Sapo National Park Management Plan

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FAUNA & FLORA INTERNATIONAL

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Authors: The revision of this version of the management plan was led by Dr Samuel Koffa (Independent Consultant), with substantial technical inputs from Shadrach Kerwillain (FFI), Dr Malavika Narayana (FFI), Clara Cassell (FFI), Constant Ndjassi (FFI), Dr Mary Molokwu-Odozi (FFI), and Blamah Goll (FDA). The Conservation Department of the FDA and the World Bank through the Liberia Forest Sector Project (LFSP) provided comments to initial versions of the draft.

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Foreword

Honourable C. Mike Doryen

Managing Director, Forestry Development Authority

Important Terms

****To be updated based on the National Wildlife Conservation and Protected Area Management Law of 2016*

Avitourism: refers to nature tourism tailored to highlight the diversity and richness of birds in an area

Communal Forest: refers to an area set aside by statute or regulation for the sustainable use of Forest Products by local communities or tribes on a non-commercial basis." This should not be confused with community forest or authorized forest communities.

Patrol: refers to trips to the field by rangers and other field staff cover all the duties such as law enforcement, biomonitoring, community engagement, and regular. Patrol activities could be related to infrastructure maintenance, research, guide duties or community engagement, and rangers can conduct patrols in uniformed or plain clothes.

Sapo National Park: is written as Sapo NP or Park or SNP in this document.

Acronyms **(to be updated)**

CAB: Community Advisory Board

FDA: Forestry Development Authority of Liberia

FFI: Fauna & Flora International

HWC: Human Wildlife Conflict

IBA: Important Bird and Biodiversity Area

IUCN: International Convention for the Conservation of Nature

KBA: Key Biodiversity Area

NP: National Park

PA: Protected Area

PPA: Proposed Protected Area

SAPA: Social Assessment of Protected Areas

SCC: Sapo Conservation Centre

SNPMP: Sapo National Park Management Plan

TGKS: the transboundary Tai-Grebo-Krahn-Sapo Landscape

1. Overview of the Management Plan

Liberia's protected area network is made up of protected (PAs) and proposed protected (PPAs) areas in the south-eastern and north-western forest areas (FDA 2008) that form part of the most intact blocks of the Upper Guinea Rainforest of West Africa. The Sapo National Park sits in the middle of the south-eastern forest network, with the proposed Grebo-Krahn National Park to its north bordering the Taï National Park in Cote d'Ivoire; the Gbi PPA, Krahn Bassa National Forest and Cestso-Senkwehn PPA to the west, forming a stretch of intact forest and Grand kru-River Cess PPA to the east. Effective management of the Sapo National Park and surrounding landscape will ensure protection of rare and endemic species of plants and animals, corridor connectivity and improved socio-economic benefits for adjacent forest communities in the south-eastern forest landscape of Liberia.

Figure 1: The Liberia Protected Area Network, showing legally protected and Proposed Protected Areas

1.1. Overview of Sapo National Park

1.1.1 Location, Access and Climate

The Sapo National Park lies between Latitude: 5.4111 North and Longitude: 8.4146 West. The Sinoe River takes most of its headwaters from the Park and most of the Park (about 80%) is in Sinoe County, with the rest (20%) in River Gee County. It shares its northern boundary with Grand Gedeh County. The Park covers an area of 184,406 hectares, is bounded to the north by the Putu Mountains and to the west by the Sinoe River (Riley & Riley 2005). It has a boundary perimeter of 184.9km, of which the Sinoe River constitutes 15.4km and the Wanna Creek 11.2km. The Park is the oldest and largest protected area in Liberia and the second-largest area of primary tropical rainforest in West Africa, after Taï National Park in Côte d'Ivoire.

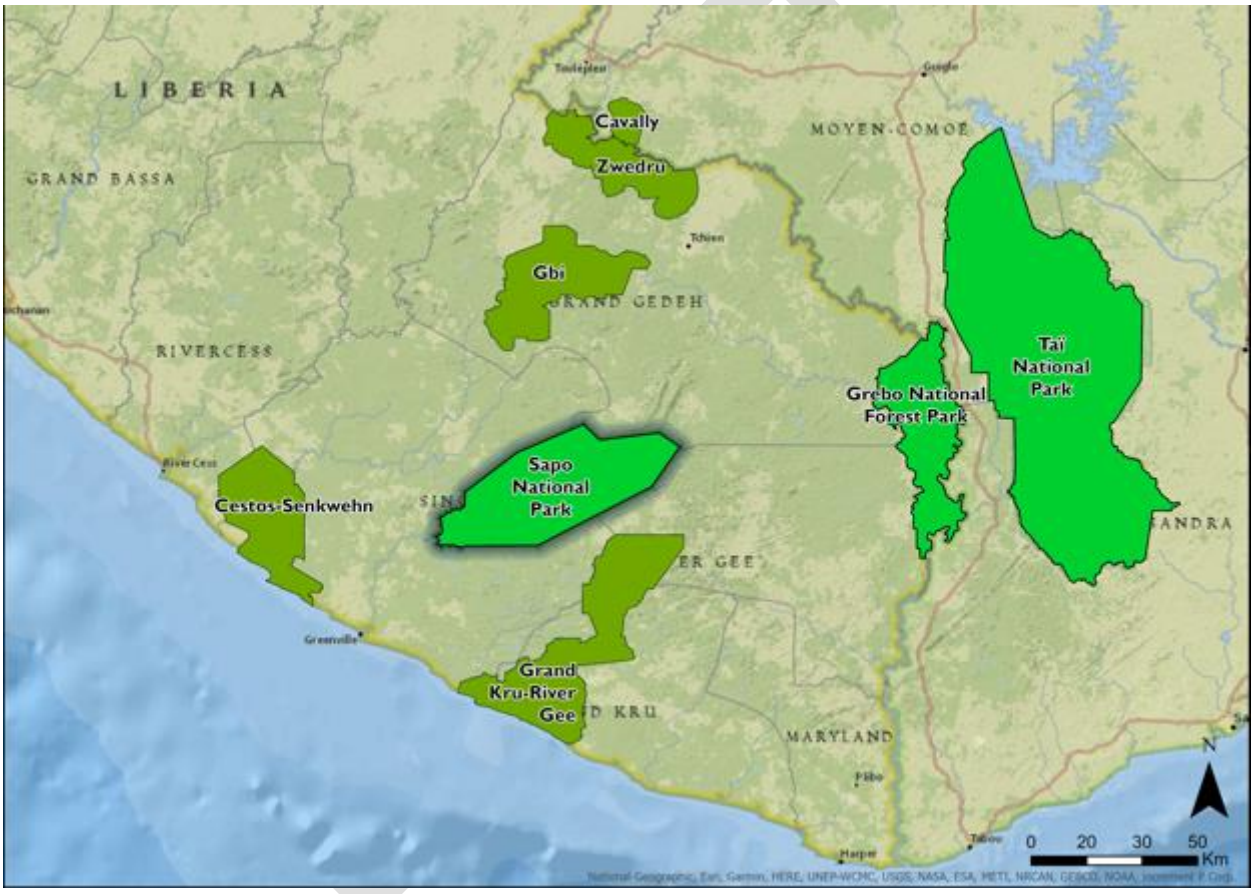

Figure 2: Location of SNP in Southeastern Liberia

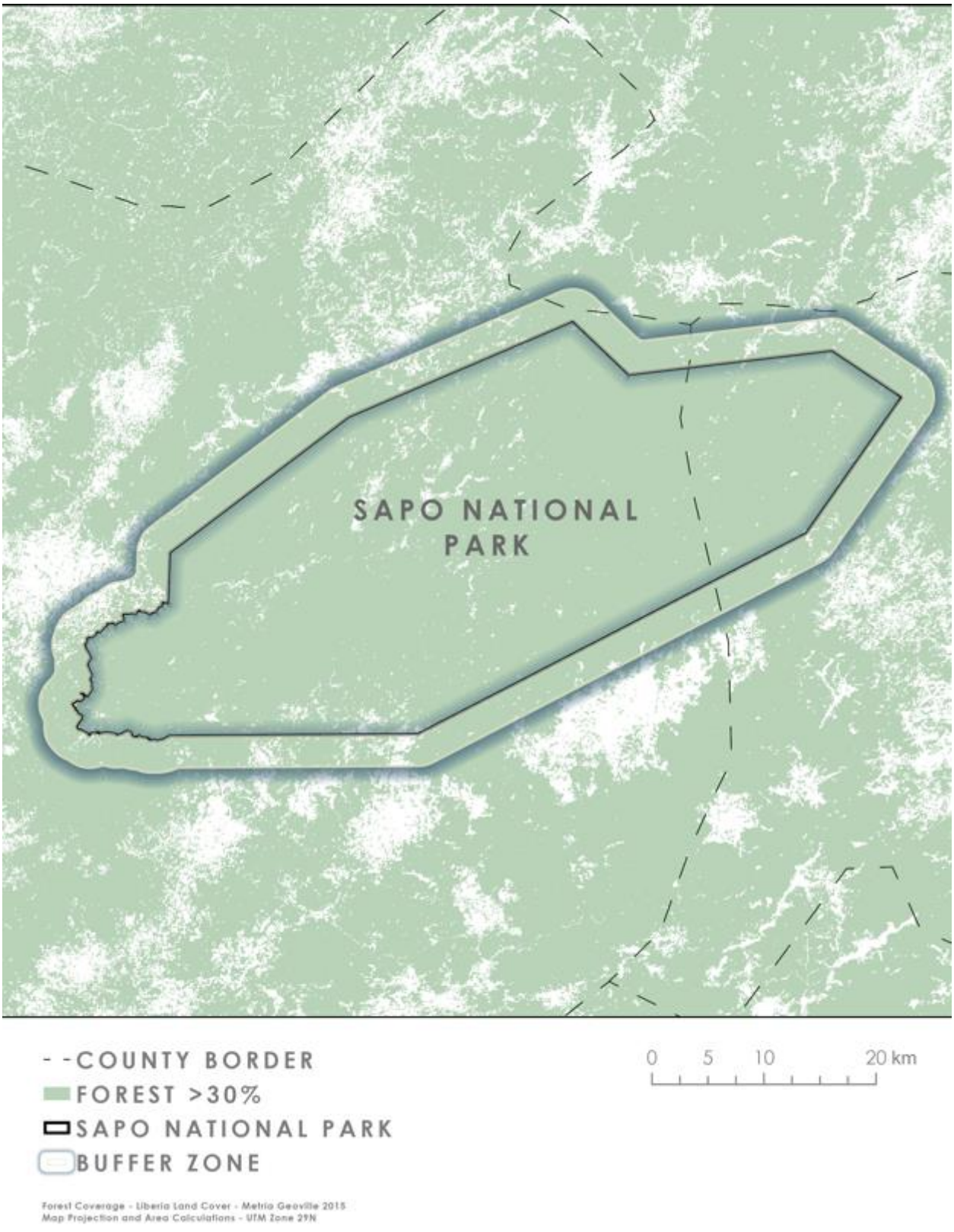

Figure 3: Forest Cover in SNP

Access: The Park can be reached by following the Greenville-Zwedru Highway to its Headquarter (HQ) at Jalay's Town. This road links with the Monrovia-Greenville Highway at the Nyefueh's Town Customs Checkpoint, about 33km from Jalay's Town. There is a 3.5km dirt trail from the Park HQ to the boundary of the Sinoe River. Access to the north and east of the Park is by the Zwedru – Fishtown Highway. The south can be reached from Greenville.

Topography: The Park is a low elevation tropical humid rainforest, with quite a homogeneous, flat and marshy topography that supports a large area of uninhabited forest (Peal & Kranz 1990). The south eastern area has lower elevations of approximately 100m (328ft) and gently rolling hills, while there are elevations of about 400m (1,312ft) and steep ridges in the north. There are many small streams and rivers between these ridges. Sinoe River is the largest river in the Park and drains from north-east to south-west. The second largest river, Dugbeh River flows through the north-eastern part.

Climate and geography: The Sapo National Park is in the Liberian coastal zone and has some of the highest rainfall in West Africa, but experiences a dry season as well, which is normal in the Guinean humid tropical Rainforest belt. The climate is tropical with temperatures ranging from 22–28°C (72–82°F). The forest's average relative humidity is 91%. Annual rainfall at Gbason Town, 4km south of the Park's headquarters, averaged 2,596mm (100in) in the 1980s. The dry season occurs from November to April and the wet season lasts from May to October. January and December are the driest months, and May and August are the wettest months. There is a mild dry period of decreased rainfall in July, which occasionally extends into August. During the dry season, many of the smaller streams dry up. In the rainy season, river levels can rise by more than 4 m (13 ft.) in one-night, inundating forests, which are in close proximity to creeks, rivers, and streams that drain the Park (WCMC 1989). The climate and geography of this region, been suitable for both agriculture plantation and having the presence of valuable mineral resources, means that the park and the surrounding landscape faces challenges from competing land users (e.g., mining and oil palm plantation).

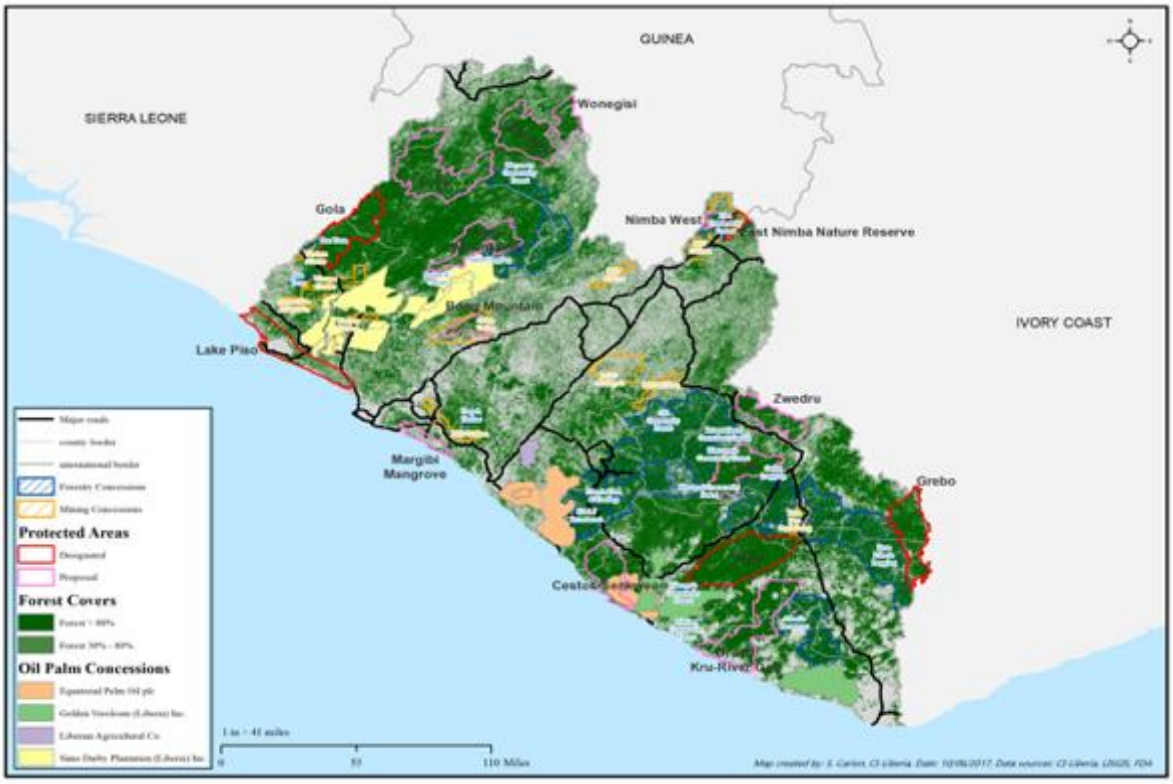

Figure 4: Map of Liberia showing various land uses; notice the agriculture concession in the southwest, and mining concession in the northeast of the park.

1.1.2 Biodiversity

Vegetation

The Park consists of lowland rainforest, including swampy areas, dryland and riparian forests in the south, which represents the most - intact forest ecosystem in Liberia, giving way to medium-altitude forest on the slopes and peaks of the Putu Mountain ridges just to the north of the Park. A 1983 survey of the park determined it to be composed of 63% primary and mature secondary forest, 13% swamp forest, 13% seasonally inundated forest, and 11% young secondary forest. The forest is luxuriant, with trees that can grow to a height of 70 m (230 ft.). The forest canopy's height ranges from 12–32 m (39–105 ft.), with an average height of 25 m (82 ft.).

Flora

The Park is an area of high plant diversity, with more than 500 vascular plants, 300+ woody tree species and many more plants that are as yet unknown to science – some of which are endemic. Plant species found in the Park include *Tetraberlinia tubmaniana, Gilbertiodendron splendidum*, and *Brachystegia leonensis*. In late 2002 botanical collections at the Park were carried out for ten days. Of the 353 higher-level species collected, 78 are endemic to the Upper Guinean Forests, and six were then new to science. Overall, current knowledge of plants in the Park is poor since there has never been a full botanical survey of the area.

Fauna

The Sapo National Park is a regional center of endemism (Beentje 1996) and a biodiversity hotspot. It is both an Important Bird Area (BirdLife 2001) and Key Biodiversity Area (KBA). The park is home to several globally threatened species, and it holds some of the most significant populations of the Critically Endangered (CR) West African Chimpanzee and Endangered (EN) species such as the pygmy hippopotamus, Gola Malimbe, Jentink's duiker and red colobus, and the Vulnerable (VU) forest elephant. The current list of other threatened species known to be in the park is shown in Annex 1, with the IUCN Redlist used as a guide for all listed species.

In addition to the red colobus, six species of monkeys occur in the park, including the Diana monkey and black and white colobus, both listed as Vulnerable (VU) in the IUCN RedList (IUCN 2015). Among the seven species of duiker, which are locally abundant in the Park, are the Endangered Jentink's duiker (*Cephalophus jentink*; Riley & Riley 2005), zebra duiker (*Cephalophus zebra*; Oates 2002), bay duiker (*Cephalophus dorsalis*), Ogilby's duiker (*Cephalophus ogilbyi brookei*), black duiker (*Cephalophus niger*), yellow-backed duiker (*Cephalophus silvicultor*) and Maxwell's duiker (*Cephalophus maxwellii*; Peal & Kranz 1990). Other ungulates include buffalo, water chevrotain, bongo, bushbuck, red river hog and giant forest hog. Carnivore species include the leopard, African golden cat, the African civet and palm civet.

Small mammals occurring in the park include three species of pangolin (Black-bellied, White-bellied, and Giant), two species of porcupine (brush-tailed and crested), the honey badger and the clawless otter and spot-necked otter. There are three species of crocodiles, including the dwarf (VU), Nile and slender-snouted crocodile. More than 200 bird species have been recorded in the park and buffer area, including the Gola malimbe (EN), white-necked picathartes (VU), white-breasted guinea

fowl (VU), Timneh grey parrot (NT), and yellow-casqued hornbill. Many species of bee-eaters, egrets, hornbills (Clark 2006), kingfishers, turacos, rollers and sunbirds (LaRue 1994a; Oates 2002, Riley & Riley 2005; Freeman 2013) also occur in the park.

The Park is close to extensive areas of forests that offer corridors, which extend the available habitat and could serve as migration routes for large mammals such as the forest elephant.

1.1.3 Threats to the Park

Historically, the Park has been threatened by hunting and mining, especially during periods of political or social instability. A prime example is the instance where during the first phase of the civil conflict (1989) the Park fell into the hands of rebel forces, and much of its infrastructure and equipment was damaged or destroyed, including a wildlife rehabilitation and orphanage facility. The Park became a wartime haven for so many who scavenged for food and hunted bush meat to survive. The same can be said of the 2014 Ebola outbreak, which led to an escalation of illegal mining activities in the park.

In addition to being rich in biodiversity, Sapo National Park is also rich in other natural resources, particularly gold. Over the last decade, the Sapo National Park has been besieged by illegal mining activities. During the civil crisis the presence of rebels resulted in an increase in illegal alluvial mining and hunting activities, which continued to rise even after the crisis came to an end. Several evacuations took place in 2005 but miners reoccupied the park in the following years and by 2010, there were over 18,000 illegal occupants in the park (Vogt 2012). Another major evacuation took place by the end of 2010. However, as of December 2016, over 2000 illegal miners were back in the park. Led by Fauna and Flora International, action was taken by Liberia's conservation stakeholders to correct this. Countless community meetings, information gathering, investigations, and negotiations culminated in a meeting in Greenville in April 2017 where all communities, NGOs, local government offices, and other stakeholders signed a resolution for collaborative management of the Sapo National Park. In August 2018, after careful planning, communities worked with the FDA and Liberian Police units to remove all remaining mining camps from the Sapo National Park. . While artisanal mining continues around the park, the clearing of the park was no small victory for conservation biologists in Liberia, especially because of the high level of involvement and cooperation shown by the fringe communities.

Stakeholders have identified the absence of sustained and effective law enforcement as the reason for the continued resurgence. The FDA and partners (Fauna & Flora International and Wild Chimpanzee Foundation) are now seeking resources to ensure long-term support to law enforcement patrols and community engagement in the park. Recent initiatives such as the USAID West Africa Biodiversity and Climate Change (WABiCC), the German Bank (Kfw), the Liberia Conservation Fund (LCF) (jointly by the FDA, CI, and others), and the Liberia Forest Sector Project (LFSP) are among opportunities that could provide the necessary support to effective management of the park for at least the next five years.

1.2 Vision

The Sapo National Park's biological, ecological and cultural integrity are protected, conserved, equitably governed and enhanced in accordance with Liberian laws and international best practice, for the benefit of the present and future generations.

Key Values

This plan is a detailed blueprint of the requisite governance structures and other meticulously prescribed management regimes for the protection of the Sapo National Park so that, ultimately, the values of biodiversity – extrinsic and intrinsic, are conserved and protected. These values of the Park are therefore synonymous with its functions in conservation and protection and are outlined and briefly discussed as follows:

1.2.1. Conservation Values

- Liberia's largest park that maintains its natural rainforest interactions across a geographically extensive matrix formed by variations in geology and climate that promote spatial heterogeneity and hence biodiversity. The permanently humid tropical lowland rainforest, covering swampy flatlands to the rugged Putu Hills has a highly variable biodiversity.
- Virtually the most intact representation of the permanently humid evergreen high forest ecosystem in Liberia, the second-largest area of primary tropical rainforest in West Africa after Tai National Park in Cote d'Ivoire.
- Evidence of an exceptional wealth in biodiversity, with many plants and animals that are of high conservation value, are rare and endemic to Liberia or the Upper Guinean Forest ecoregion, a biological hotspot of global significance.
- New species are still being discovered, with possible beneficial properties; since research is still on-going, there is distinct possibility of more species being discovered, especially amongst plants, fish and invertebrate groups;
- There is suitable habitat for globally threatened animals (e.g. West African Chimpanzee, Pygmy Hippopotamus, Forest Elephant, bongo, Red Colobus, Jentink's duiker and White-breasted Guinea fowl);
- It is connected to other large extensive areas of forests that offer corridors and available habitat for wide-ranging large mammals such as the forest elephant;
- A major source of seeds, wildlings and other forms of germplasm of economically important plants for the rehabilitation and/or restoration of degraded stocks across the landscape.
- Sapo NP is protected by national legislation and international sentiment, affording a high level of assurance of long-term survival of the park. This includes the interest and momentum related to the conservation of the Tai-Grebo-Sapo landscape and its corridors, creating a chance to link Sapo and the newly gazette Grebo National Parks with the Tai NP in Cote d'Ivoire, a proposed transboundary protected area complex which would increase available habitat for endangered, important and wide-ranging species that occur in these three areas.

1.2.2. Cultural values

- Evidence of a number of sites of indigenous cultural significance, which gives the Park the potential to be able to demonstrate a successful joint management arrangement between the state and Park communities.
- A preferred and suitable habitat for what appears to be the highest populations of a culturally important keystone species, Chimpanzee (*Pan troglodytes*), which is a totem for some local people around the park.
- Strong indications of support for local languages and culture because of certain plants that helps to sustain local languages and knowledge systems. The vocabulary of locals, especially herbalists, is enriched and enliven by the existence of these species whose various structures (bark, leaves, roots) are tapped as sources of raw materials for herbal medicine upon which majority of locals depend to cure or treat diseases.

1.2.3. Watershed values

- A critically important watershed in a country where such ecosystems are not defined and protected, as such the Park captures, stores and gradually supplies waterbodies with clean and quality water for household use at no cost other than the effort put into collecting water from creeks and streams near towns and satellite villages where no hand pumps and wells are available.

1.2.4. Recreational and tourism values

- Nature-based recreation and tourism opportunities.
- Outstanding scenic ecosystems (rivers, swamps, forested areas, etc.) and landscapes of great contrast.
- Opportunities for viewing a diverse range of native flora and fauna, including threatened, rare, endemic and endangered species.
- Natural and cultural values with the potential to attract nature-based tourism and significantly contribute to local livelihood.
- Remote qualities of the park (the fact that it is far from urban areas such as Monrovia and other major towns).

1.2.5. Education, research and community values

- Evidence of the existence of various geological, biological, socio-cultural and other features which, if combined, could give unique insights into a range of scientific pursuits (e.g. biogeography, paleoclimatology, archaeology, anthropology, ecology, sociology, zoology, economics, biology, etc.).
- Opportunities for visitors to experience and acquire knowledge regarding natural and cultural values of the landscape.
- Community values, such as the strong potential for community involvement in supporting the management of the Park because of the sustainability and other benefits it gives to their cultural, spiritual and other values.
- Provides opportunities for conservation learning for primary, secondary and tertiary academic pursuits.

1.3 Objectives

1.3.1. Primary Objectives

To protect the nationally and globally significant biodiversity and ecological processes of the Sapo National Park and surrounding ecosystems, through responsible stewardship and genuine partnerships with multiple stakeholders for the long-term survival of key species and ecosystems and the benefit of local communities and the Liberian society as a whole.

1.3.2. Specific Objectives

- Facilitate and monitor access of people to and within the Park and build the requisite infrastructure to accommodate legitimate visitors.
- Define, establish and manage conservation corridors to facilitate and support natural migration and colonization of species from and into the Park and surrounding landscapes.
- Develop and implement a participatory process for evaluation and monitoring of the effectiveness of park management and a feedback mechanism that captures local stakeholders' assessment of management performance.
- Identify, assess, enhance and maintain the cultural values and local knowledge systems of park communities, and integrate gender in the implementation of the Sapo National Park Management Plan (SNPMP).
- Organize a Park Management Advisory Body (PMAB) and define and support its role(s) in key activities of the SNPMP.
- Identify and geo-reference historical and natural scenic areas in and around the Park that are of cultural significance and ensure their development and protection without impairing their value (s).
- Prepare and undertake sustainable land use planning in each of the administrative and management zones of the Park and establish community forests where they are feasible and desired.
- Develop and implement activities to complement/supplement existing livelihood and income-generating strategies that are compatible with park conservation and protection, including small and medium-sized enterprises (SMEs) and/or access to microfinance and group savings and loans mechanisms.
- Design and introduce agricultural packages, including conservation farming and integrated land-use systems and practices, such as agroforestry, in buffer-zone communities of the Park.
- Carry out with communities a set of public education and awareness creation activities such as a culturally interpretative definition of biodiversity and its importance, ecosystems, the ecosystem services of the Park, and climate change and its impacts in Liberia.
- Design and deliver on an ecotourism initiative in suitably qualified areas of the Park as pilots and ensure active participation of the private sector.
- Develop and undertake a capacity building and training agenda on outreach and awareness, advocacy, climate change, conservation farming, agroforestry, resource governance, ecotourism, livelihoods and a host of related themes and issues.
- Structure and implement a research agenda on land tenure and property rights in fringe Park communities, local knowledge systems, key stone species of the Park, the gender dimension of

conservation, intrinsic and extrinsic values communities attached to the Park and many related issues.

1.3.3 Summary of Main Policies, Actions and Guidelines

Section	Summary of Key Policies, Actions and Guidelines
3.2.1	**External boundaries:** Organize and train a joint demarcation team (community representatives, Park staff, others) to demarcate the new area added to the "Old Park" (73,065 hectares).
3.3	**Park zones:** Delineate the boundaries of the park, especially the 2003 extension, defining the buffer/community conservation area, and administrative zones.
3.4	**Access to the Park:** Choose few of the multiple local trails leading to the Park restrict entry to the chosen ones (official) and monitor compliance of locals to their use.
3.4.1	**Access within the Park:** Construct access tracks and trails within the Park.
3.5	**Historical and cultural sites:** Identify and geo-reference historical and cultural sites within the park.
3.6.1	**Habitat restoration:** Prepare and implement a rehabilitation plan for all mining sites and degraded forest areas due to mining and human settlements.
3.6.2	**Alien plant species:** Identify and destroy all alien plants if found in the Park and its buffer area**.**
3.6.3.	**Climate change-driven invasive species:** Develop innovative ways to search for and identify invasive species in the face of climate change.
3.6.4	**Fire management:** While there is a low risk of forest fire, there should be a stringent regulation of smoking in the Park, especially by visitors who might carelessly drop used cigarettes on the forest floor.
3.6.5	**Water (creeks/streams/rivers) management:** Construct no artificial water system in the Park.
3.7.3	**Diseased, injured /abandoned animals:** Remove any domestic animal found in the Park.
3.7.4	**Human-wildlife conflict in the Park:** Initiate research to inform the development of a human-wildlife conflict mitigation strategy that outlines practical preventive measures for communities around the park.
3.7.5	**Domestic animals:** No domestic animals are allowed to enter the Park and visitors will not be allowed to take their pets inside the Park.
3.7.6	**Safety precautions in the Park:** To ensure safety and the integrity of the ecosystem, design a list of dos and don'ts to guide the behavior of Rangers and visitors inside the park (e.g. camping sites, garbage management, use of insecticide/pesticide).

3.8	**Farming and gardening:** Farming is prohibited in the park, including at research stations inside the park.
3.10	**Domestic litter and waste disposal in the Park:** All non-biodegradable wastes must be removed from the park and appropriately disposed of, with organic waste disposed of in an environmentally sound manner. The park management will work to develop a waste disposal policy.
3.12	**Mineral prospecting and mining in the Park:** Mineral prospecting and mining in the Park are prohibited and punishable by law.
3.13	**Environmental Social and Impact Assessments (ESIAs):** ESIAs for all proposed developments in the Park and its buffer area is compulsory.
3.14.	**Threat analysis:** Employ a combination of SWOT and Participatory Threat Analyses to identify, assess, mitigate/avoid/interdict threats.
3.15	**Park map appraisal:** Park management will be pursued with the use of up-to-date maps, which will be a product of GIS techniques and Participatory Mapping to locate fringe communities.
4.1	**Biological and related research:** Biological surveys, inventories, camera trapping and monitoring will continue across the park, with focus on the established transect system.
4.2	**Social research:** Social research (applied, basic) will be conducted to understand the social impact of the Park's existence and its management performance on the lives of Park fringe communities.
4.3	**Future research agenda:** The agenda for future research will depend on how much will be accomplished on what has been proposed and the lessons learned as a result of outputs and outcomes.
5.1.1	**The anti-poaching strategy:** Adapt the anti-poaching model in law enforcement and train all rangers in its use and application.
5.1.3	**Patrol teams:** Create a Rapid Response Unit (RRU) and implement ground coverage and monitoring and evaluation system.
5.1.4	**Patrol routes:** Construct patrol trails following established standards for the Park.
5.1.5	**High-profile policing:** Regular and unpredictable high-profile policing in Park fringe communities will be carried out, and all rangers must be highly professional at all times.
5.1.6.	**Intelligence gathering:** An Informer Strategy System is mandated for the Plan and genuine informants must be recognized and rewarded.
5.1.7	**Crime data collection and management:** Patrols will prepare reports and will create a database to store information on poaching and other offenses.
5.1.8	**Patrol schedule and organization:** Teams under secrecy and according to monthly activity plans will conduct patrols across the park, on a revolving basis to ensure that there is always an active patrol to deter potential violators. Routes, destinations and plans for patrols must be kept secret from members of the community.

5.1.9	**GPS patrol monitoring, data analysis and reporting:** Use of GPS, Microsoft Excel and SMART technology will serve as the Park's Management Information System (MIS).
5.1.10	**Adaptive law enforcement operations:** Secrecy will be maintained at all times where needed and there will be a code of conduct for law enforcers regarding the revelation of planned anti-poaching activities to locals.
5.1.11	**Operations effectiveness:** Define and deliver on the various ways to measure effectiveness of Park operations besides SWOT analysis such as "catch per unit effort", and dead animal detection rate and the time since death.
5.1.12	**Firearms control:** At such time as the Liberian law is changed to permit civilian personnel (including the FDA) to carry firearms, or FDA rangers are classified as a branch of the military, all law enforcement rangers and relevant park staff will be trained in basic weapon handling.
5.1.13	**Promotion of wildlife and protected area laws to Park staff:** All Park staff will be issued copies of all pertinent forestry sector laws and regulations**.**
5.1.14	**Promotion of wildlife and protected area laws to Park communities:** Pertinent forestry sector laws and regulations will be prepared in simple English and distributed to Park communities.
5.1.15	**Police and judicial forums:** Exchanges of ideas with state police and the judicial system will be held as frequently as possible to share experiences on law enforcement challenges, poaching and intelligence within and outside Park boundaries.
6.1.1	**Collaborative management of the buffer area:** In collaboration with communities, promote the sustainable management of forests in the buffer area.
6.1.2	**Community Forestry:** Establish and manage community forests on landscapes outside the Park and its buffer area to meet both the subsistence and commercial needs of Park fringe communities through sustainable management of natural resources.
6.1.3	**Community Advisory Body:** Organize, train and support an advisory body that will liaise with the FDA on the communities' behalf in the management of the Park and its buffer area.
6.1.4	**Park stakeholder collaboration:** Ensure that the Park's management and development decisions are sensitive to local contexts.
6.2.1	**Community use of Park resources:** Communities will be allowed to collect or harvest products in the Park buffer area, and such collection/harvesting must be sustainable.
6.2.2	**Community development and livelihood improvement:** Park management and development partners will promote sustainable livelihoods enhancement and diversification to strengthen community livelihoods.
7.1	**Park promotion and conservation awareness:** Provide guidance for the Park to further build cooperative institutional capacity with stakeholders in communities and ensure the establishment of viable fora for public awareness creation and education.

7.2	**Community stakeholder outreach program:** Organize a community engagement and tourism unit (CETU) to drive the Park's community outreach functions.
7.3	**Public relations coverage:** Host visits of dignitaries and reputable international journalists who may visit the Park from time to time.
7.4	**Information and education materials**: Produce and distribute outreach materials such as park baseball caps, park T-shirts, roadside billboards and many of such productions to influence and capture good public relations in the Park's interest.
7.5	**Rural theater campaigns, radio and press coverage:** Organize cultural troupes in each of the 3 zones to create awareness about the Park.
7.6	**Conservation education in schools:** Develop and implement a school outreach program to help provide awareness of and support for conservation.
7.7	**Sapo Conservation Center:** Build annexes to the SCC to help accommodate a herbarium and a library for reading and screening of important videos about the Park's wildlife etc. to locals and visitors.
7.8	**Education and science:** Create partnerships to encourage and nurture researchers, universities and conservation and cultural heritage groups to help identify the important natural and cultural heritage values of the Park.
7.9	**Behavior change strategy at the Park:** Deliver behavior change strategies, using the most appropriate medium, according to the complexity and sensitivity of the subject matter.
8.1.1	**Staff recruitment career progression and retirement**: Propose and illustrate a staff recruitment system that provides for effective performance, career progression and social security in the Park management setting.
8.3.1	**Personnel management style:** Park management will use the Human Resources Style to manage its staff, employing adaptive management as the major tool to ensure effectiveness of staff.
8.3.3	**Information sharing among Park staff:** An "open door" management approach to information sharing is recommended. It rests on monthly meetings with staff, from the "bottom" to the "top".
8.4.1 / 8.4.2	**In-situ and ex-situ training:** Local and international training opportunities will be sought in various fields during the 5-year period of the Plan. Suitably qualified staff will be identified and selected for training in relevant fields.
8.5	**Staff performance evaluation and effectiveness:** A 3-phase system of "Target-Based Performance Appraisal" will be a major annual appraisal of staff performance; this process will be fully discussed with all staff in meetings and workshops.
8.5.1	**Staff fitness, etiquette and development:** Park management staff, especially those engaged in law enforcement, will operate a fitness building system that will be introduced and for which rules will be developed and enforced.

8.5.3	**Staff welfare, morale and motivation:** All staff will be equipped (transport, ration, and communication), well housed and managed (welfare).
9.2	**Infrastructure construction and maintenance:** The various infrastructure include patrol and nature trails, footbridges, ranger posts etc. More of these facilities will have to be constructed and existing ones rehabilitated.
9.4	**Buildings and camps**: Rehabilitate existing buildings and build new ones for the Plan.
10.2	**Avitourism:** Select, train and recruit tourist guides from the 3 zones of the Park and conduct a reconnaissance to identify, document and map out important bird habitats.
10.3	**Observation structures at the Park:** Map out and geo-reference all observation structures (observation hides, viewing platforms, observation towers, feeding stations, etc, if they have already been constructed) or invest in building them.
10.4	**Trails, tracks and features:** Lay out new ones and repair the old trails, tracks and features of the Park (that are said to be about 200km in length).
10.5.	**Park entrances and private sector involvement:** Contract out the construction of an official entrance to the Park to the private sector.
11.1	**Funding schemes and streams:** Funding sources so far identified are co-funding possibilities from multiple sources; Conservation Trust Fund; eco-tourism and research fees at the Park; and Funding/Investment in conservation.
11.2	**Capacity Building of Park Staff for Implementation of the Plan**. Train and capacitate FDA staff (administrators, rangers and auxiliaries) to be able to understand and implement the Plan successfully.
11.3	**Organization of an Implementation Team.** Organize and train an Implementation Team for the Plan.
11.4	**Annual work plans and cost estimates:** Conduct annual work planning sessions at the beginning of each year with park staff and relevant stakeholders.
11.5.1	**Monitoring progress:** Monitor progress on 3 levels: the management activities the Plan proposes, annual work plan and individual output of staff. Quarterly Park Management Meetings will be held to review progress in activity implementation.
11.5.2.	**Evaluation of management performance effectiveness:** Propose use of Management Effectiveness Tracking Tool **(**METT) and Social Assessment of Protected Areas (SAPA) for the evaluation of management performance effectiveness. The METT-SAPA partnership will serve as an additional tool for evaluating and upgrading the Plan.
11.5.3	**Updating the Plan:** Recommend modifications on the basis of performance reviews. This recommendation will be made prior to the development of each annual work plan so that actions for each year can be adapted to meet the experiences of the year's implementation and of changing circumstances or new knowledge.
11.6	**Implementation Milestone**: Outline important milestones, proposing the time for delivering on each for the 5-year lifespan of the Plan.

1.4 Purpose of the Plan

This plan is designed to serve the FDA and its partners as a manual to guide the implementation of conservation activities in SNP. It provides a vision that everyone involved in its implementation should strive to achieve. The Plan has been written in a simple and straightforward manner, with realistic and achievable objectives. It conforms to the forest sector policies and laws of Liberia. This document is mandated by the National Wildlife Conservation and Protected Area Management Law of Liberia, as per Chapter 5, Section 5.9. which states that the authority should prepare and publish the management plan in collaboration with stakeholders and with approval from their board of directors. Specified throughout this management plan are policies, actions and guidelines relevant to the Park, which may be revised or superseded during the life of the management plan.

1.4.1 Period of Validity of the Plan

This plan is designed to be implemented over a five-year period – from the date of adoption with the signing of a validated version by the managing director of the FDA.

1.4.2 Previous Plans

Preparation of the first management plan for the Park began in 1985 and was completed in 1986. It was produced after a series of studies, including surveys, by a team of international technical consultants, with assistance from some technical staff of the FDA. There was little consultation with local communities and other stakeholders. (Community involvement and consultation was not normal at that time). However, much of the background information in that Plan remains valid and has been used in the current work. It could not be implemented because of the civil war. However, that plan formed the basis for:

- The Zone administrative system and patrol strategy.
- The then major trail network.
- The Park staff structure and ranking system.

1.4.3 Evolution of the Plan

Table 1: The Chronology of development in the preparation of the Sapo National Park Management Plan

Period	**Summary of Key Activities**
1985-1986	Production of the first draft of the Plan.
1989-2006	Rebel forces occupied the Park, making all operations at the Park impossible in that period.
2002-2003	Assessment of baseline information, and evaluation of policy and legislative context.

2005-2010	Draft second Plan, review of Plan Outline and Park values, visioning strategic objectives, Stakeholder review of Draft and Assessment of key issues and SWOT analysis
2011-2016	Final Draft of second Plan produced but never finalized or implemented
2017 - 2020	Revision and redrafting of the previous Plan (2011-2016). Third Plan finalised.

1.5 Overview of the management history of the Park

1.5.1. Surveys and gazettement

Created in May 1983, through the insurance of a military decree by the Peoples Redemption Council, the Park is the first area protected exclusively for nature conservation in Liberia. Its creation came after extensive biological and socio-economic surveys in 1978 and 1979 that identified and recognized the landscape as one of the seven areas in Liberia important for strict nature conservation. For twenty years after it was first gazetted, it covered an area of 1,308km^2 (505sq mi) east of the Sinoe River and south of the Putu Mountains. The Park's original boundaries were set and its first Management Plan drafted by the Division of Wildlife and National Parks in 1986, in cooperation with the World Wildlife Fund (WWF), the World Conservation Union (IUCN), and the American Peace Corps.

1.5.2. Staffing and boundary clearing

Rangers were first sent to the Park in 1986 to start management activities. When the Liberian conflict started in 1989, nearly all management activities stopped, until 1996. While local and international NGOs worked in and around the Park to support conservation, activities are yet to attain their pre-conflict levels. The Park's boundaries were partially cleared with the aid of ex-combatant labor at that time.

1.5.3. Stakeholder consultation

Initially, insufficient attention was paid to communities who inhabited the landscape whose portion was declared a national Park. The challenge to the Park's existence (up to 2005) was largely expressed in the ambivalent attitude communities had towards its management. They felt the Park had not brought them direct recent benefits, did not feel a part of Park decision-making and their traditional practices and local knowledge systems were not harnessed. In the absence of national level conflict, public order is established by default, by the traditional systems. A series of consultative workshops were therefore conducted at the Park and in Monrovia, bringing together over 130 stakeholders from the Park and surrounding villages, and another 50 in Monrovia.

1.5.4. Compensation for immovable property in the old Sapo National Park

As a result of the successful consultative meetings held in 2001-2003 about compensation, the Government of Liberia expanded the Park by about 40% into uninhabited forest areas in October 2003.This increased the size of the park from an area of 323,075 acres (133,502 hectares or 1,335 km^2) to 445,667 acres (184,400 hectares, or 1,844 km^2). In effect, half of the old Sapo National Park was

added to create a new national park. People whose settlements fell within the boundary of the Park agreed to leave and were compensated. Others whose tree farms were within the extension area of the Park were paid for their crops as well.

1.5.5. Park extension

In 2001 and 2002, more surveys showed that some areas outside the old park were very important for animals, especially the big ones like elephant, chimpanzee, buffalo, pygmy hippo and large birds, which need large areas of land to survive. In the numerous consultative workshops carried out in the local communities soliciting their support for the extension, locals agreed to have the Park expanded and communal forests[1] established to constitute a legally protected buffer area around the Park. The Park Extension Act is now a law, but boundary lines on the ground are yet to be defined and demarcated. See Annex 2 for the Park Extension Law.

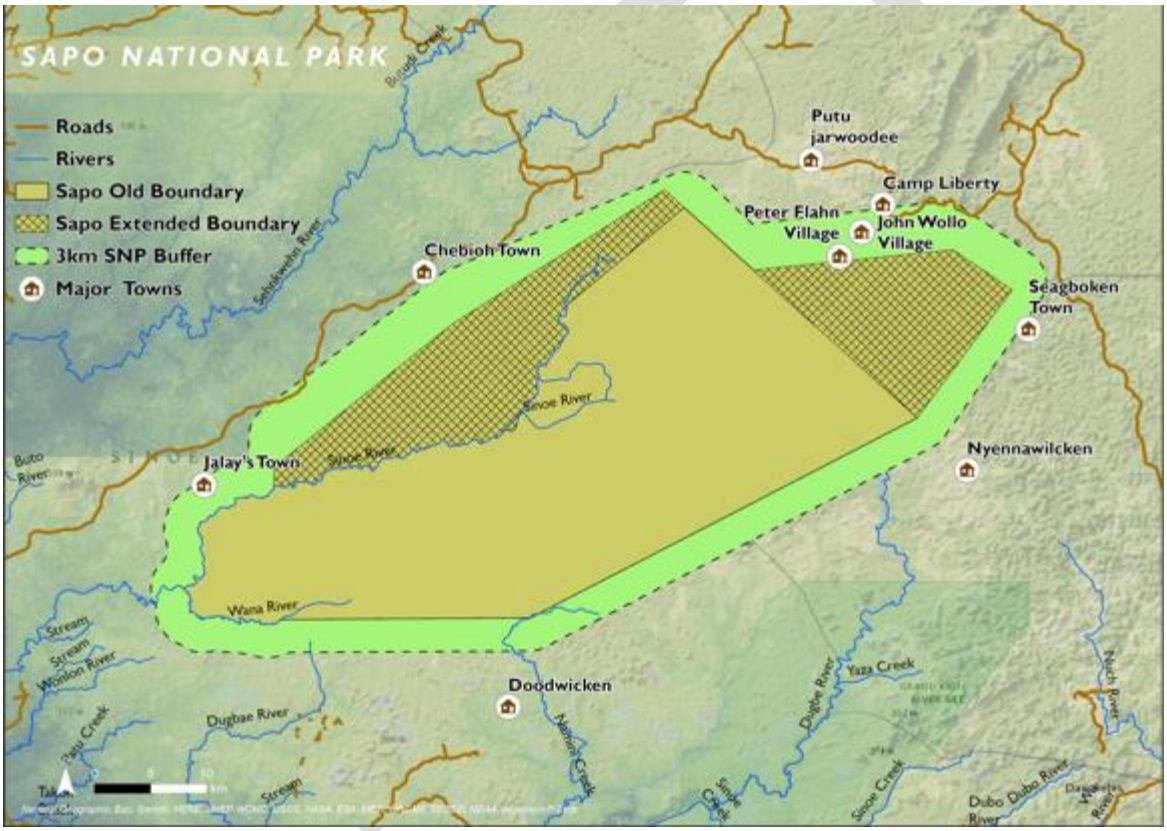

Figure 5: Park boundary showing extension (2003) and initial (1983) boundaries

1.6 Guiding principles

Guided by the core conservation values of the FDA, the Park will be managed with respect to: (i) The richness, diversity and complexity of the ecological, biological and social systems that constitute the Park and its wider landscape; and (ii) The inter-dependency of the elements that make up the Park landscape, the associated biotic, abiotic and landscape diversity, and the aesthetic, cultural, educational

[1] "Communal Forest: An area set aside by statute or regulation for the sustainable use of Forest Products by local communities or tribes on a non-commercial basis." This should not be confused with community forest or authorized forest communities.

and spiritual attributes. The Park will therefore be managed to maintain its ecosystem processes in their natural state, so that it will promote a healthy flow of ecosystem and cultural goods and services, while recognizing the wider socio-ecological context in which it is situated. Following are the key guiding principles:

1.6.1. Strategic and adaptive management approach

To achieve and maintain the desired conditions for better management, the Park will adopt a **Strategic** and **Adaptive** Management approach. Resource use will be managed adaptively, accompanied by constant learning based on monitoring, information gathering and research. The Strategic component will keep the longer-term view in focus, while the Adaptive component will serve to ensure continual feedback at various levels in a spirit of continuing learning, fine-tuning, and adjustment.

1.6.2. Feasibility principles

Management of the Park will also adopt the following approaches:

- **A precautionary approach:** This means leaving an appropriate 'margin of error' where information is inadequate; prohibiting or preventing the use of resources in situations where the consequences of making a mistake could be severely negative for species or landscapes and/or ecosystems.
- **Maintenance of system integrity:** The ecological, scientific, aesthetic, and sociocultural integrity of the Park must not be compromised in the long-term to satisfy short-term needs.
- **Cost-benefit analysis:** As much as possible, the benefit-cost ratio to the Park must be positive.
- **Determining and evaluating the potential influence of resource utilization**: The thresholds of concern for use on affected species, heritage resources, cultural landscapes and ecosystems must be determined and evaluated using methodology that is appropriate for this purpose.
- **Adequate capacity**: Appropriate human and financial resources must be available to manage, monitor and regulate resource use.

1.6.3. Park management effectiveness

Protected Areas worldwide are adopting systems such as the World Bank-WWF Protected Areas Management Effectiveness Tracking Technology (METT) system to assess their overall performance annually. In keeping with the theme of co-management and the entire landscape in mind, park management has adapted the IMET (Integrated Management Effectiveness Tool) pioneered in the Tai National Park and made it available to sister parks in 2019. The Park will use this system for monitoring and evaluating the effectiveness of Park management performance based on the goals set in the management plan of each protected area. For purposes of this Plan, Park management will also adopt SAPA (Social Assessment of Protected Areas) to define and assess the social impact of the Park and its management on the lives of Park fringe communities every five years.

1.6.4. Benefit sharing and livelihood improvement

As part of its contribution to the achievement of the Sustainable Development Goals (SDGs), especially in terms of reducing poverty, protecting the environment and increasing food security, Park management activities will promote livelihood, especially at neighboring community level, as a key management responsibility. Livelihood options will be proposed to communities based on feedback from livelihood surveys, with involved community members requested to rank them based

foremost on sustainability, but also on existing activities for which capacity already exists. However, the Park will reserve the right to choose which resources to make available and how much, as well as the right to withdraw use if necessary (i.e., the use of a resource does not automatically constitute the source as being permanent).

1.6.5. Sustainable resource management and environmental responsibility

The two pillars of National Parks, including the Park — conserving and enhancing their natural beauty, wildlife, and cultural heritage; and promoting opportunities for the understanding and enjoyment of the special qualities by the public—are inextricably linked to the principle of sustainability. As such, an over-riding objective for this Management Plan will be that the Park is managed to protect, maintain and, where possible, restore natural areas within the Park through defined management zoning aimed at preserving the intrinsic and extrinsic values this scarce resource offers for present and future generations.

1.6.6. Social inclusion

Forest sector polices and legislations, especially the 3Cs policy, Forest Reform Law (2006), Community Rights Law with respect to forestlands (2009) and the wildlife and protected area law (2016) envision that National Parks will be enjoyed and cherished by a full cross section of society, with emphasis on local communities.

1.6.7. Integrative management: Promoting the 3Cs concept

For all development activities within the Park's boundaries and the buffer area, the Park will promote the Principle of Integrative Management in which there will be an active promotion of equity in biodiversity conservation, commercial development and community livelihoods.

1.6.8. Community engagement

Community engagement will take the form of:

- **Cultural Heritage Preservation**: To preserve, and wherever possible utilize, for human enrichment, cultural resources associated with the Park, while complying with and effectively using national, county and traditional legislations, rules and procedures.
- **Community Outreach (Constituency Building)**: To build an effective constituency at all levels in Liberia and abroad, which fosters and enhances sustainable public support for the Park's objectives and actions, and for conservation in general. The Park authorities and other statutory or governing bodies have an obligation to facilitate the involvement of local people in shaping management decisions. This refers to the wider community in and around the Park as well as others who have a keen interest in the Park. Finally, communities have a responsibility to be positively involved in the management process so as to take ownership of the Park.
- **Direct Human Benefit**: To provide benefits, particularly in the sense of "benefits beyond boundaries", to meet or exceed reasonable expectations and foster partnerships, in a spirit of equity redress.
- **Regional and international co-operation**: With the growth of international standards relating to conservation, and the forestry sector in general, the importance of regional and international cooperation cannot be overstated. Hence, to promote learning and honor international and

regional cooperation, it will be important for Liberia to collaborate as appropriate on issues with neighboring countries (Sierra Leone, Guinea and Cote d'Ivoire).

2. POLICY FRAMEWORK

There is a number of national policies and international biodiversity conservation and related conventions to which Liberia is signatory. These directly or otherwise support the establishment of protected areas in the country in general, and the creation of the Park in particular:

2.1 National policy instruments

- **The Constitution of the Republic of Liberia (1986)** provides for public participation in the protection and management of the environment and natural resources of Liberia.
- The **National Forest Reform Law (NFRL 2006)** requires the establishment of Protected Forest Areas Network together with conservation corridors, to cover at least 30% of existing forested area of Liberia. The Law NFRL provides guidance towards the establishment and management of protected areas and conservation of wildlife, including the establishment of buffer area around protected areas. It emphasizes the integration of commercial, conservation and community forest management for the benefit of all Liberians.
- **The National Wildlife Conservation and Protected Area Management Law of Liberia (2016) -** provide, within the framework of national legislation, for the establishment of conservation areas and the management of wildlife.
- **The National Forestry Policy and Implementation Strategy (2007)**, in which the FDA adopts the '3Cs' concept to promote integrated and balanced forest management practices for Conservation, Commercial and Community uses of the country's forests.
- **The Community Rights Law with respect to forestlands (CRL 2009),** is meant to ensure the full and interactive participation of local communities in the sustainable management of the country's forests, granting them user and management rights and provides for building their capacity for sustainable forest management.
- **Expansion of the Protected Areas Network (2002),** that resulted in a Memorandum of Understanding (MOU) signed by the Government of Liberia and Conservation International to create additional protected areas by setting aside 30% of Liberia's forests for conservation.
- **Liberia's National Biodiversity Strategy & Action Plan (NBSAP).** The first NBSAP was completed in June 2004, with UNDP-GEF support. Since then, it has been undergoing a series of reviews and revisions. The latest review was in January 2017 when a team of local experts met in Tubmanburg to review and validate the document.
- **The Environmental Protection and Management Act (EPMA) and the Environmental Protection Agency Act (2003)** The National Environmental Commission of Liberia (NECOLIB) was mandated to establish an overall national environmental policy framework. The Acts were published in May 2003.

2.2. International Conventions and Agreements

- **Convention on Biological Diversity (CBD**), promotes the conservation of biological diversity and sustainable use of its components, ensuring the fair and equitable sharing of the benefits arising from commercial and other utilization of genetic resources.
- **Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES)**, aims to ensure that international trade in specimens of wild animals and plants does not threaten their survival and provides for regulation in the trade of certain (CITES) species.
- **Convention on the Conservation of Migratory Species of wild animals (CMS)** aims to conserve terrestrial, marine and avian migratory species throughout their range.

- **The International Plant Protection Convention (IPPC**), aims to protect the world's plant resources, including cultivated and wild plants by preventing the introduction and spread of plant pests and promoting the appropriate measures for their control.
- **Convention on Wetlands (popularly known as Ramsar**), provides the framework for national action and international cooperation for the conservation of wetlands and their resources.

2.3. Institutional Context

The Forestry Development Authority (FDA) is the government agency responsible for managing forest resources in Liberia, including protected areas. The main focus of FDA is to serve as custodian of the forest estates of Liberia consistent with the three C's (Conservation, Community and Commercial) Policy and the Forestry Reform Law of 2006. The direct oversight department for the country's PAs is the Conservation Department of FDA, whose objective is to conserve biodiversity and maintain resource benefits for locals.

3. MANAGEMENT OF THE PARK

As a national park, the general policy and practice should be one of minimal interference with natural processes, but some intervention is necessary to achieve specific management objectives. Minimizing interference with natural processes is this Plan's ultimate objective for management. Policies, actions and guidelines that constitute responsible governance are therefore an epitome of the overall approach to management.

3.1. Management Approach

This Plan will deliver on its goal and objectives through several management actions, either singly or in combination and this will involve:

(i) **Monitoring** trends over time;
(ii) Carrying out **research** on any management issue to acquire information for decision-making;
(iii) Undertaking **preventive action** to avoid an unwanted situation;
(iv) ***Facilitating*** a process or activity to support park operation;
(v) ***Combating*** an illegal or unwanted issue when it is already occurring; and
(vi) Active ***encouragement*** of any intervention that produces positive result to promote its occurrence or result.

3.2. The Zone System of Park administration/management

The Park currently operates a Zone System of Administration (ZSA), with the Chief Park Warden as the senior-most officer responsible for implementing park management systems for maintenance of biological integrity, including overseeing staff activities such as law enforcement and engagement with communities. They are also involved in a variety of activities, including supervising the activities of NGOs supporting Park Management, supervising research activities at the Park, and representing the Park at local and international fora and events. The Park is divided into three Zones, each headed by a Zonal Warden who acts as Chief Park Warden in the Zone. For law enforcement, each Zonal Warden coordinates with patrol team leaders who are heads of patrol teams in the zone. Additionally, each zone has a community engagement ranger who supervises engagement with communities in the zone. While it is not without challenges, the ZSA is an integral part of the management approach for chain of command, planning of law enforcement patrols and community engagement.

As this plan operates on the principle of adaptive management, it is prudent to note that changes to the administrative system could occur over the life of this plan in response to changes on the ground.

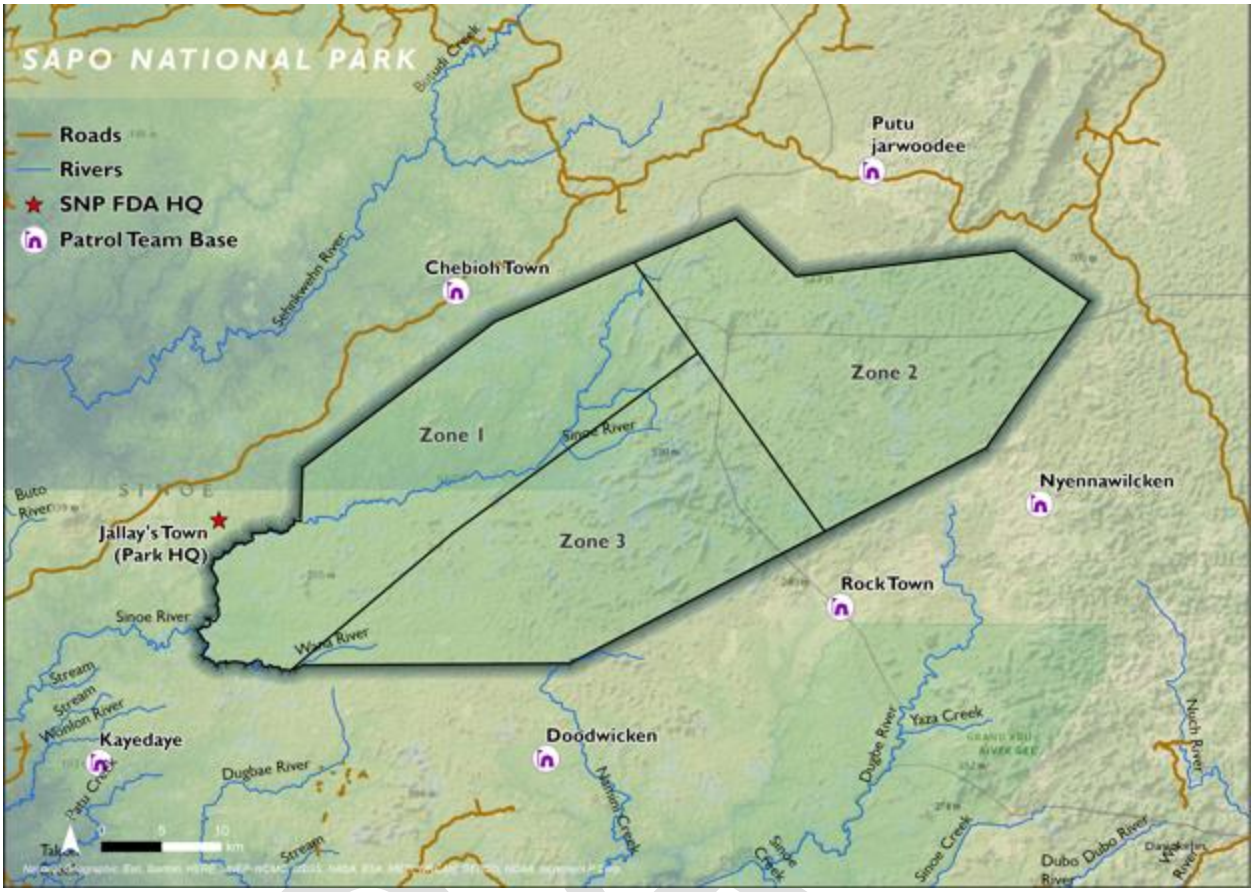

Figure 6: Map showing the three management zones and six ranger posts of SNP

3.3 Natural Resources Management

3.2.1 Boundary Demarcation & Maintenance

The legal description of the boundaries of the Park on paper is not disputed, but there are a few concerns on the ground, about what the actual external boundaries of the Park are; this relates particularly to the 2003 extension of the park in some areas. This borders on the claim by a few communities that they were not informed by their leaders of decisions reached with the government regarding the park extension. Table 3 lists the figures (acres, hectares, sq km) corresponding to the size of the Park after extension. Conscious effort will be made to reconcile boundary description with on-the-ground cuttings (computer generation and participatory mapping, versus gazette) to verify coordinates. All activities relating to boundary harmonization will be conducted in collaboration with the Land Authority as declared in the Liberia Land Authority Act. As prescribed in the previous management plan, adequate community consultations at the village level should be carried out to ensure communities' consent is based on fully informed decision-making. This should include awareness creation about the history, process and benefits of the boundary extension that culminated in the Extension Act of 2003.

Table 2: The boundary areas of the Sapo National Park after the extension

Acres	Hectares	Km^2	Location	Remarks
445,677	180,365	1,804	Total area in gazette	Approved 10 October 2003, Published 24 Oct 2003: (Act for The Extension of Sapo NP)
323,075	130,748	1,307	Old area	18th May 1983
81,353	32,924	329	Western extension area	Extension Act 2003
41,249	16,693	167	Putu Extension area	Extension Act 2003

Management Issue No. 1: External Park Boundaries	
Policies	**Actions and Guidelines (AG)**
1. Park boundaries will be clearly demarcated with correctly numbered concrete pillars and proper signage at appropriate points, and in the right direction.	AG. Organize and train a Joint Boundary Demarcation Team to consist of affected local communities, FDA rangers and district authorities to demarcate the new extension boundaries and confirm the current boundaries. Include representatives of NGOs and or civil society as independent observers. AG. Record the position of the boundary and pillars with GPS to identify possible differences with gazette description. These can be used to make corrections when necessary. It may be best to accept the situation on the ground as it is, and to revise the gazette description accordingly at the soonest possible. This will have to follow the process of approval by legislature as declared in the wildlife and protected area law.
2. The legal boundary description must be matched with the situation on the ground.	AG. The gazetted description should be in metric units, with decimal degrees to conform to international standards, and should provide the coordinates of boundary pillars so that they can easily be found with a GPS. AG. Boundary pillars should be constructed and put in the correct positions according to FDA standards. Ideally, pillaring should be done at every turning point and at every 1km on a straight line. AG. Annual contracts should be made with adjoining local communities for boundary maintenance under the supervision of Park rangers. They should be paid at the standard labor rates. This will help promote seasonal employment, and collaboration on respecting the boundaries by local people. AG. A 2m wide strip should be cleared each year, starting with the thick bush areas in January, by cutting the vegetation close to the ground and by pulling out roots where possible.

	AG. Forest tree species, with wide canopies which are easy to obtain and grow well , should be planted at 25 m intervals on the inside edge of the boundaries to provide clear evidence of boundary location , to suppress weed, to reduce maintenance efforts, and to help form a natural firebreak.
	AG. Honey producers should be encouraged to put their hives on the boundary line for maintenance - they will then make sure that there is no fire or farm encroachment.

3.4 Access to the Park

All roads to the Park are difficult to access in the wet season from May to November, without a strong 4x4 vehicle. Some roads are completely cut off to all vehicles, even to motorbikes, at the peak of the wet season in September-October. The closest and most often used access to the Park is by the Greenville-Zwedru Highway to the Park HQ in the west. This road links with the Monrovia-Greenville Highway at the Nyenfueh's Town Customs Checkpoint, about 33km from Jalay's Town.

Zone 1 HQ at Chebioh's Town is on the Greenville-Zwedru Highway with the same conditions as described above. The Pynestown-Putu Pennoken road provides access to Zone 2 HQ and is by itself motorable year-round, but subject to cut-offs at severely muddy obstacles at Chebioh Town, Mile 48, Pynestown or Putu-Pennoken.

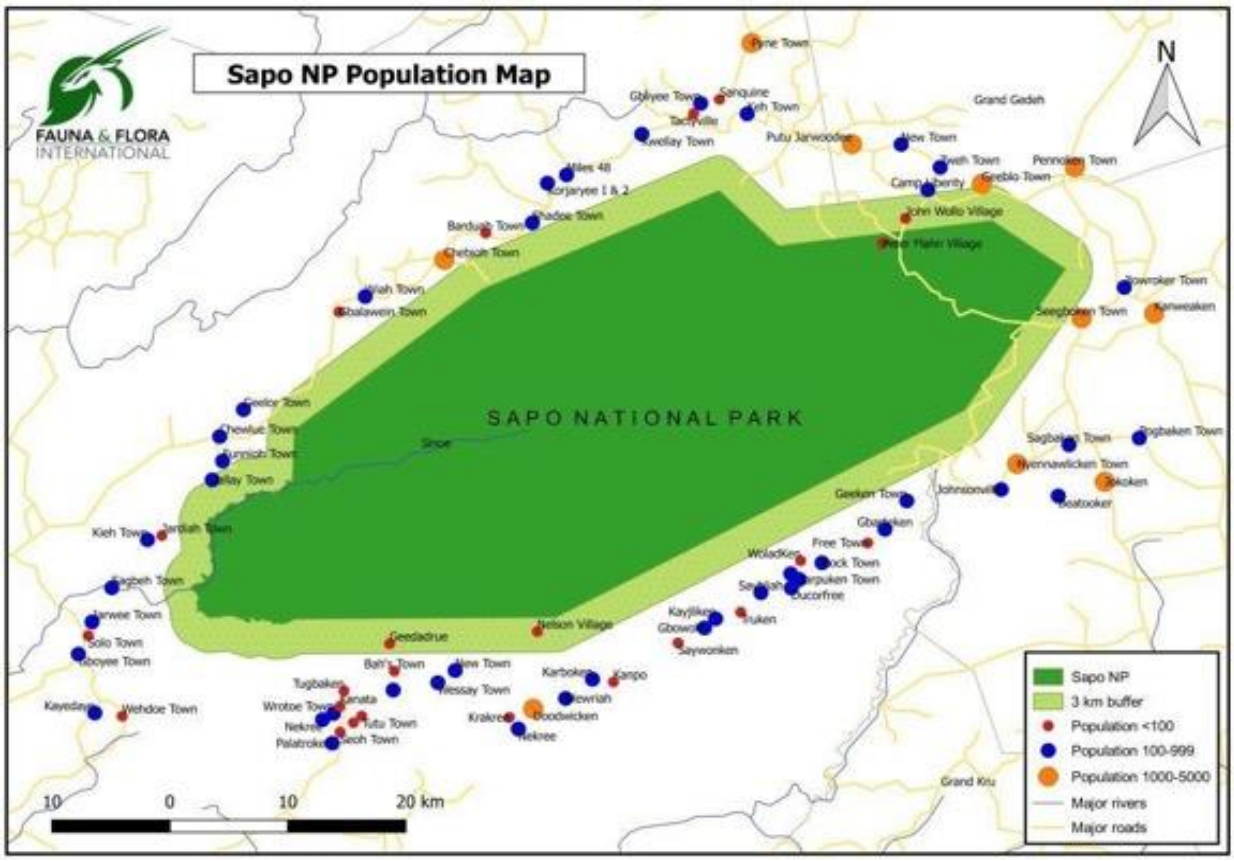

Figure 6: A map of the Park and Buffer Area showing adjacent human settlements and roads

Access to the east of the Park is by the Zwedru-Fishtown Highway, which is also difficult but possible to use year-round. But the branch roads to Seagboken and Nyennewlicken are in very poor condition, mainly because there are many unstable log bridges. The southern boundaries are accessible by the Greenville-Doodwicken road, which terminates at Doodwicken.

3.4.1 Access within the Park

There are no access roads for vehicles within the Park boundaries and no intention to build one for this plan's duration. Historically, local people walk across the Park on footpaths that remain and are used by rangers, researchers and tourist accessing the Park. The most heavily used trails are mostly between Doodwicken and Putu Jarwoodee and Pynestown in the north via Camps Iraq and Gaboni, where branch trails went to Mile 5 and Chebioh's Town in the west, and Nyennewlicken in the east. Trails accessible after crossing the Sinoe River from Jallay's Town, linking to the rest of the Park, are currently the most frequently used by tourist and researchers. All these trails were closed to community access at the time of the gazettement of the Park.

Management Issue No.3: Access to and Within the Park.	
Policies	**Actions and guidelines**
1. Only authorized persons will be allowed entry into the Park during the 5-year implementation of the Management Plan.	AG. Development of park access policy, stating clear guidelines on access to various parts of the park.
2. Work with Counties and District Authorities to ensure that the Park is integrated into development plans, promoting participatory action in the improvement of access around the park.	AG. Prepare practical road maintenance and development plans which improve park management and fit into county and district development initiatives. AG. Propose these plans to relevant decision makers and lobby for implementation of the same. AG. In consultation with relevant stakeholders, design a system to identify priority areas for road construction or maintenance activities around the park. AG. Park rangers will support the implementation of all plans on access roads to the Park per zone, including to the HQ, with supervision of the Chief Park Warden and Zonal Wardens.
3. A network of trails will be laid out inside the Park during the 5-year	AG. In consultation with stakeholders and partners, organize a team to define the areas in

implementation period of the SNPMP, which will be used for patrols.	the Park through which the network of trails is to be laid out. AG. Ascertain that suitably qualified individuals for laying out trails in each zone of the Park are identified, selected and trained for informed and better participation.

3.5 Identification and management of historical and cultural sites

Conscious that various parts of the park were inhabited at various times prior to its establishment and expansion in 1983 and 2003 respectively, it will be important to map known areas, for future research purposes. With this baseline data collected, researchers can then be invited to conduct studies that will improve cultural and or archaeological knowledge of the area. The relocation of communities outside the boundary of the park was accompanied by a relocation of their cultural sites, those that could be moved, and those about which local people remembered. The original location of these sites, however, is an important piece of information that must be maintained as activities continue within the park over the years. A policy regulating and guiding the use and access of cultural sites is however recommended.

Management Issue No. 4: Historical & Cultural Sites.	
Policies	**Actions and guidelines**
1. Historical and cultural sites must be protected from any changes in their natural status, and no part of such sites should be removed except by orders of the Ministry of Information Culture and Tourism, under professional supervision.	AG. Identify, geo-reference, and place notices at known archeological and cultural sites in the Park that have been vacated, mapping the state of the area before the gazettement and extension of the park, for those tourists or researchers focused on cultural sites.
2. All archeological sites (e.g. sacred sites, old graves, caves, old settlements), if found in the Park, will be protected from new infrastructural development.	AG. Potential development at any site in the Park should be preceded by a careful archaeological inspection of the site. If any relic is found, the Ministry of Information, Culture and Tourism, should be invited to supervise its removal.
3. No new burials will be permitted in the Park.	AG. Enforce rules against burials in the Park and integrate such rules in the no-access policy of the Park.

3.6. Habitat Management

3.6.1 Habitat restoration

Because of the illegal alluvial gold mining activities in the Park, there are areas of disturbed vegetation, linked to the actions of the miners. These are mainly pits filled with stagnant water or cleared campsites and human settlements of varying sizes. The specific numbers, sizes, locations and conditions of these sites are not yet known and will be assessed as part of the post-eviction management activities. Based on the findings of the assessment, it will be important to institute restorative actions to damaged sites.

Management Issue No. 5: Habitat Restoration.	
Policies	**Actions and guidelines**
1. Determined efforts will be made to rehabilitate all habitats degraded by recent mining and related activities.	AG. Identify and record with GPS the location of all mining pits and degraded vegetation areas. AG. Conduct a full Environmental Impact Assessment (EIA) on all recent mining areas including settlement camps. AG. Prepare and implement a rehabilitation plan for all mining pits and other degraded areas.
2. For a number of years beyond the validity of this Plan, all degraded vegetation areas will be allowed to recover naturally.	AG. Monitor and document the progress of recovery of each degraded area to ensure that further degradation does not occur.

3.6.2 Alien plant species

To maintain it as a natural ecosystem with indigenous wild plants, alien species should not be allowed to thrive in the Park. So far, the only significant alien plant species at the Park is the invasive Siam weed (*Chromolaena odorata*). This is pervasive in farmlands and along roadsides all over Liberia. *Lantana camara* (a thorny herbaceous plant known to be a serious agricultural weed) and *Leucaena leucocephala* (a tree species that invades semi-natural or natural habitats) are also found in Liberia and these should be looked out for in the Park. Within the Park, *C. odorata* has been recorded mainly in the Gbaboni area.

Management Issue No.6: Invasive & Alien Plant Species.	
Policies	**Actions and guidelines**
1. Invasive species such as *Chromolaena odorata* must be kept out of the Park and its buffer area by all means	AG. Identify and document any number of invasive plant species that may be thriving in the Park and in its surrounding landscapes, such *L. camara* and *L. leucocephala.*

possible and invasion of other alien species should be prevented.	AG. Use the most effective method(s) available to destroy an invasive plant – for *C. odorata*, it is by brushing of stands just before they set seed and allowing indigenous vegetation to shade out their regrowth.
2. The use of chemicals (herbicides, weedicides, etc.) and fire in the Park, as measures to control or exterminate alien plants, is prohibited.	AG. Develop and employ efficient, cost-effective and eco-friendly and acceptable methods to keep alien plant species from entering the Park and to exterminate those which might be found in the Park and surrounding ecosystems.

3.6.3 Invasive plant species and the impacts of climate change

Climate change presents the threats of increasing temperatures and reduced rainfall that could harm the Park, a tropical rainforest ecosystem, and may also affect flowering and fruiting patterns. Climate change is expected to favor invasive plants over native vegetation. Pest plant species currently restricted to lowlands, for example, can also be expected to move into higher altitude areas (McFadyen 2007). Reducing stresses on the Park's natural systems could build its resistance to climate change, as studies of other parks have reported (Dunlop & Brown 2008).

Management Issue No. 7: Climate Change and the Potential Spread of Invasive Species	
Policies	**Activities and guidelines**
1. The impacts of threatening processes, such as invasive species, will be managed to maintain or restore habitat condition and increase resilience to climate change.	AG. Set up monitoring plots in and around the Park to find out if the number of invasive plant species is increasing or reducing with time.
2. Determined efforts will be made towards building the knowledge base about the potential impacts of climate change on the Park's biological resources.	AG. Encourage research to improve knowledge of plant and animal ecology in relation to climate change e.g., breeding and migration patterns of birds, and monitor these as indicators of change to habitat condition and natural integrity due to climate change.

3.6.4 Fire Management

No fire outbreak has been recorded in the Park, as forests with dense or closed canopy vegetation are known to be good at suppressing fire by virtue of their relatively cooler temperature in relation to more exposed surroundings. However, as communities and farming activities get closer to external boundaries of the Park, it is expected that the risk of accidental or deliberate fire will become higher. Therefore, this plan recommends that Park management develop a fire management plan for such eventualities. Areas of potential fire hazard are mostly the park external boundaries and places that will be used for camping by researchers and visitors to the park.

Management Issue No. 8: Fire & Park Protection.	
Policies	**Actions and guidelines**
Development of fire management plan that focuses on preventing wildfires	AG. Include in training of Park Rangers procedure on bushfire prevention and control.

3.6.5 Management of Water bodies and watersheds

There is an extensive network of creeks that serve as tributaries of the Sinoe and Dugbeh River drainage system in the Park. There is extensive flooding in the lower reaches of the Park, mainly in the bottomlands in the southwest and south during the rainy season. This poses problems for patrolling,

research and tourism. This watershed is also the primary source of drinking water of communities surrounding the park, and it is important to keep it free of pollutants (e.g., Mercury) that will otherwise have detrimental effect on the human and animal populations dependent on it.

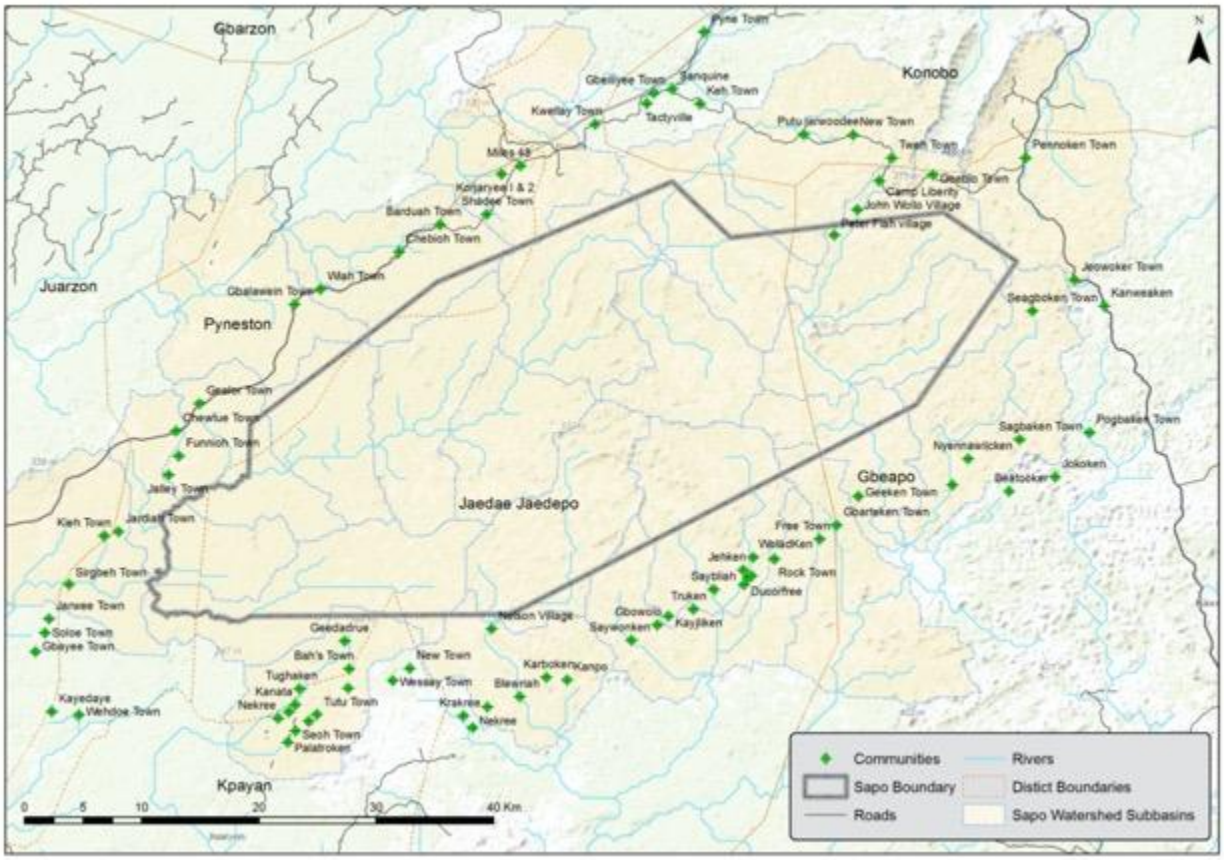

Figure 7: Map of Sapo showing watersheds (FFI, 2018)

Management Issue No. 9: Management of Water bodies & Watersheds.	
Policies	**Actions and Guidelines**
1. The drainage system of the Park should remain in its natural state and its pollution should be prevented.	AG. Ensure that infrastructure development and other Park management activities should be carried out with the least disruption to the natural water flow and drainage system of the Park.

3.7 Wildlife Management

3.7.1 Introductions and Re-introductions

There is no evidence yet that any species have become extinct from the Park to warrant reintroduction. The established long-term bio-monitoring program is meant to monitor species population trends and distribution to enable early detection of changes in species numbers. No species have been introduced into the Park and it would not be advocated for during the life of this plan.

Management Issue No. 10: Introductions & Re-introductions.	
Policies	**Actions and Guidelines**
1. Introduction or re-introduction of animals in the Park will only be allowed after detailed health and scientific research.	AG. Develop a database of species of plants and animals that currently occur in the Park. AG. Sustain the long-term biomonitoring programme and extend to include important flora species. Develop species-specific research and management programmes for threatened species of animals and plants.
2. Introductions or re-introductions could be considered only in the future if research results suggest that this is a credible and sound decision to make, and this will be beyond the life span of this Plan.	

3.7.2 Diseased, injured and abandoned animals

No such animals have been found inside the Park. However, occasionally animals may be found in communities that are ill or dying, are orphaned, or may be offered for sale along roads and there is at times the temptation to try to help the animals, in the hope that they will be able to live in the wild again. This is wrong and usually causes problems and should not be allowed. There could be outbreaks of the major animal diseases the most dangerous of which are (i) Ebola, (ii) Anthrax, (iii) African swine fever, (iv) Foot-and-mouth disease, and (v). Rinderpest

Rescued animals should be handed over to nationally registered animal sanctuaries. There are currently two-registered Sanctuaries in the country, both in Margibi County: the Liberia Chimpanzee Rescue and the Libassa Ecolodge Wildlife Sanctuary.

Management Issue No. 11: Diseased, Injured & Abandoned Animals.	
Policies	**Actions and Guidelines**
1. All observations of diseased, injured, orphaned or	AG. Developed protocol for the handling of diseased, injured, or orphaned animals. In the

abandoned animals should be recorded and handled according to a Standard Operating Procedure.	case of injured animals, the emphasis of this protocol will be on ending the suffering of the animal, due to the absence of veterinary facility at the park. AG. The carcasses of animals shot due to injury will be disposed of at the discretion of the Chief Park Warden, Zonal Wardens, or Patrol Team Leader depending on the circumstances. In no instance, will the meat be sold or commercialized. AG. Provide training for some Park rangers in One-Health or veterinary services so that they are capable of detecting early signs of disease outbreaks.
2. Abandoned animals handed to park staff, or those collected from the public must be removed from the park and handed over to animal sanctuaries.	AG. Facilitate Immediately the transfer of any young animals that are orphaned to wildlife sanctuaries. All wild animals been used as pets in communities will be confiscated by FDA Staff and dispose of in anyway deemed necessary by the Chief Park Warden, including putting them in a sanctuary.

3.7.3 Human-Wildlife Interaction

Communities around the Park complain of crops often raided by wild animals, decreasing their yield and disturbing their farming schedules. Based on research by FFI in 2019, the most problematic animals in order of prevalence are Ground Hog (*loc.* Cane Rat), Bush Buck, Red River Hog, Buffalo, Chimpanzee, Monkey species, Duiker species, other Hog species, porcupines, and various bird species. The most at-risk crop types are rice, cassava, pepper, *loc.* bitter ball, plantain, eddoes (*reg.* cocoyam), okra, corn, and banana. Communities often attribute these animals' incursion onto their farms to the creation of the Park and therefore blame the Park for farms being raided. Older reports showed that the most problematic crop-raiding animals on rice farms are weaver birds, which arrive in dense flocks around harvest time in July-September). The few but growing number of mixed cassava and plantain farms are raided by the brush-tailed porcupine (*Artherurus spp.),* red river hog and bushbuck (*Tragelaphus scriptus*). More recently, there have been additional reports of crop-raiding by elephants and buffalos. Incidences of direct attacks on humans by wild animals around the Park is almost unheard of, with one such story reported during the social assessment of the Park (2016-2017). However, it was unclear if the victim was a hunter.

Management Issue No. 12: Human-wildlife Conflict	
Policies	**Actions and Guidelines**
1. Research to be conducted to provide better understanding on the condition of human wildlife conflict around the park.	AG. Using participatory techniques, conduct detailed research on the extent, severity and nature of human wildlife conflict in communities around the park.
2. Compensation to members of the community for animal-induced damage to their crops or for animal attacks on people, will only be done after a full investigation by the FDA, and based on the availability of fund. The focus of the park management will, however, be on preventing or minimizing HWC and its impacts on people living close to the park.	AG. Develop a participatory human-wildlife mitigation strategy in collaboration with communities and relevant stakeholders. This would range from interventions to keep animals out of farms such as constructing physical or special crops to deter animals to advice on how to scare away animals during attack. AG. Propose a human-wildlife offset scheme in line with livelihoods development projects. This should be done in consultation with Park fringe communities.
3. Animal causing rampage in a community should be reported to the FDA, but in the event that an animal, especially a protected species was killed by the community in self-defense, the carcass must be handed over to the Chief Park Warden for disposal.	AG. Park rangers should investigate and keep records of incidence of conflicts whether attacks on humans or damage to crops in Park fringe communities. AG. Establish a monitoring programme based on baseline results from the research on human-wildlife to monitor types, incidences and seasonal patterns, as well as distribution and impacts of human-wildlife conflicts

3.7.4 Domestic animals within the Park

Potential issues with domestic animals may include: (i) Domestic livestock from surrounding communities that could stray into the Park or herded in deliberately; (ii) Situations where park rangers keep domestic animals, that they might want to take with them inside the park during patrols; and (iii) Tourists arriving with pets. If left uncontrolled these could cause problems in the park, particularly with regards to disease transmission and wildlife attacks.

Management Issue No.14: Domestic animals in the Park.	
Policies	**Actions and Guidelines**
1. Domestic animals or pets will not be allowed in the Park.	AG. Monitor and prevent members of the public, including members of the community and visitors from carrying dogs or other pets into the Park
2. Park staff will not be permitted to keep any livestock in their camps or at the official FDA facility.	AG. Park rangers and other staff will take responsibility for keeping livestock out of their camps and FDA facilities. AG. Monitor camps to ensure that regulations about strayed animals are strictly followed. AG. After a given number of warning against this allowing domestic animals stray into the Park, any domestic animals that is found in the Park will be seized.

3.7.5 Safety Precaution in the Park

The Park administration will design a public education, outreach and awareness materials, including a visitor's instruction brochure about measures to avoid / minimize the risk of wild animal attacks, including snake bites, chimpanzee attack etc. and how visitors should respond to potential danger. The brochure would also serve as a guide on use of facilities in the park, including tents, buildings and other facilities. Incidence of attack on visitors has never been reported in the park in the 30 years of its existence.

Management Issue No. 15: Safety Precaution in the Park	
Policies	**Action and Guidelines**
1. No incidence of attacks has been recorded in the park, and wild animals would rarely attack unless the feel threatened. Serious measures will therefore be taken to avoid / minimize the risk of injury or death. 2. Park management will develop a policy on health and safety measures while in the park., making this known to people assessing the park.	AG. Properly dispose of leaf litter and rubbish (banana peels, etc.) so as not to attract animals when in the Park, and no one is allowed to feed an animal in the park. AG. Instruct the Park Visitor Reception Desk to hand out instruction manuals and warn all tourists and other visitors on their arrival about the possibility of encountering wild animals and how to behave in the Park. AG. Train park staff and tour guides on how to identify and handle threat of animal attack as well as First Aid in the case of injury. Experienced former hunters should be recruited as guides.

3.8 Farming and gardening in the Park

Farming is strictly prohibited in the Sapo National Park and currently no farmlands have been found inside the park, with the exception of a few patches of vegetable gardens at the illegal mining camps. However, staff residences when established in the Development Zones (currently developed in Jalay Town in Zone 1) may include some vegetable gardens. This will need to be actively controlled by the Park rangers with the supervision of the Zonal Wardens, including setting rules against the planting of certain types of crops.

Currently, there is an experimental site for conservation agriculture research at the Sapo Conservation Centre (SCC) in Jalay's Town, which is the only official farming endeavour by park management or affiliates at the moment.

Management Issue No. 16: Farming & Gardening in the Park.	
Policies	**Actions and Guidelines**
1. Farming in the Park is illegal and shall not be permitted under any circumstances. 2. Park management will not compensate anyone for any loss or damage by wild animals in farms around the Park or within the Development Zone.	AG. Inform communities around the park of the regulations against farming within a Park. AG. Park staff may grow vegetables or other non-invasive plants within 20 meters of their backyards as backyard gardens within the Development Zone. AG. If areas larger than those available to Park staff for backyard gardens are desired, then the staff should negotiate with local landowners outside the Park boundary for additional land. AG. Monitor gardens within the Development Zone to ensure that the regulations are understood and followed, and list the types of crops, which are allowed or not allowed. AG. Follow procedures in the Wildlife and Protected Area Law and its regulation for handling illegal activities such as farming outside of the Development Zones and prosecute accordingly. Refer to the section on human-wildlife conflicts in case of crop-raiding by animals.

3.9. Forest Resource Use

Use of forest resources inside the park is prohibited. However, sustainable use of resources in the Park buffer area is allowed but there is currently no regulation for how resources should be used in the buffer area. Communities with settlements within or near the buffer area and Park rangers utilize resources in the buffer area such as gathering of firewood for cooking. At the moment, there are extensive pockets of forest outside the Park that could provide all the forest resources communities need. However, as populations grow, and the resources are harvested unsustainably, there is a danger of depletion in a few years. As a result, surrounding communities may increasingly request for access to Park resources such as roofing thatch, building poles, rattan, wild fruits and medicine, etc. Therefore, awareness will need to be created about sustainable use of resources. The plan for a collaborative buffer area management strategy is in place and the establishment of a community advisory board for SNP is in place and will be discussed in a later chapter. These, in addition to sustainable livelihoods support may help to increase communities' commitment to protecting the park and surrounding forest.

Management Issue No.17: Community & Park Staff Use of Forest Resources.	
Policies	**Action and guidelines**
1. Utilization of the Park's resources for commercial purposes, including firewood is a prohibited within the Park and its buffer area. 2. Staff may gather dead wood that had fallen in designated areas within the Development Zone and buffer area, away from visitor use areas. 3. Felling any tree (living, dead) and charcoal production in the Park are strictly forbidden. 4. Collection of firewood (dead wood) and other products will be allowed in the buffer area but under controlled conditions to ensure sustainable harvest. 5. Gathering of firewood or other forest products is at the personal risk of the collector in case of any accident or unpleasant event during the collection.	AG. Set the levels, define the methods and specify the areas for firewood collection in written instructions. AG. Monitor the collection of firewood to ensure that regulations are respected and adhered to. AG. Conduct case studies in communities to identify trees whose wood have the highest calorific value for firewood (ask blacksmiths, women, etc.) and so can burn longer, among other excellent qualities for burning. AG. In collaboration with Park surrounding communities, develop a management strategy for the buffer area, which could include information on what can be harvested, where and how as well as off-take levels calculated based on research findings. AG. Collectors (individuals, families) should be made aware of the risks that may be associated with the collection of firewood and other products in the Park.

3.10. Waste Management

3.10.1 Domestic litter and waste disposal outside the Park

Currently all rangers live in their own residences either in the Development Zone or in communities outside the Park and follow waste and litter disposal practices. Among surrounding community households waste is just dumped behind the houses, as there are no communal dump sites. With the development of offices and residences within the Park, instituting a litter and waste management practice will become a challenge.

3.10.2 Waste disposal inside the Park HQ and Zonal settlements

During the implementation of this Plan, it is highly likely that the number of visitors to the Park will increase and this will be the case with Park staff. The waste that will be generated by the increased number of visitors and staff must be carefully disposed of in an environmentally acceptable manner.

Management Issue No. 18: Waste Disposal Inside and Outside the Core Zone of the Park	
Policies	**Actions and guidelines.**
1. Rangers and visitors will always be reminded not to litter the Park or their homes; 2. Litter and waste must be properly managed when in the Park and at all camps outside the Park. 3. The Chief Park Warden must enforce the best waste management practices.	AG. Define what constitutes litter and wastes for the general public and prepare detailed rules about how litter and wastes are to be properly managed or disposed of. AG. Organize a Sanitation Committee (SC) to control the toilet cleaner, agree upon a system of spot fines and authorize the SC to take responsibility for waste management, with the supervision of the CPW, in or outside the Park. AG. Set up a waste management system at Park HQ to demonstrate best waste management practices, for example biodegradable waste should be buried in pits off camping sites and trails and litter burn in a similar pit. AG. Organize and undertake effective monitoring regimes to prevent/avoid 'free ranging' in and around the Park.

3.11. Mineral Prospecting and Mining

The Liberian National Forest Reform Law (NFRL 2006) and the Wildlife and Protected Area Law (2016) forbid mining in Protected Areas. However, illegal alluvial gold mining is currently ongoing in the park and the government is planning an eviction.

Management Issue No. 19: Mineral Prospecting & Mining.	
Policies	**Actions and guidelines.**
1. Prospecting for minerals or mining in the Park, as is true for all parks in the country, is prohibited.	AG. Reject requests by anyone or a group to carry out mineral prospecting surveys, much less mine in the Park. AG. Arrest and prosecute anyone/group caught trying to mine or prospect for minerals and confiscate the mining implements to the government.

3.12. Law Enforcement and Compliance Monitoring

In accordance with the Wildlife and Protected Area Law (2016), Park Management will enforce national and international laws and ensure that park staff, visitors and park neighbours (communities and other neighboring institutions) comply with the regulations specifying the tenants of the various environmental laws listed in Chapter 2, particularly the wildlife and protected area law (2016). This will require regular anti-poaching patrols and crime data collection, informed by intelligence gathering, bio-social research and monitoring of wildlife and threats distribution. The Sapo National Park law enforcement approach is detailed in Chapter 5 of this management plan. To increase compliance and minimize the rate of wildlife/park offences, communities will be given different forms of compliance assistance and incentives. These are specified in detail in the section on 'Compliance Assistance and Incentives' (Chapter 6).

3.13. Environmental Impact Assessments

As per the Environmental Protection Management Law (EPML) of Liberia, Environmental Impact Assessment (EIA) is a must for all proposed developments that may likely have negative impact on Protected Areas (EPML 2002). An EIA was conducted before the construction of the Sapo Conservation Centre in the Development Zone at the Park headquarters. This should be encouraged before any construction is carried out.

Management Issue No. 20: Environmental Impact Assessment.	
Policies	**Actions and guidelines**
1. Environmental Impact Assessments (EIAs) are a must for all proposed development within protected areas, including the Sapo National Park, to ensure that all necessary environmental safeguards are adhered to.	AG. Ensure that EIAs are carried out for all development in the designated zones of the Park. AG. Specify measures that must be taken if the EIA is satisfactory but is subject to mitigation of some sort. AG. Monitor the development activities in the Park to ensure compliance.

4. ESTABLISHING PARK ZONES

Park Zoning provides the ground for organizing the use to which a given piece of land is put, such as strict protection, research, ecotourism, restoration, infrastructure deployment, roads, tracks, resource access and intensity of use. The two major categories of zones into which the Park has been divided are: (i) Administrative and (ii) Resource management zones. Those areas that fall under each of these categories and their intended management regimes are outlined and discussed in the paragraphs that follow:

4.1. Administrative zones

The Park has 3 administrative zones: **Zone 1** is located on most of the western boundary and is currently headquartered at Chebioh's Town (about 9km from the boundary) along the Greenville-Zwedru Highway. **Zone 2** is formed by most of the northern and eastern portions of the Park, with headquarters at Putu Jawoodee (about 9km from the boundary) on the link road connecting Pynestown and Putu Pennoken. **Zone 3** is mainly in the south-eastern part of the park, with headquarters at Doodwicken (about 15km from the boundary).

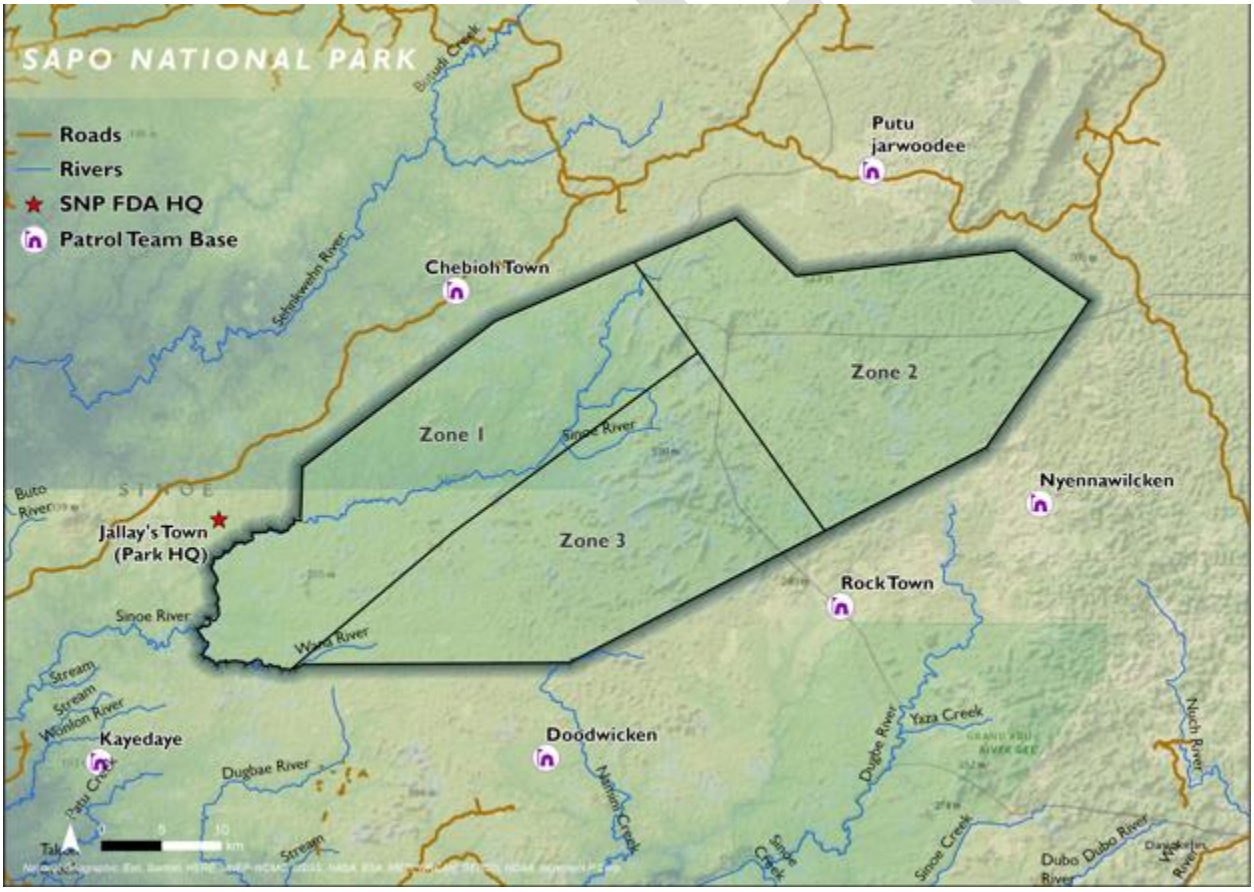

Figure 7: Management Zones of Sapo National Park

4.2. Park resource management zones

The Wildlife and Protected Area Law of Liberia recommends the designation of up to 8 management zones within a protected area. This Plan recommends that management must keep this provision of the Law in mind but must pay keen attention to spatial information such as resource access, land use, use rights, water sources (especially watersheds) and many of such variables as among the defining elements of the number of management zones to establish at the Park. The following zones are proposed at this time pending further investigation:

(a) A **Core area:** The protection of wildlife is the most important characteristic, and only minimal disturbance will be allowed in this zone. What constitutes "minimal disturbance" is to be defined when zones are finally delineated on the ground. Tourists will be allowed in this zone but will be advised that all activities here will be entirely non-subtractive. The Core of the Park, especially the 2003 extension will need to be mapped and demarcated in consultation with communities to ensure full compliance with the correct usage of this zone.

(b) A **Park Buffer area**: The creation of buffer areas around PAs and National Forests was entrenched in the national Forestry Reform Law 2006. Stakeholder consultation between 2000 and 2003 emphasized the creation of a buffer area around the Sapo NP to mitigate human-wildlife conflict, as well as moderate the impact of human activities on the Park's periphery. The proposed buffer was to be created through a 3 km radius band of land from the Park's boundary (approximately 50,000 ha). Implementing this on ground will require consultation with communities. The strategy was for each community sharing direct boundary with the Park to be assigned the strip of forest land adjoining the Park boundary as a Communal Forest, whilst community forestry (sustainable forest management) practices were promoted on farther away land areas, through conservation-friendly land use mechanisms such as agro-forestry and agro-intensification. See Section 7.3.1 for more discussion on the proposed use of the buffer area by communities.

Management Issue No. 2: Administrative and Management Zones of the Park	
Policies	Actions and Guidelines
1. Boundaries of all of the zones of the Park must be clearly defined and maintained.	AG. Through GPS techniques and participatory mapping exercises, define and layout boundaries of all park zones (i.e. administrative and resource management zones) of the Park and map out these zones.
2. All new staff housing and facilities will be restricted to the areas identified by the FDA outside.	AG. Prepare a map for each zone and ascertain that renovation of existing structures at designated areas in the Park conform to the map (e.g., staff housing and facilities etc.).

	AG. Restrict all new developments of the Headquarter area of the Park to the appropriate zones as defined.
3. Engage with stakeholders to monitor and regulate commercial activities close to the Park.	AG. In consultation with stakeholders develop a Park-Neighbor policy to guide the kinds of activities allowed within a defined radius of the Park (e.g., logging concessions, plantation agriculture etc.) outside of the buffer area.

5. RESEARCH AND MONITORING

As the country's flagship protected area, the Park is a natural laboratory for general protected area management practices and for research and monitoring of Liberia's unique biodiversity. Its relatively pristine nature can serve as a model environment to monitor the impacts of climate change. Several surveys have been carried out in Sapo NP, but very little is known about its biodiversity as new species are still being recorded, especially among plants. Sapo NP therefore provides a unique natural environment for groundbreaking ecological research in Liberia and West Africa. For this reason, Park management is obliged to set the pace for developing and implementing best practices in research protocol, and for biological, ecological and socio-economic resource monitoring in the context of a modern protected area.

The dynamics and the resilience of managed forests and the integrity of protected areas need to be monitored quantitatively and qualitatively. Whilst quantitative monitoring measures the area of habitat available for conservation concerns (e.g., free of agriculture or logging encroachment), qualitative monitoring looks at the availability of resources required by certain forest-dwelling species to survive within the habitat, such as assessing whether resident obligate frugivores have access to the necessary year-round supply of fruits of sufficient variety for their dietary needs.

Full understanding of biological diversity and ecological processes, even in an area smaller than the Park, is a task requiring decades of intensive research. Bio-social surveys, inventories and monitoring can, however, provide the basic knowledge required to enhance local scientific and technical expertise and to initiate a more robust and sound conservation strategy for the Park. Past, and to some extent, present research efforts have been thoroughly reviewed, gaps identified, and a number of key priorities outlined and briefly examined (Vogt 2012). These research attempts, almost entirely, focus on data and information collection to help broaden, sharpen and deepen our understanding about the biological resources of the Park. These research efforts should therefore be continued, encouraged and enhanced for example, through collaboration with national and international research institutions and scientists and training of local people and national scientists in both biological and social research. The establishment of the Sapo Conservation Centre (SCC) at the Park is a first step towards achieving the research and training outcomes, as the centre now serves as a hub for ecological research and conservation learning in Liberia. More on the SCC is discussed in Chapter 7.

This Plan proposes that research be pursued in the realm of both the biological and social sciences, possibly simultaneously. While, undoubtedly, there is so much to learn about the Park's fauna and flora and monitoring of these is currently on-going, efforts should also focus on monitoring the impact of the Park's existence on communities who once used some parts of the reserve to meet the imperatives for good health, survival, and for the sustainability of their culture, local languages, local knowledge systems and spiritual fulfillment. The Social Assessment for Protected Area (SAPA) approach currently being applied in PAs in East Africa was recently tested in Sapo NP in 2016 and 2017 and will form the basis for future monitoring of the impacts of the Park on surrounding communities. It will be carried out every five years prior to revision of the Sapo Management Plan.

A brief on each of these streams of research focus follows below:

5.1 Biological Surveys, Inventories and Monitoring

Monitoring of biodiversity and its threats are globally recognized as the key elements of protected area management programme. A well-structured, a science-based monitoring and feedback system is very essential for effective long-term monitoring programme. Improved knowledge of the biodiversity of Sapo NP will be a significant contribution to conservation science in the country. Over the last two decades, FFI has worked in Sapo NP, supporting the FDA in Park management, including capacity building for Park rangers and in particular biological research.

The major objective of biomonitoring in Sapo NP is to establish a system that will monitor the distribution of the species and threats for the park to ensure management plans are designed following relevant scientific knowledge allowing them to be continuously assessed and reviewed as necessary. Animal signs, both direct (sight and sound) and indirect observations (tracks, dung, nest, footprints, and trails) are recorded, as well as human presence during the survey. This information informs the park management about the impacts of various conservation measures and to plan and implement an effective management strategy.

5.1.1 Line-transect surveys using distance sampling

FFI helped to set up the Sapo NP biomonitoring programme in 2001 but since then changes have been made to the biomonitoring protocol and design to ensure robustness of data collected and that it meets international standards. The transect system which initially was restricted to the eastern part of the Park with only 16 line transects (Fig. 8a), has now been increased to 90 transects established across the entire Park (Fig. 8b). Each transect line is 2km in length.

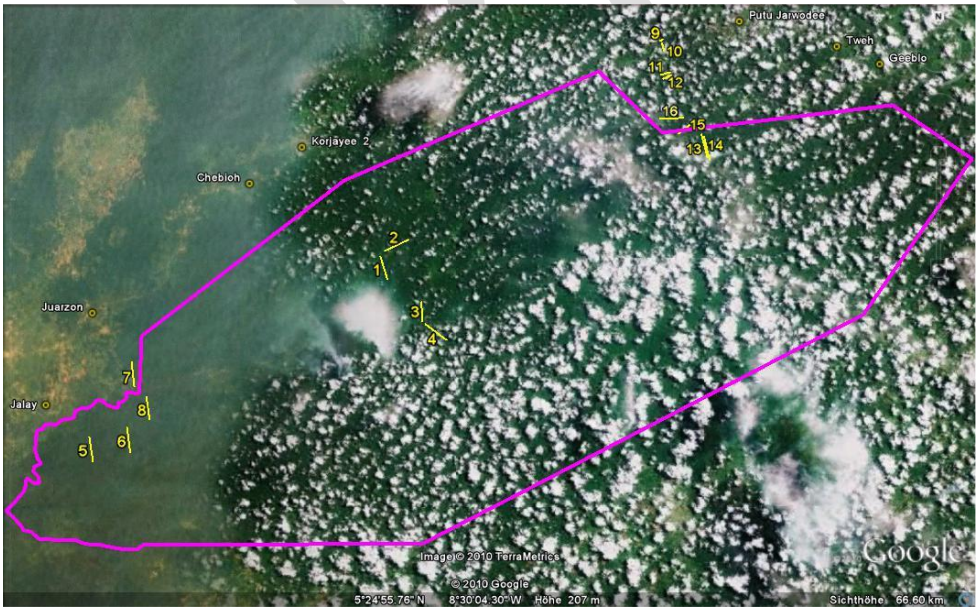

Figure 8a: The previous Sapo NP biomonitoring transect system (16 line transects)

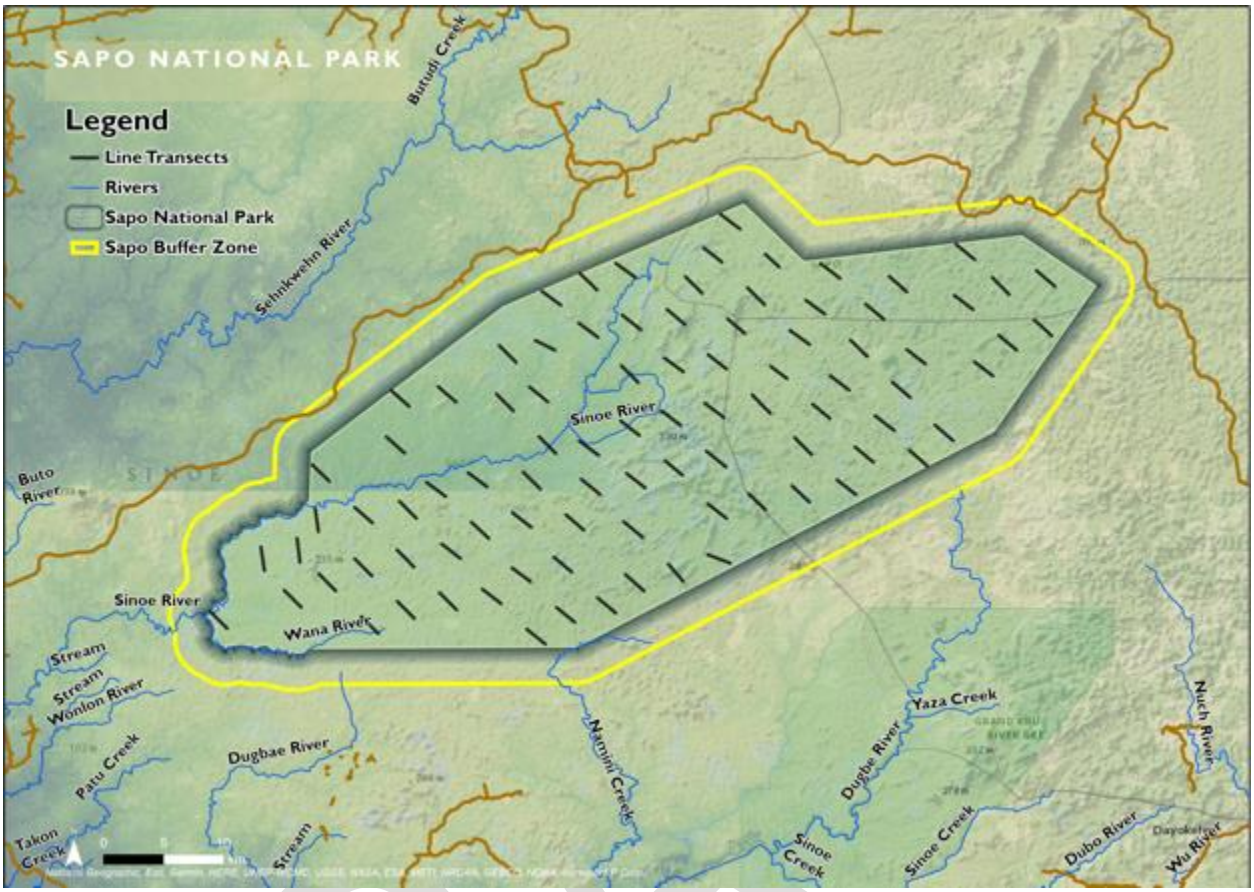

Figure 8b: The current Sapo NP biomonitoring transect system (90 transects) from 2012 to present

In 2011, a biomonitoring protocol was developed with line transect survey with distance sampling was adapted as the methodology. A training manual was produced, and 19 biomonitoring members (4 FDA and 15 community auxiliaries) were trained. Data collection using this protocol was implemented from 2014 to 2018 in collaboration with FDA and communities. However, implementation of biomonitoring activities was minimal due to the presence of illegal miners in the Park.

The current biomonitoring team consists of 16 members (1 FDA and 15 community auxiliaries). In 2018, the team completed a survey of 73 transects of the 90 pre-established transects, covering a total distance of approximately 146 km (Figure 8b). 42 species were recorded during the survey which included 31 mammals, 10 bird species and one invertebrate.

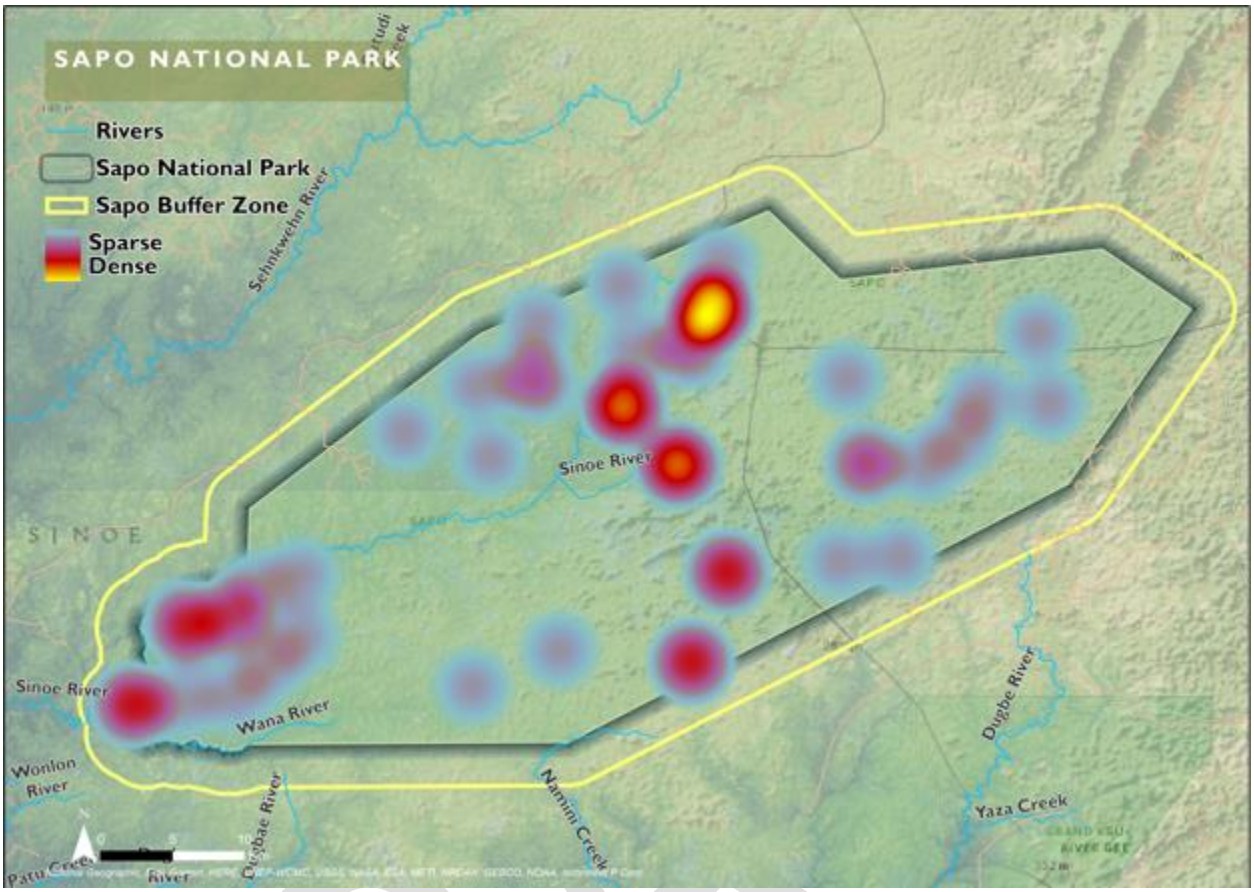

Figure 8c: Signs of Western Chimpanzee (*Pan troglodytes verus*) recorded during 2018-2019 LT Survey

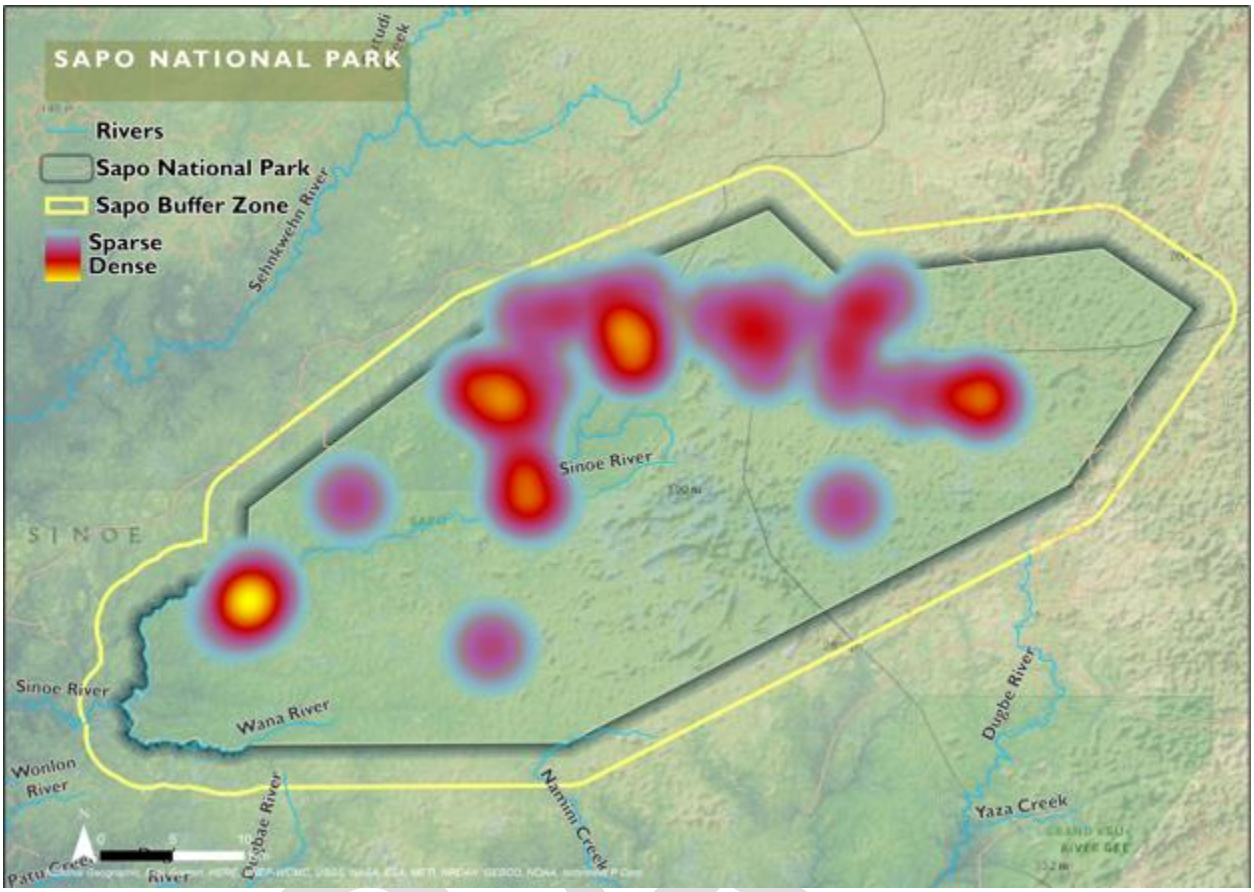

Figure 8d: Signs of Red Colobus (*Piliocolobus badius*) recorded during the 2018-2019 LT Survey in SNP

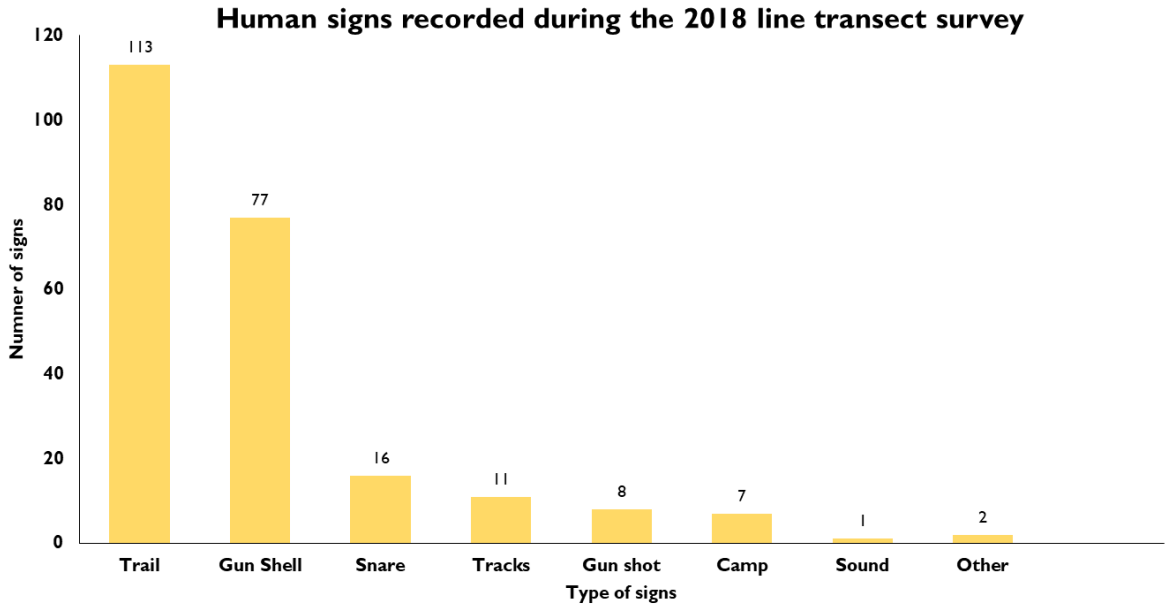

Figure xxx: Different types of human signs recorded in SNP during the 2018-2019 biomonitoring survey

5.1.2. Camera Trapping surveys

A camera trapping survey was also established in the Park in 2008, recording the first footage of the pygmy hippopotamus in Sapo. Since this first survey, several short camera trap surveys have been conducted. In 2019, FFI in collaboration with the Forestry Development Authority (FFI), initiated a five-year camera trapping protocol at Sapo National Park in August 2019 as part SNP long-term Biomonitoring program. The five-year camera trapping (CT) protocol was finalized in June 2019. The main objective was to create a long-term biomonitoring protocol using camera traps comparable across the various study sites. The protocol aims to survey 50-80% of the focal study area over two to three years to gather robust species inventory and occupancy patterns of captured species and relative abundance indices, especially for larger ranging species.

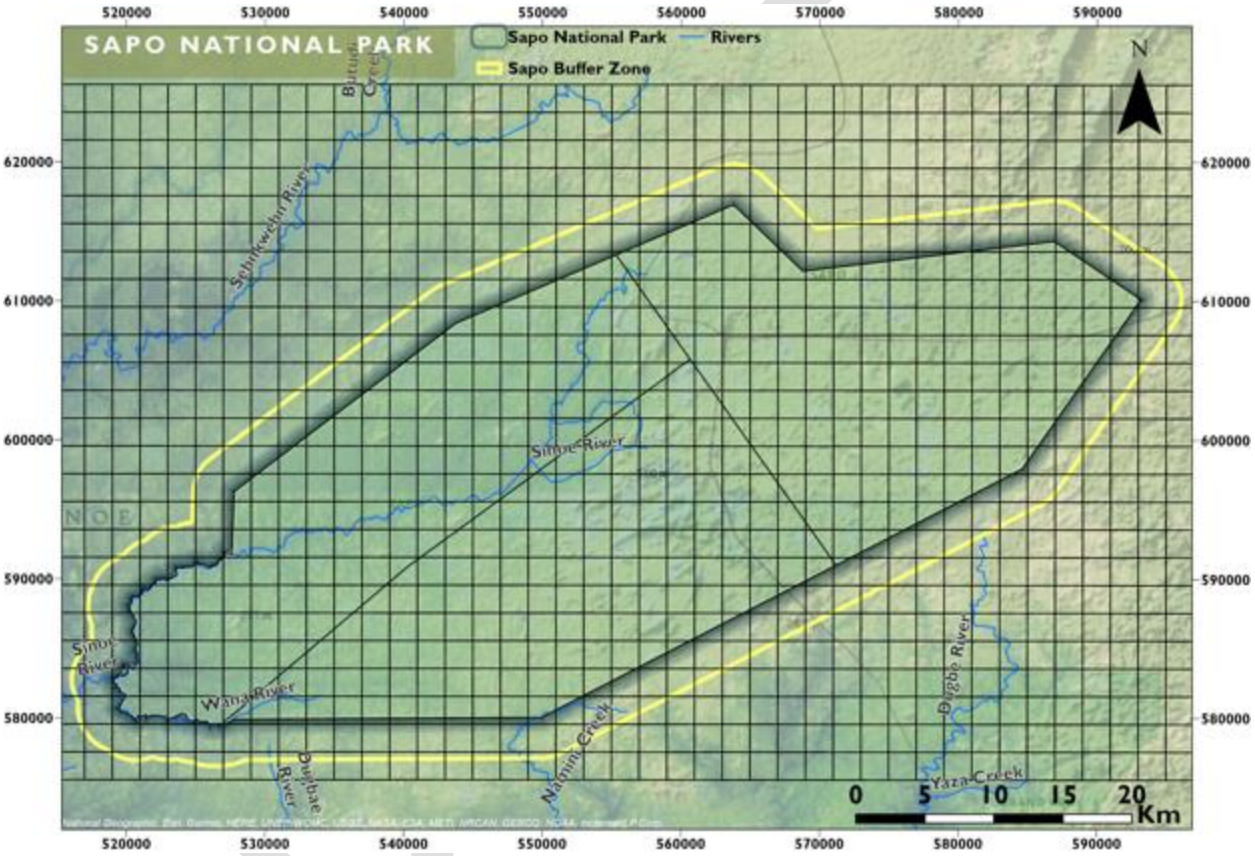

Figure xxx: 2x2km Camera Trap Grid for SNP

5.1.3. Species-specific surveys

Currently, a nationwide survey on pygmy hippopotamus is ongoing across Liberia. In Sapo NP, the pygmy hippopotamus community questionnaire is being administered to gather information on their current status and the community's knowledge and perception of pygmy hippopotamus. Simultaneous recce survey is carried out in the Park to record signs of pygmy hippopotamus to determine their occupancy in the Park. The first pygmy hippopotamus monitoring protocol was developed in 2019. The results of the nationwide survey will be one of the key components in validating the monitoring methods for this elusive species.

5.1.4. Biomonitoring programme (2019-2023)

The biomonitoring programme in Sapo NP was reviewed and a five-year plan has been proposed to gather systematic information about the fauna and flora of the Park adapting the best approaches relevant to the research. In 2019, the first step towards was taken with the review of 2011 line transect methods, a new camera trap protocol and its implementation in Sapo NP and conducting pygmy hippopotamus survey. The proposed five-year plan includes plant survey or vegetation sampling, small mammal survey, bird survey and species-specific survey along with regular multispecies biomonitoring surveys.

Choosing the representative indicators and measures that characterise the ecosystem of the Park is very important, however monitoring system for these should be simple to be implemented annually. For a comprehensive monitoring system, the indicators should be measured at several scales to ensure a holistic biodiversity conservation. Indicators include local indicator species (e.g., zebra duiker), keystone species (e.g., Chimpanzees), umbrella species (e.g., Forest elephants), flagship species (e.g., Pygmy hippos) and resource-specific species (e.g., Picathartes). Keeping in line with this, the five-year biomonitoring plan was drafted in 2019. The work plan (2019-2023) includes survey methodology which use of transects / recce surveys, complemented by camera trapping surveys, species-specific research and Rapid Biodiversity assessment to ensure baseline information about species richness and occupancy in the Park are obtained at the barest minimum.

5.2. Research on the social impact of the Park on communities

Social science is indispensable in terms of prioritizing Park management issues and minimizing the potential for conflict between Park management and communities (Sharp et al. 2010; West et al. 2006). Conflict is a common occurrence in protected areas. Community rangers will be stationed around the park to act as a first layer of alerts to community activities. Additionally, a social scientist group or academic institution may be engaged to conduct research on a host of social issues for few months or so in Park communities. However, it is recommended for an experienced social science researcher to be stationed at the Park to carry out research in tandem with a local counterpart or two for about a year or more to facilitate knowledge transfer. Even after his or her assignment, the researcher may continue to visit the Park for as many times as possible as a continuing learning process for their mentee who will be based at the Park.

Communities remain vocal about what they believe is an encroachment of the Park on their land during the 2003 expansion of the park, the failed promises they claimed the Park management made that remain promises today, and the nagging problems bred by the human-wildlife co-existence. The Park can only be successfully managed on the basis of data and information about its animals and plants, and in-depth knowledge on the impact of is existence management performance on people in close proximity to the Park. The SAPA study carried out in 2016 investigated the impacts of the Park on 50 communities living within 0-7 km of the Park. Results identified communities' perception of the positive and negative impacts of the Park. Some of the negative impacts outline by the communities included the poor and improper performance of Park staff in implementing their tasks, including approach to law enforcement and community engagement, weakness of Park security and the increasing level of human-wildlife conflicts. Results from 2019 Human-Wildlife Coexistence questionnaire and 2016 SAPA give information on the problem animals and their perception of wildlife. Outstanding positive impacts noted by communities were the recognition of the Sapo people through the existence of the Park, the value of the Park as a refuge for important and rare plants and animals and the protection it provides from natural disasters

(e.g. storms) to communities living close by. In addition to research on the current extent of human-wildlife conflict, much needs to be known and understood about the gender dimension of conservation, the significance of intrinsic and extrinsic motivations in behavior change (Ryan & Deci, 2000; Rigby et al., 1992) in the interest of conservation, social capital and its impact on collective action, local knowledge systems and resource conservation and protection, alternative methods to conflict management and resolution, documentation and assessment of local livelihood strategies, and identification and assessment of existing structures of governance in Park fringe communities.

Given that there is so much to learn about the Park from the biological, ecological, socio-economic and other perspectives; management is not going to be a straightforward process. Thus, management decisions in some cases may have to be made without adequate information. The term **"Adaptive Management"** accepts that as circumstances and more knowledge is gained from research, and with feedback, it may be necessary to adapt the management plan. Under an Adaptive Management system, the purpose of monitoring is to check that management actions and guidelines are having the intended effect, so that remedial actions can be taken if necessary (SNPMP 2011-2016). In other words, regular monitoring and data collection will feed into adaptive management and decision-making to inform all relevant management decisions (MET 2013). Additionally, the adaptive management approach should be complemented by use of the precautionary principle, to reduce the possibility of a rush toward the *'new'* leading to negative environmental consequences.

This Plan proposes that: (i) Continued support to and review of the biomonitoring protocol to ensure that relevant and up-to-date information about the Park's biodiversity is collected; (ii) A systematic analysis of threats to biodiversity be carried out, particularly with regards to the long-term impact of mining activities that have continued over the last decade; (iii) Biomonitoring is extended to other equally important but less charismatic species that form part of Sapo's biodiversity, including small mammals, reptiles and amphibians, fish and other aquatic species, as well as invertebrates; (iv) strengthen the research programme by building collaborations between Sapo Conservation Centre (SCC) and other regional and international research institutions to carry out species-specific ecological research and socio-economic and socio-cultural research; (v) The environmental impact of mining and other detrimental local activities on the Park's water bodies be assessed and determined; (vi) Permanent sample plots be established and monitored to study the potential or actual impact of climate change on the Park (with focus on invasive plants).

Management Issue No. 23 :Research and Monitoring	
Policies	**Actions and Guidelines**
1. All research efforts will be directed towards collecting and analyzing data and information about the biological resources of the Park and the impact the establishment of the Park has on the lives of Park fringe communities, so that management will make informed decisions about how to protect and preserve the	AG. Seek and employ modern data collection tools / techniques to improve quality of data collected. AG. Employment of literate staff to ensure accurate data collection

Park's integrity and, at the same time, address the social and related issues.	AG. Train Park staff and community people to collect biomonitoring and other data as biomonitoring team members and field guides for national and international researchers. AG. Train park staff and biomonitoring rangers in the use and handling of the GPS, Camera traps. AG. Provide annual refresh training on biodiversity data collection tools, computer training, data analysis tools, use of PDA device to the biomonitoring rangers and park manager. AG. Develop an appropriate data base management system and protocol to ensure data is safely stored in the field and headquarters, and train at least two Park staff to input and analyse data and to produce reports on a regular basis (e.g., annual biomonitoring reports). AG: Annual presentation of results of the biomonitoring activities as part of the awareness raising and education programs AG. Informed by the results, review the biomonitoring protocol and work plan every five years
2. Through collaborative efforts, more data and information will be collected in the lifespan of the Plan and beyond through biodiversity monitoring, inventories and research on the Park's faunal and floral species and the social impacts of the park on fringe communities.	AG. Collect baseline data on the Park's various ecosystems and how its existence and management impact people. AG. Using the SAPA or other appropriate methodology, conduct a social assessment of the Park every five years prior to reviewing the Management Plan. AG. To involve biomonitoring rangers in the conservation awareness raising and sensitization activities to present their work and results of their

	AG. Establish national, regional and international research collaboration and develop research policy / guidelines for international researchers that will include the training of Liberian nationals. AG. Ensure that researchers incorporate Sapo's research priorities as much as possible.

5.3. Future Research Priorities for the Park

Biodiversity monitoring is an important tool for the management of the wildlife in the Park. Sapo NP is considered as one the last remaining refuges for the conservation of the Upper Guinean Rainforest's unique biodiversity and biomonitoring data indicates Sapo NP as high intact rainforest.

Future long-term research should identify ecosystems, species and important genomes for conservation in the park as well as the sustainable use. This should also include threats to the park and its effect, for example environmental assessment of mining activities inside the park and its effect on the biodiversity conservation activities.

It is well established the Sapo NP has the potential to become a research site that can facilitate long-term studies like behavioral biology and also potential ecotourism. The feasibility of establishing ecotourism at Sapo NP and a tourism development plan which considers the protection of the Park and its people (See Chapter 11).

Many research priorities are covered in the biomonitoring programme developed by FFI for Sapo NP (FFI 2019, Vogt 2012). This includes line-transects, camera trapping, species-specific research, vegetation sampling, socio-economic and socio-ecological surveys. For these activities to be coordinated and monitored, it is essential to build the capacity of the Research and Conservation Department of central FDA and most important to increase the support for the Park Biologist, on the ground through technical and well-equipped team. Regular refresher training on the ecological monitoring techniques and use of good equipment to record data should be provided to facilitate and ensure consistent and reliable data collection and management and its analysis and interpretation of the results to inform the Park management interventions.

Future research interests and activities will be further determined and dictated by what can possibly be accomplished during the lifespan of the Plan, given available resources and the outcomes of research carried out during this period as well as the lessons learned.

6. LAW ENFORCEMENT

The practical applications of the actions, guidelines, and procedures outlined in this chapter will be changed as needed, as matters of Law Enforcement require flexible management practices which change over time in tune with the situation on the ground, and thus cannot be constrained to a plan made at one point in time. However, going forward, one of the main goals of management in the park is to ensure that a system of continuous patrolling is adopted in the park. This means that at all times, there will be at least one patrol team out.

Until its creation as a national park, the Sapo forest had been under community use, and later part of a national forest. Hunting and other uses of forest resources were not previously controlled and wildlife numbers fluctuated according to the intensity of hunting pressure. The presence of internally displaced persons for refuge in the Park during the civil war and invasion by artisanal miners and poachers led to heavy decimation of wildlife for bush meat. Recurring occupation of the Park by illegal miners has continued over the years due to weak law enforcement and their presence in the Park remains a big challenge. The situation is worsened by the absence of ranger posts in strategic locations around the Park that will enable more effective monitoring and patrolling across the Park. For effective law enforcement, strong protection of the boundary line will be the first priority, to stop entry and prevent illegal entries right from the beginning. To prepare for incidents in cases where poachers and miners avoid the boundary line patrols, training is required for law enforcement rangers and the development of an integrated Law Enforcement Strategy to guide law enforcement operations, including community-park rangers joint patrols in the Park is recommended.

6.1 Law Enforcement Operations of the Park

The National Forestry Reform Law (2006) and the Wildlife and Protected Area law (2016) require that no activities, including mineral prospecting and mining, farming, hunting, fishing, logging or extraction of non-timber forest products are allowed inside a National Park. Only activities for management purposes or non-consumptive uses, such as tourism, recreation, and research will be allowed. For the next five years, as a result of the current security situation due to the presence of illegal occupants, focus will be given to law enforcement and anti-poaching work. This is to ensure that the integrity of the Park resources is secured, to allow resources to recover to their natural levels, and for other management activities to be carried out in safety.

The primary function of a Law Enforcement Ranger is deterring illegal activities, indirectly by collecting information about poachers, mining, and other activities deemed to have a negative effect on the Park, or directly by stopping these activities where they are encountered. Law Enforcement encompasses the strategies and processes for the prevention, reversal, or halting of incidents (transgressions) in the form of poaching, mining, and other illegal or destructive activities within the boundaries of the park.

Management Issue No. 24: Law Enforcement Operations of the Park.	
Policies	**Actions and Guidelines**
1. A strategy for effective long-term law enforcement is therefore needed to respond to conditions in the landscape.	AG. Develop an integrated law enforcement strategy for the Park in collaboration with

	surrounding communities and encourage regular joint patrols. AG. Prevent the illegal hunting of wild animals and harvesting of other resources in the Park. AG. Arrest poachers and turn them over to the relevant authorities for prosecution. AG. Develop a robust plan to informed effective law enforcement patrols, for example using the SMART software. AG. A highly motivated and effective ranger force will be maintained. AG. Monitor law enforcement measures to improve effectiveness. AG. Ensure that all law enforcement staff are trained and well equipped. AG. Ascertain that all staffs are aware of their roles in the event of a poaching incidence. AG. Prepare Zonal Wardens to actively and efficiently supervise law enforcement and ground coverage activities. AG. Establish database to record/monitor incidents of illegal activities in and around the Park.
2. Park law enforcement staff will build and nurture rewarding relationships with other law enforcement agencies such as the National Police Force	AG. Liaise with and assist other law enforcement agencies, the Judiciary (i.e., County Attorney and Magistrate), and Local Government Authorities (town chiefs, clan chiefs, commissioners) to promote effective and unified law enforcement in the Sapo landscape.
3. Local communities will be engaged through by recognition and encouragement of customary laws and traditional governance structures as complementary to the Park law enforcement approach.	AG. Develop and maintain good relationships with local communities and recognize traditional structures as effective mechanisms to control poaching/ wildlife crime. The value(s) they attach to wildlife and the forest as a whole can be good motivation for collaboration in Park protection. AG. Establish community-based intelligence-gathering networks to counteract illegal activities in the Park.

6.2 The Park Anti-Poaching Strategy

The "8 Step Anti-Poaching Model" was recommended in the previous management plan but this was not implemented. The 8 Step model was developed in the 1990s to improve the effectiveness of Park Security Operations. This model has informed the current law enforcement strategy for the Sapo National Park, which will be updated as required.

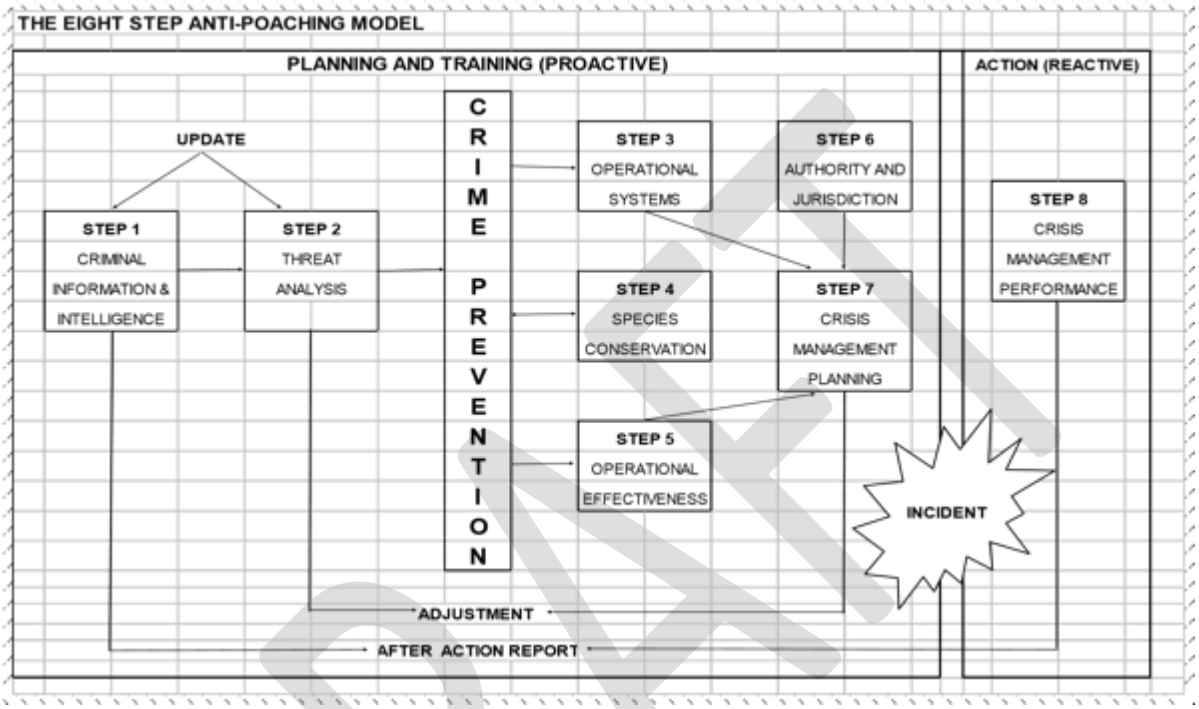

Figure 9: The 8-step Anti-poaching model

The method has a strong focus on preventing incidents before they occur, with seven steps being proactive and one reactive. Information is collected through various channels so management can remain aware of the habits and routines of criminals in the Park (Step 1). This is closely connected with threat analysis (Step 2), as criminals represent a large part of the anthropogenic threat to the park. Based on information obtained in Steps 1 and 2, mechanisms are put into place (Step 3) for those species that have been identified as most threatened, including but not restricted to increased research and patrols (Step 4). The effectiveness of these methods is monitored continuously, so they can be changed as needed (Step 5). The training of rangers in their duties and limitations is important to ensure adverse situations (Step 6). Local and National level planning sessions are also held regularly to discuss prominent threats, root causes, and revisions to the operation systems (Step 7). The last step is concerned with actions taken when an incident occurs despite all of this, and includes a data collection and report writing format, which feeds back into the information collection system of Step 1.

This model is more effective when there is local community participation at all levels (Maggs & Greeff, 1994), that is from information gathering for various research and patrolling priorities to raising awareness.

Management Issue No. 25: The Anti-Poaching Model.	
Policies	**Actions and guidelines**
1. Park management will adapt the Eight Step Anti-Poaching Model for Park law enforcement.	AG. Provide a detailed description of each step of the Model and the various systems and procedures involved in a training module.
2. Build capacity of Park rangers and provide the necessary resources required for effective patrols. The systems and procedures indicated in the Model will be in place timely enough to guarantee effective and efficient law enforcement in the Park.	AG. Train of all rangers in the theory and practice of the Model and develop and employ a process to appraise their comprehension and performance each year. AG Informed by statutory laws, develop by-laws outlining the roles and responsibilities of Park staff and communities in jointly ensuring adherence to park legislation
3. Facilitate and integrate existing community structures for effective management and protection of SNP and engage communities in joint patrols with Park rangers.	AG. Through the establishment of community-level platforms, encourage the application of traditional methods of access control to enhance adherence to park legislation.

6.2.1 Area coverage and ground control

The operational area of the Park is divided in two: (i) Inside the boundary (or "Area of Influence") and (ii) The areas around the park (or "Area of Interest"). While Law Enforcement has authority to act inside the boundaries of the park, it is clear from other protected area management studies that people around the Park are very important for effective law enforcement, as is shown by the interest of Law Enforcement in the areas where these local people live. Rangers are assigned across the three zones of the park at the 11-ranger base. These bases serve as the operational station from where they are mobilized to conduct law enforcement patrols.

6.2.2 Patrol teams

To curtail and eventually stop poaching, zones are currently comprised of Patrol Teams, which conduct all patrols and other law enforcement activities (e.g. surveillance, access point monitoring and control) within the park and in fringe communities. The patrol teams are vital to protecting wildlife and the natural ecosystems upon which they depend from illegal activities that threaten their survival. Ranger are posted in teams to different base camps around the Park. The number of rangers in a base depends on the threat in the area. However, to ensure effective and safe patrol, six persons should be the absolute minimum of person in a patrol team. The most senior ranked ranger is the Patrol Team Leader (PTL), assisted by an assistant. Patrols will be guided by the Sapo National Park Law Enforcement Strategy (that will include a patrol strategy).

Patrols will be organised in a manner that makes it possible to always have a patrol team out in the park. The patrol strategy will be crafted along the adaptive management approach – i.e. feedback from data collected during patrols will inform various iterations of the patrol strategy. There will also be a quarterly review of law enforcement activities, during which time report will be made to the rangers on the activities that have implemented and collect information about how to improve subsequent patrols. Specific teams made up of members of different patrol teams will regularly conduct joint patrols in areas of high threat identified in the park. These joint patrols can also be informed by intelligence.

Management Issue No. 26: Patrol Teams, Managers, Tasks & Code of Conduct.	
Policies	**Actions and Guidelines**
1. Patrol teams of Park rangers will have the capacity to work under minimal supervision in difficult conditions but must ensure strong team collaboration with each other and must maintain the minimum number for a team at all times.	AG. Train and build the capacity of patrol teams of Park rangers to serve as a Rapid Response Units (RRU) etc. and ensure the minimum number for a team is kept at zonal posts.
2. A Rapid Response Unit (RRU) of Park rangers will be established at Park HQ and would be employed to minimize poaching as effectively as possible.	AG. The RRU teams are to be deployed to: • Provide anti-poaching support to outposts. • Monitor ranger movements and activities (internal watchdog).

The RRU and all patrol teams will follow the Code of Conduct spelt out in the Anti-Poaching Patrol Guide.	Assist wildlife crime investigations, including intelligence gathering and conducting extended secret operations in and around the Park.
4. A RRU will serve as an elite group of law enforcement and will operate in and around the Park.	AG. Organize a RRU and train its membership. AG. The RRU should ascertain that the "4D's" of Patrolling are understood and applied for all patrols. The 4D's are: • **Detect:** Use "intelligence" to **detect** what the poachers are doing. Use all your skills in the bush to detect or find the poachers. • **Detain:** Track the poachers down and **detain** or arrest them. • **Deflect:** The presence of patrols in the Park will help **deflect** poachers from hunting in the Park. **Deter:** If everyone can see that you are applying the law in an effective, professional manner, they will think that the risk of being caught is so high that they will stop poaching. They will be **deterred** from poaching.
5. The Chief Park Warden will take several actions in fulfillment of his/her duties and responsibilities.	AG. The Chief Park Warden will lead by example, joining patrols and earning the respect of their staff.
6. The Chief Park Warden, Zonal Wardens and Patrol teams will perform tasks / deliverables as listed in the Park's Anti-Poaching patrol operational guide.	AG. The Park Wardens will ensure that the Park patrol operational guide is followed, including but not limited to ensuring that infrastructure and equipment are well maintained, staff are trained and that the various teams strictly follow the law enforcement strategy. They will also monitor and evaluate staff skills and performance and effectiveness of the strategy. AG143. Patrol teams must be prepared and ready to cover all grounds, observe carefully and should not be predictable. They should learn to think ahead, patrol at night when necessary, maintain secrecy and must always be professional.

6.2.3 Patrol routes

The Park patrol routes are a network of well-marked trails with appropriate signage linking all camps and sites within the Park. The Park has been inhabited by animals for millennia and by humans for centuries. As a result of their movement within and across its varied terrain, numerous trails have been created that offer possibilities for movement of rangers and other authorized persons, and for illegal persons (e.g., poachers/miners) as well. Because of this, the patrol routes must be adaptive and flexible, following the signs that most likely come from illegal activities where they see them. These signs include but are not limited to newly cut trails, campfires, and voices.

At the moment, rangers are using the major trails connecting mining camps and minor trails interconnecting them for their patrols. However, the mapping of the Park trail network is being carried out under the Park bio-monitoring programme. This will link the Park HQ area in the southwest to the other Administrative zones in the northern and eastern parts of the Park.

Management Issue No. 27: Patrol Routes.	
Policies	**Actions and Guidelines**
1. Specifications of patrol trails are that they must be: • As straight as possible to minimize distance. • Have an average width of 1m and height of 3m. • Clear of trunks, branches or roots to facilitate both movement of rangers and sighting wildlife and human presence.	AG. Construct patrol trails using standards established for the Park and with respect to the specifications on trails. AG. Other Wardens must interact with the Chief Park Warden to convey waypoints to the zone and to patrols. AG. Patrols should follow paths used by poachers where possible.
2. During implementation of the Plan, necessary operational changes will be made to improve system efficiency.	AG. Places where access is difficult and are used by poachers because of the difficulty they pose must be covered by patrols. AG. Rangers should assist each other in co-operative patrols and counter-check patrols to strengthen their enforcement duties. AG. The Chief Park Warden and Zonal Wardens must regularly check patrol reports and the effectiveness of ground coverage on the map and ensure that the park is covered as equitably as possible.

6.2.4 High-profile (visible) policing

High Profile Policing is law enforcement that takes place in full view of the public. Its intention is to convey to the public a sense of: (i) Professionalism, (ii) Strength (number of staff), (iii) Seriousness, and (iv) Knowledge of the law. It is a deterrent, as poachers usually choose soft targets. Examples of Highly Visible Policing in the Park would be attending local markets in uniform, checking on natural resource trade, or having a presence at police checkpoints around the districts.

Management Issue No. 28: High-profile Policing.	
Policies	**Actions and Guidelines**
1. Regular but unpredictable high-profile policing assignments in communities around the Park will be carried out.	AG. Design an unpredictable, high-profile policing patrol strategy for the Park and incorporate it into local patrol schedule periods. AG. Prepare local patrol schedule periods for the policing patrol strategy.

	AG. Ensure that all rangers comport themselves in a highly professional manner as ambassadors of the Park and of the law at all times, whether in the public eye or not.

6.2.5 Intelligence gathering and management

The current system of intelligence gathering in the park is underdeveloped, with no formal process of collecting information about possible intrusion from non-park staff. Regular monthly and even weekly operations planning derived from annual work plans are done in response to prevailing field information (from patrols, research and guide duties). However, regular engagement with communities in joint patrols may help with information gathering, to some degree.

Law Enforcement and Ground Coverage alone are not enough; they must be linked with "Intelligence" if they are to be effective. Therefore, an informant network is urgently needed to complement standard operations. Currently, knowledge of poacher and poaching profiles is poor. Among other things, information is urgently needed on such aspects as the poacher age, origin, activity budget, income, funding sources, specific hunting interests (if any), hunting grounds, hunting style, and meat disposal. A joint reconnaissance survey of the mining activities in the Park was carried out in December 2016 by the Sapo Park rangers along with other security operatives from the various counties. This proved successful as collecting information such as estimate of the number of illegal miners residing within the park, their location, gender, tribe etc. has helped to understand better the scale and impact of the mining activities.

Management Issue No. 29: Intelligence Gathering & Management.	
Policies	**Actions and guidelines**
1. Establishment of an Informer Strategy System is mandated.	AG. Identify and recruit suitably qualified informers and put them under the control of a handler (an individual employee with whom they can remain in contact). AG. Strictly keep the identity of information sources and informers confidential and protected at all times.
2. Crime data collection will be undertaken including Patrol Reports and information from the accused.	AG. Maintain an accurate crime and incident database which can be referenced AG. Create a system of data collection and report writing forms for use in the task of collecting information about illegal activity.
3. Operation of poacher and poaching profile system to guide planning and	AG. Always remember to take pictures of arrested poachers and asked them some

execution of the law will always be documented.	structured questions as illustrated in the "Poachers Capture form". AG. If formal interview is not possible, do ask as many probing questions following a logical sequence of questioning. AG. Compile a database of poachers and poaching profile.

6.2.6 Threat Analysis

Threats are those human-induced and dynamic influences that cause some degree of deterioration or destruction to biodiversity in a given site (Margoluis & Salafsky 2001) and are synonymous with "barriers", "drivers", "impacts" or "pressures" (Salafsky et al. 2008; Salafsky et al. 2003). Losses of animal and plant species or habitats due to natural processes, such as fires from lightning, are not considered threats to biodiversity. Human-caused increases in the magnitude or frequency of natural catastrophic events, however, are considered as threats (Margoluis & Salafsky 2001). Human-caused decline, through poaching or other means, in keystone animal populations that could disrupt the entire ecosystem are also considered as threats. Threats are classified as direct and indirect. Direct threats are further categorized as external and internal (Margoluis & Salafsky 2001).

External direct threats are factors or conditions that have direct impact on biodiversity in a given area and are caused by outsiders, such as logging and agro-industrial crop plantations by multinational companies in a community. Internal direct threats are factors that directly impact biodiversity and are caused by the stakeholders living at the site of conservation interest (Salafsky et al 2008; Margoluis & Salafsky 2001), such as uncontrolled hunting of large mammals, farming and artisanal mining by locals in and around the Park. Under certain circumstances, some threats could be both external and internal at the same time. This standard classification is primarily intended to help conservation practitioners identify threats correctly, outline responsibilities, take appropriate actions to efficiently and effectively set priorities, allocate resources, and facilitate cross-project learning and the systematized development of conservation science.

For this Plan, threats to the Park will be identified and further examined in two major ways. The first is the collective determination of the Strengths, Weakness, Opportunities and Threats (SWOT) of the Park's Law Enforcement Strategy so that Park management will counteract the weaknesses and threats with strengths and opportunities. Determining the effectiveness of law enforcement is a significant contribution to identifying and avoiding/reducing/prohibiting threats to the Park. The second approach to tackling threats to the Park is Participatory Threat Analysis (PTA). SWOT and PTA should therefore work hand in hand in practice. PTA does not only contribute to identifying direct (external, internal) and indirect threats but also to assessing and avoiding/reducing/ prohibiting threats. There are local (LRCFP 2009) and international (Margoluis & Salafsky 2001; Salafsky *et. al.* 2003) examples of Participatory Threat Analysis from which this Plan could benefit in a variety of ways. The direct and indirect threats to the Park are listed as follows:

Direct Threats

- Hunting/Poaching
- Artisanal mining for gold
- Limited physical demarcation of the park boundaries
- Logging (especially in buffer areas)
- Fishing
- Limited funding to support park management

Indirect threats

- Poverty
- Lack of land use policy
- Weak enforcement of the law
- Unsustainable harvesting of forest resources
- Climate change
- Farming, i.e., plantation agriculture and shifting cultivation – in the buffer area
- Human settlement

As mentioned at the beginning of this chapter, it is important to remain abreast of changes in the park. As a result, the picture of the park that we keep (in the form of maps) must be kept up to date. Map appraisal information will be collected from ground truthing and patrol operations in and around the Park. Such information can help to develop indicators to detect threats.

Management Issue No.21: Threats (Direct & Indirect) to the Park.	
Policies	Actions and Guidelines
1. SWOT analysis will be an annual event conducted during annual work planning. 2. A participatory identification and assessment of threats will be an essential and routine effort to effectively avoid/mitigate/interdict both direct and indirect threats to the Park. 3. Determined efforts will be made to ensure that the Park operates with up-to-date maps (GIS-derived, Participatory mapping)	AG. Conduct SWOT analysis involving suitably qualified Park management and community representatives as participants, to collectively determine the challenges and level of success of the anti-poaching strategy meant to improve the effectiveness of security operations. AG. Design participatory identification of threats to the Park by taking the following steps: • Prepare a user-friendly training module on participatory identification and assessment of threats to the Park's biodiversity.

4. Either participatory mapping or GIS techniques will serve as the base component of all mapping exercises in the Park, depending on whether the activity is scientifically or socially focused, enabling a blend of local knowledge systems with the technical for better planning and implementation of the range of management activities this Plan proposes.	• Train selected representatives of Park communities and Park management in participatory SWOT analysis and PTA. • Using the trained individuals, undertake a PTA to collect benchmark data on the type, extent and impact of existing threats upon which the degree of success can later be determined in threat identification, assessment and avoidance/ mitigation/interdiction. AG. Train a team of Park rangers and community members in GIS techniques to enable their interactive participation in the preparation of accurate and updated maps that blend the outputs of GIS and participatory mapping. AG. With rangers and individuals from Park communities as participants, conduct a series of training in participatory mapping of forest resource use in the various management zones of the Park. AG. Develop a database on incidents (controversial and otherwise), events (historical dates and local celebrations of cultural and related events, etc.), and collect information on knowledge, attitude and behavior (KAB) of people in the communities towards the SNPMP and its administration.
5. Park management will operate with up-to-date maps to be generated by GIS techniques and participatory mapping.	AG. Train a selected team of Park rangers and community representatives in the preparation and interpretation of topographical maps, using both GIS techniques and participatory mapping.
6. The blending of GIS techniques and participatory mapping will constitute the major approach to generating	AG. Using the "Blended Product", work with selected Team to generate updated maps.

updated maps, as this combines local and technical knowledge.	AG. Train and build capacity in the selected team on how to use (read, interpret) the "Blended Product" of GIS and Participatory Mapping. AG. Provide rangers and auxiliaries with the maps that show the locations of prominent features, landmarks or homes of prominent members of the community. AG. Record incidences, events and attitudes within the different communities concerning the mapping exercises as a feedback mechanism.

6.2.7 Crime data collection and management

There is a database of information about criminal activities and poaching at the Park, but it is yet to be analyzed systematically to assess trends and patterns. Law enforcement rangers will collect data during patrols using a Patrol Data Sheet or device. With the technical support of partners, SMART approach will be implemented in Sapo for patrol, to ensure good collection and management of patrol data.
When possible, monthly and quarterly ranger meetings will be held including representatives from all zones, in which the Zonal Wardens report briefly on major events/activities, submit their patrol report of the respective month, and planned and design patrol strategy and schedule for the coming month.

Management Issue No. 30: Crime Data Collection and Management.	
Policies	**Actions and Guidelines**
1. Patrol data will be collected, analyzed, corrected and securely stored and results will be used to produce patrol reports.	AG. Set up and maintain a database to store information on poaching, including known poachers, illegal activities, poachers' routes and access points, patrol information and area coverage. AG. Analyze information gathered about criminal activities and poaching at the Park to assess trends and patterns and securely store the information.
2. Zonal Wardens will produce monthly reports for the Chief Park Warden.	AG. Collect reports regularly and have them submitted to the Chief Park Warden for processing and filing and all rangers must be copied. AG. Question all poachers as a Standard Operating Procedure, because they hold valuable information. AG. Using the Charge Sheet, collect information about law offences. Establish How? What? When? Where? Who? Why?
3. The law allows questioning of suspects.	AG. Train rangers on the art of questioning suspects. Rangers need to understand the difference between questioning and interrogating, as many promising good cases had been lost in court for alleged interrogation where only questioning should have been done.

6.2.8 Patrol schedule and organization

Patrol schedule and organization include monthly patrol schedules, patrol routines, daily efforts and work output and patrol incentives. Each of the six patrol teams are required to do two law enforcement patrols per month, with each patrol team made of six teams. Patrols last 10 days, with joint patrol teams set to patrol across the entire park (especially in areas of high concern) for the last 10 days of the month.

Management Issue No. 31: Patrol Schedule and Organization.	
Policies	**Actions and Guidelines**
1. Law enforcement patrols could tie into other activities and conservation themes.	AG. Strengthen the implementation and supervision of the patrol routines already in place at the Park. AG. Remind Park rangers as frequently as possible of their major duties and related activities as a strengthening mechanism.

2. A regular patrolling routine will be established in each zone and it will operate with a minimum of 6 persons per team for field patrol operations and there will be no time when patrol strength will go lower than 4. If one member is sick or on leave, the patrol strength will be 5. In extreme cases, four persons will go ahead with a patrol.	AG. Ensure that Teams conduct patrols under secrecy and according to monthly activity plans synchronized all over the Park for effective ground coverage. AG. Ascertain that patrol strength does not go lower than 4 at any time. Patrols should be planned to allow for continuous presence of law enforcement rangers in the park. AG. All rangers should meet the requirement for basic hours and distances per month as set by the Chief Park Warden and/or the Zonal Warden.
3. The Park HQ team is a special team that will be used for general duties at the HQ, such as ground maintenance, visitor escort, research assistance, and rapid response duties (patrols or arrest of people engaged in illegal activities, or to assist other Teams in routine and emergency situations). 4. The HQ team can also have scheduled patrol duty just like any other team, but in a situation like this, they will be replaced at the HQ by a Zone team that is on Local Patrol.	AG. The Chief Park Warden must check on the Zonal Wardens and Range outpost staff once a month for debriefing and to verify that personnel and resources are being used and maintained in accordance with policy.

5. Rangers are required to spend at least 10 days per month on extended patrols in the field. These patrols are on a rotational basis, ensuring teams have their stipulated rest time.	AG. Exercise care so that each group will not go over 10 days per month of local patrols from the Camp. AG. Compensate individuals or teams that do extra time (fully recorded and verified) with the same time off at the next possible opportunity.
6. A monthly Duty Rooster will always be displayed to indicate when a ranger or an auxiliary will be on duty in a given month, so that they can be adequately prepared (mentally, logistically) for any assignment and to also plan for their personal affairs. 7. Monitor team performance in each of the situations involving their general duties so as to capture weaknesses and strengths and improve efficiency on the job.	AG. Individuals should each cover at least 300 km on extended patrols per month. AG. Where an illegal activity is observed, members of the Law Enforcement patrols should arrest the person or persons involved in the activity. Some of the rangers (ensuring that they maintain a numbers advantage), escort him/her to the nearest park office, and then process for handing over to the police for prosecution. The other rangers continue the patrol as scheduled, deciding on a time and place to meet with their returning comrades after the delivery of the arrested persons. AG. The Chief Park Warden will strive to participate in extended and local patrols as frequently as their schedule allows, rotating with each of the Teams in an unpredictable pattern. AG. Records of work outputs should be an important part of annual staff performance appraisal and should feed into the Park's management effectiveness assessment.

6.2.9. Patrol secrecy and field rations

Patrol routes, timing and activities at the Park are normally directed by the Zonal Wardens, on the basis of quarterly and monthly Action Plans. These directives are then implemented according to the ground situation, led by the Patrol Team Leader. Emergency situations requiring rapid response (such as interception of escaping poachers) take priority over all Directed Patrols, unless circumstances dictate otherwise. The standard practice for Directed Patrol (one planned in advance for a particular area) is to plan at least 24hrs before the patrol leaves their camp. A problem arises when the patrol members go out to buy some items or meet with friends for discussions. This leads to sharing of Park and patrol information that should not be known to non-patrol persons. It is then obvious to local people that the rangers are going on patrol. This is particularly the case with Long patrols. This can be prevented by ensuring that necessary patrol rations and stockpiles of durable items (rice, oil, salt, vita, cans….) are kept at stations. This can be maintained and monitored using quarterly food purchase. The use of this rations system allows more flexibility of patrol starts and supports RRU actions.

Management Issue No.32: Patrol Secrecy and Field Rations.	
Policies	**Actions and Guidelines**
1. Routes, destinations and plans for patrols must be kept secret from local people.	AG. The Patrol Team Leader should not reveal details of assignments to rangers until team has departed their base camp. To avoid accidental exposure of briefings, this should be done soon as the Team crosses into the park boundary. AG. All supervising officers (Chief Park Warden, Park Admin. Officer and Zonal Wardens) must emphasize the importance of secrecy at all meetings, briefings and debriefings. AG. Except in emergency situations, all scheduled patrols are to depart their home base in darkness (dawn or dusk).
2. The staff should be properly fed while on patrol. Food and field supplies should be arranged and packed by team Leaders before patrols, to improve secrecy and readiness.	AG. Chief Park Warden and Park Admin. Officer should organize purchases, storage and distribution of food and field supplies, and fix the rate and procedures for the ration allowance. AG. Ensure or account for and return to storage any left-over rations after each patrol. AG. Field ratios should be packaged (for short patrols and for long patrols) and set up so that rangers can simply grab a ration package depending on their patrol length (long or

	short), and follow the patrol leader. It should be decided what quantity is needed for each person per day and supplies purchased in these units so that they can be divided and packaged more easily on a per day basis. AG. Supplies should be assigned at least 12 hours before departure from the base camp. This will ensure that the rangers are always ready for patrols (and will not have excuses for delays), and that local people are not alerted by a group of rangers preparing for a patrol.

6.2.10. GPS patrol monitoring, data analysis and reporting

Beginning January 2019, the Spatial Monitoring and Reporting Tool or SMART software has been adopted as a patrol management tool at Sapo National Park. A geo-referencing system using GPS of illegal activities during patrols was previously used. The data is collected using Personal Data Assistant (PDA), or GPS and data sheets, then transferred to the park's SMART database for analysis and reporting. Analysis is done using the software on a regular basis, in order to monitor threats and prevent wildlife crime. These can be done directly upon return from patrols, monthly, quarterly and annually. The management of patrols continually evolved, and the use of devices for collecting data during patrols. Each patrol team has two PDA devices that uses the Cybertracker application for data collection during patrol. The data are downloaded after each patrol and analyzed. The results of the patrols are presented to the rangers and the strategy discussed. Monthly, quarterly and annual reports are developed directly on SMART by the SMART data Manager and shared with the management team and partners. Additional to monitor threats in the park, SMART will allow also to monitor rangers' performances and the park coverage during patrol. Patrol data will be backup regularly on a hard drive and keep safe.

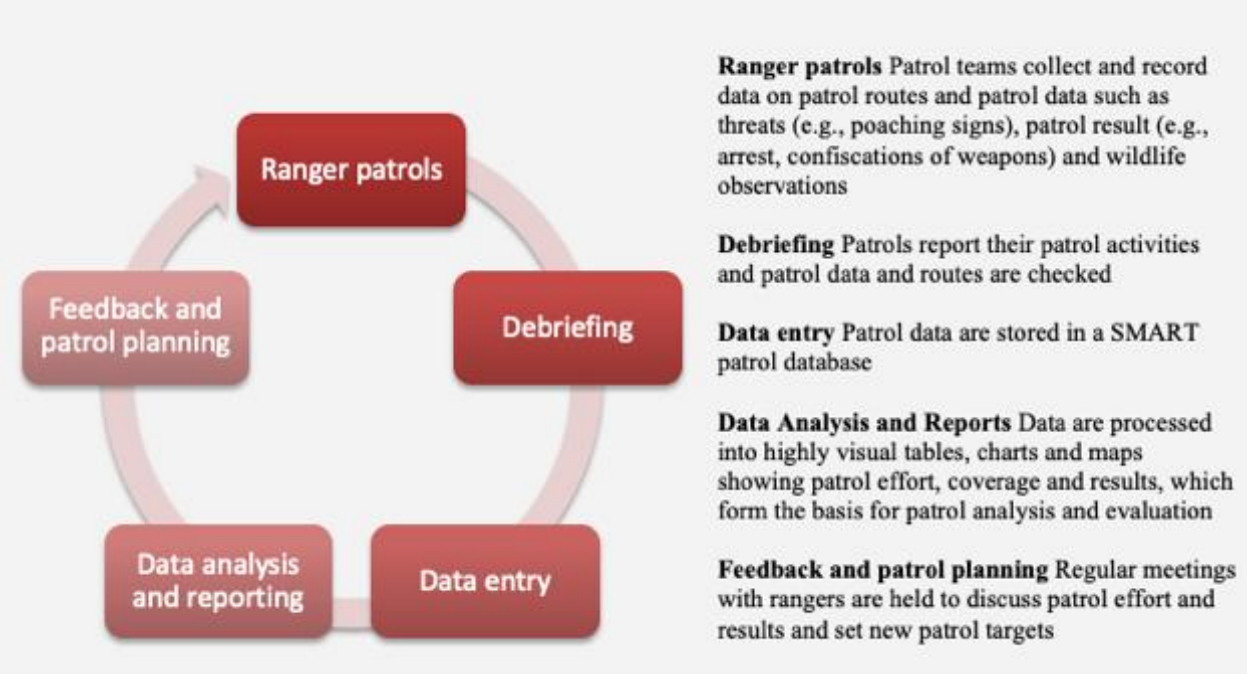

Figure xxx: SMART Approach for Adaptive Patrol Management

A grid system has been developed and specifics grids assigned to each team. This will allow a better coverage of the park over the year. Rangers are using the PDA and GPS for navigation in the different grids during law enforcement patrols.

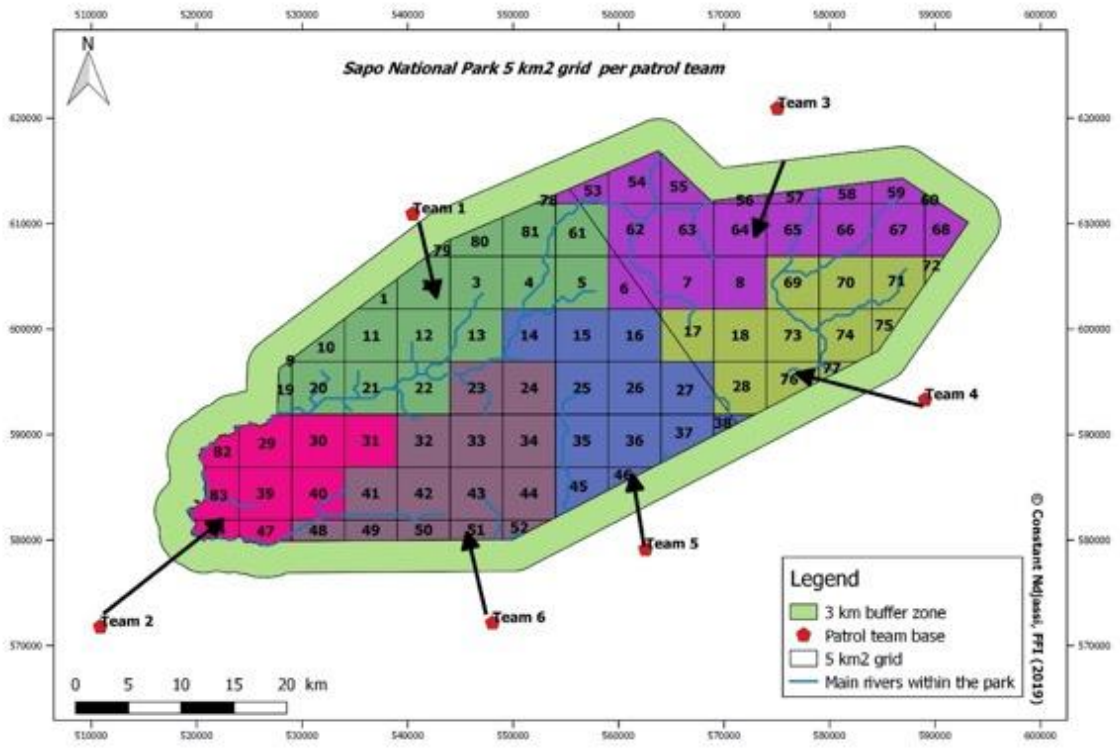

Figure xxx: Patrol grids and patrol team for SNP

Management Issue No. 33: GPS Patrol Monitoring, Data Analysis and Reporting.	
Policies	**Actions and Guidelines**
1. SMART will serve to manage patrol data and reporting	AG. Train rangers and park managers in the use of SMART and issue each zone at least 2 computers to manage data and 2 PDA devices AG. Provide refresh training on SMART to rangers and park managers AG. Provide training to rangers on the use of PDA device and ensure permanent refresh training AG. Provide computer training for selected members, including recording and analyzing data using Microsoft Excel and SMART.

	AG. Informed by patrol data, make changes to patrol operations when necessary.
2. GPS and excel will continue serve as the basic backup system for patrol data	AG. Train rangers and auxiliaries in the use and handling of the GPS and issue each patrol team a GPS unit and spare batteries. AG. As rangers will continue to use GPS for navigation, and records additional information, they will need to keep the GPS track ON in order to document on their coverage in case the PDA have problem AG. Do not store too many waypoints in the GPS unit as they will freeze up and not show any more coordinates at start-up. SMART Manager should regularly download and clean all GPS units during their visit to the patrol team.
SMART will be used to monitor patrolling effort and effectiveness, and the distribution of important species	AG. Use the GPS to record positions of interesting biological sightings, poaching and waypoints such as satellite camps and footpaths. AG. Run the query after every patrol to record patrol effort AG. Designated SMART Managers should visit each team to download the patrol data directly after the patrol and have them forwarded to Park HQ AG. The result of analysis of patrol results must be returned to the Patrol Leader to encourage feedback and adaptive management. AG. The Park Management Team (The Wardens and SMART Manager) analyse

	the data and report monthly, quarterly and annually to show: • Patrol paths and areas to determine ground coverage. • Illegal activities. • Observations of key species. • Staff activity schedule and performance.

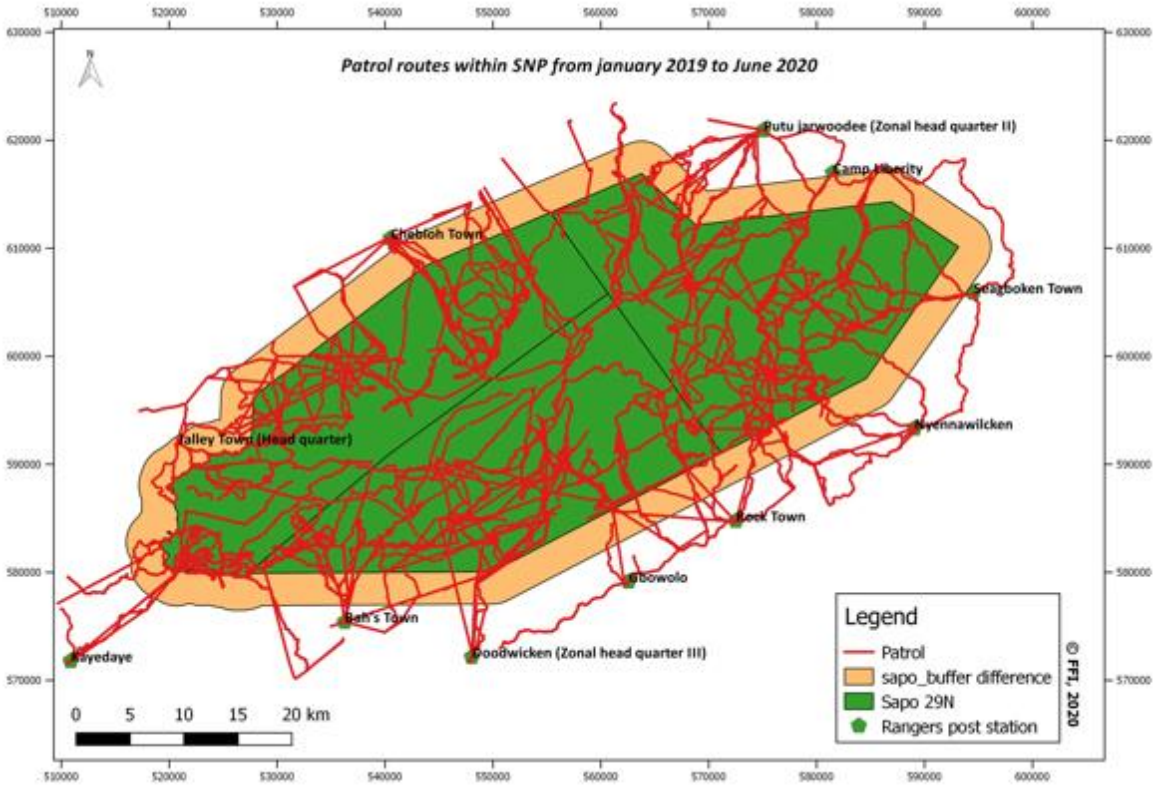

Figure xxx: Patrol Coverage across SNP from January 2019 to June 2020

6.2.11 Adaptive law enforcement operations

It has been observed that poachers change and adapt to law enforcement pressure. This is particularly so when operational secrecy is poor, and guards either deliberately or mistakenly reveal anti-poaching strategies to poachers. By keeping records and evaluating security effectiveness over time, it is possible to identify operational weaknesses.

Management Issue No.34: Adaptive Law Enforcement Operations.	
Policies	**Actions and Guidelines**

1. Law enforcement operations should be reviewed and changed when necessary.	AG. Change law enforcement procedures to anticipate and react to threats by poachers.

6.2.12 Park operations effectiveness

Evaluation of effectiveness within a protected area is necessary because protected areas face many threats. However, it is important to point out that evaluation is not simply a way of looking for problems; it is as important to identify when (and how) things are going well (Hocking, Stolton & Dudley, 2000). Since 2005, the effectiveness of Park operations has not been progressively assessed on a more-or-less systematic basis. A study on the effectiveness of anti-poaching patrols revealed that collection of wildlife data has generally been satisfactory, but improvements are needed in estimating numbers, using the correct datasheet codes and recording all animals on their species list. Additional areas which need improvement include time leaving for patrol i.e., before daylight, revealing patrol information to the general public, noise on patrol, patrolling through or sleeping in villages. Some of the ways of measuring effectiveness of PA operations, including:

- "Catch per unit effort", i.e., patrol man-days compared with poachers arrested.
- Recording of GPS points by patrols every hour shows how much area is being covered.
- Dead animal detection rate and the time since death (finding carcasses soon after death shows that the ground coverage is effective).
- Simulated incursion exercises, known to rangers, are useful to establish their effectiveness and identify any training weaknesses.
- Observable items placed on boundary lines and satellite camps by the supervisor are an indicator that the boundary or satellite camp has been visited.
- 24-hour radio contact with rangers improves performance and is a very useful means of testing their position if they are asked to give a GPS reading.
- The formation of a Rapid Response Ranger Force to patrol the whole Park should ensure that Patrol Teams perform their duties correctly and prevents any internal (staff) poaching.
- Officers should frequently go on patrol with rangers (guards) to motivate and evaluate them.
- The intelligence network should pick up information if rangers (guards) are not performing their duties, and especially if they are poaching themselves.
- The Directed Patrolling System enables supervisors to intercept patrols in the field, which is a big incentive to rangers (guards) to do their job properly.
- Monitoring of rare species is a good indicator of performance, especially over an extended period. The number of sightings per month per patrol should be similar to the overall Park population trend.

Management Issue No.35: Park Operations Effectiveness.	
Policies	**Actions and Guidelines**
1. Park operations will be assessed and evaluated as often as	AG. Monitor and analyze Law Enforcement effectiveness.

possible to guide planning and implementation efforts.	AG. Identify and improve on weaknesses and correct failures. AG. Collection and analysis of threat data should be encouraged on all patrols. AG. Upgrade the knowledge base and skills of Guards on the principles of evaluation through on-the-job training.

6.2.13 Promotion of Forestry laws to Park staff and Judiciary Agents

The backbone of all Park activities is the enforcement of relevant laws and regulations. Staff should know and understand all the pertinent forestry sector laws of the country, particularly the National Forestry Reform Law and the Wildlife and Protected Area Law. Copies of the laws should be distributed to courts, Justice Ministry agencies, traditional authorities and district/county officials, and the essentials of the law should be advertised on billboards and radio programs for a wider audience. Though some of these needs are met, they end up being personal copies, which are denied to replacement officers, resulting in another round of requests.

Management Issue No.37: Promotion of Wildlife Laws to Park Staff and Judiciary agents.	
Policies	**Actions and guidelines**
1. All Park staff will be issued a copy of the forestry sector laws and regulations at recruitment.	AG. Prepare (print and bind) and distribute copies of relevant forestry sector laws and regulations to Park staff at recruitment. AG. Prepare and distribute copies of relevant forestry law to Judiciary agents.
2. The various Park zones and local authorities will be issued copies of all pertinent forestry sector laws and regulations.	AG. Deliver a bound copy of all forestry sector laws and regulations to each Park Administrative zone office as well as regional (District and County) government offices.
3. All Park staff should be able to understand, interpret and apply the laws and regulations that are related to their various functions at the Park.	AG. Review relevant sections of the forestry laws and regulations at quarterly meetings and always seek assistance from reputable legal minds for training and advice. AG. Routinely evaluate staff on topics relevant to their duties and responsibilities at performance evaluation time.

6.2.14 Police and Judicial forums

A regular forum is needed between the national police and judiciary on one hand and the law enforcement team and Park managers on the other, to discuss criminal activities (not just wildlife crimes) related to the Park and its surroundings. Their inclusion means that there is a working relationship (communication channel) between park management and the police, through which they can provide information on crime in the area for use in the Park Law Enforcement. In addition, most magistrates are unaware of the impacts of poaching, and the challenges of Park law enforcement operations. It is important that officers (especially the Chief Park Warden) provide the Public Prosecutor with Evidence in Aggravation to ensure that poachers are correctly punished. It is recommended that an MoU is signed between FDA and Liberia National Police, to allow the support of police in some Rangers patrol when needed.

Management Issue No39: Police and Judicial Forums.	
Policies	**Actions and Guidelines**
1. Establish a formal forum for the Park management staff (CPW, Unit Heads and Zonal Wardens) and the judiciary, at least every three months, to discuss criminal activities (not just wildlife crimes related to the Park.	AG. Establish and co-ordinate regular (monthly / quarterly) forums with other law enforcement agencies and Judiciary. Such meetings are to: • Build good relations between FDA and the Judiciary. • Establish formal communication mechanism between the law enforcement agencies in the Park fringe districts and counties. • Build authentic and professional relationships between stakeholders. • Provide feedback on threats or wildlife issues about wild animals in Sapo NP area. • Provide mutual assistance and support and promote the importance of wildlife laws. • Create an understanding of the issues and the impact of poaching • Give feedback and share intelligence on criminal activities. • Follow up outstanding cases. AG. Ensure the participation of the CPW or other relevant park staff in these fora.
2. Chief Park Warden and Zonal Wardens will always be reminded of	AG. Engage with the FDA conservation and legal departments for support in following up

the need to follow cases through from arrest to prosecution with the police and judicial systems so as to ensure that such cases are finalized.	all cases to ensure that they are completed. This will deter repeat offenders and minimize wildlife crime rate within and around the Park. AG. Ascertain that evidence is given for wildlife cases.

7. COMMUNITY-PARK RELATIONS

FDA's 3Cs policy specifies an integrative approach to managing forest and wildlife resources, with a balanced attention to the commercial, conservation and community aspects of these resources. The Community Forestry Rights Law with respect to forestlands (CRL 2009) and other pertinent legal instruments do not make explicit provisions for collaborative management of forest and wildlife resources within conservation PAs. However, the Wildlife and Protected Area Law (2016) makes provision for the FDA in collaboration with communities develop regulations for community-based management or joint forest management of Protected Areas and to integrate livelihoods needs of communities in the purpose and objectives of protected areas. It is important for the Park communities to feel a sense of being involved in the management of the Park and the protection of its natural values. However, as a national park with strict protection status, it is recommended under this Plan that a Community Advisory Board is created for Sapo NP, to ensure participation of communities in supporting management activities. A Buffer area co-management strategy should also be developed to fulfill the joint forest management prescribed under the law and to ensure that communities feel a sense of ownership that will increase commitment to the protection of the Park and its natural resources.

7.1 Communities around the Park

According to the most recent (2019) population survey conducted in the landscape, there are approximately 75 communities comprising approximately 13,000 to 15,000 individuals living within 10 km of the Park boundaries. The major livelihood activities of residents of these communities are farming, hunting, mining and petty trade. There is limited opportunity for employment in the formal economy, with a few logging and agriculture plantation companies operating in the wider landscape offering employment to a limited number of persons.

7.1.1 Demography

A relatively low density of population, 10 inhabitants per square kilometer, still allows a traditional farming based on growing upland rice planted on forest land, small home gardens or tree farms.

7.1.2 Agricultural system

Production systems of Park fringe communities are mainly adapted to a low-input, labor-scarce situation where natural resources such as forest and wildlife are not limiting. Thus, local production systems consume large amounts of natural resources relative to the output produced. These production systems were often in conflict with FDA as it tries to regulate forest resource use. Slash and burn agriculture in the forest is the most dominant agricultural system and has probably been going on for hundreds of years.

Little livestock is raised, due in part, to the lack of breeding material to reconstitute herds. The cleared-out land is planted with upland rice in the middle of which are planted other alimentary species: cassava, corn, yam, sugar cane, plantain and banana trees, and vegetables). Rice is the base of a farmer's diet and his main source of energy. Backyard gardens are maintained around the houses, with the same species of vegetables and condiments, peppers, leaves, and bitterballs. Fruit trees are also planted within farms and in communities, such as coconut, and oil palm. The farming system also includes collecting a lot of different forest products, fibers, firewood, wood for construction, medicinal herbs, straws, snails, fauna, etc. Before the war, Park fringe communities

cultivated small-scale plantations of cocoa and coffee; small breeding of chickens and goats was common.

7.1.3 Traditional/cultural system and social organization

There are a total of 16 Chiefdoms that share direct boundary with the Park and are scattered in 6 Districts around the Park. These have been undergoing a highly dynamic change over the past decade, and it is likely that more of such changes will occur during the lifespan of this Plan. Two kinds of traditional organizations coexist in this region. The first is the Kwi society whose head, the Chief and always a man, gets his power from supernatural elements and his authority from their ancestors. The Chief is nominated for life. He manages the land, the utilization of forest products, rivers, taboos surrounding the fauna, and community work mobilization. The second is the Apolaebo. This comprises societies that are a union of baseline organizations committed to solving development problems. The Chiefs are elected for two years and can be men or women. In addition, several smaller development NGOs also work in the zone.

The traditional authority has an important role to play in forest and wildlife conservation as they: (i) Represents social structures that can be used to partly define and delineate existing community structures, (ii) Defines appropriate land use for tenure purposes, and (iii) Determines the allocation of land to immigrant farmers.

7.2 Collaborative Resource Management

A Low level of collaboration amongst the primary stakeholders, that is the park management and the surrounding communities, has led to management challenges since the foundation of the park in 1983. Management has mostly been through a militaristic approach that limited the participation of members of the communities in management activities. Collaboration is one of the most critical requisites for success and is definitely possible. This Plan outlines a collaborative management plan (CMP) as informed by the social assessment of the Park in 2016/2017 and motivated by the FDA's desire to adopt a more people-centered approach to natural resources management. At the heart of this strategy is involvement of those closest to the park as stewards of the forest who are then seen as the first line of defense from illegal and destructive activities. This will include the development of a buffer area collaborative management strategy, supported through the strengthening or establishment of community-level governance structures for the areas around the Park, and the establishment of a Community Advisory Board (CAB) that will serve as a platform for interaction between the communities and the Park management.

Management Issue No. 42: Collaborative Resource Management at the Park.	
Policies	**Actions and guidelines**
1. Collaborative, mutually beneficial relationships between Park management and the broader park community remain essential to Park sustainability.	AG. Improve existing opportunities or develop and implement new opportunities for a constructive and enduring relationship with fringe/local communities and associates, to preserve the natural values of the Park and retain opportunities

	for communities' involvement in Park management. AG. Review and strengthen the Park's collaborative program that is embodied by collaborative management of the buffer area, and especially the organization of and support for the Community Advisory Board and other local governance structures. AG. Design and carry out continuous sensitization for Park staff and communities on the Park's collaborative management program. AG. Support the organization of conservation education for high school students as the next generation of natural resource managers AG. Design a communication strategy for the dissemination of important biodiversity information to communities surrounding the park AG. Conduct regular science-focused outreach to communities surrounding the park to promote appreciation of the inherent value of the landscape

7.2.1 Collaborative Management of the Park Buffer area as Communal Forests

A strategy for the establishment of a buffer area for Sapo NP was developed in the early 2000s when it was proposed for a 3 km strip of communal forested land adjoining the park boundary to be assigned as a buffer for the Park to mitigate against encroachment, human-wildlife conflicts and other anthropogenic threats. This was agreed upon and the establishment of the buffer area around protected areas was necessary for effective management of the protected area and would be finally legalized under the NFRL in 2006. However, since then there has been no proper management of the buffer area around the Park, no demarcation was done, and no regulation was developed for consumptive use of these communal forests around the Park which make up the buffer area. Primarily, communal forests are intended to help meet the subsistence (non-commercial) forest resource needs of local communities under sustainable forest management regimes. It is therefore proposed here that communities are trained in sustainable forest management and resource use to enable a more formal and effective

management of the communal forest / buffer area around the Park. This should be carried out in collaboration with NGOs and should include training in governance, business enterprise, tourism development, biomonitoring etc. A collaborative management agreement will be signed with the FDA and a community governance structure will be put in place along with guidelines for the management and use of the resources in this forest area. It is proposed that the buffer, being separate from the park, is community co-managed along with the surrounding forests. Proper demarcation or marking of the buffer area boundaries should also be carried out.

7.2.2 Community Forestry

Community Forestry or Participatory Forest Management, covers social, economic, and conservation dimensions in a range of activities that include indigenous management of sacred sites of cultural importance, small-scale forest-based enterprises, forestry out-grower schemes, company-community partnerships, and decentralized and devolved forest management (RECOFTC 2014; Ellis et al. 2010; Bray et al. 2008; Ellis & Porter-Bolland 2008; Gunter 2004; Agarwal et Gibson 1999; Duinker et al. 1994).

Management Issue No. 40: Collaborative Communal and Community Forest Management	
Policies	**Actions and Guidelines**
1. Reduction of pressure on the natural resources of the Park, through collaborative management efforts, will be a major activity.	AG. Develop, promote and support community-based natural resource management in the surrounding areas as a legal and competitive land use and as a means to encourage community and individual commitment to the protection and conservation of the Park's resources.
2. Surrounding communities will be encouraged to manage their forests sustainably.	AG. Working with partners, support the building of community forest management capacity in local communities. AG. Provide technical advice and extension services and, in collaboration with other government agencies, enforce the legitimate rights and responsibilities of local communities as mandated by the CRL.
3. The forests immediately outside the border of the park will be classified as communal Forests and will make up the Park buffer area, so as to form a contiguous band of protection immediately adjoining, yet outside of, the Park boundary.	AG. Establish Communal Forests as a buffer management approach of the Park and in compliance with the values for which the Park has been gazetted. AG. Through a participatory process, develop a management strategy for the communal forest, which will largely follow a community-based approach but with oversight and guidance of the FDA. AG. Train community people to monitor and protect the natural resources and to

	sustainably use the resources of the communal forest.

7.2.3 The Community Advisory Body

In the past, Community Development Committees (CDCs) were established jointly by FDA, FFI and CI in the fringe communities in the past and were used as proxy for local liaison groups. This Plan proposes revitalization of the objectives of the CDCs, through the creation and capacity building of the Community Advisory Committee (CAB). The board should be made of representatives selected by the communities, excluding local governance officials as informed by the social assessment of the park, to avoid it becoming a duplication of existing governance structure, while still maintaining the ability to be independent in decision-making. Due to the size of the park, it will make sense to have zonal level structures that feeds into a more central structure. Advocacy and facilitation skills should be provided for members of the CAB. The CAB will serve as one of the platforms for community engagement, where communities can suggest novel approaches to support park operations. Its goal would be to serve as a communication, planning and monitoring mechanism to assist the Park management in dealing with the numerous challenges that it faces in its goal to manage the Park and protect biodiversity.

No individual or group of people holding any political position will be a member of the Advisory Body. [2]The Body will hold meetings with members of the local political leadership but none of its members should hold a political position. Membership is open to traditional leaders (who themselves may be farmers, hunters, herbalists etc.), community-based organizations in the fringe communities, and others will be drawn from each clan, chiefdom and district, directly or indirectly linked to the Park. It is important to note that the exact nature of the CAB, and its possible evolution over time, will depend on the outcome of further broad consultations with the major stakeholders, which must be facilitated by the FDA.

Management Issue No.41: The Community Advisory Board	
Policies	**Actions and Guidelines**
1. The Plan recommends a Community Advisory Board (the Body) that will assist the FDA in all the key activities of its implementation. The Community Advisory Board (CAB) will have no executive powers.	AG. Tentatively, the key functions and responsibilities of the CAB are to: • Assist in the management and resolution of conflict and the development and implementation of outreach/community engagement initiatives. • Help to set up Communal Forest and Community Forest management areas and assist in the development of conservation-linked enterprises. • Serve as the governing body for project coordination in the eligible communities and

[2] At the regional validation workshop held in Greenville, Sinoe County on June 21, 2019, a majority of community representatives voted that government officials should not be included in the community advisory board.

	encourage and support collaboration with other stakeholders and the private sector. • Facilitate the use of local labor and supervise the development and protection of sacred, cultural and other sites within and close to the Park. • In collaboration with Park management, identify "harvestable" resources (those which can be removed without adverse effects to biodiversity) from the forest and determine usable quantities in the Park. Steps can then be decided upon by the community to develop rules and conditions of harvesting. AG. Design and implement a training and capacity building module for officials and members of the CAB that would include governance, advocacy, facilitation skills, social inclusion, gender inclusion and community-based natural resource management.
The membership of the CAB will come from the ranks of individuals and groups that are not holding any political positions.	AG. Develop a protocol for the other criteria of membership (besides that of not holding political position) which should include qualifications, years of service if asked to serve, number of representatives from the various administrative jurisdictions (District, Chiefdom, etc.) in each zone, the governance structure, and so on.

7.3 Compliance Assistance and Incentives

7.3.1 Community Use of Natural Resources in the buffer area

The control of natural resource use by communities within the communal forest (buffer area) needs to be closely monitored. As a result, more rangers will need to be assigned to the Park Community Engagement Unit (PCEU). The PCEU will work in collaboration with the community natural resource monitoring team, with oversight of Park Management and the Community Advisory Body. Community rangers (Ecoguards) will also be trained with support from the NGOs to monitor compliance with Park regulations. The FDA and communities will conduct joint law enforcement patrols and natural resource monitoring intermittently.

Management Issue No. 43: Community Use of Resources in the buffer area	
Policies	**Actions and Guidelines**
1. Collaborative management of the Park buffer area will be based on an agreed	AG. A buffer area management strategy will be developed, with co-management

MOU and resource management and use will follow laid down rules and regulations.	and sustainable forests practices as specified previously. This strategy will be used as an annex to this document (Annex 3). AG. The buffer area management strategy will include an MOU agreement between Park management and the communities whose land fall within the range of the buffer area the kinds of activities that are permitted. AG. It must be made clear to communities that under no circumstances should any animal or plant species protected by national or international laws be taken from the buffer area. AG. Train community people, particularly, permitted natural resource harvesters on sustainable harvest methods. AG. Fringe communities must be encouraged to protect the Park and to harvest natural resources in the communal forest following the buffer area regulations. Park management and the Community Advisory Board should closely monitor this.

7.3.2 Community development and livelihood improvement

To ensure that the protection of the Park does not impact negatively on the livelihoods of surrounding communities, attempts will be made to develop community livelihood programmes. Sustainable and improved livelihood initiatives will be developed, informed by lessons learnt from past initiatives – successful and unsuccessful, informed by feedback from benefiting communities. These are intended to provide alternative sources of income for communities in close proximity to the Park, complementing the benefits from the communal forests. Diversification of livelihoods and other sustainable financing programs will also be required to ensure long-term income generation.

Management Issue No.44: Improvement in Community Development and Livelihoods.	
Policies	**Actions and guidelines**
1. Park management in collaboration with development partners will expand,	AG. Support diversification and enhancement of livelihoods including for

diversify, strengthen and support community livelihood initiatives around the Park. 2. A sustainable livelihoods approach will be promoted as much as possible with no negative impact on community livelihoods.	example, tourism based income, village-based tree nurseries and small-scale agriculture/agroforestry, honeybee husbandry etc. AG. Undertake a thorough review of the structures and processes of past and current community development and livelihood support projects to document lessons learnt and adopt approaches that best suit the local situation.
3. All appropriate action will be taken to ensure that all community support programs facilitated through or on behalf of the Park will generate and demonstrate tangible and sustainable livelihoods and conservation returns.	AG. Support and promote reward-based inter-community competition to foster adoption or adaptation of credible and practical livelihood and income-generating initiatives. AG. Identify, specify and monitor tangible livelihood, income-generating and conservation benefits from livelihood and development interventions.
4. Diversified livelihoods and income-generating activities will be developed, operationalized and refined to suit realities on the ground.	AG. Working closely with communities, develop, operationalize and refine projects in support of livelihoods and income generation in landscapes outside the Park. AG. Develop and support conservation enterprise (small-scale agriculture and forest-based) and a marketing strategy of their products, encouraging participation of the private sector where appropriate.

7.3.3 Promotion of wildlife laws to communities

It is important to do all that is required to inform fringe communities about the Wildlife Laws and Regulations, and other pertinent legal instruments to ensure that people are well informed about what the law says about the Park. Park rangers should use every opportunity to create awareness about the wildlife laws, even when apprehending poachers as this may help to reduce the likelihood of repeat offence. Community (eco-) guards should be trained to raise awareness about the wildlife laws among community members and when they come across poachers while patrolling in the forest.

Management Issue No.38: Promotion of Wildlife Laws to Park Communities.	
Policies	**Actions and Guidelines**
1. Park communities will be supported to acquire in-depth knowledge in	AG. Train a selected number of suitably qualified rangers from Park communities who

forestry laws and regulations, especially those relating to the Park, to enable individuals in these communities to understand and interpret such laws and regulations.	will train others to understand and interpret Park-related forestry laws and regulations, and the value of biodiversity in the Park.
2. Park management should use various communication media/tools and messages would be used to broaden and deepen the knowledge base of Park communities about the Park, and the various laws and regulations that emphasis the protection status of the Park and important species and the ecosystem services it provides.	AG. Train and mobilise community engagement rangers to educate and provide communities with adequate understanding of forestry laws and regulations, especially those relating to the Park, through the following: • Meetings and workshops to promote forestry laws. • Design and distribute outreach materials e.g. posters, leaflets, T-shirts and other such materials as an educational tool. • Mount sign-posts in strategic locations around the Park to remind people about activities allowed / not-allowed within and around the Park.

8. CONSERVATION EDUCATION AND AWARENESS

As part of conservation awareness and Park promotion, Sapo National Park Management will strive to establish and maintain meaningful and beneficial relationships with a wide range of stakeholders of the Park, Park fringe communities in particular, in a way that promotes the Park's core values and make clear the reason and significance of its continuous presence. Over the next 5 years, this Plan will provide guidance for the Park to build further co-operative institutional capacity with stakeholders in the communities, and to ensure establishment of viable fora for awareness creation and education, and regular positive interactions.

8.1. Environmental Communication and conservation awareness

Emphasis will be laid on publicizing the Park and communicating its core values and objectives as well as the National Wildlife Conservation and Protected Area Management Law of Liberia and the conservation, health, livelihood, and general well-being benefits of the Park to the surrounding communities, other Park neighbors and stakeholders at the local and national levels, as well as the global community. It would include ensuring that the relevant audiences are aware of and understand:

(i) The Park's biological, ecological, and socio-economic significance to the country and to them;
(ii) The objectives and activities that enable improved/effective management of the Park, and how this affects them,
(iii) The constraints and opportunities associated with the Park, as well as other relevant conservation & natural resources governance and management issues;
(iv) Their role in protecting and promoting the Park, and why they should be motivated to do so.

The Plan proposes the following activities and resources to enhance environmental communication and conservation awareness creation.

8.1.1 Information and Education Materials

Information and education materials on the Park will be produced and provided to Park neighbors, visitors, schools and the general public. These will include brochures, leaflets, pamphlets, T-shirts, car window stickers, baseball caps, posters, etc. Roadside billboards will also be installed in Monrovia and on the various access routes to the Park. All of these materials will serve to educate people about the Park, as well as promote a sense of national in it.

8.1.2 Rural Theatre Campaigns, Radio and Press Coverage

Local cultural troupes were established in Juarzon and Putu Jarwoodee as part of an awareness program. The value of promoting rural involvement in environmental communication cannot be overemphasized. There is need to train and support more of the cultural troupes around the Park to develop and adopt environmental themes, especially those tied to the culture of the people living around the Park, to ensure that the link between biodiversity and culture is made visible. In order to ensure that the Park is publicized as much as possible nationally, project activities and programmes carried out within the Park should as much as possible be promoted via press releases, radio talk shows etc. it is also recommended that a documentary on the Sapo National Park be created as this would help to attract international recognition and publicity for the Park. In feedback via the social assessment process, communities have also said that sporting activities organised by the park management was a

good medium through which they interacted; it will be a good thing to reactivate such outreach activities.

8.1.3 Public Relations Coverage

Public relations activities will be a continuous activity under this Plan. These include press releases on various developments at the Park, hosting visits by key dignitaries, particularly policy makers from the country's capital and abroad, to the Park, and organizing and hosting media visits to Liberia by professional journalists and photographers from national and international news agencies such as the BBC, the Voice of America, and local newspapers and radio and television stations.

8.2 Conservation Education in Schools

The Park provides a host of different educational and awareness-building opportunities in environmental and resource use issues. A conservation education program for schools focusing on school children and youth groups, and on teachers and curricular linkages in the communities near the Park, with potential for expansion to the capital cities of the three counties sharing the Park and to Monrovia, the nation's capital, will be encouraged.

Management Issue No. 45: Environmental Communication and Conservation Awareness	
Policies	**Actions and guidelines**
1. A continuous awareness campaign will be maintained in the park, directed towards relevant stakeholders and the general public.	AG. Review past and current conservation awareness projects of the Park and document the lessons learned. AG. Ensure that stakeholders gain enhanced awareness of problems, resources and opportunities, and provide relevant interpretation, awareness and education for local inhabitants and visitors to the Park. AG. Rangers will be provided with adequate information and resources to promote public awareness of the Park, wildlife conservation issues and environmental education in general, whenever required.
2. There will be active support for the design and implementation of communications interventions which seek to bring about positive behavior change in stakeholder groups implicated, complicit or otherwise, in illegal activities inside the Park.	AG. Develop and implement public conservation awareness programmes and develop relevant environmental communication and awareness messages to all relevant stakeholders and the general public.

	AG. Develop messages directed at hunters and miners focused on what their activities do to the environment. AG. Develop awareness messages to address Human Wildlife Conflict on farms.
3. Park Management will lead efforts to communicate and enforce the laws regarding human activities inside and outside the Park, including those pertaining to Communal and Community Forests will be fully supported.	AG Liaise with NGOs and government partners such as Ministry of Information, Culture and Tourism (MICAT) to support awareness raising / outreach programmes for the Park. AG. Develop a Park Communities Outreach Manual, which will include a Community Conservation Education element that will consist of a brief presentation on the Park, conservation and its importance, the wildlife of southeastern Liberia, etc., for school children (and adults).
4. Through initiatives such as eco-schools, bush camps, and guided tours for community members (including students), an outreach program to communities and schools in the surrounding local communities will be developed and fully supported.	AG. Develop and implement a schools outreach program that would provide awareness of and support for conservation and the Park, including environmental education and field trips in the Park.
5. An open and transparent public participation forum will be provided towards enhancing local constituencies' understanding and awareness of biodiversity conservation and environmental issues, and building strong community relations.	AG. Employ the services of the cultural troupes to develop plays based on conservation messages that are culturally inviting and captivating.
6. The effectiveness of educational and awareness interventions as a basis for management will be monitored.	AG. Emphasize among partners the monitoring and evaluation of awareness raising programmes implemented for the Park. AG. Carry out assessments of the awareness and understanding of issues before and after educational and awareness programmes and activities.

8.3 Sapo Conservation Centre

There clearly is a huge gap of knowledge about the Park that must be bridged, for example with new species still being discovered during surveys by visiting researchers. Little is known about the population status and distribution of many of the species recorded in the Park, with reptiles, amphibians and flowering plants particularly poorly documented. In addition, the technical capacity of the park management to conduct research on and therefore effectively conserve these species is limited. Additionally, until recently, there was no existing infrastructure to support visits by scientists, professors, researchers and students seeking opportunities to contribute to the advancement of knowledge of Liberia's rich biological resources.

The Sapo Conservation Centre (SCC), which was opened on 8th June 2013 during the 30th anniversary of the Park, is a beacon of hope for those with deep interest in broadening the knowledge base of conservation science. The center was established at the Park's HQ to serve as a research and training facility for forestry professionals, lecturers, and students from colleges and universities in Liberia and for scientists and researchers around the world who are interested in research in conservation science and related fields. The center is intended to be a hub for ecological research in Liberia and a focal point for environmental education efforts within the Sapo Landscape. The center consists of an office building (with four offices and a conference room) and a community-run camp site with conveniences, which can host field courses and other training workshops annually and can serve as an auditorium for presentations to local and international tourists and dignitaries visiting the Sapo National Park.

Management Issue No. 46: The Sapo Conservation Centre	
Policies	**Actions and Guidelines**
1. The SCC will continue to accommodate scientists (students, researchers and teachers in forestry and related fields) and other visitors from Liberia and abroad who are interested in conservation science. It will serve as a venue for conferences, workshops and any of such gatherings to further the cause of conservation in general and the Park in particular. 2. Construct an annex or annexes to the SCC for the additional space needed for a herbarium and a laboratory. 3. Create partnerships with international institutions of greater capacity to	AG. Train and recruit a Centre manager, a local person, to oversee visiting researchers and supervise tourists. AG. Coordinate research work of both national and international researchers to contribute towards establishing baseline and comparative data on the flora and fauna of the Park. AG Establish a herbarium, and construct annexes to the SCC for the herbarium and a laboratory. AG. Ensure the maintenance and replacement of hosting facilities (tents, rooms, vehicles, etc.). AG. Develop an outreach program to attract partnership with other reputable international institutions.

support long-term collaborative research in Sapo.	

8.4 Behavior Change Strategy at the Park

Conservation education programs are important in helping communities understand issues and develop the ethic that will positively impact various conservation behaviours, but one needs to be conscious that it is not a simple task to translate awareness of to action on an issue (Jacobson, McDuff & Monroe, 2015). The ultimate goal of any environmental communication program is to change current human behaviour as it relates to the environment. This, in turn, means providing people with the understanding, motivation, skills and resources to alter their behaviour. For this plan, behaviour means "a commitment to environmental stewardship or an environmental ethic" (Jacobson, McDuff & Monroe, 2015, Pg. 61). This definition of behaviour is in line with the community-friendly approach to PA Management been promoted by this plan. This plan will adapt the flow of behaviour change model (Geller, 2002), by using information (through widespread awareness raising) and incentives (livelihood development intervention with support from partners) to help communities form pro-conservation habits.

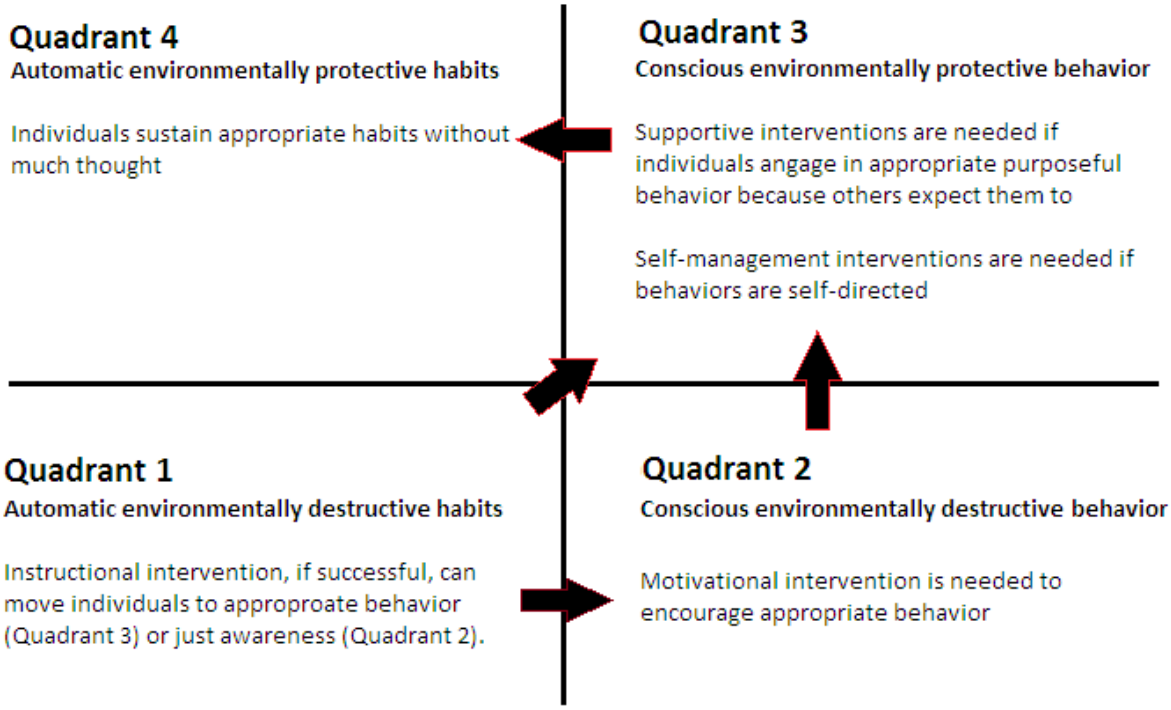

Figure 10: The *Flow of Behaviour Change Model* (adapted from Geller, 2002 in Jacobson, McDuff & Monroe, 2015)

Management Issue No.48: Behavior Change Strategy at the Park	
Policies	**Actions and guidelines**
The Plan will adopt the *Flow of Behaviour Change Model* strategy to alter people's behavior, often through promoting activities and attitude changes that result in more favourable alternative behavior. Park management will actively support the design and implementation of stakeholder engagement interventions that seek to bring about positive behavior change in stakeholder groups.	AG. Use the Flow of Behaviour Change Model to guide conservation awareness programs. AG. Identify stakeholder groups that are involved in or support illegal activities inside the Park and designed a communication program to support adoption of park-friendly behaviour. AG. For each group, identify key drivers of the behavior (e.g., motivation, self-perception, cultural norms) and key barriers or obstacles to change (e.g., economics, peer pressure, intimidation). AG. For each stakeholder group, develop a behavior change intervention strategy, which seeks to bring about alternative positive behaviors and/or the adoption of more sustainable practices. AG. Deliver the behavior change intervention using the most appropriate vehicles, according to the complexity and sensitivity of the subject matter & the literacy/education levels of the target audiences.

8.5 The Community Stakeholders Outreach Program and Role of Rangers

A Community Engagement & Tourism Unit (CETU) has been established since 2007 to drive the Park's community outreach functions. It has been mostly active in Zone 1 & 3, where Community Engagement/Tourism Rangers were stationed, but this will now be extended to Zone 2. The Unit was very instrumental in the awareness exercise for the old boundary re-opening in the first half of 2010.

8.5.1 Community engagement rangers

Community engagement rangers in the conservation education component of the behavior change strategy projects will: (i) Deliver specific messages aimed at raising awareness about environmental issues and provide answers to some of the 'why' questions (e.g. 'Why is it important to keep forests?');

(ii) Provide a link between the program intervention and how it can positively impact individuals/communities i.e. highlight the benefits; (iii) Secure endorsement at the community level for the behavior change programme; and (iv) Educate target communities regarding the wildlife and environmental laws; (v) Monitor activities and projects in the surrounding communities that might affect the park over time.

The community engagement rangers will be aided by ecoguards, community informants, and a community liaison advisor. The duty of the latter is to report on the social impact of park activities on communities by (i) working through the regional foresters to ensure that benefits promised to communities are delivered; (ii) that local communities are participating in the park management activities; (iii) to identify opportunities for local communities; and (iv) to collect information on a regular basis for rudimentary needs assessment.

8.5.2 Law enforcement rangers

In terms of communications activities, the Law Enforcement rangers and auxiliaries will focus on the provision of accurate information to the public concerning legal issues and subjects of general interest, such as the fauna and flora of the Park.

Management Issue No.49: The Role of Law Enforcement Rangers Stakeholder Engagement.	
Policies	**Actions and guidelines**
1. It will be the role of all rangers in stakeholder engagement activities to implement communication exchange programs, which are designed to eliminate direct or indirect support to illegal activities inside and outside the Park, including those pertaining to Communal and Community Forests and the buffer area.	AG. Train and build the capacity of Park staff in basic community engagement skills. AG. Recruit and train any required number of rangers who demonstrate over time the professional attributes necessary to deliver BCC activities, including project planning and interpersonal skills.
2. While the staff of the Community Engagement and Tourism Unit will have the primary responsibility of the engagement process, other rangers and community auxiliaries will also participate in carry out environmental communication and awareness raising activities as deemed necessary by the CPW.	AG. Conduct training for all FDA rangers and auxiliaries to enhance their knowledge base on legal frameworks and the application of FDA regulations. AG. The CPW must always monitor activities of rangers, capture their shortcomings and strengths and be prepared to take corrective actions.

9. PARK ADMINISTRATION AND MANAGEMENT

As of March 2021, there are 65 persons employed[3] at SNP. However, considering the terrain and size of the park, this number is still insufficient, with many rangers lacking the skills and literacy level required for their role.

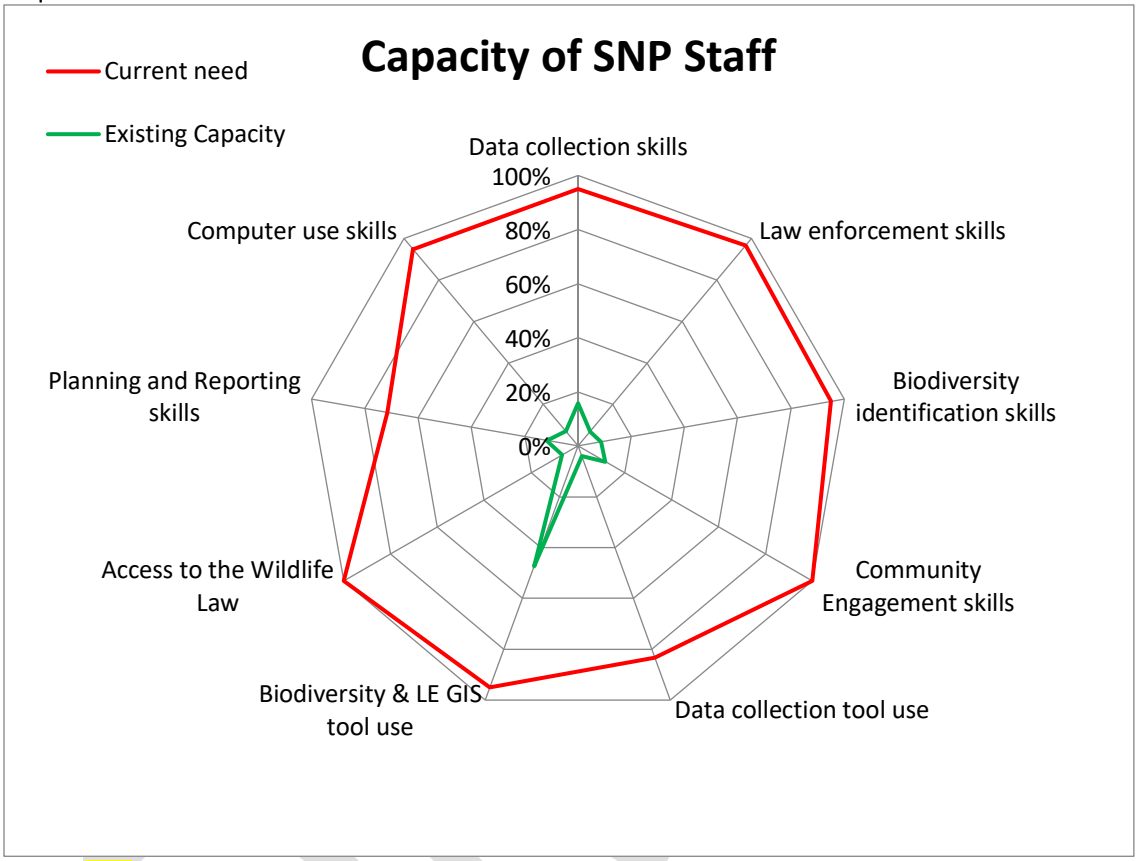

Figure xxx: Average percentage of required versus existing capacity of 60 SNP staff

Ultimately though, the Park, has had to adapt to operating with fewer staff by being more focused and better managed, and training these staff with multiple skills as their jobs require.

9.1 Staffing and Staff Structure: Current and Planned

In October 2006, a review was made to streamline the effectiveness of the Park's human resources. It was designed around a minimum of 70 persons, with potential for increased staff based on budgetary availability. An organogram of current Park operations is shown below.

[3] This number includes 62 staff employed by the FDA plus 3 Junior Conservation Assistant assigned under the LFSP.

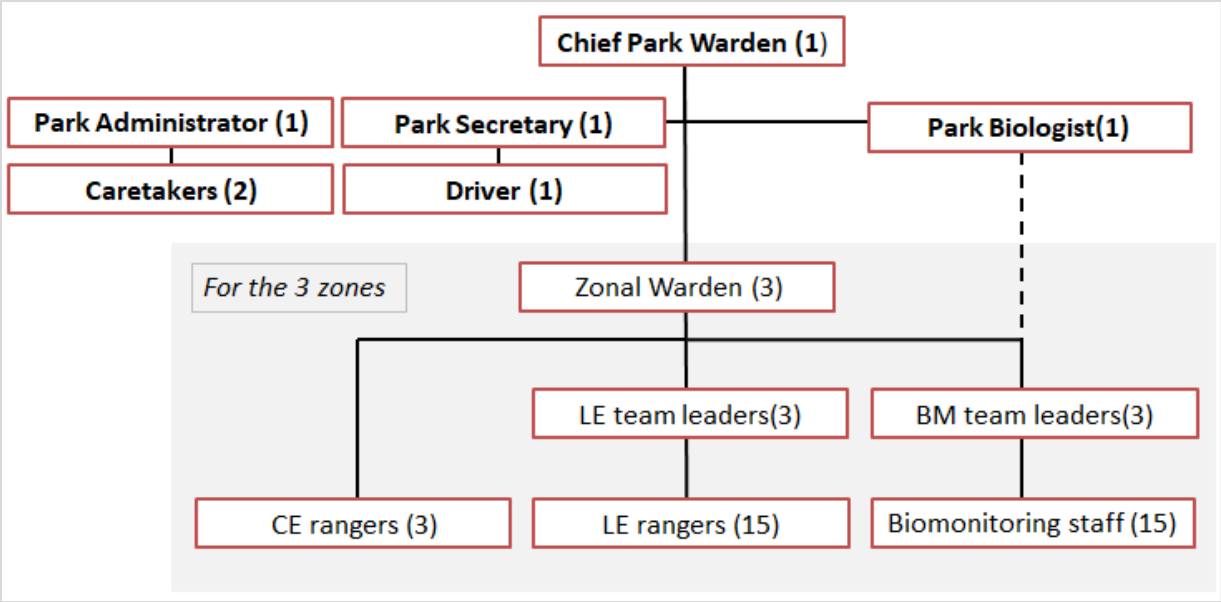

Figure 11: Park Organizational Structure

Management Issue No. 46: Staff Structure Based on the Zone System.	
Policy	**Action and guideline**
1. Continue the staff structure based on Zone system of Park administration.	AG. No restructuring of the Zone system is necessary; there is no need for any action and guideline. The FDA, however, should review and revise its current staff structure with respect to what is required to implement the Plan.

9.1.1 Staff recruitment, career progression and retirement

Correct selection of staff is of great importance in PA management. The staff selection procedure used in 2007 for the current batch of field staff was essentially a re-engagement of former staff employed between 1986 and 2005. Additionally, members of staff hired in 2017 were absorbed from the auxiliary system that had provided support for Park functions over the years. Changes are a must in the current staff recruitment, career and retirement continuum if the Plan is to deliver on its goal and objectives. Care must be taken that staff hired meet the fitness requirement and possess the requisite skill set to perform their roles effectively.

Management Issue No.47: Staff Recruitment, Career Progression & Retirement.	
Policies	**Actions and guidelines**
A "staff-recruitment-to retirement" system that provides for effective performance, career	Ag. Design and implement a staff recruitment-to-retirement system for the Park, and for

progression and social security in the Park management setting will be instituted.	subsequent adoption in the country's PA network. Ag. Strictly apply the staff recruitment criteria in employing new staff with respect to age and physical fitness. Ag. Develop and strictly enforce a code of conduct for the recruitment of new staff and for retiring old ones.
At all times, Park management will ensure that the correct procedures for selecting new staff will be applied and all efforts will be brought to bear on making and keeping the process transparent.	Ag. Avoid making exceptions that will set precedents for future situations. Such actions demoralize applicants who are not selected, and also create disrespect for the selection process and for the favored applicants.

9.1.2 Staff terms of reference: Responsibilities and functions

Personnel of the Forestry Development Authority, who are assigned under the conservation department, staff the Park. The various categories of staff employed full-time are: (i) Professional Officers, generally ranked as Wardens, with university educational background; (ii) Technical Officers, with high school or post-high school certificate and diploma qualifications, and these are lumped into the Ranger ranking; and (iii) Supporting staff and artisans (e.g., drivers, mechanics, secretaries).

9.2 Management Prescriptions

Management prescriptions are primarily meant to ensure that routine operations of the Park are clearly identified, defined, and are consistent with the management Plan, and that responsibilities for such duties are assigned to specific personnel.

Management Issue No.48: Management Prescriptions.	
Policies	**Actions and guidelines**
1. All staff of the Park will be formally employed, with appropriate Conditions of Service and Terms of Reference to encourage high staff retention.	AG. Design and implement relevant training and capacity building program for all staff.
2. New staff should undergo an induction period in as many weeks as necessary and an in-service training course at the Park.	AG. Conduct an in-service training course for all newly recruited staff at the Park.
3. Additional training will be made available for staff with requisite qualifications to further developed skills through local and	AG. Make determined and sustained efforts to ensure that each staff fully understands her/his role and how it relates to other ranks and the overall Park management objectives.

international courses, conferences and workshops.	AG. New staff should undergo certain period of induction upon arrival. AG. Review the staff ToR as needed and make recommendations to the Central Office of the FDA for incorporation.
4. Better and improved work conditions and compensation packages for local auxiliaries will be defined and delivered to ensure continuation of the invaluable services they render the Park.	AG. Provide clear ToRs for members of the local communities working with the FDA staff to ensure that they fully understand that it does not constitute an offer of employment; unless there is a vacancy that they can apply for AG. Make all attempts to have the services of members of the local communities rewarded, even if they are volunteers for short-term activities such as the clearing of park boundaries.

9.2.1 Staff ranking

There is a problem with the absence of insignia of rank among the staff and the fact that the generic name for all PA staff in the field in Liberia is "ranger". To the general public, this obscures distinction of staff responsibilities, which in turn affects command structure and discipline. In spite of a major staff recruitment/re-engagement in early 2007, as part of the organizational reform, all field staff are currently at the same rank of '*Ranger Grade I*'. This Plan recommends a ranking structure for the Park, for consideration by the FDA Conservation Department. Implementation of the ranking structure should help streamline career progression, ensure discipline, and promote professionalism. A change is urgently needed in ranking and consequent Park command structure as an integral part of FDA reform.

9.3 Staff Supervision

Since almost all management efforts at the Park are based on compliance with legislations and procedure, the tendency is for superior officers to be very assertive towards subordinates; and for rangers to be very assertive (bordering on domineering) towards local communities but to poachers in particular. On the other hand, subordinate staff and poachers/community members are expected to react submissively to superiors and rangers, respectively. To a large extent, this has been the case at the Park. However, experience all over the world has shown and for this, disciplined staffs are needed, and key policy areas must be identified.

Management Issue No.49: Staff Supervision.	
Policies	**Actions and guidelines**

1. A ranking and insignia system, clearly display on uniforms, that promotes staff discipline and responsible performance will be instituted.	AG. Working with partners, institute an appropriate ranking and insignia system for park staff.
2. Systems and procedures will be put in place to guarantee effective and efficient management of the Park.	AG. Conduct regular staff performance appraisals and awards to reward deserving staff and motivate under-performers.
3. Adopt a more effective approach to staff management to ensure better performance in individual units..	AG. Institute a staff supervision system and implement the policy areas that lead to participatory development which include: • Code of Conduct • Standard Operating Procedures (SOPs) for field operations • Community engagement • Use of FDA and partners' assets • Chain of command • Crisis management and containment

9.3.1 Personnel Management Style

The FDA has traditionally operated under a centralized management orientation. Efforts are being made to adopt a progressively decentralized management regime. A system of management focused on the Human Resources of an institution should be adopted; this involves not only treating staff well, but utilizing them in areas they have shown interest in and in ways that help them develop positively. If this management technique is adopted in Sapo, then the staff will (i) Find their work enjoyable if they pursue meaningful objectives; (ii) Are willing to show what they can do, (iii) Will take their work seriously when given meaningful responsibilities, and (iv) Are more intelligent than their work requires of them.

Management Issue No. 50: Personnel Management Style.	
Policies	**Actions and guidelines**
1. The management of the Park will adopt a management style that focuses on Human Resource development:	AG. Promotes good communication (sharing of information) with staff at all levels. AG. Ensures that members of staff are well trained and well equipped.

	AG. Ensures that staff welfare issues are handled appropriately.
2. Ensure that every staff has a clear understanding of what is expected of them.	AG. Provide all staff with copies of their Terms of Reference and ensure that they understand the objectives of their operations.
3. Emphasis will shift from *ad hoc* decision-making to a more systematic approach of making decisions for Park operations and coordination.	AG. Include field staff (rangers/guards) in decision-making and give them the responsibility to make decisions on plans and problems. AG. Provide staff with details on the content of the management plan to promote transparency.
4. Existing standards for Park operations will emphasize knowledge-based adaptive management to address weak accountability, and a supervision process will be implemented.	AG. Promptly address staff welfare issues as they identify such issues.
5. Sustained efforts will be made for staff to understand what their various responsibilities are for better performance effectiveness.	AG. Involve staff in a meaningful way ('***tell*** them and they will ***hear***, ***show*** them and they will ***see***, ***involve*** them and they will ***understand'***).

9.3.2 Supervision and participatory staff management

Staff management at the Park has been progressively participatory since its establishment, in complement to the growing trend in community participation. Officer participation is the most important element of successful PA operations. Officers who "get their hands dirty" and go on patrol and other duties, such as community engagement and tour guiding, with their rangers are respected and trusted. This is a demonstration of participatory staff management. On the other hand, those officers and managers who seldom visit or work with their field staff are regarded with contempt, though junior staff may appear to respect them.

Management Issue No.51: Supervision and Participatory Staff Management.	
Policies	**Actions and guidelines**
1. This Plan will adopt a participatory management system that encourages staff to present ideas and information and to fully participate in management decisions.	AG. The Chief Park Warden will hold Participatory Management meetings in the form of Palava hut gatherings in each Zone. AG. The Zonal Warden should hold monthly meetings with available members of his team

	along a pre-agreed agenda, allowing rangers the opportunities to raise issues of importance. Note however, that these meetings should not affect patrol schedules, taking place with those not on active patrols. AG: The Chief Park Warden should hold a quarterly meeting in each zone of the park, to interact and motivate members of the park staff.
2. Participatory Management meetings will be held as frequently as may be deemed necessary to integrate all staff into the decision-making and the goal setting process.	AG. All staff not on active patrols should attend and participate in the meetings, and to maintain Park security, patrols teams will be assigned with at least one member who has attended meetings. AG. Report on all relevant Park operations. This enables the collective identification of problems so that the group can agree on practical solutions.
3. Supervisors will participate in and lead Park activities and processes and should not cast the blame of poor performance on their subordinates.	AG. Use meetings as opportunities for Park management to report back on management issues, progress and achievement, ensuring that such meetings are not a series of staff complaints, which leads to negativity. AG. When discussing intelligence material ensure that only FDA employees are at such meeting. Based on the sensitivity of the issue, it might be better to discuss in smaller groups with the relevant members of staff.
4. The Park Wardens, Administrator and other Unit Heads are expected to participate frequently in patrols and field exercises.	AG. Ensure that officers supervise, participate in all Park activities and apply the Code of Conduct.
5. A system of unannounced checks, including from the FDA head office, should be developed and effected, and it can be used to ascertain that staff are operating effectively.	AG. Take corrective action against officers if necessary and ensure that law enforcement Rangers are closely supervised.

9.3.3 Information sharing among Park staff

Communications is a very important part of Park staff management. Often managers are criticized for not communicating effectively. The practice at the Park is mostly top-down from CPW to field rangers. Feedback from field rangers is gradually improving but is yet to reach the stage of uninhibited exchange of information between officers and subordinates. The current situation on information sharing must be improved.

Management Issue No.52: Information Sharing Among Park Staff.	
Policies	**Actions and guidelines**
1. An "open door policy" will be adopted to encourage open communication, feedback, and discussion about any matter of importance related to the management of the park.	AG. Create an "open door" communication environment, whereby all employees have access directly or indirectly to their superiors. AG. Place a suggestion box in accessible locations so that complaints, suggestions, and thoughts can be shared without the fear of backlash that often accompanies open door policy attempts. AG. Hold regular meetings with Park staff, allowing time for question and answer after information sharing.
2. Park Management will ascertain that the methods for Park information gathering will always be applied meticulously.	AG. Apply the following information gathering methods at the Park: • . • Zonal Wardens should have monthly meetings with each Team. • The Chief Park Warden and Administrator should have monthly meetings with HQ staff and Zonal Wardens. • Copies of minutes, focusing on action points, should be shared with staff to facilitate the implementation of decisions reached.
3. Notice Boards will be posted at the Park HQ Offices to provide information (circulars, notices, memos) on relevant issues, and these will be continually updated and old material filed for reference.	AG. Ensure that Notice Boards are posted, maintained and updated regularly.
4. There will be daily Radio Call-ups to communicate information to all staff, and quarterly meetings will be held jointly between Central office and field staff each year.	AG. Conduct daily radio call-ups to all patrol teams and convene joint quarterly meetings each year between Central office and Park staff.

9.4 Staff Training and Skills Development

Training and capacity building for protected area management staff is often determined at the national level. With the construction of the Sapo Conservation Centre, the Park has been designated the field training centre for Liberia's protected areas (PAs). Ideally, all freshly recruited staffs are supposed to be sent for an induction course, after which they can be posted to their area of assignment. Rangers are the foot soldiers for the Park, identifying their training needs and putting them through such training must be a priority. Training need assessment exercises during the implementation of the Plan will identify the relevant areas for training and capacity building.

For example, in 2019 FFI conducted a self-assessed capacity needs assessment for the park staff. The assessment questionnaire was developed using the IUCN 'Global Register of Competences for Protected Area Practitioners'[4]. The register is a comprehensive directory of and user guide to the skills, knowledge, and personal qualities required by managers, staff, and stewards of protected and other conserved areas. Competence was understood as the proven ability to do a job and was defined in terms of the required combination of skills, knowledge, and attitude.

Of the 60 SNP staff that participated in the assessment, 55 identified as rangers, constituting the largest category of personnel. Overall, only five persons thought they had all the requisite skills to do their job.

Table xxx: Summary of SNP Staff Profile that participated in the Capacity Needs Assessment

Gender	Male	58	97%
	Female	2	3%
Education	Illiterate	21	35%
	Some elementary School	13	22%
	Some High school	15	25%
	High School diploma	8	13%
	Associate Degree	1	2%
	Bachelor's Degree	2	3%
Skills needed	Fully Competent	5	8%
	Partially competent	50	83%
	Not competent	5	8%
Tools needed	Have all tools required	1	2%
	Have some/limited tools	59	98%
	Lacking all tools and equipment	0	0%

[4] https://portals.iucn.org/library/sites/library/files/documents/PATRS-002.pdf

In the recent past, most of the ex-situ training and capacity building was done in Ghana; the Plan proposes that other countries in Africa and or other parts of the world be considered in future training and capacity building opportunities.

Management Issue No. 53: In-Situ and Ex-Situ Training.	
Policies	**Actions and guidelines**
1. FDA or her partners will conduct a holistic training needs assessment and career path progression for all staff.	AG. Recruit a suitably qualified individual, to undertake a detailed need assessment exercise for FDA conservation and related agenda, to identify various countries or institutions for training possibilities in various areas on PAs management.
2. A clear and consistent on-the-job training, verified by performance assessment on an annual basis, will be provided and staff selection for training will be based on a systematic, transparent selection procedure.	AG. Compile FDA's on-the-job training needs and develop a robust mechanism to monitor performance of on-the-job trainees.
3. All field staff should undergo a six-week induction training in leadership, bush craft, community interactions, infrastructure maintenance and anti-poaching tactics within 6 months after recruitment.	AG. Design and provide field staff with a six-week general training course in leadership, bushcraft, community interactions, infrastructure maintenance and anti-poaching within 6 months of recruitment.
4. A specialized training based on a comprehensive needs assessment for individuals and groups will be undertaken from time to time.	AG. Keep a training register to follow individual development and performance for each trainee and training course.
5. Leadership and management training will be carried out for staff holding leadership positions or those demonstrating leadership potential and promotional opportunities for fast tracking promising/deserving staff under this program will be created.	AG. Design and implement a leadership and management training for staff holding leadership positions or those demonstrating leadership potential. AG. Evaluate all trainees before and after training activities to determine if the desired outputs are achieved. Results of this evaluation should be recorded for future reference. AG. The Chief Park Warden should ensure that: • Identified additional training is planned and implemented.

	• Training records are properly maintained.

9.5 Staff Performance Evaluation & Effectiveness

Appraisal of staff performance must be seen as an integral and normal part of the process of management. Staff appraisal provides the tool through which people can be held accountable for their performance. This should be an annual event and should serve as the basis to identify and address poor performance and recognized (possibly for promotion) those that have performed well. It will be important that senior management at the FDA headquarter supports the appraisal process, its findings, and recommendations.

Formats and guidelines for conducting a personnel (rangers and auxiliaries) performance appraisal, which is partly based on a review of existing PA personnel staff ToRs, have been prepared, but might need to be revised. Policy recommendations and management guidelines, which have been prepared for Protected Areas, in general have been expanded upon to strengthen park-related activities. A personnel handbook detailing a general code of conduct for Park staff was made available at the Park headquarters and disseminated to literate rangers. It incorporated major SOPs developed by the project. PAs however require more detailed Codes of Conduct designed to meet their paramilitary law enforcement orientation. Taking all these elements of a staff performance evaluation system into account, the Plan recommends a simple appraisal system for staff performance evaluation effectiveness - the Target-based Performance Appraisal.

Management Issue No.54: Evaluation of Performance Effectiveness	
Policies	**Actions and guidelines**
The 3-phase system of "Target-Based Performance Appraisal" will be a major annual appraisal of staff performance. The 3 phases of the system are: • **Phase I:** Setting of targets. • **Phase II:** Feedback/periodic reviews. • **Phase III:** End of year review and appraisal.	AG. Review and introduce the "Target-Based Appraisal" system to all staff and ascertain they have a total grasp of the process. AG. Design a specific Code of Conduct for law enforcement staff. AG. Identify and improve poor performance (and what this means should be agreed to some extent by the parties involved in this exercise) of individuals and identify training needs.
Conduct of Target-Based Performance Appraisal will be an annual event for staff.	AG. Ensure that completed staff performance appraisal forms are thoroughly discussed with the concerned staff before action is taken.

9.5.1 Staff fitness and etiquette development

Park staff must be mentally and physically fit if they are to work effectively in the tough conditions in which they operate. It is therefore essential that they maintain full physical and mental fitness. To build their capacity for professional conduct, members of staff also need to acquire the correct forms of etiquette relationship to their supervisors, each other and to the general public.

Management Issue No.55: Staff Fitness and Etiquette.	
Policy	**Actions and guidelines**
Park Management, especially Law Enforcement Staff, will operate a fitness building system.	AG. Assemble a staff fitness building system. AG. Introduce the fitness system to the staff. AG. Develop a set of rules that would sustain and maintain the system once it is put in place. AG. Conduct an annual fitness assessment of all staff to see if they meet the required fitness standards for their duties.

9.5.2 Staff rotation

It is important to rotate and transfer PA staff regularly. This is especially necessary for law enforcement and community engagement staff. Rangers kept in one place for too long can undermine a security plan. Currently, transfer in the park is a bit arbitrary, with some members of staff been moved while other have spent more than five years in one location; there is no protocol on assignment to guide this process and make it free from bias.

Management Issue No.56: Staff Rotation	
Policies	**Actions and guidelines**
A system of periodically scheduled transfer of staff to all zones of the park, and when possible, to other PAs will be implemented.	AG. Design and implement a fair rotational system of staff among the Park Zones and Teams. Ideally, this should coincide with promotion, and must be affected at least months before the academic year to allow for family integration into the new locality.
Internally among the Teams and Zones, rangers will be rotated. If deemed necessary, only an individual should be rotated from each team,	AG. Liaise with HQ to implement a transfer system between zones internally, and other PAs. In all cases, ensure that the Park doesn't loss

creating a rotation system. This means the entire team will have a complete turnover in 3 years. Zonal Wardens to be rotated every 2 years among the zones.	essential staff before they have trained competent replacements.
Transfers in and out of the Park will be done from Central Office in Monrovia but can be initiated under advisement by the CPW. The CPW will determine rotation between zones, while the zonal warden will be responsible for rotation within a Zone.	AG. Be sensitive to the social needs of the staff and do all that is possible to meet reasonable concerns. AG. Rotate a staff within the Park for strategic reason, ensuring this does not undermine the operations of an affected Zone.

9.5.3 Staff welfare, morale and motivation

The FDA has developed a wide range of structural, organizational and personnel review, including Staff Welfare policies. These are, however, often too broad to address the peculiar needs of PA staff, and are not adequately understood by them. Issues specific to the needs of Park staff are centred on housing, insurance, healthcare, feeding and transportation. Under this Plan, staff welfare, morale and motivation will be improved through the provision of housing, transport, and health services, although this is dependent on budgetary allocation.

Management Issue No.57: Staff Welfare, Morale and Motivation.	
Policies	**Actions and guidelines**
All staff will be equipped, well housed and well managed, based on budgetary allocation.	AG. Produce a comprehensive staff welfare document on planned actions about how to improve the current housing, insurance, healthcare, feeding and transportation situation.
Payment for amenities and responsibility for maintenance of official residences for staff will be according to the FDA policy on these issues.	AG. Discuss the welfare document with all staff in a series of meetings to accommodate their concerns and ascertain that each member of the staff receives and understands this policy document.
A system of Health Needs Assessment in the FDA is needed and should be established.	AG. Design a system at the FDA to assess and determine what the basic health conditions and needs are and should be for all staff.
Records of all treatments for ill staff will be inserted in the personnel files.	AG. Prepare a database for records on each staff that had been treated and such information must be properly stored and kept confidential.
All Park staff should undergo an annual physical test to determine their suitability for work, during which their physical record will be examined.	AG. Employing the services of competent and authorized health officials, carry out Annual physical examinations of all staff.
First Aid training will be an integral part of training schedule.	AG. Prepare a list of clinics in each zone and near the HQ of the Park that the FDA recognized for her staff to attend if they are ill or feel ill, and conduct training in the administration of First Aid.
The FDA will procure rations and will guarantee that the right amounts and types of food are procured and delivered on time.	AG. Ensure that all rations are procured from suppliers with quality food storage facilities .There are instances when canned food, bread and other food stuff are stored on shelves beyond the time they should. Such foodstuff should not be purchased.
Introduce a health and life insurance scheme for staff	In consultation with senior management at FDA headquarter; introduce a health and life insurance scheme for all staff of the park, conscious of the dangerous nature of their work.

9.5.4 Staff capacity

When considering the effectiveness of staff, their capabilities in terms of skills and materials must be taken into account. It is the responsibility of park management to understand skills gaps in park staff and provide a means to bridge this gap in the form of internal and external trainings, or other means. A survey of park staff was done by FFI in 2019, with emphasis on skills needed for job requirements of park staff. Major gaps exist in nearly all areas surveyed for (Figure xxx). The result of this survey highlights a need to build the capacity of park management staff to be able to effectively perform their role.

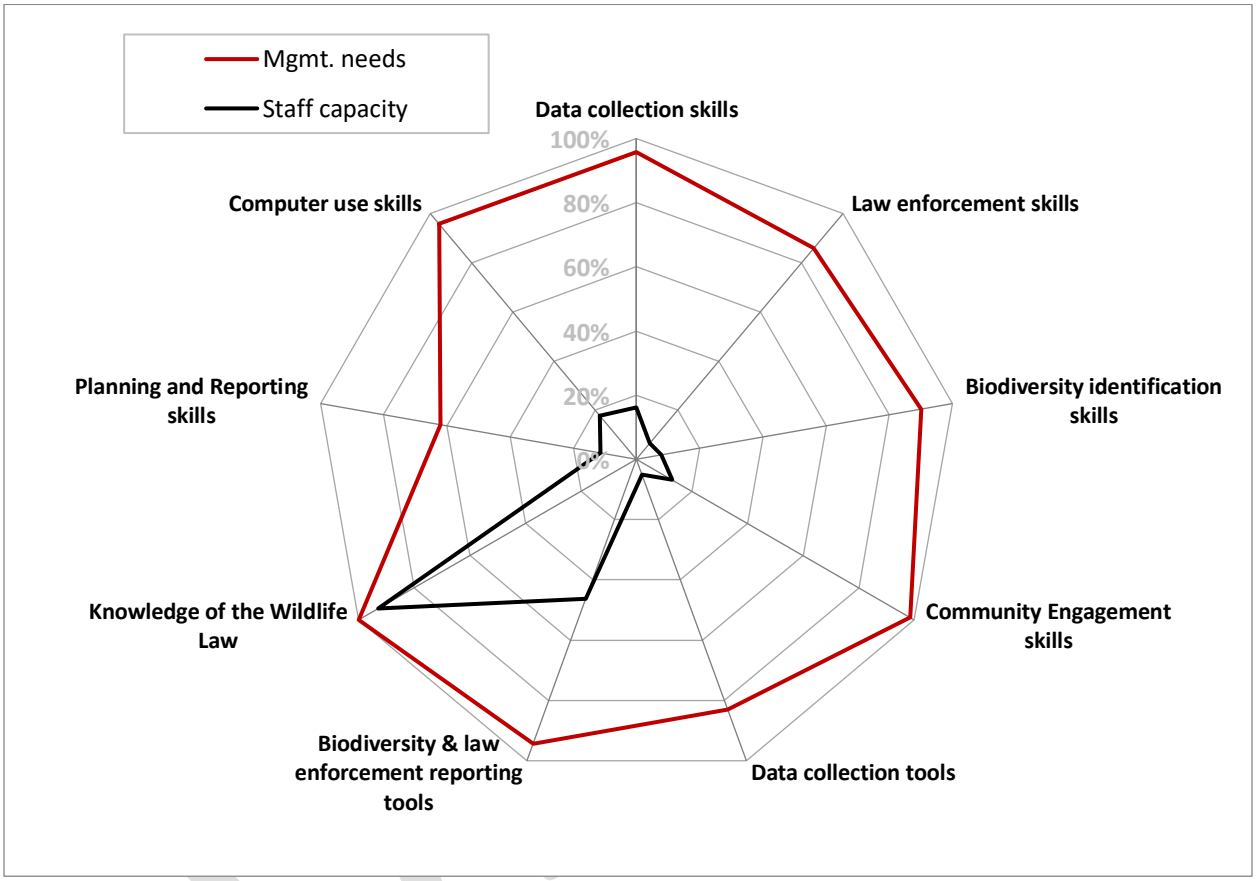

Figure **xxx: Park staff current capacity needs based on Capacity Needs Assessment (FFI, 2019)**

All skills identified as needed for protected area jobs were shown to need significant improvement for efficient, protected area management. The areas with the most substantial gaps identified for both subsets were access to the wildlife law, and law enforcement and computer skills. The smallest gaps were GPS and GIS tool use for biodiversity and law enforcement, followed by the capacity to plan and report park management activities. While progress continues to be made through various pieces of training, efforts need to continue to increase the capacity of park staff to be able to do their work efficiently.

10. INFRASTRUCTURE AND EQUIPMENT

The main objectives of infrastructure development at a PA are to provide year-round access to (1) Selected destinations, (2) Accommodation, and (3) Office and storage facilities to meet the needs of management, researchers and visitors. In providing access it is essential that such developments be established on sites as such as to minimize adverse effects on biodiversity. Unless the required buildings, trails and other facilities are put in place, many of the recommendations for the development of the Park will be unattainable. The Park is generally poorly served with roads and trails. Most communities and settlements around the Park are not easily accessible.

10.1. Existing Park Infrastructure

Under the suite of projects run by FFI, CI and other development partners of FDA, the basic infrastructure established in 2005-2006 at the Park are trails, boundaries, and camps and office/residential buildings.

10.2 Infrastructure Construction and Maintenance

Some structures have undergone restoration, or expansion as needed. Existing infrastructure needs rehabilitation and maintenance, and new infrastructure have to be constructed to meet the needs of the Plan for new staff and equipment. For long-term benefits from Park infrastructure, new ones are to be built, the old infrastructure repaired, and both will be maintained. Suggested additional infrastructure to support effective park management include ranger posts and permanent camps at strategic locations in the buffer area and outer core are of the Park. See law enforcement chapter for threat analysis and justification. Existing structures can be adapted into ranger posts, such as Vera Camp near Jalay's town, and ranger post at Bah's Town be moved to 3 km past Geedadrue. Currently identified new locations for posts include Peter Flahn Village, Nelson's village, Unnamed Post near Rock Town), Unnamed post near Seegboken, Gambo near Putu Jarwodee, and the Landing near Chebioh's town. These posts give rangers bases from which to properly cover the park (see Figure xxx). Infrastructure can be designed with the communities in collaboration with the FDA once funding has been acquired.

Management Issue No.58: Infrastructure Construction and Maintenance	
Policies	**Actions and guidelines**
Tracks and trails will be constructed at the Park to serve as routes for anti-poaching patrol, tourism and research and will remain so for this Plan.	AG. Maintain all future and current trails at a high standard.
Emphasis of the ultimate objective for tracks and trails as mentioned above, will at all times be placed on utilizing the boundary lines by authorized staff as patrol routes in anti-poaching duties.	AG. As required, engage community members on short-term contract as part of maintenance teams for external boundaries, making sure that no particular individuals are permanent for this activity in a given community.

10.3 Trails, Tracks & Footbridges

There are approximately 130 km of trails in the Park, and these can be used for patrols, research and tourism. There also is an additional network of transects that are used for the biomonitoring program. More trails, tracks and footbridges are to be constructed and maintained. Priority areas include the trail to the Sinoe river from Jalay's town and the crossing at Nelson's village.

10.4 Buildings & Camps

The buildings and camps at the Park are major investment and must be properly maintained in good condition. At park (and Zone 2) headquarters in Jalay's town, there exist an office building containing four FDA offices, a radio room, and a mini warehouse in addition to the CPW residence (3 bedrooms). In Putu Jarwodee which serves as the headquarters of Zone 2, there is a building with two offices, a bathroom, and a mini-store room. In Bilibokree (Juarzon district) there is a conference centre and a pair of guest room. There is no existing infrastructure in Doodwicken (Headquarters Zone 3). A permanent campsite named Vera Camp can be found 6 km from the park headquarters for research and tourism.

The abandoned research centre at Gbarbonee contains several dilapidated structures.

The Sapo Conservation Centre is located a hundred meters from the park headquarters and consists of 2 buildings and a campsite and associated lavatory. One serves as an office and contains 3 offices, 1 reading room, 1 mini-warehouse, and 1 conference room, while the other serves as a residential building and contains a single room apartment and living area.

Management Issue No.59: Maintenance of Buildings (Offices, residential) and Camps at the Park.	
Policies	**Actions and guidelines**
Care must be taken by all park staff and visitors when using Park assets.	AG. All buildings and camp structures will be properly maintained. AG. Produce regulations for use of all buildings, pasting copies at vantage notice boards and provide copies to staff and visitors. AG. The Park Administrator must develop and implement a monitoring process to ensure and enforce compliance with policy statements on buildings and camps. AG. The Park Administrator will ensure that all buildings and equipment are maintained regularly to ensure durability and availability when needed.

Building and grounds maintenance must be included in the budget request.	AG. All staff should be on constant lookout for wear and tear or areas in need of urgent attention at all times and should pass this information on to management for incorporation into plans.

10.5 Vehicles and Equipment

For effective operations, Park staff requires transportation, navigation, safety and communication equipment to carry out their various responsibilities. Park staff should therefore be provided with the appropriate equipment, suitable for the terrain. There is a need to review and revise, and in some cases create guidelines to handle Park properties. Some of this equipment includes:

- 4x4 vehicle (e.g., Toyota Land Cruiser)
- Motorbikes (e.g., Yamaha AG 100)
- Digital camera
- Personal Data Assistant (e.g., CP3 Juniper Device)
- Smart Phones
- VHF Base radios
- Satellite Phones
- Generator/Solar lighting system
- Awareness equipment (e.g., speakers, megaphone, amplifiers)
- Camping equipment (e.g., tents, sleeping bags, sleep mats, backpacks, headlamps, torch, water bottles, cooking utensils)
- Field safety gear (e.g., boots, Rain gear, field knife, first aid kit)
- Office equipment (e.g., computer, printer, scanners, photocopier, projector, modem, portable recorder, external hard drives)
- Survey/patrol equipment (e.g., camera traps, range finders, binoculars, measuring tape, densometer, drone, GPS, dry bags, power banks, mist nets, sweep net, compass, kayaks, canoes, gloves,
- Sampling kits (e.g., eDNA, water, faecal)
- Weather station (e.g., rain gauge, wind vane, barometer)
- Wildlife acoustic equipment (e.g., song meter, echo meter)
- Reference books (e.g., field guides, textbooks, periodicals)

11. ECO-TOURISM

Ecotourism refers to organized travel and arranged visits to natural environments and habitats to experience exotic, endangered, or otherwise interesting biodiversity in one form or another (TIES, 2000). Ecotourism is intended to contribute to conservation efforts by raising awareness and to create opportunities for local people by providing exposure and generating funds. It is considered a specialty or niche tourism option (DTI, 2010), one with more emphasis on environmentally friendly activities and practices and responsible travel. The World Tourism Organization estimated that the number of people travelling internationally for tourism would rise from 663 million in 1999 to 1.6 billion in 2020 (WTO, 2000). Ecotourism activities have been used by projects in other protected and unprotected areas (by conservation and non-conservation organizations) to create opportunities to explore local biodiversity.

11.1 Eco-tourism facilities at the Park

Currently, there are no tourist facilities within the Park. At the Park HQ, there is an office block, and Warden's house (3 bedrooms), which double as accommodation for tourists. Additionally, the Sapo Conservation Centre (SCC), which opened in 2013, has a campsite with tents on raised platforms that is sometimes used to host visitors to the park. Canoeing services are provided at the Park HQ to take visitors across the Sinoe River into the park, but there are few life jackets, so it is difficult to accommodate large groups.

Plate 1: A paddled canoe trip with two visitors on the Sinoe River

11.1.3 Potential for income generation from tourism

Potential streams of income generation from tourism at the Park are **through** (i) direct revenues, income for the Park through entrance and activity fees, accommodation, and purchases made by tourists; and (ii) employment created for members of the community serving as guides and caterers for tourist.

11.2 Avitourism

Avitourism is a targeted tourism activity, whose clientele include dedicated conservation-minded persons and naturalists and amateurs alike. It refers to visits to natural areas to observe birds, and there are estimated 3 million international trips made every year for birding purposes (DTI, 2000). One notable example of successful ecotourism (specifically avi-tourism) for local communities is the partnership between BirdLife and Rio-Tinto, which resulted in a series of activities involving local communities in management of the area, training of local people to conduct tourism activities and to run small businesses using these skills. The project culminated in the set-up of the Zululand Birding Route (ZBR) in South Africa (BirdLife, 2016), which richly demonstrates the amazing potential of avitourism as a livelihood option, community engagement mechanism, and conservation aid. This could serve as a source document and guide for formations of similar partnerships between the Liberian BirdLife chapter Society for Conservation of Nature in Liberia (SCNL), the Ministry of Culture, Information, and Tourism (MICAT), the Forestry Development Authority (FDA), and other conservation and non-conservation organizations.

One of the main challenges to tourism of any kind in the Sapo National Park is access. Issues around this mean that while there exists the potential for ecotourism of various types, this Plan proposes the development of one specific kind: avitourism (i.e. showcasing the avian life of the Sapo National Park through various activities centered on bird watching). Avitourism, or avian tourism, is travel and tourism that focuses on and highlights local birding opportunities. Avitourism is one of the fastest growing types of environmental tourism, or ecotourism. Considering the current conditions at the park, it is the most appropriate and promising type of ecotourism for which the Park stands to gain the optimum and maximum in benefits (cash, environmental, awareness). This is partly because bird lovers, especially “hard core birders”, are a dedicated breed of tourist who are likelier to risk the described conditions for a chance to experience the area’s unique avifauna (National Audubon Society, 2015). Local wildlife does not need the same economic or artificial support as other types of tourist attractions, and only minimal intervention and investment is often necessary to create a good birding destination.

Hence, with relatively little investment, focusing on identification of hotspots for bird watching in and around the Park, and training of guides, this activity can be started relatively easily. After all, the Park is endowed with the essential product for this industry – a variety of bird species (see Appendix of bird species recorded in the park). The bird watching Industry has a unique class of tourists, in that they are almost entirely motivated by the concern for their own mental and physical health in which outdoor activity is desirable. Many birdwatchers are involved in this industry due to interests in birds ***per se*** as well as photography. It is one of the fastest-growing outdoor activities worldwide (Jones & Buckley 2001). When visiting a destination, birders may spend hundreds of dollars or more in travel costs, accommodations, dining and other incidental expenses. Birding travel also draws attention to local avifauna and other wildlife, which can be beneficial for raising conservation issues and promoting a more sustainable culture and environmental appreciation. Further guidance can be taken from the detailed analysis of bird-watching tourist preferences and requirements done in Australia using questionnaires (Green & Jones, 2014).

In combination with birding opportunities, the Park is also rich in local culture. A major part of most tourism set ups is the incorporation of aspects of indigenous culture (OECD, 2009). The cultural aspect will add value to an already amazing bird watching experience, as the combination of the attraction and the particular culture is rarely found elsewhere.

Many tourism agencies are only just learning how profitable avitourism can be, creating a situation whereby they are seeking partnerships in exotic locations around the world to create a package for their clientele. There is therefore the opportunity to collaborate with foreign and local tour operators, directly or indirectly, to increase the volume of tourism that current takes place at the national park. For example, in the United States alone, the estimated number of birdwatchers is 48 million and more than 17 million of them are willing to travel out of the country for birding activities (IBE, 2017). Paddle canoes can be used for bird watching trips and some of the Observation Structures discussed below (Management Issue No. 68) will benefit Avitourism.

Management Issue No. 60: Avitourism	
Policies	**Actions and guidelines**
Avitourism will be the focus of Ecotourism in Sapo National Park.	AG. Identify areas of high bird density that can serve as the focus of the bird watching trips AG. Complement existing information on the location of various bird species with a survey to understand niche occupation by various bird species
Local capacity will be built in all applicable areas.	AG. Selected individuals from surrounding communities in each of the Park's administrative zones will be trained to serve as guides for tourists. AG. Develop and employ a clear set of criteria to identify, select, train and recruit tourist guides from each of the 3 administrative zones of the Park.
As a National Park, there are certain constraints on activities which the Park must adhere to.	AG. Develop and enforce rules to govern how birdwatchers should behave while in the Park.
Promotion of local culture and environment will be a part of the Avitourism structure	AG. Potential tourists from around the world will be educated about Liberia and the Park prior to their visit to the country and eventually in the Park to avoid "cultural shocks" and other surprises which uninformed visitors normally have. AG. Prepare brochures, leaflets and any other documents to market the Park, particularly the areas where birdwatchers should go for birding and the types of accommodation and security available to them.

11.3 Observation Structures

Observation structures are viewing platforms built to offer observers a better chance at seeing otherwise elusive or dangerous animals. These hides are ideal for tourists who would like a more restful way of viewing wildlife, particularly birds, and will provide them a vantage point for those higher- and mid-level canopy species.

Management Issue No. 61: Observation Structures at the Park.	
Policies	**Actions and guidelines**

Observation structures will be constructed at vintage points within the Park and will consist of: ***Observation hides:*** To help improve the chances of visitors seeing wild animals; it is desirable to build one or more game viewing and/or bird watching hides at suitable locations along the trails and rivers. ***Viewing platforms:*** To enhance the visitor's enjoyment of interesting features, such as large trees, waterfalls and pools. ***Observation towers:*** A tall, three-level (ground, mid canopy and emergent level) observation tower will be constructed on the side of a suitable hill/mountain (e.g., near camp Congo, Doodwicken boundary, or Gambo area) offering good views of the surrounding forest canopy. Priority will be given to those structures, which require little effort to build, and which are unobtrusive and do not disturb the routine of any species or cause significant damage to the landscape.	AG. Construct a few pilot tree hides and monitor their use. AG. Prepare a map for all the observation structures (observation hides, viewing platforms, observation towers, feeding stations etc.) to educate visitors about them. AG. Ensure that adequate restrooms are available and well maintained and equipped at all times when tourists and other groups are to be accommodated at the HQ or Zonal camps. AG. Document and match the frequency of visits with the types of animals visited. AG. Set up a monitoring system to capture any difficulties with access to the site, prevailing wind direction while accommodating visitors, and "due diligence" for safety. AG. Monitor the use of tree and other hides to ascertain their reliability and safety for tourist use.
The private sector will be allowed to build and or manage additional hides, subject to FDA approval.	AG. The private sector will be advised to submit any plans and evaluation to the FDA concerning the construction of hides, which it wishes to undertake.

11.4 Development of Trails, Tracks and Features

There are approximately 200 km of tracks in the Park, of which about 100 km can be used as relatively easy patrol and tourist tracks. These can be developed into levels based on the tourists' abilities and preference, with easily accessible trails for beginners, and not so easy trails, which will be used by only experienced nature-lovers.

Management Issue No.62: Development of Trails, Tracts and Features at the Park	
Policies	**Actions and guidelines**
Based on an assessment for suitability, some areas of the Park will be accessible, and this will be done without undue damage to the integrity of the biodiversity of the Park.	AG. Map out existing tracks and ascertain that future features are also mapped out when constructed. AG. Where necessary, additional tracks will be created to facilitate patrols and to link places of interest to tourists and other Park visitors. However, all paths through the Park will remain footpaths. AG. As much as may be deemed necessary, create new tracks to enable tourists to have access to the interior and other interesting sites within the Park.
FDA will bear responsibility for maintaining all tracks	AG. The FDA will bears full responsibility for maintaining and supervising all tracks within the Park

11.5 Tourist Camp Development

At present, camping facilities exist only in Zone 1, where the Park Headquarters and FDA offices are located. However, tourists with tents can camp anywhere with the permission of the FDA. Hence, in the short term, action should be taken to established campsites across the three zones of the park to support accommodation. In the longer term, efforts can focus toward establishing permanent structures for those tourists who might not prefer camping in the rainforest.

In order to promote Avitourism and in the Park, the needs of tourist must be considered.	AG. Construct camping platforms or designate areas as campsites in the other three zones and make tents available for rent to those tourists who may need them. AG. Construct tourist rest stops or Set up a system of co-habitation with tourists staying with local people, thus deepening their submersion in the culture of the people of Sapo.

11.6 Tourist Activities & Guide Services

Walking tours (hiking) can be one of the main activities for visitors to the Park. This will undoubtedly be closely linked to other activities, such as research, game viewing, bird watching, butterfly watching and the simple and relatively unique experience of a rainforest. Visitor use of the Park has been mostly for research, with the few tourists arriving mostly on opportunistic basis. Park visitors are accompanied into the forest with unarmed ranger guides, who try to assist the visitors' various wishes. The trips do not follow any set pattern or procedure, but are arranged on an *ad hoc* basis, and the unexpected visitor could expect confusion and bureaucratic delay during the process of obtaining entry.

Management Issue No.64: Tourist Activities and Guide Services.	
Policies	**Actions and guidelines**
The primary aim of visits to the Park will be to provide a comprehensive and satisfying choice of recreational experience to enhance the visitor's enjoyment and understanding of the forest, and at the same time serve as a source of revenue to the Park and local communities.	AG. Some rangers should be given basic training in tour guiding, with variations on bird-focused, culture focused, and a combination of the two. AG. Some rangers should be trained to identify birds, and paired with those nature enthusiasts who are not already experienced birders. AG. When tourists visit more frequently, the private sector and community members should be encouraged and supported to provide guiding services. AG. Some rangers should be trained to guide canoes along with river. This is ideal for those birders who wish to see water birds. AG. Simple handholds should be placed along the trunk of suitably stout trees, and ropes made available for climbing. In addition to a unique view of the park, this will serve as an activity in its own right. AG. Local farmlands should be surveyed regularly, so that Park management maintains knowledge of farm birds, especially migrants,

	which are often of interest to European birders.
Rangers should accompany all tourists who wish to enter the park.	AG. Additional rangers and community members should be trained as guides if need be in the future.
Cultural tourism is to be encouraged and combined with eco-tourism.	AG. Implement a Code of Practice for tourism staff and include a guide-training manual to raise standards.
Guided game viewing walks will be continued and gradually privatized when new facilities are operational.	AG. Broaden the knowledge base of rangers about animals and birds by training them on the use of field guides, using reference books such as "Kingdom" and "Burrow and Demey".
When their new facilities are operational, private operators will train their own guides, primarily from the Park fringe communities.	AG. Management should monitor and evaluate standards and visitor satisfaction.
Potential key tourist and guide services: • **Research Tourism,** wildlife and nature tourism based on scientific research undertaken in Protected Areas. • **Hiking,** a relatively safe activity that involves walking through the rainforest. Much of the enjoyment of a rainforest is being able to wander quietly through the forest. • **Viewing wild animals,** an activity that can be done both during the day and night should be linked to the various observation points or beside the established trails. • **Canoeing,** an activity possible to a limited extent on the waters of the Sinoe River. **Sport/trophy hunting is** not recommended for the life of this management plan, as although allowed under the wildlife law of 2016, there is a need to conduct baseline studies on animal populations and distribution before such action can take place Community-based sport fishing can be developed for stretch of the Sinoe River from Fonioh's town to the Wanna Creek confluence.	AG. A tourism officer should be designated to maintain the parades each morning and afternoon, to ensure that the guides are well-dressed, punctual and sober. AG. Minimal fees for all the activities listed under "Potential key tourist and guide services" will be charged and suitably trained rangers will be authorized to offer guide services to tourists. AG. When tourists report to the HQ the CPW should arrange for them to be accompanied by a guide. AG. Conduct baseline survey to determine population and distribution of potential trophy species

11.7 Visitor Safety

There are several safety issues which visitors to the park need to be informed of to ensure their safety. For example, walking tracks will be uneven due to the presence of roots, with some parts of the forest becoming flooded, especially during the wet season It is, therefore, important to ensure that tourists understand these risks before embarking on a visit within the park.

Management Issue No.65: Visitor Safety at The Park	
Policies	**Actions and guidelines**
Design and implement a visitor safety program for all visitors to the Park, simplify to a list of '*dos and don'ts'.*	AG. Make available to visitors a checklist of *dos* and *don'ts* to promote their wellbeing when visiting the park AG. Require visitors to sign a form to indemnify FDA in the event of an accident or death.
The aim of the Park's visitor interpretation program is to bring visitors to a point where they will fall in love with the forest, understand and appreciate its value and complexity, and where possible contribute to sustaining it.	AG. Design brochures that are reflective of the reality on the ground in terms of what management would want visitors to see as per the purpose for having visitors at the Park in the first place. AG. The CPW and Tourism Officer should liaise with the Tourism and Awareness Division of the FDA to ensure accuracy of brochures.
Inexpensive or free information should be made available to tourists to improve their appreciation of the wildlife and the park. Such information could be gathered from sources such as reports, surveys and results from future research.	AG. Prepare and disseminate a wide variety of publications among tourists such as visitor maps, interpretative booklets on self-guided trails, checklists for birds, mammals, etc., educational pamphlets and leaflets containing guidelines on health, and safety. AG. Design a feedback mechanism for the various types of visitors to the Park and monitor feedback to leaflets so that current and future improvements can be made.

The Park will be advertised through professionally produced brochures, which should be distributed through travel agents, airports, and hotels etc. Information documents should be updated every two years.	AG. Complete and edit the report on "Tourist attractions" into a simple leaflet with a map and reproduce copies of the Visitors' Guide and checklist of birds and other flagship species.
A cadre of suitably trained, skilled and licensed Tourist guides, comprising certain FDA staff and/or individuals drawn from local communities, will be established in Sapo NP.	AG. Produce copies of the mammal, reptile and butterfly checklists and produce the map showing features of interest and the tracks in the Park.

11.8 Directional Signs

All major road junctions should be signposted so that it is easy for tourists to find their position on a map. Maps of the route to the park can be made available through some agent in Monrovia (such as aforementioned partners). The billboards installed along the major roads around the Park in the past 5 years should be maintained. Since they are too few, other directional signs should be made with simple designs for purposes of this Plan.

Management Issue No.66: Directional Signs.	
Policies	**Actions and guidelines**
Signs will be erected at key places to help visitors orientate themselves, locate features of interest, indicate the services provided, and access conditions and regulations pertaining to Park use.	AG. Erect and protect the signs on the main road to the Park from fire by making sure that no bushes grow around them, especially during the dry months of the year. AG. The on-site signs will complement centralized displays such as those at the Visitor Center at the HQ of the Park
Signs posted along roads will be as conspicuous as possible to draw attention to them, but those in the Park will blend with that environment as much as possible, with emphasis on the use of local materials. Within the Park, signs will be placed at appropriate vantage points to provide information on directions and regulations. Maps with a '*you are here'* feature will be posted at strategic locations across the park	AG. Produce wooden signs and have them placed at all the major junctions of tracks and paths to keep the visiting public informed. AG. Exercise care so that signs are tailored to the local context of the communities in which they are installed. AG. Provide visitors with a gridded map of the park that also shows surrounding communities, so that in the event of getting lost, they could make their way to a population center

11.9 Marketing and Advertising

Most tourists first hear about the Park from the Internet, or from travel guides such as the Bradt Guide and 'Lonely Planet' series. Sometimes, too, they hear of the Park from in-country sources such as tour operators or professional colleagues (especially in the expatriate workers community). Such sources of information are generally accurate, though are often not up to date or based on speculations. A webpage can be developed which provides up-to-date information on the Sapo National Park, biodiversity, management, challenges, importance, and most importantly for this section, available tourism options. This webpage would be updated regularly based on activities and projects going on in the area, and managed by a person or organization to be designated by the FDA and partners. The final step would be to integrate or link it with websites of the FDA, other government, NGOs, and conservation and tourism stakeholders.

The SNP brochure which divulges basic information about the Park and its attractions, should be made available to travel agents, hotels, and airports. The development of this brochure will aid in increasing the awareness of Park visitors, before and as they arrive at the Park HQ, as well as in bringing tourists to the Park.

Management Issue No.68: Marketing and Advertising.	
Policy	Actions and guidelines
A website will be developed to serve the Park's overall marketing strategy. It will be integrated with the FDA website.	AG. Advertising billboards about the park should be placed in strategic locations in the capital, including at the international airport to attract potential tourist AG. Park management should always correct and comment on draft texts created by the awareness and eco-tourism department of the FDA, or other sources seeking to attract visitors to the Park. AG. Distribute widely in print and electronic form the SNP brochure.

11.10 Code of Conduct for Park Visitors

Visitor safety and enjoyment of the Park are very important. To ensure a pleasant and successful visit, it is essential that all visitors adhere strictly to Park and community regulations, which are intended for their protection and enjoyment.

Management Issue No.69: Code of Conduct for Park Visitors	
Policies	**Actions and guidelines**
Park management will produce a visitor's Code of Conduct for distribution to and observance by all visitors. Visitors who fail to comply with the Code of Conduct will be asked to leave the premises of the Park.	AG. For the sake of efficiency, make sure copies of the Visitor Code of Conduct is available in all visitor accommodation. For camp sites, make sure the short version is printed and posted so that all may read, and ensure tour guides point these out as a part of visitor Orientation. AG. Issue copies of Visitor Code of Conduct to all visitors at the time of registration.

12. IMPLEMENTATION OF THE MANAGEMENT PLAN

This Plan is assembled in view of the ability and willingness of the Government of Liberia, and of the continued support of development partners, to adequately resource the Park. The batch of donor-funded projects in and around the Park from 2000 to 2011 was mainly intended to re-start management operations under contemporary integrated conservation and development conditions, in which stakeholder participation played a definitive role. More recent initiatives have been led by FFI (2012 – 2016) with support from the UK Darwin Initiative, US Fish & Wildlife Service, Basel Zoo and the Arcus Foundation, and have focused on biomonitoring research, building capacity of Park staff and Liberian forestry professionals and students. However, due to increasing threats to the Park, particularly with the incursion of illegal miners and a spike in hunting activities as a result, the GOL and partners are now working towards stabilizing the Park and re-commencing full operation of Park activities through the Liberia Forest Sector Project (World Bank 2016), funding from the Arcus Foundation (FFI 2016), and through the West Africa Biodiversity and Climate Change (WA BiCC) Project funded by USAID (FFI, 2018). These will support implementation of this Management Plan for the next 5 years (2018-2023), ensuring consolidation of achievements of previous interventions to enable the Park to play its lead role as the centre of excellence for contemporary protected areas management in Liberia.

12.1 Funding Mechanisms

The means of funding to be used for implementation of the various actions listed in this plan will include budgetary allocation from the government, donor funding and in what will be a positive feedback loop, fees obtained as a result of implementation of the ecotourism actions in this plan.

12.2 Training of Park Staff for Management Plan Implementation

This activity will have short-term and long-term objectives. For the short-term, Park management and rangers should be guided through this Plan during a training workshop. A training on Management Plan implementation and annual work planning should be carry out for Park management and rangers once this Plan is finalized and endorsed for use in the Park. In the longer term, suitably qualified individuals with recognized and time-tested competence will be recruited as senior rangers and trained to support Park management in operations and implementation of the Plan. Opportunities should be created for long-term internal or external training.

Management Issue No. 70: Training of Park Staff for Management Plan Implementation.	
Policies	**Actions and guidelines**
The management of the Park and rangers will be made aware of the mechanisms outlined in this plan.	AG. Host a short training workshop to guide Park management and rangers through the plan. AG. Hold training to draw the rangers' attention to their particular areas of assignment, that is, tourism rangers are trained additionally on Chapter 11, law enforcement and patrol rangers

	on Chapter 6, Biomonitoring rangers on Chapter 5, and so on.

12.3 Annual Work Plans and Cost Estimates

At the start of each of the five years of the Plan, an Annual Work planning workshop will be carried out led by the FDA, with the participation of Park and NGO staff and community members. A one-year work plan will be prepared before activities begin in a given year through a thorough and detailed planning session reviewing and identifying yearly activities and discussing their feasibility based on available funds. Where the total budget of implementing the Plan is available, a corresponding cost is re-estimated for each year during the planning process.

12.4 Monitoring and Evaluation

12.4.1 Monitoring Progress

An important factor in the successful management of the Park will be regular, internal assessment of progress. Monitoring of progress should be undertaken on: (i) Activities the Management Plan proposes, (ii) Annual Work Plan, and (iii) An individual output level. Quarterly Park Management Meetings will be held to review progress in activity implementation and overall performance of the Park. The minutes of these meetings will form an important source of reference material when the final review is carried out as part of each Annual Work planning. An annual staff appraisal will be conducted to ascertain staff efficiency and training requirements.

12.4.2 Evaluation of management performance and effectiveness

Protected areas worldwide have adopted the protected areas Management Effectiveness Tracking Tool **(**METT). This has been successfully adopted in Liberia since 2010 by the efforts of IUCN. METT emphasizes management issues such as law enforcement, and information systems and financing, with little if any attention paid to social impacts. What is missing in the existing assessment framework such as METT is a comprehensive way to analyze the benefits and costs that local people experience and the impact these have on their wellbeing. The Plan proposes in addition to METT, Social Assessment of Protected Areas (SAPA) as an approach to evaluating management effectiveness in relations to communities' engagement with the Park at the end of this management period. It is an approach that enables users to identify appropriate indicators and tools to capture, measure, and analyze social impacts. SAPA is primarily aimed at protected area managers – state, private, family or community, enabling them to improve both policy and practice (Franks & Small 2016). The METT-SAPA partnership will serve as an additional tool for evaluating and upgrading the Plan.

12.4.3 Review and Update of the Management Plan

Based on reviews of performance and continuous monitoring, modifications to the actions within the plan will be recommended. This recommendation will be made prior to the development of each annual work plan so that actions for each year can be adapted based on the experiences of previous years and of changing circumstances or new knowledge. In the final year of implementation of the Plan, a full review will take place of the achievement of the Plan's goal and objectives and this should be incorporated into the next planning cycle. Modifying and updating this Plan, including its policies and

objectives, can only be carried out by the production and publication of a new Plan that will be approved by the FDA Managing Director.

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APPENDICES

ANNEX 1: Full list of Endangered species in the Sapo National Park

ANNEX 2: Park Extension Law

ANNEX 3: Buffer Management Strategy

ANNEX 4: Law Enforcement Strategy

ANNEX 5: Bird species recorded in the Sapo National Park

Annex 6: Estimated costs /Budget and Time frame for activities