

COURSE CODE: WRM 513
COURSE TITLE: Natural History of African Mammals
NUMBER OF UNITS: 2 Units
COURSE DURATION: Two Hours per Week

COURSE DETAILS:

Course Coordinator: Professor S.A. Onadeko B.Sc,M.Sc., Ph.D
Email: Natural History of African Mammals
Office Location: COLERM
Other Lecturers: Dr. O.O. Oduntan

COURSE CONTENT:

Characteristics of Vertebrates, Orders of African Mammals, General taxonomy characteristics, Natural History of specific animals in the five major orders that are predominant in Africa's protected ecological ranges; Proboscidea African Elephant; Perrisodactyla: Zebra, Rhinoceros, etc. Artiodactyl Artiodactyla – Antelopes, Bovids, etc. Carnivora: Lion, Cheetah, Hyena, Leopards and Carnivores with Omnivorous Characteristics. Primata: Primates – Gorilla, Chimpanzee, Monkeys.

COURSE REQUIREMENTS:

This is a required course for all final year students in the Department of Forestry and Wildlife Mgt with Wildlife options. In view of this, students are expected to participate in all the course activities and have minimum of 75% attendance to be able to write examination.

READING LIST:

Richard Despard Estes. The Behavior Guide to African Mammals: Including Hoofed Mammals, Carnivores, Primates. www.amazon.com.

Richard Despard Estes. The Safari Companion: A Guide to watching African Mammals. Including Hoofed Mammals, Carnivores, Primates. Chelsea Green Publishing. 1999.

LECTURE NOTES

WRM 513: NATURAL HISTORY OF AFRICAN MAMMALS

Definition of Terms:

- **Natural History:** deals with the study of natural objects and organisms and their origin, evolution, interrelationships, and description (American Heritage Dictionary 1992). It practically involves species description and physiology (Taxonomic Characteristics), distribution, annual cycle, food habits, reproduction, growth and development, behaviour, ecology (including habitat, home range), social hierarchy, mortality rate and factors, among others.
- **Systematic or taxonomy** is the classification of organisms and includes such procedures as identifying and naming.
 - i. Procedure for identifying and naming organisms: organisms are identified and named by the use of taxonomic characters.

Taxonomic characters:

A taxonomic character is an inherent peculiarity of any one group of organism and is not shared with any other group or any individual of that group.

Mostly, morphologic taxonomic characters are used: such as size, shape, coloration etc.

ii. Obligatory taxonomic categories employed in the classification of mammals:

Kingdom	Animalia
Phylum	Chordate
Class	Mammal
Order	Proboscidea
Family	Elephantidae
Species	<i>Loxodonta Africana</i>

It should be emphasized that there are many more taxonomic or classification categories in between.

Example of the other emitted taxonomic categories to be read or briefly discussed in class.

It should be obvious that when discussing the various mammals found in Africa, the new taxonomic names will be encountered in order, families, genera and species. All orders the mammals belong to the same class of mammals.

iii. Discussion of orders, families, genera and species

Classification categories

➤ **Ordinal characters:**

Orders of mammals are based on taxonomic characters affecting major differences in:

- Limb (modification for flying, running, aquatic life, etc)
- Digits (reductions and modifications)

- Nature of the ends of the digits (nails, claws, hooves)
- Dentition (presence or absence of canines and major modification in molars and pre-molars)
- Characters of the soft anatomy (complexity of brain): criers of mammals (and other organisms- plants, birds, insects, reptiles etc have a world-wide geographical distribution.
- Orders contain one or more families
- There are 19 orders of mammals in the world.

➤ **Family characters:**

Family characters in mammals are concerned with the following major taxonomic differences:-

- Internal modifications of the body (presence or absence of skull characters)
- Modifications of the teeth especially molars and pre-molars)
- Modification of the external body form (quills, horns and antlers)
- Lesser differences in limbs, digits and cranial modification families are not as worldwide distributed as are orders. Families tend to have limited geographical distribution.
- There are 125 families of mammals in the world

➤ **Generic characters:**

Generic characters are less marked and often have to do with differences in:

- Skull and teeth
- External features

➤ **Specific characters**

Specific characters have to do with differences in:

- Size, colour, markings, shape and other external features
- Size and proportions of skulls
- A species is normally defined in terms of reproductive isolation or lack of inter breeding

iv. Nomenclature is concerned with the application of a taxonomic name a given kind of animal or organism (also applicable to plants).

- Nomenclature is necessary in order to avoid confusion normally associated with vernacular or common names in a particular area.

Example of confusion that can occur by use of vanacular names:-

Buffalo	Vs	Bushcow
Tiger	Vs	Leopard
Cheetah	Vs	Leopard
Antelope	Vs	Deer
Bushcow	Vs	Buffalo
Bushfowl	Vs	Guinea fowl or francolin
Elk	Vs	Moose etc.



Under Taxonomic characters: The following shall be discussed:

- SH - Shoulder height
- HB - Head and Body length
- T - Tail length
- TL - Total length (HB + T)
- HL - Horn Length (if applicable)
- WT - Weight
- DF - Dental ferumlar

Body structure:

General appearance, colour/markings, posture and other valuable external features.

Geographical distribution

(with emphasis on distribution in Nigeria)

Habitat preference

Food habits

Reproduction

Behaviour

Status and economic considerations

(with emphasis on conditions in Nigeria).

➤ **ASSIGNMENT:** Name the eighteen order of mammals available in Africa.

- **ANSWER**

Insectivora	-	Shrew & hedgehog
Chiroptera	-	Bat
Pholidota	-	Pangolin
Lagomorpha	-	Hare
Primata	-	Monkey & Chimps
Rodentia	-	Rodents
Cetacea	-	Whales
Carnivora	-	Carnivores
Pinnipedia	-	Seals
Tubulidentata	-	Aardvark
Proboscidea	-	Elephants
Hyracoidea	-	Hyraxes
Sirenia	-	Manatees
Perisodactyla	-	Old toed Ungulates

Artiodactyla - Even toed Ungulates

MAJOR MAMMALS OF AFRICA

➤ ORDER: PROBOSCIDEA

General taxonomic and other characters of the Order Proboscidea

The Order Proboscidea is comprised of one family the **ELEPHANTIDAE**. It represents the largest land or terrestrial mammal in the world. Features of the order are unmistakable. A very large body which is almost as long as its length (minus the trunk or proboscis) weight up to 7000kgs and height of up to 4 meters.

A distinct flexible proboscis (from which the name of the order is derived) which is in fact the result of the elongation of the upper lip and the nose. Nostrils are found at the tip of the proboscis. Proboscis performs many delicate functions such as foraging, drinking water, mud

and dust bathing, pulling down trees, catching enemies, etc. Upper incisors elongated to form tusks or ivory. Long and stump – like feet. The inside of the feet, near the digits, are filled or provided with elastic pads or tissue (like shock absorbers in a car or motor cycle) which enable to support the enormous weight of the animal. Thick skin with scanty hairs, tail long with a tuft of coarse strands of hairs. Eyes fairly small. For the size of the animals.

Enormous ears shaped like fans.

➤ **FAMILY ELEPHANTIDAE: GENERAL TAXONOMIC AND OTHER CHARACTERS OF FAMILY ELEPHANTIDAE**

As mentioned above, the order Proboscidea is represented by the only existing family – Elephantidae. The General Taxonomic and other Characters described under the order are equally applicable to the family. The Family Elephantidae is comprised of two genera:

- i. Loxodonta
- ii. Elephas

The genus Loxodonta refers to the African Elephant, whereas the genus Elephas belongs to the Asiatic Elephant. Major differences between the two genera:

TAXONOMIC CHARACTER	LOXODONTA	ELEPHAS
----------------------------	------------------	----------------

Body size	Larger	Smaller
Ears	Larger	Smaller
Black	With a slight depression (concave)	With a slight hump (convex)
Lip of Proboscis	With two finger-like processes	With one finger-like process

Forehead more convex is with less convex is with
Pronounced hump pronounced hump

➤ Only the genus **Loxodonta** will be discussed in full in class.

➤ **Genus: Loxodonta**

General Taxonomic and other characters of the Genus LOXODONTA

The major characters of the genus have already been described under the heading family. In summary, the genus contains the larger of the two existing types of elephants. Tusks are larger and curved upwards. The back has a slight depression, teeth are less complex. But more conspicuously, the animal representative of this genus has got very large and fan-shaped ears.

Species: *Loxodonta africana* (Blumebach)

➤ **Taxonomic Characters:**

SH:	3 – 4 meters	(9 – 13 feet)
HB:	5.5 – 7.6 meters	(18 – 25 feet)
T:	1 – 1.2 meters	(3 – 4 feet)
TL:	6.5-8.8 meters	(21 – 29 feet)
HL:	None	(Hoon Length)
WT:	4000 – 7000 kg	

The largest elephant ever recorded measured 13 feet 2 inches and its total length was 33 feet 2 inches. The full mount of this elephant is exhibited at the Smithsonian institution museum which is the U.S National Museum.

DF: I: 1/0, C: 0/0, PM: 3/3, m: 3/3 = 26

The single pair of upper incisors grew throughout life in form tusks. The tusks are very variable in weight and length. The heaviest tusk so far recorded weighed 109 kg and the longest tusk so far recorded increased 11 feet 5 inches. (3.5 meter).

The premolars are lost early in life and have no functional importance. A single molar on each side of the lower and upper jaws is functional at any given time and is replaced from the rear, as it wears away by the next posterior tooth. A set of six molars are functional during the life span of the animal.

➤ **Body structure:** (General Appearance, markings etc) description of the body structure of the animal has been adequately covered under order, family and genus sub-titles.

➤ **Geographical Distribution:**

The African elephant is found in Africa only mostly south of Sahara and in suitable habitats. Small populations also occur in Mauritania.

➤ **Habitat preference:**

In terms of habitat – preference the animal is fairly versatile. Found in high forest, including mountain forests up to 9,000 feet, high, Guinea savannah and Sahel savannah.

➤ **Food habits**

- Entirely vegetation
- Both a grazer and browser

But the animal can be completely a grazer or browser, depending on the availability of food in the resident habitats. Elephants eat huge quantities of forage materials up to 400 – 600 in a day (225kg).

➤ **REPRODUCTION**

Elephants normally give birth to one young, that is they have a litter size of 1 young. Twins have been recorded, but they are very rare.

In fact I have read of one case of twins being born – many are National Park in Tanzania.

- Gestation period of around 22 months.

- At birth, young weighs around 1210 lbs and stands about 1m feet, Elephants mature around 12 – 15 years.
- Live span about 50 years – although there are reports of elephants living up to 80 years, but 69 years is the most accurate longevity record known. (There are other authorities who quote longer of up to 120 years most doubtful)

➤ **BEHAVIOUR**

- Elephants are social animals living in herds of 10 to 50 animals. Larger groups are also not uncommon.
- A typical breeding herd of elephants is normally led by an old female. There is usually a master bull, several cows and calves of various ages and even younger bulls too.
- Old bulls or even young mature bulls tend to be solitary. Living in their own “Old” or “Young” bulls” herds – numbering up to 12 animals. But very old bulls are completely solitary. Two reasons account for the solitary bulls – whether young or old – “young bulls herds” – chased away from breeding herd by master bull. “old bull’s herds” – lost instinct of herd association Elephants are active both during the day and night – as they are both diurnal and nocturnal – feeding being the major activity.
- Elephants like to take both mud and dust baths.
- Like to lick salt from salt licks.
- Drink daily – and will travel long distances in search of water.

If you are lost in the bush and you have no water – if you see a herd of elephants. Follow them – they will take you to water source – but be careful to check the wind direction – (demonstrate).

- Elephants use tusk to dig water in dry river beds – normally use their right tusk – that is why one always find that the right tusk is normally worn down. Exceptions are a few “left tuskers”
- Despite their large size, elephants can run as fast as 40 – 50 km/ph at short distances.
- Also, despite their / size, elephants rarely attack people unless when they are wounded or accompanied by young or when suddenly cornered or surprised – a characteristic of most animals – including domestic chickens.
- In areas where they are well protected, elephants are not afraid of humans, and provided one remains in a vehicle, one can approach an elephant very closely. Reverse is true where elephants are heavily hunted / poached when disturbed, elephants can give out a very loud, striking and frightening sound. The same sound is made when attacking an enemy. When this occurs, the trunk or Proboscis is curved inwards and upwards between the tusks and the ears are completely flattened on the body.

(When an elephant “attacks” or you with its trunk directed forwards and the ears flapping, it is a mock charge).

Because elephants feeding is wasteful they can deforest or change the vegetation of an area in no time.

➤ **STATUS AND ECONOMIC CONSIDERATIONS**

Formerly the elephant used to occur in large numbers in all its suitable habitats. But now, the animal is confined to a few areas with adequate protection, although it is still fairly abundant in Kenya, Tanzania, Zambia and Mozambique. In Nigeria, the animal is fairly abundant in Yankari Game Reserve (In April, 1980, it is reported that about 200 elephants, were sighted in one area along main river Gaji running through

Reserve this, incidentally, was the time when His Excellency the President Shehu Shagari was visiting the Reserve) the marked decrease in numbers of elephants has been due to overhunting in such of ivory.

➤ **ECONOMIC CONSIDERATION**

- Ivory highly prized.
- Properly cooked, capable of providing much needed protein.
- Elephants can be very destructive to crops.

➤ **ORDER PERISSODACTYLA:**

GENERAL TAXONOMIC CHARACTERS

- Ungulates with the exception of the even – toe tapirs odd toed of the New World.
- Animals with one or three hoofed digits.
- Skull elongated with abrupt drop at back.
- Weight of the animals is borne by the central digits, with the main axis of the foot passing through the third digit – which is the longest in all four feet.
- First digit absent.
- Both sexes lack horns with true bony cores.

In Africa, there are two families in the Order: Equidae (Asses and Zebras) and Rhinocerotidae (Rhinoceroses).

➤ **FAMILY EQUIDAE GENERAL TAXONOMIC CHARACTERS**

- Weight of the body borne by fore digits found on each foot.
- Both sexes lack horns.
- Skin comparatively thin.
- Body size medium to fairly in appearance large. Horse to Donkey like.
- Number of teeth vary from 40 – 42.

DF: I: 3/3, c1/1, pm: 3 – 4 /3, m: 3/3 = 40 to 42

- Long necks with a mane at the top.
- Tail fairly long with its hairs reaching middle of legs (bird)
- The family Equidae contains one genus – Equus:

➤ **Genus Equus**

GENERAL TAXONOMIC CHARACTERS

The Genus Equus is comprises four existing distinct species (in Africa).

➤ Genus: Equus (Wild Ass and Zebras)

General Taxonomic Characters:

Items	<i>E. buchelli (Burchell's Zebra)</i>		
Behaviour	Social animal; live in family groups of up to 20 animals; may families of animals, graze very close to the ground, graze drink water daily; mostly diurnal. Noisy animals; run fast and for		

	long distances (64kmph) find of rolling in sand and dust		
Status and Economic consideration	Population reduced in its original southern range, but otherwise, population fairly healthy skin highly prized which has caused overshooting in certain areas, where found in large numbers near human settlements, can be desctructive to crops		

Items	<i>E. buchelli (Burchell's Zebra)</i>		
General Taxonomic character	Sh: 1.3-1.4m (50-55"); WT24 - 320kg (500-700lbs), horse-like features, very broad and strongly curved on the hindquarters) black or dark stripes; extend very low on the sides of stomach; no distinct broad white patch on the stomach like in <i>E. Grevyi</i> and <i>E. Zebra</i> ; Short and narrow ears.		
Distribution	Ethiopia Sudan Somalia, Uganda Zaire, Rwanda, Kenya, Tanzania, Malawi, Zambia, Mozambique, Botswana, Swaziland, Angola, S.		

	African and Namibia.		
Habitat Preference	Found in both Sahel and Guinea Savannahs- mostly found in open grass-lands and also open wooded area.		
Feeding Habit	Grazer occasionally browser		
Reproduction	Litter size of 1 young; Gestation period of about 360 days; Life span of around 25-30 years.		

Items	<i>E. africanus (Wild Zebra)</i>	<i>E. grevyi</i>	<i>E. zebra (Mountain)</i>
Behaviour	Social animals living in herds of up to 30 individuals although sometimes live single; good mountain climbers. Retiring to the mountain during the day and come down to the valleys to graze at night; can go long without water; capable of carrying heavy long loads at long distances; when fighting use their teeth and leg	Social animals living in herds of up to 14 animals stallions may be solitary, where their range overlaps with that of the Burchell's zebra, mixed herds are found. Less dependent on water than Burchell's zebra. Fighting posture same as Wild Ass.	Gregarious living of 7-12 animals. Social animal. Herds of 50 animal has been recorded. Stallions may be solitary. Good climbers. Graze in midnight and late afternoon. Can do without water for a longtime.

Status and Economic consideration	Population has decreased markedly due to competition stock interbreeding with domestic donkey. Animal has also been overhunted.	Population has decreased because of overshooting for meat and especially skin to make various ornamental articles (belts, wallets ladies handbags, etc) skin much valued and where too many can be destructive to crops.	Population very much reduced by increasing human settlement and can now be found in restricted wildlife areas.
-----------------------------------	---	--	--

Items	<i>E.africanus (Wild ass)</i>	<i>E. grevy's Zebra</i>	<i>E. zebra (Mountain)</i>
Gen TA. Char.	A wild ass resembling domestic ass WT. 260kg SH: 1.1 metres (43); big head; long ears, body colour uniform buff or grayish; muzzle pale; dark dorsal line or dark shoulder strip; Legs sometimes striped.	Largest of the zebra SH: 105m, WH: 105m, WT: 430kg, prominent broad rounded ears, head long and narrow brown patch on narrow muzzle, narrow numerous stripes (black and white) reaching to the hooves; white patch on rumps.	SH: 1.2-13m WT: 270kg. Short plump head with haired ears, black numerous narrow bands across rump ("grey and white belly lets stripe)
Geographical Distribution	Ethiopia and Somalia	Northern Kenya or southern and Somalia	South Africa, Angola
Habitat Preferences	Mountain area valleys and open grass Plains.	Sub desert steppe and dried Bushland i.e.	Dry stony mountains and

		Sahel Savannah	desert (Namibia)
Food Habits	Grazer	Mostly grazer, occasionally browsers	Grazer
Reproduction	Gitter size of 1 young; gestation period of 348-377 days; life span at 25 to 30 years	Litter size of I young; Gestation period of 345 390 days; life span of round 25-30 years	Litter size of I young period of around 345-3 life span of about 30

➤ Family: Rhinocerotidae

General Taxonomic Characters:

- Body massive and heavily built
- Skin very thick
- Three digits on each foot
- Both sexes with two horns
- On the snout (nose)
- Short neck and broad chest short and pillar like legs in the genus *Dicaps* (land also Rhinoceros)
- Upper lips prehensile (i.e. adapted to grasping objects) especially by unwrapping around object-same as the tongues of the giraffe)
- Weight to 3.5 tons – i.e. the second largest land mammals is contained in the family Rhinocerotidae
- Number of the teeth vary from 24-34 D.F: I- 1-0/1-0, C. 0/1-0, PM: 3-4/3-4, M:3/3 in Africa there are two general in the family: *Ceratotherium* and *Diceros*

Items	<i>C. simum</i> (Square-lipped Rhinoceres)	
General tax. Character	Second largest land mammal, WT: 2.3-3.6 metric tons. HB: 3.6-5m; SH: 1.6-2m; lighter colouration than look-lipped rhinoceros upper lip squared; distinct hump above neck; head	

	longer than hook-lipped thin.	
Distribution	Swaziland and South Africa. Formally also in NW Uganda and SW Sudan-although their presence now well documented	
Habitat Preference	Guinea Savannah on open grasslands and open woodlands.	
Feeding Habit	Mostly grazer and also browsers on low lying shrubs.	
Reproduction	Little size of I young. Gestation period of 17-18 month, life span of about 50 years.	

Items	<i>C. simum</i>	
Behaviour	More sociable than hook-lipped Rhinos, live in groups of up to 10 individuals. very placid and even tempered; Charge very rarely; fairly sedentary; re turn every day to selected location-heaps; feeding morning and evening; sight poor but sense of smell and hearing acute.	
Economic Status	Population very much reduced in their former range due to overhunting for horn, and skin which are said to contain medicinal values; horn is said to have aphrodisiac properties. Human settlement has reduced its range.	

Items	<i>Dicerce bioornis (Hook-lipped Rhinoceros)</i>	<i>(Black Rhinoceros)</i>
General tax. Character	Smaller than square lipped rhinoceros; HB; 3,3-3.75M, SH: 1.4-1.5m, WT: 1-1.8 metric tons; upper lip pointed and prehensile. Darker colouration	
Distribution	Cameroun, Chad Central African Republic Sudan, Ethiopia, Somalia, Uganda, Kenya, Tanzania, Zambia, Mozambique Swaziland Angola, Botswana, Malawi.	
Habitat Preference	Guinea Savannah especially in Acacia Commihota types of vegetations, also the mountains up to 11,500 feet high.	
Feeding Habit	Mostly browsers, feeding on twings of Acacas, Eupborbias, e.t.c) rarely graze Commiphoras	
Reproduction	Litter size of I young, gestation period of 17-18 months; life span of about 50 years.	

Items	<i>D. Biicornis</i>	
-------	---------------------	--

Behaviour	Male solitary, pairs formed by mother and calf; male and female pair briefly during mating season; fairly fast for their bulk size can run up to 45KPH at short distance; poor sight good sense of smell and excellent hearing; drink daily; except in sub-desert areas where depends on succulent leaves. Animal like mud and dust. Rather ill tempered and sometimes charge without being provoked.	
Status and Economic consideration	Population very much reduced in their former range due to over hunting for skin and horn which are said to have medicinal and aphrodisiac properties respectively. Otherwise numbers more numerous than square-lipped Rhino.	

➤ **ORDER: ARTIODACTILA.**

GENERAL TAXONOMIC CHARACTERS:

- Even – teed ungulates
- Toes or digits normally two or four-except in the family Tayassuidae (Peccaries) in which there are four toes in front, three in hind foot
- Elongated legs
- Legs supported by 3rd and 4th digits (E.P. Walker – 1355) i.e. body of animal supported by 3rd and 4th digits on the legs.
- Remaining or laterals digits rudimentary or reduced.
- Horns, when present are paired and are permanent in Africa species, unlike in the temperate spp where antlers are shed off in winter.

- Size very variable – from the small Chevrotains (HB-46-56cm) to the giraffe which stands up to 3.5 metres, and the hippo which weight about 3 metric tonnes.

➤ **FAMILY: SUIDAE**

GENERAL TAXONOMIC CHARACTERS

- Medium – sized mammals
- Barrels – like and stocky bodies and short necks.
- Head long and pointed with a mobile snout (muzzle) which is flattened at the tip.
- Fore- legs shorter than hind legs which gives the animal a forward dropping appearance. (contrast this with the Hyaena)
- Each foot has 4 toes – but only the 3rd and 4th reach the ground and are hoofed, whereas the 2nd and 5th digits have smaller hooves and are placed higher up to the limb- and do not reach the ground.
- Hair scanty to almost absent.
- A mane is present in some forms (warthog), tail with bushy coarse hair at tip.
- Two – chambered, non-ruminating in appearance.
- Upper incisor reduced or absent, and canines usually reduced or lost- although in some cases canines are enlarged and tusk-like in appearance.
- The stomachs of members of the order show marked variations:

Family	type of stomach	Ruminant/non-Ruminant
Suidea and Tayassuidae	Two-chambered	Non-Ruminant
Hipopotamidae Camelidae and	three-chambered	Non-Ruminant

Tragulidae	Three chambered	Ruminant
Cavidae, Girafidee,		
Antilocapridae	Four Chambered	Ruminants
Bovidae i.e. the true		
Ruminants with		
Oesophagus	Rumem	Reticulum
Omasum	Abomasum	

- DF: 1:3/3, C: 1/1, PM: 4/4, M: $\frac{3}{4} = 44$

Except in Babirusas (Indonesie)

L: 2/3, C: 1/1, 3/2, 3/3 = 34

- Large upper canines grow outward and backwards and lower canines grow upward and backwards, tending to form a complete circle. In certain species the canines grow to great size forming tusk like structures which are formidable weapons in times of defence.

- Babimsas

- Warthog

The following General will be discussed:

- (a) Potamochoerus - Bush – Pig
(Red River Hog)
- (b) Phacochoerus - Warthog
- (c) Hylochoerus - Giant Forest Hog

➤ **FAMILY: HIPPOPOTAMIDAE**

GENERAL TAXONOMIC CHARACTERS

- Medium – size to huge animals
- Barrel – shaped bodies hanging very close to the ground.

- Legs short with four digits
- Incisors and canines well developed and growing continuously.
- Skin almost hairless – pinkish to dark in colour.
- Tail short with strands of coarse hairs at tip.
- Stomach three – chambered and non-ruminating.
- DF: I : 2 – 3/1, c: 1/1, PM:4/4, M:3/3 = 38 – 42.

The family Hippopotamidae has got two genera only, and the animals are only found in Africa.

➤ **FAMILY TRAGULIDAE (WATER CHEVROTAINS) GENERAL TAXONOMIC CHARACTERS (AFRICAN)**

- Small and slender antelopes (Africa type W.C.) more closely related to camelids and suides than duikers and deer.
- Head small with pointed snout.
- Legs long, thin and delicate with four digits (2 + 2).
- Three – chambered stomach and ruminant.
- Horns absent.
- Upper canines elongated to form “tusks” – and protruding downwards.

➤ **FAMILY: GIRAFFIDAE**

GENERAL TAXONOMIC CHARACTERS:

- Family in which is found the tallest land mammal.
- Legs and necks very much elongated compared to other Artiodactyls. Neck with same 7 vertebrae found in other Artiodactyls, but greatly elongated.
- Fore and Hind feet with two digits only (false digits absent)

- Horns small, covered with skin and hair only (no horny sheaths)
- Four chambered stomach and ruminating.
- DF: I: 0/3, C: 0/1, PM: 3/3 M:3/3 = 32.
- The family, found are confined in Africa only and is represented two Genera

➤ **Genus: Potamochoerus (Bush pig and Red River Hog)**

General Taxonomic Characters: Pig – like animals; elongated face; laterally flattened body; colouration varies from reddish brown to black; young longitudinally striped, canines tusk like; pronounced light – coloured mane along top of neck and back, whitish and blackish face.

Items	<i>P. Porcus (Bush pig or Red River Hog)</i>	
Body structure	Body shape same as in Genus (only one specie in Genus) SH: 63 – 76cm; HB: 127cm; T: 38cm; WT: 54 – 81kg.	
Geographical distribution	Widely distributed in most Africa except most of S. Africa, Angola and Namibia and Sahara Desert.	
Habitat preferences:	Guinea Savannah/Sahel Savannah and High Forest including Montane Forests.	
Feeding habit	Roots, berries, wild fruit; reptiles, eggs and young birds. Omnivorous.	
Reproduction	Litter size: 2 – 8 CP: about 5 months life spans 12 – 15 years	

Items	<i>P. Porcus</i>	
-------	------------------	--

Behaviour	Social animals living in sounders (group) of 4-20 individuals – sometimes up to 40; nocturnal; use snout as “ploughs” to dig roots and bulbs; when alarmed emit snorting grunts like domestics pig.	
Economic Status	Fairly Plentiful in most of Africa. Hunted for meat; can be very destructive to yam, cassava and related foods crops	

Items	<i>P. aethiopi</i>	
General tax. Character	Body shapes as in genus; SH; 76cm, HB 152-177cm, T: 46cm; WT:68-11kg males usually much heavier than females; other characters as in genus	
Distribution	Distributed in most of Africa except most of S. Africa thick High Forest and Sahara Desert.	
Habitat Preference	Sahel/Guinea Savannah including open High Lowland forests and Montane forests.	

Reproduction	Litter size of 2-5 young, GP: 171-195 days: life span of about 15 years.	
--------------	---	--

Genus: Phacochoer

General Taxonomic Characters:

Items	<i>P. aethiopi</i>		
Behaviour	Diurnal; social animal living in groups of up to 10 individuals, sleeps in Aardvak burrows; likes and baths; sometimes kneels while feeding; poor eyesight but hearing and smelling good; old males cornered otherwise timid; uses tusks to dig roots; bulbs etc. unlike the bush – pig which uses its muzzle or snout.		
Status and economic considerations	Fairly abundant is most of African where it is found; hunted for its sweet meat; not destructive to farm crops like bush pig.		

➤ **Genus: Hylochoerus (Lant Forest Hog)**

General Taxonomic Characters: Largest of the Suidea in Africa heavily built elongated body and legs; rump higher than shoulders, body

covered with scattered long coarse black hair forming a crest to the neck and back wide elongated snout facial glands in front of eyes; tusks small and undeveloped; upper canines forming largest tusk; tuft of black hair at tip of tail.

Items	<i>Hylochoerus meinertzhageni</i> (Forest Hog) – only one species in the genus	
Tax. Character	SH: 102cm; HB: 152 – 177cm; T: 38cm; WT: 160 – 275kg; other taxonomic characters same as in the genus only one species in the genus.	
Geographical distribution	Ivory Coast; Ghana; Togo; Republic Of Benin; Central African Republic, Cameroun, Gabon; Zaire; Congo; SW Sudan; SW Uganda and Kenya Northern Tanzania (unconfirmed)	
Habitat Preferences:	Dense high Forests of both lowland and montane areas.	
Feeding habit	Grasses, fruits, roots, and berries and leaves	
Reproduction	L.S.: 2-6; GP: 4 months; Life span: 15 years	

Genus: Hylochoerus

General Taxonomic Characters:

Items	<i>H. Meinertzhageni</i>	
Behaviour	Social animals living in groups of 4 – 20 animals old males solitary; mainly nocturnal – although can be diurnal in protected areas: use regular pathways in dense high forest which become visible tunnels; hardly dig for their food like warthogs; have been known to charge without provocation; like to wallow	

	in water and mud.	
Economic Status	Vary rare – not easily seen like other suidae; can be destructive to farm and mud.	

➤ **Genus: Genus Hippopotamus (Common Hippopotamus)**

General Taxonomic Characters: Huge barrel shaped body; short legs with four digit; incisors and canines developed into tusks – especially the lower canines, two pairs of upper incisors; (one pair in the Choeropsis – (Pygmy Hippo) broad and large muzzle. Eyes and nostrils prominent when submerged in water, skin is brownish grey to pinkish; only one species, stomach three chambered and non – ruminating; body produce only sticky droplets of moisture which appear re-giving rise to the statement that ‘Hippos sweat blood’.

Items	<u>Hippotamus amphibious</u>	
Body structure	SH: 140 – 160cm; HB: 330 – 475cm; T: 38 – 56cm; WT: 3 – 4.5 metric tons; lower canines grow very big reaching up to 0.6 metre (about 5 feet). And weighed up to 3kg. other taxonomic characters like in the genus.	
Geographical distribution	Most of <u>Africa south of Sahara</u> except most of South Africa,	

	Angola, Namibia and Sahel areas of Kenya, Somalia and Ethiopia.	

Genus: _____

General Taxonomic Characters: Genus Hippopotamus (continued)

Items	<i>Hippopotamus amphibius</i>	
Habitat preferences	Streams, lakes and ponds with permanent water and bordered by grassland up to an altitude of 8,000 feet.	
Feeding habit	Mostly grazers	
Reproduction	L. S. of one young only; Gestation period of 227 – 240 days and life span of 40 – 50 years.	
Behaviour	Social animal living in schools of 5 – 30 individuals, mainly aquatic; nocturnal; can submerge under water up to 6 minutes; travels long distances on land up to 33km in search of food at night, during rainy season can travel long distances to live in temporary pool (a form of proposeful immigration); normally placid, but can be very dangerous when provoked.	

Genus: _____

General Taxonomic Characters:

Genus Hippopotamus (continued)

Items		
-------	--	--

Economic status	Still plentiful in most suitable habitats, especially protected areas hunted for meat “tusks” of commercial value, <u>beneficial to fish industry</u> ; can be destructive to crops and even fisher men when molested.	

➤ **Genus:** **Genus Cheoropsis (P. Hippopotamus)**

General Taxonomic Characters: General shape like common hippo, but size very much reduced; pig – like in appearance eyes placed on side of head; body almost hairless, expect a few bristles on lips; incisors and canines not well developed like in common Hippo, one pair of upper incisors; back arched; legs short with digits spread out; one species in the genus.

Items	<i><u>Choeropsis liberiensis</u></i>	
Body structure	SH: 75 – 100cm; HB: 150 – 180cm, T; 16cm, WT: 160 – 272kg other taxonomic characters like in the genus.	
Geographical distribution	Sierra Leone, Guinea, Liberia, Ivory Coast and possibly but doubtful in Nigeria in the Delta Of River Niger.	
Habitat preferences	Swampy forests – along streams and creeks in high lowland	

	forests.	
Feeding habit	Browser and Grazer, feeding on shoots, roots, grasses and fruits.	
Reproduction	L. S. I young; GP: 201 – 210 days; life span 17 – 40 years	

Genus: _____

General Taxonomic Characters:

Choeropsis (continued)

Items	<i>Choeropsis liberiensis</i>	
Behavior	Secretive animals – little is known of their habits. less aquatic than common hippo; live singly or in pairs, but more solitary; when alarmed, run into forest swampy thickets as opposed to common hippo which run into water. Nocturnal.	
Economic status	Numbers very much reduced – rare animal to see; hunted for meat where found – although completely protected in most countries where found.	

➤ **Genus:** **Hyemoschus (water Chevretain)**

General Taxonomic Characters:

As in family

Items	<i>Hyemoschus Aquaticus (water chevretain)</i>	
Body structure	SH: 30 – 36cm; HB: 91 – 102cm; T: 5.5cm; WT: 14 – 16kg; other taxonomic characters like family genus.	
Geographical distribution	Sierra Leone, Liberia, Ivory Coast; Ghana; Togo; Republic of Benin; Nigeria; Cameroun, Gabon; Central African Republic; Congo (Brazaville) and Western Uganda.	
Habitat preferences	Mostly browsers; feeding on fruits, leaves. Seeds and water weeds. Diet also consist of animal matter like fish, insects and flesh of dead animal omnivorous.	
Reproduction	Litter size of I young; Gestation period of about 120 days; life span unknown animal not well studies.	

Genus: Hyemoschus

General Taxonomic Characters:

Items	<i>H. Aquatiouas (Water Chevrotain)</i>	
Behaviour	Semi- aquatic; shy animals – plunging in water when alarmed; good swimmers, nocturnal and solitary (expect during breeding season when male and female pair).	
Economic status	Population status not well documented but probably still found in few numbers; hunted for meat where found	

--	--	--