

The role of secret societies in the conservation of sacred forests in Sierra Leone

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Photograph 1.
The entrance of a sacred forest in Makeni.
Photograph J. V. Pérez.

RÉSUMÉ

LE RÔLE DES SOCIÉTÉS SECRÈTES DANS LA CONSERVATION DES FORÊTS SACRÉES EN SIERRA LEONE

Les forêts sacrées de Sierra Leone n'ont pratiquement pas fait l'objet d'études scientifiques malgré le fait qu'elles constituent les derniers fragments de forêts vierges dans diverses régions du pays. Une bonne partie de la société de Sierra Leone croit que ces forêts sont habitées par des esprits et elles sont les lieux choisis par les sociétés secrètes pour leurs cérémonies. Leur caractère sacré garantit ainsi une assez bonne protection et une certaine conservation à ce genre d'habitat. Cet article porte sur l'étude de quatre forêts sacrées dans le district de Bombali et a trait au lien entre la conservation des forêts sacrées et le rôle que les sociétés secrètes jouent dans leur préservation. Les forêts ont été étudiées sous l'angle socioculturel, écologique et botanique, afin de mieux comprendre leur caractère sacré et de pouvoir proposer des stratégies devant assurer leur future conservation.

Mots-clés : bois sacré, société secrète, paiement pour service environnemental, aménagement et conservation de la biodiversité, Sierra Leone.

ABSTRACT

THE ROLE OF SECRET SOCIETIES IN THE CONSERVATION OF SACRED FORESTS IN SIERRA LEONE

Sacred forests hold the last remaining primary forest in many parts of Sierra Leone, but they have been relatively little studied. Believed to be inhabited by spirits, they are home to the ceremonies of secret societies. Therefore, they are usually highly protected and very well preserved, but current socio-economic changes are a threat to their conservation. This paper describes some of the main characteristics of four sacred forests studied in the northern Bombali district and examines the links between their conservation and the protection offered by secret societies. Socio-cultural, ecological and botanical research methods were combined in order to understand these sacred groves and to suggest improvements for their conservation and management.

Keywords: sacred forest, secret society, payment for ecosystem services, biodiversity conservation and management, Sierra Leone.

RESUMEN

EL PAPEL DE LAS SOCIEDADES SECRETAS EN LA CONSERVACIÓN DE LOS BOSQUES SAGRADOS DE SIERRA LEONA

Los bosques sagrados son los últimos fragmentos de bosques primarios en Sierra Leona, pero prácticamente no han sido objeto de estudios científicos. Gran parte de la sociedad sierraleonesa considera que los bosques sagrados están habitados por espíritus, siendo estos lugares donde las sociedades secretas realizan sus ceremonias. Este carácter sagrado garantiza una elevada protección y una buena conservación de estos hábitats. La presente investigación está basada en el estudio de cuatro bosques sagrados en el distrito de Bombali y aborda la relación existente entre su conservación y el papel de las sociedades secretas en su protección. Los bosques se estudiaron desde una perspectiva sociocultural, ecológica y botánica con el fin de comprender mejor su carácter sagrado y proponer estrategias futuras para su conservación y mantenimiento.

Palabras clave: bosque sagrado, sociedad secreta, pago por servicio ambiental, gestión y conservación de la biodiversidad, Sierra Leona.

Introduction

Sacred sites are recognized by indigenous and traditional peoples as places of particular cultural, historical, spiritual and religious significance, or as sites established by institutionalized religions and faiths as places for worship and remembrance (METCALFE *et al.*, 2010).

This study focuses on four sacred forests in Sierra Leone. The aim of this paper is to further understanding of these areas in order to contribute to their preservation. A social, ecological, botanical and management study was conducted in four different sacred forests in the north of the country. At a sociological level, this work examined the relationship between sacred forests, their traditions and taboos, and the process of initiation in the Sierra Leonean society. The ecological study was based on a survey of the general characteristics of the studied sacred forests. A herbarium was compiled in order to classify the different tree species that were found in these groves. Finally to identify weak points, the actual local management was observed leading to recommend improvements for the protection of these forests.

Presently, there is an apparent socio-economical development trajectory which introduced into Sierra Leone (CONTEH-MORGAN, 2006). Along with this change, there is a demand for more resources, such as minerals and wood, as well as a change in the belief systems of rural Sierra Leonean society. Countries such as China, and big European and American transnational companies, have settled and started to exploit natural resources after the 1991-2002 civil



Photograph 2.

The cotton tree or *Ceiba pentandra*, considered as a sacred species.
Photograph A. Martín Martín.

war (MALONE, 2008). As villages need more land for agriculture to fund the social changes, sacred forests are competing against agricultural expansion. Simultaneously, changes in traditions of rural society diminish the importance of sacred and threaten the motivation for their protection.

Sacred forests are the last remaining primary forest in many parts of Sierra Leone. They are very beneficial to the equilibrium of rural life in Sierra Leone by providing resources for hunting, fishing and gathering medicinal plants. Chopping wood and lighting fires is usually forbidden, although in some cases the groves have also become an important source of wood for rural communities. They have also acted natural water filters for many communities (CEPERLEY *et al.*, 2010).

This article assesses the value of these sacred sites from different perspectives in order to propose ideas for their future conservation in cooperation with the native people.

Definition and types

The definition of sacred forests described by KOKOU and KOKUTSE (2007) for nearby countries in West Africa corresponds to those belonging to Sierra Leone. They are considered as forest fragments where local people perform ceremonies in order to be in contact with and to pay homage to their gods and spiritual protectors. Similarly to forests found in Benin, it is believed that these groves are a home to spirits and that disturbing them can have terrible consequences, such as floods, drought, infertility, diseases or death (CEPERLEY *et al.*, 2010).

A distinction can be made between three different types of sacred groves:

- Ancestral forests: these focus on the protection of the spirits of ancestors.
- Forest cemeteries: these serve as cemeteries for people who died from natural hazards (lightning, fire, drowning...), children from sickness or women during pregnancy.
- Forests of secret societies: Only secret societies are allowed to enter the forest where different traditions concerning the initiation of girls and boys are taught.

The forests studied fall in the second and third category described by KOKOU and KOKUTSE (2007); ancestral forests and forests of secret societies. Only secret societies are allowed to enter the forest where different traditions concerning the initiation of girls and boys are taught, and meanwhile they focus on the protection of the spirits of ancestors.

Sacred natural sites are almost certainly the world's oldest form of habitat protection (DUDLEY *et al.*, 2009). Sacred groves are protected, conserved and maintained through a combination of taboos, prohibitions, beliefs and restrictions (SIGU *et al.*, 2000). They can be considered informal or traditional institutions based on cultural norms that do not depend on government for promulgation or enforcement; they follow a self-imposed mechanism (COLDING, FOLKE, 2001). This belief is handed down through generations by cultural transmission and is successful because of sanctions such as punishing offenders by community exclusion, gossiping or the threat of supernatural forces.

Study Site

Sacred sites are found in all the continents except Antarctica, and are most common in the tropical areas (BHAGWAT, RUTTE, 2006). The site of this study is found in the North of Sierra Leone, in the Bombali district. The work was produced with the “Bombali Shebora chiefdom” and the “Biriwa chiefdom” and entered into the sacred groves of Makeni, Kamabai and Kassasie (figure 1). Sierra Leone has different ethnic groups, each possessing distinct traditions, cultures and even dialects. Like the sacred forests described by KOKOU and KOKUTSE (2007), the places studied (Kamabai and Kassasie) are forest fragments that belong to local people of the *Temne* (Makeni) and *Limba* ethnic groups.

Benefits of sacred forests

The benefits of sacred forests can be ecological, cultural and economical. Ecologically, they help to protect and purify water resources and improve soil quality. They are important for riparian buffer conservation (KOKOU, KOKUTSE, 2007) as they may function as buffer zones or corridors for the dispersion of many species (VIRTANEN, 2002). These forests are important for the conservation of flora and fauna due to their widespread distribution and their role as reservoirs for local biodiversity and threatened species

(METCALFE *et al.*, 2010). They protect specific species and, moreover, protect associated populations of symbiotic and parasitic species (DUDLEY *et al.*, 2009). Tropical rainforests harbour a high level of biodiversity. Many different species are protected within the sacred groves; some of them are on the IUCN red list (DUDLEY *et al.*, 2009). Not only do different habitats, species and ecological relationships survive in sacred forests, but these forests can ensure their survival by providing reservoirs. In fact, sacred groves play an important role as a refuge for these species and hence become a tool for *in situ* conservation of flora and fauna (DECHER, 1997).

From a cultural point of view, a distinction between spiritual and economic benefits must be made. Sacred forests are an important institution within Sierra Leonean society; many traditions and ceremonies exist because of these groves. They can even be considered historical markers and archaeological indicators due to their function as ancient elite burial grounds or abandoned settlements (CHOUIN, 2002).

Sacred groves may also have economic value. In some cases people are allowed to pick up medicinal plants or dead wood which can be sold in local markets, bringing benefits to the families which are looking after these sacred sites (KOKOU, KOKUTSE, 2007). On a global scale, sacred forests, like all conserved forests, sequester carbon dioxide (CO₂), preventing it from being emitted into the atmosphere and contribute to global warming (AKACHA AKOHA, 2003).



Figure 1. Localization of the sacred forests explored in Sierra Leone.

Methodology

Two studies were done; a social research of the role of secret societies in the conservation of sacred forests and an ecological research with botanical survey.

The social research employed the qualitative triangle strategy of combining the three corners of documentation, observation and interviews to understand the socio-cultural aspects of sacred forests. Specifically, two kinds of interviews, investigative and deep, led the conversations. Conversations were in English with 10 people trusted (table I) and the information was analyzed. Socio-cultural methods were limited because people were very scared of consequences from secret societies if they spoke too much.

Ecological methods were limited by the difficulty of entering sacred forests due to their protection by secret societies, thus ecological conclusions were drawn from previous observations. Notes and samples were taken from the outside to the inside of the grove after being entered the forests. Botanical inventories were made from a herbarium made from collected samples provided by local people. Species were identified in the laboratory. First hand collection of samples was not always possible because entry to the sacred forests was strictly controlled. In some cases, village chiefs were convinced of the relevance of this study.

Table I.
Name of the interviewed and type of interview done concerning their sacred forests.

N°	Name	Age range	Gender	Profession	Kind of interview
1	Musa Sesay	50 - 60	Male	School headmaster	Deep
2	Yamasa Sesay	20 - 30	Female	University student	Deep
3	Joseph Lanzana	30 - 40	Male	University teacher	Investigative
4	José Luis de Garayoa	50 - 60	Male	Missionary	Investigative
5	Medo Mansaray	30 - 40	Male	Builder	Investigative
6	Adama Mansaray	30 - 40	Female	Farmer	Investigative
7	Rodrigo Díez	30 - 40	Male	Volunteer	Investigative
8	Desmond Sesay	20 - 30	Male	School teacher	Deep
9	Dianah Sesay	20 - 30	Female	University student	Deep
10	Fatmata Sesay	50 - 60	Female	-	Deep

Results

Social study

Interviews revealed that the secret societies shape the tradition of sacred forests in Sierra Leone. In particular the initiation ritual is dependent on the preservation of these groves. However, interviews also revealed changes in the current practices of these traditions.

Secret societies use sacred forests for performing different rituals and therefore play the main role in their con-

servation. Most members of Sierra Leonean society are initiated into one secret society, and their membership will last until their death. A bond is created between their companions and their ancestors. Three types of secret societies can be distinguished:

- *Poro*: for men belonging to the ethnic groups *temne* and *mende*.
- *Gbangbani*: for men belonging to the ethnic groups *limba* and *loko*.
- *Bondo*: for women of all ethnic groups.



Photograph 3.
Gate situated at the entrance of a *poro* sacred forest.
Photograph J. V. Pérez.



Photograph 4.
Gbangbani initiation in Kabakeh.
Photograph J. L. de Garayoa.

Locals initiated into a different secret society, non-initiated or of a different sex are not allowed in the sacred forest.

Secret societies are very powerful within the Sierra Leonean society. They are organized hierarchically, and the leader is able to communicate with the spirits and make sure that rules are observed. If an outsider watches societies' ceremonies or enters a sacred forest without permission, he will be punished. This promotes a high level of respect for and sense of fear toward these secret societies and their chiefs.

Sacred forests are very common in Sierra Leone. They are needed for the performance of initiation ceremonies for boys and girls as they become men and women of a village. In most villages each secret society has a sacred forest. They must possess specific characteristics in order to be chosen by secret societies and, subsequently, to be protected. The forests have a dark atmosphere due to the presence of lianas, woody plants and epiphytes; usually, a river flows in the surroundings (photo 1). No tree felling is allowed but they may hunt, fish or recollect medicinal plants. Size is not an important consideration in the election of sacred groves.

There is a significant superstitious component to beliefs about sacred forests. It is believed that spirits and witches live in these areas. The cotton trees, *Ceiba pentandra* (L.) Gaert, are considered sacred because it is known to be the place where witches meet during the night (photo 2). Most sacred forests will have at least one cotton tree. The *gbangbani* and *poro* societies will perform ceremonies and sacrifices under this tree; that way, they will be able to contact "evil spirits" or to communicate with their ancestors.

The process of initiation is highly important throughout Sierra Leone. The aim of initiation is the training of men and women in a village and the division of skills to be learned. This tradition is completely taboo for outsiders: even boys and girls entering a sacred forest for their initiation do not know what is going to happen - they only know that parties will be held and presents will be offered to them.

The ceremony begins with by in the entrance to the grove, which will have different signs in order to alert others that the initiation is being done (photo 3). That night there will be a party with alcoholic drink (*pooyo*), smoking and dancing. At dawn the initiation will start and last for some days.

The initiation of men is based on their training as useful members of village society (photo 4). Activities include hunting, fishing or playing drums. The main act is "the painful proof" (*burei*); children will have to suffer circumcision without anaesthesia. No crying or shouting is allowed. In the *poro* society it is also common to suffer cuts with a razorblade to the body.

The initiation of women is based on the preparation of girls for (photo 5) marriage, cooking, working, and taking care of their husband. They will be taught how to dance, sing, and to use and cultivate medicinal plants. The "painful proof" (*cutting*) is the ablation; thousands of Sierra Leonean girls are mutilated without any safety and anaesthesia. These girls may suffer bleeding, infections or even death.

Some natives are beginning to question this practice, but it is still affecting a majority of Sierra Leonean girls for three main reasons. First, the initiation process is conducted in secret, with imposed taboos and norms that do not allow any expression of feeling, or any communication of what happens within the sacred forest. The girls do not know what will happen when they are initiated. If you are not initiated, you will be excluded and stigmatized by the society. Second, Sierra Leone's legislation does not permit the initiation of underage women. The reality is, however, that girls or even babies are initiated, because it will entail fewer costs. Third, traditions are important. Despite the refusal of some girls or mothers to take part in the initiation, grandmothers are willing to have their granddaughters belonging to a secret society.

After the initiation, the spirit (*idol*) is allowed outside to meet new members. Finally the party exits the sacred grove to the sound of drums, and presents will be offered to them.

The current socio-economical development of Sierra Leone indicates a shift in traditions, something that directly affects the sacred groves. The use and value that locals ascribe to these sites depends whether it is a rural area (Kamabai or Kassasie) or a city (Makeni).

In Makeni, the sacred forests were protected not only in a spiritual way but also as a means by which profit could be made. The study permit to realize that it was a form of escapism for the men of the city; places to gather, smoke the marijuana, *Cannabis sativa* L., that was cultivated there, and drink. The initiation is performed with the same sense of importance, but the management of the groves was very poor. There was rubbish on the floor - such as razor-blades, cigarettes or bottles - and even a motorcycle was allowed to enter while we were inside. It has been possible to enter in two sacred forests of Makeni, those belonging to the Rogbaneh village and Masuba village, in both cases within the *poro* society. They asked for money and gin, in return letting us enter the sacred site and, to a point, to take samples.

In Kamabai and Kassasie, on the other hand, the influence of tradition and superstition is still very strong, so it has been only able to get in with the help of a respected local missionary. They would only let a woman into the *bondo* forest and a man into the *gbangbani* forest; the reason behind this being that otherwise the spirit would get upset and cry every night. No money or gin was demanded. The management was much better, the forests cleaner, and there were no signs of trees being cut.

Ecological study

Observation showed the existence of flora and fauna stratification within sacred forests. There are three flora layers depending on the height and therefore the amount of sunlight they receive. Figure 2 shows this stratification with the species more commonly found in each layer. Similarly, fauna stratification can be found depending on the height and consequently the food resources. This can be seen in figure 3 showing those species which exist in sacred forests in Sierra Leone.

Sacred forests tend to be situated within the surroundings of the villages to which they belong (photo 6). Of the 4 forests visited and all of these which are realised as



Photograph 5.
Bondo initiation in Kassasie.
Photograph J. L. de Garayoa.

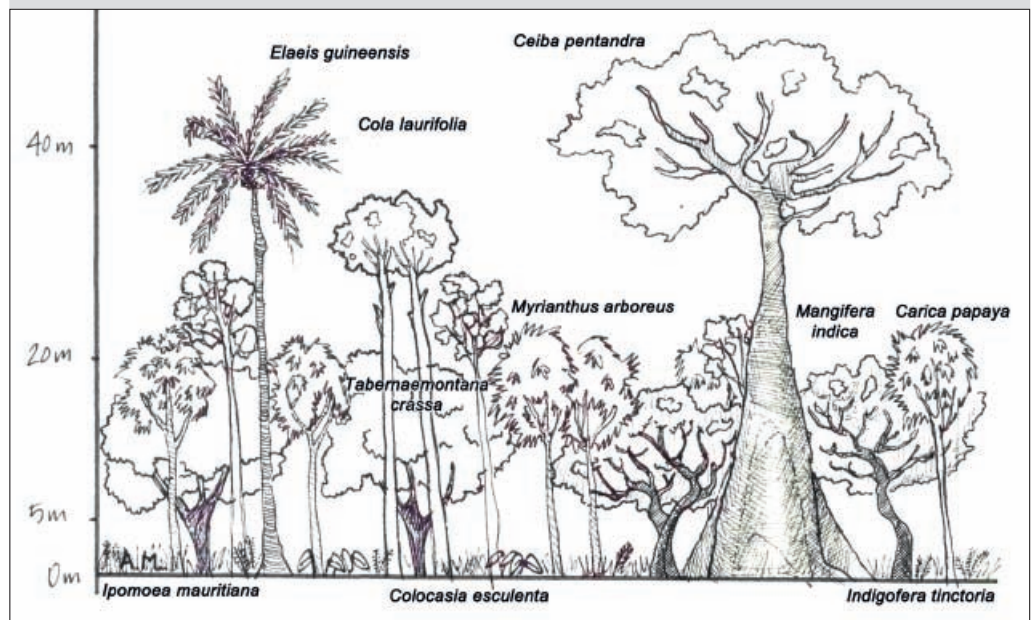


Figure 2.
Flora stratification in three layers with the most common species.

existing, they were within 1 Km of the village. In some cases they were adjacent to rice (photo 7) or palm fields that function as buffers between the road and the forest, or in the best case, to non-sacred forests. Three sacred forests were found adjacent to crops, 2 next to roads and only one adjacent to a non-sacred forest, in this case, the degradation of the grove was less evident.

Because groves are usually of small size, the ones examined had a range between 0.12 and 2.75 hectares (ha), the influence of edges will be more severe. Sacred forests also tend to contain a river that will be used during the initiation for cleaning participants, as well as for drinking, cooking and fishing. For example, the sacred forests of Kamabai (photo 8), Masuba village (Makeni) or Kamangbangbarantan contained rivers.

A botanical inventory was made from specimens from the four sacred forests belonging to the Biriwa district that we could enter.

During the inventory 54 tree species have been identified in the forests visited (table II). Depending on the shade conditions the composition differed; the forest of Rogbaneh Village (*poro*) had many epiphytes and lianas, while the forest of Masuba Village (*poro*) had more open spaces. The sacred grove of Kassasie (*gbangbani*) was the biggest, so its biodiversity was higher, while the forest of Kamabai (the only *bondo* forest accessible) was the smallest and least biodiverse.

Here 35 families have been identified, and *Bombacaceae* was the most represented. All the sacred groves we studied contained the *Ceiba pentandra*. *Eleais guineensis* Jacq., *Musa sapientum* L., *Prunus Africana* (Hook. f.) Kalkman, *Caloncoba welwitschii* (Oliv.) Gilg., and *Cola acuminata* (P. Beauv.) Schott & Endl were also found.

Since the chiefs would not let us explore the entire area, a first exploration of the sacred forests has done, with recollection of samples included. The fact that the area sampled was not representative of all the entire species is assumed, however, since it was still high, the inventory confirms that biodiversity was significant at these sites. On average it can be considered that 60% of the sacred forest was sampled.

In the botanical study the basic herbarium, with samples harvested from the four sacred forests studied, revealed 55 tree species (in approximately 1.75 ha sam-



Photograph 6.

A sacred forest in Makeni adjoin to its village.
Photograph J. V. Pérez.

pled), many of them considered medicinal plants by the natives. It is important to point out the high biodiversity compared to the small size of these sites.

As local people told us, sacred groves are a source of medicinal plants for them and have been zealously protected for centuries from both intensive logging and burning. Knowledge about medicinal plants is transmitted two ways: during the initiation process, or in dreams. Ancestors pass on their wisdom orally, but if they die before they have an opportunity to do so it will be passed on in dreams. It is believed that some families have a gift for this topic; such is the case in the local “Bangura” family.

Many species from sacred groves are used as medicinal plants. Approximately 70% of the species sampled were considered as medicinal plants; in most cases used against malaria, yellow fever or “worms in the belly of children”.

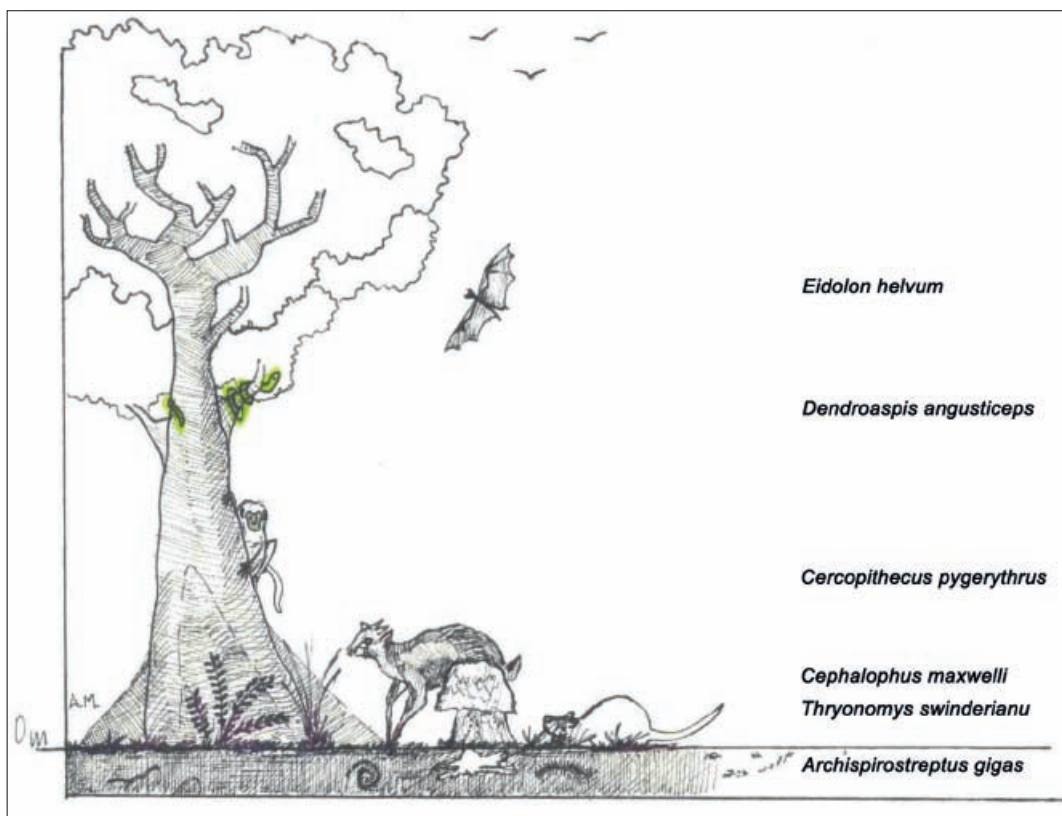


Figure 3.

Fauna stratification with the most common species.

Table II.

Species identified in the sacred forests of Makeni (Rogbaneh village and Masuba village), Kassasie and Kamabai. Scientific name, year when the species was first published, and family.

N°	Species	Year	Family
1	<i>Caloncoba welwitschii</i> (Oliv.) Gilg.	1933	Flacourtiaceae
2	<i>Ceiba pentandra</i> (L.) Gaertn	1989	Bombaceae
3	<i>Elaeis guineensis</i> Jacq.	1763	Arecaceae
4	<i>Parkia bicolor</i> A. Chev.	1908	Mimosaceae
5	<i>Acacia auriculiformis</i> A. Cunn. ex Benth.	1911	Mimosoideae
6	<i>Carica papaya</i> L.	1753	Caricaceae
7	<i>Myrianthus arboreus</i> P. Beauv.	1982	Moraceae
8	<i>Tabernaemontana crassa</i> Benth.	1849	Apocynaceae
9	<i>Pachylobus edulis</i> G. Don	1832	Burseraceae
10	<i>Bambusa vulgaris</i> Schrad. ex J.C. Wendl.	1808	Poaceae
11	<i>Irvingia gabonensis</i> (Aubry - LeComte ex O´Rorke) Beill.	1884	Irvingiaceae
12	<i>Anchomanes difformis</i> (Blume) Engl.	1860	Araceae
13	<i>Baillonella toxisperma</i> Pierre var.	1890	Sapotaceae
14	<i>Irvingia grandifolia</i> (Engl.) Engl.	1911	Irvingiaceae
15	<i>Mangifera indica</i> L.	1753	Anacardiaceae
16	<i>Cannabis sativa</i> L.	1753	Cannabaceae
17	<i>Musa sapientum</i> L.	1900	Musaceae
18	<i>Odyndyea gabonensis</i> Engl.	1911	Simaroubaceae
19	<i>Ficus exasperata</i> Vahl	1805	Moraceae
20	<i>Bikinia aciculifera</i> Wieringa	1999	Caesalpiniaceae
21	<i>Funtumia africana</i> (Benth.) Stapf	1900	Apocynaceae
22	<i>Psychotria calva</i> Hiern	1877	Rubiaceae
23	<i>Psychotria afzelii</i> Hiern	1877	Rubiaceae
24	<i>Panda oleosa</i> Pierre	1896	Pandaceae
25	<i>Trema guineensis</i> (Schumach. & Thonn.) Ficalho	1884	Ulmaceae
26	<i>Prunus africana</i> (Hook. f.) Kalkman	1965	Rosaceae
27	<i>Oldfieldia africana</i> Benth. & Hook. F.	1850	Euphorbiaceae
28	<i>Khaya senegalensis</i> (Desr.) A. Juss.	1909	Meliaceae
29	<i>Uapaca heudelotii</i> Baill.	1860	Euphorbiaceae
30	<i>Chazaliella cupulicalyx</i> Verdc.	1977	Rubiaceae
31	<i>Albizia zygia</i> (D.C.) J. F. Macbr.	1883	Mimosoideae
32	<i>Artocarpus communis</i> J. R. Forst. & G. Forst.	1992	Moraceae
33	<i>Citrus aurantium</i> L.	1753	Rutaceae
34	<i>Sterculia tragacantha</i> Lindl.	1830	Sterculiaceae
35	<i>Pleiocoryne fernandese</i> (Hiern) Rauschert	1982	Rubiaceae
36	<i>Bridelia ferruginea</i> Benth.	1849	Euphorbiaceae
37	<i>Caloncoba cauliflora</i> Sleumer	1934	Flacourtiaceae
38	<i>Entandrophragma cylindricum</i> (Sprague) Sprague	1908	Meliaceae
39	<i>Baphia hylophila</i> Harms.	1820	Fabaceae
40	<i>Parinari excelsa</i> Sabine	1824	Chrysobalanaceae
41	<i>Theobroma cacao</i> L.	1753	Malvaceae
42	<i>Coffea canephora</i> L.	1897	Rubiaceae
43	<i>Cola acuminata</i> (P. Beauv.) Schott & Endl.	1790	Sterculiaceae
44	<i>Caloncoba echinata</i> (Oliv.) Gilg	1908	Flacourtiaceae
45	<i>Bixa orellana</i> L.	1970	Bixaceae
46	<i>Cocos nucifera</i> L.	1850	Arecaceae
47	<i>Ficus exasperata</i> Vahl	1805	Moraceae
48	<i>Cola flaviflora</i> Engl. & Krause, K.	1911	Sterculiaceae
49	<i>Anisophyllea myriosticta</i> Floret	1986	Anisophylleaceae
50	<i>Sterculia tragacantha</i> Lindl.	1830	Sterculiaceae
51	<i>Colocasia esculenta</i> (L.) Schott	1832	Araceae
52	<i>Anthonotha macrophylla</i> P. Beauv.	1865	Caesalpiniaceae
53	<i>Ipomoea mauritaiana</i> Jacq.	1753	Convolvulaceae
54	<i>Merremia pterygocaulos</i> (Choisy) Hallier f.	1894	Convolvulaceae



Photograph 7.
Rice crop adjoint to Kamabai's sacred forest.
Photograph A. Martín Martín.

Discussion

The study of sacred forests in Sierra Leone is a new topic without any prior knowledge of the forests. In the socio-cultural study, the study reveals the important role of secret societies in the protection of sacred forests. The *poro*, *gbangbani* and *bondo* ethnic groups are very powerful within the Sierra Leonean society, even showing their influence on the manner in which the initiated must behave or speak. Nowadays there is a shift in tradition, and that shift affects the system of belief that supports these sacred areas. The most important issue drawn from the ecological research was the area adjoining the sacred forests. Sacred forests tend to cover a small area, resulting in a large perimeter to area ration, and thus a strong edge effect. Consequently it is important to study the areas adjacent to these sacred sites. The clearest case was in Kassasie, where the sacred groves adjoined non-sacred forests and acted as buffer zones, promoting increased protection. However, in most cases sacred groves are surrounded by crops (areas previously burnt), or simply degraded areas. This often causes an important "edge effect" in the sacred groves. At the same time, reforesting these buffer areas can promote an increased, additional, carbon fixation and can simultaneously enhance local biodiversity.

As it has been expressed in the definition of sacred forests, although managing a forest as sacred offers potential benefits in conservation due to a reduction in transaction costs and its voluntary compliance feature (COLDING, FOLKE, 2001) and is considered to be more effective than the official government legislation (CAMPBELL, 2005), it still has disad-

vantages. The main problem facing the current management of sacred forests is the shift in traditions and beliefs among the local younger generations (TENGO *et al.*, 2007). In many countries local traditions are being challenged by westernized urban cultures- consequently the institution of sacred groves is losing its cultural importance (BHAGWAT, RUTTE, 2006). In addition, a more formal education and government policy have reduced societal dependence on witchcraft, thereby decreasing respect for the elders, usually the leaders of secret societies. (METCALFE *et al.*, 2010). Further, an increase in population results in a greater demand for resources. There is a growing problem of deforestation (logging; timber harvests for charcoal; field expansion for crops; cattle grazing; intensive hunting and fishing and fires) which may directly affect the sacred groves (ΚΟΚΟΥ, ΣΟΚΡΟΝ, 2006). The last significant problem is related to migration or encroachment; that is, foreign people who come to live in other villages do not share the local traditions and, therefore, do not always respect these sacred sites or treat them with the care that they should (CEPERLEY *et al.*, 2010). Some weak points in their management include the marijuana, *Cannabis sativa* L., plantations, or the rubbish on the floor found in the sacred forests closest to the city show this shift of traditions, which are having an important and increasingly negative effect on the sacred forests. Their management and protection will weaken as they lose their sacred character (table III).

Secret societies acting as informal institutions are very beneficial for conservation, but other actions should accompany their effort. SHERIDAN (2009) offers some recommendations, which have also been adopted by the Convention on Biological Diversity, quite acceptable and good quality.

Table III.
Characteristics of the four sacred forests studied. The type of zone, the surroundings and the degree of sacredness indicate that the management and protection of the sacred forests in Rogbaneh and Masuba were worse than in Kassasie and Kamabai.

Sacred Forest	Secret Society	Area (Ha)	Surroundings	Urban/Rural zone	Sacredness	Weak points
Rogbaneh (Makeni)	<i>Poro</i>	0.29	Road & village	Urban zone	Low	Marijuana, <i>Cannabis sativa</i> L., plantations, rubbish on the floor, motorcycles allowed
Masuba (Makeni)	<i>Poro</i>	0.33	Road & village	Urban zone	Medium	Trees cutten down, rubbish
Kassasie	<i>Gbangbani</i>	2.75	Village & forest	Rural zone	High	Well protected
Masaramanke (Kamabai)	<i>Bondo</i>	0.12	Palm crop & rice crop	Rural zone	High	Well protected

Among these, the most appropriate provision for the studied sites would be to reinforce the conservation responsibility of secret societies and their capacity to conserve biological diversity, to reforest the area surrounding the forests with local species in order to increase the buffer zone, and to introduce alternative energy sources to replace the use of firewood and charcoal from the sacred forests.

Ecosystem Services are defined by MILLENIUM ECOSYSTEM ASSESMENT (2005) as the benefits that people obtain from ecosystems. A potential solution could be the payment for environmental services (PES), which offers a new and more direct way to promote conservation, recognizing the need to address difficult trade-offs by bridging the interests of landowners and external actors through compensation. Payments are generally given to private landowners who own land in forest areas, in recognition of the ecosystem services their land provides (SÁNCHEZ-AZOFEIFA *et al.*, 2007). If the conservation of sacred forests were considered within an international agreement, the local people managing them would potentially be able reap a reward, and help increase the protected status of the sacred forests. Costa Rica PES policy where ownership is not required to profit the payments could be an example (PAGIOLA, 2002). In the past few years this strategy has formed the basis for the payments for environmental services international schemes such as REDD+¹ which aim to allocate financial value to the carbon stored in forests and to offer incentives for developing countries to reduce emissions from forested lands. They intend to enhance conservation and the sustainable management of forests, as well as increase forest carbon stocks.

Detrimental for *Paying for Environmental Services* schemes, Sierra Leone does not have a clear tenure land regime. Although villagers affirm that secret societies own sacred groves, they do not specify who the landowners of any one place are. In fact, no one buys land in order to build a house. Therefore, it is not easy to know who owns the sacred forests. Also, it is not at all clear that paying the government or local villagers to protect these sacred areas could be relied upon; the main force for conservation is not necessarily economic.

In order to apply PES, and supposing this mechanism could be available for communities, three main problems must be overcome: tenure, monitoring and additionality, which means that without the PES these forest could disappear. Concerning tenure, the main problems is that secret societies, the guardians of the sacred forests, are not their legal owners. Although they have the right to exclude third parties from these forests it is not clear who should be compensated for their preservation. Given the current state of development in the country, it seems difficult for any national agency to develop a real control including monitoring, report and verification (MRV) that REDD+ requires over these forests in order to transfer international REDD+ benefits to local stakeholders including secret societies. Even if they could, including the government in their management or conservation could create more difficulties and increase local corruption. Finally, international mechanisms such as payment for ecosystem services sourced from potential REDD+ funds seems not to be easily applicable as it is difficult to prove additionality: that sacred forests will disappear without external funding as the main drive behind their existence is not related to external market forces.

If these were solved, in accordance with the environmental subsidiarity principle – that states that matters ought to be handled by the smallest, lowest or least centralized competent authority while a central authority should understand its subsidiary function as performing only those tasks that cannot be performed effectively at a more immediate or local level, thus reinforcing the local role of secret societies as guardians of these forests – would be the appropriate policy to ensure the future of these forests. But this policy is not free of controversy. The government, and a segment of educated Sierra Leone society, is trying to change those traditions that oppose basic human rights such as the female genital mutilation that take place in these forests.

¹ Reducing Emissions from Deforestation and Forest Degradation (REDD) is an effort to create a financial value for the carbon stored in forests, offering incentives for developing countries to reduce emissions from forested lands and invest in low-carbon paths to sustainable development. "REDD+" goes beyond deforestation and forest degradation, and includes the role of conservation, sustainable management of forests and enhancement of forest carbon stocks (The United Nations Collaborative Programme).

Conclusion

The aim of this research was to understand and value the sacred forests in Sierra Leone. The results have revealed the importance of these groves, from ecological, botanical, and socio-cultural points of view. The botanical inventory showed the high biodiversity of these areas, despite their small sizes and similar climatic conditions.

From a cultural point of view, sacred forests and secret societies are part of Sierra Leone society. They exert a noticeable influence upon the society's hierarchy, rules and traditions. If traditions are weakened, sacred forests might begin to be used for other aims; but at the same time, some of these traditions perpetuate local fears and forms of slavery, especially in women. The reason that sacred forests are still protected despite the high demand for resources is because of the society's strong system of beliefs. These traditional values have influenced the attitude of humans towards forests, ensuring their protection. The reinforcement of the conservation role they play – based on the meaning that these forests have for the local people and through supporting local educational shifts toward a conservation that observes basic human rights – could plot a path toward ensuring that the cultural and ecological values of these forests remain, as significant land use changes start to occur. Any international policy could then count these societies as their best partners in preserving these hotspots of biodiversity – and even increase carbon dioxide (CO₂) stocks.

In order to do so an educational work incorporating the local secret societies should focus on shifting some practices without changing the deep values that render these forests sacred. International organisms could work in cooperation with governments, human rights and environmental non-governmental organizations (NGOs), with the local tribes and rural societies, to assure the protection of these habitats by enhancing all the positive values they hold. The results of the study suggest that – according to a basic principle of subsidiarity – national agencies of the government could limit their action to educational functions, as well as monitoring and conducting an inventory of these areas to ensure they do not disappear; that local groups are able to perform their conservation task correctly, and even to be rewarded by this work (probably by increasing development measures such as education and health policy). Government could also negotiate the tenure of these forests with the local stakeholders insofar as they commit to preserve them, especially with secret societies, the relevant actors necessary to ensure the Sierra Leone sacred forest ecosystem can provide services for the future.

From an ecological point of view, a deeper insight into these sacred forests and its ecological and social role is required. At a national level we suggest elaborating upon an inventory of these forests; comparing them with and linking them to the different ethnic groups in Sierra Leone and their beliefs, as the first step to be developed. Identifying, mapping and conducting an inventory of sacred forests throughout the African countries while studying their ecology, fauna and flora diversity should be also considered at the international stage. A system of inventories coordinated between the different countries in Africa could be a first toward a bigger and more ambitious African policy toward sacred forests. These efforts will need a significant amount of information and very good administration and monitoring at a national and international level.

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Photograph 8.

A river in Kamabai's sacred forest.
Photograph A. Martín Martín.

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