KWAME NKRUMAH UNIVERSITY OF SCIENCE AND TECHNOLOGY
COLLEGE OF AGRICULTURE AND NATURAL RESOURCES
FACULTY OF RENEWABLE NATURAL RESOURCES

DEPARTMENT OF WILDLIFE AND RANGE MANAGEMENT

A SURVEY OF SNAKES IN ASUBIMA FOREST RESERVE

BY
HODOLI, Collins Gameli

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1. ABSTRACT

This study presents a preliminary report on the snake species in Asubima Forest Reserve. Individuals were captured using opportunistic captures and visual encounter surveys. Four transects measuring 1km each were laid in the buffer zone comprising a farmland, riverine forest, grassland and teak plantation. A total of thirty one species of snakes of the families Colubridae (Phithamnus sp), Elapidae (Dendroaspis viridis and Psammophis sibilans), Pythonidae (Python regius and Python sebae) and Typhlopidae (Ramphotyphlops braminus) were recorded in the reserve. Species diversity was highest in the grassland followed by the Riverine forest and the Teak plantation with the lowest recorded in the farmland. Relative abundance was highest for the Blind snake followed by the Grass snake, the Royal python and the Green mamba with the Green snake and the African rock python being the least. Morphometric measurements and scale counts were taken for all the captured species. Philothamnus sp is not on the CITES and IUCN Red Lists. Ramohotyphlops braminus and Psammophis sibilans are on the IUCN Red List as species of Least Concern (LC). Python regius is on the IUCN Red List as an Endangered Species and Dendroaspis viridis is on the IUCN Red List as a Threatened Species. Python regius and Python sebae are on Appendix II of the CITES. The information provided is to help protect the Reserve from continuous damageand assist with habitat management plansas modification of the habitats will influence the abundance, distribution and diversity of the species

2. INTRODUCTION

2.1 Background to the Study

Forests provide many important social, economic, and environmental functions including diverse range of goods and services, such as the protection of water, and soil resources and biodiversity. Such functions also help alleviate poverty (MINEF, 2002). Although West African rain forests are ranked among the 25 most important biodiversity hotspots of the world they are highly threatened by logging, agriculture and increasing human population (Bakarr *et al*., 2001). In Ghana only 11.8-14.5% of the original forest cover is left (IUCN 1996, Porter *et al*., 2004). The reptile fauna of Ghana is the most diverse and well studied in West Africa (Leache, 2005). There are about 2700 species of snakes in the world (McCarthy, 1991**)** and Ghana hosts more than 90 species of these animals (Hughes, 1988).
Several studies have detected changes in the composition of reptile faunas at specific localities during the past 40 years (Lea et al. 2005; Adeba *et al*., 2010). Although Ghana has interesting history on herpetological study, starting with the exportation of species to European countries in the 1800s (Hughes, 1988), the conservation of this species is very difficult due to the fact that little is known about them (Lawson, 1993). In Ghana, snakes are seen to be dangerous animals and are killed irrespective of fact that not all snakes are venomous.
The protection and management of ecosystems requires detailed knowledge of what is found at the site and how it is distributed (Bechem and Nchanji, 2001). However inadequate faunal surveys make it difficult to evaluate the effect of long-term or even recent habitat change in protected areas. There is limited or little information on the species of snake in the Asubima Forest Reserve (Abeney *et al.,* 2008). The current herpetological report shows that, no data has been collected on snake species in the reserve (Adam, 2005). In a report of Asubima Forest Reserve, six reptile species were recorded but not clarified whether snakes, amphibians or lizards (Abeney *et al*., 2008). Also Lawson (1992) noted that in Ghana, most of the researches conducted on faunal species composition have not focused enough on snakes.

Therefore it is crucial for rigorous baseline surveys of snakes, even in already degraded areas, in order to study changes to species composition and effects of anthropogenic activities on these species and habitats. The usefulness of information on the distribution and ecology of snakes combined with their importance as environmental indicator species makes it wholly appropriate taxonomic group for immediate assessment.

2.2 Objectives

1. To generate species list of snakes in the Asubima Forest Reserve of Ghana.
2. To identify snake species of conservation concern in the Asubima Forest Reserve of Ghana.
3. To determine factors that influence the distribution and abundance of snake species in the Asubima Forest Reserve of Ghana.

3. STUDY AREA

3.1 Biophysical Condition

Asubima FR is among one of the Forest Reserves which were established by the Forestry Commission of Ghana to secure a sustainable Forest Estate throughout Ghana (Sools and Wanders 2009). The recent publication on the Forest Reserve shows that the area has been highly degraded due to severe logging, extensive wildfires, illegal farming practices (Sools and Wanders, 2009).

Asubima forest reserve is located in Ghana in the Ashanti region, Offinso District on the latitude 7.5º and longitude -1.866667º. The Forest reserve occupies an area of about 73km^2. Temperature is 25ºC and the weather is described to be haze. The area is under IUCN classification as a Protected Area. The study was conducted in the Buffer Zone which is about 15km^2 of the entire reserve. Four distinct habitat types comprising a Farmland, Grassland, Riverine Forest and Teak plantation were identified in the Buffer zone.

3.2 Management of Asubima Forest Reserve

FORM Ghana Ltd. is a private joint venture based in Kumasi of FORM International (FORM) and Wienco Ghana Ltd. The company was established in 2007 and has since then been in the process of reforesting parts of the highly degraded Asubima Forest Reserve (Asubima FR) near Akumadan in the Ashanti Region of Ghana. The nursery and offices are based on the nursery near Akumadan.
FORM Ghana envisions to carry out its activities in a sustainable environment and to contribute significantly to the quality of life of people related to and in the direct vicinity of the company, the environment and the Ghanaian economy.

FORM Ghana commits itself to manage its plantations in a responsible and socially, environmentally and economically sustainable way. To this end FORM Ghana strives to operate in compliance with the Principles and Criteria of the Forest Stewardship Council^{TM} (FSC^{TM}). High quality on a technical as well as on a social and environmental level is the key to success for FORM Ghana.

The production from forest plantations certified for sustainable management will ensure an improved social standard and employment for the local population, the enhancement of the local economy and a guaranteed timber supply for the forest industry.
FORM Ghana offers its employees a safe and healthy working environment, with good employment terms, favourable insurance policy conditions and pension build-up.

Besides, local people can benefit directly or indirectly from the activities of FORM Ghana, through employment, revenue sharing, FORM Ghana's community services and technical assistance. FORM Ghana aspires to conserve and restore biological diversity, water sources, and fragile ecosystems found in or near its plantations. Plantations will be managed in such a way that they will contribute to climate change mitigation by having a positive influence on the global carbon balance. FORM Ghana

will operate with respect to Ghanaian laws as well as the international conventions valid in Ghana. (Report, Abeney *et al*., 2008).

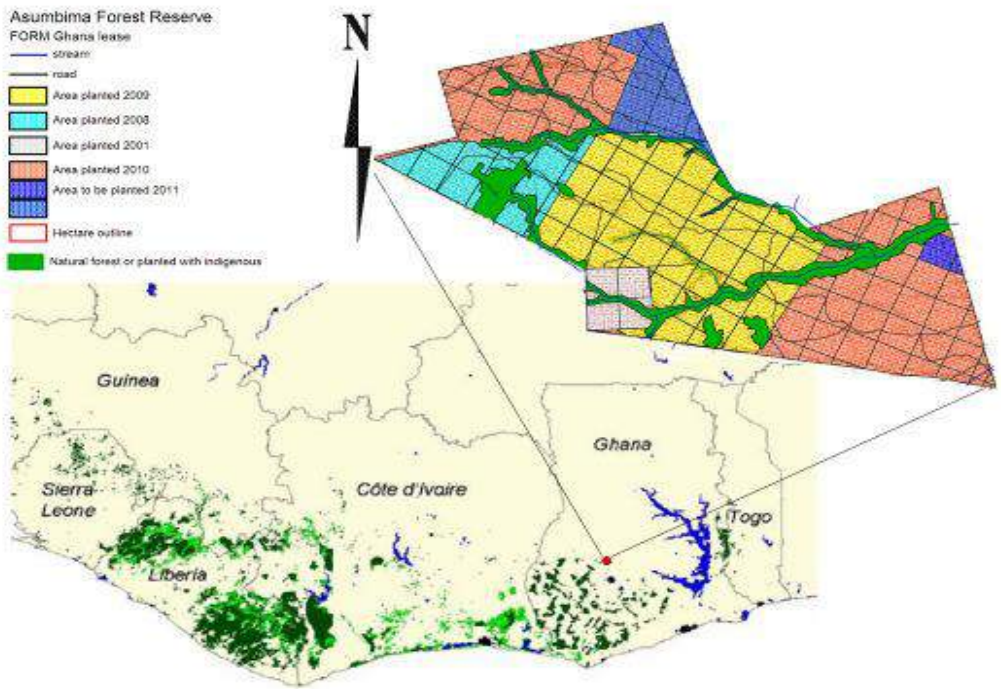

Figure 1.0 Map of Asubima Forest Reserve (arrowed)

3.3 Data Collection

Opportunistic captures and visual encounter surveys were used to capture the snakes. (Heyer *et al*., 1994). Visual Encounter Survey (VES) are proven to be very effective and cause no damage to the habitat or environment of species under study (Campbell and Christman, 1982; Mengak and Guynn, 1987; Pearman *et al*., 1995; Rodda et al., 2001).Four transects measuring 1km each were laid in each habitat type consisting Farmland, Grassland, Riverine forest and Teak plantation.

Captured individuals were measured in order to aid identification as follows: Total length (TL) and Tail length (T) using a standardized tape measure in centimeters (cm). The weights of the snakes caught were taken also using a spring balance in kilogram (kg). The Ventral Scale (VS), Dorsal Scale (DS) and the Anal Scales (AS) were also counted.

3.3.1 Scale Counts

Roze (1996) and Lancini (1986) described standardized methods or ways of counting scales of snakes as follows:-

1. Ventral Scales (VS): These scales were counted from the first row of dorsal entering the gular region to the last ventral scale of the anal scale.

2. Dorsal Scales (DS): These scales were counted from the rows of the dorsal of the mid-body.
3. Anal Scales (AS): These were the scales counted from the first sub-caudal posterior to the cloacae which are to the last region last differentiable sub-caudal scale at the tip of the tail only in specimen with complete tails. This scale is also referred to as Sub-caudal Scales (SCS) in many literatures.

3.3.2 Weight and Linear Measurements

Standardized methods were employed in taking the following measurements;

1. Total Length (TL): This is taken in centimeters with a standardized tape measure from the tip of the snout to the tip of the tail.
2. Tail Length (T): Measured in centimeters from the posterior border of the anal plate to the tip of the tail.
3. Weight (W): This was measured with a spring balance to the nearest 0.05kg as standardized.

3.3.3 Data Analysis

Berger Parker Index was used to determine species diversity and data description due to the homogeneity of the vegetation types to aid in comparing the various vegetation types. Microsoft Excel 2007 was used to determine the distribution and density, encounter rate of the species were calculated for using N/Tr where N=number of a particular species captured and Tr=Total number of Transects walked in km and a simple mathematical formula (n/T) x100 where n=Number of individual species captured, and T=Total number of species captured was used to calculate relative abundance of the species in percentage.

3.3.4 Conservation Status

The captured snake species were compared to the International Union for Conservation of Nature (IUCN) red list and the Convention on International Trade of Endangered Species (CITES) list to determine their conservation status.

4. RESULTS

Species Composition and Relative Abundance
A total of 31 individual comprising six species in the Families Colubridae, Elapidae, Pythonidae and Typhlopidae were recorded (Table 1). The relative abundance of the species decreases from the Blind snake (51.6%), the Grass snake (22.6%), the Royal python and the Green mamba (9.7%), to the Green snake and the African rock python (3.2%).
The Standard Deviation (SD) and the Mean Confidence Interval is shown in Table 1. Low SD indicates that the data points to be very close to the mean where as high SD indicates that the deviations are spread out over a large range of values.
The Farmland has the highest SD (2.041) followed by the Grassland and the Riverine Forest (1.633) and the Teak Plantation has the lowest SD (1.366). A species was recorded (Blind snake) in the Farmland, 4 different species (Blind snake, Grass snake, Green mamba, and Royal python) were recorded in the Grassland, 3 different species (Blind snake, Grass snake, and Green mamba) were recorded in the Riverine Forest and 5 different species (Blind snake, Grass snake, Green snake, Royal python, and African rock python) were recorded in the Teak Plantation.

Table 1: Species Composition and Relative Abundance within the Various Habitat Types

Family	Scientific Name	Common Name	F	G	RF	TP	RA(%)
Colubridae	Philothamnus sp	Green snake	-	-	-	1	3.2
Elapidae	Dendroaspis viridis	Green mamba	-	1	2	-	9.7
Elapidae	Psammophis sibilans	Grass snake	-	4	2	1	22.6
Pythonidae	Python regius	Ball python	-	2	-	1	9.7
Pythonidae	Python sebae	African rock python	-	-	-	1	3.2
Typhlopidae	Ramphotyphlops braminus	Blind snake	5	3	4	4	51.6
Standard Deviation			0.833± 2.041	1.667± 1.633	1.333± 1.633	1.333± 1.366	-
Confidence Interval			3.334	2.134	2.134	1.494	-

F-Farmland; G-Grassland; RF-Riverine Forest, TP-Teak Plantation; RA-Relative Abundance
The Mean Confidence Interval (CI) estimate is used to indicate the reliability of the data on snakes captured in the four distinct vegetation types (Farmland, Grassland, Riverine Forest and Teak Plantation). The highest CI was recorded in the Farmland (3.334), followed by the Grassland and Riverine Forest (2.134) and the lowest CI was recorded in the Teak plantation (1.494).

4.1 Species Abundance and Density According to Vegetation

Figure 1 shows that the Blind snake was more abundant (5) in the farmland and the Grass snake, Green snake, Green mamba, Royal python and the African rock python were least (0); the Grass snake was more abundant (4) in the grassland followed by the Blind snake (3), the Royal python (2), the Green mamba (1) and the least being

the African rock python (0); the Blind snake was more abundant (4) in the Riverine forest followed by the Grass snake and the Green mamba (2) with the Grass snake, the Royal python and the African royal python being the least (0) and again in the Teak plantation, the Blind snake was more abundant (4), followed by the Grass snake, the Green snake, the Royal python and the African rock python which all recorded 1 each with the Green mamba being the least (0).

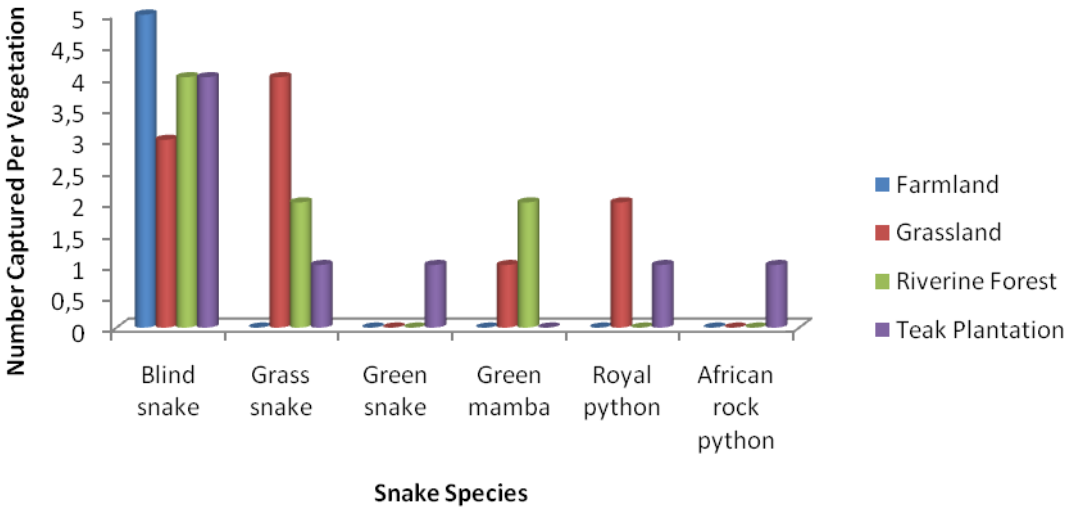

Figure 1: Species Distribution within the various habitats

4.2 Species Encounter Rate

Species encounter rate is shown in Table 2. From the table, the encounter rate was highest for the Blind snake with the lowest being the Grass snake and the Royal python.

Table 2: Species Encounter rate

Species	Encounter Rate (Km)
African rock python	0.25[a]
Green snake	0.25[a]
Green mamba	0.75[b]
Royal python	0.75[b]
Grass snake	1.75[c]
Blind snake	4.00[d]

Values in the column with the same superscripts are not significantly different (P>0.05)

4.3 Species diversity in Buffer Zone

Table 2 shows Berger-Parker Index Analysis of the snake species captured in the study. The highest diversity of species was recorded in the Grassland (d=0.4, 1/d=2.5, and d%=40); followed by the Riverine forest and the Teak plantation (d=0.5, 1/d=2, and d%=50) whilst the diversity of species was recorded in the Farmland (d=1, 1/d=1, and d%=100).

Table 2: Beger-Parker Index Analysis of the Snakes Captured

Index	Farmland	Grassland	Riverine Forest	Teak Plantation
Dominance (d)	1	0.4	0.5	0.5
Dominance (1/d)	1	2.5	2	2
Dominance (d %)	100	40	50	50

4.4 Measurements and Scale Count

The mean values of the morphometric measurements, the scale counts and the ranges are shown in Table 3. The measurements as shown have influence on the weights of the individual species captured. The blind snake has an average total length of 16.2cm, average tail length of 6.4cm, average dorsal scale of 24.8, average ventral scale of 41.1,average anal scale of 16.5, and an average weight of 0.02kg; the grass snake has an average total length of 93.87cm, average tail length of 25.1cm, average dorsal scale of 80.7, average ventral scale of 115.6, average anal scale of 70.6, and an average weight of 0.82kg; the green snake has an average total length of 116cm, average tail length of 38.3cm, average dorsal scale of 104, average ventral scale of 143, average anal scale of 99 and an average weight of 0.83kg; the green mamba has an average total length of 109.6cm, average tail length of 35cm, average dorsal scale of 83, average ventral scale of 101.7, average anal scale of 78.7 and an average weight of 0.82kg; the royal python has an average total

length of 109.5cm, average tail length of 19cm, average dorsal scale of 50, average ventral scale of 204.3, average anal scale of 31 and an average weight of 0.4kg; the African rock python has an average total length of 172cm, average tail length 30cm, average dorsal scale of 85, average ventral scale of 203, average anal scale of 72 and an average weight of 4.2kg. The range of the morphometric measurements and the scale counts are shown in brackets.

Table 4: Mean and Ranges of the Measurements and Scale Counts of the Snakes Captured.

Species	TL(cm)	T(cm)	DS	VS	AS	W(kg)
BS	16.2±0.6	6.4±0.2	24.8±1.7	41.1±1.5	16.5±1.3	0.02±0.0043
	(14.6-16.8)	(6.1-6.8)	(23-28)	(39-44)	(14-19)	(0.01-0.12)
GS	93.87±6.2	25.1±0.98	80.7±7.8	115.6±0.97	70.6±1.51	0.82±0.05
	(81.7-99)	(23.5-26.7)	(69-87)	(114-117)	(69-73)	(0.81-0.83)
GRS	116	38.3	104	143	99	0.82
GM	109.6±6.16	35±1.95	83±1.00	101.7±51.09	78.7±1.53	0.82±0.0047
	(102.6-116)	(33.4-37.2)	(82-83)	(101-105)	(77-80)	(0.82-0.823)
RP	109.5±9.67	9±0.88	50±1	204.3±105	31±2	0.4±0.01
	(98.7-116.6)	(8.3-10)	(49-51)	(203-206)	(29-33)	(0.39-0.41)
ARP	172	30	85	203	72	4.2

BS-Blind snake, *Ramphotyphlops braminus;* GS-Grass snake, *Psammophis sibilans*; GRS-Green snake, *Philothamnus sp*.; GM-Green mamba, *Dendroaspis viridis*; RP-Royal python; *Python regius*; ARP-African rock python, *Python sebae*; Values in brackets are ranges.

NOTE: The ranges of GRS and ARP are not given because during the survey, only a species of each were captured.

4.5 Conservation Status of the Snakes Captured

Table 4 shows the conservation status of the snakes captured in the survey. Out of the 6 different species captured, the Green snake (*Philothamnus sp*) is not the CITES and IUCN list. The Blind snake, Ball python, Grass snake, and the Green mamba are on the IUCN Red List and the Ball python and African rock python are on the CITES List Appendix II.

Table 4: Conservation Status of the Snake Species Captured

Species	IUCN Red List	CITES List
Blind snake	Least Concern	-
Ball python	Threatened	Appendix II
African rock python	-	Appendix II
Grass snake	Least Concern	-
Green snake	-	-
Green mamba	Endangered	-

5. DISCUSSION

5.1 Species Account

Villers (1975) stated that no part of West Africa is without snakes and there are no two areas with same kind of species which is mostly the result of habit destruction (Brooks *et al*.,1992; Gibbons, 2000). Habitat loss is the main factor causing decline in snake population resulting in extinction globally. Stuart *et al* (2004) has also recorded that; habitat loss and degradation are important contributors to declines and extinction of amphibians and reptiles and in Africa especially where habitats have undergone anthropogenic modifications (Conte 2004; Fasona and Omojala, 2009).

From the thirty-one individual snake species that were captured, the blind snake (*Ramphotyphlops braminus*) was highest in occurrence because of their habitat preference. They occurred almost in all the areas surveyed except that their abundance was least in the grassland. The rest of the vegetation types are Riverine, teak plantation, and a farmland.

The Grass snake (*Psammophis sibilans*) was recorded the second highest in occurrence in the study showing that its ecological requirements especially habitat requirements such as food, shelter, water, nutrients etc were met. Chapman (1999) reported that, where some original vegetation exists for example the buffer zone surveyed, there will be restoration of plants and animal species which can accelerate the growth and development of living organisms. These captures were made in the Riverine region, grassland, and teak plantation.

However, this arboreal snake might have greater numbers than this but may be due to the fact that other activities are taking place in the reserve and the buffer zone such as farming resulting in the modification of the habitats. This shows very well in the Green snake (*Philothamnus sp*) which just an individual was recorded. The habitats of this species were converted into farmlands and several settlements in the reserve. This is a species known to be found mostly in the savanna finding its way through the cultivated forested areas (Menzies, 1966).

Cansdale (1955) stated that, the Royal python (*Python regius*) is open to grassland areas. The grassland area of the vegetation in the buffer zone makes reproduction of this species comfortable. The original vegetation and the ecological features such as food, water (habitat requirements) improves the growth and development of the Royal python. Out of the three species captured, one was in the teak plantation, two from the grassland proving Cansdale's statement.

The Green mamba (*Dendroaspis viridis*) was captured in the grassland and the Riverine region. This species can be arboreal and terrestrial and its occurrence can be related to the fact that the Riverine region has some canopy and habitat requirements that favours its distribution.

The African rock python (*Python sebae*) was also one of the least in density. This species prefer desert to rainforest habitat/ vegetation. A capture of an individual was in the teak plantation which was a resemblance of a rain forest. Some of the species are arboreal and others terrestrial (Stafford, 1986; Ross and Marzec, 1990; Shine, 1991). The teak plantation which was about a year old represents a rainforest which

favours the distribution of the species. It is not astonishing to know that, the captured species was about a year old making us understand that, they are of higher numbers but as snakes are elusive and very hard to find (Gorzula *et al*., 1997).

5.2 Species Abundance According to Vegetation

The vegetation types in the study area accounts for the distribution, diversity and abundance of the snake species captured. The Grassland, Teak plantation, Riverine Forest and the Farmland provides the ecological requirements for the species observed in the study. The Grassland had the highest distribution of species which can be related to the rejuvenation of the habitat requirements such as food, water etc. Chapman (1999) reported that, where some original vegetation exists for example the buffer zone surveyed, there will be restoration of plants and animal species which can accelerate the growth and development of living organisms. Captures were made in the Riverine region, Grassland, Teak plantation and the Farmland. The Blind snake, Royal python, Grass snake and the Green snake were highly distributed in these vegetation types of the Buffer Zone. The Teak plantation showed that, the snake species just like any other living organism dominate areas which favour their growth and development as species like the African rock python, Blind snake, Grass snake were captured in this region. The Riverine forests as part of the study area also favour the distribution, diversity and abundance of the snake species. On the other hand, the least distribution, abundance and diversity of the snake species were recorded in the Farmland due to the altered vegetation and the landscape.

The well known savanna species Python regius was recorded in the Grassland and Teak plantation. This species is usually related to drier habitats including rocky hills and houses. It is also known from farmland and dry land rainforest (Luiselli and Akani, 1999). The African rock python (Python sebae), known primarily as a savanna species that is also found around water and even in forested habitats (Chippaux, 2006). The specimen found in this survey occurred in the Teak plantation which was about 243m to the river in the region. This species classified under CITES II is often killed for meat and skin. The arboreal Green snake (Philothamnus sp) is noted to thrive in degraded secondary forest and around human habitations (Chippaux, 2006). Although this species is arboreal, the capture made was in the Teak plantation on the ground and may reflect the fact that snakes on the ground are easily noticed and captured than those on trees. The Grass snake (Psammophis sibilans) is generally found in West Africa. Consistent with its reputation as savanna species Chippaux, 2006), this species occurred in the Grassland, Riverine forest and teak plantation. The Green mamba (Dendroaspis viridis), a semi arboreal snake noted of forest regions (Chippaux, 2006) were found in the Grass land and the Riverine forest. Among the species captured in the Riverine region, one was found getting into a hole on one of the trees. The Blind snake (Ramphotyphlops braminus), (Daudin, 1803) was described from India. Its actual distribution has been greatly enlarged by human traffic as it is an all-female, triploid species which reproduces parthenogenetically without fertilization by sperm and thus can build up a population from just one individual (McDowell, 1974).Till 1988, this species had been recorded from most of Southeast Asia, Australia, New Guinea, tropical Africa, Arabia, the Seychelles, Madagascar and Mexico (Hahn, 1980). The Blind snake which recorded the highest in the survey was captured in all the vegetation types in the reserve.

6. CONCLUSION AND RECOMMENDATION

6.1 Conclusion

Thirty-one individuals comprising of six species belonging to the families Colubridae, Elapidae, Pythonidae and Typhlopidae were recorded. The grass snake (*Phsammophis sibilans*), and the green mamba (*Dendroaspis viridis*) are not on the CITES list, the Green snake (*Philothamnus sp*.) and the blind snake (*Ramphotyphlops braminus*) are of least concern (LC) whilst the ball python (*Python regius*) is on IUCN Red List and the African rock python is on Appendix II of the CITES list. The main factor influencing the distribution and abundance of these species is habitat destruction. These include encroachment, agriculture, fire, killing of snakes on sight as they are perceived to be deadly and climatic changes.

6.2 Recommendation

Studies on distribution, abundance, diversity and species list of snakes should be encouraged for biological conservation and sustainability of ecosystems and the results as provided in the study should be used as a benchmark for the protection of Asubima FR.

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8. APPENDIX: PICTURES OF THE SPECIES

Source: Field Survey by Collins

African rock python(Python sebae

Green mamba(Dendroaspis viridis)

Blind snake(Ramphotyphlops braminus)

Olive grass snake(Psammophis sibilans)

Vegetation of Buffer Zone

Vegetation of Buffer Zone

9. APPENDIX :MORPHOMETRIC DATA

SPECIES	SEX	TL (cm)	T (cm)	DS	VS	AS	W (kg)
Ramphotyphlops braminus	M	16.7	6.5	27	43	19	0.012
Ramphotyphlops braminus	M	16.8	6.8	27	44	18	0.020
Ramphotyphlops braminus	M	15.3	6.3	25	40	16	0.011
Ramphotyphlops braminus	M	16.6	6.2	26	41	18	0.012
Ramphotyphlops braminus	M	16.7	6.8	28	42	18	0.020
Ramphotyphlops braminus	M	14.6	6.4	26	42	17	0.013
Ramphotyphlops braminus	M	15.7	6.2	23	41	15	0.021
Ramphotyphlops braminus	M	16.4	6.3	24	39	16	0.012
Ramphotyphlops braminus	F	16.5	6.4	23	40	16	0.011
Ramphotyphlops braminus	F	15.7	6.1	22	41	14	0.020
Ramphotyphlops braminus	F	16.3	6.2	25	39	15	0.010
Ramphotyphlops braminus	F	16.6	6.4	25	40	17	0.020
Ramphotyphlops braminus	F	16.4	6.3	24	39	16	0.012
Ramphotyphlops braminus	F	15.7	6.2	23	41	16	0.011
Ramphotyphlops braminus	F	16.4	6.4	24	43	17	0.012
Ramphotyphlop braminus	F	16.5	6.3	25	42	16	0.020
Psammophis sibilans	M	98	25.6	87	116	72 0.870	
Psammophis sibilans	M	99	26.7	86	115	70	0.832
Psammophis sibilans	M	81.7	24.6	69	116	69	0.710
Psammophis sibilans	M	96	25.3	84	114	70	0.810
Psammophis sibilans	M	95.6	23.5	83	117	69	0.820
Psammophis sibilans	M	97.2	24.7	86	115	71	0.830
Psammophis sibilans	M	89.6	25.2	70	116	73	0.840
Philothamnus sp.	M	116	38.3	104	143	99	0.833
Dendroaspis viridis	F	112	34.5	83	102	79	0.823

Dendroaspis viridis	F	114.2	37.2	84	103	80	0.820
Dendroaspis viridis	F	102.6	33.4	82	101	77	0.821
Python regius	M	116.6	10	51	206	33	0.410
Python regius	M	98.7	8.3	49	203	29	0.390
Python regius	M	114	8.7	50	204	31	0.400
Python sebae	F	172	30	85	203	72	4.20

M-Male, F-Female, TL-Total length, T-Tail length, DS-Dorsal scale, VS-Ventral scale, AS Anal scale and W-Weight