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SURVEY OF TREES USING GPS TO PRODUCE A GEOREFERENCED MAP OF TREES IN OYO STATE COLLEGE OF AGRICULTURE AND TECHNOLOGY, IGBOORA. OYO STATE

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Abstract

Oyo State College of Agriculture and Technology (OYSCATECH) was sectionalized completely, and the Global Positioning System (GPS) was used to take coordinates (longitude and latitude) of all the standing trees in the community premises complete sampling of trees and identification was done. Samples of parts (leaves, barks and root) of the trees was collected, it was placed in a polythene bag for identification and the Global positioning system (GPS) reading was taking in such accuracy that are acceptable for locating trees and used to produce a satellite map trees of Oyo State College of Agriculture and Technology (OYSCATECH). The map revealed that trees were not abundant in OYSCATECH, the most prominent amongst the trees is Azadirachta indica while the least available is the Enterolobium spp

Keywords: Global Positioning system, coordinates (longitude and latitude) Tree map.

Introduction

In most Developing Countries (DC), forest cover is regarded as an open access resource (Linde-Rahr, 2003; Hiemstra-van der Horst & Hovorka, 2009 & Perez-Verdin et al., 2009), which can therefore be overexploited in the present with no regard for the needs of future generations (Lee, P. 2008). Forests constitute one of the principal renewable natural resources of mankind. Even though the concept of deforestation is still vague, due to varying definitions of what constitutes a forest, deforestation (vegetation clearance) is mostly attributed to the action of people in their quest for survival (lumbering, expansion of agricultural land, grazing, housing and energy). Trees is an important part of forest ecosystems, providing habitats and food sources, a store of carbon, nutrients, and water, as well as influencing geomorphic processes (Franklin et al. 2007, Harmon et al. 2006).

Trees provide numerous benefits such as public aesthetic appeal, the root of trees prevent erosion, trees improve air quality, serves as wind break, shelter belt, protect water flow, sequence carbon, ameliorate harsh weather condition, serves as raw materials to the wooden industries, preserve water shed, serve as recreation centre's for relaxation and home garden as food. In forest management operations, inventories on biodiversity are used to determine the nature and distribution of biodiversity (Franklin et al. 2007).

Statement of the problem

In Oyo State College of Agriculture and Technology, Igboora Oyo State, the real situation about the survey within the study area is still not clear and the school does not have existing map (layout) that shows the existence of trees. Literature reviewed shows no such information is documented although, some efforts has been done about the georeferencing survey of trees issue in Oyo state of Agriculture and technology, Igboora.

Objectives of the study

The main objectives of the study is to survey of available trees species in Oyo state college of Agriculture and technology, Igboora Oyo state using GPS to produce a map,

The specific objectives are to:

- Evaluate the different species of trees within the study area.
- Geographical enumerate the location of trees in Oyo State College of Agriculture and Technology, Igboora Oyo State.
- Use the GPS reading to produce a map of trees location using Oyo State College of Agriculture and Technology, Igboora Oyo State premises.

Justification of the study

Higher institution should be promoted as a model environment for sustainable development to protect trees from declining. It is essential to examine the current status of species diversity, composition and abundance as it will provide guidance for their management and valuable reference for assessment as well as improve our knowledge identification of ecological useful species (Saratman, 2012).

Materials and methods

Study Area

The experiment was carried out at Oyo State College of Agriculture and Technology (OYSCATECH).

Materials

The materials that were used for this experiment are; Global Positioning System (GPS), Polythene bag, Paper tape, Standard herbarium.

Methodology

Oyo State College of Agriculture and Technology (OYSCATECH) was sectionalized, the Global Positioning System (GPS) was used to take coordinates (longitude and latitude) of the standing trees, complete sampling of trees and identification was done. Samples of parts of the trees was collected, it was placed in a polythene bag for identification and the GPS reading was used to produce a map of trees of Oyo State College of Agriculture and Technology (OYSCATECH).

Result and discussion

Complete enumeration of trees in OYSCATECH community was carried out, the result in Table 1 showed that the study area is situated in latitude $7^{\circ} 24.875'N$ to $7^{\circ} 24.512'N$ and of longitude $3^{\circ} 18.089'E$ to $3^{\circ} 17.752'E$. The research showed that there are few trees species. In order words study area is not a distinct model for environmental sustainability, this s due to indiscriminate felling of trees for structural expansion without replacement planting.

Some of the existing trees are not well managed because of their location while the trees within the woodlots are well manage because of their public aesthetics purpose, cool microclimate and of they serve as wind breakers.

Azadirachta indica an indigenous specie of tree was found to occur mostly within the college community while *Enterolobium spp* an exotic has the least occurrence

Table 1: Latitude and longitude of the location and type of trees found

Location	Latitude	Longitude	Local name	Botanical name
Hall	7°24.761'N	3°17.977'E	Dongoyaro tree	<i>Azadirachta indica</i>
			Gmelina tree	<i>Gmelina aborea</i>
Bovas	7°24.575'N	3° 17.774'E	Locust tree	<i>Parkia biglobosa</i>
Feedmill	7° 24.38'N	3° 17.906'E	Cashew tree	<i>Anacardium occidentale</i>
			Teak tree	<i>Tectona grandis</i>
F I T	7° 24.844'N	3° 17.813'E	Teak tree	<i>Tectona grandis</i>
			Mango tree	<i>Mangifera indica</i>
			Bamboo tree	<i>Bamboo vocanis</i>
Garri industry	7° 24.64'N	3° 17.902'E	Mango tree	<i>Mangifera indica</i>
			Teak tree	<i>Tectona grandis</i>
			Palm tree	<i>Elaies guineensis</i>
Admin	7° 24.688'N	3° 18.027'E	Cameroon tree	<i>Camelacea spp</i>
			Gmelina tree	<i>Gmelina aborea</i>
A H P	7° 24.841'N	3° 17.943'E	Cameroon tree	<i>Camelacea spp</i>
			Dongoyaro tree	<i>Azadirachta indica</i>
Canteen	7° 24.651'N	3° 17.963'E	Mango tree	<i>Mangifera indica</i>
			Dongoyaro tree	<i>Azadirachta indica</i>
CICS mini market	7° 24.722'N	3° 18.034'E	Dongoyaro tree	<i>Azadirachta indica</i>
Extension faculty	7° 24.758'N	3° 17.978'E	Cameroon tree	<i>Camelacea spp</i>
Mosque	7°24.898'N	3°17.915'E	Dongoyaro tree	<i>Azadirachta indica</i>
H R E	7° 24.819'N	3° 17.908'E	Dongoyaro tree	<i>Azadirachta indica</i>
			Cameroon tree	<i>Camelacea spp</i>
ICT	7° 24.872'N	3° 17.993'E	Cameroon tree	<i>Camelacea spp</i>
Main gate	7° 24.875'N	3° 18.089'E	Dongoyaro tree	<i>Azadirachta indica</i>
Metrological	7° 24.215'N	3° 17.72'E	Gmelina tree	<i>Gmelina aborea</i>
			Locust tree	<i>Parkia biglobosia</i>
	7° 24.675'N	3° 17.932'E	Locust tree	<i>Parkia biglobosia</i>
Nursery			Gmelina tree	<i>Gmelina aborea</i>
			Palm tree	
			Opepe tree	<i>Nuclie didirichii</i>
			Mango tree	<i>Mangifera indica</i>
Poultry	7° 24.788'N	3° 17.82'E	Dongoyaro tree	<i>Azadirachta indica</i>
			Locust tree	<i>Parkia biglobosia</i>
School clinic	7° 24.901'N	3° 18.02'E	Dongoyaro tree	<i>Azadirachta indica</i>
School transformer	7° 24.814'N	3° 18.018'E	Teak tree	<i>Tectona grandis</i>
Screen house	7° 24.648'N	3° 17.769'E	Teak tree	<i>Tectona grandis</i>
Security B Y	7° 24.698'N	3° 17.693'E	Mango tree	<i>Mangifera indica</i>
Security B Y E	7° 24.937'N	3° 17.987'E	Dogoyaro tree	<i>Azadirachtaindica</i>

Sheep and goat unit	7° 24.574'N	3° 17.96'E	Mango tree	<i>Mangifera indica</i>
			Bamboo tree	<i>Bamboo vocanias</i>
Tractor shed	7° 24.655'N	3° 17.717'E	Mango tree	<i>Mangifera indica</i>
Woodlot	7° 24.789'N	3° 17.92'E	Teak tree	<i>Tectona grandis</i>
			Gmelina tree	<i>Gmelina aborea</i>
				<i>Enterolobium spp</i>
Works	7° 24.644'N	3° 18.013'E	Cashew tree	<i>Anacardium occidentale</i>
			Locust tree	<i>Parkia biglobosa</i>

Table 2 showed the tree species, uses and their different location, some of this trees species occur in large number, the usefulness of tree in the study area is a clear indicator of the benefit derivable from the available tree species.

Some trees as situated in some location and their canopy serve as shade which pass by rest in the study area because most trees are important in moderating the climatic condition of certain location and of which exchange of carbon and oxygen occur.

Table 2: Trees useful in different location

Local name	Botanical name	Location	Usefulness
Dongoyaro trees	<i>Azadirachta indica</i>	Hall AHP department Canteen Mosque HRE department Main gate Poultry house School clinic Security yard exit CICS mini market	Medicinal purposes, fuelwood, shade and Craft
Locust tree	<i>Parkia biglobosa</i>	Bovas Metrological station Nursery Poultry Works department	Its fruit serve as Source of food, Medicinal purpose and Fodder
Gmelina	<i>Gmelina aborea</i>	Hall Admin Metrological station Nursery Woodlot	Timber, Poles and Pulp and paper production
Teak tree	<i>Tectona grandis</i>	Feed mill FIT building Garri industry	Timber, shade and Pulp and paper production

Mango tree	<i>Mangifera indica</i>	School transformer	source of fruit, Medicinal purpose, shade and source of food for Bee rearing
		Screen house	
		Wood lot	
		Fit building	
		Garri industry	
		Canteen	
		Security base yard	
Cashew	<i>Anacardium occidentale</i>	Tractor shed	Fruit production and Medicinal purpose
		Sheep and goat	
		Feed mill	
		HRE building	
		Work department	
Bamboo	<i>Bamboo vocanis</i>	FIT building	Wind breaker
Cameroon tree	<i>Camalacea spp</i>	Sheep & goat	Wood carving
		Admin	Aesthetics purpose
		ICT	
		AHP	
Palm tree	<i>Elaies guineensis</i>	Extension	Palm oil production Broom and wood Saw mill industry
		Garri industry	
Opepe tree	<i>Nuclea diderichi</i>	Nursery	
		Nursery	

Conclusion and recommendation

Conclusion

It could be concluded that there is no richness in diversity of tree species in college community, hence, there is need to discourage illegal felling of tree and as well improve on the management of the existing ones, this will be of greater benefit to the college community at large in the term of natural, healthy environment and educational sector of the institution.

Recommendation

Planting of more trees species should be a point of duty for all and sundry and adequate management of the existing trees should be of paramount importance, this will in turn ameliorate the adverse effect of climate change which could be eminent in the nearest future and of education reference

Satellite tree map



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