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## COULD SACREDNESS CONTRIBUTE TO FOREST CONSERVATION IN AFRICAN URBAN AREAS ?

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### ABSTRACT

Attention is presently paid to forest conservation because of its potential for the sequestration of carbon. More than rural forest, urban forest is of greater utility because of it can serve as a natural low cost laboratory for pedagogic activities of several schools. Unfortunately those forests are regressing in Benin. The objective of this study is to analyze whether sacredness could help reverse this situation in State forest reserve. It focused on two urban forests : the State forest reserve of Abomey (Abomey District) in the centre of Benin, and the State forest reserve of Kilir (Djougou District) in the northern Benin. The information was collected through a literature review on the administrative status of these forests, a mapping and enumeration of forest species, participant observation of the pressure on the forests, traditional authority interview and focus groups analysis with stakeholders of both forests. The investigation revealed that the size of the two forest decreased drastically, while each of the remaining parts sheltered a sacred space. From respectively a size of 173 ha in 1941 and a size of 50 ha in 1949, 43.4 % of the Abomey forest and 70 % of the Kilir forest are occupied illegally. Sacred spaces were completely preserved through time, suggesting that a sufficient recovery of sacred powers could facilitate the sustainable management of urban State forest reserve.

**Keywords :** Sacredness, Urban Forests, Conservation, Benin.

### LA SACRALISATION POURRAIT-ELLE CONTRIBUER A LA CONSERVATION DE LA FORET EN MILIEU URBAIN AFRICAIN ?

#### RÉSUMÉ

Une importance grandissante est actuellement attribuée aux forêts à cause de leur capacité de séquestration du carbone. Plus que les forêts rurales, les forêts urbaines sont d'une utilité plus grande du fait qu'elles peuvent servir de laboratoire naturel à faible coût pour les activités pédagogiques d'un nombre important d'écoles. Malheureusement ces forêts régressent au Bénin. L'objectif de cette étude est d'analyser si la sacralisation pourrait aider à renverser cette situation au niveau des forêts classées. Elle a porté sur deux forêts urbaines : la forêt classée d'Abomey (Commune d'Abomey), au centre du Bénin et à la forêt classée de Kilir (Commune de Djougou) au nord Bénin. Les informations ont été collectées au moyen de la revue de littérature sur la situation administrative des forêts, la cartographie et le dénombrement des espèces des forêts, l'observation participante de la pression sur les forêts, l'interview des chefs traditionnels et l'analyse de focus groups avec les acteurs concernés par les deux forêts. Les investigations révèlent que la superficie des deux forêts a drastiquement diminué, pendant que les portions restantes comportent chacune un espace sacré. A partir respectivement d'une superficie de 173 ha au classement en 1941 et d'une superficie de 50 ha au classement en 1949, 43,4 % de la forêt d'Abomey et 70 % de la forêt de Kilir sont occupés illégalement. Les espaces sacrés sont intégralement conservés à travers le temps, ce qui suggère qu'une valorisation suffisante des pouvoirs sacrés pourrait faciliter la gestion durable des forêts classées urbaines.

**Mots clés :** Sacralisation, Forêts urbaines, conservation, Bénin.

## INTRODUCTION

Since the United Nations Conference on human environment held in Stockholm (Sweden) in 1972, followed by the summit held in Rio de Janeiro (Brazil) on the environment and development in 1992, the importance of natural resources for human life has been recognized. Sustainability became a world issue for all human activities. The Rio Convention on biological diversity ratified in 1993 and the Kyoto Protocol on greenhouse gas signed in 1997 attribute a great place to forest. Moreover, urban forest is of great utility because it allows for reducing air pollution and constituting a natural laboratory for pedagogic activities of several schools. It's also recognized that Africa represents a potential zone for carbon sequestration and greenhouse gas reduction.

In addition to its ecological function, forest supplies Benin people with different products such as human food, fodder, traditional medicine, agroforestry products, firewood, etc. (Agbo *et al.*, 1993 ; Azonkponon, 2001 ; Houngnon, 1981 ; Sinsin *et al.*, 2000 ; Agbahungba *et al.*, 2001). Land and forest positively affect populations' livelihoods and it's necessary to care for their adequate management by adopting some attitudes favourable to their sustainable use. That's why the State of Benin had passed legal dispositions on forest resources. Among these dispositions we have: The ratification of the Biological Diversity Convention of 1993, the adoption of the forest policy in 1993, the creation of the Benin Environment Agency (ABE) in 1995, the adoption of the law on environment in 1999 and the launching of a project for the management of the forest clumps of Agoua, Kouffe Mounts and Wari-Marou (PAMF) in 2002. More than 50 years ago, some forests such as Birni forest, Bassila forest and Boko forest were classified in rural areas, while Kilir forest and Abomey forest were classified urban areas.

In spite of these dispositions, forest resources are threatened in Benin. Threats concern biodiversity destruction due to uncontrolled forest consumption activities such as agriculture, animal breeding, uncontrolled wood, shrub and liana exploitation (Agbahungba *et al.*, 2001). The forest cover of Benin decreased from 4,923,000 ha in 1990 to 4,625,000 ha in 1995; say a total loss of 298,000 ha of forests during 5 years (FAO, 1999). Benin Republic loses 60,000 ha of forest per year; say an annual deforestation rate of 1.2 %, while the mean of deforestation rate in the West Africa Sub-region is 1 %.

The problem of forest degradation is particularly high in urban area due to population growth and the need of land for urbanization and habitation. At the same time, forest is more important in urban areas than in rural areas because of at least three reasons :

- The need of carbon sequestration is higher in urban area because of industrial activities and air pollution by combustion ;
- The need of forest exploitation for low-cost pedagogic activities concerning many schools ;
- It is very difficult to create and conserve new forests in urban area because of population pressure increase.

Participatory management approaches adopted since the last 2 decades as an alternative solution have not been giving good results, and the question is whether sacredness, the oldest traditional practice of nature protection in Africa, might increase the sustainability of forest management.

## MATERIAL & METHODS

### *Study area*

The study was carried out on two urban forests: the classified forest of Abomey in the middle Benin (Figure 1) and the classified forest of Kilir in the northern Benin (Figure 2). The forest of Abomey, located in Abomey District, was classified in 1941, while the forest of Kilir, located in Djougou District, was classified in 1949. In a polygonal shape, the classified forest of Abomey extends between 7° and 7° 15' North latitude and between 2 ° and 2 ° 15' East longitude, in Zou Department. In an elongated shape, the classified forest of Kilir extends between 9° 44' and 9° 45' North latitude, and between 1° 43' and 1° 47' East Longitude, in Donga Department. The two forests are suffering from human pressure due to illegal occupation by the bordering populations, what influence negatively their biodiversity.

### *Information collection and analysis*

Data and information were collected from November to December 2009, both on the physical aspect of the forests and on the bordering populations' perception on the forests and their links to them. The information was collected through a literature review on the administrative status of the forests, a mapping and enumeration of forest species, participant observation of the pressure on the forests, traditional authority interview and focus groups analysis with stakeholders of both forests. The forests' cartography was realized with ArcView GIS 3.3. The authentic and the present borders of the forests were tracked through a use of GPS (Global Positioning System) with the help of stakeholders from the forestry administration, the communal authorities and the royal courts.

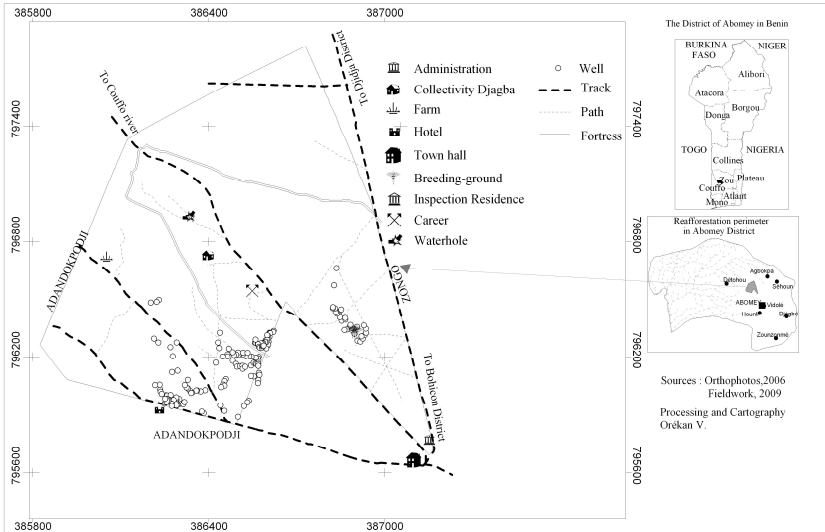


Figure 1. Location of the State forest reserve of Abomey in Benin (Realization: OREKAN, 2011)

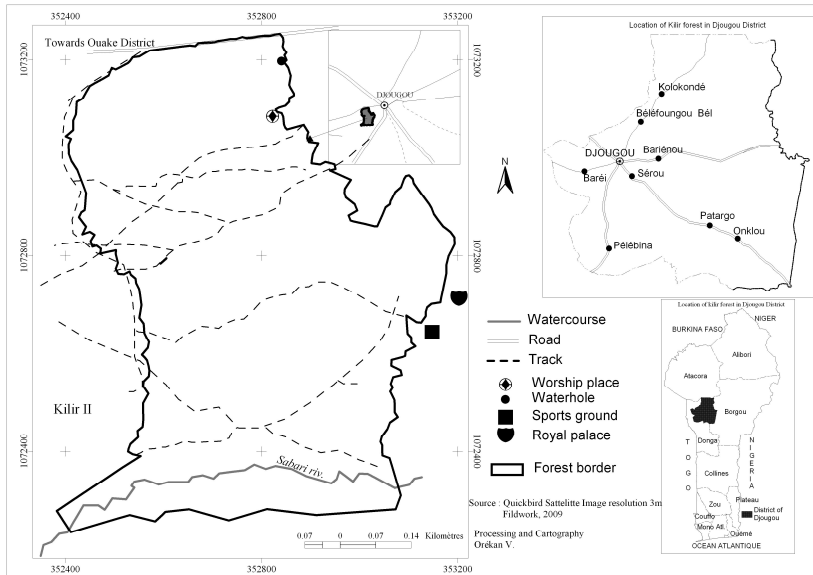


Figure 2. Location of the State forest reserve of Kilir in Benin (Realization: OREKAN, 2011)

This observation through tracking process generated data on the different parts of the forests. Specific resources of the forests were observed during this operation : the plant species, the non occupied spaces, the sacred spaces, the sacredness elements, the reasons of illegal occupation. The historical role of the forests and their socio-cultural uses were also collected during the focus group sessions of 8 to 12 persons and interviews with the traditional chief Dah Djagba for Abomey forest, and the king Kpetonikoda VI for Kilir forest.

## RESULTS & DISCUSSION

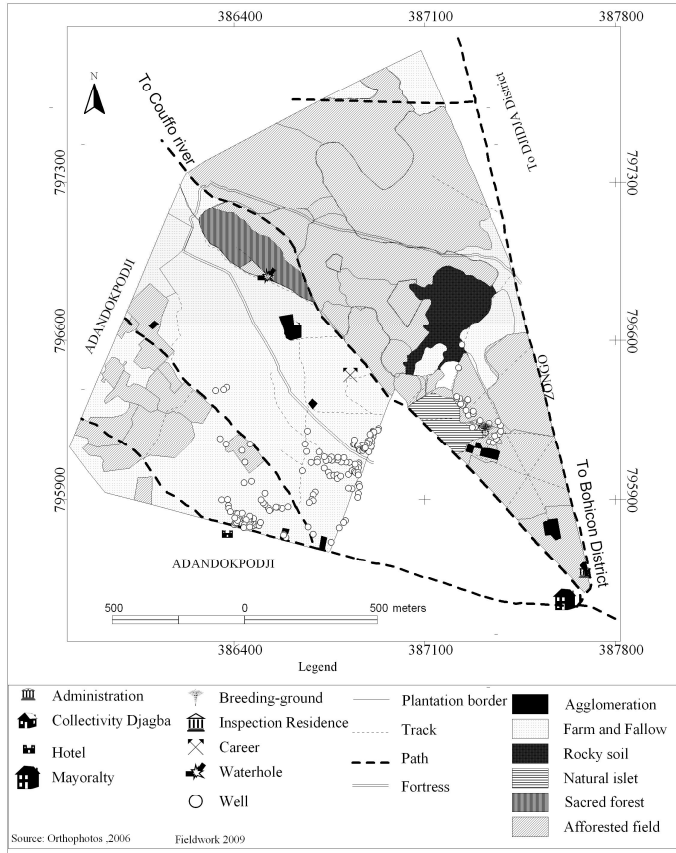
### *Results*

#### *The legal situation and degradation levels of the forests*

The forest of Abomey is classified and covers a size of 173 ha according to the general decree No. 1672 SE/F of May 12th, 1941 and the general decree No. 2814 SE/F of April 26th, 1952. Abomey forest is under the authority of the Forestry Cantonment of Abomey which covers nine Districts of Zou Department. From a size of 173 ha in 1941, 43.4 % of the forest (say 0.6 % decrease per year), is actually occupied illegally for the needs of housing, agriculture and plantations (Figure 3).

The higher level of human pressure has led to extinction of the big fauna and that of the natural forest which is now represented by a block of sacred forest. The flora of Abomey forest was composed of 168 species, distributed within 140 genders and 54 families. The most represented families are the Leguminosae (21.3 %) and the Rubiaceae (5.9 %).

The forest of Kilir is classed and covers a size of 50 ha according to the general decree No. 2840 SE/F of August 5th, 1949. This forest is under the Forestry Cantonment of Djougou which covers the Districts of Copargo, Ouake and Djougou. From a size of 50 ha at the classing in 1949, 70 % of the forest of Kilir (say 1.2 % decrease per year), is remaining and actually occupied illegally for the needs of habitation, agriculture, waste collection and primary school building (Figure 4). The forest of Kilir seemed to be the main source of insalubrity in Djougou town. It has become a place for public water closet, refuse depositories built by the communal authority, and clandestine cemetery.



Processing and Cartography  
Orekan V.

Figure 3. The sacred space in the State forest reserve of Abomey  
(Realization: OREKAN, 2011)

The diversity parameters showed a weakly diversified flora. The specific richness varied from 19 species in the galleries to 41 species in the dense forests, with *Trichilia prieureana*. The flora identified in the Kilir forest was composed of 97 species distributed within 79 genders and 38 families, dominated by the Leguminosae (18.6 %) and the Rubiaceae (7.2 %). The fauna diversity was also weak. Only the avifauna was significantly represented, with 74 species of birds distributed within 37 families, dominated by the Accipitridae and the Columbidae.

### *The social perception of the forests*

The borders of Abomey forest are not well known by the bordering populations who think that a forest of this great size is not anymore worth maintaining in

a town like Abomey. In fact, according to the Metoli collectivity of Zongo, located at the forest border the forest impedes the development of their area. Because of this forest, the area has access to neither water nor light.

In Djougou, neither the communal administration nor the bordering populations of the Kilir forest knew that the forest is classified. The borders of the forest were ignored by the bordering populations. The situation is the same when we consider the Djougou communal authority which had built a public primary school in one part of the forest and parceled out a second part for housing estates. It's locally well known that "Djougou" derived from the Kilir forest called primarily "Zougou" in Yom, the local language. That's why the king of Kilir is the first defender of this forest. According to the king, his Majesty Kpetonikoda VI, and the populations, the royal palace of Kilir represents also the royal palace of Djougou.

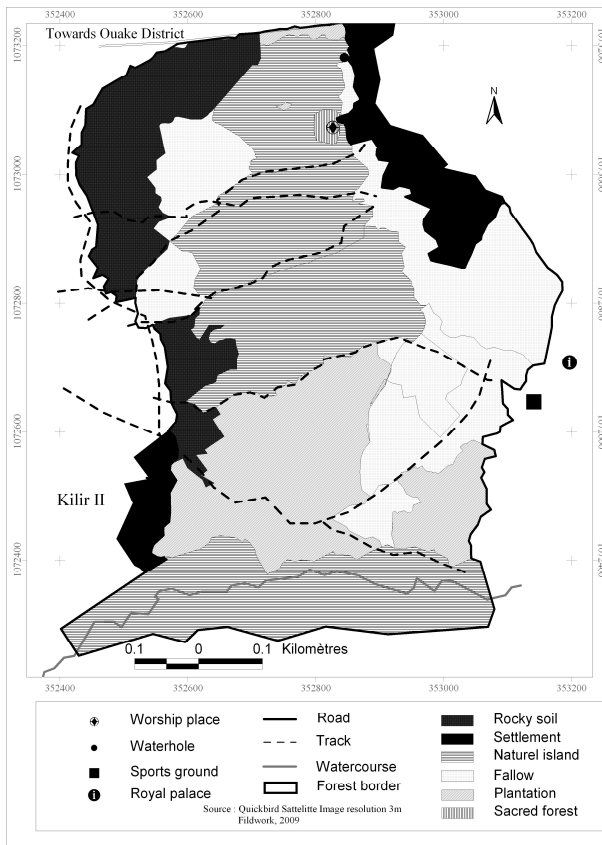


Figure 4. The sacred space in the State forest reserve of Kilir

(Realization: OREKAN, 2011)

*The sacred spaces and their evolution*

In the remaining parts of both forests, sacred spaces can be found : the “Didonou” place (Photo 1) and the divinities “Dan” and “Goudounou” in the forest of Abomey, and the “Bourgnirou” place and a clandestine cemetery in the forest of Kilir.



Photo 1. The badge presenting the sacred forest functions and the Didonou sacred water source in Abomey

(Photo HOUNGBO, November 2009)

All these sacred elements were ignored by the administrative authority at the time of the forest gazettement. The Didonou place has been a sacred source of water since 1645 when the traditional chief Dah Djagba was installed in the forest by Houegbadja, king of Abomey at that time, say three centuries before the forest classing in 1941. This sacred space in the Abomey forest covers 6.29 ha and has been conserved strictly through time.

Djougou toponymy derives from « Zougou », which means « forest » in Yom, the main local language in Djougou. In this forest, the « Bourgnirou » place is a sacred place used for night ceremonies. The royal palace of Kilir has been installed in the forest since the 16th century in order to protect it, say more than three centuries before its gazettement in 1949. The clandestine cemetery was created when facing problems of access to the single religious cemetery in the town. The sacred space of Kilir forest covers 7.8 ha and is also conserved strictly through time.

*Discussion*

The observation of sacred spaces in both the two forests indicates that the population thought of the usefulness of the forests some centuries before the administrative decision of classing. Despite the real existence of Dah Djagba in Abomey and the king of Kilir in Djougou, the administrative act of classing ignored them. Then, the populations' perception of the forests is quite different

of that of the administration. The populations consider strictly the sacred spaces. That's perhaps the reason of illegal occupation of the non sacred spaces of those urban forests. Houehounha (2003) noticed a conflict between the forestry administration and the population as far as the Abomey forest is concerned and suggested consequently a strategy of collective thinking in order that the remaining portion can be saved consensually. The findings of this study is in accordance of the position of Gnohite (1984) who stated that tradition is stronger than law, because the populations have no fear of classed forest, but nobody could attack a sacred forest. Tchoukpeni (1995) identified in southern Benin three kinds of sacred forests which were well protected: the "vodun forests" which shelter several divinities (Dan, Sakpata, Gou, Hebioso ...), the forests of mystic groups (Oro, Zangbeto ...) and the cemetery forests. According to Kokou & Sokpon (2006), in Togo and Benin, the forests which resist to human pressure are essentially the sacred forests. They are numerous and relatively small, and they help to protect forest fauna and flora in these two countries of the Dahomey gap. In these countries, by 30 species of trees are venerated, in which *Adansonia digitata* (Bombacaceae), *Newbouldia laevis* (Bignoniaceae), *Milicia excelsa* (Moraceae), and *Dracaena arborea* (Agavaceae). *Newbouldia laevis* for example was cited in Abomey as a tree which could induce successful delimitation of the forest preservation.

## CONCLUSION

The forests classing in Benin considered sufficiently neither the traditional organization nor the sacred powers. Nevertheless, it's a fact today that sacredness may contribute efficiently to the conservation of the remaining parts existence in the classified forests of Abomey and Kilir. Sustainable management of classified forests in Africa, and specifically the urban classed forests, needs then to value sufficiently the sacred powers. The use of the sacred trees for the classified forests delimitation could be an example of a traditional-modern type of management. This approach of management constitutes a new field which could be investigated in order to prevent the urban classified forests from disappearance in Africa. An intelligent combination of the oldest traditional approach of forest protection with the modern one could lead to a good result.

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