

Public Summary Report:

High Conservation Value Assessment of Goldtree's proposed concessions in the Malema and Lower Jawei Chiefdoms, Kailahun District, Eastern Province, Sierra Leone



Full HCV Assessment

Final | Version | July 2016

- **Dates of assessment (month/year):** Mar/April 2016
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- **Location of assessment:** Malema and Lower Jawei Chiefdoms Kailahun District, Sierra Leone.
- **Size of assessment area (ha):** 1300 ha
- **Planned land use for assessment area:** Oil palm
- **Certification scheme:** RSPO

About Proforest

Proforest is an independent mission-driven organisation working in the field of natural resource management and specialising in practical approaches to sustainability. Our expertise covers all aspects of the natural resources sector, from biodiversity conservation, sustainable forestry and agricultural commodities production to responsible sourcing, supply chain management and investment.

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The Proforest team is international and multilingual and comes from a wide variety of backgrounds, including industry, academia and civil society. This allows us to work comfortably with diverse organisations in a range of cultures. We have in-house knowledge of more than 15 languages, including English, Bahasa Indonesia, Portuguese, Mandarin, French and Spanish.

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List of acronyms and abbreviations

ALS	Assessor Licensing Scheme
ARTP	Across the River Transboundary Project
CEPF	Critical Ecosystem Partnership Fund
CITES	Convention on International Trade in Endangered Species of Wild Fauna and Flora
CR	Critically Endangered Species (IUCN Red List classification)
CSSL	Conservation Society of Sierra Leone
DBH	Diameter at Breast Height
EN	Endangered Species (IUCN Red List classification)
FAO	Food and Agriculture Organisation of the United Nations
FR	Forest Reserve
GRNP	Gola Rainforest National Park
HCV	High Conservation Value
HCV RN	High Conservation Value Resource Network
IUCN	International Union for Conservation of Nature
IVS	Inland Valley Swamp
LC	Least Concern Species (IUCN Red List classification)
MAFFS	Ministry of Agriculture, Forestry and Food Security
MPA	Marine Protected Area
NPAA	National Protected Area Authority
NPP	New Planting Procedure
OKNP	Oukoumba Kilmi National Park
P & C	Principles and Criteria
PA	Protected Area
RSPB	Royal Society for the Protection of Birds
RSPO	Roundtable on Sustainable Palm Oil
RTE	Rare, Threatened and Endangered Species
STEWARD	Sustainable and Thriving Environments for West African Regional Development
USFS	United States Forest Service
VU	Vulnerable Species (IUCN Red List classification)
YRF	Young Regenerating Forest

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1 Introduction and background

The entire process of this HCV assessment lasted 3 months from February to June 2016, including pre-assessment (February), field surveys and stakeholder consultations (March/April), analysis and drafting of report (May), peer review and report finalisation (June/July 2016).

Reference documents used include:

1. Brown, E., N. Dudley, A. Lindhe, D.R. Muhtaman, C. Stewart, and T. Synnott (eds.). 2013 (October). Common Guidance for the identification of High Conservation Values. HCV Resource Network. <https://www.hcvnetwork.org/resources/cg-identification-sep-2014-english>
2. Brown, E. and M.J.M. Senior. 2014 (September). Common Guidance for the Management and Monitoring of HCVs. HCV Resource Network. <https://www.hcvnetwork.org/resources/cg-management-and-monitoring-2014-english>
3. The HCV Assessment Manual prepared by Proforest for the HCV-RN.

This is a report of a full High Conservation Value Assessment (HCV) commissioned by Pieter Van Dessel, General Manager of Goldtree Limited. located in Daru of the Kailahun District, Eastern Province, Sierra Leone. Goldtree is a subsidiary of Goldtree Holdings and located in Daru, in the Kailahun District of the Eastern Province of Sierra Leone. The company is engaged in the development of oil palm plantations and the production of crude palm oil, with 90% of its palm oil fruits sourced from 7,000 smallholders that live within a 40 km radius of the company's. To operate at full mill capacity, the company intends to extend its existing nucleus plantation of 981 ha to 7500 ha, starting with about 1000 ha in the Malema and Lower Jawei Chiefdoms (both in the Kailahun district).

Goldtree was incorporated in 2007 to take over the assets of the erstwhile Daru Oil Palm Company (DOPC) to rehabilitate and expand the abandoned plantations and mill and also to revive the palm oil sector in the province.

1.1 Description of the assessment area

The assessment sites are located in the Malema and Lower Jawei Chiefdoms of the Kailahun District of the Eastern Province of Sierra Leone. The proposed concessions occur in a cluster of five sites of land in Malema and four sites in Lower Jawei (Figures 1), totalling 1300 ha.

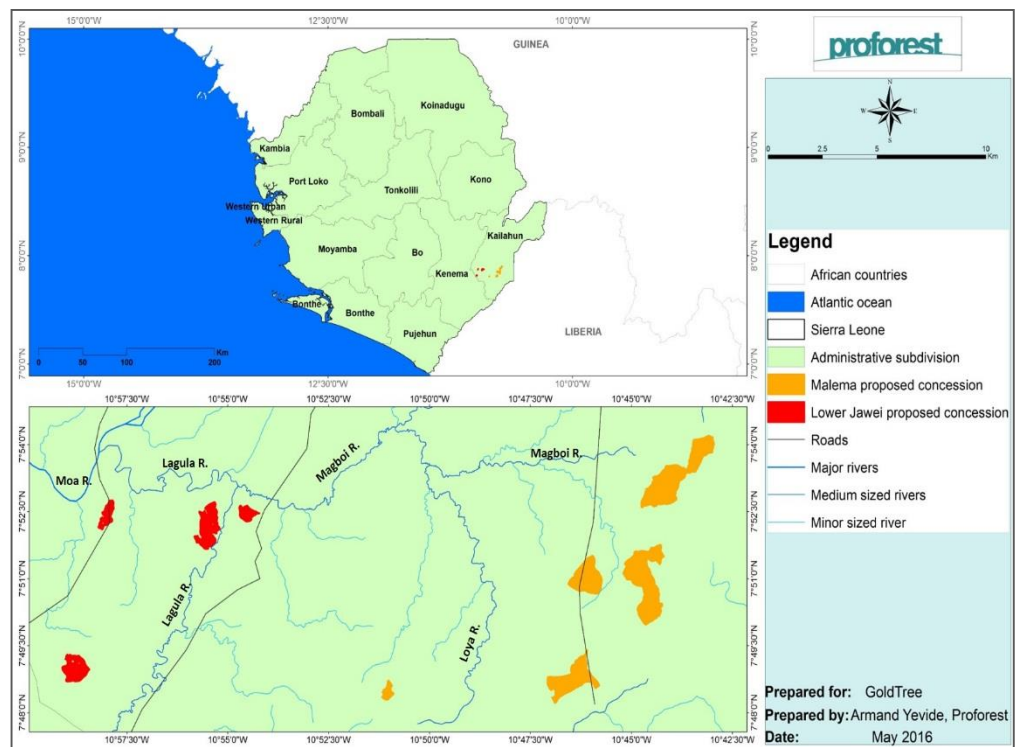


Figure 1: Clusters of Malema and Lower Jawei proposed concessions.

Ecologically, the proposed concession areas lie within the moist evergreen and semi-deciduous forest zone. The vegetation cover of both clusters is fairly characteristic of the wider landscape outside of protected areas in Sierra Leone, comprising secondary forest, farm bush (forest re-growth), bush fallows, swamp vegetation (with abundant spread of raphia species) and farmlands, all of which occur in scattered patches (Figure 7).

An intricate network of small streams drains both areas, most of which are tributaries to the major rivers in the landscape, including the Magboi, Loya, Lagula and Moa Rivers, which straddle both clusters of concessions (Figure 1).

Both areas have undergone noticeable modification as a result of human-induced degradation (Figure 2), but there is an easily noticeable difference of vegetation cover between the Malema and Lower Jawei clusters.

1.2 HCV assessment team, roles and qualifications

The HCV assessment process was led by an HCVRN ALS Provisionally Licensed Assessor from Proforest, working together with a team of local experts from Sierra Leone and Ghana. Table 1 outlines the key team members and their respective roles in the assessment process. Biographies of team leaders and key team members are provided in Annex 1 of the main report.

Table 1: HCV assessment team members

Name	ALS Licence	Organisation	Role	Expertise
Nana Darko Cobbina	Provisional (ALS15034NC)	Proforest	Lead Assessor	Social expert, stakeholder engagement, participatory mapping

Abraham Baffoe	Provisional (ALS15006AB)	Proforest	Team member	Forest ecology, hydrology, biodiversity, conservation
Dr Armand Yevide Sedami	NA	Proforest	Team member	Forest ecology, GIS, conservation,
Kabbiem Kanu	N/A	Independent Consultant	Team member	Forest inventory, botanical survey, ecology and fauna survey
Inteh Kargbo	N/A	Independent Consultant	Team member	Forest inventory, botanical survey and fauna species identification
Henry Squire	N/A	Independent Consultant	Team member	Community consultations and participatory mapping
Dr Emmanuel Danquah	N/A	Independent Consultant	Team member	Ornithologist and mammal expert

2 Methods

The assessment methods were structured in two phases: pre-assessment phase and full HCV assessment phase.

Scoping

A scoping study was completed in January 2016 including both Lower Jawei and Malema concessions.

Desk-based literature review

A desk-based study was conducted to gather and analyse as much available relevant literature of the site and potential HCV values as possible. Several studies (including country, landscape and site level), reports, maps and official documents from several sources.

Consultations with State government agencies and other stakeholders

Institutions consulted included the Ministry of Agriculture, Forestry and Food Security (MAFFS) at both district and national levels, the National Protected Area Authority (NPAA), the management of the Gola Rainforest Project including the Royal Society for the Protection of Birds (RSPB)/Birdlife International and the Conservation Society of Sierra Leone (CSSL) and other experts.

Socio-economic survey and communities consultations

Results from the ESIA scoping report including baseline socio-economic survey carried out by Cemrats have been complemented with broad community-level consultations carried out during the fieldwork of this HCV assessment. Public meetings were held in 7 communities, covering all 17 affected communities. The meetings involved a cross-section of all stakeholder groups present including the Sectional, Town and Quarter Chiefs, Town Speakers, Chiefdom Committee, Queen mothers and various other elders and opinion leaders (Imams, etc.) women, youth, farmers, fishermen, hunters and other identifiable groups. Outcomes from the community meetings are summarised in Section 3.4 and detailed in Annex 2 of the full HCV report.

Participatory Mapping

Participatory mapping – using seasonal calendars, resource mapping and quantification – to determine the nature and distribution of utilised resources by affected communities was carried during 7 public meetings at which representatives from all 17 communities were represented. The approach was to present a map of the area and ask participants of FGDs or wider community meetings (led by persons who are able to understand the map) to indicate the location and use of the particular resource mentioned. Follow up site visits were made (during HCV assessment) with community members to selected sites to map the resource using a GPS.

Assessment of fauna and flora

In carrying out the field verification of flora and fauna, vegetation maps of the area were analysed as part of the planning process for the field verification. The field assessment of flora and fauna in the concession was undertaken to:

- Obtain a better understanding of vegetation cover of the concession;
- Assess floristic composition of the vegetation of the area with focus on presence and abundance of species of conservation concern;
- Assess the presence of fauna species in the concessions, their distribution and their conservation importance and;
- Identify areas with reasonable forest cover or special habitat of interest that could be set aside and precluded from conversion to oil palm plantation.

The field data obtained from the survey were analysed to identify the different biological HCVs present in the concession.

Sampling design and distribution of transects for fauna survey

The fauna environment that was sampled included mammals, avifauna, amphibians and herpetofauna. Sampling was conducted in March and April 2016 along twelve systematically distributed fauna line transects; nine strip transects (20m x 500m) in the Malema concession (Figure 2) and three in the Lower Jawei (Figure 3). As a rule of thumb, all transects were oriented southwards.

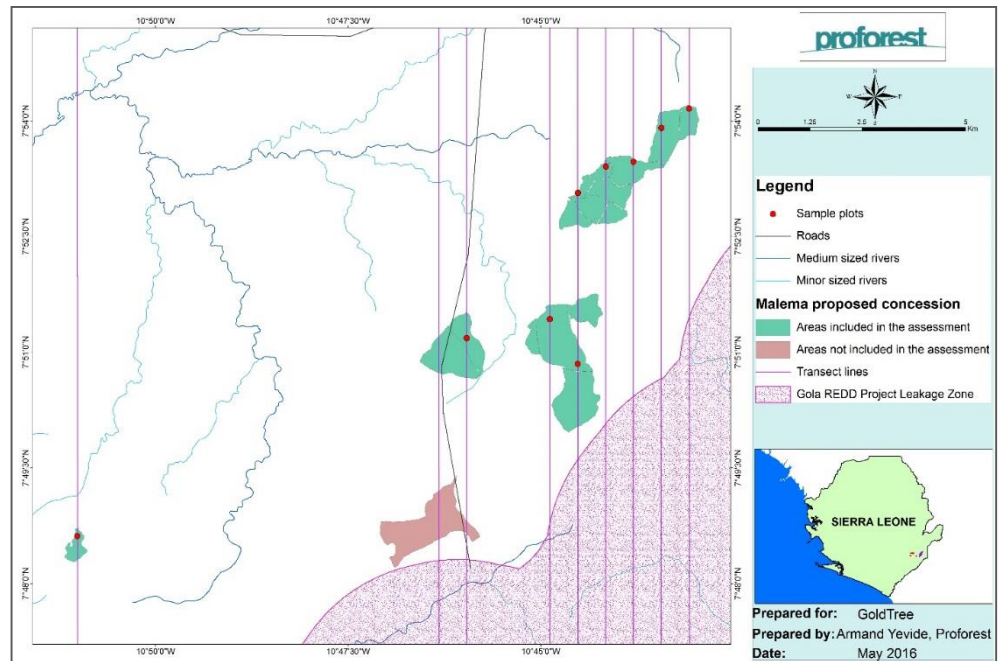


Figure 2: Malema transects

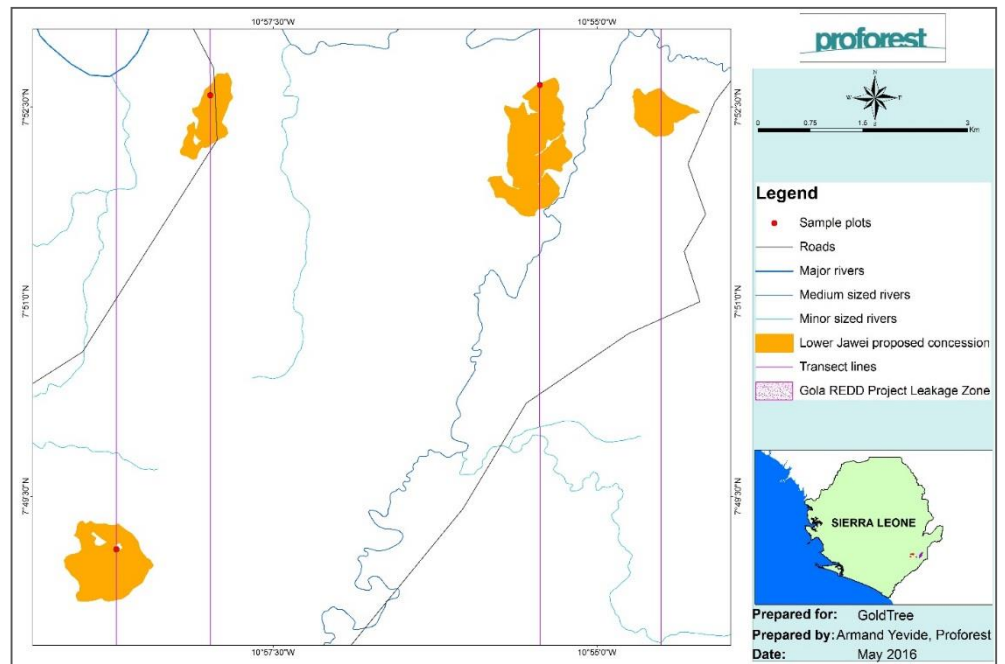


Figure 3: Lower Jawei proposed concession

Sampling design for flora survey

Using a systematic random sampling approach, a total of 12 plots were laid fairly distributed across the assessment sites in both proposed concession areas in Malema (09) and Lower Jawei (03), applying a sampling intensity of 1 percent. A 500m long transect was laid through the middle of each plot in a north-south direction with the aid of GPS and

a compass. Data and information on trees within 10m from both sides of the 500m transect within the plot were collected for each plot (Figure 4).

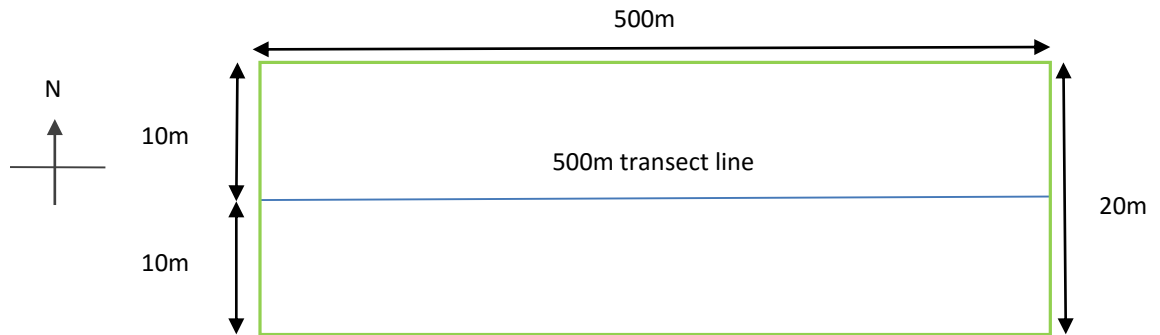


Figure 4: Layout of sample plots and transect line.

3 Findings/Results

3.1 National and/or regional context

Sierra Leone lies at the western edge of the Upper Guinean Forest Ecosystem and has a diverse tropical geography, encompassing mountains, rainforests and savannah. The Upper Guinea forests have been classified as one of the 25 most important biodiversity hotspots in the world (Myers et.al. 2000) and is listed on the WWF’s Global 200 list of critical regions for conservation as well as designated as one of Conservation International’s 34 global biodiversity hotspots. Sierra Leone itself hosts a significant population of chimpanzees and populations of the extremely rare pygmy hippopotamus.

Forest (rainforest, mangrove), savannah woodland and the swamps or marsh make up the country’s agro-ecological zone. Much (70%) of the original forest cover of the country has been lost due to a range of factors including clearing for agriculture, timber and firewood. Patches of rainforest remain scattered in the northern, eastern and southern provinces but there is hardly any undisturbed forest cover.

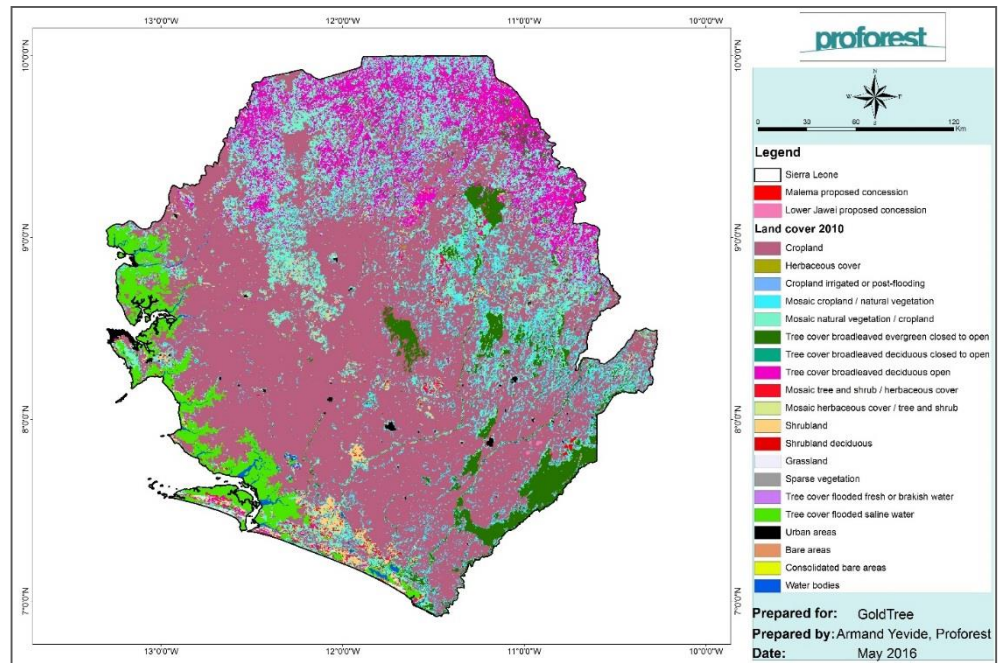


Figure 5: Forest cover map of Sierra Leone

Protected Areas (Figure 6) in Sierra Leone are categorized (according to the 1972 Wildlife Conservation Act) as: National Park, Strict Nature Reserve, Game Reserve, Game Sanctuary, Controlled Hunting Area and Non-hunting Forest Reserve. The network of protected areas includes two national parks in the country (OKNP and GRNP), a wildlife sanctuary (Tiwai island), and a collection of forest reserves (typically non-hunting).

The Gola Rainforest National Park (71,170 ha), located on the south-eastern edge of Sierra Leone, on the border with Liberia, is the largest remnant of the Upper Guinea Tropical Moist Lowland High Evergreen Forest in the country. Recent surveys have recorded 49 species of mammals, 500 butterfly species, 41 species of bats, 43 species of amphibians and 13 reptile species making it one of the most diverse forests in West Africa. Botanical surveys have identified close to 1000 plant species, including well over 300 species of trees and 599 regional endemics (Klop et. al., 2008, 2010).

There are 60 species which have been categorized as threatened according to IUCN Red List of Threatened Species. These include Pygmy Hippopotamus, Western Chimpanzee, Jentink’s duiker, African Forest Elephant and the Rockfowl.

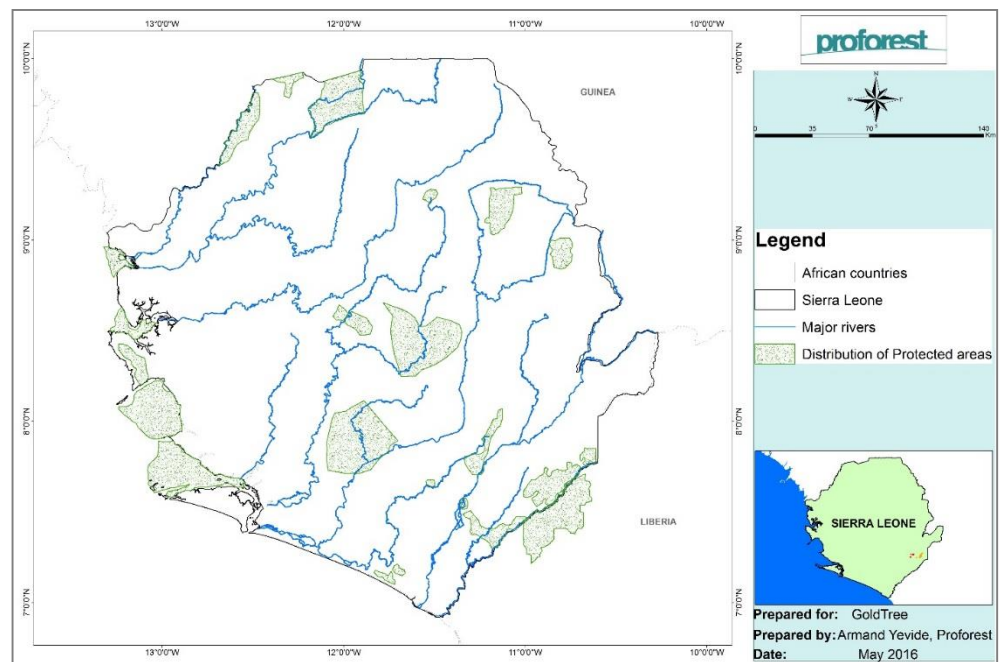


Figure 6: Protected areas and major rivers of Sierra Leone

3.2 Landscape context

Demographic and socioeconomic context

Sierra Leone lies along the coast of West Africa and borders with Guinea in the North-East and Liberia in the South-East. The country covers an area of 71,740 km² with an estimated population of 7.075 million. Seventy percent of the total population lives under the poverty threshold of \$2.00 a day, and largely dependent on agriculture. Most of the country's agricultural potential and cash crop farmers are concentrated in the eastern province, with a major share of cocoa, coffee and rice production. Rice is by far the dominant crop, accounting for about 60 percent of the cultivated area and grown by 75% of the population. The rice cultivation ecologies encompass the upland and the diverse lowland ecologies. The government is actively promoting cultivation of rice in the Inland Valley Swamps (IVS) as well as cassava, which is easy to grow and has a higher yield on poor land than other food crops.

Artisanal fisheries are a significant source of employment, rural income and the largest single source of protein for majority of the people.

Forestry is important in the local economy, since over 90 percent of the domestic energy needs for heating and cooking are provided by fuel wood. However, because of the prevailing extensive slash and burn cultural farming practices, forest reserves now comprise less than 3 percent of the country's total area.

Mining constitutes a key component of both the national and rural economies. Diamond and sand mining is evident at varying scales in the landscape.

Land tenure in Sierra Leone is characterized by a dual ownership structure. Land in the Western area is held under the English freehold concept, while land in the rest of the country (the provinces) is held in communal ownership under customary tenure and is

controlled by traditional rulers who administer it on behalf of their communities in accordance with customary law and usage.

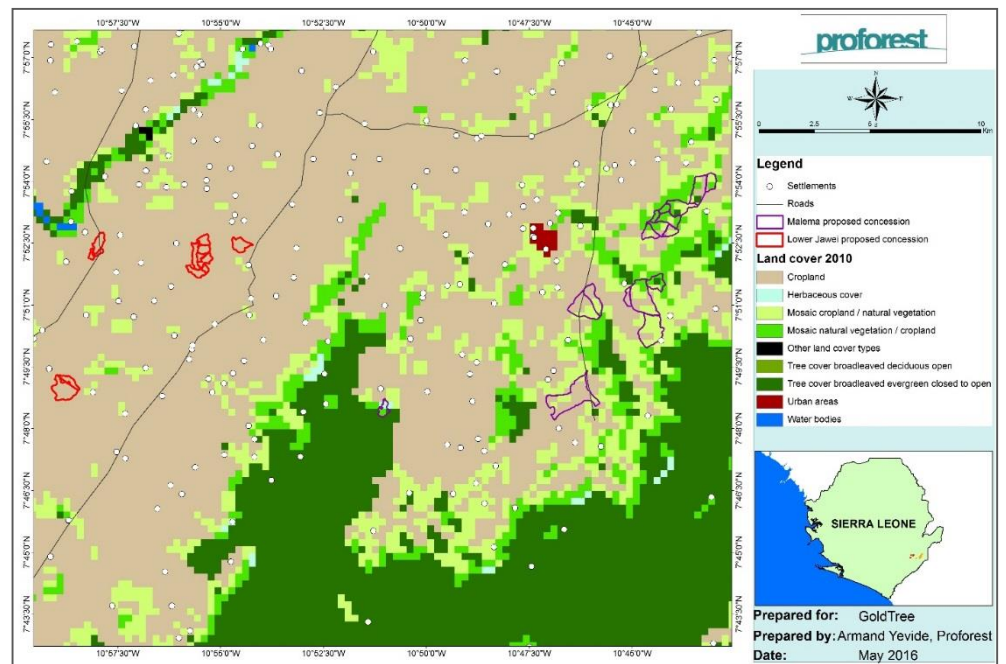


Figure 7: Land cover map of assessment landscape showing settlements and infrastructure

Protected and key biodiversity areas in the landscape

Even though the landscape consists predominantly of agricultural lands and is comprised of settlements, farms and fallows, there are yet some important areas of conservation importance. The closest Protected Area to the concession is the GRNP which is located some 18 km away, with the Kambui Forest Reserve a further 26 km away from the concession (Figure 8). The area between the concession and these Protected Areas is covered mainly by settlements and farmlands, which give way gradually to bush-fallows, advanced regenerations and secondary forests as one moves southwards or eastwards towards the Protected Areas (Figure 8). A 5-km radius buffer or Leakage zone has been established around the GRNP.

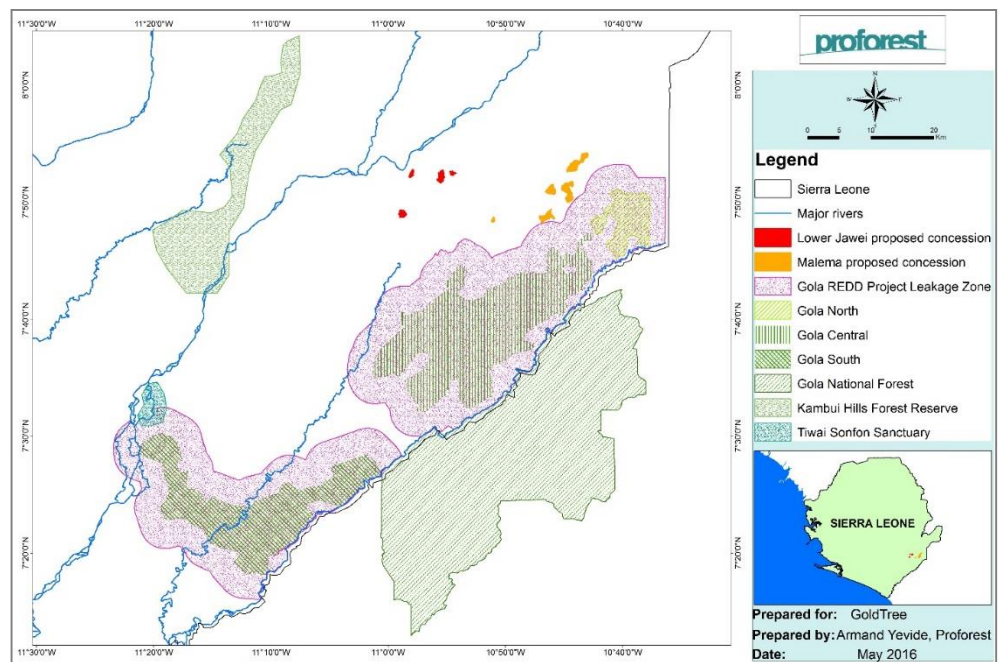


Figure 8: Proposed concessions relative to protected areas in the landscape

Physical features

The proposed concessions lie within the Rainforest Agro-climatic Region of Sierra Leone with a tropical monsoon climate, with a mean annual rainfall estimated at 2800 mm. The average temperature is 26 degrees and relative humidity is high, averaging 80% for most of the year. The terrain comprises a basement of Pre-Cambrian granite complex and local granulite; above which is the Supra-crustal greenstone belt. The dominant soil type is oxisol, with the textural classification ranging from gravelly to gravel free. With the exception of some few outcrops of steep slopes, the proposed concessions lie in the lowlands with gently undulating terrains.

3.3 HCV outcomes and justification

This section presents an overview of the HCVs that were identified in OOPC’s Extension 1 concession. Table 6 below indicates presence and absence of HCVs.

Table 2: Summary of HCV assessment findings

HCV	Definition	Present	Potentially present	Absent
1	Species diversity. Concentrations of biological diversity including endemic species, and rare, threatened or endangered (RTE) species that are significant at global, regional or national levels.			
2	Landscape-level ecosystems and mosaics. Large landscape-level ecosystems and ecosystem mosaics that are significant at global, regional or national levels, and that contain viable populations of the			

numbers. He further noted that the comparison of the distribution maps compiled in previous and current studies support the idea that pygmy hippos are more common in the community areas around GRNP than inside. We have not recorded pygmy hippos during our assessment, and Koroma (2012), recorded very low numbers in his study. However, Hillers and Muana (2011) showed that pygmy hippos are more frequent in swampy areas around big streams and swampy community land adjacent to the GRNP, confirming results from other studies which relate distribution of pygmy hippos to a variety of habitat types including big streams in community areas around GRN, swampy areas with partly herbaceous vegetation and potential food plants as well as small streams with submerged trees, root hollows, and swampy depressions. which suggest their potential presence within and/or around the proposed concession, most likely at the swamp sites and young regenerating forest. The pygmy hippo is therefore deemed to be potentially present.

Analysis of recent data on the White-necked Picathartes research carried out in the GRNP and surrounding scattered patches of forests reveal that the largest colonies lie in good quality forest within the forest reserve (in the Mahoi Basin), up steep heavily vegetated slopes (Wotton and Morris, 2007; Wotton et. al., 2010)). While a study in 2006 found a good number of active colonies outside the GRNP boundaries, none of these occur within the proposed concessions at Malema or Lower Jawei or their immediate vicinities. However, given the relatively high number of active nests outside the GRNP, there is a likelihood of potential presence of this species in parts of the proposed concession.

About 1000 species of herbaceous and woody plants are known to occur in GRNP. Dominant families of woody plants are Leguminosae-Caesalpinoideae, Euphorbiaceae, Leguminosae-Mimosoideae and Sterciliaceae. These four families contain 37% of all tree species recorded in GRNP (Garteh). We assessed various tree species including the Fabaceae and Rubiaceae families at various stages of development (as well as regeneration potential) at both the Malema and Lower Jawei proposed concessions. Species of the preponderant Fabiceae and Rubiaceae families were found not be in a concentration we consider a significant number given that these species are sufficiently and significantly represented in protected areas in the country including the GRNP and we consider our survey effort sufficient to determine the extent of this families in the proposed concessions. As such, we do not consider their presence at these sites to be of conservation importance. However, the areas with the highest concentration of these species occur in areas identified to be protected under HCV 3 category i.e. young regenerating and secondary forests in Sites 1 and 3 of the Malema proposed concessions.

In view of the foregoing, the indications are that the pygmy hippo and Rock Fowl nesting sites could likely occur in parts of the proposed concession at Malema (Figure 9), hence the conclusion that HCV 1 is potentially present.

HCV 2: Globally, regionally or nationally significant large landscape-level forest

HCV	Key question	Finding
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2	Do the two concession areas contain or form part of a regionally or nationally significant large landscape forest or does it adjoin such forests?	Absent
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Discussion and justification

Most parts of the proposed concessions (with the exception of small patches of young regenerating forest in the Malema area) are severely degraded and located within a much modified landscape characterized by derelict oil palm plantations, smallholder food crop farms, large number of settlements and bush fallows. The existing forest cover is highly fragmented throughout the landscape. The only large block of forest cover in the landscape is the 71, 170 ha Gola Rainforest National Park, consisting of three blocks, with Gola Central being the largest (41, 700 ha). Other forested areas consist of the small and isolated swamp forest patches and some young regenerating forest. However, these are isolated and widely dispersed, forming no connection to the greater GRNP area. Patches of forest in the gaps separating Gola South, Gola Central and Gola North are contained within an established buffer or leakage belt outside the proposed concession. This was confirmed during interviews with the GRNP technical staff, who indicated that no significant patches or corridors occur, “except maybe in some areas within the leakage belt”. The other important forest patches, are reported to occur to the east of the GRNP (in the corridor area of GRNP and two sites within Gola National Forest in western Liberia). There is an absence of connectivity between the GRNP and other Protected Areas or Forest Reserves or between patches of areas with intact forest vegetation in the proposed concessions. Outside the GRNP, there is an absence of vegetation that qualifies as a large (i.e. greater than 50 000 ha) contiguous area of natural ecosystem or habitat. It is therefore unlikely that HCV 2 is present as contiguous block of forest or corridors with connectivity to existing Protected Areas. Rather, it is more likely that any values related to ecosystems and habitats or species distribution would be better suited to HCV 1 and HCV 3 classification. Some parts of the Malema concession with relatively good secondary and young regenerating forests have been designated as HCV 3 and recommended as set-asides.

In conclusion, the GRNP represents the largest block of lowland rain forest in a landscape dominated by degraded to severely degraded forest fragments devoid of any connectivity with the Park.

In view of the foregoing, HCV 2 is confirmed to be absent.

HCV 3: Rare, threatened or endangered ecosystems

HCV	Key question	Finding
3	Does the concession fall within or contain an ecosystem that is considered to be rare, threatened or endangered?	Present

Discussion and justification

Intact forest vegetation (including young regenerating forest)

Approximately 70% of Sierra Leone was once covered with forest. The area is now reduced to barely 5%. The threats are mainly attributable to anthropogenic activities (slash and burn agriculture, logging and fuelwood collection) and the current status of

ecosystem protection is not sufficient to halt the trend of destruction and threat. Therefore, it stands to reason that patches of secondary forest with good regeneration, such as those observed to occur in parts of the proposed Malema concessions are protected, maintained and enhanced.

As noted above, particularly in the Malema concession, there is relatively rich species richness as well as presence – even if of regionally and nationally insignificant concentration – of species of conservation importance.

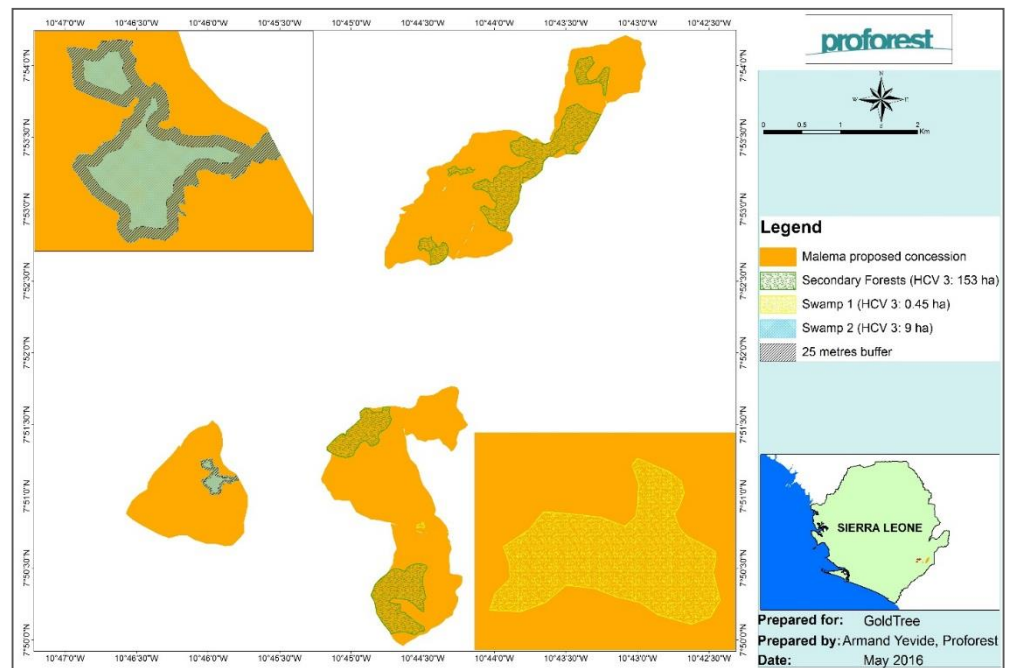


Figure 9: HCV 3 in Malema concession

Swamps (with relatively rich species diversity)

Wetlands and freshwater water systems in Sierra Leone are vast and rich in birds, molluscs, crustaceans and various fish species. Although there are established protected areas covering these biomes, the expansion of rice production is a threat to be considered. Interviews with officials at the MAFFS revealed that, while lowland swamps are important for rice farming, the policy is always to screen for important biodiversity and ecosystem services and to preclude such areas from conversion to agricultural lands. The results of the survey indicate that both concessions generally support very low wildlife density and species diversity, with most of the species recorded being either forest fringe species or species of farmland or degraded forests. However, two swamp sites in the Malema concession (Figure 9) were observed to contain relatively high density and diversity of wildlife, even though their concentration relative to what pertains in the wider Gola landscape is apparently insignificant to merit their designation as HCV 1 species. The swamp sites were found to be the richest site for mammals, accounting for 12 (48%) out of the total 25 mammal species collected in the Malema and Lower Yawei Concessions. Also both sites contributed to over 30% of the total mammal signs recorded in both areas.

HCV 4: Forest areas that provide basic services of nature in critical situations

HCV	Key question	Finding
	Ecosystem services. Basic ecosystem services in critical situations, including protection of water catchments and control of erosion of vulnerable soils and slopes.	PRESENT

Discussion and justification

Control of erosion and slopes

Generally, there is potential risk of critical soil erosion where scattered outcrops of high elevation surround inland valleys containing streams and/or rivers that serve critical needs of nearby communities such as drinking and fishing. The young regenerating forest on the slope running along the western boundary of the Kpangiema block (Site 3) provides such stabilising effect and effectively protects the nearby Fawulo stream (which is the sole source of drinking water for the Kpangiema community) from the harmful effects of possible erosion. This area, identified as HCV 3 above is confirmed as HCV 4.

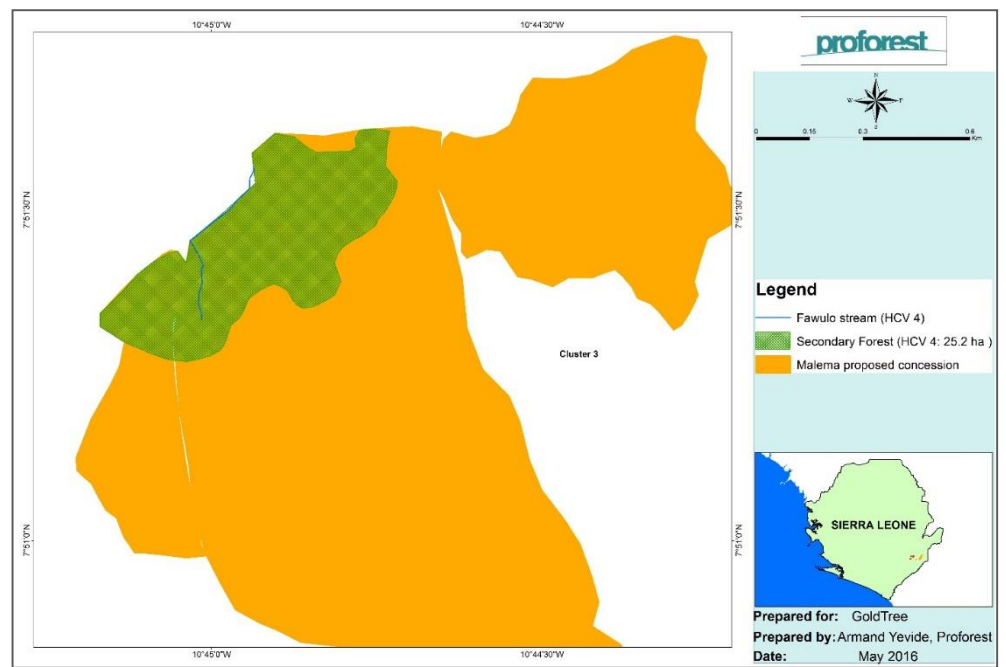


Figure 10: HCV 4 in the Malema concession

Riparian vegetation

Riparian vegetation protects water quality by trapping sediments and pollutants associated with run-off, helping recharge underground aquifers, dissipating stream energy during floods, and providing detritus for aquatic organisms (Chappel et. al., 2007). A buffer (with an area equal to the width of the stream) is therefore recommended to be established on each side of all streams/rivers that flow through the proposed concession. These buffer areas are considered HCV 4.

Provision of clean water and protection of riparian vegetation

The Kpangiema, Komende, Magboima and Nagbena communities, all depend on streams which flow through the proposed concessions to meet all their water needs. These streams include the Fawulo (Kpangiema), Ndodaiya (Komende), Kodorwah (Magboima), and Mahoiny (Nagbena).

The Fawulo (Figure 10), Ndodaiya, Kodorwah and Mahoiny (these are not mapped and should be identified and mapped by the company) streams of the Malema concession area as well as the Njewula swamp and Mbaoya stream (Figure 11) used by Kpedela and Heigbeima communities in the lower Jawei proposed concession are confirmed to be HCV 4.

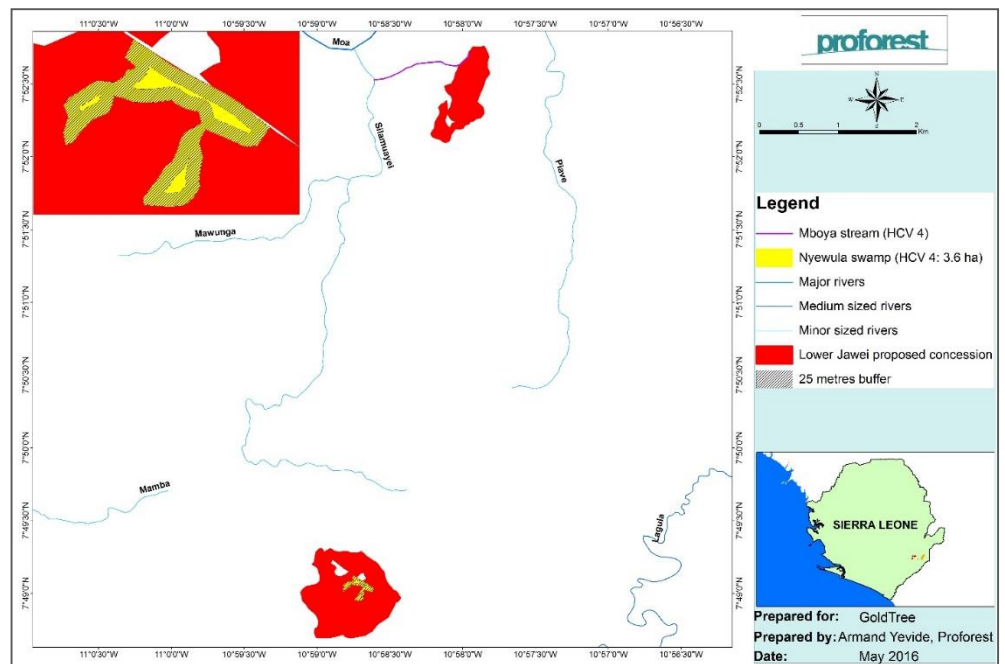


Figure 11: HCV 4 in the Lower Jawei concession

The Lagua River flow just outside the boundaries of the proposed Malema concession and is a secondary source of drinking water for the Jewoteh community. Even though the Jewoteh community has a couple of hand pumps for provision of water, the Lagua River is confirmed to be HCV 4 and 5 (Figure 12) given the its continued use by the community as well as the fact that the hand pumps could break at any time and the community might not have the ready means to repair in good time.

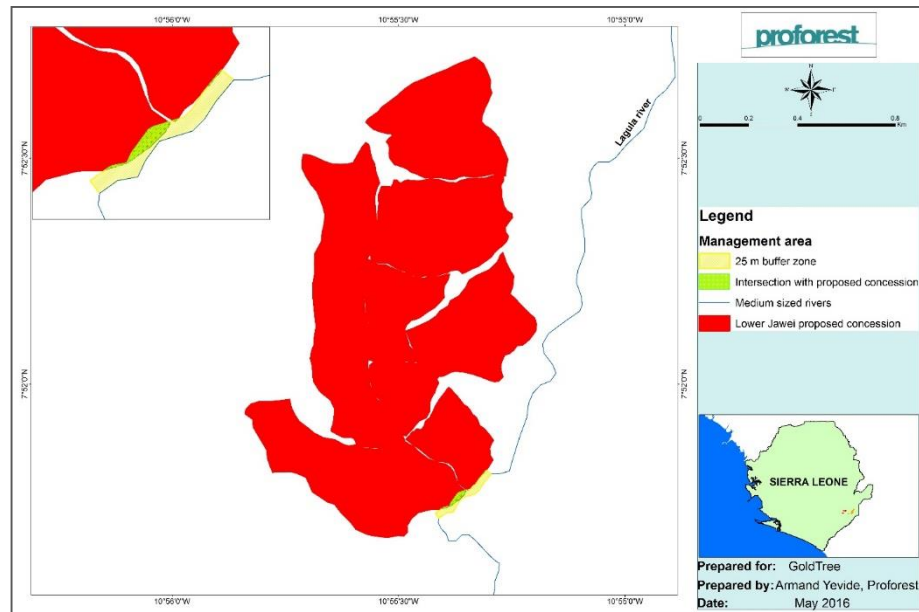


Figure 12: The Laguna River on parts of the concession boundary at Lower Jawei

HCV 5: Areas fundamental to meeting basic needs of local communities

HCV	Key question	Finding
5	Does Goldtree’s proposed concessions contain areas that are fundamental to meeting the basic livelihood needs of the local communities, e.g. (subsistence, health etc)?	Present

Discussion and justification

Water Resources and Fisheries

HCV 5 areas include areas that are of essential importance for local communities as irreplaceable sources of basic needs including household water. Given that the singular source of drinking water for most communities are nearby streams flowing through the proposed concessions, **HCV 5 is confirmed to be present (and therefore overlapping with HCV 4).**

Gathering of food, medicines and construction materials

Proposed concession is major source of rattan for the Kpangiema community (where most families including women weave baskets and there is an association of basket-weavers), but scattered and not concentrated in one place. Fresh inland swamp forest, found mostly at valley bottoms and along streams where rainfall is high, have a predominance of *Raphia* palms and common species are *Raphia sudanica* and *Raphia hookeri*. The more exploited species are *Raphia hookeri* (used for thatch) and *Raphia palmipinus* (used to produce piassava, an export crop). The Kpangiema community indicated that the Gbayoh swamp area is their single largest important place for collection of rattan and fishing and some rice farming is done in the vicinity. The intricate network of small streams in the area is also believed to ‘recharge’ the nearby Fawulo stream. **The Gbayoh swamp areas is therefore confirmed to be HCV 5 (Figure 13).**

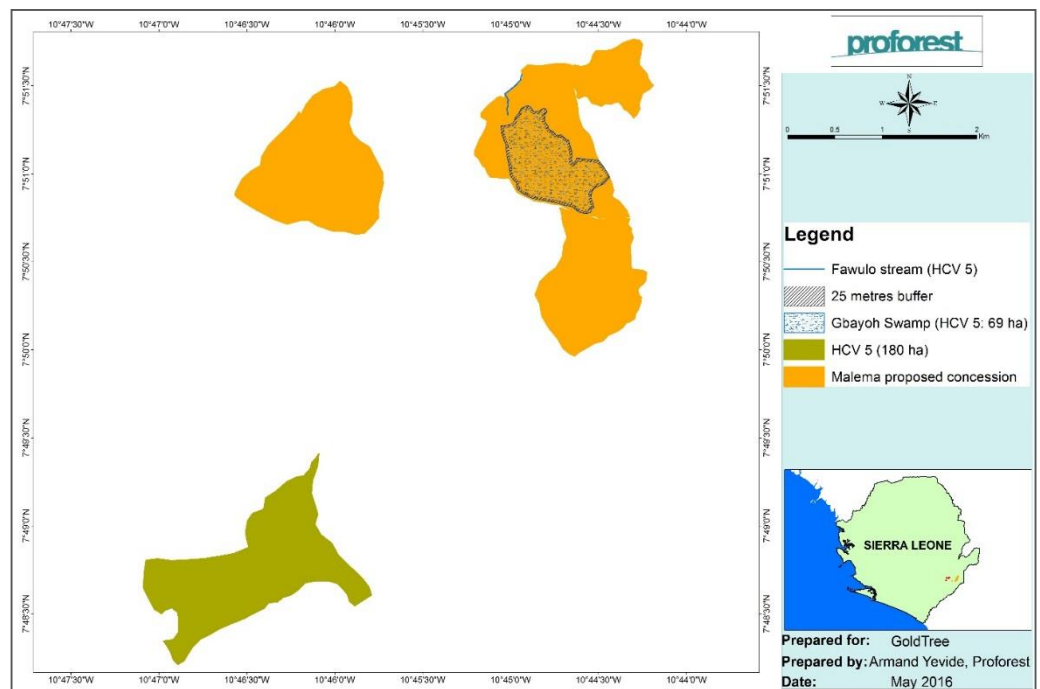


Figure 13: HCV 5 in the Malema concession

Some communities around Kpelebabima (Madina, Macca and Malemageima) expressed concern about losing more land following previous losses suffered as a result of the Gola Rainforest National Park. For instance, they insisted that, the proposed concession (Kpelebabima) serves important multiple uses including hunting, fuelwood, timber, fishing, rattan, herbs, raffia and farming among others. They further indicated that the area is their only source of rattan and would rather not give land to have continued access to the resource, which most people in the community collect in commercial quantities for weaving. **Given the strong sentiments expressed by the communities in respect at the Kpelebabima area, we recommend the setting aside of the area as HCV 5 (Figure 13).**

HCV 6: Areas critical to local communities’ traditional cultural identity

HCV	Key question	Finding
6	Cultural values. Sites, resources, habitats and landscapes of global or national cultural, archaeological or historical significance, and/or of critical cultural, ecological, economic or religious/sacred importance for the traditional cultures of local communities or indigenous peoples, identified through engagement with these local communities or indigenous peoples.	Absent

Discussion and justification

None of the affected communities has a sacred grove or secret society bush in the proposed concessions at both Lower Jawei and Malema. A few including Jorpowahun, Macca, Karlu, Ngeiyah and Njala-Ngema have secret society bushes located just outside their communities but not within – and located at a considerable distance from – the

proposed concession. HCV 6 is therefore present in the landscape but **absent in the proposed concessions**. Most of these are secret society bushes for women, where members meet to perform traditional cultural rites. As indicated, public meetings with the communities revealed that these are not located close to the concession and their locations cannot be mapped as they are ‘secret’. However, it is recommended Goldtree engages and communicates with all communities on the issue of secret society bushes to ensure there is no possible way that these can be damaged during operational activities.

3.4 Stakeholder consultation outcomes

A number of government officials and experts (including conservation and social NGOs) were interviewed – and public meetings held in communities – to share any comments and/or concerns they may have in respect of Goldtree’s plantation development efforts in general and specific matters relating to HCVs. Table 6 below summarises outcomes from stakeholder consultations.

Table 3: Outcome of stakeholder consultations

Name & title	Date	Org	Key concerns/recommendations
Edmond Saidu, District Agric. Officer	5 th April, 2016	MAFFS, Kailahun District	Largest forest reserve is Gola and Goldtree’s concession are no way near it. Four community forests (designated protected forest e.g. PF1, PF2, etc.) in Kailahun district but none in Malema or Lower Jawei Chiefdoms. These are located at Upper Bambara (2) and Kissitongi (2). Goldtree is a regular and active participant in MAFFS monthly coordination meetings to review district forestry and agricultural activities. Rice farming in swamps is a deliberate government policy. However, whenever there is an ecological interest, such as areas with high species diversity, then these are to be protected. For instance, some PFs are sited at protected swamp areas. Although the current concession areas of the company do not include overlap with any such protected areas, the company should generally be aware of the existence and locations of these protected forests so that they can be avoided in their future land acquisitions. Government supports development of swamps for rice farming. We would encourage Goldtree to make swamps available to farmers where present in the proposed concessions.
Mohammed Sissorkor, District Forestry Officer		MAFFS, Kailahun District	
Dr. Annika Hillers, Conservation Scientist (and team)	5 th April, 2016	Gola Rainforest National Park Project/ Royal Society for	Currently implementing the Gola REDD+ Project with Government of Sierra Leone and the Conservation Society of Sierra Leone; based on a balanced approach of protection and community development programmes, expected to bring benefits to global climate as well as local communities and biodiversity. Sooty Mangabey, Pygmy hippo found in some swamp areas. Chimps found in area close to Madina just inside leakage belt. Small patches of community forests in some areas. No

		the Protection of Birds	significant patches or corridors, except maybe in some areas within the leakage belt. Attention to be paid to possible sites for Rock Fowl. Aside the well documented and clearly demarcated Protected Area network in the country, there are also a number of community forest areas that need to be protected.
Dr. Sheku Kamara, Executive Director	6 th April, 2016	Conservation Society of Sierra Leone	Main concerns include how well communities would be brought on board to avert any possible future conflict with company. Country has not made much progress in putting palm oil policy in place. Therefore, company need to proceed cautiously. Development should not affect conservation objectives of Gola. Leakage zone has been established and should be respected. Currently carrying out KAP survey (knowledge, attitude, practice) – a post-Ebola programme with aims amongst others to assess wildlife use in the area.
Jack Jalor, Deputy Director, Extension	11 th April, 2016	MAFFS	Cassava farming policy moving towards sedentary! Pronouncement by Minister to try as much as possible for farmers to use lowlands for farming. For Inland Valley Swamp (IVS) farming, we work with forestry and engineering unit to ensure biodiversity is protected. For instance, that, it is not a protected area and ensure activities do not impair environment including checking and ensuring harmful chemicals are not used and organic fertilizer promoted. Training farmers in compost preparation for domestic production.
Dr. Kolly Bangura, Director	11 th April, 2016	National Protected Area Authority (NPAA)	NPAA has responsibility to oversee all designated Protected Areas and declare new ones as necessary, and is currently, in process of doing this. Any alteration of the ecosystem has to be approved by NPAA. Upcoming regulation for large-scale agri-companies on biodiversity off-sets, whereby assessment to be carried out to determine how much biodiversity to be replaced/off-set. Plans to expand GRNP in the light of consideration to dam upper part of Mano River (for electricity for Liberia and Sierra Leone), which is anticipated to flood parts of the reserve.
Destina Samani, Director, STEWARD Programme	11 th April, 2016	USAID	STEWARDS (implemented by USFS and partners) aims to enhance economic opportunity, peace building and well-being through the sustainable management of forest landscapes. Both priority zones outside the landscape containing proposed concessions and has therefore not undertaken any studies in the area. Mentioned however that, organisations such as NPAA, GRNP management, CSSL and RSPB should definitely be consulted as they have all done extensive work in the area.

Summary from community consultations

Results from the baseline social/socio-economic survey carried out by CEMMATS have been complemented with broad community-level consultations (including public meetings, focus group discussions and key informant interviews) carried out during the fieldwork. Public meetings were held in seven communities covering seventeen communities involving a cross-section of all stakeholder groups including the Sectional, Town and Quarter Chiefs Town Speakers, Chiefdom Committee, Queen mothers and various other elders and opinion leaders (Imams, etc.), women, youth, farmers, fishermen,

hunters and other identifiable groups. Five hundred and ninety (590) persons participated in the community meetings.

Several concerns were raised by communities including increasing scarcity of land for farming, pollution of water bodies, absence and/or poor condition of social amenities (schools, clinics, good roads, etc.) among others. Questions relating to the HCV process as well as some question relating to leases, rent and compensation were addressed during the meetings by the Assessor. However, all comments including those specifically addressed to Goldtree have been compiled and conveyed to Goldtree (Annex 2 of main report) to be factored into its on-going FPIC process.

Findings from the community consultations have been used the identification of HCVs, particularly HCVs 4, 5 and 6.

4 HCV management and monitoring

4.1 Threat assessment

Threats to identified HCVs have been assessed through observations in the field and consultations with stakeholders including communities with due consideration for the extent of area, the severity and duration of the impact on the HCV. For external threats, an attempt is made to identify indirect causes where feasible. Table 4 below details threats to identified HCVs.

Table 4: Threats to identified HCVs in the concession

HCV	Brief description of value present in assessment area	Main threats
1, 3	Rare, threatened or endangered ecosystems: These include all secondary forest, as well as those preventing critical erosion. It also includes swamps with relative abundance of faunal biodiversity.	<p><u>Conversion to farmland</u></p> <p>Agricultural production has been the single biggest contributor to deforestation in Sierra Leone in general and the landscape in particular. As a result of the increasingly shortening fallows, farmers continuously seek new land to clear and burn for establishment of new farms, including in swamp areas- particularly targeted for rice cultivation as well as the set-aside young regenerating secondary forest areas.</p> <p><u>Hunting</u></p> <p>Swamp sites 1 and 2 have relatively abundant fauna, and could be sites potentially visited by pygmy hippos if present in- or around proposed concessions. Both face a high hunting threat given their relative accessibility and close proximity to human activities. For instance, it is extremely important to ensure that farmers, in using the adjacent Gbayoh swamp as an HCV 5 area, do not encroach into Swamp site 1, particularly to hunt (duikers, brush-tailed porcupine, giant Gambian rat, squirrels, etc.). Hunting threat is potentially present in the set aside young regenerating secondary forest areas, where there is a remote possibility for the occurrence of Rock Fowl nesting sites.</p> <p><u>Plantation agrochemical use/pollution of the swamp</u></p> <p>All the swamp sites could be at risk of pollution by agro-chemicals, following the future development of surrounding areas for oil palm establishment. Aside establishing and maintaining a buffer, it is important to avoid the situation that</p>

run-off water containing chemicals and fertilizer find its way into these swamps (Savilaako et. al., 2014). A 25m buffer is recommended for all swamps and mapped. It is general best practice to plant buffer areas with native species for demarcation and buffering.

Logging

Logging is reported – and was observed – to be widespread. Truckloads of various species of sawn timber were seen to be carted on numerous occasions. Most of the identified secondary forest occur on slopes which serve to prevent erosion. Logging would pose a major threat to the continued provision of this critical ecosystem service. If unchecked, this would reduce the capacity of the forests to moderate stream flow, stabilize the terrain, reduce river bank erosion, regulate runoff, trap sediments and promote infiltration of sediment-borne nutrients and pesticides. This would affect the water quality of water of rivers and streams such as the Fawulo and other streams lying in valley bottoms adjacent to surrounding forest patches.

Conversion during plantation land preparation and road building

Both forest area and the two swamps stand at risk of being converted during land preparation. As earlier noted, this could prove consequential for stabilization of terrain and adversely affect the potential to promote infiltration of sediment-borne nutrients and pesticides.

- 4 Ecosystem services including:
- Critical water catchment areas required to maintain continuous flow of water to serve local communities including all secondary forests on hilly ground (identified as HCV 3 above).
 - The Njewula swamp and the Fawulo and Mbaoya streams (as well as the unmapped Ndodaiya, Kodorwah and Mahoiny streams).

Loss of riparian vegetation due to farming/land preparation

Loss of riparian vegetation expose streams and rivers to diverse deleterious effects including erosion and eutrophication among others. However, indiscriminate farming and inadequately planned land preparation could undermine both the structural and functional integrity of existing riparian vegetation.

Pollution from agrochemical use

Similar to swamps, all streams and rivers flowing within and adjacent to the proposed concession stand the risk of pollution by agro-chemicals. Aside establishing and maintaining a buffer, it is important to avoid the situation run-off water containing chemicals and fertilizer find its way into these swamps.

- 5 Areas that are of essential importance for local communities as substantial and irreplaceable sources of food, medicines, fuel, household water such the Kpelebabima block (identified by all 5 affected communities as being

For the streams and swamps, see threats to HCV 4 above (loss of riparian vegetation and pollution from agro-chemical use).

Conversion for oil palm (or other plantation) development

Areas such as the Gbayoh swamp area and the Kpelebabima block (in the Malema proposed concessions) are essential of essential importance in meeting basic needs of the nearby communities including medicines, fuel, household water, and farming among others. Standing the risk of conversion to other land uses, these areas should be set aside and precluded from all activities related to

of critical importance to meet their basic needs).

The Njewula swamp and the Fawulo and Mbaoya streams are critical drinking water sources.

Gbayoh swamp area is an important source of rattan, raffia, fishing and rice farming, especially for women in nearby communities.

oil palm development including plantation establishment or development or related infrastructural development.

4.2 HCV Management Recommendations

This section presents recommendations for managing the identified high conservation values in the concession. Table 5 below provides an outline of HCV management and monitoring recommendations that Goldtree must adopt and implement, with reference to the maps in Figures 14 and 15 below. HCV 1 has not been confirmed to be definitely present but potentially present for the Rock Fowl and Pygmy Hippo in the proposed concessions. Their protection is intended to be protected by proxy in the management and monitoring of areas designated as HCV 3. Nevertheless, additional specific measures to ensure the maintenance and/or enhancement of such individual species is included in the prescriptions below.

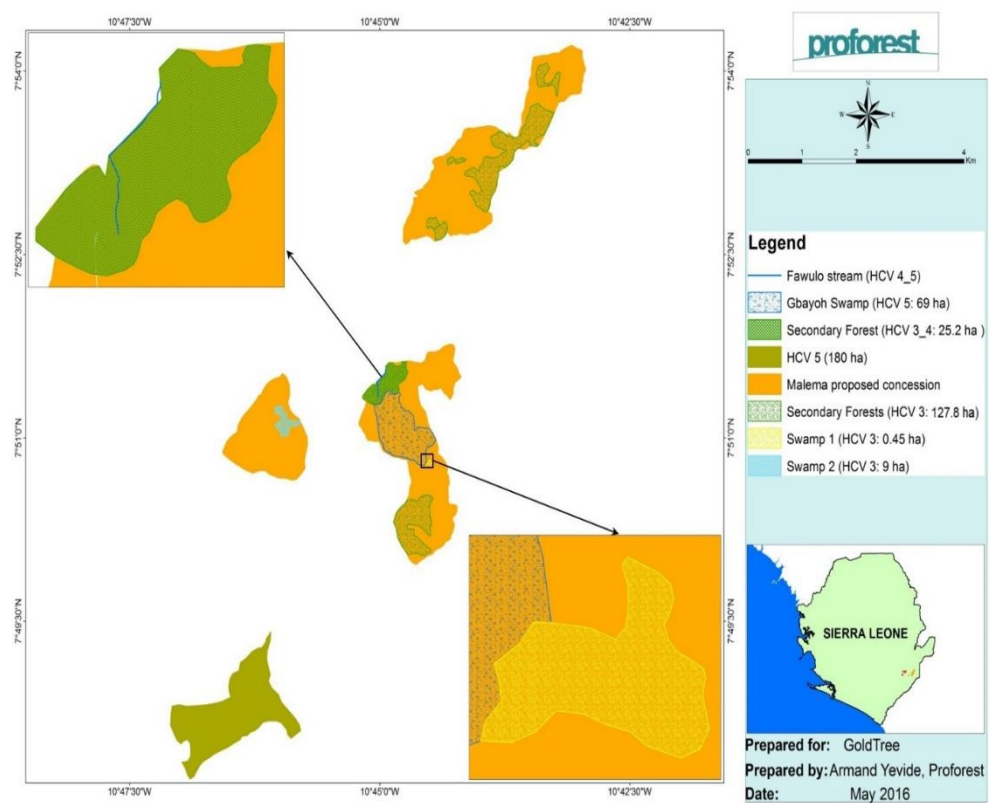


Figure 14: HCV management areas at Malema proposed concession

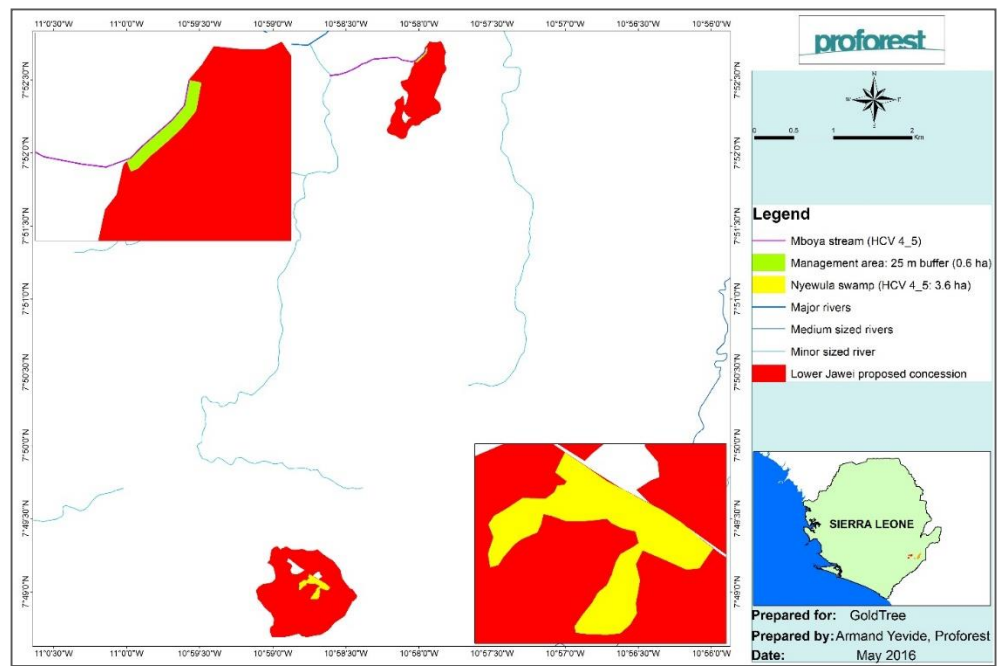


Figure 15: HCV management areas at Lower Jawei proposed concession

Table 5: HCV management recommendations

HCV ref	Threats	Management recommendations	Monitoring recommendations
1 (potential HCV)	<ul style="list-style-type: none"> Conversion of remaining secondary forest 	<ul style="list-style-type: none"> Conscious effort should be made to identify Rock Fowl nesting sites (see 5.1.1) within the proposed concession including in designated set-aside areas to help monitoring. 	<ul style="list-style-type: none"> Regular monitoring of human activities including hunting and farming (as necessarily established) in the swamps.
3	<ul style="list-style-type: none"> Hunting Logging Pollution of the swamp Plantation agrochemical use Conversion during plantation land preparation and road building. 	<ul style="list-style-type: none"> No conversion activities must be allowed in the swamp forest, and boundaries separating it from areas to be developed should be properly demarcated and visibly maintained at all times (Figure 14). Buffers should be established and enriched with indigenous tree species. Swamps not designated for rice cultivation (Figure 14) should be protected from farming and hunting should be restricted. No hunting of protected species should be allowed. Sign posts should be erected indicating protected species not to be hunted. Company to actively engage affected communities. SOPs should be established for managing all identified HCVs. 	<ul style="list-style-type: none"> Review of effectiveness of SOPs at least yearly. Periodic surveys on occurrence and distribution of species including those of conservation importance particularly pygmy hippo and others such as the Red River Hog, dwarf crocodile and African Buffalo.

		<ul style="list-style-type: none"> • Avoid application of agrochemicals within the swamp site buffer zone, of about 25m radius around its entire circumference. • Erection of no hunting (of protected species) or illegal logging sign posts within the vicinity and sensitization of communities of the ecological, biodiversity and livelihood importance of the swamp forest. • Identification of- and sensitization on-species of conservation importance. 	
4	<ul style="list-style-type: none"> • Loss of riparian forest during farming and land clearing • Pollution from agrochemical use • Loss of water quality and quantity due to conversion of watersheds and riparian vegetation 	<ul style="list-style-type: none"> • Prepare SOPs that recognise all set-aside areas including riparian vegetation, watersheds and particularly, the swamp sites and ensure those areas are precluded from conversion activities • Buffering of all rivers and streams. Set-aside buffer of the width of the stream on each side of all streams flowing within and adjacent the concession (Figures 14 and 15). • All other watershed areas identified must be precluded from conversion activities. • Avoid application of agrochemicals in riparian vegetation. 	<ul style="list-style-type: none"> • Regular sampling from rivers and streams for testing, including water quality monitoring system using the Before-After Control-Impact design model. • Biodiversity (selected fauna species) monitoring (see above) of swamp sites. • Regular monitoring of riparian vegetation and watersheds • Review of effectiveness of SOPs at least yearly
5	<ul style="list-style-type: none"> • As above for streams and swamps identified as HCV 4. • Conversion for oil palm or other plantation development 	<ul style="list-style-type: none"> • As above for streams and swamps identified as HCV 4 (Figures 14 and 15). • Avoid conversion of swamps and any set-aside areas, including indicating visible signs that would prevent accidental conversion by land-clearing contractors. Develop SOPs to safeguard the integrity of set-aside areas. 	<ul style="list-style-type: none"> • As above for streams and swamps identified as HCV 4. • Regular (preferably quarterly) meetings with communities to review results of management actions.

5 Signed statement of responsibility

This document is the summary report of the full High Conservation Value (HCV) assessment for the 1300 ha assessment area of the Malema and Lower Jawei concessions located in the Kailahun District, Eastern Province of Sierra Leone. The concession is intended to be developed for sustainable oil palm by Goldtree Limited. The assessment and the full and summary reports have been accepted by the Management of Goldtree.

We, the undersigned, accept the responsibility for the assessment and endorse this summary report as a true reflection of the full HCV assessment report. Additionally, we the management of Goldtree have accepted/approved the HCV assessment report and will implement the management and monitoring recommendations contained in the report.

1. Signed on behalf of the HCV assessment team:

A white rectangular box containing a handwritten signature in black ink. The signature is stylized and appears to be 'Nana Darko Cobbina'.

Nana Darko Cobbina, Lead Assessor

2. Signed on behalf of the management of Goldtree Limited.

A white rectangular box containing a handwritten signature in black ink. The signature is stylized and appears to be 'Pieter Van Dessel'.

Pieter Van Dessel, General Manager

