

# SUMMARY REPORT FOR HCV ASSESSMENT

FOR

Olam Oil Palm Plantation Development in Gabon

Prepared by

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## Executive Summary

### Introduction and general background

Olam International is one of the leading global supply chain managers and processors of agricultural products. With presence in about 64 countries across the world, Olam International operates in the cocoa, coffee, cotton, teak, cashew, rubber and palm oil sectors. While much of its operations have in the past focused on the supply chain side, Olam International set up Olam Palm, a Joint Venture Company with the Gabonese government in Gabon, as a subsidiary of Olam International to focus mainly on the establishment of oil palm plantations development and processing of palm oil for both local and international markets. On 26<sup>th</sup> November 2010, Olam Palm was granted a total of 51,920 ha of concessions for a 50-year period. These concessions consist of three Lots located in the provinces of Estuary and Middle Ogooue areas in the forest zone of Gabon, for agro-industrial oil palm plantation development. The three Lots include “Lot 8” at 20,030 ha located in the Department of Komo Kango of the Estuary province, “Lot 9” covering an area of 18,530 ha located in the Department of Abanga-Bignie in the province of Moyen-Ogooue and “Lot 11” at 13,360 ha lying between the Department of Abanga-Bignie and Department of “Ogooue et les Lacs” also in the Moyen-Ogooue province (Figure 16).

Lots 8 and 9 have been heavily exploited and are known to have been exploited several times over the last few decades and are reported to be going through their 7<sup>th</sup> to 10<sup>th</sup> rotation (F. Legault pers. comm.). This region of Gabon is recorded to have been one of the first areas to be exploited for timber mainly because of its proximity to Libreville, the national capital and the main ports for exports. Timber exploitation in this region was bolstered by the presence of major rivers that allow easy transportation of logs to the port for shipment overseas. In addition to the successive commercial industrial exploitations, several timber permits have over the years been granted to local companies and individuals in this degraded forest landscape for removal of the remaining mature economic trees even before the concessions were granted to Olam Palm. Some of these permits are still active, particularly the permit Gré à Gré (referred to as PGG) for which holders are expected to harvest no more than 50 trees during the duration of the permit. Besides the official and legally recognised operations, there is also a substantial number of informal timber harvesting operations by local communities in the region. Timber products from these informal activities serve as a cheaper source of wood for local construction as well as providing income to some local people. Although Lot 8 is about 5 km from the nearest communities, a handful of local farmers are actively using some areas of this concession for small-scale agricultural activities. In addition to this is the granting of mining and petroleum permits to other companies including Oil India. Although Oil India’s permit overlaps with some areas of Lots 8 and 9, officials of Gabonese government confirmed that it is legally acceptable since both permits have rights over different layers of the soil in any overlap area.

#### Primary forest in the assessment area

There are no primary forests in the three concessions. Information from the Gabonese Ministry of Forests and the field investigations suggest that the forests of these concessions have been exploited many times although some areas of Lot 11 (the south-eastern parts) consists of closed canopy forests. This area of Lot 11 also overlaps with the Intact Forest Landscape (IFL) defined by the World Resources Institute and Greenpeace along with several other organisations involved in the mapping of the IFL.

### Areas required to maintain or enhance HCVs

Generally, most parts of the northern triangle of Lot 8 and most parts of Lot 9 are required to maintain or enhance biological HCVs, besides Lot 9 being in Ramsar sites. Additionally, patches of areas in both the southern end of Lot 8 and north-western end of Lot 9 are required to maintain both biological and social HCVs. In defining areas required to maintain or enhance HCVs, the various types of HCVs identified in the two Lots and their locations are presented below.

#### HCV 1.1 in Lot 8

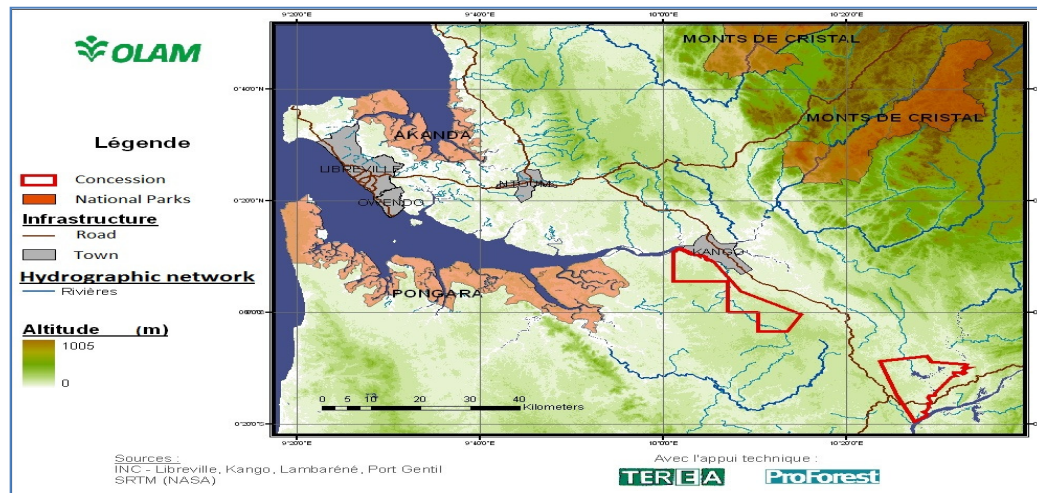


Figure 1: Map of Lots 8 and 9 with the nearest National Parks

The north-western boundary of Lot 8 is about 15 km from a wetland park, the Pongara National Park. Although this concession is not within the boundaries of the national park, the conversion of this part of Lot 8 into oil palm plantation with significant use of fertilizers and agrochemicals could affect the quality of water from the Komo estuary which borders Lot 8 and drains through the park. Given that most parts of Lot 8 near the Komo estuary are hilly with slopes of above 20 degrees, there is potential risk of erosion and siltation if this area is converted. Considering this risk within the framework of the precautionary principles and proximity of the concession to the park, specific recommendations for slope management, rivers buffering and soil management have been made for any conversion activities in northern triangle of Lot 8 so as to avoid or reduce the potential impact of agrochemicals from the plantation on Pongara National Park.

#### HCV 1.1 in Lot 9

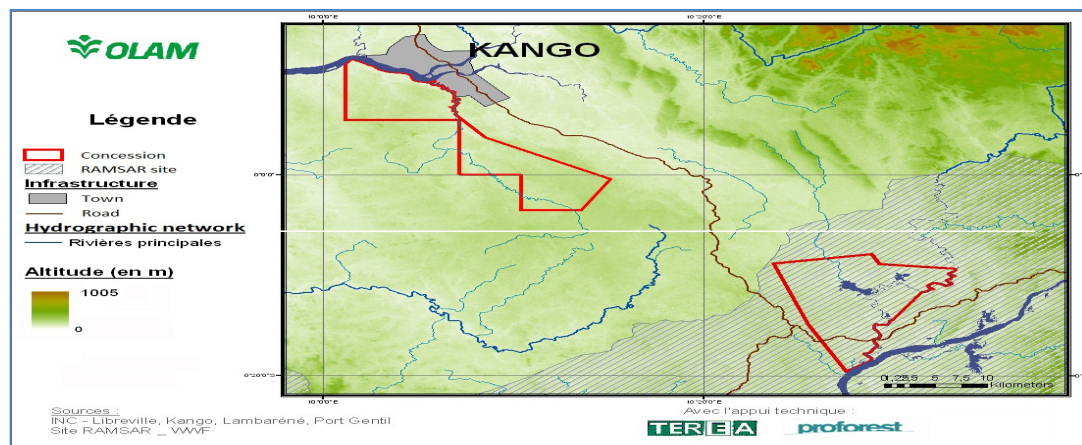
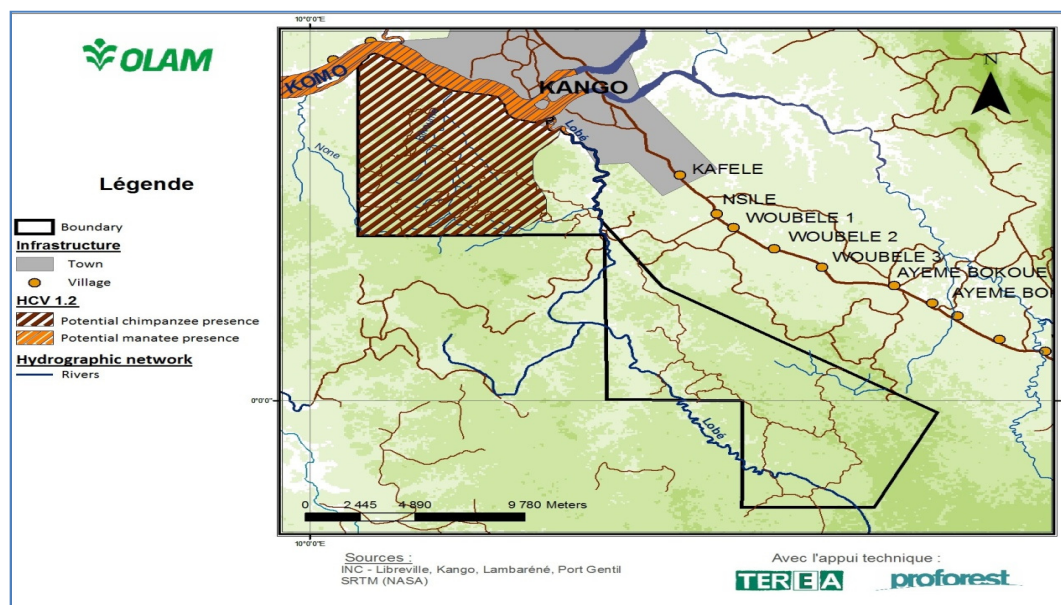


Figure 2: Map of Lot 9 showing the boundaries of the Bas-Ogooué Ramsar site

Lots 9 and 11 were identified to be located within the newly designated Bas-Ogooué Ramsar site (Figure 2) which is an internationally recognised conservation priority area under the intergovernmental Ramsar Convention<sup>1</sup>. Although the classification of an area as a Ramsar site does not preclude all development activities within its boundaries, it is important that any economic activity that is undertaken in such area is consistent with the objectives for which the area was designated. Given that the areas around the two lakes, Nguene and Azougué are important areas for species of conservation importance such as those listed on CITES appendix I and II including gorillas and elephants (CITES appendix I) and manatees and hippopotamus (*Hippopotamus amphibius*) (Cites appendix II), this is one of the reasons for designating the area as Ramsar, the entire Ramsar area is considered as HCV 1.1.

### HCV 1.2 in Lot 8



**Figure 3: Map of Lot 8 indicating where HCV 1.2 is potentially present**

Manatees are under high hunting pressure in Gabon and their distribution area is very restricted compared to most species of conservation concern in Gabon. This species was sighted during the assessment in rivers in the northern parts of Lot 8 as indicated in Figure 3. There is currently a Memorandum of Understanding (MOU) between the Provincial governors and local communities in the region to protect populations of manatees in this region. Furthermore, signs of great apes were seen in this part of the concession although there was limited information to support that there are significant concentrations of great apes in this area. Since this assessment was conducted during the rainy season, it is important that another mammal survey (for example in dry season) is carried out in this area with the aim of identifying the significance of the concentration of great apes in the area. By invoking the precautionary principle, we have decided to classify those populations as potential HCV 1.2 until further studies are carried out or adequate data is available.

<sup>1</sup> Officially, "The Convention on Wetlands of International Importance especially as Waterfowl Habitat"



### HCV 1.2 in Lot 9

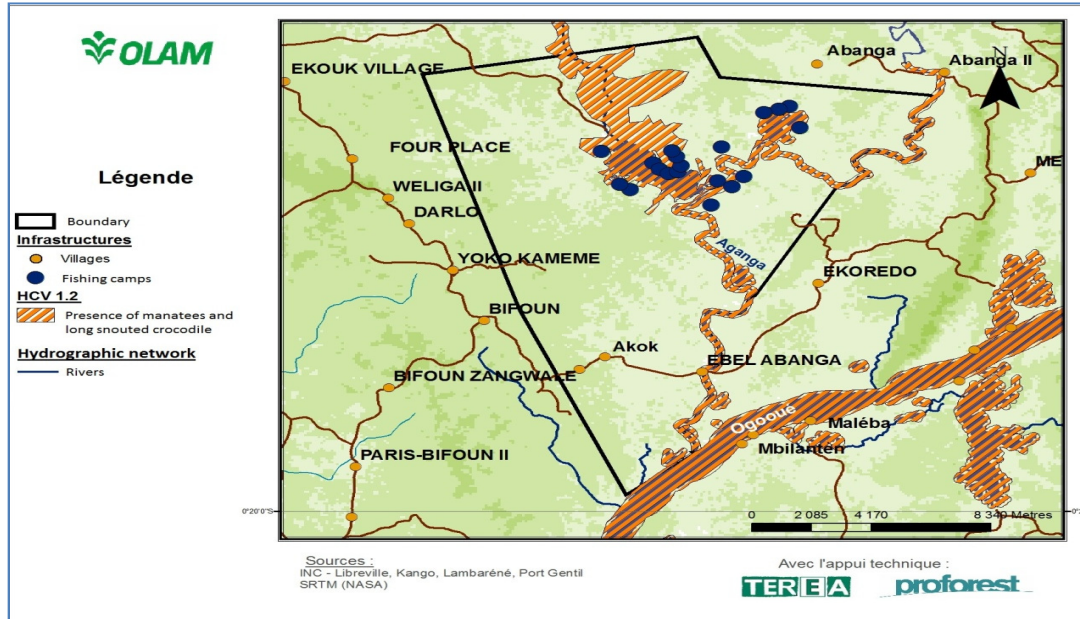


Figure 4: Map of Lot 9 indicating HCV 1.2 areas

In addition to the Manatees, the slender-snouted crocodile which is protected under the Convention on Migratory Species is also present in the lakes in this concession. Given that the two lakes host a significant concentration of Manatees and by invoking the Precautionary Principle, the lakes and the associated wetlands are considered to support concentration of RTEs and hence classified as HCV1.2

### HCV 1.4 in Lot 8

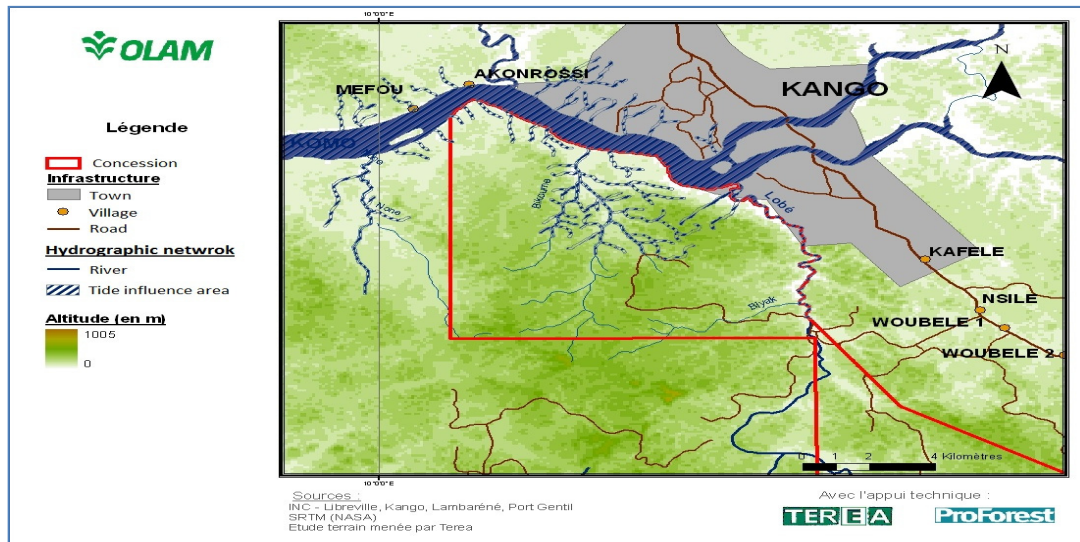


Figure 5: Map of Lot 8 and HCV 1.4 areas

Several migratory fish species were identified in the rivers of in the northern part of Lot 8. Examples of species identified in the area are the euryhaline fish species, "mulets" (*Liza falcipinnis*), "machoirons" (*Chrysichthys auratus auratus* and *Chrysichthys nigrodigitatus*), "capitaines" (*Polydactylus quadrifilis*), "bossus" (*Pseudotolithus elongatus*), and "rouges" (*Lutjanus dentatus*). Additionally, large population of shrimps such as "missala" shrimps (*Macrobrachium macrobrachion* and *Macrobrachium vollehovenii*) are found in this area. The shrimps are heavily dependent on the mangrove patches, marsh and flooded forests that are under tidal

influence in this area. All of these species migrate during the rainy season for reproduction purposes and lay their eggs in the forest streams linked to the Bikoume and Lobé rivers. These habitats are therefore of great importance for maintenance and continuous replenishment of fish stocks which are critical for the livelihoods of the local population.

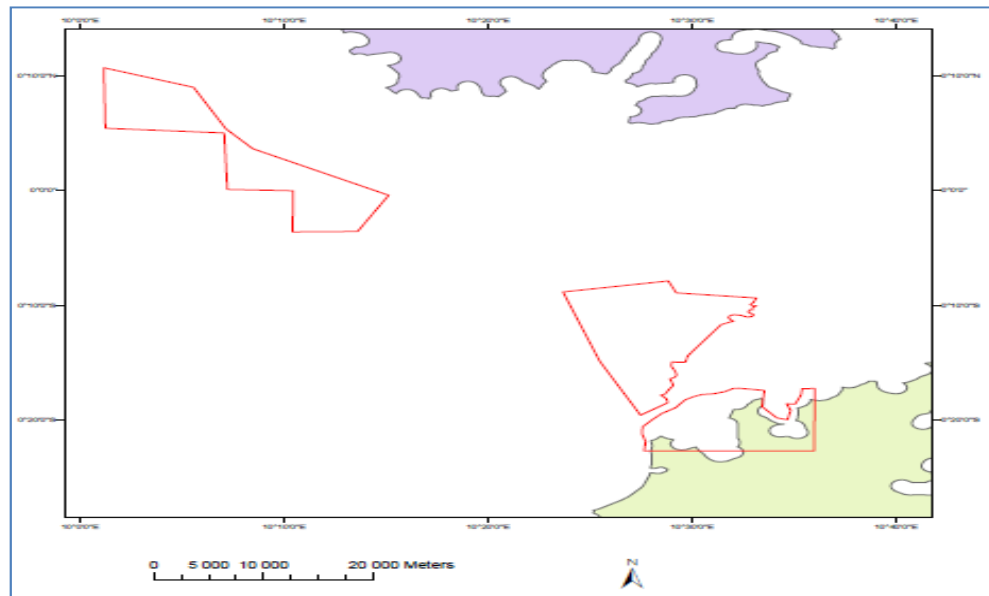
#### **HCV 1.4 in Lot 9**

The whole watershed comprising Lakes Nguene and Azougué and their tributaries including River Abanga and the flood plains are considered as HCV 1.4.

The reason is to maintain viable habitats for three major migratory groups of species including:

- **Manatee (*Trichechus senegalensis*):** These are aquatic mammals that migrate at the onset of the rainy season (in general from October to December) from the Ogooué to the Lakes Nguene and Azougué to feed on aquatic plants and foliage of trees in the flooded forests. They then return to the Ogooué during the short and the mainly dry seasons (Louembet, 2009).
- **Fishes:** Given that most parts of Lot 9 are aquatic ecosystems, fish species are more abundant and diverse in this concession. The alternation of dry and rainy seasons which are associated with dryness and floods respectively drives a migratory system for the fish species in the area. During the dry season, fish species predominantly live in the River Ogooué or the Abanga. Those rivers are characterized by a low level of available nutrients. The water level rises during the raining season resulting in increased concentrations of organic material. The rivers and lakes flood the adjoining forests, causing fast decomposition of leaves and litter by micro-organisms and become the source of food for aquatic species (Mbega, 2004; Mvé pers. comm.). The life cycle of the fish species follows the different seasons and the water cycle. The rainy season is the reproductive season for all the fish species: predators (such as *Hepsetus odoe*) are the first to arrive and to lay their eggs, then followed by the herbivorous species. This cycle of “lateral migrations” from the main river Ogooué to the Abanga and the lake system is therefore essential for the survival of all the fish species of the area (Mbega, 2004; Leveque, 1999).
- **Birds:** Species of birds observed in the area are mainly those that feed on fish (piscivores). Although there are different types of species found in the area, available literature and consultation with experts suggest that piscivorous species in the area follow the rainy and dry seasons of the year. During the rainy season species such as the African Fish Eagle and the Hamerkop, which can feed on fish as they swim in rivers, are commonly found in the area. However, during the dry season when the flood recedes, other fish-eating birds migrate to the area to feed on trapped fish in small ponds and pools of water near the lake. The species described under HCV 1.4 are mainly fishing birds such as terns (*Sterna hirundo* and *Sterna albifrons*), herons (*Ardea purpurea*, *Ardea cinherea*, *Ardea goliath*, *Butorides striata*), egrets (*Egretta alba*, *Egretta intermedia*, *Egretta garzetta*) and anhingas (*Anhinga rufa*). We also consider European migratory species with prey birds such as osprey (*Pandion haliaetus*) and honey buzzard (*Pernis apivorus*).

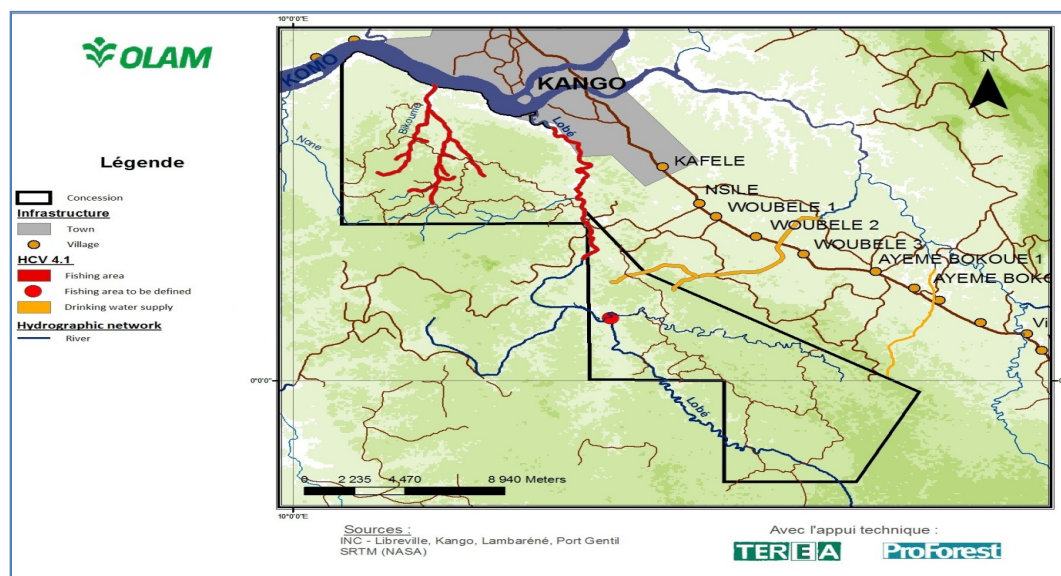
### HCV 2 in Lot 11



**Figure 6: Map of Olam Palm Concessions and an Intact Forest Landscape**

Lot 11 has about a third of its area, the south-eastern part, overlapping with an Intact Forest Landscape (indicated light green in Figure 6). Lot 11 was also observed to be minimally disturbed with most parts consisting of closed canopy forests. Lot 11 was therefore considered as HCV2 since it forms part of a large landscape level forest.

### HCV 4.1 in Lot 8



**Figure 7: Map of Lot 8 showing HCV 4.1 areas**

The main areas identified as critical to water catchments (HCV 4.1) are the watersheds of Awala and Bikoume rivers and the banks of Komo estuary. This also includes riparian forest protecting River Woubele which is a major source of drinking water for the local communities. The River Woubelé is a source of drinking water for the Woubelé and a number of villages and takes its source from Lot 8. It is therefore classified HCV 4.1. Another smaller river (orange colour in Figure 7) passing through



the village of Ayeme Bokoue is generally used by the people of the village and was identified as taking its source from the concession and is therefore classified as HCV.

#### HCV 4.1 in Lot 9

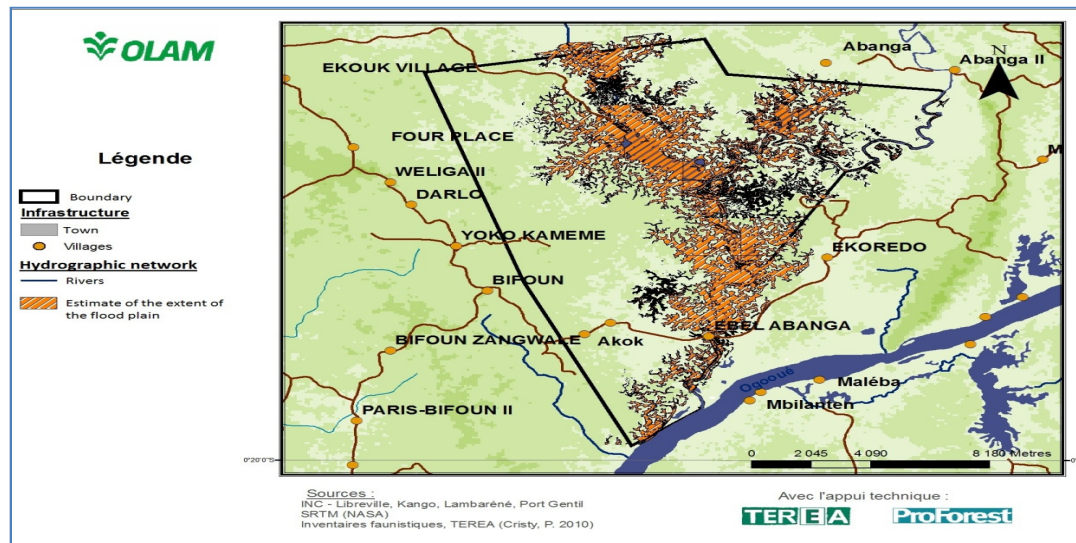


Figure 8: Map of Lot 8 and HCV 4.1 areas

The hydrological network of Lot 9 is far more complex. It associates two main rivers (Ogooué and Abanga) with two lakes (Nguene and Azougue), their watershed and an associated flood plain that floods heavily during the rainy season. Based on the importance of the water bodies in Lot 9, the Lakes Nguene and Azougue, the Ogooué, the River Abanga and their tributaries as well as the associated flood plains have all been classified as HCV 4.1.

#### HCV 4.2 in Lot 8

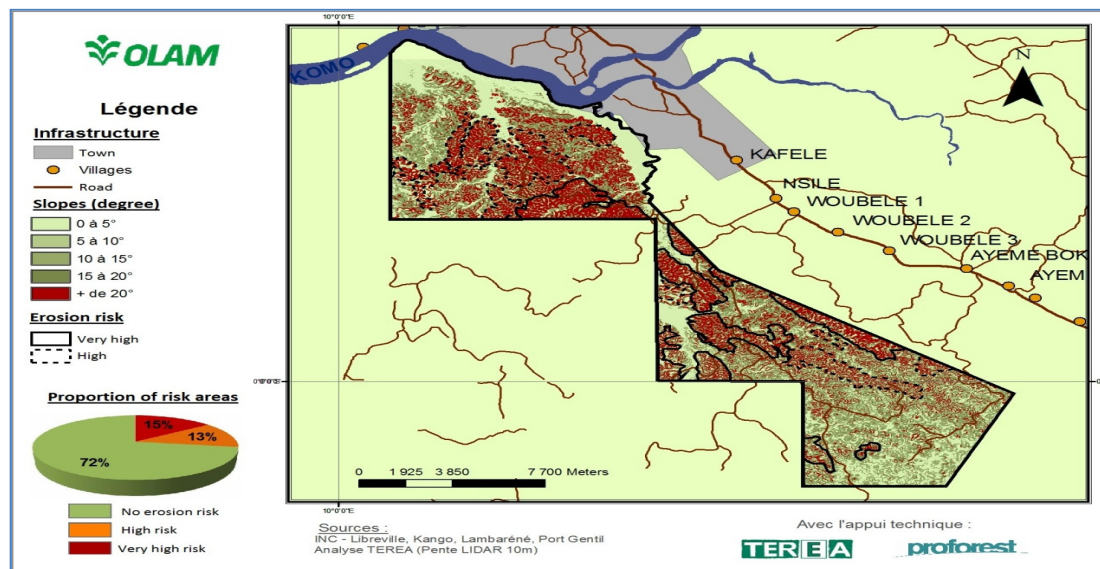


Figure 9: Map of Lot 8 and HCV 4.2 areas

The consequences of inappropriate management of slopes especially in Lot 8 could potentially lead to degradation of water quality by the accumulation of sediments in rivers, direct blocking of river flows and damage to the river buffer zones. This function of forests on slopes is very closely linked with HCV 4.1.



In order to provide specific guidance to Olam Palm to properly manage these slopes according to RSPO criterion 4.3 the hilly areas of Lot 8 have been categorised into three main classes and mapped. The three main classifications are:

- Slopes of 0 to 5 degrees: No specific measures are required
- Slopes of 5 to 20 degrees: Specific measures to control erosion need to be implemented
- Slopes above 20 degrees: Conversion and planting should not occur in such areas

The map above shows a stratification of the slopes with 10 metres of precision. The map shows in red the slope above 20 degrees (red areas) that should be excluded from planting due to high erosion risk. The map has been generated from the Lidar survey. As the Lidar data helped in generating a precise model (10 metres of precision) some areas can be over represented in the scale used for this map (they would not appear as important as they appear on this map if the scale was bigger). Areas surrounded with a continuous line are areas with very high risk of erosion and must be set aside for slope and watershed protection, unless there is a robust proof from the field that those areas are below 20 degrees. Areas surrounded with a dashed line are high erosion risk areas. The slopes of these areas should be carefully evaluated prior to any conversion operations.

#### HCV 4.2 in Lot 9

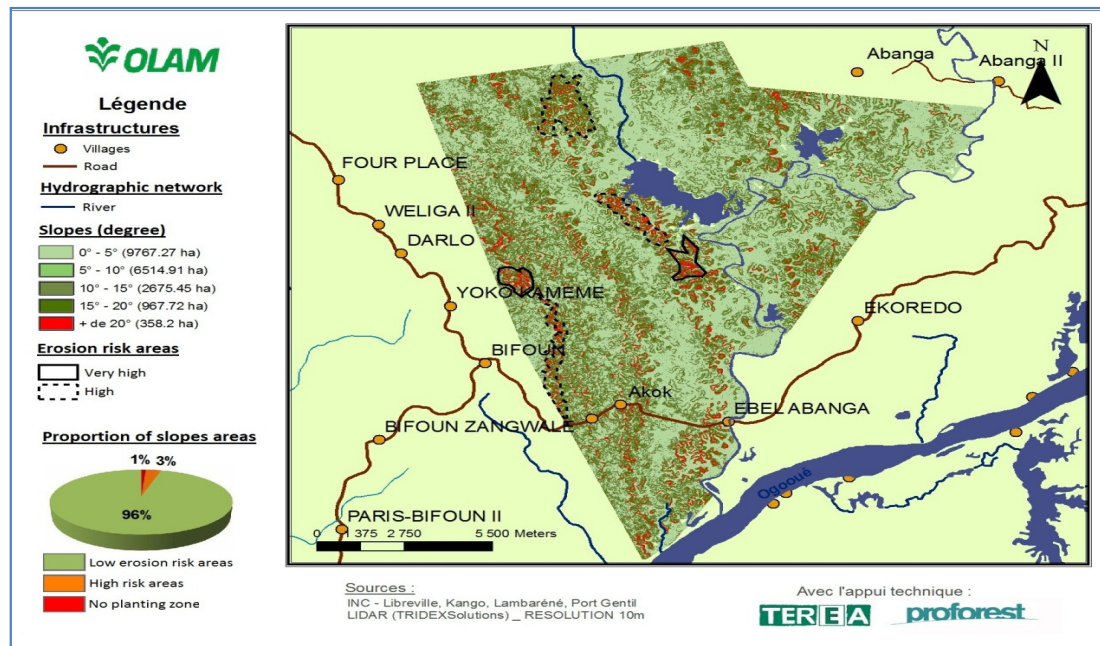


Figure 10: map of Lot 9 and HCV 4.2 areas

As explained under HCV 4.2 under Lot 8, the red areas should be precluded from any conversion activity due to high erosion risks. Red coloured areas with continuous line are those with slopes of above 20 degrees and should not be planted. They represent around 1% of the total area. The areas surrounded with a dashed line are potentially erosion risk areas; they represent 3% of the total area of the Lot. These areas could be planted but with implementation of erosion control measures.

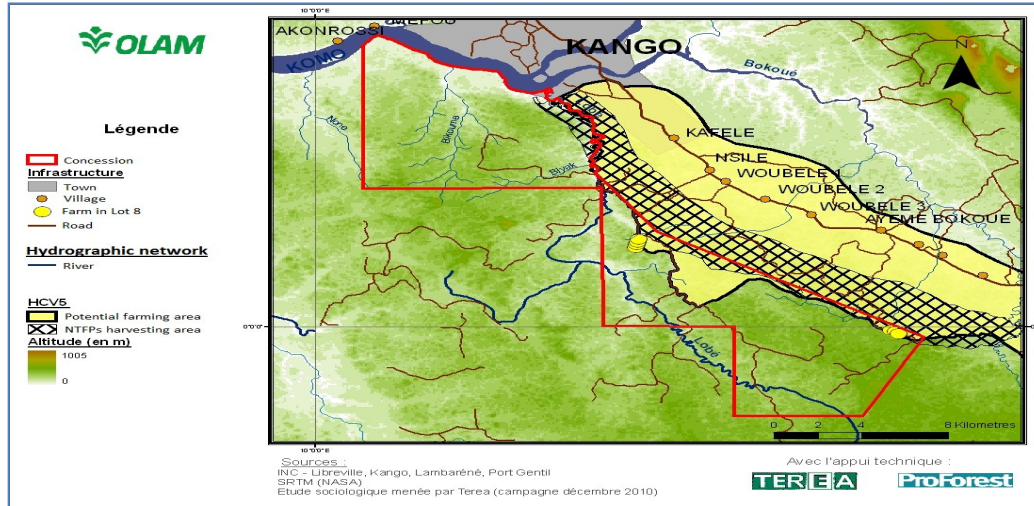
#### Areas of peat soils

There are no areas of peat soil in the assessment areas of Gabon

#### Local people's lands

There is basically no local people's land within the boundary of the concession although local farmers could potentially develop parts of these areas for farms.

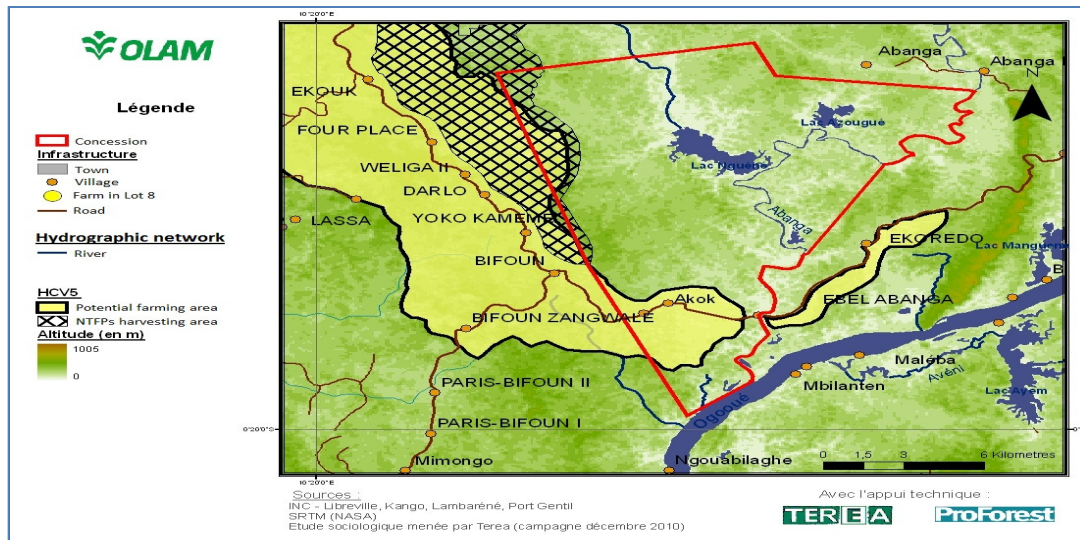
### HCV 5 in Lot 8



**Figure 11: Map of Lot 8 and local people's land and land-use areas**

The area shaded yellow in Figure 11 shows the agricultural lands of villages around Lot 8 and the hatched area represents the main NTFPs harvesting zones. Although the concession is about 5 km from the villages, a handful of local people have their farms (yellow dots on the map are potential locations of farms) in the concession, nevertheless, local farmers do not generally farm beyond 5 km from villages. Information presented in Figure 11 is a compilation of data collected during the participatory mapping exercise with the villages. According to the draft Gabonese HCV national interpretation document, farms are not by definition considered HCVs but are important to the individual farmers and should be dealt with through a process of free, prior and informed consent.

### HCV 5 in Lot 9



**Figure 12: Map of Lot 9 and HCV 5 areas**

As explained under Lot 8 above, the map presented below is a compilation of data and information collected during the participatory mapping exercise with the population of the villages. The yellow area represents the agricultural lands of villages around Lot 9 and the hatched area represents the NTFPs (here we have represented andock and noisetier) harvesting zone. In this Lot, the villages of Akok, Afog Bidzi and Ebel Abanga have their farms located within the concession, along the

road. The agricultural zones for the villages between Four Place and Darlo extend to the western boundary of the Lot with few farms located within the concession. The hatched areas (NTFP) collection zones should be excluded from any conversion activity. The yellow areas should also be excluded from conversion unless there is agreement with the villages and farmers concerned through an FPIC process.

### ***HCV 6 in Lots 8 and 9***

It was identified during the assessment that the belief, tradition and culture of most of the villages in the region are not strongly linked to the forests of the concessions. This is mainly because the traditional beliefs of the native people have eroded away already through either ethnic mixing, or conversion to Christianity, or because they are migrants from the south of Gabon and therefore do not have historical and cultural links with the natural elements around their villages. The only traditional belief generally practised in the villages of the area is performed in Bandja (local shrines) that are built within the villages. Therefore no HCV 6 was identified in Lot 8. The villages of Akok, Afog Bidzi and Ebel Abanga (Figure 12) which are located in Lot 9 are concerned about their cemeteries which are a few metres from the villages. Those burial sites have been designated as HCV 6. The fishing camps located around Lake Nguene are part of the culture of the people of these villages and have therefore been classified as HCV 6.

## **Scope of the HCV Assessment**

### **Organisational information and contact persons**

#### ***About Proforest***

Proforest is an independent company working with natural resource management and specialising in practical approaches to sustainability. Our work ranges from international policy development to the practical implementation of requirements on the ground, with a particular focus on turning policy into practice. Our extensive and up-to-date knowledge of the international context ensures that our work for individual companies and organisations is set within an appropriate framework. At the same time, we are able to bring a wealth of current practical experience to policy development processes and debates. The Proforest team is international and multilingual and has a broad variety of backgrounds, ranging from industry to academia and NGOs. This allows us to work comfortably in many types of organisations, as well as in a range of cultures. We have in-house knowledge of more than 15 languages, including Mandarin, Hindi, French, Spanish and Portuguese. Proforest was set up in 2000 and our expertise covers all aspects of the natural resources sector, from forestry and agricultural commodities to conservation, supply chain management and responsible investment.

**Contact Person: Abraham Baffoe, [Abraham@proforest.net](mailto:Abraham@proforest.net)**

#### ***About TERE***

TEREA – Terre Environment Management – is a consulting firm registered in Gabon in 2005. TERE works on projects and programmes relating to the environment and sustainable management of the natural resources in close cooperation with forestry and environmental institutions and the private sector in several countries in Central Africa. TERE is also registered and operates in Europe. TERE has a competent team of environmental engineers, forest engineers, sociologists and a network of experts and partners that allows the company to work on a broad range of projects and programmes. The activities of the research department is in constant progression since its creation and works in close cooperation with the private sector and forests and environmental administrations in the countries concerned and also with some partners including the FFEM, AFD, GTZ and the EU/CDE. TERE supports the sustainable management of almost four million hectares of forest (natural or plantations), and also works with the transformation units of wood in Central Africa and Europe on environmental certifications. TERE works with a variety of industries including oil, mining, and forest, conducting Environmental Impact Assessment,



environmental audits, support with the regularisation of administrative files (ICPE), formation, and environmental management. The objective of our team is safeguarding, management, and the valorisation of the natural resources.

**Contact Person:** Sophie Dirou, [s.dirou@terea.org](mailto:s.dirou@terea.org)

## List of legal documents, regulatory permits and property deeds related to areas assessed

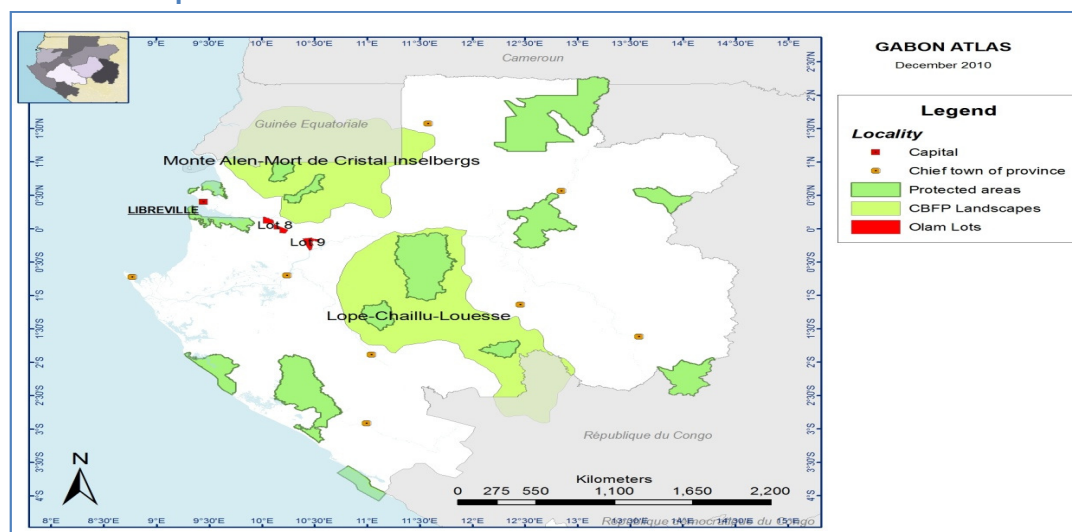
### Legal documents

- Convention de RAMSAR du 2 février 1971 relative aux zones humides d'importance internationale ;
- Convention CITES (Convention sur le commerce international des espèces de faune et de flore sauvages menacées d'extinction signée le 3 mars 1973 par 87 États, intégrée au Programme des Nations Unies pour l'environnement en 1991) ;
- Code forestier, loi n° 16/01 du 31 décembre 2001 ;
- Code de l'environnement (loi 16/93 du 26 août 1993 et ses décrets d'application :
  - Décret 541/PR/MEFEPEPN 15/07/05 réglementant l'élimination des déchets ;
  - Décret 542/PR/MEFEPEPN 15/07/05, réglementant le déversement de certains produits dans les eaux superficielles souterraines et marines.
- Décret n° 692 du 24 août 2004 fixant les conditions d'exercice des droits d'usages coutumiers en matière de forêt, de faune, de chasse et de pêche ;
- Arrêté n° 118 du 1 mars 2004 portant réglementation des activités forestières, minières agricoles, aquacoles, cynégétique et touristique à l'intérieur d'une zone tampon.

### Regulatory permits and property deeds

- Convention portant concession de baux emphytéotiques entre la République Gabonaise, représentée par Son Excellence le Premier ministre et Olam Palm Gabon ;
- Décision portant autorisation d'exploration des concessions forestières d'une superficie de 51.920 ha, N° 0000303 MEF/SG/DGEF ;
- Documents cartographiques du projet Olam Palm Gabon / Service cartographique – D.G.E.F – November 2010.

### Location map

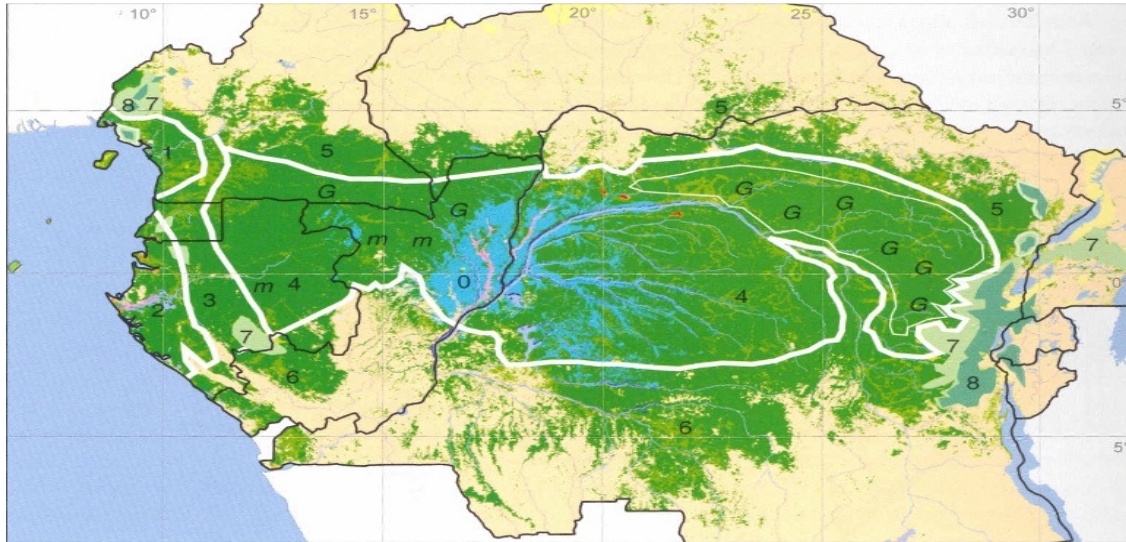


**Figure 13: Map of Gabon showing protected landscapes and Lots 8 and 9**



The three concessions of Olam Palm are located in the western part of Gabon. Lot 9 overlaps with Monte Alen-Mont de Cristal CBFP landscape and is also located in a Ramsar site, Lot 11 is contained within the Ramsar sites, and Lot 8 is upstream of the Pongara National Park. Details of the site are given in the following section.

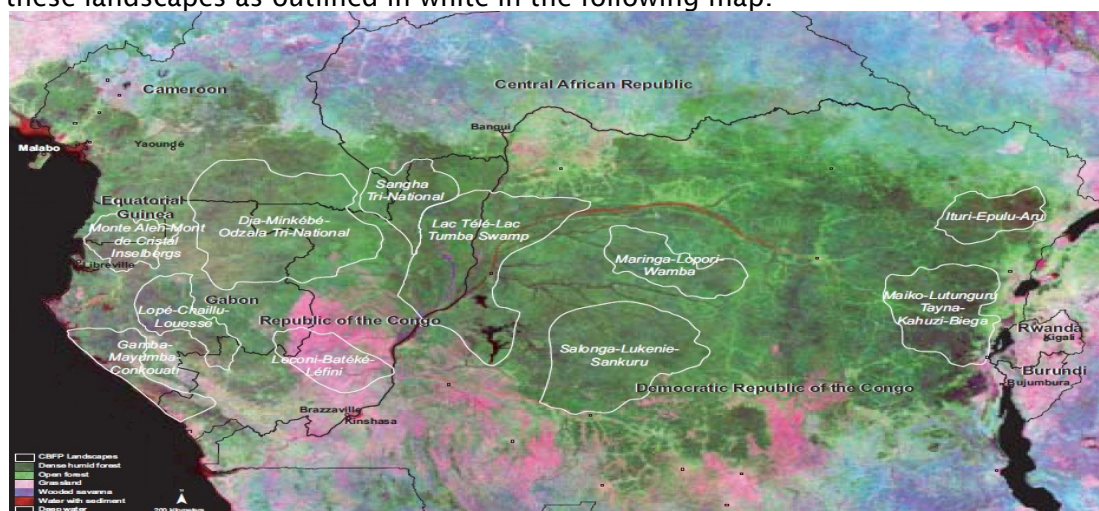
### Landscape level maps



**Figure 14: Map of Central Africa showing the different forest types**

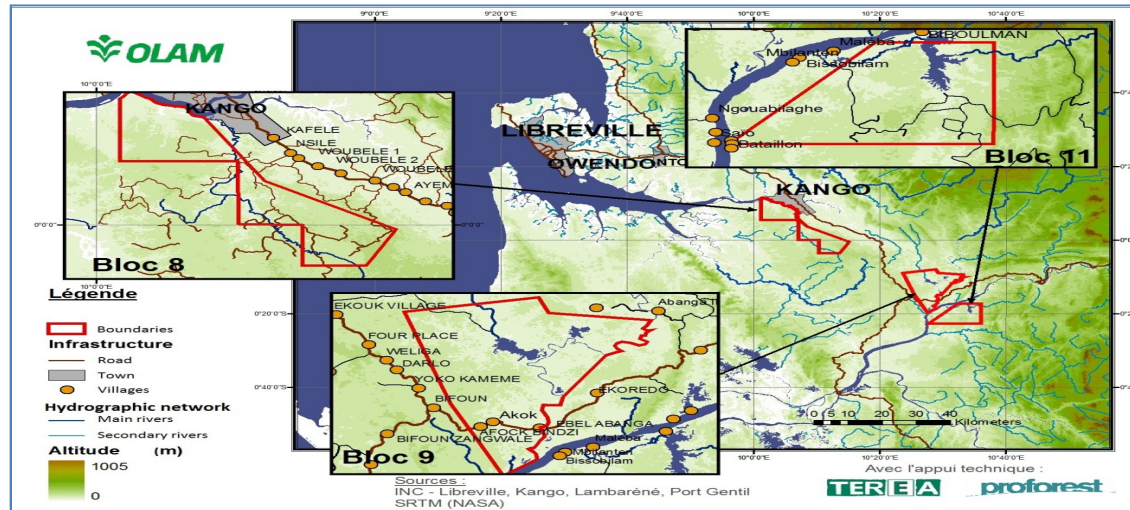
Apart from a vast area of swamp forest (0) in the centre of the Congo Basin, the forests can be divided into: (1) the Biafrean forests of the Cameroun coast, (2) the Biafrean forests of the Gabonese and Equatorial Guinea coasts, (3) the Ceasalpinia forests, (4) the lowland Congolese forests, (5) the Camerounese-Congolese semi-deciduous forests, (6) the Gabonese-Congolese semi-deciduous forests, (7) the sub-mountain forests, (8) the mountain forests, (m) the Maranthaceae forests and finally (G) the forests with dominance of *Gilbertiodendron dewevri* (Vande Weghe, 2004).

In order to ensure the protection of biodiversity and ecosystems of conservation significance, the priority sites of the Central African forests have been categorised into eleven (11) large relatively intact areas, termed Congo Basin Forest Partnership (CBFP) Landscapes, based mainly on the representativeness, the viability of species populations, the sustainability of their ecological processes, and the integrity and resilience of their ecosystems (CBFP, 2006). The CBFP conservation activities focus on these landscapes as outlined in white in the following map.



**Figure 15: Map of Central Africa showing the different priority landscapes**

## Concession level maps

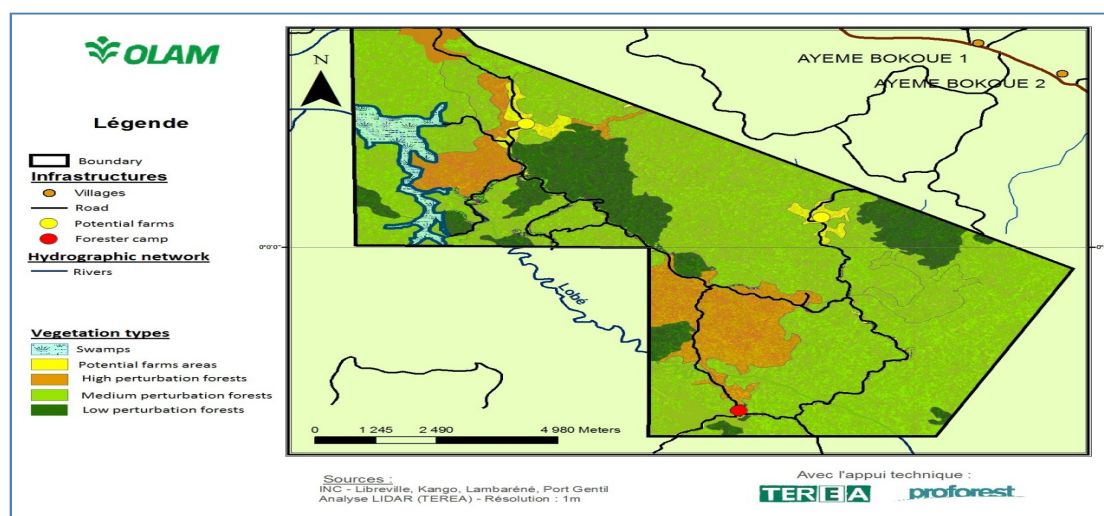


**Figure 16: Map of Gabon illustrating the locations of Olam Palm concessions**

The three Olam Palm concessions (Lots 8, 9 and 11) with a total size of 51,920 ha are located in the provinces of Estuary and Moyen-Ogooué. Lot 8 is located in the Department of Komo Kango of the Estuary Province and has a size of 20,030 ha. It is bordered to the north by the Komo estuary and to the north-east by the River Lobe. Lot 9 with a size of 18,530 ha is located in the Department of Abanga-Bignié in the province of Moyen-Ogooué. It is bordered to the east by the River Abanga and to the south by the River Ogooué. There are two lakes located in this lot. These are Lake Nguene (the bigger of the two) and Lake Azougué. Lot 11 is located between the Department of Abanga-Bignié and the Department of "Ogooué et les Lacs". This concession is also in the Moyen-Ogooué province. This concession is bordered to the north and the west by the River Ogooué.

## Area of new plantings and time-plan for new plantings

Olam Palm intends to start conversion and planting during the first year with Lot 8. The company has planned to convert and plant an area of 5,000 ha during the first year in the southern part of the Lot with the remaining area of Lot 8 planted during the second year. The mid-section to the southern part is comprised of moderately to severely degraded forestlands with patches of farms. Figure 17 below shows the proposed planting area in Lot 8.



**Figure 17: Map of the southern half of Lot 8 showing proposed planting area.**



Within this area of new planting, Olam Palm is expected to respect all areas identified as “high erosion risk” and the recommended buffer zone limits for the rivers and wetlands.

## Assessment Process and Procedures

### Assessors and their credentials

The HCV assessment team consisted of 13 specialists and 11 technicians with diverse academic and professional background and vast experiences appropriate to the task. The team consisted of professionals from various fields including ecology, botany, sociology, ornithology, ichthyology, mammalogy, forestry and GIS mapping. The list of specialist members of the team and their roles in the assessment is presented in Table 1 below.

**Table 1: Assessment team members and their roles in the assessment**

Name	Key role in the assessment
Abraham Baffoe	HCV assessment team leader RSPO approved team leader for HCV assessment
Rodolphe Métayer	EIA team leader
Rémi Duval	Forest management, conservation planning and social science. RSPO approved HCV discipline specialist and assessor
Sophie Dirou	Socio-economic study and botanical assessment team leader
Julia Biloghe	Sociologist
Dr. Jean-Daniel Mbega	Ichthyologist
Jean-Hervé Mbé Vhé	Ichthyologist
Patrice Christy	Ornithologist
Olivier Pauwels	Herpetologist (desk base study only)
Michelle Lee	Conservation scientist (desk base study only)
Yoann Moreau	GIS expert
Louis Marie Ngoua	Botanical and faunal team coordinator
Sylvestre Awotie	Botanist / mammal expert

### Assessment methods (data sources, data collection, dates, programme, places visited)

The methods used for this assessment was in two parts. The first was pre-assessment which consisted of desk and web-based research. The second part, which was the main assessment, consisted largely of field assessments to identify the different types of HCVs present in Olam Palm concessions and a series of stakeholder consultations. Below are the details of the main activities that constituted the methodology used for this HCV assessment.

**Pre-assessment:** The objective of the pre-assessment was to gather all relevant information and data for review in order to identify HCVs that are likely to be present in the concessions. This approach was extremely useful as it enhanced decision making on what additional expertise the team required for the field verification. It also allowed the team to get a better understanding of data deficiencies of the area which informed decisions on changes to the methodology. The draft methodology was finalised to be used for the field assessment after presentation to stakeholders for their comments and inputs during the first round of consultations. The team used the pre-assessment to study all legal requirements and legal restrictions relating to such large-scale industrial plantation development in Gabon. It was realised during the pre-assessment that obtaining good satellite imagery (one with

no or very little cloud cover) of the area was rarely possible. Several authors estimate an 80% cloud cover of satellite imagery taken over the area. Since the assessment had to be undertaken during the rainy season it was almost impossible for the team to obtain an appropriate satellite image. Given this constraint, the management of Olam Palm contracted a company to undertake a Lidar survey which provided relevant mapping requirements for this assessment and could also be used for the plantation design and management. During the pre-assessment, the main guiding documents for this assessment which comprised the Global HCV and the draft Gabon HCV Toolkits were studied and critically analysed to help the team develop criteria and checklist for this assessment. Following analysis of the data and information gathered during the pre-assessment and upon the decision of Olam Palm, Lot 11 was excluded from the field assessment mainly because it was inappropriate for conversion to oil palm plantation.

#### **Why Lot 11 was excluded from the field assessment**

A scoping visit report by Proforest based on an aerial viewing of the concessions in October 2010 showed that the southern part of Lot 11 consisted of closed canopy forest while most of the remaining area consisted of marsh forest and wetlands. Additionally, almost half of Lot 11 was found to be located in an Intact Forest Landscape as mapped by WRI. Based on these findings and the requirements of the RSPO New Planting Procedure, the assessment team concluded that Lot 11 is inappropriate for conversion to oil palm plantations. Following this revelation, Olam Palm decided that Lot 11 should be excluded from the field verification of HCVs. However, a description of this Lot has been provided under section 3.1 given that this Lot was part of Olam Palm's concessions and originally included in the scope of this assessment.

#### **Choice of remote data for the vegetation analysis**

During the pre-assessment phase of this assessment, it was realised that the few satellite images available for the assessment area were of poor quality due to heavy cloud cover. Lidar (Light Detection And Ranging) is an optical remote sensing technology that uses a laser beam to find range, which allows the mapping of physical features with very high resolution compared with radar. As Olam had already planned to undertake a Lidar survey of their concessions, there was a consensus with Olam that in addition to collecting data about topography and hydrography, the Lidar survey is adapted to produce vegetation cover of the concessions. A Lidar survey and processing of its data was undertaken in January 2011. The outputs include maps of topography hydrology and vegetation canopy heights in this report.

In undertaking the field verification for flora and fauna, 1991<sup>2</sup> vegetation maps were analysed as part of the planning process for the field verification<sup>3</sup>. Field visits to the concessions were undertaken to evaluate the quality of data obtained during the pre-assessment process. This was to obtain field data on the habitat quality and suitability for species of concern, and to identify specific sampling sites for collecting and verifying the ichthyologic data and information. Overall, the field assessment of flora and fauna in Lots 8 and 9 aimed to:

- provide a better understanding of vegetation cover of the concessions;
- assess vegetation stratification of the study area;

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<sup>2</sup> INC – Libreville, Kango, Lambarene, Port-Gentil – BG petrol Gabon – Land use map 1991

<sup>3</sup> MODIS or LANDSAT images were of poor quality and cloud cover did not allow any analysis of the area.



- assess floristic composition of the vegetation of the area with focus on presence and abundance of species of conservation concern;
- assess the tree density (tree/ha) and diameter classes;
- assess the presence of fauna species in the concessions, their distribution and their conservation importance
- identify degraded forest areas that could potentially be converted to oil palm plantation.

The field data were then analysed to identify the different biological or social HCVs present in the two concessions. The assessment methodology was based on the understanding that there will be triangulation of data from secondary data (pre-assessment), field verification, and the output of the Lidar survey. As detailed in chapter 1.2<sup>4</sup>, the vegetation cover maps obtained from the Lidar survey (at 1 m precision) were used for analysing vegetation stratification of the concessions.

### **Botanical and mammal survey**

The field assessment was undertaken from 6 to 16 December 2010. Given that the assessment was to be completed in the two Lots within a specified timeframe, two separate teams were formed to carry out the field verifications, each led by an experienced botanical and mammal survey expert. For quality control purposes, further verification was carried out in Lot 8 on 21<sup>st</sup> to 25<sup>th</sup> of December 2010 to check on the quality of work of the field teams.

The details of methodologies used for this assessment are:

**Transects:** Spotters walked along transects in a pre-defined direction (north-south) and recorded signs of presence of mammals along transects. The signs can be direct (seen, heard) or indirect (nests, droppings, dens etc). Indirect signs located on the ground are recorded not further than 1 metre from transects. All the other signs (chimpanzees' nests, vocalisations, direct observations etc) were recorded independently of the distance. This technique is generally used to reduce the biases that are likely to result from differences of density of the under-storey or herbaceous strata on the observation of indirect signs found on the ground. Also recorded are the signs of human presence, and forest type at every 50 meters and some remarkable elements (rivers, rocks, etc).

**Botanical sampling plot:** The main sampling units were 20m by 100 m plots, marked out every 500 meters along each transect. Each main sampling plot is divided in 3 sub-Lots:

- the first sub-plot of 10m by 50 m is identified at the right of the main plot based on the walking direction. In this sub-Lot, the species name and diameter of all trees above 10 cm dbh (diameter at breast height) are recorded.
- the second sub-plot of 20 m x 50 m dimension is identified to the left. In this plot, the species name and diameter of all trees above 20 cm dbh are recorded, and finally;
- in all the main sampling plots (20 m x 100 m), the species name and diameter of every tree above 40 cm dbh is recorded.

This is standard practice for forest botanical field sampling in the region. The various transects were laid to ensure that:

- the different ecosystems in the concessions are assessed;
- they are perpendicular to the network of rivers in the concessions and;
- they are easily accessible by the field team.

The two next maps show transects in Lot 8 and 9.

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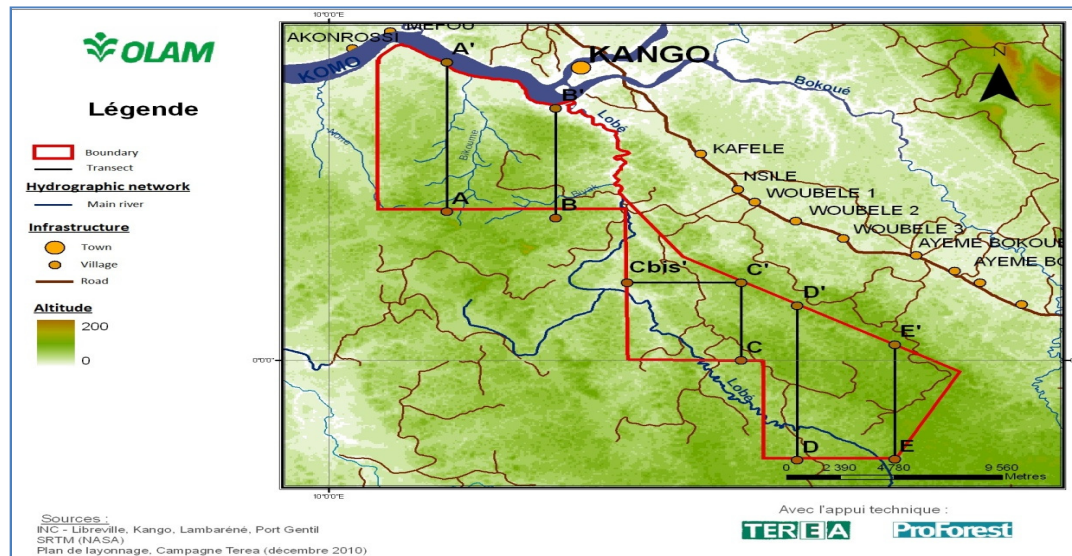


Figure 18: Map of Lot 8 showing transects for the fauna and botanical surveys

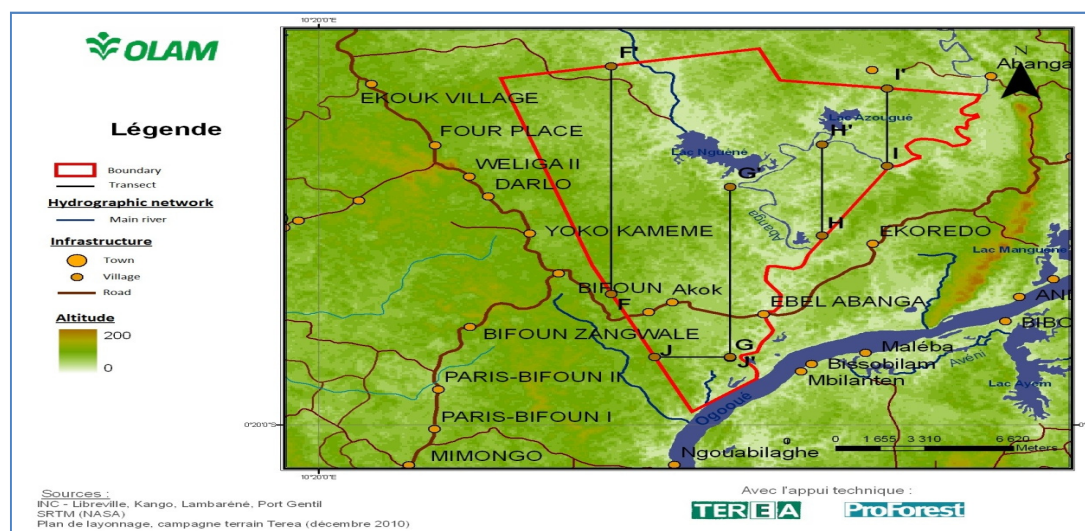


Figure 19: Map of Lot 9 showing transects for the fauna and botanical surveys

### Ornithological survey

The ornithological assessment was undertaken from 25<sup>th</sup> to 30<sup>th</sup> November and from 3<sup>rd</sup> to 8<sup>th</sup> December. The inventory of the avifauna was taken using visual and in most cases hearing and observations during walks in the villages and on the forest paths as well as movement through rivers using a canoe. During this period of year, birds' activities are known to be generally high, in particular vocal activity (as this is the breeding period for most bird species). This method therefore provided the much needed information on different species of birds that are present in Lots 8 and 9, especially for the canopy or under-storey species that are generally identified by their call. The only species that may have evaded being surveyed are night birds such as owl and nightjar since this assessment was limited to daytime survey. Some of these species nevertheless were observed at twilight (between dawn and sunset and between sunset and dusk). To authenticate the field survey findings, further survey was conducted in areas around Kango and Bifoun to allow comparison of avifauna of these areas to those identified to be present in Lots 8 and 9.

### Ichthyology survey

The ichthyologic field assessment was conducted to determine whether there are concentrations of fish species of conservation importance such as RTE species. It was also aimed at identifying the main fish species in the network of rivers in the concessions and the level of disturbances these species can tolerate. The study was undertaken from 6<sup>th</sup> to 12<sup>th</sup> December 2010 at a pre-selected number of points along the rivers in Lots 8 and 9. The selected points of interest for the evaluation were chosen based on findings from preliminary assessment undertaken from 20<sup>th</sup>-21<sup>st</sup> November 2010 supported by bibliography and expert knowledge of the area. Seven sampling stations were defined for Lot 8 and 3 for Lot 9 during the preliminary survey (Table 2).

**Table 2: Ichthyologic field sampling points**

Lot	Point	River	GPS point	
			N/S	E
8	1	River North-West	S 00.04819°	010.20658°
	2	Middle Bikoume	N 00.01653°	010.20735°
	3	Bikoume mouth	N 00.15275°	010.03956°
	4	Lobé mouth	N 00.16272°	010.05266°
	5	Lobé tributary		
	6	Awala	N 00.09925°	010.11532°
	7	Upper Lobé	N 00.13069°	010.13127°
9	1	Azougue lake mouth	N 00.16074°	010.51942°
	2	North-east of Lake Azougue	N 00.17233°	010°50230°
	3	Bikarkare river (Afock Bidzi)	N 00.25393°	010.44727°

Most of the sampling points are located on Lot 8: this was because there was a lack of information and data on fishery resources of this area. The region of Ogooué and Lake Nguene and Azougue were well known by the team as the Ichthyologic team leader Dr Mbega (ichthyologist) had conducted extensive research including a doctoral dissertation in the area.

For each of these stations, a non-destructive sampling was conducted, using a wide range of fish-net of different mesh sizes. In general, the nets used are 20 metres long and 2 meters wide with mesh sizes of 10, 15, 35 and 50 mm. Nets were installed in the afternoon when possible and checked after one night the next morning. The size of the mesh used depended very much on the size of the river: nets of 10 to 15 mm mesh size were used on small rivers (less than 5 metres in width) and bigger mesh size were used on bigger rivers such as the Lobe, Bikoume and the Lake Azougue. Figures 20 and 21 below show the itinerary of the ornithologist and the ichthyologist in Lots 8 and 9 for this study.



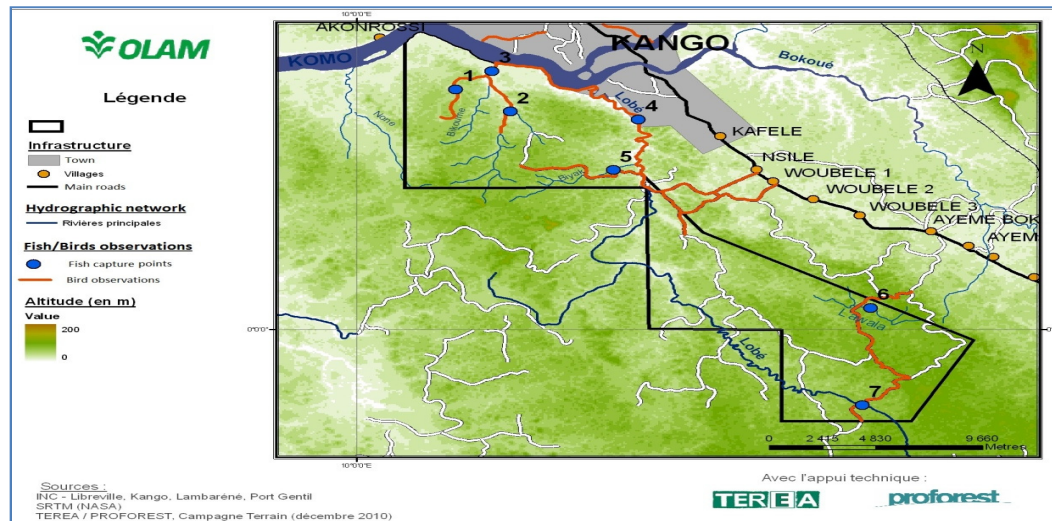


Figure 20: Map ichthyologic and ornithology sampling points in Lot 8

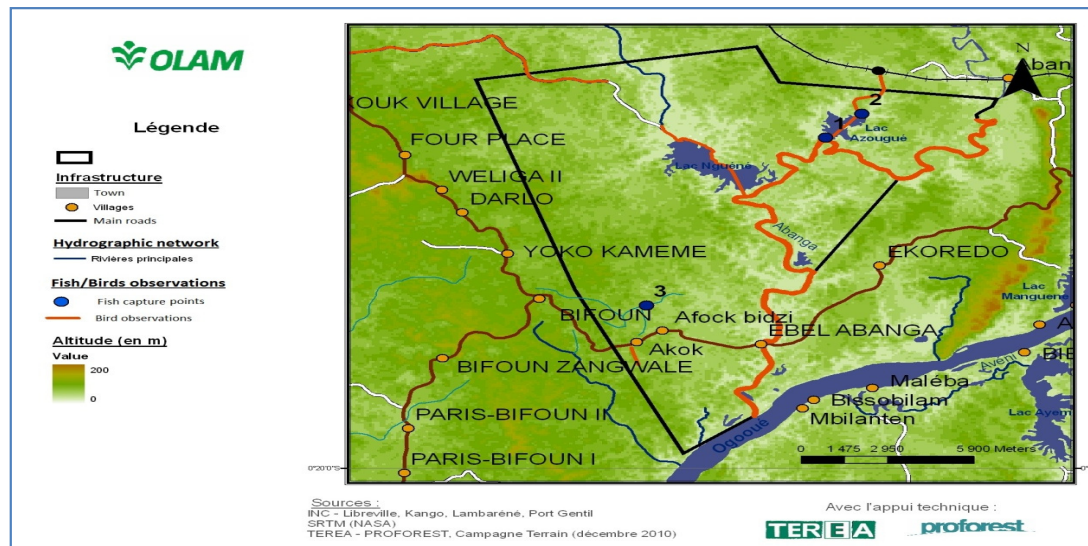


Figure 21: Ichthyologic and ornithology sampling points in Lot 9

### Social survey

The socio-economic study was conducted in villages that could potentially be impacted by the Olam Palm Gabon project in the Kango-Bifoun region. The project area is not heavily populated (total population of 9,200). In recent times, there has been migration of people of this region into the big cities such as the national capital mainly because of inadequate job opportunities in the area. Major activity of the people in this region is smallholder agricultural activities. Fishing activities are the main pre-occupation of the people of Kango community and in the areas of Bifoun and Ebel Abanga where they are the main source of household income. In most of these villages, fishermen depend on these activities. Although there are active hunting activities, this is mainly to raise money for the purchase of essential commodities. Artisanal timber exploitation is carried out in the surrounding forest by the people of Lot 8 and along the banks of River Abanga, Ogooué and the two lakes by the communities in Lot 9. For Lot 8, the main sources of water are rainfall harvesting and in Kango from wells fitted with hydraulic pumps. The nearby streams provide water to people during the rainy season. For Lot 8, River Woubélé is the only one that serves as a source of household water to the people in nearby villages. On the contrary, villages in Lot 9 depend on those rivers and streams that are within a kilometre radius from the villages.



The objectives of the socio-economic study were to:

- identify key local stakeholders;
- understand the socio-economical patterns of the area: demography, administrative structure, ethnic composition, social organisation of the local communities including conflict management processes;
- inventory the infrastructures, especially for education, health and sanitation of those communities and;
- classify the importance of the different economic activities of the communities in the assessment area.
- Identify village institutions affecting forest resource management e.g. traditions and rules.
- Identify, with the local people, the main HCVs in the concessions
- find out from the local population the extent of their dependency on natural resources in the landscape
- estimate, with the local population, areas of critical cultural values.

The socio-economic survey was conducted during the period 22<sup>nd</sup> November to 12<sup>th</sup> December 2010 by a team of six experts. The method employed included:

### *Semi-structured interviews*

This is an information collecting technique conducted in a fairly open framework which allow for focused, conversational, two-way communication between the interviewer and the interviewees. Semi-structured interviews are useful for providing and/or collecting information. Unlike the questionnaire framework, where detailed questions are formulated ahead of time, semi-structured interviewing starts with more general questions or topics. For this assessment, relevant topics such as local people's use of the concession area are initially identified and the possible relationship between these topics and the issues such as the type of use, frequency etc become the basis for more specific questions which do not need to be prepared in advance. Not all questions were designed prior to the survey but this approach allowed the team to discuss with the local people several important questions that were raised during the consultations.

### *Participatory mapping*

This approach was extensively used for this assessment. In using this approach, a very simplified map of the area was presented to the various groups requesting them to indicate traditional and customary use areas. This exercise helps to delineate local communities' farms, hunting and fishing areas, NTFP harvesting zones and sacred and cultural sites.

### *Focus group*

Using this tool allowed the social team to meet with focus groups which are specialised in different activities such as hunters, fishermen, women, etc. The focus group approach adopted enabled the team to have in-depth discussions on different activities that were being investigated with each focus group such as the specific locations of the activity, techniques used for hunting or fishing and quantity captured, species captured, seasonality of the activity etc.

### *Brainstorming*

This tool is useful for generating ideas with a group of people. It stimulates creative thinking when researching a solution to a problem. It aims to generate as many ideas as possible on a specific theme without criticism or judgement<sup>5</sup>. It gives the interviewer a data base that could be used in the analysis. This approach was extremely useful in soliciting ideas from the community groups.

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<sup>5</sup> SCHOLTES Peter. R, Le guide pratique du travail en équipe pour améliorer la qualité, Joiner, 1992, P21

### *SWOT analysis*

This tool was used for collective evaluation of the public facilities installed in the village, the basic needs of the population interviewed, the strengths and weaknesses of the various villages and the intervention required for the administrative services to satisfy those needs. A combination of this tool with the other tools allowed the social team to have a good idea of the composition of each community, to identify the potential conflict with and/or within a community, to estimate the local economy patterns, and to delineate the HCV 5 and 6. Before any meeting commenced in a particular village, the survey team presents the project to the local authorities, as detailed in Table 3. A combination of those tools and methodologies allowed the social team to have a good idea of the composition of each community, to identify the potential conflict with and/or within a community, to estimate the local economy patterns, and to delineate the HCV 5 and 6.

Table 3 **Details of Local Authorities contacted**

Date	Place	Authority
22/11/2010	Libreville	Estuaire province Governor
23/11/2010	Kango	Secretary General of Province
		Town council Secretary General
		Departmental Council President
	Lambaréné	Moyen-Ogooue province Secretary General
24/11/2010	Ndjolé	Abanga Binié Head of Department
25/11/2010	Kango	Chef of Bokoué canton
		Kango mayor
		Kango Birgade major
		Kango Commissioner
04/12/2010	Bifoun	Akok Administrator
05/12/2010		Ebel Abanga Canton Chief
		Bifoun Centre Canton Chief
06/12/2010		Bifoun Health Centre chief doctor
		Bifoun Brigade chief
09/12/2010	Kango	Kango Health Centre chief doctor
04 to 09/12/2010	Bifoun	School directors

After meeting with the authorities of each administrative sector, the social team proceeded to meet with the chief representative of each community to present the project and organise a meeting with the entire community. This meeting was planned in advance to allow the chief to pass the message onto all villages and village authorities that are not always living within the community during the week. Overall, 37 villages located in 5 Cantons and 2 Provinces were surveyed. The total number of persons that attended the various communities and village meetings is 750.

### Stakeholder consultation (stakeholders contacted, consultation notices and dates)

A broad range of stakeholders within Gabon were consulted in November 2010. The objectives of the stakeholder consultations were to:

- Ensure relevant institutions, organisations and individuals are informed of the project;
- Solicit their input into the HCV methodology, management and monitoring plans;
- Ensure information obtained by the assessment team is accurate and up to date;
- Solicit relevant information and data from institutions, organizations and individuals who have relevant information about the area through research, studies or by virtue of the institutions and organizations they work with.

All the stakeholders contacted were notified of the consultation at least one week before the consultation through email messages, telephone appointment or face-to-face verbal appointment. However, all local communities consulted received prior written notification through the community leaders. Although concerns and inputs varied across the wide range of stakeholders consulted, the commonest concerns included potential impacts of large-scale oil palm plantation on the biological resources of the landscape and the potential impacts on environmental services and possible overlap of land-use in the area. **A major concern of most stakeholders in Gabon is the potential impact of the oil palm plantation development on the two lakes (Lakes Nguene and Azougue) that are located in Lot 9 which are known to host a concentration of manatees.** There were other concerns on impacts of a large scale oil palm plantation on the fishery resources in the network of rivers and lakes in the landscape and downstream impacts on the Pongara National Park.

In all, 19 institutions (Table 4) including ministries, research and academic institutions and NGOs were consulted during the assessment period.

Table 4: List of national stakeholder institutions consulted

Date	Organisation/ Institution	Focus on consultations	Contact person
15/11/10	ECOFAC	To solicit ECOFAC inputs on conservation values present in the concessions and the landscape	Mr. Jean-Michel Sionneau
16/11/10	CARPE and IUCN	Discussions on biodiversity and conservation values in the landscape	Mr. Constant Allogo
16/11/10	CIRAD	Discussions on forest permit already granted for the areas and level of degradation of forests	Mr Eric Forni
16/11/10	National Agency for Parks (ANP)	Discussions on planned or proposed parks in the landscape and biodiversity values in the landscape	Mr. Lee White
16/11/10	Fauna Expert from Zoology Department of the University of Oxford	To discuss species of conservation concern in the landscape	Ms. Michelle Lee
17/11/10	WWF-Gabon	Discussions on biodiversity values and ecosystems of conservation importance in the landscape	Mr. Pauwel De Wachter
17/11/10	PAPPFG (Project of Management of the Forest Small Permits in Gabon)	To discuss possible overlap of small permit with Olam Palm licensed areas	Faustin LEGAULT Project Director Vincent FESNEAU SIG Manager Leon Freez

			NZIMBILI SIG Expert
18/11/10	Ministry of Mines	Consultations and discussions on current and planned mining permits in the landscape	Mr. Constant Mbompa
18/11/10	National Cartographic Department	Discussions on maps for the landscape	
18/11/10	IRET	Consultations on current land use systems in the concession area and in the landscape and species of conservation significance	Mr. Yves Issembé
18/11/10	IRAF	Consultations on fishery resources of the lakes and rivers in the concessions and in the landscape	Mr. Jean-Hervé Mvé and Ms. Eva
18/11/10	Hydrologist/ Ichthyologist	Consultations on fishery resources of the area and methodology for the study	Dr. Yves Fermon
19/11/10	BRAINFOREST (Umbrella organisation of local Gabonese NGOs)	Consultations on social and environmental issues that should be considered in the HCV assessment	Mr. Martial Djimang Mr Marc Ona General director
19/11/10	Gabon Institute to Support Development (IGAD)	Consultations on agricultural use of the concession area and planned agricultural research in the area	Mr. Christian Renardet
19/11/10	Zoological Society of London (ZSL)	Consultations on wildlife issues of importance in the concession and in the landscape	Dr. Sandra Ratiarison
22/11/10	Direction General of Water and Forests Administration	To discuss legal and customary use rights and to check whether there are any overlaps	Assistant Director General
23/11/10	WCS (Wildlife Conservation Society)	Consultations on wildlife issues of importance in the concession and in the landscape	Mr. Romain Callach Mr. Tim Rayden
25/11/10	Direction General of Agriculture	To discuss legal and customary use rights and to check whether there are any overlaps	Mr. Raoul Ndong (General Director)
26/11/10	Direction General Water and Forests Administration	To discuss legal and customary use rights and to check whether there are any overlaps	Director General

As part of the stakeholder consultation process, a summary of this report, including the methodology used, the HCVs identified and justifications for their identification and the management and monitoring recommendations were presented to various stakeholders on 17- 20<sup>th</sup> January 2011. The objective of this was to solicit stakeholders' inputs into the management recommendations being proposed for Olam Palm and to solicit their endorsement of the final recommendation. Below are the comments raised by the stakeholders and responses provided.



**Table 5: List of stakeholders consulted to solicit inputs and comments on the findings of the assessment**

Date	Organisation	Contact person	Comments	Answer
18/01	ANPN	Lee White	Olam should study the carbon stocked in the actual forest prior to conversion. They should monitor the carbon stock changes to ensure that carbon stocks of the concessions are at least maintained at pre-plantation levels.	Measurement of carbon stocks is not included in the scope of this assessment since this has not yet been part of the HCV concept. This said, it is crucial that Olam Palm considers carbon stocking and accounting.
	WCS	Romain Calaque	Olam should implement the recommended management and monitoring recommendations to ensure that conservation values in the concessions are maintained. Olam should clarify whether the same strategy proposed for this project will be used for the 200,000 ha concession in the savannah zone that the company intends to convert to oil palm plantation.	Olam has committed itself to RSPO certification compliance management requirements and will hopefully implement all of the recommendations provided. To facilitate this, a table of all the management and monitoring recommendations necessary to maintain and enhance HCVs in Olam's concessions has been defined in the final report.
	Botanical and Fauna expert	Jean-Pierre Vande Weghe	<p>The notion of endemism must be defined at the lower Guinean forest level and not only at the national level.</p> <p>The best definition to characterize the forest is "secondary old pioneer forests"</p> <p>The tern, which could be endemic of the Ogooué (potential sub-species of <i>Sterna hirundo senegalensis</i>) is nesting in Lake Nguene and should be considered in this study</p> <p>Riverine forests of the north of Lot 8 are submitted to freshwater tides and could potentially be interesting for science</p>	<p>This was taken into account when the team was considering the landscape. This remark has been included in the final report.</p> <p>Although not much is known about this species, the team has considered the precautionary principle. We also believe that the measures recommended to protect HCV 1.4 in Lot 9 will be sufficient to protect this specie.</p> <p>These forests have been considered under recommendations for implementing buffer zone.</p>

	WWF	<p>Pauwel De Wachter</p> <p>Bas Huijbregts</p> <p>Stephane Louembet</p>	<p>Olam should plan and prepare for potential conflict with elephants</p> <p>Expressed worries about impact of the project on hunting activities: increase activity (if external workforce contracted) /shifting to other areas</p> <p>Olam should negotiate with Ramsar international representatives to understand their obligation regarding Bas-Ogooué site.</p>	<p>This has been considered and included in the report.</p> <p>There is no doubt that Olam will have to bring additional labour from afar. Our recommendations are that should this be the case, their accommodation (temporary or permanent) should be located in areas where there is less chance for migrant workers to engage in hunting, such as setting up camps in the eastern part of Lot 8 to avoid workers hunting in the forests located in the west of the concession. We have also recommended to Olam to have a policy that prevents its workers from hunting.</p> <p>We have recommended that Olam should not undertake any activity in Lot 9 until negotiation with both the National and International representatives of Ramsar has been concluded on what is possible within the Ramsar site.</p>
19/01	BRAINFOREST	Marc Ona	<p>BRAINFOREST was concerned about possible conversion of Lot 9. Their concern was that there are villages in the concession and the fact that it overlaps with Ramsar site, means the area should not be considered for conversion into oil palm plantations.</p> <p>There was also concern about possible contamination of the water table in this project area which Olam should be aware of.</p>	<p>See response below</p> <p>Olam made the commitments to comply with RSPO certification requirements. This means that they will have to ensure that their operations comply with RSPO criterion 4.4 <i>"Practices maintain the quality and availability of surface and ground water"</i> and criterion 4.6 <i>"Agrochemicals are used in a way that does not endanger health or the environment. Appropriate recommendations have been provided to address this."</i></p>
20/01	CENAREST	Yves Issembé	<p>Marsh forest/areas should be excluded from conversion into oil palm plantation. Confirmation that forests of Lot 8 are highly disturbed with no longer continuous canopy. Lidar data shows the predominance of "young trees".</p>	<p>These forests have been protected under HCV 1.4, 4.1.</p>

## List of legal, regulatory and other guidance referenced

### Legal documents

- Convention de RAMSAR du 2 février 1971 relative aux zones humides d'importance internationale ;
- Convention CITES (Convention sur le commerce international des espèces de faune et de flore sauvages menacées d'extinction signée le 3 mars 1973 par 87 États, intégrée au Programme des Nations Unies pour l'environnement en 1991) ;
- Code forestier, loi n° 16/01 du 31 décembre 2001 ;
- Code de l'environnement (loi 16/93 du 26 août 1993 et ses décrets d'application :
  - Décret 541/PR/MEFEPEPN 15/07/05 réglementant l'élimination des déchets ;
  - Décret 542/PR/MEFEPEPN 15/07/05, réglementant le déversement de certains produits dans les eaux superficielles souterraines et marines.
- Décret n° 692 du 24 août 2004 fixant les conditions d'exercice des droits d'usages coutumiers en matière de forêt, de faune, de chasse et de pêche ;
- Arrêté n° 118 du 1 mars 2004 portant réglementation des activités forestières, minières agricoles, aquacoles, cynégétique et touristique à l'intérieur d'une zone tampon.

### Regulatory permits and property deeds

- Convention portant concession de baux emphytéotiques entre la République Gabonaise, représentée par Son Excellence le Premier ministre et Olam Palm Gabon ;
- Décision portant autorisation d'exploration des concessions forestières d'une superficie de 51.920 ha, N° 0000303 MEF/SG/DGEF ;
- Documents cartographiques du projet Olam Palm Gabon / Service cartographique – D.G.E.F – November 2010.

## Summary of the SEI Assessment Findings

### Summary of key findings in respect of socio-economic impacts to country, region and local communities

In oil palm plantations, construction of roads (or other infrastructure related to traffic, such as bridges or drains) on bare soil, significantly increase soil erosion due to poor implementation and / or improper construction techniques. In view of the influence of drainage on the site, the risk of erosion of trails laid out across rivers is even more significant. The opening up of roads will facilitate access for poachers to areas potentially rich in species of large bodied mammals. The risk of trapping by wire (traditional hunting method for collecting game regardless of species or selective sorting) and hunting with firearms remains a potentially significant impact on wildlife.

### Summary of key findings in respect of socio-economic impacts of emergent communities (workers, suppliers, etc)

The oil palm plantation project will no doubt create jobs in the area and hence could result in an influx of people into the region in search of jobs. Although this is expected to increase household income and diversify income sources, a high concentration of population on a limited area results in a significant impact, mainly related to loss of vegetative cover, implementation of infrastructure and equipment, and discharge of solid waste and wastewater (water from kitchen, toilet and laundry containing fats, soaps, detergents and various waste and cleaning products such as dishwashing liquid, disinfectants). Each base-camp will be supplied up to of 30,000 gallons per day of water. Pumping that water into the existing drainage system may



cause a serious decrease in flow, which can have severe consequences on aquatic ecosystems present. The presence of a relatively high concentration of people in remote sites will increase poaching and illegal fishing. Practised by construction workers (either by themselves or by villagers), these activities will put significant additional hunting and fishing pressure on already sparse wildlife.

#### Issues raised by stakeholders and assessors' comments on each issue

The risks of converting Lot 9 were consistently raised and discussed during the stakeholder consultations (table 4). There were also some issues raised during the socio-economic survey with the local communities. It is expected that people from other parts of Gabon will migrate to the region in search of jobs when the project takes off. There were some concerns that an influx of immigrant workers into the area could be a source of conflict with local populations. Some concerns relating to water pollution were also raised. These concerns stem from the fact that the concessions are located in two major watersheds: the watershed of River Ogooué which the people of Lambaréné (about 15 000 inhabitants) and Port Gentil (nearly 80 000 inhabitants) depend on and that of Komo which the people of Libreville depend. To this extent, if chemicals are released from the plantation, polluting the watershed, more than a third of the population of Gabon could be affected. In addition, the wetlands of Lot 9 are likely to be breeding grounds for many species of fish and manatees. Pollution of the rivers in the area could have very serious consequences for the wetland ecosystem and the species that depend on it. The issue of carbon dioxide emission as a result of conversion of degraded forestland was also raised several times. For this reason, some stakeholders suggested Olam Palm considers CO2 accounting.

#### Summary of the HCV Assessment Findings

##### Overall HCV identification and proposed measures to maintain and enhance those identified.


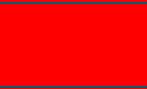

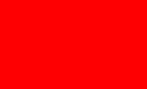

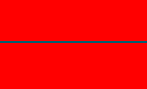

The table below gives a summary of HCVs present, potentially present or absent in Olam Palm concession Lots 8 and 9 in Gabon, with the status of HCVs noted for Lots 8 and 9 separately. Although Lot 11 is not to be considered for conversion into oil palm plantation, the presence of HCV 1.1 and HCV 2 has been recognised for Lot 11.

HCV	Description	Present	Potentially present	Absent
<b>HCV1.1</b>	<b>Protected areas</b>			
Block 8	Pongara National Park			
Block 9 and 11	Bas-Ogooué RAMSAR site			
<b>HCV 1.2</b>	<b>Concentrations of rare, threatened or endangered species</b>			
Block 8	Manatee ( <i>Trichechus senegalensis</i> ) and chimpanzee ( <i>Pan troglodytes</i> )			
Block 9	Manatee (present) and Long snouted crocodile ( <i>Mecistops cataphractus</i> )(Potential)			
<b>HCV 1.3</b>	<b>Concentrations of endemic species</b>			
Lot 8	Not applicable			
Lot 9	Not applicable			
<b>HCV 1.4</b>	<b>Seasonal concentration of species</b>			
Block 8	Lower part of River Lobe and Bikoume watershed			

Block 9	The entire hydrological system of River Abanga, Lake Nguene and Lake Azougue and the associated flooded areas			
<b>HCV 2</b>	<b>Large landscape level forests</b>			
Blocks 8 and 9	Not applicable			
<b>Block 11</b>	Intact Forest Landscape Lope-Chaillu-Louesse			
<b>HCV 3</b>	<b>Rare, threatened or endangered ecosystems</b>			
Block 8	Not Applicable			
Block 9	Not applicable			
<b>HCV 4.1</b>	<b>Forest areas critical to water catchments</b>			
Block 8	Traditional fishing areas of Awala and Bikoume rivers and the banks of Komo estuary; riparian forest protecting Woubele river which is a major source of drinking water for the local communities			
Block 9	Forest protecting Abanga river, Lake Nguene, Lake Azougue and their tributaries and the flooded area			
<b>HCV 4.2</b>	<b>Forest areas critical to erosion control</b>			
Block 8	Hilly areas with slopes above 20°			
Block 9	Hilly areas with slopes above 20°			
<b>HCV 5</b>	<b>Forest areas fundamental to meeting basic needs of local communities</b>			
Block 8	Customary use of timber for construction (NB agricultural lands within concession)			
Block 9	Customary use of timber for construction; Collection of NTFPs (Andok and Coula) (NB agricultural lands also within the concession)			
<b>HCV 6</b>	<b>Forest areas critical to local communities traditional cultural identity</b>			
Block 9	Akouk, Afog Bidzi, Ebel Abanga (cemeteries in the villages); fishing campsite around Lake Nguene			
Block 8	There are no HCV 6 in this Lot			

In order for Olam to meet the RSPO certification process it is crucial that the company implements the recommendations described in this report. To ensure that the field operations follow the steps indicated in this report (and listed in the following table), Olam should designate a responsibility for the monitoring of the field implementation of the measures for protecting and maintaining HCVs in their concessions. This person should be given the authority, time and resources to train staff properly, prepare a robust SOPs including recommendations contained in this report and to organise the plan activities before the conversion operations, and to monitor them in the field.

Legend			
Actions to be implemented:			
	Before conversion		During conversion
			After planting

Objective	HCV ref	Action required	Timeline	Monitoring measures/proofs
<b><u>Maintaining water quality and the HCVs it supports</u></b>				
Protection of rivers	4.1	Evaluate Awala/Lobé confluence and the extent of swamp area This area, representing a fishing area for women of local communities is classified as HCV 4.1		Area included in GIS database as HCV 4.1
	4.1	Evaluate origin of the river that passes through Ayeme village This river is HCV 4.1 if it originates from Lot 8.		Area included/excluded from GIS database as HCV 4.1
	ALL	Formation of <b>"HCV field team"</b> to be responsible for training and ensuring that field workers adhere to management recommendations for HCV areas		/
	1.2,1.4, 4.1	Field team to delineate 10 meter buffer zones on both sides of streams of less than 5m in width		Measurement of width of rivers/buffer zone width Buffer zones included in GIS database
		Field team to delineate 50 meter buffer zones on major rivers with widths of 5-20m width		Measurement of width of rivers/buffer zone width Buffer zones included in GIS database
		Field team to delineate 100 meter buffer zones on both sides of big rivers with width greater than 20 m (e.g. Lobe upper course)		Measurement of width of rivers/buffer zone width Buffer zones included in GIS database
		Field team to delineate Komo estuary protection area		Area delineated and included in GIS



Objective	HCV ref	Action required	Timeline	Monitoring measures/proofs
Protection of rivers	1.2,1.4, 4.1	Land preparation teams are trained to respect river buffer zone		Evidence of training and demonstration of understanding of buffer zones management and monitoring recommendations by field team Buffer zone recommendations respected
		Land preparation teams are provided with maps of areas to be protected		Existence of operational maps with all areas for protection clearly indicated. Copies of these maps available to field team leaders
		Land preparation teams are trained to convert forest laterally to river buffer zone to avoid having it destroyed by falling trees		No impact on buffer zones Regular inspection and measurements to assess whether guidelines are being adhered to in practice
	ALL	Field team to control respect of river buffer zones If buffer zones are not respected, corrective actions must be taken immediately		Corrective actions record
		Bridges and river crossing must be pre-planned		/
		Bridges and river crossing must be done according to recognised best practices		Check erosion around bridges
Erosion control	ALL	HCV or environmental management field team trained to implement and respect erosion control recommendations		Records of training Proof of training
	1.2,1.4, 4.1, 4.2	Areas with slopes above 20 degrees are excluded from conversion		Area delineated on the ground and recorded in GIS database
		Areas with slopes between 5 and 20 degrees are identified		Area delineated on the ground and recorded in GIS database
		All areas with slopes categories are mapped in GIS database		GIS database – Slopes map
		Conversion team/Road construction team trained to implement erosion control measures		Records of training Proof of training

Objective	HCV ref	Action required	Timeline	Monitoring measures/proofs
		Roads are planned prior to conversion to avoid being perpendicular to slopes and to avoid fragile soils		Road map – Contour map
		SOP for terracing is completed before conversion		SOP
		Cleared vegetation is windrowed		Windrowed in the field
		Gutters are built according to best international practices		Frequency/slope
		Road soak away are built depending on down slope of road being constructed		Frequency/slope
		Silt pits are built to avoid sediments being discharged into rivers		/
Erosion control	1.2,1.4, 4.1	Appropriate leguminous cover crops that do not have invasive properties are selected to avoid invasiveness		Olam to justify the choice of leguminous crop
		Cover crops are planted immediately after conversion to avoid erosion of soils during the first rains		Date of planting
Monitoring of water quality	1.2,1.4, 4.1	Annual water quality testing in the following rivers: <ul style="list-style-type: none"> <li>• Lobe river (near the bridge crossing between the northern and central parts of Lot 8)</li> <li>• Bikoume river mouth (if North part being converted)</li> <li>• Woubele river</li> <li>• River crossing Ayeme Bokoue village</li> </ul>		Test results
		Annual meetings with the following community to control water quality: Woubelé 2, Woubelé 3, Ayeme Bokoué and Agricole		Meeting minutes
		Bimestrial evaluation of siltation of rivers		Evaluation results Records of remedial actions taken if any
		SOP in place for Corrective/Preventive action to be taken in case of degradation of water quality		Documented SOP
<b><u>Respect and Maintain local populations basic needs</u></b>				
Implementing FPIC	5, 6	Nominate a Community Representative Officer		/
		Define Olam Palm's FPIC process and contract competent body to undertake FPIC		SOP

Objective	HCV ref	Action required	Timeline	Monitoring measures/proofs
		Identify representatives for each community		Community representatives list
		Define conflict resolution procedures with local communities Agree on mode of compensation and payment process with local people to be affected by the conversion operations		SOP List of parties to be affected Documented agreed means of compensation and mode of payment
		Delineate HCVs areas with communities		Area included in GIS data base
		Negotiate management decision for HCV areas following Olam's FPIC procedures		Signed agreement with community/concerned people
Monitoring results		Regular (twice a year at the beginning of the project, minimum once a year after relation with communities are strengthened) evaluation of changes in communities needs		Meeting minutes
<b><u>Fauna conservation programme</u></b>				
Assessment of species and population of mammals	1.2	Mammal survey of the northern part of Lot 8 during the major rainy season		Survey report
		Mammal survey of the northern part of Lot 8 during the major dry season		Survey report
		Definition and delineation of conservation areas in the northern part of Lot 8		Survey report – GIS database
		Definition and delineation of habitat corridors in the North and South of Lot 8 to enable animal movement between WE and W of the plantation		Survey report – GIS database
Hunting and access control	1.2	Seek and reach an agreement with Bitoli permits for controlling hunting and access on the road in the Southern part of Lot 8		Agreement document signed as part of FPIC process
		Plan workers' campsite/housing in existing city/villages to reduce the impact of external worker hunting on wildlife		Campsite plan – GIS database
		Olam shall implement community educational programme on hunting particularly during the closed season and RTEs		Records of any educational or any other programme undertaken to address issues with hunting particularly during the closed season Records of community education conducted.

Objective	HCV ref	Action required	Timeline	Monitoring measures/proofs
		Olam shall have a clear no hunting policy for employees		Company policy
		Olam shall strive to prohibit hunting within its concessions		Company policy
		Olam shall control access to its concessions for hunting particularly during the close season as defined by the Forest law N0016101		Company policy – SOP – Control records
Elephant conflict	1.2	Olam should evaluate the feasibility of measures to avoid conflict with elephants		Conflict prevention record
<b><u>Conversion operation</u></b>				
	N/A	Conversion operations shall start during the dry season		Records on starting dates for operations
	N/A	Conversion should start from the eastern boundaries to the western one		/
<b><u>Scientific Research</u></b>				
	N/A	Development of partnership with research institutions on reptile research		/
	N/A	Development of partnership on Hydrology research		/
<b><u>Implement recommendation in the field</u></b>				
	N/A	Designation of a responsible person for monitoring the field implementations of HCV management recommendations		/



### Documentation showing the Obtained Free, Prior and Informed Consent of any indigenous people affected by the development of the concession

Although there are no indigenous people in the region where the concessions are located, a handful of people in communities closer to Lot 8 who farm in this concession will be affected. Additionally, local people with permits to harvest trees in the area will be affected by the conversion activities if ample time is not given to them to harvest those trees. Olam Palm through the FPIC process which started recently is identifying these groups for commencement of negotiations. Additionally, communities such as Akok, Afog Bidzi and Ebel Abanga which are located in Lot 9 would like the boundaries of this concession to be redefined to ensure the plantations are established at least 5 km from the communities. However, it has been recommended that Lot 9 be excluded from any conversion activities due to it being in a Ramsar site in addition to the potential impacts of any conversion activities on the two lakes and the associated flood plains as well as the endangered species in the lakes and the network of rivers in the area.

### Data sources and quality

The limitations in data collection and analysis of biological data were mainly due to lack of availability of good satellite imagery and accurate mapping information in Gabon. Additionally, since the field assessment coincided with the major rainy season in Gabon, most parts of Lot 9 were heavily flooded, a situation that hindered effective botanical and mammal surveys in those areas. The main limitations of the different aspects of this assessment are detailed below:

Landsat and satellite images: The quality of all Landsat and satellite images obtained by the team for the identification of different ground cover was found to be of a very low quality due mainly to high cloud cover in Gabon. However, this problem was resolved through engagement of Tridex Solutions by Olam Palm to undertake a Lidar survey of the concessions. The output of this survey was the major source of topographical and vegetation cover maps used for the slope and land cover analysis of this assessment.

Botanical and mammal survey: There are two major limitations to the botanical and mammal survey. First, the assessment team could not survey one of the five transects (transect C) planned for Lot 8 mainly because of the danger posed by seismologic studies for oil exploration undertaken by Oil India in the south-central part of this lot. The field team could not undertake extensive field botanical and fauna survey in the north-east to the central part of lot 9 due mainly to heavy flooding. To address this, a survey was organised on transect C during the field verification quality control measures. In spite of these limitations the data obtained from the field combined with those from high resolution maps of vegetation cover (1m resolution) and the secondary data obtained provided sufficient reliable data for ecosystem classification, habitat quality assessment and conservation values in the area.

### The HCV toolkits used for this assessment

The HCV toolkits used this assessment are the Global HCV Toolkit and the draft HCV National interpretation document for Gabon. This draft document was prepared based on national stakeholders workshops led by WWF Gabon and facilitated by Proforest. All the six HCVs were assessed using these documents and other HCV assessment guidelines developed by Proforest.

### Decisions on HCV status and related mapping

HCV	Findings	Management objective	Spatial presence	Status of mapping	Management recommendations
1.1	Present in Lot 9 and potentially present in Lot 8	To respect the objectives and maintain the intended functions of the Bas-Ogooué RAMSAR site and protected areas.	Distinct	Mapped	Olam Palm should not begin operations in Lot 9 until negotiations are concluded with the international and national representatives of Ramsar to agree on Olam's obligations in the conservation and wise use of the natural resources in the site. All recommendations provided for Lot 8 on management and monitoring of HCV will apply should it be agreed for Olam to undertake oil palm plantation programme in Lot 9. Respect for buffer zones of 5km for protected areas and riverine buffer zones for rivers in the concessions.
1.2	Present in both Lot 8 and 9	To promote maintenance of the quality and functionality of water bodies in the concessions to enhance use of the rivers by aquatic species	Few but widely distributed	Partially mapped	Riparian vegetation and buffer zones of 10 metres for smaller streams of less than 5 metres in width, 50 metre buffer for rivers greater than 5 metres in width but less than 20 metres and 100 metres for big rivers with width greater than 20 metres. These are established mapped and respected.
1.3	Absent in both Lot 8 and 9			/	
1.4	Present in both Lot 8 and 9	To promote maintenance of the quality and functionality of water bodies in the concessions to enhance seasonal use of the rivers by aquatic species	Few but widely distributed	Partially mapped	Riparian vegetation and buffer zones as explained under HCV 1.2 above for rivers and other big rivers are established, mapped and respected.
2	Present in Lot 9 but not in 8	To ensure that the oil palm	Distinct	Mapped	Recommendation for Lot 9 is to exclude the Lot from any conversion activity until Olam Palm has

		plantation development does not reduce the ecological functioning of the Pongara National Park and the Intact Forest Landscapes in the area			confirmed the western boundary with the Ramsar secretariat and Gabonese authorities. With regards to Lot 8, management recommendations had focused on appropriate management of hydrological systems of this Lot to avoid pollution of degradation of the network of rivers in this concession which could subsequently lead to pollution of the Pongara National Park, a wetland conservation area located at the north-east of Lot 8 and drained by water from rivers in Lot 8
3	Absent in both Lot 8 and 9		N.A	N.A	
4.1	Present in both Lot 8 and 9	To ensure perpetual flow of clean water for local communities by setting aside and maintaining appropriate buffer zones for all rivers in the concessions.	All rivers in the concessions	Partially mapped	Management recommendations include protection and maintenance of buffer zones, erosion control practices for all areas with slopes of above 5 degrees.
4.2	Present in Lot 8 to a large extent, and to a much lesser extent in Lot 9	To avoid erosion problems caused by the oil palm plantation development especially in northern parts of Lot 8	Various but diffuse in Lot 8 and very small areas of lot 9	Partially mapped	Recommendations include excluding planting in areas above 20 degrees while implanting strict erosion control measures in areas with slopes above 5 degrees but less than 20 degrees.
5	Present in both Lot 8 and 9	To ensure that the oil palm plantation development programme does not threaten communities' access to their	Assorted and scattered	Not mapped	Using FPIC and participatory mapping to delineate areas to be protected in addition to implementing erosion control and buffer zones recommendation.

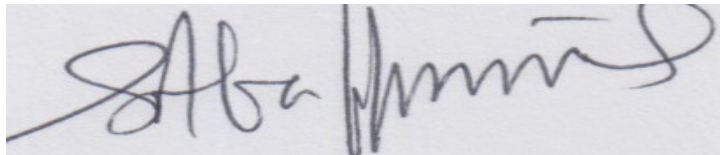
		basic needs.			
6	Present in only Lot 9	To ensure that fishing campsites at Lake Nguene and cemeteries for the Akouk, Afog Bidzi, and Ebel Abanga communities are mapped and excluded from planting if an agreement is reached that Lot 9 can be converted.	Assorted and scattered	Partially mapped	Subject to recommendations under HCV 1.1, HCV 6 management will be implemented for Lot 9 through delineation and mapping of cemeteries and traditional fishing camps around Lake Nguene



## **Internal Responsibility**

### **Formal signing off by assessors and company**

Signed on behalf of HCV assessors

A handwritten signature in dark ink, appearing to read 'Abraham Baffoe', is shown on a light-colored background.

Abraham Baffoe

HCV assessment team leader