

## **CEPF Final Completion and Impact Report**

<b>Organization's Legal Name:</b>	Fauna & Flora International - HQ
<b>Project Title:</b>	Developing Liberia's Capacity for Effective Conservation of the Pygmy Hippopotamus
<b>Grant Number:</b>	CEPF-100793
<b>Hotspot:</b>	Guinean Forests of West Africa
<b>Strategic Direction:</b>	3 Safeguard priority globally threatened species by identifying and addressing major threats and information gaps
<b>Grant Amount:</b>	\$259,906.66
<b>Project Dates:</b>	August 01, 2017 - March 31, 2021
<b>Date of Report:</b>	December 15, 2021

### **IMPLEMENTATION PARTNERS**

Forestry Development of Authority – A national government authority is responsible for conservation activities in Liberia; they were involved in project coordination and implementation of field activities. As the custodian of Liberian forest per se, which was the focus of the intervention, they had overall responsibility for facilitating and supervising field activities.

Society for the Conservation of Nature in Liberia – Implementing partner; they facilitated and supported the pygmy hippo monitoring protocol development and field activities; sharing of PH data.

Partners in Development - Implementing partner, who led the implementation of awareness-raising activities across fringe communities in SNP.

Wild Chimpanzee Foundation - Implementing partner; they facilitated and supported the pygmy hippo monitoring protocol development and field activities; sharing of PH data.

Farmers Associated to Conserve the Environment and Forest Cry Liberia - Implementing partners, collaborated in the development of pygmy hippo monitoring protocol, the interns participated in PH monitoring training sessions.

Gola Rainforest Conservation LG – Implementing partner, transboundary exchange visits; collaborated in developing pygmy hippo monitoring protocol; sharing of PH data.

Species Working Group of Liberia – This is a national multi-stakeholder platform comprised of governmental and non-governmental sector representatives supporting and coordinating conservation activities. FFI co-chaired this group until August 2020.

Community Auxiliaries – Supported field surveys and awareness-raising activities; participated in PH monitoring protocol and other relevant pieces of training.

Royal Zoological Society of Scotland WildGenes – Professional services for genetic analysis of PH dung samples; shared training materials on sample collection

Naturemetrics UK – Professional services for genetic analysis of eDNA samples; training on sample collection

## CONSERVATION IMPACTS

Planned Long-Term Impacts: 3+ years (as stated in the approved proposal)

Impact Description	Impact Summary
<p>Increased knowledge and awareness of pygmy hippopotamus throughout the project leads to acceptance and designation of the species as a national animal for Liberia.</p>	<ul style="list-style-type: none"> <li>• FFI worked with other conservation partners to organise and increase knowledge and awareness of PH in Liberia and across the transboundary areas. The following activities were carried out as part of a public awareness-raising campaign.</li> <li>• Over 5795 people were reached during the project. FFI carried out public awareness through various mediums in collaboration with local community groups, including Eco-champions, Cultural troupes, Environmental Education Nature Clubs.</li> <li>• FFI commissioned 3 murals, installed 3 billboards and signage, broadcast 10 radio programmes materials such as protected species posters, calendars and flyers/leaflets (over 2000), T-shirts (500) and other promotional materials.</li> <li>• During the PH Conservation Strategy workshop, recognition of PH as a national flagship species was once again raised and the meeting was broadcast over the radio. A final workshop organised at the end of this project to present project results, particularly the importance of forest corridors in pygmy hippopotamus conservation, was also publicised in 2 newspapers, giving national recognition to the species.</li> </ul>

Planned Short-Term Impacts: 1 to 3 years (as stated in the approved proposal)

Impact Description	Impact Summary
<p>Previously lacking data on PH population status for Liberia contributed to the IUCN Redlist by end of project.</p>	<ul style="list-style-type: none"> <li>• FFI completed pygmy hippo (PH) surveys (questionnaire and reconnaissance surveys) to collect data on PH presence, and dung samples for genetic analysis in 7 KBAs - Sapu National Park (NP), Cestos Senkwehn Proposed Protected Area (PPA), Wonegizi PPA, Wologizi PPA, Foya PPA, Grebo-Krahn National Park (in Liberia) and Zياما Man and Biosphere Reserve in Guinea.</li> <li>• A total of 1255 PH records were documented as a part of the PH recce survey in SNP, Cestos-Senkwen PPA and Wologizi PPA, 199 communities (1680 respondents) were administered the PH</li> </ul>

Impact Description	Impact Summary
	<p>community questionnaire survey, • Faecal Sample collection - 80 faecal samples were collected across the various sites, 20 Environmental DNA samples collected from one site.</p> <ul style="list-style-type: none"> <li>• FFI collaborated with partner organizations in transboundary areas, Gola National Park, Sierra Leone and Tai National Park in Cote D'Ivoire to collect information on PH presence for updating the PH Regional Conservation Strategy.</li> <li>• Results will be used to update information on PH in the IUCN Redlist. The IUCN Hippo Specialist Group co-chair participated in the PH Regional Conservation Strategy workshop hosted by FFI under the USAID-WABICC grant. He has been in correspondence with FFI regarding contributing to an ongoing PH paper.</li> </ul>
<p>Critically needed support for the protection of SNP provided by end of year 1 through enhanced capacity of a minimum of 40 park staff in law enforcement.</p>	<p>This project supported the protection of SNP through the following interventions:</p> <ul style="list-style-type: none"> <li>• Recruitment of a Technical Specialist Protected Area Management for SNP through co-funding from USAID-WABICC. The Technical Specialist worked closely with the SNP management for the development of effective law enforcement strategy and to ensure regular and systematic patrols are ongoing in the park</li> <li>• Law enforcement strategy developed for SNP</li> <li>• Training for park rangers in GPS, computer literacy, use of the Spatial Monitoring and the Spatial Monitoring and Reporting Tool (SMART) and cyber tracker, facilitated by the Zoological Society of London (ZSL).</li> <li>• Monthly coordination meetings, including refresher training, conducted with rangers in SNP to ensure accurate data collection and management and inform the next patrol planning based on the patrols' results.</li> </ul> <p>As a result of the interventions in SNP, ZSL has identified SNP as a key site for the roll of a new version of SMART and continues to provide technical support focused on the rangers' problems in using the device and difficulties encountered in using the software.</p>
<p>A minimum of five priority actions identified under the Liberia PH NAP, including capacity development, increased awareness, PH monitoring and survey, improved transboundary cooperation and mapping of PH</p>	<ul style="list-style-type: none"> <li>• FFI recruited a Biomonitoring Assistant to support mapping of PH distribution and connectivity.</li> <li>• Eight Liberian Interns recruited, trained and mentored on basic statistics and GIS course, data management, use of SMART, data management, analysis, and report writing.</li> </ul>

Impact Description	Impact Summary
<p>population distribution and connectivity, are implemented by end of project.</p>	<ul style="list-style-type: none"> <li>• 10 training workshops were organized for relevant stakeholders on ecological techniques, PH monitoring protocol, camera trap surveys, and line transect survey.</li> <li>• FFI collaborated with partner organizations engaged in PH research and monitoring survey methods and data collection in Sierra Leone, FFI Guinea team and Cote d'Ivoire.</li> <li>• Revised PH Regional Conservation Strategy document completed.</li> <li>• Two Landscape-Level Assessments conducted for the northwest (USAID-WABiCC grant) focused on key threatened species and southeast focused on PH (PH Foundation grant).</li> <li>• As part of promoting PH as a flagship species for Liberia, radio shows broadcasted, installation of two protected species billboards, three murals, 2000 Liberia protected species posters, 55 copies of 2016 National Wildlife Conservation and Protected Area Management Law, and amended 2012 Penal Law on Environmental Crime, etc.</li> <li>• Under the USAID-WABiCC and IWT Challenge Fund, FFI participated in the Transboundary Law Enforcement Technical Committee.</li> </ul>
<p>Information on PH occurrence data, distribution and population estimates for at least eight KBAs in the Cestos-Sapo-Grebo-Tai-Cavally and Lofa-Mano-Gola Corridor areas compiled by end of year three</p>	<ul style="list-style-type: none"> <li>• One publication has been submitted to Oryx on the status of PH on the data before the project implementation.</li> <li>• PH data across range states collated and compiled to update the map for PH current status to update the PH Conservation Strategy document.</li> <li>• Data from PH community questionnaire and recce survey across 5 KBAs analysed.</li> <li>• Data on PH presence and distribution from 3 KBAs in Sierra Leone, Cote d'Ivoire and Guinea provided for the PH Regional Conservation Strategy development.</li> </ul>
<p>A minimum of 45 people have increased capacity for pygmy hippopotamus survey and monitoring by the end of project</p>	<p>140 persons (including 5 FFI staff) were trained in PH survey and monitoring.</p> <ul style="list-style-type: none"> <li>• 25-27 Feb 2019 - FFI organised and hosted the first Pygmy Hippopotamus Monitoring Workshop with 27 participants from FFI and partner organisations in Liberia and Sierra Leone. The workshop was co-facilitated by all partners on the project, FFI, WCF, SCNL, and RSPB.</li> <li>• At the workshop, a harmonised PH monitoring protocol was produced for the range states.</li> <li>• 7-8 Mar 2019 - A two-day PH workshop was organised in Guinea (Seredou) facilitated by FFI Liberia technical staff for 10 people.</li> <li>• One ranger from SNP was supported to attend the World Ranger Congress in Nepal.</li> </ul>

Impact Description	Impact Summary
	<ul style="list-style-type: none"> <li>• A training on biomonitoring and PH Monitoring protocol was held from 19-23 March 2019 in Wonegizi, funded by WA BiCC for 33 people.</li> <li>• Other partner organisations conducted training on the PH monitoring protocol for 14 persons (WCF on 16 Mar 2020 for 6 people, SCNL on 29 Jul 2020 for 8 people). FFI provided logistical support through the CEPF funds.</li> <li>• 11 persons were trained on eDNA sampling methodology and data collection.</li> <li>• 45 persons participated in various pieces of training, including a residential course on ecological sampling (15), a short course on basic statistics (17), introductory ArcGIS (13), camera trapping survey (48).</li> </ul>
<p>Number of law enforcement patrols by trained and equipped park rangers in at least one KBA (SNP) increased from less than one to 18 per month, leading to improved management and protection of SNP by end of project.</p>	<p>SMART-tailored law enforcement patrols using the new law enforcement strategy commenced in January 2019, after FFI recruited the TS PA Management. The total number of patrols conducted for the reporting period was 137. The total distance covered from January 2019 to March 2021 was 6863.16 km, and patrol hours of 13551.01. From January 2019 to March 2021, rangers recorded 2268 different types of threats during the patrols that included illegal NTFP collection (28), snares/traps (93), firearms (7), spent cartridges (755), mining camp (23), hunting camp/shelter (315), human footprint (176), hunting trail (800) and gun sound (53). In addition to signs of human presence found in the park, rangers had a direct encounter (20) with people (hunters and miners) inside the park. Fringe communities living around the SNP have played an essential role in the surveillance of the park collaborating with the rangers resulting in the seizure of 162 bodies of bushmeat and the confiscation of 13 live animals, and 11 arrests and two prosecution. It is with caution we have to analyse the patrol data, as an increased or decreased number of snares, for example, does not mean that there is a lot of hunting practices or there is a reduction in hunting because of the increased patrol coverage.</p>
<p>A minimum of four priority actions identified under the PH RCS, (known populations effectively protected, PH status assessed, key corridors identified and poaching pressure reduced) are implemented by end of project</p>	<ul style="list-style-type: none"> <li>• PH data from earlier surveys analysed to inform landscape-wide surveys and submitted to Oryx to consider for publication.</li> <li>• Non-matched funding (USAID WABiCC) was secured for work in the two forest corridors, Cestos-Sapo-Grebo-Tai-Cavally and Lofa-Mano-Gola Corridors, which provided funding for strengthening law enforcement in Ziama (Guinea), Wonegizi and Sapo NP (Liberia). In Wonegizi, FFI established a</li> </ul>

Impact Description	Impact Summary
	<p>community-based forest patrol and biomonitoring programme, recruiting 39 community auxiliaries.</p> <ul style="list-style-type: none"> <li>• FFI coordinated the gathering of information and assessment of PH status across the range states for the PH Regional Conservation Strategy (RCS) and hosted a workshop bringing together over 80 participants, government and conservation practitioners from the 4 range states to update the 2010 RCS. USAID-WABiCC funded the workshop.</li> <li>• PH monitoring implemented in Sapo National Park, Grebo Krahn National Park, Cestos-Senkwehn Proposed Protected Area (PPA), Grand-Kru Rive Gee PPA, Wonegizi PPA, Wologizi PPA, Foya PPA, Massif du Ziama MAB Reserve.</li> <li>• Two separate Landscape Level Assessment for northwest (USAID WABiCC) and southeast (Pygmy Hippo Foundation) was carried out, highlighting the land cover and habitat suitability modelling for species survival and forest connectivity.</li> </ul>
<p>A nationally harmonized biomonitoring and law enforcement strategy developed and endorsed for Liberia by end of project.</p>	<ul style="list-style-type: none"> <li>• The FFI Technical Specialist Protected Area Management for SNP has developed a law enforcement strategy for Sapo NP to effectively implement regular and systematic patrols. The plan to harmonise LE strategies nationally using SMART is ongoing, led by the FDA.</li> <li>• A PH monitoring protocol was also developed and agreed upon by partner organisations working across the four range states, harmonising methodologies applied in the individual countries.</li> <li>• FFI hosted 11 and participated in one SWGL meetings, hosted two LESC meetings and participated in 18, participated in one transboundary LE technical, 4 BMSC meetings and 3 PASC meetings.</li> <li>• The SWGL was presented to other country delegates at the PH Regional Conservation Strategy planning workshop in July 2019 for replication in the other range states.</li> <li>• Through the LESC, the group identified regulations for the National Wildlife Conservation and Protected Area Management Law. The law was reviewed by the LESC with the assistance of an international law firm DLA Piper, being subsequently validated by the CITES Secretariat as CITES-compliant. To operationalise the law, FFI contracted the service of Heritage Partners and Associates and a draft regulation for the wildlife management component of the law was submitted to the FDA.</li> </ul>

## **Unexpected impacts (positive or negative)?**

FFI collaborated with NatureMetrics Company, the pioneers of DNA-based biodiversity assessment, to conduct Environmental DNA (eDNA) pilot surveys for pygmy hippopotamus. The survey was funded by Pygmy Hippo Foundation grant for Grand Kru-River Gee PPA and Species Foundation grant for Wonegizi PPA and Ziama MAB

eDNA as a monitoring tool was not considered a detection tool for pygmy hippos when drafting the monitoring protocol. The survey piloted in Grand -Kru River Gee PPA detected pygmy hippos in ten sample sites out of 20 sample sites. Along with pygmy hippos, 166 vertebrate taxa were detected, including critically endangered species killifish, five endangered species (Tai toad, African grey parrot, Diana monkey, Western red colobus, and Jentink's duiker) and six vulnerable and six near-threatened species.

A similar eDNA survey was piloted in Wonegizi PPA and Ziama MAB with pangolin as focused species. The analysis of the samples detected 112 taxa, including the endangered white-bellied pangolin and Baer's wood mouse, vulnerable Madeiran Sardinella, carp, red spotter panchax, and Ziama Torrent-frog, and the near-threatened African clawless otter, African straw-coloured fruit-bat, dark-brown serotine, bay duiker, and spotted-necked otter. Positive results from the eDNA survey have resulted in the tool being included in the pygmy hippo monitoring protocol and considered a cost-effective rapid assessment tool for biodiversity monitoring.

The result from PH dung samples for individual identification was not as expected at the start of the project. The nature of PH dung samples requires a more robust method of SNP extraction for individual identification of the PH from the samples. Also, the extraction and delivery of samples need to be more time-bound to eliminate the degradation of the samples for analysis.

## **PROJECT RESULTS/DELIVERABLES**

### **Overall results of the project:**

- The project enabled the development of the first standardised regional pygmy hippopotamus monitoring protocol, developed and agreed upon by partner organisations working across the four range states, harmonising methodologies applied in individual countries.
- Training of 140 persons (including 5 FFI staff) in PH survey and monitoring. Additionally, 45 persons (including two FFI staff) participated in various pieces of training, including a residential course on ecological sampling (15 students), a short course on basic statistics (19 participants), introductory ArcGIS (14 participants), camera trapping survey (50 participants).
- Training and mentoring of eight interns as part of a structured residential internship program based at the Sapo Conservation Centre, with trainees exposed to a suite of conservation and protected area management topics.
- Following the developed monitoring protocol, FFI completed pygmy hippo (PH) surveys (questionnaire and reconnaissance surveys) to collect data on PH presence and dung samples for genetic analysis in 7 KBAs. Updated map for PH present current status across its range states developed and included in the PH Conservation Strategy document.
- Environmental DNA (eDNA) survey was piloted as a monitoring tool to detect pygmy hippo in Grand Kru River Gee Proposed Protected Area (under PH Foundation grant). Out of 20 sample sites, the pygmy hippo was detected in ten sample sites.
- Two Landscape Level Assessment for northwest (USAID-WABiCC grant) focused on key threatened species and southeast focused on PH (PH Foundation grant) of Liberia,

highlighting the land cover and habitat suitability modelling of habitats for species survival and forest connectivity.

- During the project period, SMART-tailored law enforcement patrols using the new law enforcement strategy commenced in January 2019, resulting in 107 patrols equalling 3697 person-days covering 7567.71 kilometres (January 2019 - March 2021).
- The project supported co-funding for two rangers, and FFI's Technical Specialist (PAM) attended the 9th World Ranger Congress held in Nepal in November 2019, representing Liberia for the first time in this conference.
- Facilitated, participated in and enhanced the activities of the national Species Working Group of Liberia and associated sub-committees – law enforcement, biomonitoring, plant and animal
- Over 5795 people were reached during the project due to public awareness campaign in collaboration with local community groups and international partners across the landscape.
- FFI carried out public awareness through various mediums in collaboration with local community groups and international partners across the landscape, i.e. including Eco-champions, Cultural troupes, Environmental Education Nature Clubs.
- Also, FFI commissioned three murals, installed three billboards and signage, broadcast ten radio programmes and printed and distributed materials such as protected species posters (1000), calendars (100) and flyers/leaflets (over 2000), T-shirts (500) and other promotional materials.

**Results for each deliverable:**

<b>Component</b>		<b>Deliverable</b>		
<b>#</b>	<b>Description</b>	<b>#</b>	<b>Description</b>	<b>Results for Deliverable</b>
1.0	Build capacity of relevant national government, non government and academic institutions in Liberia for research and protection of the PH, building on existing regional and international networks.	1.1	By end of 2017, at least 15 students have increased skills in ecological sampling and data analysis based on a mix of field and class lectures as demonstrated by a training report, PPT presentations, photos and feedback forms.	<p>This activity is overachieved. During this reporting period, a total of 45 persons (including two FFI staff) were trained in various subjects and 639 University of Liberia students were taught on the Biodiversity conservation modules</p> <ul style="list-style-type: none"> <li>• One residential field course held at Sapo Conservation Centre – 15 students (8 male and 7 female) participated in the course</li> <li>• Residential Internship and Mentoring – Nine interns (6 male and 3 female) were trained under this initiative</li> <li>• Other training included introduction to statistics, GIS training, camera trap protocol training including camera trap image tagging for data input for various stakeholders that included FDA staff, interns, university/college students, graduates and FFI staff).</li> </ul>
1.0	Build capacity of relevant national government, non government and academic institutions in Liberia for research and protection of the PH, building on existing regional and international networks.	1.2	By end of 2017, at least 35 NGO staff have improved skills in PH data collection based on field practicals, demonstrated by a training report, photos and pre- and post- workshop feedback forms comparing competences before and after training.	<p>This activity is overachieved. Over 100 (about 111) individuals were trained on various topics, including communication, data collection and analysis. Over 109 participants were trained on the drafted Pygmy Hippopotamus monitoring protocol. The participants included NGO technical staff, community auxiliaries, rangers and park biologists, interns and students.</p>

Component		Deliverable		
#	Description	#	Description	Results for Deliverable
				<ul style="list-style-type: none"> <li>• In 2018, one FFI technical staff (biomonitoring officer) received training and mentoring on PH data analysis.</li> <li>• An intern was recruited in November 2017 and trained to support the pygmy hippo data analysis.</li> <li>• FFI hosted a workshop under the 'Learning for Biodiversity Conservation' series focused on two topics, 'Learning for Communication' and 'Learning for Engagement'.</li> <li>• FFI hosted and organised two workshops in Liberia and Guinea to draft and finalise the PH monitoring protocol and training of the trainers.</li> <li>• Other training include biomonitoring refresher training along with PH monitoring methods, equipment use and navigation tools, eDNA sampling methodology and data collection.</li> <li>• Participants for the above training were FDA and CFZ staffs, community biomonitoring auxiliaries, interns, students, graduates, staffs from other partner organisations, FFI staff.</li> </ul>
1.0	Build capacity of relevant national government, non government and academic institutions in Liberia for research and protection of the PH, building on existing regional and international networks.	1.3	By end 2017, 40 rangers have improved skills in SMART data collection and 2 technical staff have skills in SMART data analysis, demonstrated by a training report/schedule, data collection database, patrol	This activity has overachieved. Recruitment of Technical Specialist (TS) Protected Area Management (PAM) to support the SNP FDA team and over 50 rangers mentored and trained during the project. Before SMART training, 34 participants received training on navigation tools, accurate data collection and reporting. In SNP, 4 FDA technical staff and

Component		Deliverable		
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			logs, update reports from local focal experts.	<p>18 LE rangers received training in SMART data collection and analysis, and in Wonegizi PPA and Ziama, 9 FDA staff and 13 CFZ staff received training. Other individuals trained on SMART data collection and analysis included 7 FFI staff, 8 interns, one FDA community volunteer and 3 biomonitoring auxiliaries.</p> <ul style="list-style-type: none"> <li>• Regular supply of rations and assorted field equipment were procured to support ranger patrols</li> <li>• TSPAM developed a new law enforcement (LE) strategy for SNP</li> <li>• Commenced LE coordination meetings and monthly follow up meetings.</li> <li>• FFI provided support to the FDA central office to investigate a suspected poaching case of an elephant killing.</li> <li>• Reactivation of regular law enforcement patrols led to 107 patrols equalling 3697 person-days covering 7567.71 km using the law enforcement strategy and SMART-tailored data collection.</li> <li>• Two rangers from Sapu and Wonegizi attended the 9th World Ranger Congress in Nepal in November 2019.</li> </ul>
1.0	Build capacity of relevant national government, non government and academic institutions in Liberia for research and protection of	1.4	By end project, UL academics have deeper knowledge shown through incorporation of landscape conservation in their	Teaching at University of Liberia on the Biodiversity Conservation Course up to January 2020 – 639 students attended this course.

Component		Deliverable		
#	Description	#	Description	Results for Deliverable
	the PH, building on existing regional and international networks.		teaching, as demonstrated by UL syllabus including topics in landscape conservation and this project as a case study.	<p>Capacity-building steering committee</p> <ul style="list-style-type: none"> <li>• A meeting of the capacity building Steering Committee was held in Jan 2019 and FFI participated in at least four curriculum review meetings for the University of Liberia and the Forestry Training Institute (FTI) in 2019.</li> <li>• On the 21st of January 2020, FFI participated in the Academic Coordination Committee (ACC) meeting of the University of Liberia.</li> </ul> <p>Teaching at University of Liberia</p> <ul style="list-style-type: none"> <li>• Oct – Dec 2017 (Forestry 312 – Biodiversity Conservation I) – 1 hour sessions, 3 times a week - 122 students.</li> <li>• Oct – Dec 2017 (Forestry 420 – Conservation and Protected Area Management) – 1 hour sessions, 3 times a week. 19 students.</li> <li>• Apr – Sep 2018 (Forestry 405 – Biodiversity Conservation II) - 1 hour sessions, 3 times a week. 163 students.</li> <li>• Oct 2018 – Mar 2019 (Forestry 405 – Biodiversity Conservation II) - 1 hour sessions, 3 times a week. 155 students.</li> <li>• Apr 2019 – Aug 2019 (Forestry 312 – Biodiversity Conservation I) - 1 hour sessions, 2 times a week. 97 students.</li> </ul>

Component		Deliverable		
#	Description	#	Description	Results for Deliverable
				<ul style="list-style-type: none"> <li>• Sep 2019 – Jan 2020 (Forestry 405 – Biodiversity Conservation II) - 1 hour sessions, 3 times a week. 83 students.</li> </ul>
2.0	Generate a current PH population estimate and distribution map and identify potential threats and areas for connectivity and protection of populations in the Cestos-Sapo-Grebo-Taï-Cavally and Lofa-Mano-Gola Corridor areas.	2.1	By end 2018, a foundation for PH data surveying laid through the finalization of a standardised data collection protocol for PAs and PPAs and a nationally agreed LE strategy, with minutes of all meetings available.	This activity has been achieved. In total meetings organised as follows: 19 Law Enforcement subcommittee (LESC), one transboundary LE technical, four Biomonitoring subcommittee (BMSC), three Plant and Animal subcommittee (PASC). FFI hosted one LESC meetings and participated in 19. FFI technical staffs participated in four BMSC meetings and in three PASC meetings.
2.0	Generate a current PH population estimate and distribution map and identify potential threats and areas for connectivity and protection of populations in the Cestos-Sapo-Grebo-Taï-Cavally and Lofa-Mano-Gola Corridor areas.	2.2	By end 2019, PH data is captured through field surveys in 8 KBAs across the two target corridors, demonstrated by data collection sheets, survey reports, maps, camera trap data and dung sample collection.	<p>This activity has been achieved. Data collection was completed in 4 KBAs in the Cestos-Sapo- Grebo-Taï-Cavally Corridor and 2 KBAs in the Lofa-Mano-Gola Corridor during this reporting period.</p> <p>PH community questionnaire survey A total of 199 communities (1680 respondents) were administered the PH community questionnaire survey around the 2 NPs and 4 PPAs</p> <p>PH recce survey</p> <ul style="list-style-type: none"> <li>• Sapo National Park - 850 observations</li> <li>• Cestos-Senkhwen PPA - 221 observations</li> <li>• Wologizi PPA - 184 observations</li> </ul>

Component		Deliverable		
#	Description	#	Description	Results for Deliverable
				<p>Genetic sampling</p> <ul style="list-style-type: none"> <li>• Faecal Sample collection - 80 faecal samples were collected across the various sites. Analysis carried out by RZSS. See 2.2</li> <li>• Environment DNA (eDNA) collection - 20 samples out of which 10 samples detected PH. Funded by PHF and report submitted.</li> </ul> <p>Camera trap survey</p> <ul style="list-style-type: none"> <li>• Sapo National Park – Two rounds of CT survey covering 53.1% of the area.</li> <li>• Wonegizi PPA – One round of CT survey covering approx 75% of the area</li> <li>• Wologizi PPA – Complete CT survey covering approx 14.28% of the area</li> <li>• Massif du Ziama MAB Reserve – Two round of CT survey covering approx. 40.32% of the area</li> </ul> <p>Pygmy hippo presence data from other PAs and PPAs collated through other biomonitoring survey methods Wonegizi PPA, Foya PPA, Grebo Krahn NP, Massif du Ziama MAB Reserve</p>
2.0	Generate a current PH population estimate and distribution map and identify potential threats and areas for connectivity and protection of populations in the Cestos-	2.3	By end project, PH status, genetic linkages in corridors, and potential for enhancing corridor connectivity between populations known, as demonstrated by at least 1 map and at least 1 project	Data collected and collated of pygmy hippo across the targeted landscape corridors gave an overview of PH's current presence and its important sites. FFI carried out a separate landscape-level assessment for Northwest landscape (under USAID WABiCC grant) and Southeast landscape (under the PH

Component		Deliverable		
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	Sapo-Grebo-Tai-Cavally and Lofa-Mano-Gola Corridor areas.		report also detailing critical PH habitats for protection.	<p>Foundation grant) of Liberia. The assessments provided information on the current status of land cover change and identified viable wildlife corridors for key species like PH habitat-suitability modelling.</p> <ul style="list-style-type: none"> <li>• FFI and partner organisation (WCF, SCNL) collaborated on carrying out PH specific work providing information on current linkages across the landscape for the survival of the species.</li> <li>• A review of the PH regional Conservation strategy document led to the update on the present status of PH presence, and the activities focused on their conservation status across their range states.</li> </ul>
3.0	Promote regional coordination at national and site levels for range wide increased protection of the PH.	3.1	By mid-2020, basis for regional coordination improved through 1 study tour conducted for project team who presented results to regional stakeholder, demonstrated by photos of the event and a report highlighting feedback and recommendations from partners.	<p>This activity was achieved. FFI technical staff visited GRCC in September 2018 to discuss the project with the RSPB team and participate in a training organised by the RSPB team for the community. Due to the Covid-19 travel restrictions, the GRCC visit to share lessons learned and results from the project was not possible. However, FFI presented the progress of the project during the PH regional conservation strategy workshop attended by the GRCC and other regional partners in July 2019. FFI also presented results of the Landscape Level Assessment (LLA) in March 2021 to promote Pygmy Hippopotamus conservation by protecting critical habitats,</p>

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#	Description	#	Description	Results for Deliverable
				<p>especially conservation corridors at an intersectoral workshop with the FDA, other government and non-governmental organisations and the private sector.</p> <ul style="list-style-type: none"> <li>• GRCC team travelled to SNP to participate and co-facilitate in the workshop to develop the Pygmy Hippopotamus monitoring protocol in February 2019.</li> <li>• A National Intersectoral workshop to promote Pygmy Hippopotamus conservation by protecting critical habitats was held on 31st March 2021 where FFI presented the results of the LLA. (See 4.2.2)</li> </ul>
3.0	Promote regional coordination at national and site levels for range wide increased protection of the PH.	3.2	By mid-2020, regional knowledge improved through 1 study tour to attend 1 GRNP learning event, demonstrated by photos and tour report, and pre- post- knowledge assessment questionnaires.	<p>This activity has been fully achieved. FFI organized two study visits to GRCC. See 3.1.1</p> <ul style="list-style-type: none"> <li>• The project coordinator, along with the Biodiversity Officer Sapo Landscape (Matthew Varney) and Biomonitoring Assistant Clara Cassell) attended a workshop on the training of the Community Youth Conservation Volunteers focusing on PH at Gola Rainforest Conservation Centre, Lalehun, Sierra Leone from 10th – 14th September 2018. During the visit, FFI and RSPB team agreed to work towards collaborative efforts for PH conservation.</li> <li>• The FFI technical team from Sapo travelled to Sierra Leone as part of the exchange visit</li> </ul>

Component		Deliverable		
#	Description	#	Description	Results for Deliverable
				<p>from 10th to the 16th of March 2019 to learn about Gola Rainforest National Park (GRNP) management under the non-matched funding from USAID-WABiCC. Two FFI technical staff included the TSPAM (Sapo Landscape) and one intern (Sapo landscape), carried out this visit.</p> <ul style="list-style-type: none"> <li>• The Liberia delegation participated in the 9th World Ranger Congress held in Sauraha, Nepal, from the 12th to the 16th of November 2019. The team constituted two rangers – Sapo National Park and Wonegizi Proposed Protected Area (partly funded by CEPF) – and FFI TS PAM, Sapo Landscape.</li> </ul>
3.0	Promote regional coordination at national and site levels for range wide increased protection of the PH.	3.3	By mid-2020, increased regional coordination ensured via 1 study tour to share lessons/experience and facilitate SWG roll-out in range countries and a data sharing/collection protocol, as seen by photos, minutes, adopted ToRs, and a draft protocol.	<p>This activity has been achieved. The Species Working Group Liberia (SWGL) was presented to other country delegates at the PH regional action planning meeting in July 2019. FFI hosted 11 and participated in one SWGL meeting.</p> <ul style="list-style-type: none"> <li>• During the Regional PH Conservation Strategy Workshop held in Monrovia in July 2019, a session focused on establishing national Species Working Groups (SWGs) was held with representatives of all PH range states - Guinea, Sierra Leone and Cote d'Ivoire. The SWG of Liberia made a presentation on the process leading to establishing the SWG in Liberia. The delegates</li> </ul>

Component		Deliverable		
#	Description	#	Description	Results for Deliverable
				<p>from the range countries made commitments to set up SWGs in their various countries.</p> <ul style="list-style-type: none"> <li>• The new ten-year Regional Pygmy Hippo Conservation Strategy may act as a catalyst to encourage establishing SWG in other countries.</li> </ul>
4.0	Disseminate project results and outputs locally, nationally and internationally to increase awareness of the importance of PH conservation within Liberia and across its range.	4.1	By end of 2020, local/national awareness increased through 5 SWG meetings; progress on project results presented and work plans agreed, as demonstrated by PPT presentations, revised work plans and meeting minutes highlighting agreed actions.	<p>This activity has been fully achieved. As stated in 3.3, FFI hosted 11 SWG meetings and participated in one meeting. The coordinator and two members of the SWGL also participated in a one-day remote training KBA course organised by CEPF on 22nd June 2020. The project coordinator also participated in a two-day freshwater KBA workshop organised by the Society for the Conservation of Nature of Liberia (SCNL) in collaboration with the International Union for Conservation of Nature and Natural Resource with support from the Critical Ecosystem Partnership Fund (CEPF).</p> <p>Species Working Group Liberia meetings</p> <ul style="list-style-type: none"> <li>• FFI hosted 11 SWGL meetings before stepping down as co-chair on 27th August 2020.</li> <li>• With the selection of SWGL new officers, FFI participated in one SWGL meeting held on March 18 2021 via Zoom, which was the first meeting for the year 2021 hosted by LCRP in its capacity as the secretary of the SWGL.</li> </ul>
4.0	Disseminate project results and outputs locally,	4.2	By end 2020, national awareness increased	The <a href="http://www.liberiafaunaflora.org">www.liberiafaunaflora.org</a> website has been revamped along with an updated PH

Component		Deliverable		
#	Description	#	Description	Results for Deliverable
	nationally and internationally to increase awareness of the importance of PH conservation within Liberia and across its range.		through at least 1 meeting hosted which presented findings to government institutions, as demonstrated by meeting minutes, photos, and a press release.	<p>page on the website. Additionally, a regular update will be made with new information on biodiversity conservation actions across Liberia. One PH focused publication has been submitted to Oryx to be considered for publication.</p> <ul style="list-style-type: none"> <li>• One PH publication has been submitted to Oryx for consideration for publication. This activity was led by Biomonitoring Assistant supported by the other technical team members.</li> <li>• The revamping of the <a href="http://www.liberiafaunaflora.org">www.liberiafaunaflora.org</a> website is now completed by a local IT firm hired with funding from CEPF and additional funding from another donor. The hired firm focused on updating an informative website dedicated to Fauna and Flora of Liberia and initiatives for its conservation.</li> </ul>
4.0	Disseminate project results and outputs locally, nationally and internationally to increase awareness of the importance of PH conservation within Liberia and across its range.	4.3	By end 2020, information is more nationally and internationally accessible via an updated PH page on the website <a href="http://www.liberianfaunaflora.org">www.liberianfaunaflora.org</a> .	<p>FFI organised a national intersectoral workshop to share results from the various project activities where partner organisations made recommendations to support the next step towards the PH monitoring and conservation initiatives.</p> <ul style="list-style-type: none"> <li>• A National Intersectoral workshop to promote Pygmy Hippopotamus conservation by protecting critical habitats was held on 31st March 2021. FFI presented the results of two</li> </ul>

Component		Deliverable		
#	Description	#	Description	Results for Deliverable
				Landscape Level Assessments (LLA) in the Northwest and Southeast of Liberia, highlighting the potential conservation areas covered by the assessment, and importantly, identifying biodiversity features and possible threats from various development pressures. The discussion guided by the LLA findings served as a catalyst for brainstorming linkages with current and future national development planning efforts. Participants worked together to develop a shared vision for the conservation of pygmy hippopotamus by identifying priorities for conservation action.
4.0	Disseminate project results and outputs locally, nationally and internationally to increase awareness of the importance of PH conservation within Liberia and across its range.	4.4	By end project, awareness raised on the PH in 40+ communities and 10 schools across 2 corridor areas, demonstrated by at least 3 types of outreach materials distributed, photos of events, and validated by pre- and post-attitude/perception questionnaires.	As part of a public awareness-raising campaign, over 5000 people (a total of 5795) were reached during the project. FFI carried out public awareness through various mediums in collaboration with local and international partners across the landscape, i.e. Eco-champions, Culture troupes, Environmental Education Nature Clubs, etc.
4.0	Disseminate project results and outputs locally, nationally and internationally to increase awareness of the importance of PH	4.5	By end 2020, PH promoted as a national animal for Liberia, as demonstrated by a mural at the International Airport, at least 2 radio logs, at least 1 press release, and posters.	FFI carried out public awareness through various mediums in collaboration with local and international partners across the landscape. Commissioned murals (3), installation of billboards and signage (3), radio broadcast (over 10) and includes materials such as protected species posters and

Component		Deliverable		
#	Description	#	Description	Results for Deliverable
	conservation within Liberia and across its range.			<p>flyers/leaflets (over 2000), T-shirts (500) and other promotional materials. FFI supported and participated in 5 wildlife-related International Day celebrations.</p> <p>As a part of promoting the Pygmy Hippo as a flagship species, a press release was placed in the national newspaper during the Pygmy Hippo Regional Workshop to raise awareness about the event and the species among the general public (See 3.3 and 4.5.1). Another press release was published after the intersectoral workshop where results of the Landscape Level Assessment was presented, recommending critical areas for pygmy hippo conservation.</p>
4.0	Disseminate project results and outputs locally, nationally and internationally to increase awareness of the importance of PH conservation within Liberia and across its range.	4.6	By end project, outputs disseminated regionally and internationally through 2 scientific publications and 1 presentation of results at the GRCC, as demonstrated by draft scientific manuscripts, 1 PPT presentation and project report.	<p>A Short communication was submitted to Oryx for publication. A full article with the results of this project will be developed and published based on a request from Oryx.</p> <p>The final results and the lessons learnt will be shared as a Technical Working document with national and regional partners to contribute to any change in the revision or addition of OH monitoring methods or update of the results from their respective regions. This document and updated results will be shared with the IUCN Pygmy Hippo Specialist group to update on the current status of the PH in the IUCN Redlist.</p>

Component		Deliverable		
#	Description	#	Description	Results for Deliverable
				See 3.1.1
5.0	CEPF project management and monitoring for compliance.	5.1	Institutional capacity of local partners (SWG, FACE, Sapo Community Auxiliaries) evaluated through the Civil Society Tracking Tool and the Gender Tracking Tool have increased.	Completed CSTT and GTT assessment forms submitted.
5.0	CEPF project management and monitoring for compliance.	5.2	Institutional capacity of FFI Liberia evaluated through the Civil Society Tracking Tool and the Gender Tracking Tool have increased	FFI Liberia institutional capacity evaluation forms have been completed using the CSTT and GTT.
5.0	CEPF project management and monitoring for compliance.	5.3	One complaints and conflict resolution is developed, disseminated and monitored	A Feedback Grievance Redress Mechanism was developed and rolled out by the Forestry Development Authority in SNP, with the community members as the local stakeholders.
5.0	CEPF project management and monitoring for compliance.	5.4	CEPF financial and programmatic reports are submitted online on time and accurately.	Completed.  Final financial report submitted including January - March 2021 reporting Final technical report submitted including January - March 2021 reporting
6.0	Management effectiveness tracking tool (METT) for management authorities	6.1	METT tool submitted by management authorities of SNP.	The first METT training report prepared by the FDA was submitted in June 2018.  The second METT report conducted by FDA was due in 2020 and they had received funds to carry out the assessment. Due to the

Component		Deliverable		
#	Description	#	Description	Results for Deliverable
				Covid-19 pandemic, it was postponed to be conducted this year, 2021. However, as an alternative, the CEPF METT assessment was administered on 1st June 2021.
3.0	Promote regional coordination at national and site levels for range wide increased protection of the PH.	3.4	By end 2020, ensured sustainability of project by development of protocol of action points detailing next steps, including funding and capacity needs.	<p>This activity has been achieved. FFI hosted the Pygmy Hippo Regional Conservation Strategy workshop in July 2019 in Monrovia under non-matched funding by the USAID WABiCC. FFI organised a national intersectoral workshop to share results from the various project activities where partner organisations made recommendations to support the next step towards the PH monitoring and conservation initiatives. (See 4.2)</p> <ul style="list-style-type: none"> <li>• FFI secured non-matched funding to support PH and general biodiversity work, including protected area management, regional coordination and a workshop in the Tai-Sapo-Grebo-Krahn Landscape.</li> <li>• FFI hosted the PH Regional Conservation Strategy Workshop from the 2nd to the 4th of July 2019 at the Cape Hotel in Monrovia.</li> <li>• A National Intersectoral workshop to promote PH conservation by protecting critical habitats was held on 31st March 2021. FFI presented the results of two LLA in the Northwest and Southeast of Liberia.</li> <li>• On 30th March 2021, Forestry Development Authority (FDA), in collaboration with FFI, organised the Sapo National Park Management</li> </ul>

Component		Deliverable		
#	Description	#	Description	Results for Deliverable
				Plan National Validation Workshop at Golden Gate Hotel, Monrovia.
5.0	CEPF project management and monitoring for compliance.	5.5	Report focusing on the project impacts is completed online at project end.	Relevant impacts and indicators monitoring data submitted within the Final Completion Report.

### Tools, products or methodologies that resulted from the project or contributed to the results:

The first standardised pygmy hippopotamus monitoring protocol was developed to build the capacity of local, national and regional capacity to collect accurate data on PH in the field. FFI organised and hosted the first Pygmy Hippopotamus Monitoring Workshop with 27 participants from FFI and partner organisations in Liberia and Sierra Leone to develop and draft the monitoring protocol. The methodology was developed based on the methods developed as an MSc thesis method to survey PH in Gola Rainforest National Park (GRNP), Sierra Leone. This method was also adapted as a Standard Operating Procedure of the REDD+ project in GRNP. The workshop was co-facilitated by all FFI, WCF, SCNL, and RSPB.

It was agreed to follow the below methods as a part of the monitoring protocol to assess the current status of the PH across Liberia and its transboundary range states:

- Community Questionnaire
- Recce Survey (Opportunistic Surveys)
- Plot Sampling
- Camera Trapping
- DNA analysis
  - o Faecal sampling
  - o eDNA sampling

FFI organised a similar workshop in Guinea for feedback on the first draft of the protocol. Ten participants attended the training, with eight from CFZ and two staff from FFI-Guinea. Results of the survey efforts implemented during this project will facilitate revising and update the PH monitoring protocol.

## PORTFOLIO INDICATORS

Portfolio Indicator Number	Portfolio Indicator Description	Expected Numerical Contribution	Expected Contribution Description	Actual Numerical Contribution	Actual Contribution Description
3.1	Priority actions identified in			1	As a result of the project, national and regional

Portfolio Indicator Number	Portfolio Indicator Description	Expected Numerical Contribution	Expected Contribution Description	Actual Numerical Contribution	Actual Contribution Description
	Conservation Action Plans are implemented for at least 15 Critically Endangered and Endangered species.				<p>capacity was build for PH conservation. Capacity development led to:</p> <ol style="list-style-type: none"> <li>1. Implementation of a nationwide and transboundary PH survey leading to updated information about the current distribution of PH.</li> <li>2. Survey data led to the generation of information that will feed into reassessing the status of PH nationally and regionally.</li> <li>3. Development of a PH-specific survey protocol.</li> <li>4. Implementation of a socio-economic survey that increased understanding of local knowledge and perception of PH.</li> <li>5. Increased public awareness of PH as a flagship species.</li> <li>6. Support for the revision of the PH regional conservation strategy.</li> <li>7. Support for law enforcement activities increased protection of a PH hotspot (i.e. SNP).</li> </ol>

## GLOBAL INDICATORS

## Protected Areas

Protected areas that have been created and/or expanded as a result of the project. Protected areas may include private or community reserves, municipal or provincial parks, or other designations where biodiversity conservation is an official management goal.

<b>Name of Protected Area</b>	<b>WDPA ID*</b>	<b>Latitude</b>	<b>Longitude</b>	<b>Country</b>	<b>Original Total Size (Hectares)**</b>	<b>New Protected Hectares***</b>	<b>Year of Legal Declaration or Expansion</b>
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\*World Database of Protected Areas

\*\*If this is a new protected area, 0 should appear in this column

\*\*\* This column excludes the original total size of the protected area.

## Key Biodiversity Area Management

Key Biodiversity Areas (KBAs) under improved management—where tangible results have been achieved to support conservation—as a result of the project.

KBA Name	KBA Code	Size of KBA	Number of Hectares with Improved Management
Sapo National Park	LBR14		155,084

## Production Landscapes

Production landscapes with strengthened management of biodiversity as a result of the project.

A production landscape is defined as a site outside a protected area where commercial agriculture, forestry or natural product exploitation occurs.

Name of Production Landscape	Latitude	Longitude	Hectares Strengthened	Intervention
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## Benefits to Individuals

- **Structured Training:**

Number of Men Trained	Number of Women Trained	Topics of Training
613	238	<ul style="list-style-type: none"> <li>• Ecological Methods Field Course</li> <li>• Pygmy Hippopotamus monitoring methods including genetic sampling method (faecal sampling)</li> <li>• Biomonitoring</li> <li>• Camera trapping survey</li> <li>• Arboreal camera trapping survey</li> <li>• Environmental DNA Sampling method</li> <li>• Wildlife Law Enforcement</li> <li>• Spatial Monitoring and Reporting</li> <li>• Tool Introductory ArcGIS</li> <li>• Basic Statistics analysis</li> <li>• University students trained in Conservation Biology I &amp; II</li> <li>• Theatre troupe</li> <li>• Training of trainers for Environmental Education Clubs</li> <li>• Awareness raising training for eco-champions</li> </ul>

- **Cash Benefits:**

<b>Number of Men – Cash Benefits</b>	<b>Number of Women – Cash Benefits</b>	<b>Description of Benefits</b>

## Benefits to Communities

View the <b>characteristics</b> column below with the following corresponding codes:	View the <b>benefits</b> column below with the following corresponding codes:
1- Small Landowners	a. Increased Access to Clean Water
2- Subsistence Economy	b. Increased Food Security
3- Indigenous/ Ethnic Peoples	c. Increased Access to Energy
4- Pastoralists / Nomadic Peoples	d. Increased Access to Public Services
5- Recent Migrants	e. Increased Resilience to Climate Change
6- Urban Communities	f. Improved Land Tenure
7- Other	g. Improved Use of Traditional Knowledge
	h. Improved Decision-Making
	i. Improved Access to Ecosystem Services

Community Name	Community Characteristics							Type of Benefit									Country	Number of Males Benefitting	Number of Females Benefitting
	1	2	3	4	5	6	7	a	b	c	d	e	f	g	h	i			

### Characteristics of "Other" Communities:

## Policies, Laws and Regulations

View the <b>topics</b> column below with the following corresponding codes:			
A- Agriculture	E- Energy	I- Planning/Zoning	M- Tourism
B- Climate	F- Fisheries	J- Pollution	N- Transportation
C- Ecosystem Management	G- Forestry	K- Protected Areas	O- Wildlife Trade
D- Education	H- Mining and Quarrying	L- Species Protection	P- Other

No.	Name of Law	Scope	Topics															
			A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P

**“Other” Topics Addressed by the Policy, Law or Regulation:**

No.	Country/ Countries	Date Enacted/ Amended	Expected impact	Action Performed to Achieve the Enactment/ Amendment
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**Companies Adopting Biodiversity-friendly Practices**

A company is defined as a for-profit business entity. A biodiversity-friendly practice is one that conserves or uses natural resources in a sustainable manner.

Name of Company	Description of Biodiversity-Friendly Practice	Country/Countries where Practice was Adopted
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**Networks and Partnerships**

Networks/partnerships should have some lasting benefit beyond immediate project implementation. Informal networks/partnerships are acceptable.

Name of Network/Partnership	Year Established	Country/ Countries	Established by Project?	Purpose
National Species Working Group of Liberia (SWGL)	2017	Liberia	No	With an overall goal of improving the delivery of biodiversity conservation interventions, the SWGL is a multi-stakeholder working group that coordinates activities by governmental and non-governmental partners to promote species conservation across Liberia. While

Name of Network/Partnership	Year Established	Country/Countries	Established by Project?	Purpose
				<p>this group does not deal directly with the private sector, the relationship between members (e.g. NGOs) and private sector actor involve or funding biodiversity work is reported in this group. To enhance its effectiveness in supporting the activities of partners, the following are sub-committees set up as part of this platform:</p> <ul style="list-style-type: none"> <li>a. Law Enforcement sub-committee</li> <li>b. Plant and Animal sub-committee</li> <li>c. Biomonitoring sub-committee</li> </ul> <p>The Forestry Development Authority chairs the SWG and associated sub-committees as the national authority responsible for biodiversity conservation.</p>

## Sustainable Financing

Sustainable financing mechanisms generate funding for the long-term (generally five or more years). These include, but are not limited to, conservation trust funds, debt-for-nature swaps, payment for ecosystem services (PES) schemes, and other revenue, fee or tax schemes that generate long-term funding for conservation.

Name of Mechanism	Purpose	Date Established	Description	Country/Countries	Project Intervention	Delivery of Funds?

## Globally Threatened Species

Globally threatened species (CR, EN, VU) on the IUCN Red List of Threatened Species, benefitting from the project.

<b>Genus</b>	<b>Species</b>	<b>Common Name (English)</b>	<b>Status</b>	<b>Intervention</b>	<b>Population Trend at Site</b>
Choeropsi s	liberiensis	Pygmy Hippopotamus	EN	<ul style="list-style-type: none"> <li>• Implementation of actions under Objective 5 of the Liberia PH National Action Plan</li> <li>• Drafting of the PH protocol</li> <li>• Building capacity of field teams in ecological sampling and genetic sample collection for NGO staff, park staff, community biomonitoring auxiliaries, students and interns</li> <li>• Training in law enforcement - SNP park staffs trained based on the newly drafted law enforcement strategy to enable regular and systematic patrols to prevent wildlife crime, including the use of SMART</li> </ul>	Stable

## LESSONS LEARNED

1. Conservation is not possible without people. Hence, regardless of how science-focused an intervention is, it will be important that local communities should be factored in. For example, while camera trapping could be considered a strictly scientific activity, engagement with communities through a camera trap sensitisation campaign was essential to help them understand that the cameras were not being placed in the forest to spy on them. This engagement, judging from experience, prevented probable damage and theft. Relatedly, there is a need for continuous engagement with communities about the rationale and implication of setting up camera traps as a survey tool. This should go beyond sensitisation before a camera trap survey so that communities can already air their concerns before the deployment, further reducing instances of damaged or stolen cameras. This realisation means that we have now embed messages about camera trapping in our regular awareness-raising engagements with the communities.
2. Mentoring as a form of capacity building is essential to improving the performance of government partners to serve in technical roles efficiently. For example, the Park Biologist for Sapu, appointed in 2019, with limited field experience, is now capable of leading field survey based on training and mentoring provided by FFI's Technical Specialist, Species Conservation and the Biodiversity Officer, Sapu Landscape.
3. A well-structured and sufficiently funded project can deliver positive results for biodiversity when the project proponents agree to work together in a partnership of equals, leveraging their strength to support the project's goal. However, roles must be clarified at the start of the project.
4. SMART is a management tool and cannot, on its own, improve the protection status of a protected area. To facilitate the adoption of SMART, it has to be part of an ongoing systematic law enforcement program that promotes regular patrolling. When overhauling the system then, the emphasis should be on regularising patrols before introducing SMART. This is because regular patrols and engagement with the local community and not the SMART technology are the most significant deterrents when trying to prevent illegal activities.
5. A well-structured internship program is an effective way to build local conservation capacity. By providing training and the chance to utilise current conservation techniques, both the organisation and the intern benefit from this mutualistic relationship. A paid internship is vital for a stronger and more diverse application pool, with all the benefits that it brings to conservation.
6. Reviewing and updating monitoring protocols (e.g., line transects, camera traps) should not be a one-off or time-defined process. Revisions need to happen based on the evolution of practices (including associated technological support) and the needs identified in the particular landscape. Importantly, practices promoted should be financially sustainable and, where possible, continue beyond a specific funding cycle. For example, this means that subscription-based technology should only be introduced as a last resort.
7. Project implementation needs to consider the national government agency staff capacity, as, despite support from partners, management responsibilities lies with the government. However, the capacity needs assessment analysis revealed that most SNP staff lack the relevant skills required to implement their mandate. To counter this, it will be important that conservation partners work with the government in establishing clear criteria that can be used for the hiring of new staff. In addition, it will be essential to balance the need to promote local employment with the skills needed to do the job, ideally through a quota system decided by the relevant stakeholders.

## **SUSTAINABILITY/REPLICATION**

1. The start and end of the project were delayed due to external factors, which were the Presidential elections, the Sapo National Park Crisis, securing of additional funds and the Covid-19 pandemic.
2. Socio-economic condition in the landscape means that there is an expectation of payment for the provision of information during community engagement and surveys, sometimes leading to non-response or scanty information when there is no payment forthcoming.
3. For patrols and surveys, the rivers and creeks inside the park are flooded during the rainy season, limiting access and increasing the effort needed to conduct law enforcement patrols or biodiversity surveys.
4. Access to field sites is challenging. The roads from Monrovia to the field and moving across the landscape are deplorable, becoming nearly inaccessible during the rainy season. This means that travel becomes longer or sometimes impossible, delaying the implementation of field activities.
5. The low capacity of park staff meant that introducing and implementing new systems required more time and resources. Aside from challenges associated with low literacy, more than half of those serving as rangers lack the physical fitness required for their role. This led to dependence on a few qualified rangers whose absence delayed the implementation of planned activities. This low capacity issue extends to auxiliaries working to support park operation (e.g. CBA, Eco-champions), which lead to a reliance on one or two team members for accurate data collection.

The results from various surveys during this project using the standardised PH monitoring protocol developed will be reviewed and revised for further applicability of the protocol to other areas of the PH range. For example:

1. About the genetic studies using faecal sampling, of the two methods used to collect samples, the wet sampling collection technique was more robust in successfully extracting the DNA of PH. However, the RZSS WildGenes laboratory, which conducted this analysis, has recommended ways to optimise the samples collected and the lab techniques. Thus, there is scope for the results obtained from this grant to inform future population studies.
2. During the project, FFI carried out Environmental DNA (eDNA) surveys in Liberia and Guinea from 2019, and the results provided a wealth of biodiversity data. eDNA has proved useful as a biodiversity monitoring tool for detecting species across vast landscapes within a short time, especially for elusive and cryptic species like the pygmy hippopotamus. eDNA is a non-invasive method where genetic material from the environment, i.e. soil, water or other environmental samples, are collected and analysed in the laboratory to identify the species. The NatureMetrics eDNA sampling kit is affordable, quick and easy to implement in the field, with minimal training and technical supervision. This allows using this tool as a citizen science approach, which can be easily rolled out over a large area. There is, therefore, huge potential to replicate the approach across the country and region, and IUCN is leading its application along with NatureMetrics in an initiative called eBioAtlas, with FFI as a main implementing partner. FFI will be expanding this to more survey sites in Africa, contributing data to the eBioAtlas.

## **ENVIRONMENTAL AND SOCIAL SAFEGUARDS/STANDARDS**

No safeguard had been triggered for this project and no complaint has been received during the project implementation.

## ADDITIONAL COMMENTS/RECOMMENDATIONS

1. While it is sometimes vital to bridge a funding gap through co-funding, the project design should mostly be dependent on the primary grant. Clarifying the co-funding arrangement is especially important where the implementation strategy differs from the primary grant but is only seen as complimentary. Co-funding then could help cover staff time and other administrative costs but might be less useful for field implementation.

## ADDITIONAL FUNDING

<b>Total Amount of Additional Funding Actually Secured (USD)</b>	\$180,006.00
<b>Breakdown of Additional Funding</b>	<p>ARCUS (granted) \$38,959.64 (contributed towards implementation of law enforcement activities and biomonitoring surveys)</p> <p>USFWS (granted) \$5,458.8 (contributed towards implementation law enforcement activities)</p> <p>WaBiCC (granted) \$82,833.3 (contributed towards Pygmy Hippo regional Conservation Strategy workshop and for implementation of SMART and other law enforcement activities)</p> <p>Pygmy Hippo Foundation (granted) \$52,755.18 (contributed towards the Pygmy Hippo surveys including eDNA sampling surveys, Southeast Landscape Level Assessment)</p>

## INFORMATION SHARING AND CEPF POLICY

CEPF is committed to transparent operations and to helping civil society groups share experiences, lessons learned and results. For more information about this project, you may contact the organization and/or individual listed below.

Fauna & Flora International, [info@fauna-flora.org](mailto:info@fauna-flora.org)