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**Lamido Auwalu**  
School of Science and  
Technology, Abubakar Tatari  
Ali Polytechnic, Bauchi,  
Nigeria

**Abdullahi MB**  
Faculty of Science, National  
Open University, Bauchi,  
Nigeria

**Umar I**  
Federal College of Education,  
F.C.E. Gombe, Nigeria

## A comparative analysis on the availability of different deadwood in Yankari game reserve of Bauchi state, Nigeria

**Lamido Auwalu, Abdullahi MB and Umar I**

### Abstract

Deadwood is a habitat of great importance for many species of woodland systems. It is vital, through its influence on biological, physical and chemical process. It also, plays a role in nutrients cycling and soil stability. The amount of deadwood, particularly as coarse woody debris (stumps, snags and fallen logs) in Yankari Game Reserve were examined. Existing levels of deadwood in the reserve were assessed to provide a basis for what might be considered high or low amounts of deadwood. Coarse woody debris drive from line-intersect sampling were collected from six zones of the reserve i.e mixed woodland, Afzelia woodland, combretum woodland, detarium woodland, Gaji River complex and annogeissus woodland. The values obtained of mean volume of coarse woody debris ranged from 32.44m<sup>3</sup>/h-110.24m<sup>3</sup>/h. The frequencies of coarse woody debris ranged from 10-44. The number of species of coarse woody debris in the sites ranged from 2-35. From the analysis of variance (anova) of abundance of coarse woody debris and the analysis of mean volume of coarse woody debris reveals that there is significant difference ( $P < 0.05$ ) in the means. The results of the research shows availability of deadwood and this will support organisms that depends on deadwood and play other roles in woodland systems.

**Keywords:** Parental attitude, participation, sports, girls

### Introduction

Dead wood plays a variety of roles in woodland systems through its influence on biological, physical and chemical processes (Harmon *et al.* 1986). Deadwood is also an important long-term nutrient Storage (Harmon *et al.*, 1986). As cited in Fred *et al.*, (2003), large woody material contains very significant store of carbon and energy because carbon is slowly released by deadwood material as it decay in the forest (Stevens, 1997, Karjalainen *et al.*, 2002). It provides a substrate or host for a wide range of organisms, particularly fungi and invertebrates; cavities formed by rot are used as nesting sites or shelter by many vertebrates; and decaying logs may act as safe sites for seedling germination or for the growth of bryophytes away from the competition of the woodland ground flora. Fallen logs may create bare soil patches and crush or shade out the ground vegetation; they may slow soil and water movement on slopes. Soil nutrient levels are likely to be higher around or under dead wood and thus affect the ground flora at that point (Falinski, 1986). Deadwood is created by tree mortality which in natural forest is caused by fire, wind, snow breakage, drought, competition, insects and pathogens (Kuuluvan 1994). Participating in sports, including fun, fitness, social interaction and stress relief. Participating in sports is especially imports is especially imp if you participate regularly the purpose of the study was to find out the parental attitude towards female participation in sports.

**Corresponding Author:**  
**Lamido Auwalu**  
School of Science and  
Technology, Abubakar Tatari  
Ali Polytechnic, Bauchi,  
Nigeria

**Table 1:** Abundance of Stumps According to Deadwood Plants in the Site

Species	MW	AFW	CW	DW	GW	AW	TOTAL
<i>Khaya senegalensis</i>	5	-	-	-	-	-	5
<i>Pterocarpus erinaceus</i>	3	-	-	-	-	-	3
<i>Burkea Africana</i>	5	-	-	-	-	-	5
<i>Combretum molle</i>	-	8	-	-	2	4	14
<i>Afzelia Africana</i>	-	5	-	-	-	-	5
<i>Combretum gasalensis</i>	-	-	11	-	-	-	11
<i>Balanite egyptiaca</i>	-	-	3	-	-	-	3
<i>Combretum glutinosum</i>	-	-	-	4	-	-	4
<i>Cassia areri</i>	-	-	-	3	-	-	3
<i>Detarium microcarpum</i>	-	-	-	3	5	-	8
<i>Lannea acida</i>	-	-	-	-	3	-	3
<i>Acacia seyel</i>	-	-	-	-	-	5	5
<i>Cassia siamea</i>	-	-	-	-	-	2	2
Total	13	13	14	10	10	11	71

**Table 2:** Abundance of Fallen Logs According to Deadwood Plants in the Sites

Species	MW	AFW	CW	DW	GW	AW	Total
<i>Pterocarpus erinaceus</i>	7	-	-	-	3	-	10
<i>Annogeissus leiocarpus</i>	5	2	-	6	6	16	35
<i>Terminalia glaucerese</i>	4	2	-	-	4	-	10
<i>Burkea Africana</i>	6	-	-	-	-	-	6
<i>Combretum colenum</i>	7	9	-	-	-	-	16
<i>Terminalia avicinia</i>	2	-	-	-	-	-	2
<i>Combretum molle</i>	-	5	3	2	4	-	14
<i>Afzelia Africana</i>	-	15	-	-	-	-	15
<i>Crossopterix febrifuga</i>	-	2	-	-	-	-	2
<i>Detarium microcarpum</i>	-	3	7	7	-	-	17
<i>Combretum gasalensis</i>	-	-	26	-	1	-	27
<i>Acacia seyel</i>	-	-	-	5	-	-	5
<i>Nuclear latifolia</i>	-	-	-	5	2	-	7
<i>Cassia siamea</i>	-	-	-	3	-	-	3
<i>Mitragyna inermis</i>	-	-	-	5	-	-	5
<i>Cassia areri</i>	-	-	-	-	4	-	4
<i>Khaya senegalensis</i>	-	-	-	-	3	-	3
<i>Cassia siamea</i>	-	-	-	-	5	-	5
<i>Vitex doniana</i>	-	-	-	-	3	-	3
<i>Pteleopsis habeensis</i>	-	-	-	-	4	-	4
<i>Combretum glutinosum</i>	-	-	-	-	3	-	3
<i>Borassus eathiopium</i>	-	-	-	-	2	-	2
<i>Mitragyna stipulosa</i>	-	-	-	-	-	3	3
<i>Ficus sycomorus</i>	-	-	-	-	-	4	4
<i>Lannea acida</i>	-	-	-	-	-	6	6
Total	31	38	36	33	44	29	211

**Table 3:** Abundance of Standing Deadwood Plants in the Sites

Species	MW	AFW	CW	DW	GW	AW	Total
<i>Afzelia africana</i>	8	15	-	-	-	-	23
<i>Burkea africana</i>	15	-	-	-	-	-	15
<i>Pterocarpus erinaceus</i>	9	4	-	-	-	-	13
<i>Terminalia glausence</i>	-	8	-	-	-	-	8
<i>Combretum gasalensis</i>	-	-	29	-	-	-	29
<i>Combretum molle</i>	-	8	8	-	6	4	26
<i>Nuclear latifolia</i>	-	-	-	17	-	-	17
<i>Acacia seyel</i>	-	-	-	8	-	5	13
<i>Casia siamea</i>	-	-	-	-	9	8	17
<i>Khaya senegalensis</i>	5	-	-	-	8	-	13
<i>Annogeissus leiocarpus</i>	-	-	-	-	-	7	7
<i>Mitragyna stipulosa</i>	-	-	-	-	-	8	8
<i>Balanite egyptiaca</i>	-	-	3	-	-	-	3
<i>Combretum glutinosum</i>	-	-	-	4	-	-	4
<i>Casia areri</i>	-	-	-	3	-	-	3
<i>Detarium microcarpum</i>	-	-	-	3	5	-	8
<i>Lannea acida</i>	-	-	-	-	3	-	3
Total	37	35	40	35	31	32	210

## Conclusion

Deadwood has been recognized as a habitat of great importance for many species of forest ecosystems, it is considered to be a key element of biodiversity in forests. Deadwood is associated with relict, rare and protected species and therefore, it is regarded as a key feature for the preservation of many threatened species (Ranius *et al.*, 2003). A higher amount of deadwood in forests increase the number and the density of species and hence species richness, because higher deadwood amount means greater surface and area in forests and hence its higher availability for potential users.

The study found that there is much availability of fallen logs stumps and snags and this is attributed to no intense fuelwood, fodder for animals, and raw materials to traditional herbalists collection from the nearby settlers and protection it received from the government.

## Recommendations

- Yankari Game Reserve should be conserve to meet the ecological needs of the present and future in maintaining the biodiversity of the reserve, because deadwood make an important contribution to the conservation value of the reserve.
- An attention should be given to patrolling the Reserve, intensifying efforts at patrol will help to ward off illegal collection of deadwood for fuelwood by the nearby settlers.
- There is need for additional studies on below ground deadwood, deadwood on living trees, fine woody debris and the decay stage of deadwood.

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