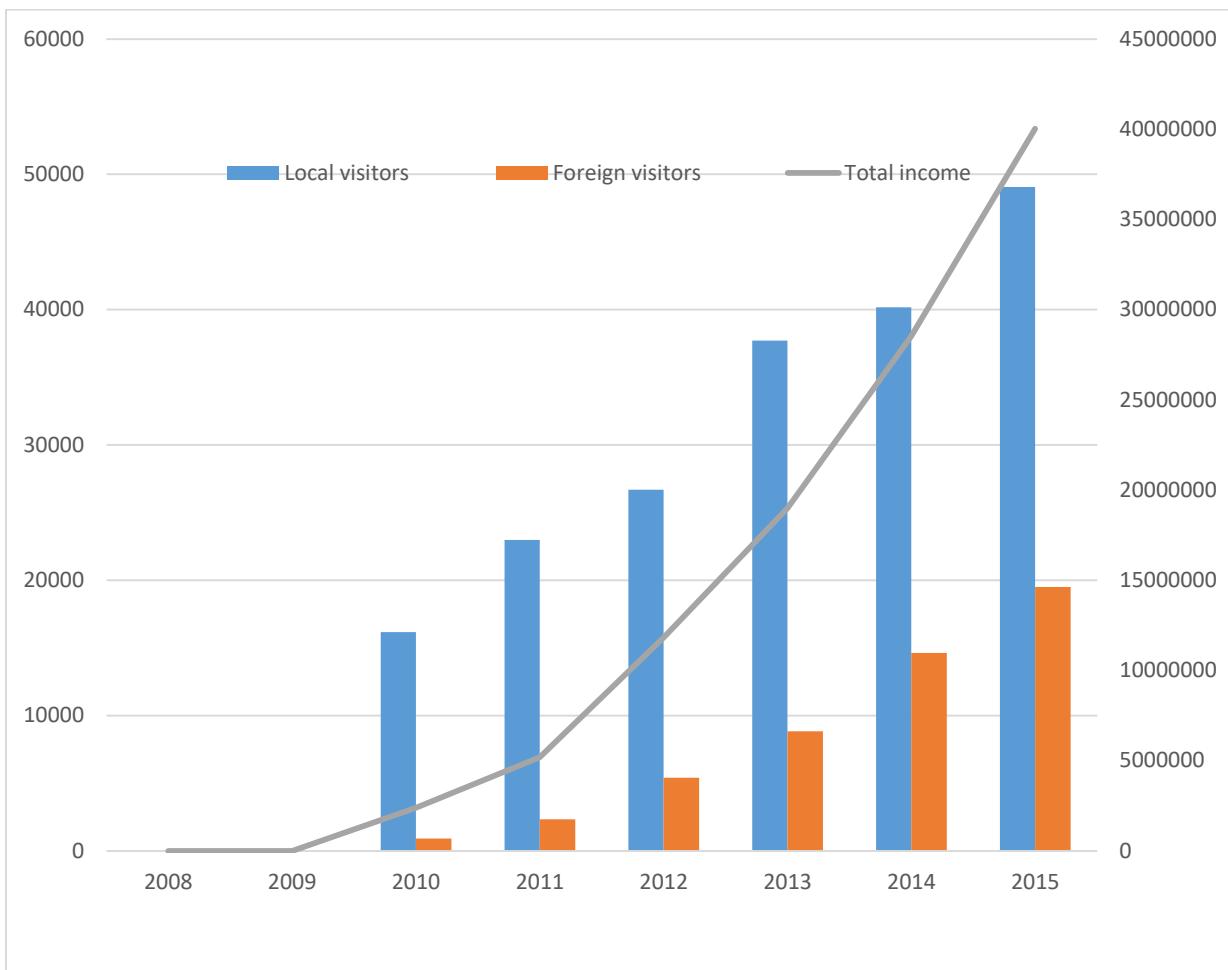


Figure 16: Visitor statistics at Wilpattu National Park from 2008-2015

However, compared many other PA of the country despite its size and relatively good road network that connects Wilpattu to Colombo, Wilpattu is not popular compared to other major PAs such as Yala (Figure 17).

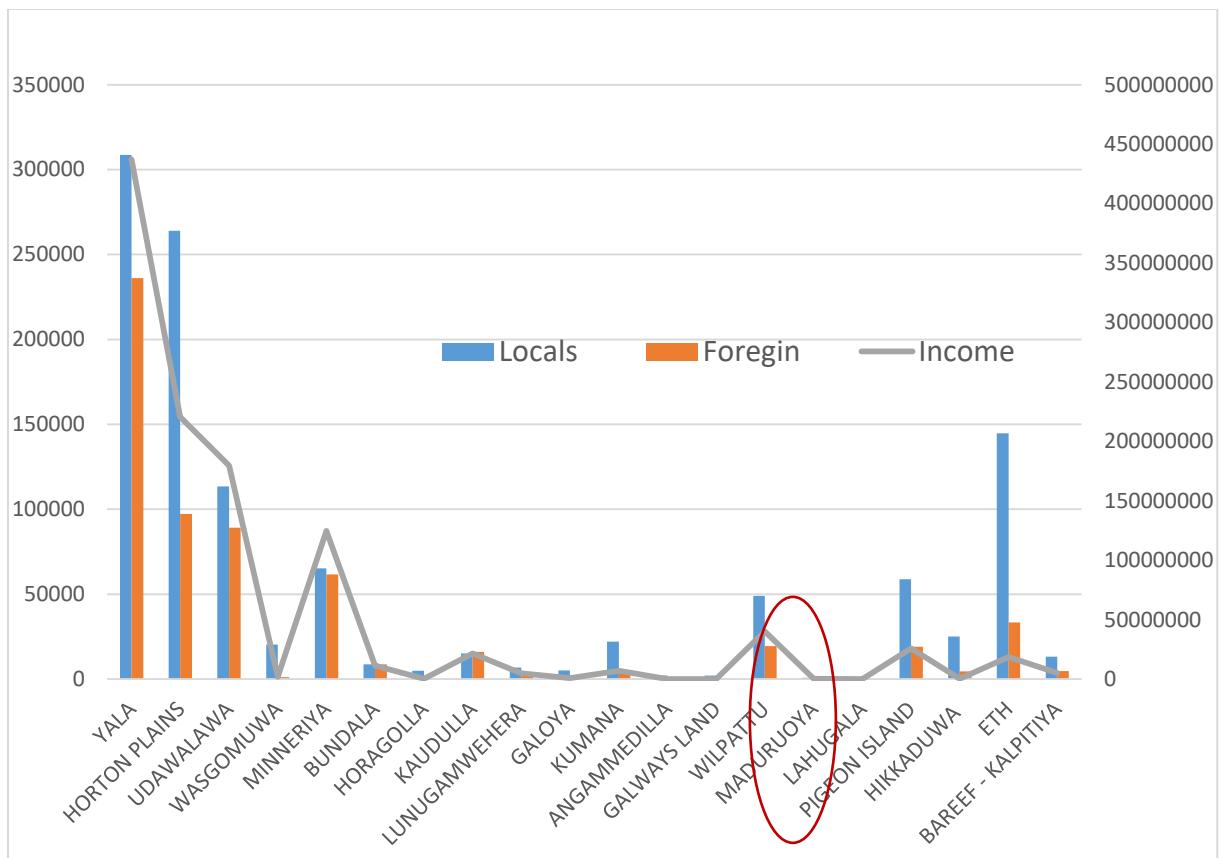


Figure 17: Comparison of visitor numbers in major protected areas of the country

Data extracted from Trip Advisor on 1<sup>st</sup> December 2016 indicated 43 % consider that the experience at Wilpattu as excellent (Figure 18). However, other main parks had more visitors commenting as excellent compared to Wilpattu (Figure 19).



Figure 18: Foreign visitor experience at Wilpattu as per the comments in Trip Advisor

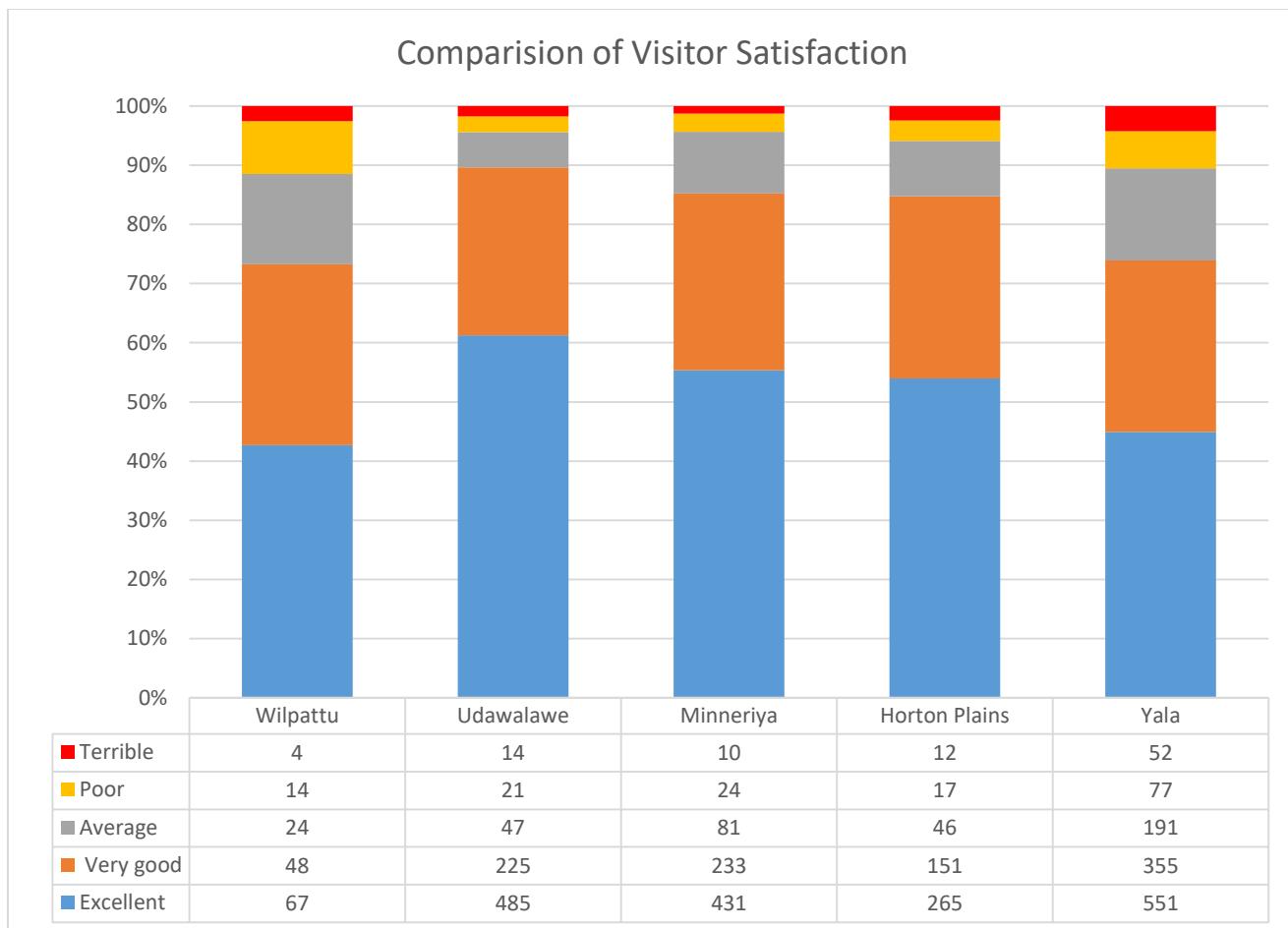
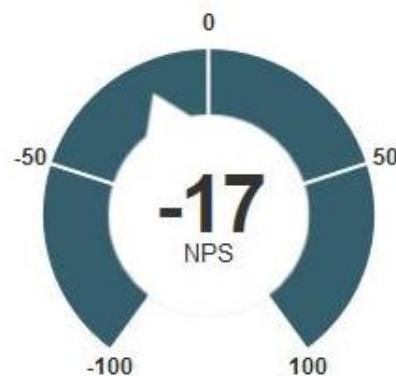


Figure 19: Comparison of visitor satisfaction in Wilpattu national park with other protected areas

An online survey conducted regarding the accommodation types maintained within Wilpattu National Park by DWC revealed that considerable effort is required to maintain the infrastructure, visitor satisfaction as well as in training the service providers such as bungalow keepers.

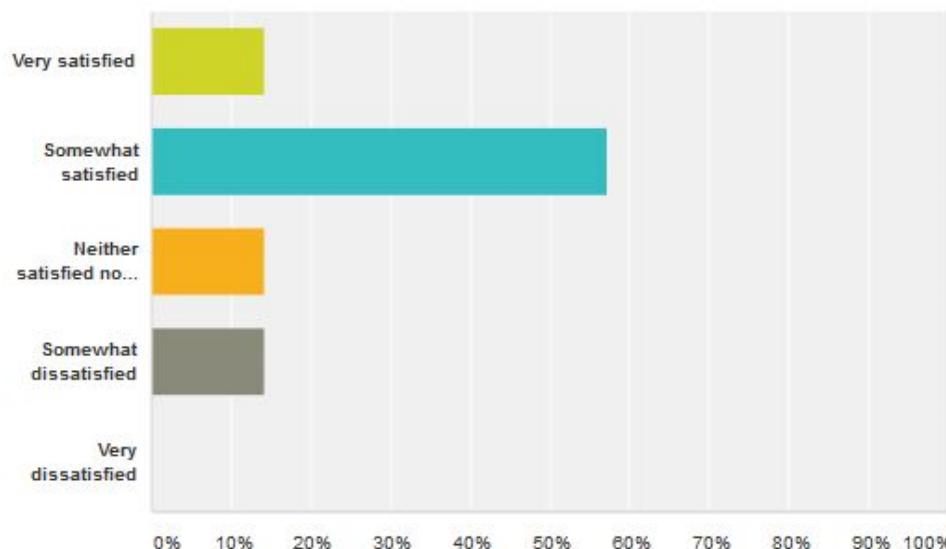
Outcomes from the survey are given below.

**How likely is it that you would recommend bungalows inside Wilpattu National Park (WNP) to a friend or colleague?**



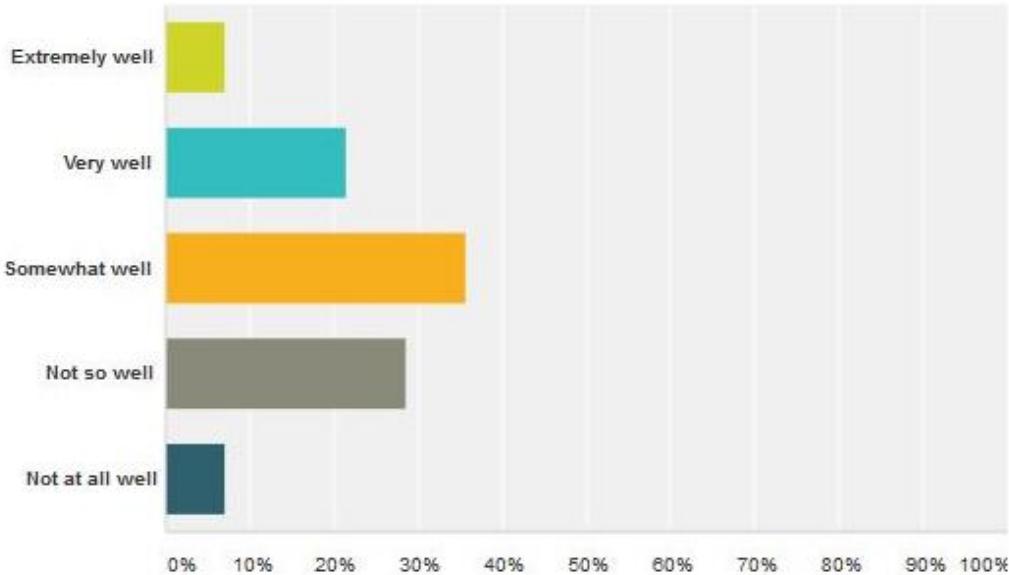
(a)

**Overall, how satisfied or dissatisfied are you with your stay/s at WNP bungalows and camping sites?**



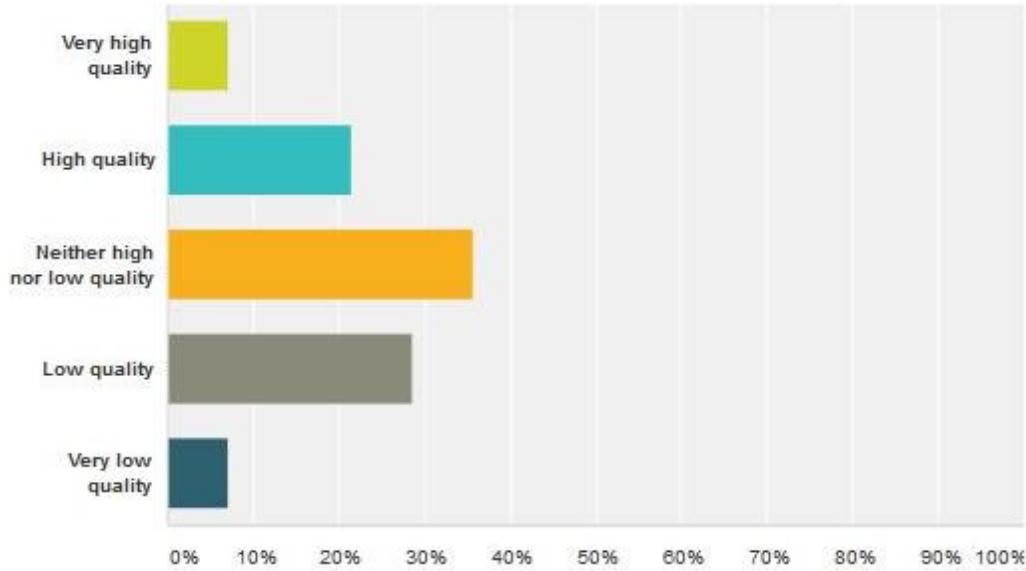
(b)

**How well do our service during the stay/s  
meet your needs?**



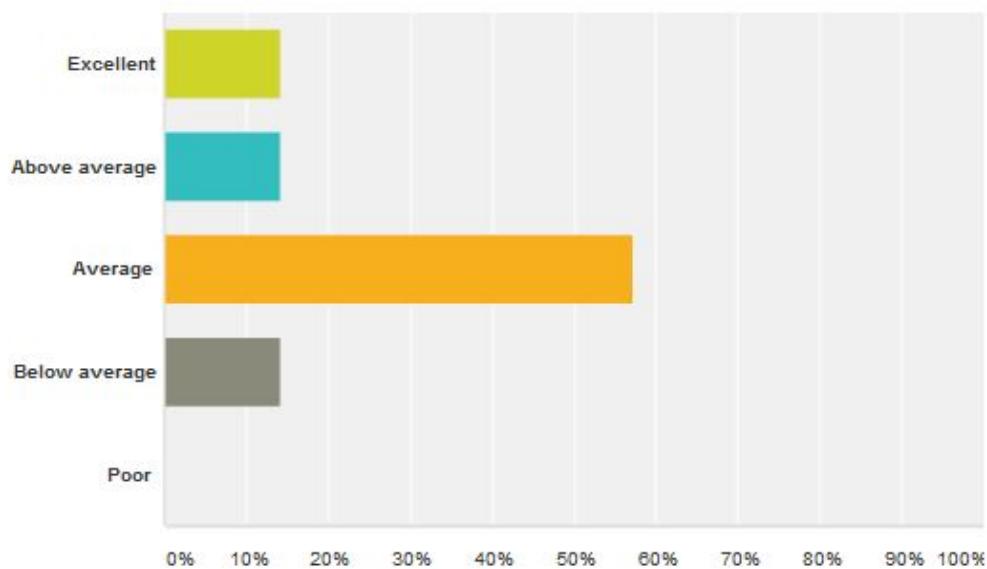
(c)

**How would you rate the quality of stay and  
experience?**



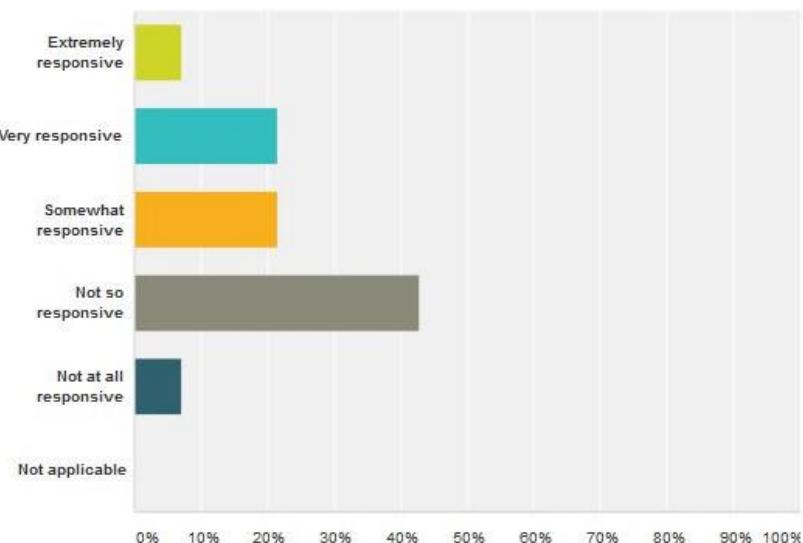
(d)

**How would you rate the value for money of services and experience during stay?**



(e)

**How responsive have we been to your questions or concerns about linen/food /things to do/ cleanliness of toilets/ basic information regarding park and dos and don'ts etc.?**



(f)

**What are the key changes you would like to see in future? (select an option and justify your response please)**

Answer Choices	Responses
No need of changes, keep the accommodation as it is	42.86% 6
Improve the service quality and cleanliness of existing	64.29% 9
Increase the number of accommodation within park	28.57% 4
Remove all the accommodation within park and relocate to buffer or any other suitable area thus reducing the disturbance to wildlife	28.57% 4
Increase camping sites	50.00% 7
Introduce new accommodation such as tree houses, over night watch huts	50.00% 7

(g)

Figure 20: Analyzed results of survey conducted to evaluate visitor satisfaction in DWC maintained bungalows and camp sites (a-g)

## 6. Strategic action framework

Wilpattu Protected Area Complex (WPAC) strategic action framework was prepared for five years starting from 2017 to 2021. The complex includes Wilpattu National Park, Wilpattu North Sanctuary and Proposed Wilpattu Marine Sanctuary which is also the Western coastal boundary of Wilpattu Ramsar site.

The proposed strategic action framework is expected to be implemented to achieve the following vision.

### Vision

**Wilpattu:  
A thriving Protected Area Complex rich in  
wildlife, habitats  
and its services  
for all, forever**

In order to achieve the above vision, this strategic action framework proposes following structure

1. Headed by the Assistant Director of the region and Park Warden of Wilpattu National Park establish a Regional Project Implementation Committee (RPIC) which will report to DG of the DWC, National Project Implementation Committee (NPIC) and District Coordinating Committees (DCC) of Puttalam, Anuradhapura and Mannar in implementing the activities of strategic action framework. The proposed management committee should be comprised of selected key stakeholders and community representatives. This committee will be responsible for ground level implementation, communication and progress monitoring. Budgetary allocations of strategic action framework should provide sufficient funds to run this implementation committee. ToR of the selected individuals and institutions should be prepared and given. The chairman of this committee will be

reporting to head office of DWC and should also request and disburse funds. The committee should be supported by two project assistants during the project implementation period and these two assistants should be placed under Assistant Director of the region and Park Warden. ToR of these PA should be decided.

2. Headed by the Deputy Director (Operations) a special project implementation office should be established either in the region or in Colombo. This office should also form National Project Implementation Committee at the national level reporting to DG and the heads of key stakeholder institutes and Ministry of Wildlife and Sustainable Development. This committee will be responsible for disbursement of funds, Procurement of goods and services, monitoring and evaluations and obtaining national level clearance for activities. This committee should also have both national institute, civil society and academic representations. The Deputy Director (Operations) should be assisted by international and national consultants both full time and part time. This committee is also responsible for implementation of independent monitoring and evaluation at stipulated time periods and adjusting the plan accordingly. This committee will also liaise directly with funding agency/ies. Project communication should also be handled by this committee. All appropriate staff, office space and facilities should be procured at the onset of the project.

The schematic diagram given below indicates the proposed management structure.

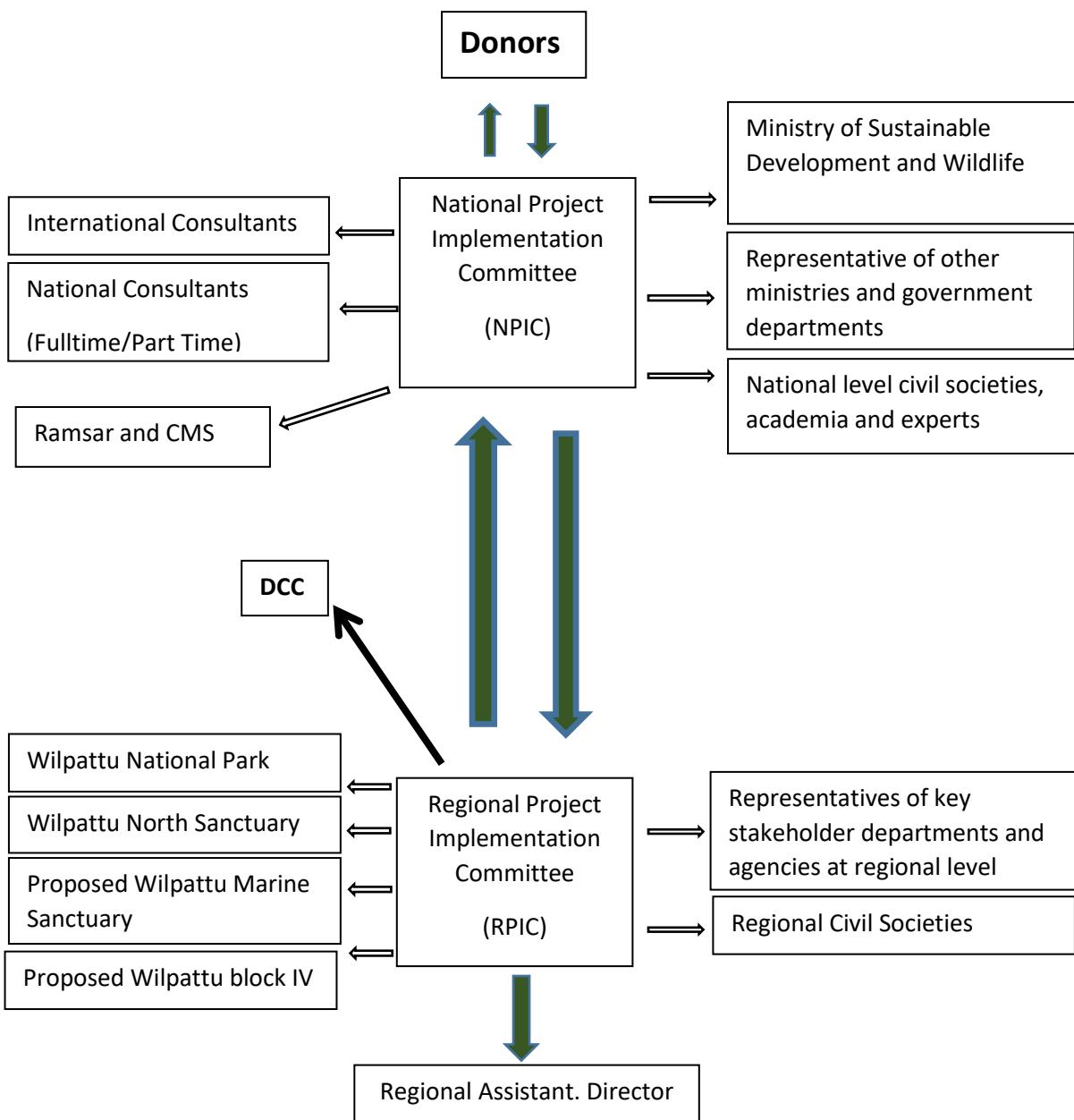
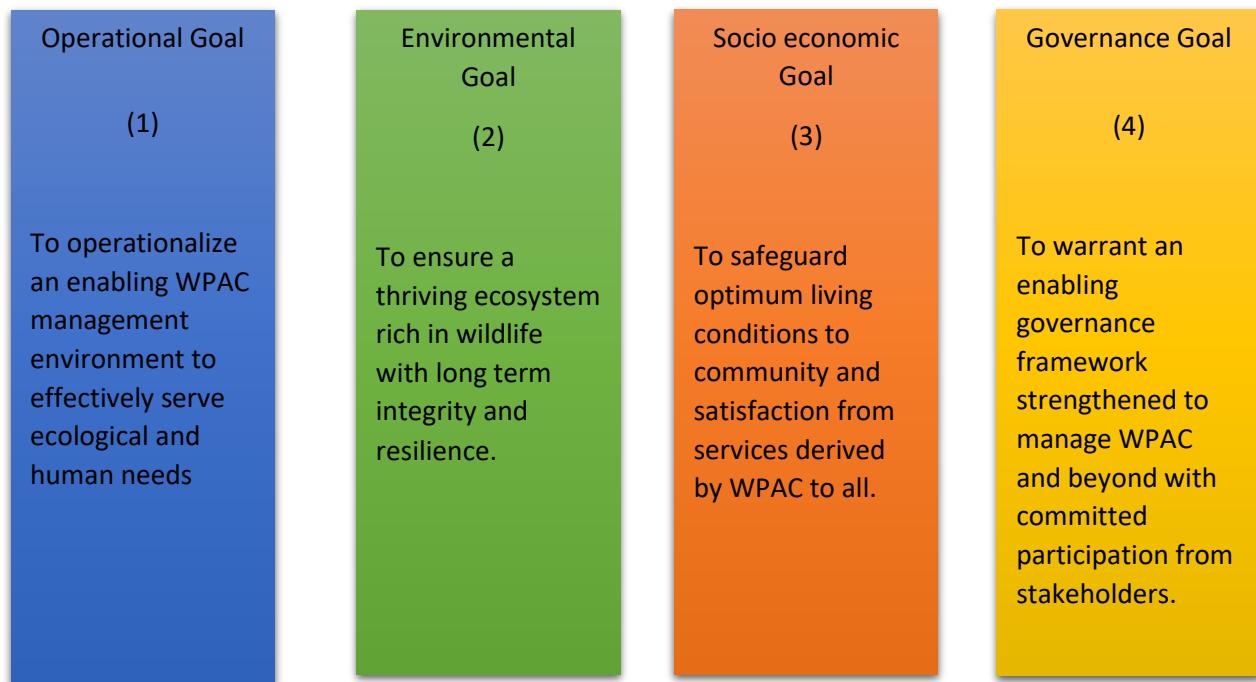


Figure 21: Schematic diagram of proposed Project Implementation structure

## Goals of the project

In order to achieve above vision following operational, environmental, socio economic and governance goals should be achieved. All the goals have been prepared to eliminate, reduce and control the threats and issues identified by this strategic action framework.



In order to achieve above goals each goal is divided into objectives specifically targeting identified threats hence creating an indicator for monitoring of progress and achieving of targets. Each goal is presented with strategic actions and a Gantt Chart depicting the expected time of start and completion of each activity.

#### Expected outcomes from Operational goals

- 1.1 Properly well demarcated and gazetted national park boundary with one-mile radius of development restricted area.
- 1.2 Rights to land ownership agreed and obeyed.
- 1.3 Properly well demarcated and gazetted sanctuary boundary with community participation.
- 1.4 An operative grade access network within WPAC.
- 1.5 Knowledgeable, skilled, competent and resourceful DWC staff serving Wilpattu Protected Area Complex.

#### Expected outcomes from Environmental goals

- 2.1 Updated status and distribution of fauna and flora, distribution of vegetation types, water resources and other natural resources and man-made features in Wilpattu Protected Area Complex.
- 2.2 Ecosystems functioning optimally thus positively impacting the biodiversity, population sizes, species movements and interactions.
- 2.3 Ensured health and safety of wild animals as well as adjacent human communities through improved co- existence and minimal negative anthropogenic activities.

#### Expected outcomes from Socio economic goal

To safeguard optimum living conditions to community and satisfaction from services derived by WPAC to all

- 3.1. Income and recognition for PA through sustainable and responsible ecosystem services trade.
- 3.2. Income, stability and better standards of life to adjacent communities through sustainable and responsible ecosystem services and products trade.

#### Expected outcomes from Governance Goal

- 4.1 Enhanced inter-agency coordination with key stakeholders ensuring good governance.

## Operational Goal

### Operational Goal

To operationalize an enabling WPAC management environment to effectively serve ecological and human needs

### Expected outcomes from operational goal

The project is implemented to achieve following operational goals

- 1.1 Properly well demarcated and gazetted national park boundary with one-mile radius development restricted area.
- 1.2 Rights to land ownership agreed and obeyed.
- 1.3 Properly well demarcated and gazetted sanctuary boundary with community participation.
- 1.4 An operative grade access network within WPAC.
- 1.5 Knowledgeable, skilled, competent and resourceful DWC staff serving Wilpattu Protected Area Complex.

Table 3: Outcomes from the operational goal 1.1 (Properly well demarcated and gazetted national park boundary with one-mile radius development restricted area), objectives, strategic actions and intended time for the implementation

Outcomes from operational goal	Objectives	Strategic actions	2017	2018	2019	2020	2021
1.1. Properly well demarcated and gazetted national park boundary with one-mile radius of development restricted area.	1.1.1. Established boundaries of the National Park present.	1.1.1.1. All legal boundaries are identified with the use of gazette notifications.					
		1.1.1.2. Aerial photography/ drone images are purchased for Wilpattu NP complex.					
		1.1.1.3. Land use maps of PA beyond one mile development restricted zone is established.					
		1.1.1.4. Create awareness on boundary demarcation to all key stakeholders through DCC.					

	1.1.1.5. Demarcate identified boundaries with permanent and visible boundary posts and create a data base of geo referenced encroached areas.				
	1.1.1.6. Distribute maps with newly demarcated boundary details to all key stakeholders.				
1.1.2. Established boundaries of National Park's one-mile development restricted area present.	1.1.2.1. One mile development restricted area is identified and verified through ground thruthing.				
	1.1.2.2. Conduct community awareness sessions on one mile boundary demarcation procedure.				
	1.1.2.3. Develop sign boards of appropriate size, decide on text, Intervals, locations etc.				
	1.1.2.4. Install one mile development restricted area sign boards with community participation.				
	1.1.2.5. Conduct routine maintenance work of demarcation posts and sign boards.				
1.1.3. Established routine boundary patrolling scheme.	1.1.3.1. Develop a 6 monthly compulsory boundary patrolling scheme along with regular patrolling conducted by range/ beat offices.				
	1.1.3.2. Purchase 2 four-wheel drive vehicles and 2 mechanized boats with facilities and cadre for patrolling (refer Goods list)				
	1.1.3.3. Develop a boundary patrolling log book.				

1.1.4. Established joint boundary management actions with FD, SL Navy and SL Army for the Northern, Eastern and Western sides of NP.	1.1.4.1. Prepare and implement a joint boundary protection action plan with quarterly progress reviews.				
	1.1.4.2. Conduct training and site visits to new staff as and when necessary.				
	1.1.4.3. Develop a community alert system for information sharing.				
	1.1.4.4. Develop an effective buoy system for demarcation of boundaries in sea.				

Table 4: Outcomes from the operational goal 1.2 (Disputes resolved for ecologically unsustainable occupations within and around the park), objectives, strategic actions and intended time for the implementation

Outcomes from Operational Goal	Objectives	Strategic actions	2017	2018	2019	2020	2021
1.2. Rights to land ownership agreed and obeyed.	1.2.1. Agreed set of management interventions introduced and executed for Pallekandal Church within the National Park thereby, disputes are resolved for ecologically unsustainable occupations within and around the park.	1.2.1.1. DWC, DS and church representatives agree on either possible relocation of the core religious unit outside the PA or devotee management strategies if first option is not possible.  1.2.1.2. Work with church management to phase out devotees operating meat stalls within PA.  1.2.1.3. Design and distribute awareness material					

	on do's and don'ts within a NP.				
	1.2.1.4. Create awareness and set limits to church management on do's and don'ts within a national park to stop further development of the church within PA. Hence, specific limits of church are agreed.				
	1.2.1.5. Create a mechanism for informed decision making regarding devotee facility provisions during annual feast with DS so that traditional activities intended in the law are allowed and agreed upon.				
1.2.2. Ensured living conditions for Palugahathurai fishing village community with minimal impact to PA.	1.2.2.1. Coordinate with DS and fisheries societies in identifying the right land ownerships so that a proper leasing mechanism is developed.				
	1.2.2.2. Decide on an appropriate licensing system if land ownership is to be given to selected community with appropriate conditions on land transfer.				

	1.2.2.3. Coordinate with DS in identifying and providing facilities to resident community.				
	1.2.2.4. Erect an elephant fence to mitigate human animal conflict and safety of community.				
	1.2.2.5. Train female household members on alternative income methods and facilitate product sale at proposed park sales outlets with the collaboration of DFAR.				
	1.2.2.6. Conduct awareness sessions and training to fisher community on illegal fishing methods, biodiversity, impacts of destructive fishing on sustainability of fishing industry with the assistance of DFAR and CCD.				
1.2.3. An agreed set of management interventions introduced and executed for boundary bordering around Thanthirimale	1.2.3.1. Maintain a well demarcated NP boundary with appropriate sign boards.				
	1.2.3.2. Maintain the erected elephant				

	temple area thus disputes are resolved for ecologically unsustainable occupations within and around the park.	fence to minimize human animal conflict.				
		1.2.3.3. Work with DS to provide access to water to communities earlier dependent on water resources within NP.				
		1.2.3.4. Work with temple, community, FD, DS to stop encroachments through arranged meetings conducted on regular basis.				
		1.2.3.4. With the proposed new visitor management centre, empower community to engage in visitor management related activities and ne livelihoods.				
	1.2.4. Maximum inter agency collaboration between DWC, DS and FD to curb illegal settlements and land use in Wilpattu North Sanctuary and adjacent lands belonging to FD.	1.2.4.1. Termination of paddy farming by SL Navy on mutually agreed dates.				
		1.2.4.2. Prepare a data base on current land owners and the type of land use to ensure traditional use of sanctuary land.				
		1.2.4.3. Develop and agree upon resettlement plans with community, DS and				

	other stakeholders where needed.				
	1.2.4.4. Resettle illegal settlers with the assistance of community, DS and political authority.				
	1.2.4.5. Develop a joint boundary patrolling scheme with FD for conflict areas.				
	1.2.4.6. Conduct joint boundary patrolling scheme with FD for conflict areas.				

Table 5: Outcomes from the operational goal 1.3 (Properly well demarcated and accepted sanctuary boundary with community participation), objectives, strategic actions and intended time for the implementation

Outcomes from Operational Goal	Objectives	Strategic actions	2017	2018	2019	2020	2021
1.3. Properly well demarcated and accepted sanctuary boundary with community participation.	1.3.1. Western boundary of Wilpattu NP declared as a marine sanctuary including areas of Kala Oya estuary.	1.3.1.1. Inform the intention for declaration to DAIR and other relevant stakeholders and obtain the consent.					
		1.3.1.2. Prepare relevant documents and maps and submit documents to Ministry.					
		1.3.1.3. Create public awareness.					
		1.3.1.4. Conduct a baseline study to develop a resource inventory including community					

	diversity and livelihoods.				
	1.3.1.5. Establish new beat offices as required for the management of sanctuary (Figure 23).				
	1.3.1.6. Provide training to staff on marine patrolling, boat operation, gear identification and diving.				
	1.3.1.7. Purchase 2 boats and diving gear (See annexure 1)				
	1.3.1.8. Conduct awareness sessions and training to staff and fishermen on illegal fishing methods and their impacts.				
	1.3.2. New zone IV with parts of Wilpattu North sanctuary and adjacent forested areas declared for the purpose of expansion of Wilpattu National park with the concurrence of FD and community hence becomes a part of WPAC.	1.3.2.1 Initiate discussions with FD, MoMDE , DS of Mannar and Anuradhapura to acquire land to be declared as new zone IV with least disturbance to land traditionally used by community.			
		1.3.2.2. Agree on resettlement plans and implement resettlements with appropriate compensations and minimal disturbance to community where necessary.			

	1.3.2.3. Obtain GPS points of the area identified and agreed, prepare relevant gazette notifications and declare new Zone IV.				
	1.3.2.4. Demarcate boundaries and development restricted zone.				
	1.3.2.5. Update maps and distribute to all stakeholders accordingly.				
1.3.3. Well demarcated sanctuary boundaries of Wilpattu Northern Sanctuary.	1.3.3.1. Inform the intention for boundary demarcation to stakeholders at DCC.				
	1.3.3.2. Initiate community awareness sessions and decide on mutually agreed mechanism.				
	1.3.3.3. Demarcate identified boundaries with permanent and visible boundary posts.				
	1.3.3.4. Update maps after demarcation including vegetation, cover and land use.				
	1.3.3.5. Conduct routine maintenance work.				
	1.3.3.6. Absorb identified areas for proposed Wilpattu zone VI as mentioned in 1.3.2.				

Table 6: Outcomes from the operational goal 1.4 (Well maintained road network within WPAC enabling species and ecosystem monitoring, sustainable tourism and least disturbance to species), objectives, strategic actions and intended time for the implementation

Outcomes from Operational Goal	Objectives	Strategic actions	2017	2018	2019	2020	2021
1.4. An operative grade access network in WPAC.	1.4.1. Ensured access for park management purposes with well-designed and maintained road network within WPAC enabling species and ecosystem and sustainable tourism monitoring by park officials with least disturbance to species.	1.4.1.1. Develop access for management purposes in block IV area (Thanthirimale).  1.4.1.2. Conduct annual maintenance work of existing road network in block I, III and V.  1.4.1.3. Maintain the existing jeep track above Modaragam Aru with FD that provides access to Kokmote area.  1.4.1.4. Construct a new road linking Maradamatduwa - Makalanmaduwa road half way to Kudaandaragollewa road after a proper environmental assessment.  1.4.1.5. Construct a new visitor management facility and park management office at Rathmalgama in block IV.  1.4.1.6. Conduct yearly road maintenance including under brushing in selected					

		roads.				
		1.4.1.7. Install solar lights to all major outpost buildings along the road network.				
	1.4.2. Optimized visitor access to provide a meaningful visitor experience.	1.4.2.1. Develop alternative routes for tourism. This may include a new visitor centre, park office and ticketing centre in Rathmalgama from block IV focusing on both wildlife and archeological significance of PA.				
		1.4.2.2. Develop a looping road network from Hunuwilagama to avoid traffic taking current one way road.				
		1.4.2.3. Construct visitor rests at strategic posts after a scientific study for optimum visitor satisfaction and education.				
		1.4.2.4. Construct noninvasive, environmentally compatible and signage boards along routes maintained for tourism.				
		1.4.2.5. Repair all culverts, shoe bridges that require maintenance.				

	1.4.2.6. Construct visitor hideouts in stop overs to minimize disturbance to wildlife and to ensure optimal animal watching.				
	1.4.2.7. Develop a nature trail along Hunuwilagama wewa focusing invertebrates such as butterflies, dragon flies etc.				
	1.4.2.8. Develop tour routes focusing birds and migratory flocks and operate the routes during season only.				
	1.4.2.9. Develop two tour routes focusing the archeological sites and ruins within NP with DoA (a) From Hunuwilagama entrance, (b) proposed Rathgama entrance.				
	1.4.2.10. Install digital news boards in entrances to announce news related to flora and fauna along the tour routes.				
	1.4.2.11. Train staff and tour operators on road use, speed limits, does and don't while touring and how to use nature trails.				

	1.4.2.12. Train two selected staff overseas on techniques for visitor access management and construction of visitor access facilities.				
	1.4.2.13. Commission research on impacts of visitor routes on animal movement and behavior to take informed decisions of route management and visitor carrying capacity.				
	1.4.2.14. Install live streaming camera's when access of routes needs to be closed temporarily to avoid disturbance and impacts to wild animals , thus ensuring visitor satisfaction.				
1.4.3. Closure / restriction of access in harmful access roads within the NP.	1.4.3.1. Conduct an Environmental Impact Assessment for illegal Puttalam - Mannar Road constructed without an EIA.				
	1.4.3.2. With the assistance of DS, mutually decide on activities pertaining to said illegal road until the judiciary process is complete.				

		1.4.3.3. In the event the road is closed for public with the ongoing court hearing (a) allow gradual succession of vegetation thus reducing further damage (b) remove invasive species that have invaded the NP (c) Remove all manmade structures that can disturb animal use and movement.				
		1.4.3.4. In the event the road is kept open for public (a) declare the road as protected area access road (b) manage the road maintenance by DWC (c) opening and closure times (d) closing seasons (e) types of vehicles allowed (f) speed (g) entry charges.				

Table 7: Outcomes from the operational goal 1.5 (Knowledgeable, skilled, competent and resourceful DWC staff serving Wilpattu Protected Area Complex), objectives, strategic actions and intended time for the implementation

Outcomes from Operational Goal	Objectives	Strategic actions	2017	2018	2019	2020	2021
1.5. Knowledgeable, skilled, competent and resourceful DWC staff serving Wilpattu Protected Area Complex.	1.5.1 Skilled and knowledgeable staff serving WPAC.	1.5.1.1. Plan and execute a training schedule for park management on following local training (where possible invite official of FD, Dol, DoA, DMC, Navy, Police, DFAR,					

		CCD, tour operators, conservationist, community leaders to participate to these training).				
		1. Water quality monitoring and wetland management.				
		2. Tools for wildlife habitat analysis, evaluation and management.				
		3. Use of drone technology, remote sensing and basic GIS use for wildlife management.				
		4. Basic veterinary care, animal restraint, ageing and sexing.				
		5. Conducting raids, ambushes and skills of combat.				
		6. National and international policies and legislature for wildlife officials including efficient handling of judicial system.				
		7. Healthcare, disease management and Nutrition in wild animals.				
		8. Use of fire arms.				
		9. Snorkeling, diving and leading up to PADI				

	license.				
10.	Conducting animal senses and population estimation.				
11.	Techniques and tools for under water ecosystem surveillance.				
12.	Record keeping and information systems management.				
13.	Conflict resolution and participatory management.				
14.	Gender equality and empowering PA buffer zone communities.				
15.	Science communication techniques.				
16.	Sustainable tourism, ethical tourism and eco-tourism.				
17.	Survival skills in forests.				
18.	Identification of marine fauna and flora (coral reefs/rocky shores/ sandy shores/marine mammals/pelagic and demersal fish of Gulf of Mannar.				
19.	Identification, monitoring,				

	eradication, containment and record keeping for invasives.				
20.	Wildlife photography.				
21.	Peace building and maintenance of peace and ethnic identity of people.				
1.5.1.2	Plan, identify appropriate locations and execute following foreign training programmes and study tours for park officials.				
1.	Fundamentals of habitat restoration and evaluation.				
2.	Designing of restoration centres and animal management within restoration centres.				
3.	Captive breeding techniques and management of captive animals.				
4.	Plant propagation techniques and restoration of endangered flora.				
5.	Designing of senses techniques for carnivores.				
6.	Invasive species				

	management from introductions to public awareness.				
	7. Community linked park management (study tours).				
	8. Tools for rainwater harvesting and water management in PA.				
	9. Collection and use of DNA samples for identification of bush meat.				
	10. Designing of effective visitor resources and nature trails.				
	1.5.1.3. Increase the cadre for WPAC and periphery to former level which was approximately 225 officers before the war. Recruit officials for all beat and range offices and other stations proposed in the strategic action framework.				
	1.5.1.4. Train and recruit seasonal staff as and when needed from periphery.				
	1.5.2. Park officials sufficiently provided with infra structure for daily operations, research, awareness and visitor management.	1.5.2.1. Supply park with following essential items required for park management (operational needs).			
		1.5.2.2. All items are listed			

	under goods category I in Annexure 1.				
	1.5.2.3. Supply park with following essential items required for park management (Research needs).				
	1.5.2.4. All items are listed under goods category II in Annexure 1.				
	1.5.2.5. Supply park with following essential items required for park management (Visitor management needs).				
	1.5.2.6. All items are listed under goods category III in Annexure 1.				
1.5.3. Presence of adequate number of staff for all existing and proposed sites of WPAC	1.5.3.1. Obtain permission from relevant government agencies and recruit staff to WPAC  The staff requirements are given in Annexure II.				
	1.5.3.2 Establish new beat offices and other staff facilities (Figure 22).				
	1.5.3.3. Create a mechanism for a revolving fund for WPAC from tourism earnings and recruit temporary staff.  The temporary staff requirements are given in Annexure II.				

## Environmental Goal

### Environmental Goal

To ensure a thriving ecosystem rich in wildlife with long term integrity and resilience

### Expected outcomes from environmental goal

- 2.1 Updated status and distribution of fauna and flora, distribution of vegetation types, water resources and other natural resources and man-made features in Wilpattu Protected Area Complex.
- 2.2 Ecosystems functioning optimally thus positively impacting the biodiversity, population sizes, species movements and interactions.
- 2.3 Ensured health and safety of wild animals as well as adjacent human communities through improved co-existence and minimal negative anthropogenic activities.

Table 8: Outcomes from the environmental goal 2.1 (Updated status, distribution of fauna , flora, vegetation types, water resources, other natural resources and man-made features of WPAC), objectives, strategic actions and intended time for the implementation

Outcomes from Environmental Goal	Objectives	Strategic actions	2017	2018	2019	2020	2021
2.1 Updated status and distribution of fauna and flora, distribution of vegetation types, water resources and other natural resources and man-made features of Wilpattu Protected Area Complex.	2.1.1. Baseline data of bio physical environment is established for management, monitoring and scientific purposes.	2.1.1.1.a Collate data on WPAC and conduct a gap analysis of information.					
		2.1.1.1.b Purchase latest satellite images for WPAC.					
		2.1.1.2. Prepare land cover, vegetation type and land use maps for the WNPC.					
		2.1.1.3 Conduct ground thruthing exercises.					

	2.1.1.4. Commission a research for systematic surveying and sampling of selected flora and fauna and update the resource inventory prepared by PAM Project.			
	2.1.1.5. Establish a water resource inventory for NP and establish water quality, sources, dynamics, water regime, seasonality, distribution and water use.			
	2.1.1.6 Conduct a systematic survey on types and current distribution of invasives in the WNPC and prepare a strategic plan for management of invasives within and around jointly with FD, BDS and CCD.			
	2.1.1.7 Update the current status of archeologically important sites within WPAC and develop a strategic action plan for joint supervision and preservation of sites.			
	2.1.1.8 Actively seek expertise and commission studies on census of leopards, migration			

	pattern of elephants, migratory marine mammals, mangroves, marine invertebrates with academia and other experts.				
	2.1.1.9. Develop a MOU with a reputed bird club for annual bird counts in WNPC and conduct census.				
	2.1.1.10. Conduct an experimental level aquatic habitat restoration in areas where villus/cascade systems have deteriorated due to invasives and siltation.				

Table 9: Outcomes from the environmental goal 2.2 (Ecosystems functioning optimally thus positively impacting the biodiversity, population sizes, species movements and interactions), objectives, strategic actions and intended time for the implementation

Outcomes from Environmental Goal	Objectives	Strategic actions	2017	2018	2019	2020	2021
2.2. Ecosystems functioning optimally thus positively impacting the biodiversity, population sizes, species movements and interactions.	2.2.1. Core areas for conservation are identified and are given the maximum protection whilst other areas are suitably zoned and managed for the intended purpose/s.	2.2.1.1. Demarcate the identified core area as conservation only zone (see the map).					
		2.2.1.2. Initiate habitat management strategies for conservation area as per the identified threats.					
		2.2.1.3. Conduct a fodder analysis for selected herbivores.					

	2.2.1.4. Conduct selected predator and herbivore nutritional status analysis.				
	2.2.1.5. Systematically conduct raids to eliminate poaching.				
	2.2.1.6. Systematically conduct raids to eliminate tree felling with the joint assistance from FD and Police.				
	2.2.1.7. Conduct viable population studies for species with data.				
	2.2.1.8. Establish mangrove restoration programme and other management measures to control erosion.				
2.2.2. Identified habitats formally affected by anthropogenic pressures are restored.	2.2.2.1. Conduct seed germination study for major canopy species.				
	2.2.2.2. Establish a marine animal treatment centre.				
	2.2.2.3. Establish CBO assisted nurseries for selected plant species.				
	2.2.2.4. Conduct awareness programmes to public and visitors on their role and				

	responsibilities to minimize impacts.				
	2.2.2.5. Establish garbage sorting facilities in visitor stop overs and park entrances.				
	2.2.2.6. With CBO plan and produce environmental friendly degradable bags to be used in PA.				
	2.2.2.7. Phase out use of plastic and polythene in PA and also in adjoining communities.				
	2.2.2.8. With DS and DoA fund and facilitate organic farming in PA periphery.				
	2.2.2.9. Establish home ranges of leopards and sloth bears and prepare plans to minimize visitor impacts.				

Table 10: Outcomes from the environmental goal 2.3 (Ensured health and safety of wild animals as well as adjacent communities through improved co- existence and minimal negative anthropogenic activities), objectives, strategic actions and intended time for the implementation

Outcomes from Environmental Goal	Objectives	Strategic actions	2017	2018	2019	2020	2021
2.3 Ensured health and safety of wild animals as well as adjacent communities through improved	2.3.1. Communities living with better living conditions and in harmony with wildlife.	2.3.1.1. Collate data on crop damages, property damages and damages to human life and other bodily damages in the					

co- existence and minimal negative anthropogenic activities.		peripheral areas of Wilpattu NPC.					
		2.3.1.2. Train WDC staff and other relevant officials on disaster management, health and safety and basic first aid.					
		2.3.1.3. Assist nearby hospitals and health workers by conducting workshops on identification of venomous reptiles.					
		2.3.1.4. Provide community level training on co living with wildlife, strategies to avoid animal encounter.					
		2.3.1.5. With the assistance of DoA and Department of Agrarian services develop animal friendly farming techniques and agriculture techniques to avoid crop and human damage.					
		2.3.1.6. Provide and facilitate opportunities to construct houses and animal shelters proof to damages by wild animals.					
		2.3.1.7. With the agreement of community and DS relocate to households living in					

	known elephant migratory routes with sufficient compensation and all facilities to settle in new areas.				
	2.3.1.8. With ESA data and other available data identify potential areas for human animal conflict and reserve such crown land from further development.				
	2.3.1.9. With DoA and DoF and academia experiment on plant species and structures that can be used to avoid animal entry to human compounds.				
	2.3.1.10. Create marketing strategies for products coming from peripheral communities emphasizing that crops are produced along with wildlife there by adding value.				
	2.3.1.11. Provide opportunities for communities to sell their products at visitor centers.				
	2.3.1.12. Conduct awareness sessions, trainings and with DoA facilitate and promote sustainable				

	agriculture in peripheral communities.				
	2.3.1.13. With DS, DoSW conduct youth empowering programmers and capacity development of peripheral youths to work in hotel and wildlife safari sector.				
	2.3.1.21. Elevate peripheral households and train communities to provide " Home stay" and B&B facilities in peripheral households.				
	2.3.1.22. Conduct joint patrolling with trained community leaders during peak crop production times and initiate mobile text communication system.				
	2.3.1.23. Prepare and implement a procedure for introduction of species from elsewhere to PA.				
	2.3.1.24. Train communities on bee keeping and maintaining wildlife gardens for pollinators. Facilitate marketing of products.				

	2.4.1.1. Conduct systematic raids and file actions against incidents of poaching.				
	2.4.1.1 Conduct joint patrolling in identified areas of poaching with FD, Navy, Police and Army.				
2.4.1. Reduced damages and deaths to wildlife due human animal conflicts and poaching within the WPAC and periphery.	2.4.1.2 Erect and maintain elephant fences in areas where HEF is affecting both animals and humans.				
	2.4.1.3 Establish an animal treatment centre with facilities to treat marine organisms.				
	2.4.1.4. Provide basic training on animal treatments, health and safety to all staff.				
	2.4.1.5. Develop the skills of selected staff on turtle and marine mammal treatment techniques (overseas exposure should be included in this training).				
	2.4.1.6. Restore the habitats in key migratory routes to avoid deaths to animals.				
	2.4.1.7 Purchase, set and monitor camera				

		traps to identify the animal movements in night.			
		2.4.1.8. Set a rewarding system for information on poaching and selling of bush meat.			
		2.4.1.9. Increase the connectivity of the adjacent forest patches to facilitate animal movement.			
		2.4.1.10. Construct a storage facility for material required in erecting elephant fences.			
	2.4.2. Improved nutritional status of animals within WPAC.	2.4.2.1. With academia develop a nutritional score system for herbivores and carnivores.			
		2.4.2.2. Conduct a nutrition score assessment for elephants.			
		2.4.2.3. With academia and National Zoological Gardens develop proximate composition analysis of main fodder and develop a data bank.			
		2.4.2.4. Reduce the pollutant loadings to water bodies and ensure quality water to animals through capping of non-biodegradable waste in water ways and by			

	increasing community awareness on use of fertilizers and biocides.				
	2.4.2.5. Determine and strictly operate safe animal viewing distances for selected animals including leopard.				
	2.4.2.6. Phase out use of non-biodegradable material use and entry.				
	2.4.2.7. Conduct waterhole assessments in WPAC and maintain the water bodies for wild animals. Where possible with the community decide alternatives to reduce water sharing conflicts with wild species. Alternatives may include pumping of water outside the PA using solar panels for community use, construction of new.				

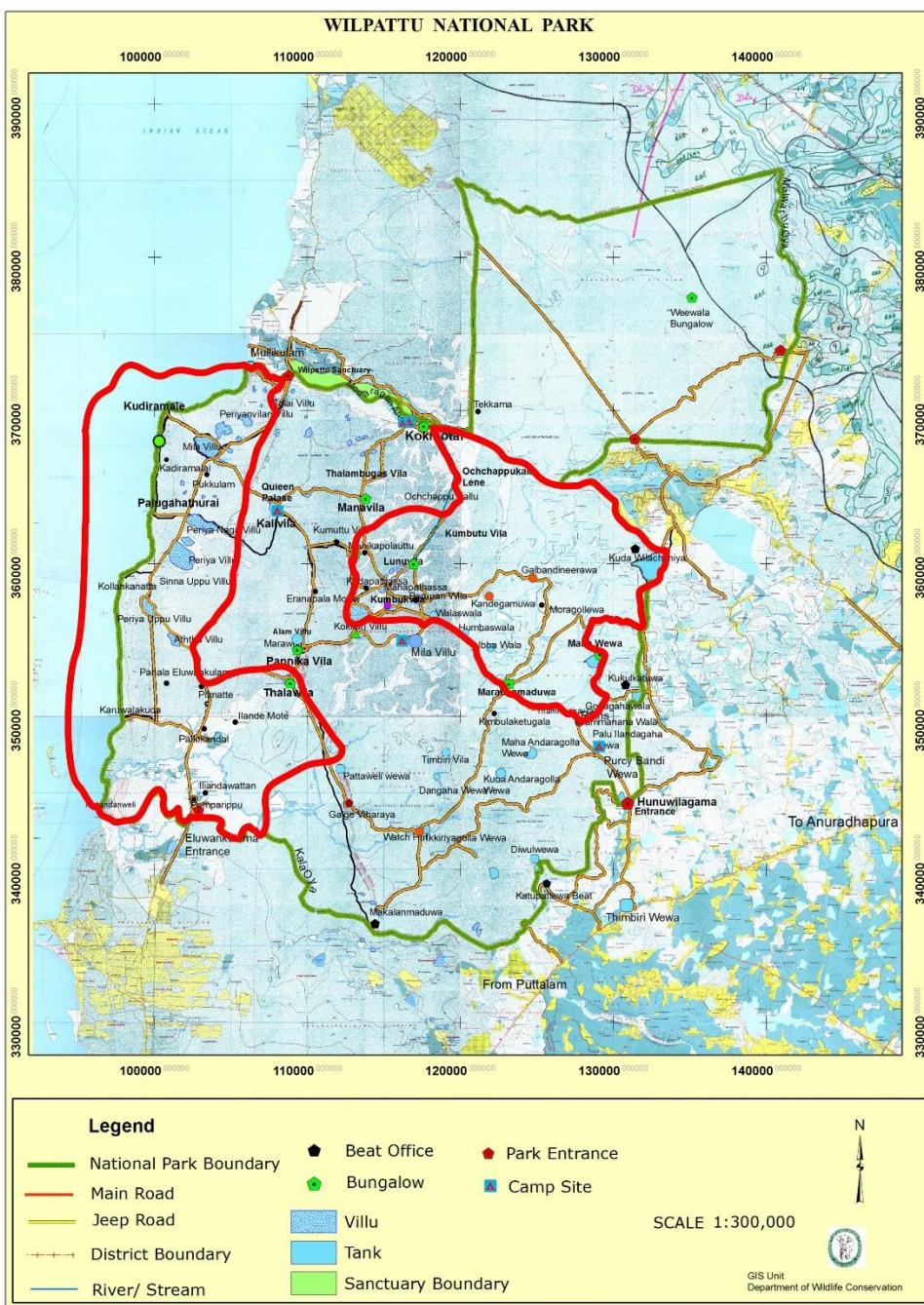


Figure 22: The proposed two core areas (red colour lines demarcate the proposed core areas). The Coastal core area to be extended to the western border of proposed Wilpattu marine sanctuary

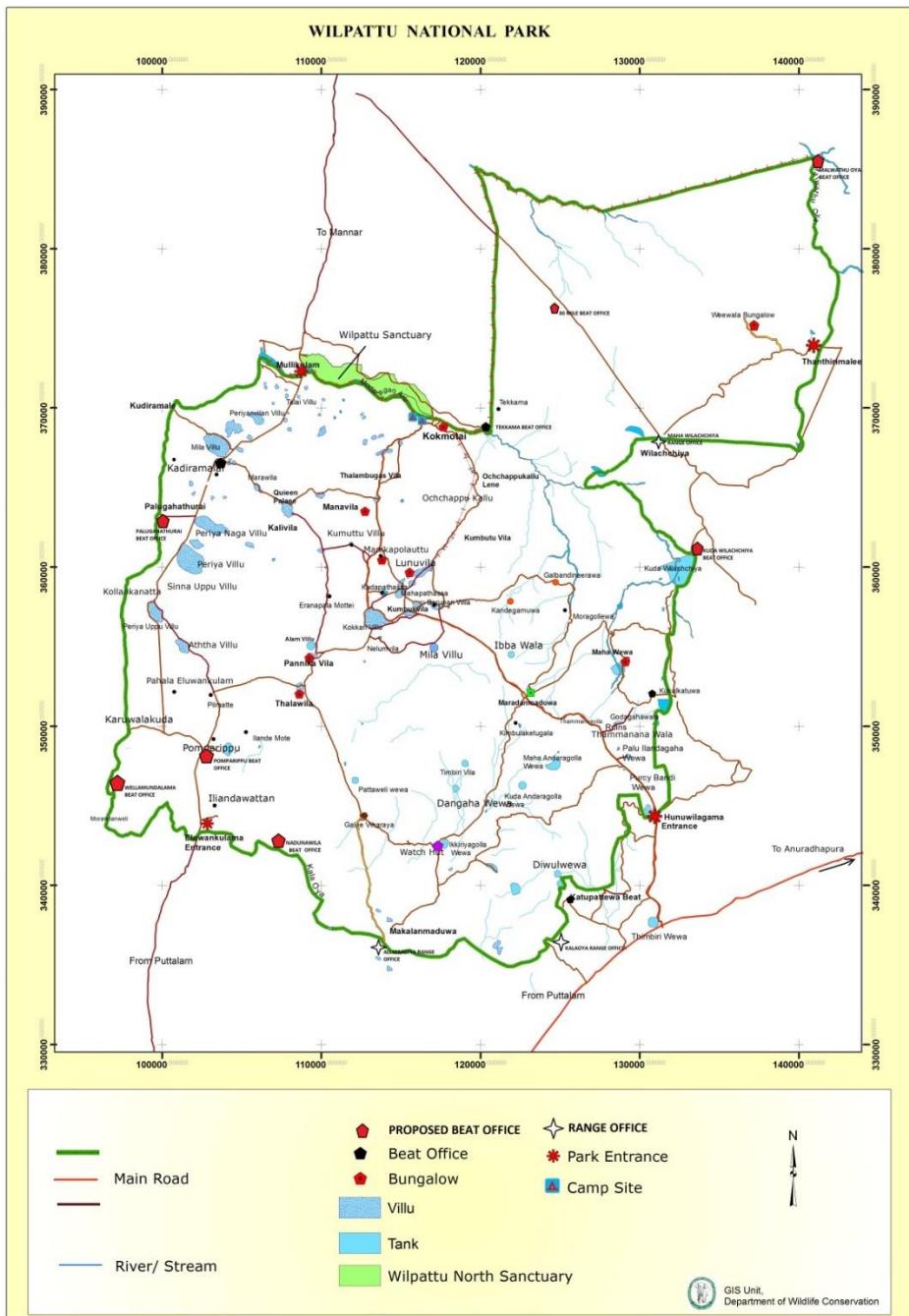


Figure 23: Distribution of beat offices (current and proposed) in the park. Proposed beat offices are depicted as red houses

## Socio economic goals

### Socio economic Goal

To ensure optimum living conditions to community and satisfaction from services derived by WPAC to all

### Expected outcomes from socio economic goal

3.1. Income and recognition for PA through sustainable and responsible ecosystem services trade.

3.2. Income, stability and better standards of life to adjacent communities through sustainable and responsible ecosystem services and products trade.

Table 11: Outcomes from the socio-economic goal; Income for PA and adjacent communities through sustainable and responsible ecosystem services and products trade (3.1), objectives, strategic actions and intended time for the implementation

Outcomes from socio economic Goal	Objectives	Strategic actions	2017	2018	2019	2020	2021
3.1. Income and recognition for PA through sustainable and responsible ecosystem services trade.	3.1.1. Increased sustainable income from WPAC.	3.1.1.1. Construct a new visitor centre with all amenities in Hunuwilagama and Rathgama.					
		3.1.1.2. Construct and maintain sanitary facilities in all main entrances and visitor stop overs.					
		3.1.1.3. Recruit an architect to modify/restore/redesign currently unpopular bungalows due to their bad designs and maintenance.					
		3.1.1.4. Purchase basic crockery and cutlery for all bungalows made with					

	stainless steel and enamel and replace porcelain and other breakable ware.			
	3.1.1.4. Restore all wash rooms with long lasting and functional fixtures with the assistance of an architect.			
	3.1.1.5. Improve the conditions of all existing camp sites and introduce a self-checking system for maintenance of sites with barred entrance for bad use of the site.			
	3.1.1.6. Construct a research centre in Maradhamaduwa.			
	3.1.1.7. Procure all facilities to ensure Maradhamaduwa function as a training centre for department and outside institutions.			
	3.1.1.8. Procure all basic equipment for sampling and wildlife research for research centre.			
	3.1.1.9. Phase out unsustainable bungalows within the NP.			
	3.1.1.10. Conduct a feasibility study to introduce new accommodation in the periphery of the WPAC thus reducing visitor pressure within.			

	3.1.1.11. Conduct a feasibility study to introduce a carbon tax for visitors based on vehicle type, number of visitors.				
	3.1.1.12. Develop a customer satisfaction survey and conduct routine sampling to improve the system.				
	3.1.1.13. Introduce 2 visitor overnight stay facilities such as tree houses and photography perches in identified locations.				
	3.1.1.14. Train safari jeep operators and conduct a basic testing on their knowledge, ethics, and health and safety to grant permits for entry.				
	3.1.1.15. Develop a tourism plan for proposed marine sanctuary area.				
	3.1.1.16. Develop, print and sale pamphlets, books and other educational material on WPAC and wildlife.				
	3.1.1.17. Develop and regularly maintain a dedicated website for WPAC.				
	3.1.1.18. Plan and conduct paid excursions for winter migrations and other attractions.				
	3.1.1.19. Develop nature trails in Hunuwilagama reservoir				

Table 12: Outcomes from the socio-economic goal 3.2 (Income, stability and better standards of life to adjacent communities through sustainable and responsible ecosystem services and products trade), objectives, strategic actions and intended time for the implementation

Outcomes from socio economic Goal	Objectives	Strategic actions	2017	2018	2019	2020	2021
3.2. Income, stability and better standards of life to adjacent communities through sustainable and responsible ecosystem services and products trade.	3.2.1 Increased sustainable income for peripheral communities.	3.2.1.1. Procure a specialist on alternative livelihood and community development to develop a plan on introducing alternative income sources for peripheral community that can be marketed in visitor centres and other franchises.					
		3.2.1.2. Train peripheral communities on how to maintain amenities for B and B and "Home stay" with Tourist Board.					
		3.2.1.3. With the collaboration of Tourist Board, and civil societies and DS assist communities in learning basic cooking skills, housekeeping and hygiene.					
		3.2.1.4. Introduce schemes like "Job Swap" for tourists and peripheral community.					
		3.2.1.5. Introduce organic					

	farming and create a market for products near the park entrances with DoA (e.g.: Helabojin).				
	3.2.1.6. Train and recruit seasonal staff for park management.				
	3.2.1.7. Train and recruit youths of the area as tour guides and use their service during peak visitations thus ensuring no vehicle leaves without a guide.				
	3.2.1.8. Conduct feasibility studies for value addition of products from the periphery (e.g. Legumes shared with wild birds and produced organically).				
	3.2.1.9. Introduce post harvesting techniques for fishery products in with DoF to coastal communities.				
	3.2.1.10. Conduct feasibility studies and accordingly elevate the income for females through creating job opportunities in relation to park.				
	3.2.1.11. Construct a community run kitchen for proposed				

		accommodation outside NP.					
		3.2.2.1. With DMC plan and prepare contingency plans.					
	3.2.2. Contingency plans for disaster management in WPAC are established and all relevant stakeholders are trained and made aware of actions.	3.2.2.2. Train park officials and other stakeholders in using the plans.					
		3.2.2.3. Procure essential equipment to manage disasters and conduct regular maintenance.					
		3.2.2.4. Create short videos and leaflets for creating awareness among park visitors on disaster management.					

## Governance Goal

### Governance Goal

To ensure an enabling governance framework strengthened to manage WPAC and beyond with committed participation from stakeholders

### Expected outcomes from governance goal

4.1 Enhanced inter-agency coordination with key stakeholders ensuring good governance

Table 13: Outcomes from the governance goal 4.1 (Enhanced inter-agency coordination with key stakeholders ensuring good governance), objectives, strategic actions and intended time for the implementation

Outcome from Governance Goal	Objectives	Strategic actions	2017	2018	2019	2020	2021
4.1 Enhanced inter-agency coordination with key stakeholders ensuring good governance.	4.1.1. Improved inter agency coordination at regional and national level.	4.1.1.1. Establish regional strategic action framework implementation committee (RMPIC) and National strategic action framework implementation committee (NMPIC).  4.1.1.2. Conduct monthly meetings during the phase of implementation.  4.1.1.3. Share soft and hard copies of strategic action framework and updated maps with key stakeholders.  4.1.1.4. Secure an agenda item in DCC for updates and					

	awareness creation regarding management measures.				
	4.1.1.5. Participate to environment committees of the region.				
	4.1.1.6. Conduct regular sessions with civil societies and provide updates on park matters and management.				
	4.1.1.7. Implement sensitization tours to key stake holders.				
	4.1.1.8. Conduct external audits on park management with stakeholder assistance.				
	4.1.1.9. Train staff on communication skills and record keeping.				
4.1.2. Improved coordination with peripheral community.	4.1.2.1. Clear land right disputes and engage in community discussions through civil societies.				
	4.1.2.2. Conduct awareness sessions to peripheral communities and school children.				
	4.1.2.3. Ensure sustainable supply of services such as water to peripheral				

	communities without compromising wildlife.				
	4.1.2.4. Assist creating revolving funds with income related to WPAC.				
	4.1.3.1. Invite civil societies to decision making processes and provide ample opportunities for commenting.				
4.1.3. Established and operating decision making system that is transparent and consultation based.	4.1.3.2. Ensure all management documents are public documents.				
	4.1.3.3. Re consult all stakeholders at the point of implementation of strategic actions of strategic action framework.				
	4.1.3.4. Keep records of all transactions.				

## Indicators

An indicator can be a quantitative or qualitative measure of some attribute of the system that is directly measured; estimated using a model (e.g. biomass estimated using a stock assessment model); measured indirectly (surrogate measures of biomass such as catch rates); or even just inferred (e.g. number of collaborative meetings as an indicator of cooperation and coordination across agencies).

More than one indicator may be used to monitor performance of the same management objective. This can provide greater confidence where none are considered accurate by themselves, but requires determination of how they will be collectively interpreted to track performance when they show differing trends. Participatory, community-based monitoring can be used to develop and monitor suitable indicators that are based on locally collected data. This can provide a practical and cost effective method to measure progress towards meeting the management objectives developed. It gives a sense of ownership to data and stakeholders are made self-aware about the changes.

Table 14: Indicators of expected outcomes, baseline and target

<i>This strategic action plan for WPAC will strengthen the ability of DWC and other key stakeholders' ability to safeguard biodiversity, viable populations, free movements and connectivity of species with other protected areas and areas of ecological importance. The benefits of such management is intended to bring in human wellbeing of both peripheral communities and for all thus ensuring all direct and indirect services are sustained forever.</i>					
Project Strategy	Indicator	Baseline	End of Project Target	Means of verification	Risks and assumptions
1.1. Properly well demarcated and gazetted national park boundary with one-mile development restricted area.	1. Number of km of the periphery demarcated.	Not present	Entire periphery including the coastal boundary.	Records from DWC, RPIC and NPIC minutes of progress evaluation meetings.	Collaboration of institutes will be hindered by complexity of institutional roles, and interests at national, provincial, district and local levels.

					Destruction by communists.
	2. Number of awareness boards installed in one mile development restricted area.	None	Entire periphery excluding FD/DWC joint boundaries.	Records from DWC.	Political pressure.
	3. Data base with geo referenced information on current settlements and their extent.	None	Entire boundary of WPAC.	DWC GIS Unit records.  RPIC and NPIC minutes of progress evaluation meetings.	Collaboration of institutes will be hindered by complexity of institutional roles, and interests at national, provincial, district and local levels.
1.2. Rights to land ownership agreed and obeyed.	4. Number of land disputes identified.	Not available	50 %	Records from DCC and DWC.  RPIC and NPIC minutes of progress evaluation meetings.	Political pressure.
	5. Number of land	Not available	50 %	Records from DCC and DWC	Collaboration of institutes will be hindered by complexity of institutional

	disputes resolved.				roles, and interests at national, provincial, district and local levels.
	6. Number of resettlement plans drawn and executed successfully	Not available	50 % identified disputes	Records from DCC and DWC.	
1.3. Properly well demarcated and gazetted sanctuary boundary with community participation.	7. Number of community meetings held for demarcation ad boundary maintenance.	None	Monthly meetings during demarcation . Six monthly meetings for maintenance.	Records from DWC and Divisional Secretariats and Grama Niladhari.	
	8. Number of km of the perimeter of sanctuary boundary marked.	To be determined	100 %	Department records	
	9. Area of sea marked by floating buoys	None	100 %	Department records	
1.4. An operative grade access network within WPAC.	10. Number of new roads developed for operational purposes.	To be decided	75 % of the decided	Department records	
	11. km of roads, culverts and bridges	To be decided	75 % of the decided	Department records	

renovated.				
12. Number of new entry points constructed.	1	2	Physical structures present	
13. Number of range/beat offices and sanitary facilities constructed and maintained.	4	15	Presence of physical structures and department records	Lack of sufficient funds.
14. Number of beat and range offices supplied with essential infra structure.	All offices to be up graded.	100	Procurement and disbursement. Inventories.	Infra structure not reaching to intended places  Low quality intra structure not suitable for intended purposes.  Lack of national suppliers.
15. Number of officers trained after assessing their training needs.	To be established as per the provided training schedule	100 %	Staff profiles.	Regular staff transfers.
16. Number of trained officers	To be established	75 %	Staff profiles	

	serving the park.				
	17. Number of collaborative research conducted by park officials.	None	3 research per year	DWC research committee minutes.	Lack of motivation and incentives.
2.1. Updated status and distribution of fauna and flora, distribution of vegetation types, water resources and other natural resources and man-made features in Wilpattu Protected Area Complex.	18. A data base maintained for collated information published for the area.	Not available.			
	19. Updated baseline data for species.	IUCN resource inventory.	Updated maps and data base.	Updated resource inventory.	
	20. An inventory of water resources with information on their dynamics.	IUCN resource inventory	Updated maps and data base	Updated resource inventory.	
	21. An inventory of other physical resources with information on their distribution.	IUCN resource inventory.	Updated maps and data base.	Updated resource inventory.	
	22.	IUCN	Updated	Updated resource	

	An inventory of archaeological sites, their status and locations.	resource inventory.	maps and data base.	inventory.	
	23. Wilpattu marine national park established.	Not in place	Declared	Gazette notification.	
2.2. Ecosystems functioning optimally thus positively impacting the biodiversity, population sizes, species movements and interactions.	24. Viable population sizes established.	Not known	VPA established for leopards, sloth bears and sambhur.		
	25. New corridors identified.	Not known	One important corridor declared.	Gazette notification	Community pressure
	26. Core and other zones declared.	Not in place	WPAC zonation plan.	Maps of GS unit DWC	
2.3 Ensured health and safety of wild animals as well as adjacent human communities through improved co-existence and minimal negative	27. Number of reported elephant deaths in the periphery	8	Reduced by 50 %	Records of DWC	Communities not willing to move from
	28. Number of illegal fishing gears operated	Not known	Reduced by 50 %	Records of DWC	
	29. Number of	21	Reduced by 25 %	Records of DWC/ DS/ Police	

anthropogenic activities.	property damages				
	30. Acres of crop land damaged by elephants	Not known	Reduced by 25 %	Records of DWC/ DS/ Police	
	31. Number of human deaths	8	Reduced by 75 %	Records of DWC/ DS/ Police	
	32. Number of New visitor centres	None	2	DWC records	Finances
3.1. Income for PA and improvement of quality and life of adjacent communities through sustainable and responsible ecosystem services and products trade.	33. Average monthly income from PA activities	To be established	30 % increase	Park income records	Level of visitor interests diverted elsewhere
	34. Average monthly income of peripheral community	To be established	Elevated by 25 %	Surveys conducted by a trained sociologist	Communities affected by climate change, disease and crop failures thus decline in regular income
	35. Number of organic/ sustainable agriculture initiatives	To be established			Lack of interest and lack of market initiatives
	36. Number of locations opened for communities to sell	None		Presence of physical structures in operation	Political pressure

	their products.				
	37. Number of community members engaged in tourism	46		100	Lack of motivation and recruitment procedures not compatible with suggestions
	38. Number of safari operators trained from community.	None		100 %	
4.1 Enhanced inter-agency coordination with key stakeholders ensuring good governance.	39. NPIC and RPIC established and in operation.	Not in existence.	Duly appointed NPIC and RPIC.	Appointments/ToR/Mi nutes of the meetings.	Lack of institutional commitmet. Lack of provisions to support.
	40. Number of civil organisation s serving NPIC and RPIC.	Not in existence.	Duly appointed NPIC and RPIC.	Appointments/ToR/ Minutes of the meetings.	Lack of institutional commitmet Lack of provisions to absorb communite s into managemet mechanisms
	41. Number of community meetings held during the project.	None	All decisions related to communite s taken after community consultation	Minutes of the meetings.	

## 7. Communication strategy

The success of this framework depends on effective and timely communication. Since the proposed framework has introduced two management structures at regional and national level with stakeholder participation, is important to establish following communication strategies.

1. Pre implementation, implementation and post implementation phases should maintain proper communication strategies with all stakeholders, general public and international community. This should include sharing of agendas, minutes and progress reviews and publications arising from the project.
2. Strategic action framework should be opened for public consultation prior to adoption and any management plan arising from this should be validated and shared with stakeholders.
3. All meetings should be minuted and approved minutes should be forwarded to participants.
4. All tendering procedures to follow donor specific and national procurement procedures and should be given due publicity.
5. The approved strategic action framework should be made available through DWC website.
6. A dedicated park management website can be developed (See the given example).
7. The outcomes and progress should be made available as written publications, presentations.
8. All documents arising from the project including the reports of surveys, research and consultants report should be compiled and made available for interested parties.
9. All newsletters, leaflets, pamphlets distributed through conventional media and social media should be made available in all three languages.
10. Awareness meetings to communities should be carried out at regular intervals.

# Peak District National Park Management Plan



A DIVERSE  
WORKING  
AND  
CHERISHED  
LANDSCAPE



[HOME](#) [ABOUT THE NATIONAL PARK](#) [ABOUT THE PLAN](#) [OUR VISION](#) [WHAT IT MEANS TO YOU](#) [ACHIEVING OUR VISION](#)



## WHAT IS IT?

What is a National Park Management Plan, who is involved and why does it matter?



## SEE THE PLAN

View the full plan or sections of it.



## WHAT IT MEANS TO YOU

What the plan means for young people and schools, farmers...



## HOW ARE WE DOING IT?

How partners are achieving action on the ground.

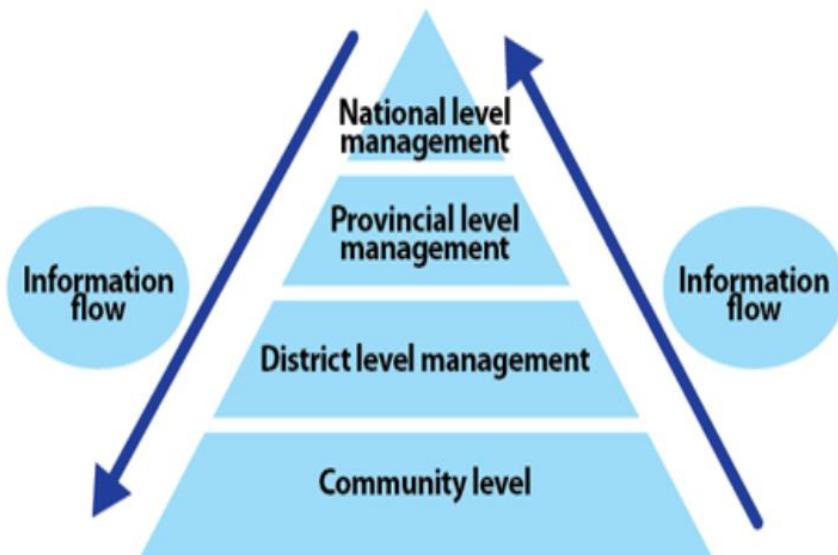


» Desktop

## 8. Monitoring and evaluation

In order to ensure transparency following steps should be followed for monitoring and evaluation when implementing this framework. Also, it is of utmost importance that baseline data are available, indicators have been agreed upon, indicators are capable of showing initial, mid and final achievements of goals, agencies are aware about the type of data they are expected to generate, agencies have agreed to share data and a system is in place with a competent person to collate, analyse and report.

1. Monitoring should be done during the whole of the plan's implementation. The frequency of monitoring activities will be indicator dependent i.e. some indicators will need to be monitored monthly, some seasonally and some annually.
2. At the simplest level, because specific objectives and indicators have been chosen to cover the important ecological, social, economic and governance issues, assessing the status of each indicator against its benchmark should provide a snapshot of how well management is performing at the ecosystem level.
3. Different evaluation results will be required by different stakeholders and there should be upward and downward information flows between different levels, ranging from the national level to the community level, as well as across sectors.



4. In addition to internal audits three independent audits should be conducted at 1.5, 3.5 and 5 years of the project by either a donor nominated team or a team selected by the ministry.

5. Progress review meetings should be held every month during the implementation and PIP should be regularly updated, accordingly. Both technical and financial progress should be evaluated with accurate formats. An initial training on record maintenance to all involved staff is important.
6. The minutes of RPIC and NPIC should be maintained and distributed timely after every meeting.
7. An online calendar should be maintained and shared with all stakeholders.
8. Outcomes of reviews should be made available for stakeholders.

## 9. Sustainability plan

The sustainability of the proposed strategic action plan and its outcomes depends on several factors.

- a. Incentives stakeholders receive during the implementation of the strategic actions
- b. Efficiency of the proposed implementation committees in communicating the outcomes to stakeholders at all levels
- c. Perceived benefits encouraging the stakeholders to continue even in the absence of visible external funding
- d. Compatibility of the proposed operational mechanisms with the existing management structures
- e. Retaining staff trained for specific tasks within WPAC

The strategic actions proposed here, if implemented diligently, will result in positive attitudinal changes as well as better living conditions for peripheral communities, who in turn need to be made aware that to enjoy these positive changes, WPAC needs to be protected.

Hence setting aside a part of the revenue in a liberal trust fund that can be accessed can benefit continued functioning of the systems. Also, the proposed actions have been spanned out in such a way, the first five years take care of provisioning of resources. Hence, latter stages are for monitoring and upgrading without the need of large amounts of expenditure for procurements.

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## Appendices

Annexure 1: Table of goods required for WAPC management

Category	Place of requirement	Description	Number required	Remarks
Goods for operational needs	Park head office	Four wheel drive cabs	4	2 for boundary patrolling 1 for tourism 1 park administration related travelling
		Telephone line with an operator	1	
		GPS	2 Units per each range and beat office	Training to be provided on use and data entry
		Drones	02	
		Truck		
		Crew cab	1	
		Mechanized outrigger boats	2	
		Utility boat with motors	2	
		2 large tractors		
		ATV bikes	3	To be placed at strategic posts
		Diesel generators	5 units	
		Solar light systems	Complete unit for each building	All beat an range offices should be supplied with solar power
		Diesel Lawn movers	2	
		Shredders		
		Branch cutters		
		Swiss Army knives and tool pack		
		Gum boots		
		Compost bins ad bins for plastic/ polythene and glass	3 sets each	For every building where waste is generated including beat and range offices
		Spades, weeders, rakes, trowels, Dutch hoe, wheel barrows	1 set each	For every bungalow, range and beat office
		Rain coats	3 per office	
		Gaiters	1 each for all park officials	

	Night vision binoculars	2	
	Tents (single/ 3 person and 10 person)	2 sets each	
	Camping chairs (2 nos.) and folding tables	2 sets	
	VHF/ W.T. / R.S	A system to connect entire WPAC	
	Digital SLR Camera	1	
	Stainless steel flasks (500ml)	2 for each office	
	Headlamps	1 each for every officer	
	Camping cookware	2 sets	
	Sleeping bags	1 each for every officer	
	Solar LED Lanterns	2 each for every office	
	Personal Locator beacons	3 sets	
	Lap top computer	5	Park office and range offices
	Printer cum scanner	5	Park office and range offices
	Laminating machine	5	Park office and range offices
	Stainless steel cupboards	10	Park office and range offices
	Office chairs and tables	10 sets	Park office and range offices
	Establish a meteorological station with instruments	01	To be established with Department of meteorology
Beat and Range office cum officers accommodation	Sleeping bags	3 per beat office	
	Basic furniture and items for office (office tale, chairs, stainless steel lockable cupboard, lockable cupboard for arms, 1:5000 maps of the area, communicating systems, GPS)	Each office	
	Basic furniture for bed rooms (single beds, table, chair, cloth rack and dressing cupboard cum wardrobe, mosquito nets)	Each office	
	Basic furniture for living room	Each office	

		(arm chairs, dining table and coffee table, first aid box)		
		Basic furniture and equipment for kitchen (storage cupboards, cooking pots, coconut scraper, gas cooker, crockery and cutlery)	Each office	
		Binoculars	1 unit per office	
Ticketing points	Research	Tables and chairs		
		Cash machines		
		Safety lockers		
		Display cupboard for leaflets		
		Large screen		
		DVD player		
		Visitor chairs		
		Lockable cupboards		
		Large notice board		
		Customer satisfaction survey box		
Goods for research and animal health management	Research	Refractometer	2	
		Digital multiparameter for water quality	1	
		Soil pH meters	2	
		Stainless steel quadrats (1*1 m)	4	
		Stainless steel quadrats (0.5*0.5 m)	4	
		Mist nets for birds	2	
		Camera traps	2	
		Sampling jars	10	
		Field microscope	2	
		Bat detectors	2	
		Cast nets	1	
		Hand nets of various mesh sizes for fish	10	
		Hand nets for butterflies and other insects	10	
		Light traps for insects	3	
		Hand held GPS	5	
		Dingy boat	2	
		Refrigerator	1	
		Stainless steel cupboards		
		Projector		
		Screen		
		Wooden Chairs for meetings		

		and awareness sessions		
Animal health and safety		Animal restraint ropes and poles		
		Dissecting sets		
		Basic Surgical kit (Scissors = 1 = pointed, pointed, 1 = pointed, blunt, 1= blunt, blunt, Artery forceps = 3= straight, 2= curve, Rat toothed forceps, Scalpel handle size 4;22, Scalpel blade, London hospital type needle holders, Suture needles with cutting edge, Tissue holding forceps)		
		Electric hair clipper		
		Animal cages		
		Gum boots and overalls		
		Stainless steel table for small animal examination (30'*24'*48')	02	
		Saline stand (height adjustable to 72')	03	
		Pharmaceutical lockable storage cupboard		
		Refrigerator		
		Hypodermic needles (18G,21G, 23G) and disposable needle (1cc, 2.5cc, 5 cc, 10cc)		
		Office tables and chairs		
		Remote drug shooters		
		Dart guns		
Goods for visitor management	Bungalows and camping sites	Stretchers	01	
		Crockery and cutlery made of enamel or any other material that can bear rough handling		
		Mosquito nets		
		Camp beds		
		Bunker beds		
		Solar light systems		
		Generators		
		Wooden chairs and tables		
		Garbage bins for sorted garbage		
		Matresses, pillows and linen		
		Kitchen utensils		
		Pots and pans		

		Mops, brooms and other cleaning items		
Visitor drop off points	Fixed spotting scopes in strategic places			
	Fixed wooden benches and tables			
	Laminated bird, butterfly and mammal etc. guides fixed to posts			
	First aid kits			
Visitor centres	Projectors	3		
	Public address systems	2		
	Screens	3		
	Exhibits including interactive exhibits			

Annexure 2: Current status of staff and additional staff required for implementation of WPAC strategic action plan

Location	Category	Existing cadre	Additional cadre required
Head Office	Rangers	2	2
	Range Assistant	2	2
	Wildlife guards	6	6
	Trackers/voluntary guards	10	40
	Laborers	6	5
	Drivers	2	2
	Bungalow keepers	6	3
	Assistant Bungalow Keeper	6	4
	Veterinary staff	0	1
	Management assistant	0	3
	Finance assistant	1	1
	IT Assistant	0	1
	Interpreters for visitor center	0	3
	Temporary guides	0	15
	Daily cleaning staff	0	2
Range Offices (Mollikulama)	Ranger	0	1
	Range Assistant	1	0
	Wildlife guards	4	2
	Volunteer guide	3	10
	Field Assistant	1	1
	Drivers	1	0
Eluwankulama	Ranger	0	1
	Range Assistant	1	0
	Wildlife guards	3	1
	Volunteer guide	3	10
	Field Assistant	1	1
	Drivers	1	0
Aliwadiya	Ranger	0	1
	Range Assistant	1	0
	Wildlife guards	3	1
	Volunteer guide	0	0
	Field Assistant	1	1
	Drivers	0	1
Kalaoya	Ranger	0	1
	Range Assistant	0	1
	Wildlife guards	2	2

	Volunteer guide	0	0
	Field Assistant	2	0
	Drivers	0	1
Mahawilachchiya	Ranger	0	1
	Range Assistant	1	0
	Wildlife guards	1	3
	Volunteer guide	0	0
	Field Assistant	2	0
	Drivers	1	0
Thanthirimale	Ranger	1	0
	Range Assistant	0	1
	Wildlife guards	2	2
	Volunteer guide	2	4
	Field Assistant	1	1
	Drivers	1	0
Thekkama	Ranger	0	1
	Range Assistant	1	0
	Wildlife guards	1	3
	Volunteer guide	0	0
	Field Assistant	2	2
	Drivers	1	1
Beat office – Katupathwewa	Range Assistant	1	0
	Wildlife guards	1	2
	Field Assistant	1	1
Marawila	Range Assistant	1	0
	Wildlife guards	1	2
	Field Assistant	2	0
Kukulkatuwa	Range Assistant	1	0
	Wildlife guards	1	2
	Field Assistant	2	0

The appendices given below were compiled by DWC at the point of submitting the documents to declare Wilpattu as a Ramsar site. It is the latest situational analysis carried out. The data is from many sources notably Wilpattu Resource Inventory (DWC, 2007).

Annexure 3: Major ecosystems, habitats and their dominant plant species in Wilpattu National Park

Major Ecosystem Type	Sub-habitat types	Dominant Plants
<b>Forests and/or Forest related Ecosystems</b>		
1. Tropical dry-mixed evergreen forests	Tall forests (> 20 m)	<i>Chloroxylon swietenia, Drypetes sepiaria, Manilkara hexandra</i>
	Medium height forests (10-20 m)	<i>Chloroxylon swietenia, Diospyros ovalifolia, Drypetes sepiaria, Mischodion zeylanicus</i>
	Dwarf forests (< 10 m)	<i>Drypetes sepiaria, Memecylon capitellatum, Memecylon umbellatum, Mischodion zeylanicus</i>
	Rock-outcrop forests	<i>Euphorbia antiquorum, Ficus amplissima, Ficus benghalensis, Ficus mollis</i>
2. Tropical thorn forests	Scrublands	<i>Benkara malabarica, Canthium coromandelicum, Capparis zeylanica, Carissa spinarum, Catunaregam spinosa, Erythroxylum monogynum, Flueggea leucopyrus, Maytenus emarginata, Memecylon capitellatum, Memecylon umbellatum, Scutia myrtina, Ziziphus oenoplia and Ziziphus rugosa</i>
3. Riverine forests	Narrow and broad forests	<i>Diospyros malabarica, Hydnocarpus venenata, Syzygium cumini and Terminalia arjuna</i>
4. Grasslands	Dry Patana	<i>Chloris barbata, Chrysopogon fulvus, Eragrostis riparia, Eragrostis riparia, Evolvulus alsinoides, Fimbristylis cinnamometorum, Fimbristylis triflora, Leucas zeylanica and Sporobolus maderaspatanus</i>
<b>Inland Wetland Ecosystems</b>		
5. Floodplains	Riverine floodplains	<i>Cyperus exaltatus, Cyperus pilosus, Cyperus rotundus, Diospyros malabarica, Haldina cordifolia, Imperata cylindrica, Syzygium cumini, Terminalia arjuna and Vitex leucoxylon</i>
6. Streams and rivers	Rocky and sandy substrates	<i>Aponogeton crispus, Cyperus difformis, C. exaltatus, C. haspan, C. javanicus, C. serotinus, Eragrostis riparia, Fimbristylis</i>

		<i>miliacea, Ischaemum barbatum, Ixora coccinea, Murdannia spirata, Panicum brevifolium, Panicum maximum, Polygala javana, Scleria multilacunosa, Stenotaphrum dimidiatum</i> and <i>Terminalia arjuna</i>
7. Swamps	Swamp forests	<i>Diospyros malabarica, Syzygium cumini</i> and <i>Terminalia arjuna</i>
	Herbaceous plant swamps	<i>Crotalaria lunulata, Eragrostis atrovirens, Eriocaulon quinquangulare, Hygrophila schulli, Oryza perennis, Phragmites karka, Schoenoplectus articulatus</i> and <i>Typha angustifolia</i>
8. Wet Villu Grasslands	Occasionally flooded edge forest	<i>Calophyllum calaba, Diospyros malabarica, Garcinia spicata, Hydnocarpus venenata, Syzygium cumini</i> and <i>Terminalia arjuna</i>
	Occasionally flooded dryland grassland	<i>Aphyllodium biarticulatum, Cynodon dactylon, Cyperus rotundus, Desmodium triflorum, Eragrostis ciliaris, Eragrostis nutans, Fimbristylis cinnamometorum, Ischaemum ciliare, Leucas zeylanica, Oldenlandia umbellate</i> and <i>Tephrosia purpurea</i>
	Seasonally flooded damp grassland	<i>Cyperus iria, Cyperus rotundus, Eclipta prostrata, Eragrostis nutans, Eriocaulon quinquangulare, Fimbristylis cinnamometorum, Murdannia dimorphoides, Phyla nodiflora, Schoenoplectus articulatus</i> and <i>Schoenoplectus supinus</i>
	Swamp community	<i>Aeschynomene indica, Bacopa monnieri, Cyperus javanicus, Dopatrium lobelioides, Eclipta prostrata, Elaeocharis retroflexa, Eriocaulon quinquangulare, Leptochloa neesii, Leptochloa panicea, Murdannia dimorphoides, Phyla nodiflora, Sacciolepis interrupta, Schoenoplectus articulatus</i> and <i>Utricularia caerulea.</i>
	Marsh community	<i>Aeschynomene indica, Bacopa monnieri, Dopatrium lobelioides, Eriocaulon quinquangulare, Fimbristylis cinnamometorum, Hygrophila balsamica, Leptochloa neesii, Phyla nodiflora</i> and <i>Schoenoplectus articulatus</i>

	Lentic community	<i>Bacopa monnieri, Blyxa auberti, Ceratophyllum demersum, Dopatrium lobelioides, Fimbristylis miliacea, Hydrilla verticillata, Limnophila aquatica, Nymphaea nouchali, Nymphaea pubescens, Nymphoides hydrophylla, Nymphoides indica and Potamogeton nodosus</i>
9. Ponds and reservoirs	Occasionally/seasonally flooded edge forest	<i>Calophyllum calaba, Diospyros malabarica, Diospyros ovalifolia, Hydnocarpus venenata and Syzygium cumini</i>
	Occasionally/seasonally flooded dryland grassland	<i>Cynodon dactylon, Cyperus javanicus, Cyperus rotundus, Eragrostis nutans, Eragrostis riparia, Imperata cylindrica, Sporobolus diande and Tephrosia purpurea</i>
	Seasonally flooded damp grassland	<i>Blainvillea acmella, Cyperus difformis, Cyperus exaltatus, Cyperus rotundus, Eclipta prostrata, Eragrostis nutans, Eriocaulon quinquangulare, Fimbristylis cinnamometorum and Paspalidium punctatum</i>
	Swamp community	<i>Aeschynomene indica, Cyperus distans, Cyperus javanicus, Eriocaulon quinquangulare, Fimbristylis cinnamometorum, Oryza perennis and Schoenoplectus articulatus</i>
	Marsh community	<i>Aeschynomene indica, Bacopa monnieri, Blyxa auberti, Ceratophyllum demersum; Limnocharis flava, Ludwigia adscendens, Oryza perrinis, Sacciolepis interrupta and Schoenoplectus articulates</i>
	Lentic community	<i>Aponogeton crispus, Blyxa auberti, Ceratophyllum demersum, Hydrilla verticillata, Nelumbo nucifera, Nymphaea nouchali, Nymphaea pubescens and Nymphoides hydrophylla</i>

#### Coastal and Marine Ecosystems

10. Mangroves	Estuarine Mangrove	<i>Avicennia marina, Bruguiera cylindrica, Excoecaria agallocha, Lumnitzera racemosa and Rhizophora mucronata</i>
11. Salt marshes	Intertidal salt marshes	<i>Salicornia brachiata, Suaeda maritime, Suaeda monoica and Suaeda vermiculata</i>
12. Sand dunes and	Beach vegetation	<i>Excoecaria agallocha, Opuntia dillenii, Pemphis</i>

beaches		<i>acidula</i> and <i>Spinifex littoreus</i>
13. Seagrass beds	Sea grass beds in lagoons	<i>Syringodium isoetifolium</i> , <i>Enhalus acoroides</i> , <i>Cymodocea serrulata</i> , <i>Halophila decipiens</i> and <i>Halophila ovalis</i>
14. Lagoons and estuaries	Open water bodies	(See mangroves and sea grass vegetation)

Annexure 4: Nationally threatened plant species in Wilpattu National Park

Family	Species	Life-form	RL Category
Orchidaceae	<i>Habenaria dichopetala</i>	Herb	EN
Rubiaceae	<i>Canthium coromandelicum</i>	Tree	LC
Rubiaceae	<i>Canthium rheedii</i>	Shrub	NT
Ebenaceae	<i>Diospyros ebenum</i>	Tree	EN
Melastomataceae	<i>Osbeckia zeylanica</i>	Shrub	VU
Euphorbiaceae	<i>Phyllanthus myrtifolius</i>	Herb	VU
Annonaceae	<i>Polyalthia longifolia</i>	Tree	LC
Annonaceae	<i>Alphonsea zeylanica</i>	Tree	VU
Euphorbiaceae	<i>Antidesma alexiteria</i>	Tree	LC
Loranthaceae	<i>Dendrophthoe ligulata</i>	Parasitic	VU
Acanthaceae	<i>Dyschoriste depressa</i>	Herb	LC
Rubiaceae	<i>Haldina cordifolia</i>	Tree	LC
Rubiaceae	<i>Hedyotis cyanantha</i>	Shrub	NT
Euphorbiaceae	<i>Margaritaria indica</i>	Shrub	VU
Rubiaceae	<i>Mitragyna parvifolia</i>	Tree	LC
Rubiaceae	<i>Pavetta gleniei</i>	Shrub	NT
Acanthaceae	<i>Rungia longifolia</i>	Herb	VU
Acanthaceae	<i>Stenosiphonium cordifolium</i>	Herb	LC
Loranthaceae	<i>Taxillus cuneatus</i>	Parasitic	LC
Orchidaceae	<i>Vanda tessellate</i>	Epiphyte	VU
Orchidaceae	<i>Vanilla walkerae</i>	Epiphyte	VU

Annexure 5: Freshwater fish recorded from the rivers and other wetlands in Wilpattu National Park

Family	Scientific Name	Common Name	RL Category
Anguillidae	<i>Anguilla nebulosa</i>	Long finned Eel	LC
Cyprinidae	<i>Rasboroides atukorali</i>	Horadandia	VU
	<i>Chela ceylonensis</i>	Blue labuca	VU
	<i>Devario malabaricus</i>	Giant Danio	LC
	<i>Puntius bimaculatus</i>	Redside Barb	LC
	<i>Puntius chola</i>	Scarlet banded Barb	
	<i>Puntius dorsalis</i>	Long snouted Barb	LC
	<i>Puntius singhala</i> <sup>E</sup>	Filamented Barb	LC
	<i>Puntius sarana</i>	Olive Barb	
	<i>Puntius vittatus</i>	Silver Barb	LC
	<i>Puntius sp. "ticto"</i>	Tic-tac-toe Barb	
	<i>Rasbora carverii</i>	Caverii Barb	
	<i>Amblypharyngodon melettinus</i>	Green Carplet	LC
Cobitidae	<i>Lepidocephalichthys thermalis</i>	Common spiny loach	LC
Belontidae	<i>Pseudosphromenus cupanus</i>	Spiketailed paradisefish	LC
	<i>Trichogaster pectoralis</i>	Snakeskin gourami	
Bagridae	<i>Mystus vittatus</i>	Striped Dwarf Catfish	LC
	<i>Mystus cavasius</i>	Gangetic mystus	
Siluridae	<i>Ompok bimaculatus</i>	Butter catfish	LC
	<i>Wallago attu</i>	Shark catfish	EN
Claridae	<i>Clarias brachysoma</i>	Walking catfish	NT
Heteropneustidae	<i>Heteropneustes fossilis</i>	Stinging catfish	LC
Channidae	<i>Channa ara</i>	Giant Snakehead	EN
	<i>Channa punctate</i>	Spotted Snakehead	LC

	<i>Channa striata</i>	Murrel	LC
Mastacembelidae	<i>Mastacembelus armatus</i>	Marbled spiny Eel	LC
Gobiidae	<i>Glossogobius giuris</i>	Bar eyed Goby	LC
	<i>Awaous melanocephalus</i>	Scribbled Goby	LC
Cichlidae	<i>Oreochromis mossambicus</i>	Tilapia	

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Annexure 6: Amphibians recorded from Wilpattu National Park

Family	Species	Common Name	RI Category
Bufonidae	<i>Duttaphrynus melanostictus</i>	Common House Toad	LC
	<i>Duttaphrynus scaber</i>	Ferguson's Dwarf Toad	VU
	<i>Duttaphrynus atukoralei</i>	Athukorale's Dwarf Toad	NT
Mycrohylidae	<i>Microhyla ornata</i>	Ornate Narrow Mouth Frog	LC
	<i>Microhyla rubra</i>	Red Narrow Mouth Frog	LC
	<i>Uperodon systoma</i>	Balloon Frog	LC
	<i>Ramanella variegata</i>	White - bellied Pugsnout Frog	LC
	<i>Kaloula taprobanica</i>	Common Bull Frog	LC
Ranidae	<i>Euphlyctis hexadactylus</i>	Six toed - Green Frog	LC
	<i>Euphlyctis cyanophlyctis</i>	Skipper Frog	LC
	<i>Sphaerotheca breviceps</i>	Banded Sand Frog	LC
	<i>Sphaerotheca rolandae</i>	Marbled Sand Frog	LC
	<i>Hoplobatrachus crassus</i>	Jerdon's Bull Frog	LC
	<i>Fejervarya limnocharis</i>	Common Paddy Field Frog	LC
	<i>Hylarana gracilis</i>	Sri Lanka Wood Frog	LC
	<i>Polypedates cruciger</i>	Common Hour glass Tree Frog	LC
	<i>Polypedates maculatus</i>	Chunam Tree Frog	LC

Annexure 7: Reptiles recorded from Wilpattu National Park

Family	Species	Common Name	RI Category
Bataguridae	<i>Melanochelys trijuga</i>	Parker's Black Turtle	LC
Trionychidae	<i>Lissemys ceylonensis</i>	Flapshell Turtle	LC
Testudinidae	<i>Geochelone elegans</i>	Indian Star Tortoise	NT
Crocodylidae	<i>Crocodylus palustris</i>	Mugger Crocodile	NT
Gekkonidae	<i>Geckoella yakhuna</i>	Blotch Bowfinger Gecko	VU
	<i>Gehyra mutilata</i>	Four-claw Gecko	LC
	<i>Hemidactylus parvimaculatus</i>	Spotted House Gecko	LC
	<i>Hemidactylus depressus<sup>F</sup></i>	Kandyan Gecko	LC
	<i>Hemidactylus frenatus</i>	Common House Gecko	LC
	<i>Hemidactylus leschenaultia</i>	Bark Gecko	LC
	<i>Hemidactylus lankae</i>	Termite hill Gecko	LC
Agamidae	<i>Calotes calotes</i>	Green Garden Lizard	LC
	<i>Calotes ceylonensis</i>	Painted lip Lizard	NT
	<i>Calotes versicolor</i>	Common Garden Lizard	LC
	<i>Otocryptis nigristigma</i>	Lowland Kangaroo Lizard	LC
	<i>Sitana ponticeriana</i>	Fanthroat Lizard	LC
Chamaeleonidae	<i>Chamaeleo zeylanicus</i>	Sri Lankan Chameleon	EN
Scincidae	<i>Dasia halianus</i>	Haly's treeskink	NT
	<i>Lankascincus fallax</i>	Common Lankaskink	LC
	<i>Eutropis carinata</i>	Common Skink	LC
	<i>Eutropis macularia</i>	Bronzegreen Little Skink	LC
	<i>Europis madaraszi<sup>F</sup></i>	Spotted Skink	VU
	<i>Sphenomorphus dussumieri</i>	Redthroat litter Skink	DD
	<i>Lygosoma punctatus</i>	Dotted skink	LC

	<i>Nessia hickanala</i>	Sharkhead Snakeskink	CR
Varanidae	<i>Varanus bengalensis</i>	Land Monitor	LC
	<i>Varanus salvator</i>	Water Monitor	LC
Cylindrophidae	<i>Cylindrophis maculatus</i>	Sri Lankan Pipe Snake	NT
Uropeltidae	<i>Rhinophis oxyrynchus</i>	Scheneider's earth Snake	LC
Colubridae	<i>Ahaetulla nasuta</i>	Green Vine Snake	LC
	<i>Ahaetulla pulverulenta</i>	Brown Vine Snake	LC
	<i>Amphiesma stolatum</i>	Buff-striped Keelback	LC
	<i>Atretium schistosum</i>	The Olive keelback	LC
	<i>Boiga forsteni</i>	Forsten's Cat Snake	NT
	<i>Boiga trigonatus</i>	Gamma Cat Snake	LC
	<i>Chrysopela taprobanica</i>	Striped flying Snake	LC
	<i>Coeloglanathus Helena</i>	Trinket Snake	LC
	<i>Dendrelaphis bifrenalis</i>	Boulenger's Bronze-back	NT
	<i>Dendrelaphis tristis</i>	Common Bronze-back	LC
	<i>Dryocalamus nymphoides</i>	Common Bridal Snake	LC
	<i>Liopeltis calamaria</i>	Reed Snake	NT
	<i>Lycodon aulicus</i>	Common Wolf Snake	LC
	<i>Lycodon osmanhilli</i>	Flowery wolf Snake	LC
	<i>Lycodon striatus</i>	Shaw's Wolf Snake	LC
	<i>Oligodon arnensis</i>	Common Kukri Snake	LC
	<i>Oligodon taeniatus</i>	Variegated Kukri Snake	LC
	<i>Ptyas mucosa</i>	Rat Snake	LC
	<i>Xenochrophis piscator</i>	Checkered Keelback	LC
Boidae	<i>Python molurus</i>	Python	LC
	<i>Gongylophis conicus</i>	Sand Boa	VU
Elapidae	<i>Bungarus caeruleus</i>	Common Krait	LC

	<i>Calliophis melanurus</i>	Sri Lanka Coral Snake	NT
	<i>Naja naja</i>	Cobra	LC
Viperidae	<i>Daboia russelii</i>	Rusell's Viper	LC
	<i>Echis carinatus</i>	Saw-scaled Viper	VU
	<i>Hypnale hypnale</i>	Merrem's Hump-nosed Viper	LC

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Annexure 8: Birds recorded from Wilpattu National Park

Origin: E – Endemic; R - Resident; M - Migrant

Conservation status in *National Red Data List (2012)*, *Ceylon Bird Club Notes* (monthly), 2003-2012.

Family	Species	Common Name	RI Category
Podicipedidae	<i>Tachybaptus ruficollis</i> R	Little Grebe	LC
Pelicanidae	<i>Pelecanus philippensis</i> R	Spot-billed Pelican	LC
Phalacrocoracidae	<i>Phalacrocorax niger</i> R	Little Cormorant	LC
	<i>Phalacrocorax fuscicollis</i> R	Indian Shag	LC
Anhingidae	<i>Anhinga melanogaster</i> R	Oriental Darter	LC
Ardeidae	<i>Egretta garzetta</i> R	Little Egret	LC
	<i>Casmerodius albus</i> R	Great Egret	LC
	<i>Mesophoyx intermedia</i> R	Intermediate Egret	LC
	<i>Ardea cinerea</i> R	Grey Heron	LC
	<i>Ardea purpurea</i> R	Purple Heron	LC
	<i>Bubulcus ibis</i> R	Eastern Cattle Egret	LC
	<i>Ardeola grayii</i> R	Indian Pond-heron	LC
	<i>Butorides striata</i> R	Striated Heron	LC
		Black-crowned Night-heron	NT
	<i>Nycticorax nycticorax</i> R		
Ciconiidae	<i>Mycteria leucocephala</i> R	Painted Stork	LC
	<i>Anastomus oscitans</i> R	Asian Openbill	LC
	<i>Ciconia episcopus</i> R	Wooly-necked Stork	NT
	<i>Leptoptilos javanicus</i> R	Lesser Adjutant	VU
	<i>Threskiornis</i>		LC
Threskiornithidae	<i>melanocephalus</i> R	Black-headed Ibis	
	<i>Platalea leucorodia</i> R	Eurasian Spoonbill	LC

Anatidae	<i>Dendrocygna javanica</i> R	Lesser Whistling-duck	LC
	<i>Nettapus coromandelianus</i> R	Cotton Teal	NT
	<i>Anas acuta</i> M	Nothern Pintail	CR
	<i>Anas querquedula</i> M	Garganey	
Accipitridae	<i>Pernis ptilorhynchus</i> R/M	Oriental Honey-buzzard	NT
	<i>Elanus caeruleus</i> R	Black-winged Kite	NT
	<i>Haliastur indus</i> R	Brahminy Kite	LC
	<i>Haliaeetus leucogaster</i> R	White-bellied Sea-eagle	LC
	<i>Ichthyophaga ichthyaetus</i> R	Grey-headed Fish-eagle	NT
	<i>Spilornis cheela</i> R	Crested Serpent-eagle	LC
	<i>Circus aeruginosus</i> M	Western Marsh Harrier	
	<i>Accipiter badius</i> R	Shikra	LC
	<i>Accipiter virgatus</i> R	Besra Sparrowhawk	VU
	<i>Buteo burmanicus</i> M	Himalayan Buzzard	
	<i>Hieraetus pennatus</i> M	Booted Eagle	
	<i>Hieraetus kienerii</i> R	Rufous-bellied Eagle	NT
	<i>Spizaetus cirrhatus</i> R	Crested Hawk-eagle	LC
	<i>Falco tinnunculus</i> R/M	Common Kestrel	EN
	<i>Falco peregrinus</i> R	Shahin Falcon	VU
Phasianidae	<i>Coturnix chinensis</i> M	Blue-breasted Quail	EN
	<i>Gallus lafayetii</i> E	Ceylon Junglefowl	LC
	<i>Pavo cristatus</i> R	Indian Peafowl	LC
Turnicidae	<i>Turnix suscitator</i> R	Barred Buttonquail	LC
Rallidae	<i>Amaurornis phoenicurus</i> R	White-breasted Waterhen	LC
	<i>Porphyrio porphyrio</i> R	Purple Swamphen	LC

	<i>Gallinula chloropus</i> R	Common Moorhen	LC
	<i>Fulica atra</i> R/M	Eurasian Coot	LC
	<i>Hydrophasianus chirurgus</i> R	Pheasant-tailed Jacana	LC
Jacanidae			
Rostratulidae	<i>Rostratula benghalensis</i> R	Greater Painted-snipe	VU
Charadriidae	<i>Pluvialis fulva</i> M	Pacific Golden Plover	
	<i>Pluvialis squatarola</i> M	Grey Plover	
	<i>Charadrius dubius</i> R/M	Little Ringed Plover	VU
	<i>Charadrius alexandrinus</i> R/M	Kentish Plover	UV
	<i>Charadrius mongolus</i> M	Lesser Sand Plover	
	<i>Vanellus malabaricus</i> R	Yellow-wattled Lapwing	LC
	<i>Vanellus indicus</i> R	Red-wattled Lapwing	LC
Scolopacidae	<i>Gallinago stenura</i> M	Pintail Snipe	
	<i>Limosa limosa</i> M	'Western' Black-tailed Godwit	
	<i>Numenius phaeopus</i> M	Whimbrel	
	<i>Tringa totanus</i> M	Common Redshank	
	<i>Tringa nebularia</i> M	Common Greenshank	
	<i>Tringa stagnatilis</i> M	Marsh Sandpiper	
	<i>Tringa ochropus</i> M	GreenSandpiper	
	<i>Tringa glareola</i> M	Wood Sandpiper	
	<i>Xenus cinereus</i> M	Terek Sandpiper	
	<i>Actitis hypoleucos</i> M	Common Sandpiper	
	<i>Arenaria interpres</i> M	Ruddy Turnstone	
	<i>Calidris minuta</i> M	Little Stint	
	<i>Calidris ferruginea</i> M	Curlew Sandpiper	
Recurvirostridae	<i>Himantopus himantopus</i>	Black-winged Stilt	

	R/M	
Burhinidae	<i>Burhinus oedicnemus</i> R	Indian Stone-curlew
	<i>Esacus recurvirostris</i> R	Great Thick-knee
Laridae	<i>Larus ichthyaetus</i> M	Great Black-headed Gull
	<i>Larus brunnicephalus</i> M	Brown-headed Gull
Sternidae	<i>Gelochelidon nilotica</i> R/M	Gull-billed Tern
	<i>Hydroprogne caspia</i> R/M	Caspian Tern
	<i>Sterna bengalensis</i> M	Lesser Crested Tern
	<i>Sterna albifrons</i> R	Little Tern
	<i>Chlidonias hybridus</i> M	Whiskered Tern
	<i>Chlidonias leucopterus</i> M	White-winged Tern
Columbidae	<i>Streptopelia chinensis</i> R	Spotted Dove
	<i>Chalcophaps indica</i> R	Emerald Dove
		Orange-breasted Green
	<i>Treron bicinctus</i> R	Pigeon
	<i>Treron pompadoura</i> E	Ceylon Green Pigeon
	<i>Ducula aenea</i> R	Green Imperial Pigeon
Psittacidae	<i>Loriculus beryllinus</i> E	Ceylon Hanging-parrot
	<i>Psittacula eupatria</i> R	Alexandrine Parakeet
	<i>Psittacula krameri</i> R	Rose-ringed Parakeet
	<i>Centropus [sinensis] parroti</i> R	'Southern' Coucal
Cuculidae	<i>Phaenicophaeus viridirostris</i> R	Blue-faced Malkoha
	<i>Clamator coromandus</i> M	Chestnut-winged Cuckoo
	<i>Clamator jacobinus</i> R	Jacobin Cuckoo
	<i>Eudynamys scolopaceus</i> R	Asian Koel
	<i>Cacomantis passerinus</i> M	Grey-bellied Cuckoo

	<i>Surniculus [lugubris] dicruroides</i> R	'Fork-tailed' Drongo-cuckoo	NT
	<i>Cuculus micropterus</i> R/M	Indian Cuckoo	LC
Tytonidae	<i>Tyto alba</i> R	Common Barn-owl	NT
Strigidae	<i>Otus sunia</i> R	Oriental Scops-owl	NT
	<i>Otus bakkamoena</i> R	Indian Scops-owl	LC
	<i>Bubo nipalensis</i> R	Forest Eagle-owl	NT
	<i>Ketupa zeylonensis</i> R	Brown Fish-owl	LC
	<i>Strix leptogrammica</i> R	Brown Wood-owl	NT
	<i>Batrachostomus moniliger</i> R	Ceylon Frogmouth	LC
Podargidae	<i>Caprimulgus atripennis</i> R	Jerdon's Nightjar	LC
Caprimulgidae	<i>Caprimulgus asiaticus</i> R	Indian Little Nightjar	LC
Apodidae	<i>Collocalia unicolor</i> R	Indian Swiftlet	LC
	<i>Cypsiurus balasiensis</i> R	Asian Palm-swift	LC
	<i>Apus affinis</i> R	Little Swift	LC
Hemiprocnidae	<i>Hemiprocne coronata</i> R	Crested Treeswift	LC
Trogonidae	<i>Harpactes fasciatus</i> R	Malabar Trogon	NT
Alcedinidae	<i>Alcedo atthis</i> R	Common Kingfisher	LC
	<i>Pelargopsis capensis</i> R	Stork-billed Kingfisher	LC
	<i>Halcyon smyrnensis</i> R	White-throated Kingfisher	LC
	<i>Halcyon pileata</i> M	Black-capped Kingfisher	
	<i>Ceryle rudis</i> R	Lesser Pied Kingfisher	LC
Meropidae	<i>Merops orientalis</i> R	Little Green Bee-eater	LC
	<i>Merops philippinus</i> R/M	Blue tailed Bee-eater	CR
	<i>Merops apiaster</i> M	European Bee-eater	
	<i>Merops leschenaulti</i> R	Chestnut-headed Bee-	LC

		eater	
Coraciidae	<i>Coracias benghalensis</i> R	Indian Roller	LC
Upupidae	<i>Upupa epops</i> R	Common Hoopoe	LC
Bucerotidae	<i>Ocyceros gingalensis</i> E	Ceylon Grey Hornbill	LC
	<i>Anthracoceros coronatus</i> R	Malabar Pied Hornbill	LC
Capitonidae	<i>Megalaima zeylanica</i> R	Brown-headed Barbet	LC
	<i>Megalaima rubricapillus</i> E	Ceylon Small Barbet	LC
	<i>Megalaima haemacephala</i> R	Coppersmith Barbet	LC
Picidae	<i>Dendrocopos nanus</i> R	Indian Pygmy Woodpecker	LC
	<i>Celeus brachyurus</i> R	Rufous Woodpecker	LC
	<i>Dinopium benghalense</i> R	Black-rumped Flameback	LC
	<i>Chrysocolaptes stricklandi</i> E	Crimson-backed Flameback	
	<i>Chrysocolaptes festivus</i> R	White-naped Flameback	VU
Pittidae	<i>Pitta brachyura</i> M	Indian Pitta	
Alaudidae	<i>Mirafra affinis</i> R	Jerdon's Bushlarrk	LC
	<i>Eremopterix griseus</i> R	Ashy-crowned Finch-Lark	LC
	<i>Alauda gulgula</i> R	Oriental Skylark	LC
Hirundinidae	<i>Hirundo rustica</i> M	Barn Swallow	
	<i>Hirundo hyperythra</i> E	Ceylon Swallow	LC
Motacillidae	<i>Dendronanthus indicus</i> M	Forest Wagtail	
	<i>Motacilla flava</i> M	Western Yellow Wagtail	
	<i>Anthus richardi</i> M	Richard's Pipit	
	<i>Anthus rufulus</i> R	Paddyfield Pipit	LC
	<i>Anthus godlewskii</i> M	Blyth's Pipit	
Campephagidae	<i>Coracina macei</i> R	Large Cuckooshrike	LC

		Black-headed Cuckooshrike	LC
	<i>Coracina melanoptera</i> R		
	<i>Pericrocotus cinnamomeus</i> R	Small Minivet	LC
	<i>Hemipus picatus</i> R	Pied Flycatcher-shrike	LC
	<i>Tephrodornis pondicerianus</i> E	Common Woodshrike	LC
Monarchidae	<i>Terpsiphone paradisi</i> R/M	Asian Paradise Flycatcher	LC
	<i>Hypothymis azurea</i> R	Black-naped Monarch	LC
Rhipiduridae	<i>Rhipidura aureola</i> R	White-browed Fantail	LC
Pycnonotidae	<i>Pycnonotus melanicterus</i> E	Black-capped Bulbul	LC
	<i>Pycnonotus cafer</i> R	Red-vented Bulbul	LC
	<i>Pycnonotus luteolus</i> R	White-browed Bulbul	LC
Aegithinidae	<i>Aegithina tiphia</i> R	Common Iora	LC
Chloropseidae	<i>Chloropsis aurifrons</i> R	Gold-fronted Leafbird	LC
	<i>Chloropsis jerdoni</i> R	Jerdon's Leafbird	LC
Laniidae	<i>Lanius cristatus</i> M	Brown Shrike	
	<i>Lanius schach</i> R	Long-tailed Shrike	VU
Turdidae	<i>Zoothera citrina</i> M	Orange-headed Thrush	
Muscicapidae	<i>Muscicapa dauurica</i> M	Asian Brown Flycatcher	
	<i>Muscicapa muttui</i> M	Brown-breasted Flycatcher	
	<i>Cyornis tickelliae</i> R	Tickell's Blue Flycatcher	LC
	<i>Luscinia brunnea</i> M	Indian Blue Robin	
	<i>Copsychus saularis</i> R	Oriental Magpie-robin	LC
	<i>Copsychus malabaricus</i> R	White-rumped Shama	LC
	<i>Saxicoloides fulicatus</i> R	Indian Black Robin	LC
Timaliidae	<i>Pellorneum fuscocapillus</i> E	Brown-capped Babbler	LC
	<i>Dumetia hyperythra</i> R	Tawny-bellied Babbler	LC

	<i>Rhopocichla atriceps</i> R	Dark fronted Babbler	LC
	<i>Chrysomma sinense</i> R	Yellow-eyed Babbler	LC
	<i>Turdoides affinis</i> R	Yellow-billed Babbler	LC
Cisticolidae	<i>Cisticola juncidis</i> R	Zitting Cisticola	LC
	<i>Prinia hodgsonii</i> R	Grey-breasted Prinia	LC
	<i>Prinia socialis</i> R	Ashy Prinia	LC
	<i>Prinia sylvatica</i> R	Jungle Prinia	LC
	<i>Prinia inornata</i> R	Plain Prinia	LC
	<i>Orthotomus sutorius</i> R	Common Tailorbird	LC
Sylviidae	<i>Acrocephalus dumetorum</i>	Blyth's Reed-warbler	
	<i>Acrocephalus [stentoreus]</i> <i>brunnescens</i> R	Indian Reed-warbler	
	<i>Phylloscopus nitidus</i> M	Bright-green Warbler	
	<i>Phylloscopus magnirostris</i> M	Large-billed Leaf-warbler	
	<i>Sitta frontalis</i> R	Velvet-fronted Nuthatch	LC
Dicaeidae	<i>Dicaeum erythrorhynchos</i> R	Pale-billed flowerpecker	LC
	<i>Nectarinia zeylonica</i> R	Purple-rumped Sunbird	LC
Nectariniidae	<i>Nectarinia asiaticus</i> R	Purple Sunbird	LC
	<i>Cynnyris lotenius</i> R	Loten's Sunbird	
	<i>Zosterops palpebrosus</i> R	Oriental White-eye	LC
Zosteropidae	<i>Lonchura striata</i> R	White-rumped Munia	LC
	<i>Lonchura punctulata</i> R	Scaly-breasted Munia	LC
	<i>Lonchura malacca</i> R	Tricoloured Munia	LC
Passeridae	<i>Passer domesticus</i> R	House Sparrow	LC
	<i>Ploceus manyar</i> R	Streaked Weaver	NT
Ploceidae	<i>Ploceus philippinus</i> R	Baya Weaver	LC

	<i>Temenuchus pagodarum</i>		
Sturnidae	<b>M</b>	Brahminy Starling	
	<i>Sturnus roseus</i> <b>M</b>	Rosy Starling	
	<i>Acridotheres tristis</i> <b>R</b>	Common Myna	
Oriolidae	<i>Oriolus xanthornus</i> <b>R</b>	Black-hooded Oriole	LC
Dicruridae	<i>Dicrurus macrocercus</i> <b>R/M</b>	Black Drongo	LC
	<i>Dicrurus leucophaeus</i>	Ashy Drongo	
	<i>Dicrurus caerulescens</i> <b>R</b>	White-bellied Drongo	LC
		Greater Racket-tailed	NT
	<i>Dicrurus paradiseus</i> <b>R</b>	Drongo	
Artamidae	<i>Artamus fuscus</i> <b>R</b>	Ashy Woodswallow	LC
Corvidae	<i>Corvus splendens</i> <b>R</b>	House Crow	LC
	<i>Corvus [macrorhynchos]</i>		
	<i>culminatus</i> <b>R</b>	Indian Jungle Crow	

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Annexure 9: Mammals recorded from Wilpattu National Park

Family	Species	Common name	RI Category
Manidae	<i>Manis crassicaudata</i>	Pangolin	NT
Hipposideridae	<i>Hipposideros speoris</i>	Schneider's leaf-nosed bat	LC
	<i>Hipposideros galeritus</i>	Dekhan leaf-nosed bat	VC
Pteropodidae	<i>Cynopterus sphinx</i>	Short-nosed fruit bat	LC
	<i>Pteropus giganteus</i>	Flying fox	LC
Vespertilionidae	<i>Kerivoula picta</i>	Painted bat	NT
	<i>Pipistrellus coromandra</i>	Indian pipistrel	VU
Cercopithecidae	<i>Macaca sinica</i>	Sri Lanka toque monkey	LC
	<i>Semnopithecus priam</i>	Grey langur	LC
	<i>Semnopithecus vetulus</i>	Purple-faced leaf monkey	EN
Lorisidae	<i>Loris lydekkerianus</i>	Grey slender loris	NT
Canidae	<i>Canis aureus</i>	Jackal	NT
	<i>Canis familiaris</i>	Domestic dog	
Felidae	<i>Felis chaus</i>	Jungle cat	NT
	<i>Panthera pardus</i>	Leopard	EN
	<i>Prionailurus rubiginosus</i>	Rusty-spotted cat	EN
	<i>Prionailurus viverrinus</i>	Fishing cat	EN
Herpestidae	<i>Herpestes edwardsii</i>	Grey mongoose	LC
	<i>Herpestes smithii</i>	Black-tipped or Ruddy mongoose	LC
Mustelidae	<i>Lutra lutra</i>	Otter	VU
Ursidae	<i>Melursus ursinus</i>	Sloth bear	EN
Viverridae	<i>Paradoxurus hermaphoditus</i>	Palm cat	LC
	<i>Paradoxurus zeylonensis</i>	Sri Lanka golden palm cat	
	<i>Viverricula indica</i>	Ring-tailed civet	LC

Elephantidae	<i>Elephas maximus</i>	Elephant	EN
Bovidae	<i>Bubalus arnee</i>	Wild buffalo	VU
Cervidae	<i>Axis axis</i>	Spotted deer	LC
	<i>Cervus unicolor</i>	Sambar	
	<i>Muntiacus muntjak</i>	Barking deer	NT
Suidae	<i>Sus scrofa</i>	Wild boar	LC
Tragulidae	<i>Moschiola meminna</i>	Sri Lanka mouse-deer	LC
Hystricidae	<i>Hystrix indica</i>	Porcupine	LC
Muridae	<i>Golunda ellioti</i>	Bush rat	EN
	<i>Mus booduga</i>	Field mouse	LC
	<i>Mus musculus</i>	Indian house mouse	LC
	<i>Rattus rattus</i>	Common rat	LC
	<i>Vandeleuria oleracea</i>	Long-tailed tree mouse	VU
	<i>Tatera indica</i>	Antelope rat	LC
Sciuridae	<i>Funambulus palmarum</i>	Palm squirrel	LC
	<i>Ratufa macroura</i>	Giant squirrel	LC
Leporidae	<i>Lepus nigricollis</i>	Black-naped hare	LC

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Annexure 10: Butterflies recorded from Wilpattu National Park

Family	Species	Common Name	RI Category
Papilionidae	<i>Troides darsius</i>	Ceylon Birdwing	LC
	<i>Pachliopta hector</i>	Crimson Rose	LC
	<i>Pachliopta aristolochiae</i>	Common Rose	LC
	<i>Papilio crino</i>	Banded Peacock	VU
	<i>Papilio demoleus</i>	Lime Butterfly	LC
	<i>Papilio polytes</i>	Common Mormon	LC
	<i>Papilio polymnestor</i>	Blue Mormon	LC
	<i>Graphium Agamemnon</i>	Tailed Jay	LC
	<i>Graphium doson</i>	Common Jay	LC
Pieridae	<i>Leptosia nina</i>	Psyche	LC
	<i>Delias eucharis</i>	Jezebel	LC
	<i>Catopsilia pyranthe</i>	Mottled Emigrant	LC
	<i>Catopsilia pomona</i>	Lemon Emigrant	LC
	<i>Belenois aurota</i>	Pioneer	LC
	<i>Cepora nerissa</i>	Common Gull	LC
	<i>Appias galena</i>	Lesser Albatross	LC
	<i>Appias libythea</i>	Striped Albatross	LC
	<i>Ixias Marianne</i>	White Orange Tip	LC
	<i>Ixias pyrene</i>	Yellow Orange Tip	LC
	<i>Hebomoia glaucippe</i>	Great Orange Tip	LC
	<i>Pareronia ceylanica</i>	Dark Wanderer	LC
	<i>Colotis amata</i>	Small Salmon Arab	LC
	<i>Colotis fausta</i>	Large Salmon Arab	VU
	<i>Colotis aurora</i>	Plain Orange Tip	VU
	<i>Colotis danae</i>	Crimson Tip	VU

	<i>Colotis etrida</i>	Little Orange Tip	NT
	<i>Eurema hecabe</i>	Common Grass Yellow	LC
	<i>Eurema brigitta</i>	Small Grass Yellow	LC
Nymphalidae	<i>Tirumala limniace</i>	Blue Tiger	LC
	<i>Tirumala septentrionis</i>	Dark Blue Tiger	NT
	<i>Parantica aglea</i>	Glassy Tiger	LC
	<i>Danaus chrysippus</i>	Plain Tiger	LC
	<i>Danaus genutia</i>	Common Tiger	LC
	<i>Euploea core</i>	Common Crow	LC
	<i>Euploea sylvester</i>	Double- banded Crow	NT
	<i>Ariadne Ariadne</i>	Angled Castor	LC
	<i>Byblia ilithyia</i>	Joker	VU
	<i>Phalanta phalantha</i>	Leopard	LC
	<i>Junonia almanac</i>	Peacock Pansy	LC
	<i>Junonia atlites</i>	Grey Pansy	LC
	<i>Junonia iphita</i>	Chocolate Soldier	LC
	<i>Junonia lemonias</i>	Lemon Pancy	LC
	<i>Junonia orithya</i>	Blue Pansy	NT
	<i>Hypolimnas bolina</i>	Great Eggfly	LC
	<i>Hypolimnas misippus</i>	Danaid Eggfly	LC
	<i>Neptis hylas</i>	Common Sailor	LC
	<i>Neptis jumbah</i>	Chestnut-streaked Sailor	LC
	<i>Dophla evelina</i>	Red spot Duke	LC
	<i>Acraea violae</i>	Tawny Coster	LC
	<i>Melanitis leda</i>	Common Evening Brown	LC
	<i>Mycaleisis perseus</i>	Common Bushbrown	LC
	<i>Orsotriaena medus</i>	Nigger	LC

	<i>Mycalesis patnia</i>	Gladeye Bushbrown	LC
	<i>Ypthima ceylonica</i>	White Four-ring	LC
	<i>Elymnias hypermnestra</i>	Common Palmfly	LC
Lycaenidae	<i>Spalgis epeus</i>	Apefly	LC
	<i>Curetis thetis</i>	Indian Sunbeam	LC
	<i>Arhopala amantes</i>	Large Oakblue	LC
	<i>Zesius chrysomallus</i>	Redspot	LC
	<i>Rathinda amor</i>	Monkey-puzzle	LC
	<i>Spindasis vulcanus</i>	Common Silverline	LC
	<i>Spindasis ictis</i>	Ceylon Silverline	LC
	<i>Tajuria cippus</i>	Peacock Royal	LC
	<i>Deudorix epijarbas</i>	Cornelian	VU
	<i>Jamides celeno</i>	Common Cerulean	LC
	<i>Lampides boeticus</i>	Pea Blue	LC
	<i>Catochrysops Strabo</i>	Forget-me-not	LC
	<i>Leptoes plinius</i>	Zebra Blue	LC
	<i>Castalius rosimon</i>	Common Pierrot	LC
	<i>Freyeria putli</i>	Grass Jewel	LC
	<i>Zizeeria karsandra</i>	Dark Grass Blue	LC
	<i>Zizula hylax</i>	Tiny Grass Blue	LC
	<i>Zizina Otis</i>	Lesser Grass Blue	LC
	<i>Megisba Malaya</i>	Malayan	LC
	<i>Chilades lajus</i>	Lime Blue	LC
	<i>Talicada nyseus</i>	Red pierrot	LC
	<i>Azanus jesous</i>	African Babul Blue	LC
	<i>Chilades pandawa</i>	Plains Cupid	LC
	<i>Chilades parrhasius</i>	Small Cupid	LC

Hesperiidae	<i>Hasora taminatus</i>	White Banded Awl	NT
	<i>Ampittia dioscorides</i>	Bush Hopper	LC
	<i>Caprona ransonnettii</i>	Golden Angle	LC
	<i>Tractrocera maevius</i>	Common Grass Dart	LC
	<i>Iambrix salsala</i>	Chesnut Bob	LC
	<i>Spalia galba</i>	Indian Skipper	LC
	<i>Pelopidas sp.</i>		

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(RL Categories - Red List Categories: VU – Vulnerable; EN – Endangered; CR – Critically Endangered; NT – Near Threatened; LC – Least Concerned; DD – Data Deficient) (Source: IUCN, 2012)

Annexure 11: List of invasives recorded in WPAC

Scientific name	Common names
<i>Acacia auriculiformis</i>	Auri, ear leaf acacia
<i>Ceratophyllum demersum</i>	Hornwort, rigid hornwort, coontail, or coon's tail
<i>Chromolaena odorata</i>	Siam weed, Christmas bush, devil weed, camfhur grass, common floss flower
<i>Eichhornia crassipes</i>	Common water hyacinth
<i>Hydrilla verticillata</i>	Hydrilla
<i>Imperata cylindrica</i>	Cogon grass
<i>Lantana camara</i>	Big-sage, wild-sage, red-sage, white-sage and tickberry
<i>Leucaena leucocephala</i>	White lead tree, jumbay, river tamarind, Subabul, and white popinac
<i>Mikania micrantha</i>	Bitter vine, climbing hemp vine, or American rope
<i>Muntingia calabura</i>	Calabur tree, capulin, Jamaica cherry, Panama berry
<i>Najas marina</i>	Spiny water nymph, spiny naiad and holly-leaved naiad
<i>Opuntia stricta</i>	Erect prickly pear and nopal estricto
<i>Panicum maximus</i>	Guinea grass and green panic grass
<i>Parkinsonia aculeate</i>	Palo verde, Mexican palo verde, Parkinsonia, Jerusalem thorn, and jelly bean tree
<i>Pennisetum polystachyon</i>	Mission grass
<i>Phragmites karka</i>	Tall reed
<i>Prosopis juliflora</i>	Mesquite
<i>Salvinia molesta</i>	Giant salvinia or kariba weed
<i>Tithonia diversifolia</i>	Mexican tournesol, Mexican sunflower, Japanese sunflower or Nitobe chrysanthemum
<i>Typha angustifolia</i>	Narrowleaf cattail
<i>Xanthium indicum</i>	Cocklebur, large cocklebur, woolgarie bur

Annexure 12: List of organizations and participants involved in preparing the strategic management framework

Name of the event	Date and place	Organisations and participants
1st stakeholder consultation Regional level  for identification of stakeholders, threats and issues, current status of the protected area, regional administrative structure and links	08 October 2016 Annuradhapura	<ul style="list-style-type: none"> <li>• Department of Wildlife Conservation</li> <li>• Forest Deptment</li> <li>• All district secretariats and offers such as planning officers such as planning officers</li> <li>• Sri Lanka Police</li> <li>• Priests of Catholic church</li> <li>• Mahanayake of Thanthirimale Temple</li> <li>• Central Environmental Authority</li> <li>• Central Environmental Authority</li> <li>• Department of Irrigation</li> <li>• MoMDE</li> <li>• Department of Archaeology</li> <li>• Department of Agriculture</li> <li>• Department of Land Use and Policy Planning</li> <li>• Department of Agrarian Services</li> <li>• Desaster Management Centre</li> <li>• UNDP</li> <li>• Tour Operators</li> <li>• Journalists</li> <li>• Hoteliers</li> <li>• Regional NGOs</li> <li>• Road Development Authority</li> </ul>
2 <sup>nd</sup> stakeholder consultation Regional level  for identification of stakeholders, threats and issues, current status of the protected area, regional administrative structure and links	13 October 2016 Mannar	<ul style="list-style-type: none"> <li>• Department of Wildlife Conservation</li> <li>• Forest Department</li> <li>• Department of Irrigation</li> <li>• Central Environmental Authority</li> <li>• UNDP</li> <li>• Road Development Authority</li> <li>• Divisional Secretariat Anuradhapura</li> <li>• Officers of Wilpattu National Park</li> <li>• Sri Lanka Police</li> <li>• Priest of the region</li> <li>• Sri Lanka Civil Protection Force</li> <li>• Members of adjoining Fisheries societies</li> <li>• Members of adjoining mosques</li> </ul>

		<ul style="list-style-type: none"> <li>• Members of peripheral agriculture societies</li> <li>• Journalists</li> </ul>
3 <sup>rd</sup> stakeholder consultation  National level  for identification of stakeholders, threats and issues, current status of the protected area, regional administrative structure and links	27 October 2016  Sri Lanka Foundation Institute Colombo	<ul style="list-style-type: none"> <li>• Department of Wildlife Conservation</li> <li>• UNDP</li> <li>• Green World Trust</li> <li>• Sri Lanka Navy</li> <li>• Centre for Environmental Justice</li> <li>• Wildlife &amp; Nature Protection Society</li> <li>• IUCN</li> <li>• Federation of Environment Organization</li> <li>• Central Environmental Authority</li> <li>• Officers of Wilpattu National Park</li> <li>• Wildness &amp; Wildlife Conservation Trust</li> <li>• Environment Foundation Limited</li> <li>• Ceylon Bird club</li> <li>• Ministry of Mahaweli Development &amp; Environment</li> <li>• News paper reporters- Sunday times</li> <li>• Prof. U.K.G. K. Padmalal</li> <li>• Dr. Nishanthi Perera</li> </ul>
4 <sup>th</sup> stakeholder consultation and training  National level  for identification of stakeholders, threats and issues, current status of the protected area, regional administrative structure and links	1 & 2 December 2016  Sri Lanka Foundation Institute Colombo	<ul style="list-style-type: none"> <li>• Department of Wildlife Conservation</li> <li>• UNDP</li> <li>• Divisional Secretariat Anuradhapura</li> <li>• Green World Trust</li> <li>• Sri Lanka Navy</li> <li>• IUCN</li> <li>• Federation of Environment Organizations</li> <li>• Sri Lanka Police</li> <li>• Bio Diversity Secretariat</li> <li>• Wildness &amp; Wildlife Conservation Trust</li> <li>• Ceylon Bird club</li> <li>• Foundation of Environment Organization</li> <li>• Prof. U.K.G. K. Padmalal</li> <li>• Dr. Nishanthi Perera</li> </ul>

Validation of the first draft	20 December 2016  Sri Lanka Foundation Institute Colombo	<ul style="list-style-type: none"> <li>• Department of Wildlife Conservation</li> <li>• UNDP</li> <li>• District Secretariat Anuradhapura</li> <li>• Sri Lanka Navy</li> <li>• Road Development Authority</li> <li>• Ministry of Mahaweli Development &amp; Environment</li> <li>• Newspaper reporters</li> <li>• Department of Fisheries &amp; Aquaculture Resources</li> <li>• Coast Conservation Department</li> <li>• Department of Land Use Policy &amp; Planning</li> <li>• Disaster Management Centre</li> <li>• Ceylon Bird Club</li> <li>• Bio Diversity Secretariat</li> <li>• Environment Foundation Limited</li> </ul>
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