

I B.Sc., ZOOLOGY, II SEMESTER (W.E.F. 2017-18)
PAPER II –ANIMAL DIVERSITY II
(PROTOCHORDATA TO MAMMALIA PRACTICAL SYLLABUS)

Dissections-Scoliodon III, VII, IX and X Cranial nerves (Only Demonstration -
Mounting of Placoid scales of Scoliodon III Identification of slides/spotters

1. Protochordata : Herdmania, Amphioxus, Amphioxus T.S through pharynx.

2. Cyclostomata : Petromyzon and Myxine.

3. Pisces : Pristis, Torpedo, Hippocoampus ,Exocoetus, Echeneis, Labeo, Catla, Clarius, Channa, Anguilla.

4. Amphibia : Ichthyophis, Amblystoma, Axolotl larva, Hyla,

5. Reptilia: Draco, Chamaeleon, Uromastix, Testudo, Trionyx, Russels viper, Naja, Krait, Hydrophis, Crocodile.

6. Aves : Psittacula, Eudynamis, Bubo, Alcedo.

7. Mammalia: Ornithorhynchus, Pteropus, Funambulus.

PROTOCHORDATA

1 .HERDMANIA

GENERAL NAME: ASCIDIAN

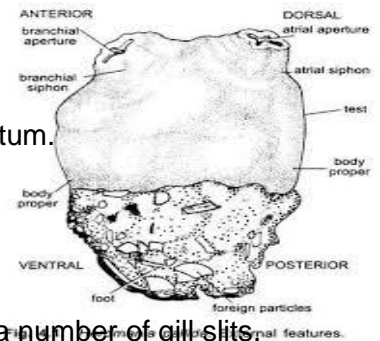
PHYLLUM: CHORDATA
SUB PHYLLUM: TUNICATA/
UROCHORDATA
CLASS: ASCIDIACEA

Habits and Habitat :

Herdmania pallida is a solitary marine form found in shallow waters along the Indian sea coast. Each animal is found attached to the substratum usually separately, at its postero -ventral end by means of a foot

CHARATERISTICS:

1. Solitary marine sedentary organism found attached to a solid substratum.
2. Body is encircled by a tunicin made test.
3. Free end bears a branchiogenital and atrial openings.
4. Alimentary canal has anteriorly located wide pharyngeal basket with a number of gill slits.
5. Intestine forms a loop and opens into the atrial chamber through anus.
6. Neural gland acts as an organ of excretion and is located just above the ganglion.
7. Bisexual or hermaphrodites enclosing male and female gonads near to the stomach.
8. Food is composed of micro organisms and are collected by using cilia through filter feeding mechanism.
9. Life circle includes a free swimming and well organized tadpole larva having all the important chordate features.
- 10.Larva undergoes retrogressive metamorphosis and transforms into a lowly or poorly organized adult.



Identifyng features:

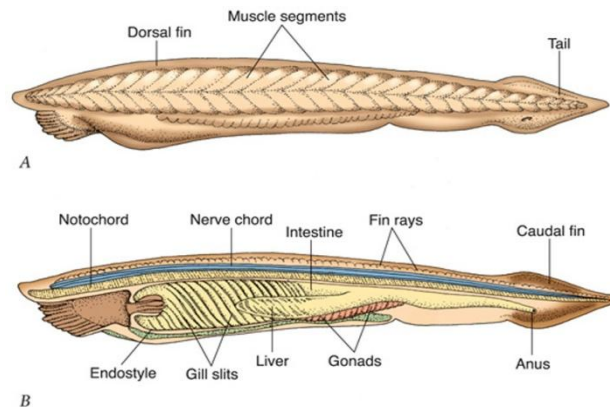
The presence of bright red patches, formed of terminal knobs (ampullae) in the blood vessels of the test, is a **characteristic feature of Herdmania**. The test is soft and leathery. It is more or less transparent in a young animal, but in an adult becomes usually opaque.

2. BRANCHIOSTOMA LANCEOLATUM

GENERAL NAME: AMPHIOXUS

PHYLUM: CHORDATA
SUB PHYLUM: TUNICATA/
UROCHORDATA
CLASS: ASCIDIACEA

Habitat, Habit : External Features of **Amphioxus** The lancelet is found in shallow coastal waters around the Mediterranean, the North sea and the English Channel.



CHARACTERS:

1. Transparent and burrowing fish like organism commonly seen in marine waters.
2. Anteroposteriorly elongated body has lancet(pointed) ends.
3. Body is laterally compressed with organs arranged on bilateral symmetry.
4. Anterior pointed end is the rostrum. Just below to it and towards entrance side iss the special tentacular structure called wheelorgan.
5. On either side of the body,the epidermis droops down into the metaplural folds.
6. Internally, an anterioposteriorly elongated flexible rod like notochord lies on the mid dorsal side.
7. Pharynx in the elementary canal is basket like with a number of gillslits and helps in conducting both nutritive and respiratory functions.
8. Body has a dorsal, caudal and a ventral fins in continuation of one another.they also help in locomotion.
9. Ventrally , atrial opening lies in between the metaplural folds through which water and other products of excretion goes out.
10. 21 pairs of gonads are present near to the myotomes.
11. Unisexual organisms without sexual dimorphism. Development is external and life cycle is indirect involving a free swimming larval form undergoing progressive metamorphosis.

Identifyng features:

They are grouped in two genera—Branchiostoma (also called **Amphioxus**) and Epigonichthyes (also called Asymmetron)—with about two dozen species. The chordate **features**—the notochord (or stiffening rod), gill slits, and dorsal nerve cord—appear in the larvae and persist into adulthood

3. AMPHIOXUS- T.S THROUGH PHARYNX

CHARACTERS:

1. In transverse section, amphioxus appears triangular in outline with a pointed dorsal side and a wide ventral side.
2. Ventrolaterally, epidermis droops has metaplural folds with loose hold of skin inbetween.
3. Epidermis is composed of simple columnar epithelium.
4. On the mid dorsal side, a dorsal fin with fin rays is seen.
5. Muscles are arranged in the form of myotomes extending between dorso- lateral to ventral side of the body.
6. Just below the dorsal fin, the sections of the tubular nerve cord, notochord and dorsal blood vessel are seen lying one below the other.
7. Notochord is composed of vacuolar tissue surrounded by notochordal sheath.
8. Pharynx lying in the space between the myotomes is laterally compressed and possess a number of gillslits.
9. Gonads are present on the ventrolateral sides sides of the pharynx.
10. Atrial cavity encircles the pharynx and gonads on all sides.
11. Coelom extends as dorsal coelomic canals on either side of the supra-pharyngeal groove.
12. Hepatic diverticulum extends below the atrial cavity.
13. Cavity present around the intestinal tube is the atrial cavity.
14. Ectoderm grows as metaplural folds on the ventral side of the animal.

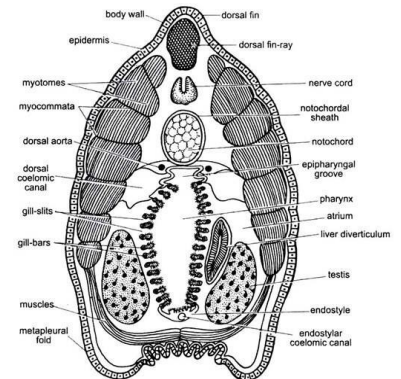


Fig. 6.7. T.S. of *Branchiostoma* through posterior region of pharynx showing dorsal coelomic canals, endostylar coelomic canal, testes and liver diverticulum.

CYCLOSTOMATA

4. PETROMYZON MARINUS

GENERAL NAME: LAMPREY

PHYLUM: CHORDATA
SUB-PHY: VERTEBRATA
CLASS: AGNATHA

Habit and habitat :

Hagfishes are exclusively marine and spend most of the time in burrows excavated in sand or mud and usually devour polychaete worms and dead fishes. The sucking apparatus is highly developed in hagfishes. Hagfishes are nocturnal animals.

CHARACTERS:

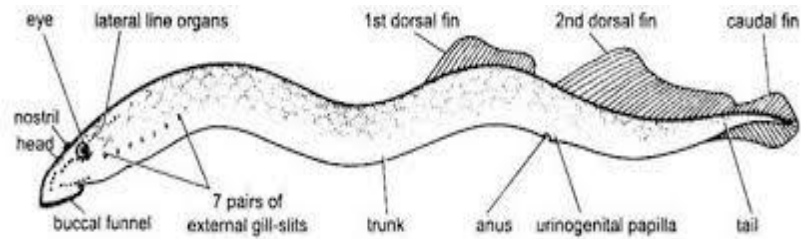


Fig. 11.2. *Petromyzon marinus*. External features.

1. It is a long, cylindrical, free swimming, marine organism resembling fish.
2. It measures about one meter in length with laterally compressed posterior half of the body.
3. Body is divided into a head, trunk and tail.
4. External surface of the body is smooth and is surrounded by rich amounts of mucous.
5. Body is dark in colour due to high pigmentation and is devoid of scales.
6. Anterio-ventral side of the head has a buccal funnel. Its rim bears a powerful sphinctor muscle.
7. The muscle acts as a sucker and helps in holding to the host firmly.
8. Head grows over the funnel as a lid or cap.
9. A number of horny teeth are present in the buccal funnel. teeth are arranged in circles.
10. A pair of small lateral eyes present over the head are function.
11. A single lateral opening is present at the mid dorsal side of the body.
12. 7 pairs of gill slits are present on either sides of the pharynx. Pharynx with gill slits appers as a pharyngeal basket.
13. The dorsal, ventral and caudal fins are unpaired, undivided and are supported by cartilaginous fin rays.

Identifying features :

Hagfish have elongated, eel-like bodies, and [paddle-like tails](#). The skin is naked and covers the body like a loosely fitting sock. They have [cartilaginous skulls](#) (although the part surrounding the brain is composed primarily of a fibrous sheath) and [tooth-like](#) structures composed of [keratin](#). [Colors](#) depend on the [species](#), ranging from [pink](#) to [blue-grey](#).

5. MYXIENE GLUTINOSA

GENERAL NAME: HAG FISH

PHYLUM: CHORDATA
SUB-PHY: VERTEBRATA
CLASS: AGNATHA

Habit and habitat :

Found on muddy bottoms where they hide in the mud. Slime is used for defense. Feeds chiefly on dead and dying fish of varying species by boring into the body and consuming viscera and musculature. Chiefly nocturnal. Its eggs are few in number about 19-30 and large (20-25 mm), the horny shell has a cluster of anchor-tipped filaments at each end.

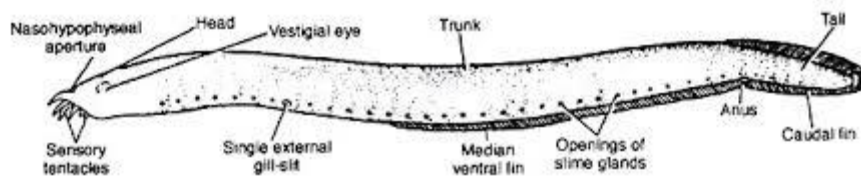


Fig. 1.18 : Myxine

CHARACTERS:

1. It is universally distributed nocturnal organism living at the sea bottoms.
2. Body is ribbon like because of laterally compressed body.
3. External surface is smooth and scaleless. It is surrounded by heavy quantities of mucous
4. Mouth at the antero-posterior end bears a pair of soft lips.
5. Neither buccal funnel nor horny teeth are present in the adult organism.
6. Mouth is surrounded by 4 pairs of smooth tentacles supported by gill bars.
7. A single dorsal nasal opening near to the mouth, a pair of vestigial lateral eyes, undivided dorsal, caudal and ventral unpaired fins, mucous opening along the ventrolateral sides of the body, and posterior ventrally located anal opening are the salient external features.
8. Internally, 6 pairs of gill slits on the sides of the pharynx, bisexual nature of the gonad having anterior ovary and posterior testis are the special features.

Identifying features :

Jawless mouth, single nasal aperture, only a single pair of external gill openings, no operculum or covering fold of skin. Grayish or reddish brown above, either plain. Variations in color correspond to the color of the sea bottom

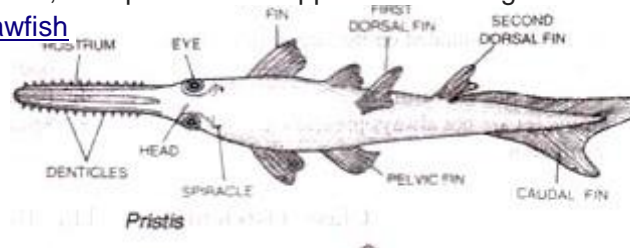
PISCES

6. PRISTIS

GENERAL NAME: SAW FISH

Habit and habitat :

Adults are primarily found in [estuaries](#) and marine waters to a depth of 25 m (82 ft),^[5] but mostly less than 10 m (33 ft).^{[1][16]} Nevertheless, the species does appear to have a greater affinity for freshwater habitats than the [smalltooth sawfish](#)



CHARACTERS:

1. Free living marine from commonly occurring in temperate and tropical seas.
2. Grows to a size of 3 to 6m and possess laterally compressed body.
3. Head is flattened dorsoventrally with an elongated rostrum with pointed and sharp teeth.
4. Toothed knife like rostrum is used for protection against predators.
5. Head bears a pair of lateral eyes at the base of rostrum.
6. A pair of branchial openings are present on either side of the pharyngeal region.
7. Tail is provided with heterocercal tail fin.
8. Body has paired pectoral, pelvic fins besides a dorsal, a ventral and an adipose fin.
9. This fish is a predator leading viviparous life
10. Oil extracted from the liver of this fish has medicinal value and hence is economically important.

IDENTIFYING FEATURES

The largetooth sawfish is easily recognized by the forward position of the [dorsal fin](#) with its leading edge placed clearly in front of the leading edge of the [pelvic fins](#) (when the sawfish is seen from above or the side), the relatively long [pectoral fins](#) with angular tips, and the presence of a small lower tail lobe. In all other sawfish species the leading edge of their dorsal fin is placed at, or behind, the leading edge of the pelvic fins, and all other [Pristis](#) sawfish species have shorter pectoral fins with less pointed tips and lack a distinct lower tail lobe (very small or none)

PHYLUM: CHORDATA

SUB-PHY:

NATHOSTOMATA

CLASS: CHONDRICHTHYES

7. TORPEDO

GENERAL NAME: ELECTRIC FISH

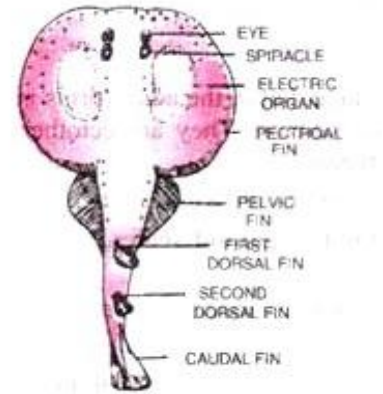
PHYLUM: CHORDATA

SUB-PHY: VERTEBRATA

CLASS: CHONDRICHTHYES

Habit and habitat :

Electric rays are found from shallow coastal waters down to at least 1,000 m (3,300 ft) deep. They are sluggish and slow-moving, propelling themselves with their tails, not by using their pectoral fins as other rays do. They feed on invertebrates and small fish. They lie in wait for prey below the sand or other substrate, using their electricity to stun and capture



Torpedo

CHARACTERS:

1. A common deep water living carnivorous fish seen on the sea bottoms of Mediterranean seas etc;
2. Body is compressed dorso ventrally with an anterior half moon shaped disc like head.
3. Body is covered by smooth and unscaled skin.
4. The anterior disc is supported internally by a cartilagenous endoskeleton.
5. Paired eyes and respiratory openings are present on dorsal side.
6. Mouth is a wide transverse on the anteroventral side of the head.
7. A pair of electric organs are present at the base of the eyes on either side of the body.
8. They are innervated by the branches of 7, 9 and 10th cranial nerves.
9. Their dorsal surface acts as a positive pole and ventral side as a negative pole.
10. At the lower margin of the disc lies a pair of pectoral fins.
11. Tail is short and has a tail fins.
12. A pair of dorsal fins are present on the dorsal sides of the trunk.

IDENTIFYING FEATURES

The anterior disc is supported internally by a cartilagenous endoskeleton. The hexagonal unit of these electric organs are located with mucos and release current to protect themselves from the predators

9. HIPPOCAMPUS

GENERAL NAME: SEA HORSE

Habit and habitat :

Seahorses are mainly found in shallow tropical and temperate salt water throughout the world,

from about 45°S to 45°N.^[6] They live in sheltered areas such as [seagrass](#) beds, [estuaries](#), [coral reefs](#), and [mangroves](#). Four species are found in Pacific waters from [North America](#) to [South America](#). In the Atlantic, *Hippocampus erectus* ranges from [Nova Scotia](#) to [Uruguay](#). *H. zosterae*, known as the dwarf seahorse, is found in the [Bahamas](#). Colonies have been found in European waters such as the [Mediterranean Sea](#): *H. guttulatus* (the long-snouted seahorse), (the short-snouted seahorse), and *H. fuscus* (the sea pony). These species form territories; males stay within 1 m² (10 sq ft) of habitat, while females range over about one hundred times .

CHARACTERS:

1. It is a flying fish moving speedily over water surfaces to a short distance.this fish is very common in the salt waters of Indian ocean etc;
- 2 .Head at the anterior end resembles the head of the horse.
3. head has an elongated snout or rostrum with a terminal mouth opening.
4. anterior margin of the head is like a crown giving it the horse head and its neck.
- 5 .Pectoral fins are located at the junction of the head and neck.
6. Gills are covered by the operculum.
7. dorsal fins is enlarged on one side while the caudal and ventral fins are absent.
8. pelvic fins are transparent.
9. Males have a brood pouch just opposite to the dorsal fin at the junction of the trunk; tail.
10. Tail is prehensile and helps in the slow and the ventral locomotion of organism.

IDENTIFYING FEATURES

Sea-horse (also written sea-horse and sea horse) is the name given to 45 species of small marine fish in the genus Hippocampus. ... Having a head and neck suggestive of a horse, seahorses also feature segmented bony armour, an upright posture and a curled prehensile ta

PHYLUM: CHORDATA
SUB-PHY: VERTEBRATA
CLASS: OSTEICHTHYES

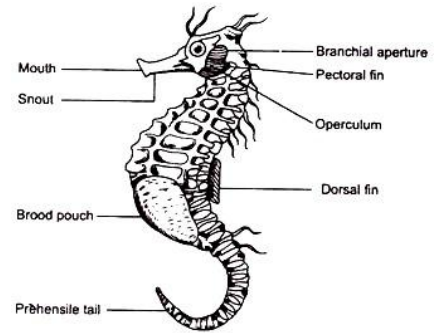
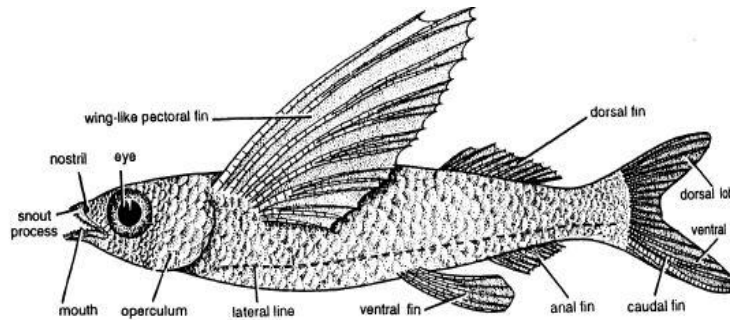


Fig. 17.9 : Parental care a male Hippocampus

9. EXOCOETUS

GENERAL NAME: FLYING FISH

PHYLUM: CHORDATA
SUB-PHY: VERTEBRATA
CLASS: OSTEICHTHYES



Exocoetus

Habit and habitat :

Exocoetus volitans is present in the tropical and subtropical zones of all the world's oceans. Numerous morphological features give flying fish the ability to leap above the surface of the ocean. One such feature is fully broadened [neural arches](#), which act as insertion sites for [connective tissues](#) and ligaments in a fish's skeleton.

CHARACTERS:

1. It is common in salt waters of Indian ocean; pacific; atlantic.
2. Body is long and laterally compressed with a homocercal tail fin.
3. Head at its anteroventral side possess a small mouth supported by toothed jaws.
4. Eyes are conspicuous on either side of the head.
5. Body is covered by cycloid scales. Dorsal and ventral fins are supported by fin rays.
6. Gills are covered by a bony operculum.
7. Pelvic fins also enlarged into wings for flying over water surface.
8. These fishes have nutritious valve.

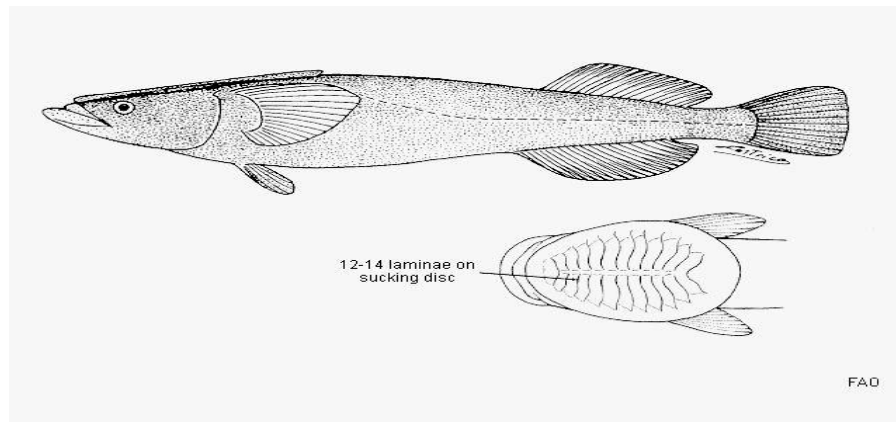
IDENTIFYING FEATURES

Exocoetus is a [genus](#) of [flying fishes](#). It is a bony fish. The body is covered with cycloid scales. The mouth is wide, and the jaws bear teeth. It is a marine fish. The tail has hypobatic fins as the ventral lobe. Exocoetus is a genus of flying fishes. It is a bony fish. The body is covered with cycloid scales. The mouth is wide, and the jaws bear teeth. It is a marine fish. The tail has hypobatic fins as the ventral lobe

PHYLUM: CHORDATA
SUB-PHY: VERTEBRATA
CLASS: OSTEICHTHYES

9. ECHINEIS

GENERAL NAME : SUCKER FISH



Habit and habitat :

Echeneis naucrates are often present in shallow inshore brackish areas, as well as around coral reefs. They are found at depths ranging from 20-50 meters, which is where the coral reefs are located.

CHARACTERS:

1. Lengthy body is laterally compressed and is covered by microscopic scales.
2. eyes are small and are lateral on the head and it a pair of terminal nostrils.
3. Mouth is wide opening at the antero- dorsal of the head.
4. Operculum is located at the junction of the head and trunk. A pair of pectoral fins are near the operculum. Pelvic fins are also located at the same region on the ventral side.
5. Tail fin is of homocercal type.
6. Air bladder is absent but the epi-clavicle is reduced.
7. These fishes move from place-place by attaching with the larger fishes, logs but they are not parasites.

IDENTIFYING FEATURES

E. naucrates is a medium-sized [fish](#) which can grow up to 110 cm (43 in) length.^[11] Its body is elongated and streamlined, and its lower jaw is clearly [prognathic](#)(it projects forward well beyond the upper jaw).^[9] The jaws, [vomer](#) and tongue have villiform teeth.^[9] The main distinctive feature to distinguish from other [fishes](#) is the oval-shaped sucking disc, which is a highly modified dorsal fin positioned from the top of the head to the anterior part of the body

11. LABEO ROHITA

GENERAL NAME: ROHU

PHYLUM: CHORDATA
SUB-PHY: VERTEBRATA
CLASS: OSTEICHTHYES

Habit and habitat : The rohu occurs in rivers throughout much of northern and central and eastern [India](#),^[3] [Pakistan](#), [Bangladesh](#), [Nepal](#) and [Myanmar](#), and has been [introduced](#) into some of the rivers of Peninsular India and [Sri Lanka](#)

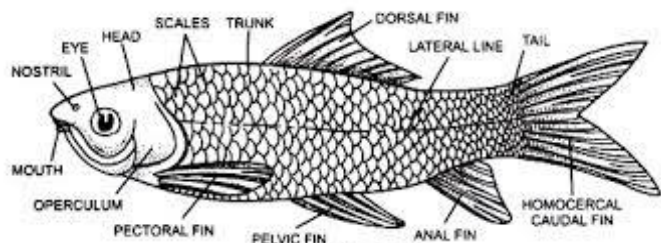


Fig. 9.1. *Labeo rohita*.

CHARACTERS:

1. Fish grows to about 1 meter and weighs about 4-5 kg.
2. Body is spindle shaped and laterally compressed.
3. Gray coloured body is covered by cycloid scales.
4. Body is divided into a head, trunk and tail. Neck is absent.
5. Head has a dorsoventrally flattened snout. Mouth is surrounded by slender and fleshy lips.
6. Eyes are lateral and prominent and nostrils are antero-terminal.
7. A pair of long cirri arise from the upper lip.
8. Gills and gill chamber are covered by operculum.
9. Lateral line sense organs are prominent and are seen on the lateral sides of the body.
10. Ampullae of lorenzini, located in the lateral line open out through small openings.

IDENTIFYING FEATURES

The rohu is a large, silver-colored fish of typical [cyprinid](#) shape, with a conspicuously arched head. Adults can reach a maximum weight of 45 kg (99 lb) and maximum length of 2 m (6.6 ft),^[2] but average around ½ m (1.6 ft)

12.CATLA - CATLA

GENERAL NAME: CATLA

PHYLUM: CHORDATA
SUB-PHY: VERTEBRATA
CLASS: OSTEICHTHYES

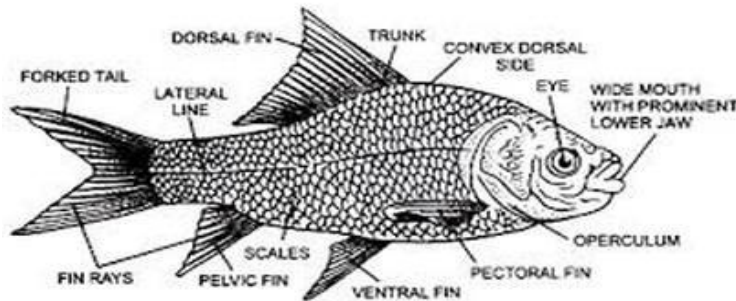


Fig. 9.3. *Catla catla*.

Habit and Habitat:

Catla is non predatory and its feeding is restricted to the surface and mid waters. It is abundantly found in the Buriganga, Meghna and other principal rivers of Bangladesh. It resides in fresh or brackish water, being found within the tidal influences (Day, 1889)

CHARACTERS:

1. these fishes feed on zooplankton, algal cells, water plants, rotifers and small crustaceans.
2. Head is prominent and large with antero-dorsal mouth surrounded by unfolded lips.
3. Trunk is wide and stout. It grows to the maximum size and attains sexual maturity in 2 years.
4. Body is covered by cycloid scales. Eyes are prominent and nostrils are small.
5. Dorsal fin is supported by 14-16 fin rays.
6. Tail fin is of homocercal type.
7. Oviparous organisms with external fertilization and direct development.
8. Catla is a surface and midwater feeder

IDENTIFYING FEATURES

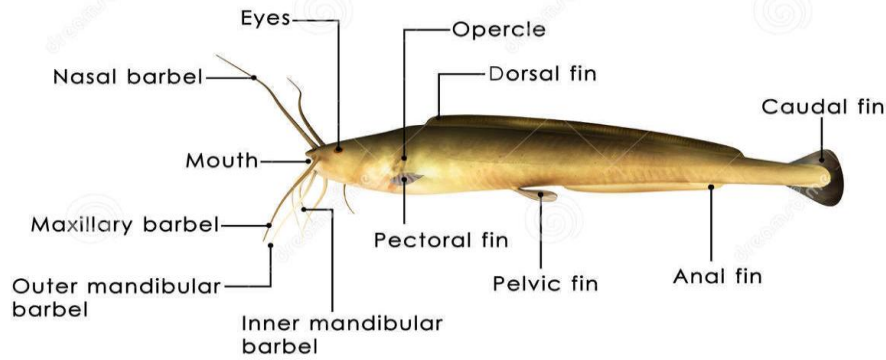
Catla is a fish with large and broad head, a large protruding lower jaw, and upturned mouth. It has large, greyish scales on its dorsal side and whitish on its belly. It reaches up to 182 cm (6.0 ft) in length and 38.6 kg (85 lb) in weight.^[2]

Catla is a surface and midwater feeder. Adults feed on zooplankton using large gill rakers, but young ones on both zooplankton and phytoplankton. Catla attains sexual maturity at an average age of two years and an average weight of 2 kg

13.CLARIUS

GENERAL NAME: CLIMBING PERCH

PHYLUM: CHORDATA
SUB-PHY: VERTEBRATA
CLASS: OSTEICHTHYES



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Habit and habitat :

The walking catfish is a [tropical](#) species native to [Southeast Asia](#). The native range of true *Clarias batrachus* is only confirmed from the [Indonesian](#) island of [Java](#), but three closely related and more widespread species have frequently been confused with this species

CHARACTERS:

1. Body is laterally compressed with a pair of lateral eyes, a pair of terminal nostrils, 4 pairs of long cirri, accessory respiratory chambers, spiny pectoral fins, dorsal and caudal fins along the margins of the body circular lobe like diphyccercal tail fin, gray coloured body, lateral lines supported by bony plates.
2. This predacious fish grows to a size of about 45cm.
3. Scaleless skin is soft and smooth in texture.
4. Air bladder is physostomous type having connection with the lungs.
5. Internal ear consists of webarian oscicles.

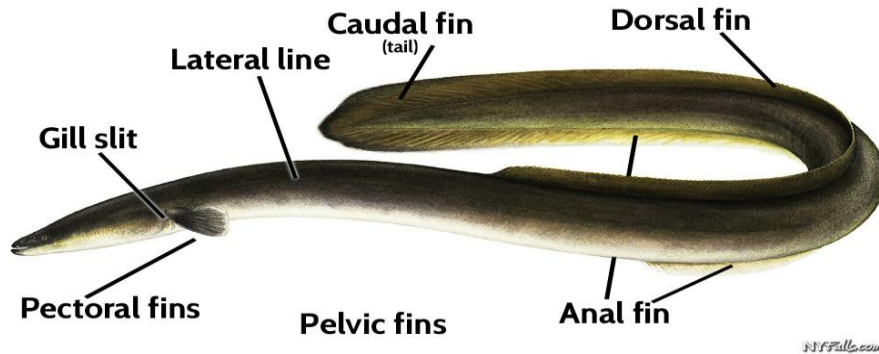
Identification features:

Clarias species are recognized by their long-based dorsal and anal fins, which give them a rather eel-like appearance. These fish have slender bodies, a flat, bony head, and a broad, terminal mouth with four pairs of barbels. They also have a large, accessory breathing organ composed of modified gill arche

1. ANGUILLA ANGUILLA

GENERAL NAME: EEL FISH

PHYLUM: CHORDATA
SUB-PHY: VERTEBRATA
CLASS: OSTEICHTHYES



HABIT AND HABITAT :

The **Anguillidae** are a [family](#) of [ray-finned fish](#) that contains the **freshwater eels**. Eighteen of the 19 [extant](#) species and six subspecies in this family are in the genus **Anguilla**. They are elongated fish with snake-like bodies, their long dorsal, caudal and anal fins forming a continuous fringe. They are [catadromous](#) fish, spending their adult lives in fresh water, but migrating to the ocean to [spawn](#). Eels are an important food fish and some species are now [farm-raised](#), but not bred in captivity. Many populations in the wild are now threatened, and [Seafood Watch](#) recommend consumers avoid eating anguillid eels.

CHARACTERS:

1. Mouth is antero dorsal.
2. Gills in the pharyngeal region are covered by an operculum.
3. Dorsal, caudal and ventral fins are thin and continuous along the margins of the body.
4. Microscopic scales are present over the body and are arranged in special fashion.
5. Air bladder is physostomous and opens into the pharynx through glottis but has no special role in aerial respiration.
6. Paired pectoral fins are near the operculum but the pelvic fins are absent.
7. This fish migrates into the sea for breeding and hence migration is of catadromous type.
8. Cranium is cartilaginous and jaws are without maxillae. Lower jaw is with mandibular plates. Jaw suspensorium is of autostylic type.

IDENTIFICATION FEATURES:

Mouth is antero dorsal. Gills in the pharyngeal region are covered by an operculum.

Dorsal, caudal and ventral fins are thin and continuous along the margins of the body.

14. CHANNA PUNCTATUS

GENERAL NAME: SNAKEHEAD FISH

PHYLUM: CHORDATA
SUB-PHY: VERTEBRATA
CLASS: OSTEICHTHYES

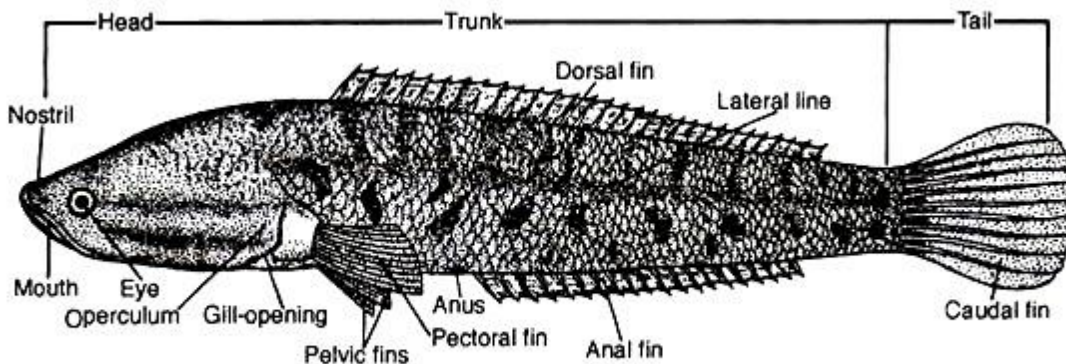


Fig. 1.49 : External features of *Channa punctatus*

HABIT AND HABITAT :

The species is mainly a carnivore. Favorite food of this species is other small fishes, yolk flies and fish larvae. In its natural habitat, it consumes crustaceans, molluscs, insects, small fishes, semi-digested materials and sometimes plants. Its feeding habit changes seasonally. The intensity of feeding is low in mature fishes during the spawning period. Juvenile fish has constant habit of food

CHARACTERS:

1. Fresh water organisms having food value.
2. Body is long and serpentine. The entire body is covered by mucus secretion and hence slimy to touch.
3. Head is dorsoventrally flattened and bears a terminal wide mouth.
4. Oviparous organism producing large number of eggs during breeding seasons.
5. Skin is embedded with other fishes in artificial ponds.
6. Dorsal and ventral fins extend all along the body from anterior to the posterior end.
7. The organism possess accessory respiratory organs.
8. These are grown along with other fishes in artificial ponds.

IDENTIFICATION FEATURES:

Channa punctata, the spotted snakehead, is a species of snakehead. It is found in the Indian Subcontinent and nearby areas, ranging across Afghanistan, Pakistan, India, Sri Lanka, Nepal, Bangladesh, Myanmar and Tibet. Its natural habitats are swamps, ponds and brackish water systems.

16. AMPHIBIA

16. ICHTHYOPHIS GIUTINOSA

GENERAL NAME: LIMBLESS AMPHIBIAN / CICILIA

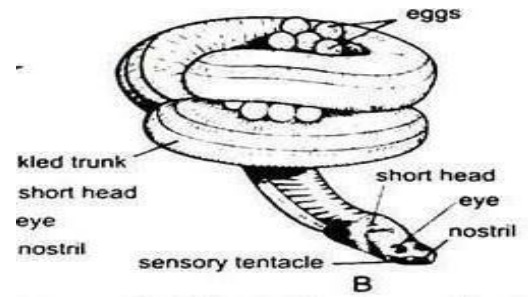
PHYLUM: CHORDATA
SUB-PHY: VERTEBRATA
CLASS: AMPHIBIA

HABIT AND HABITAT :

Ichthyophis is a genus of caecilians found in Southeast Asia, the southern Philippines, and the western Indo-Australian Archipelago. In Sri Lanka, three species occur, and all are found in almost all habitats, preferring moister ones.

CHARACTERS:

1. These are dark coloured burrowing organisms commonly seen in moist soils.
2. Skin is provided with a small placoid scales and allergy producing squirt glands.
3. Eyes are small and covered by a fold of skin.
4. A short tentacle is present in between the eye and nostril.
5. Both limbs and girdles are absent.
6. Vertebrae are of amphicoelous type.
7. Respiratory system consists of a long trachea and lungs for terrestrial respiration. Left lung is reduced.
8. Anus at the junction of the trunk and tail on the ventral side of the body.
9. Cloaca comes out as male genital organ during breeding seasons. Fertilization is internal but development is external.
10. Females curl around the yolky eggs and take care of them till they hatch out into larval forms.
11. Presence of a tri-chambered heart, urino-genital system and eversible cloaca are the advanced features of these organisms.
12. Scaly skin, reduced eyes, absence of limbs and girdles are the primitive features of these amphibians.



IDENTIFICATION FEATURES:

Ichthyophis is a genus of [caecilians](#) (limbless amphibians, sometimes called the **Asian caecilians**) found in [Southeast Asia](#), the southern [Philippines](#), and the western Indo-Australian Archipelago.

In Sri Lanka, three species occur, and all are found in almost all habitats, preferring moister ones. The most common is *Ichthyophis glutinosus*, which is found in almost all altitudes; the others are *I. orthoplicatus*, which is found in similar habitat.

17. AMBYLOSTOMA TIGRINUM
GENERAL NAME: TIGERSALAMANER

PHYLUM: CHORDATA
SUB-PHY: VERTEBRATA
CLASS: AMPHIBIA

HABIT AND HABITAT :

Mole salamanders are found in south eastern lowland areas of the Gulf Coastal Plains of the United States. Their main range extends from eastern Texas to southern South Carolina and inland as far as southern Illinois. There is also a small isolated population within the southernmost tip of Indiana. They inhabit floodplain pine or broadleaf forests, especially near gum and cypress ponds. Adults live under the surface of leaf litter while larvae are aquatic and found in ponds and ephemeral, fish-free waters

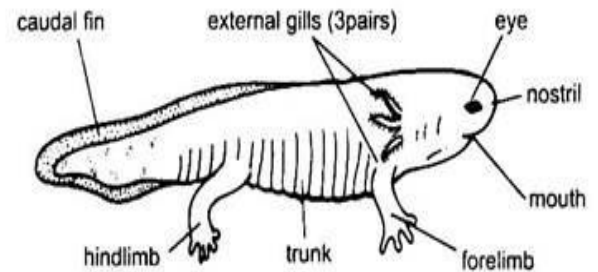


Fig. 20.3. Axolotl larva of *Amblystoma tigrinum* (tiger salamander).

CHARACTERS:

1. It is a tailed amphibian with lizard like appearance and deep colored patches over the body.
2. Body is divisible into a head, a neck, a trunk and a tail.
3. Skin is not provided with scales. Tympanic cavity and auditory ossicles are also absent.
4. Fore limbs and hind limbs are weak. Both gills and fins are absent on the body.
5. Eyes are small on the head.
6. Skin is wrinkled and is provided with poisonous paratoid glands.
7. Vertebrae are of amphicoelous type. Fertilization is internal.
8. Development includes a free swimming neotenic larval form called Axolotl larva.
9. Larvae are capable of reproducing by sexual means even before they undergo metamorphosis. Such condition is called neoteny or paedogenesis.

IDENTIFICATION FEATURES:

Adults are rarely seen in the open, and often live in burrows that are usually two feet from the surface. Tiger salamanders are almost entirely terrestrial as adults, and usually only return to the water to breed. Although tiger salamanders are terrestrial, they are good swimmers. Like all [ambystomatids](#), they are extremely loyal to their birthplaces, and will travel long distances to reach them

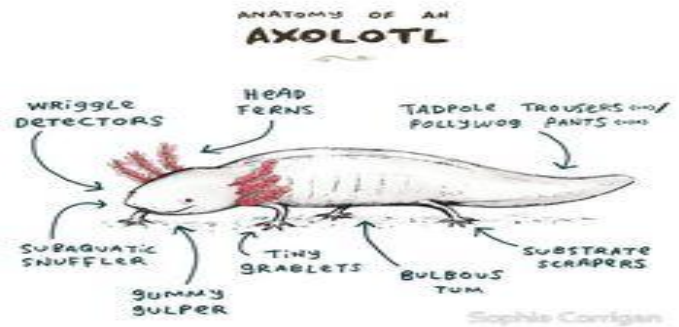
18. AXOLOTL LARVA

GENERAL NAME: NEOTENOUS LARVA

PHYLUM: CHORDATA
SUB-PHY: VERTEBRATA
CLASS: AMPHIBIA

HABIT AND HABITAT:

The axolotl is only native to [Lake Xochimilco](#) and [Lake Chalco](#) in the [Valley of Mexico](#). Lake Chalco no longer exists, having been drained as a flood control measure, and Lake Xochimilco remains a remnant of its former self, existing mainly as canals. The water temperature in Xochimilco rarely rises above 20 °C (68 °F), though it may fall to 6 to 7 °C in the winter, and perhaps lower



CHARACTERS:

1. This is the larval form in the life history of salamander.
2. Body is long and dorsoventrally flattened.
3. The wide head is provided with small pair of lateral eyes and a terminal mouth.
4. Forelimbs and hindlimbs are weak and are not useful in locomotion.
5. Tail is finned and helps in locomotion.
6. Three pairs of external gills and four pairs of gill slits are present near the neck.
7. Larva can reproduce sexually even without undergoing metamorphosis. Such a phenomenon is called neoteny or paedogenesis.

IDENTIFYING FEATURES:

their heads are wide, and their eyes are lidless. Their limbs are underdeveloped and possess long, thin digits. Males are identified by their swollen [cloacae](#) lined with papillae, while females are noticeable for their wider bodies full of eggs. Three pairs of [external gill stalks](#) ([rami](#)) originate behind their heads and are used to move oxygenated water. The external gill rami are lined with filaments (fimbriae) to increase surface area for gas exchange

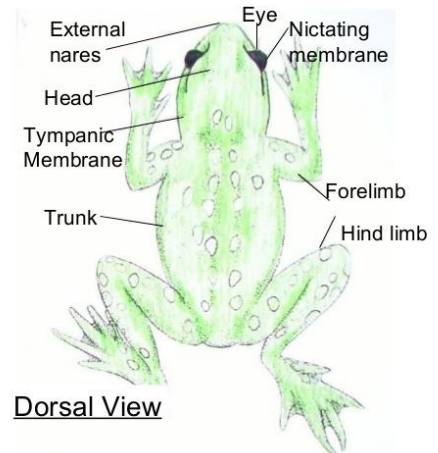
19. HYLARBOREA

GENERAL NAME: TREE TOA

PHYLUM: CHORDATA
SUB-PHY: VERTEBRATA
CLASS: AMPHIBIA

HABIT AND HABITAT:

European tree frogs are small; males range from 32–43 mm (1.3–1.7 in) in length, and females range from 40–50 mm (1.6–2.0 in) in length. They are slender, with long legs.^[4] Their dorsal skin is smooth, while their ventral skin is granular. Their dorsal skin can be green, gray, or tan depending on the temperature, humidity, or their mood. Their ventral skin is a whitish color, and the dorsal and ventral skin is separated by a dark brown lateral stripe from the eyes to the groin. Females have white throats, while males have golden brown throats^[7] with large (folded) vocal sacs.



CHARACTERS:

1. Light green coloured , smooth gelatinous skinned lean and light bodied frog living on the trunks and logs of wood.
2. Limbs are considerably long when compared to that of frog.
3. Fingers end in adhesive pads to help in getting firm grip on the substratum.
4. Ventral surface of the body is granular with hygroscopic glands producing mucous.
5. Upper jaw is toothed but lower jaw is edentate(without teeth).
6. Nocturnal organisms move quickly over the trunks by leaping.
7. Thin web between the fingers help in keeping in air.
8. Eyes are conspicuous with transverse pupil.
9. Fertilization is external.
10. Males possess vocal sacs producing a peculiar sound.

IDENTIFYING FEATURES:

European tree frogs are small; males range from 32–43 mm (1.3–1.7 in) in length, and females range from 40–50 mm (1.6–2.0 in) in length. They are slender, with long legs.^[4] Their dorsal skin is smooth, while their ventral skin is granular. Their dorsal skin can be green, gray, or tan depending on the temperature, humidity, or their mood. Their ventral skin is a whitish color, and the dorsal and ventral skin is separated by a dark brown lateral stripe from the eyes to the groin. Females have white throats, while males have golden brown throats^[7] with large (folded) vocal sacs. The head of *H. arborea* is rounded, the lip drops strongly, the pupil has the shape of a horizontal ellipse, and the tympanum is clearly recognizable.

REPTILIA

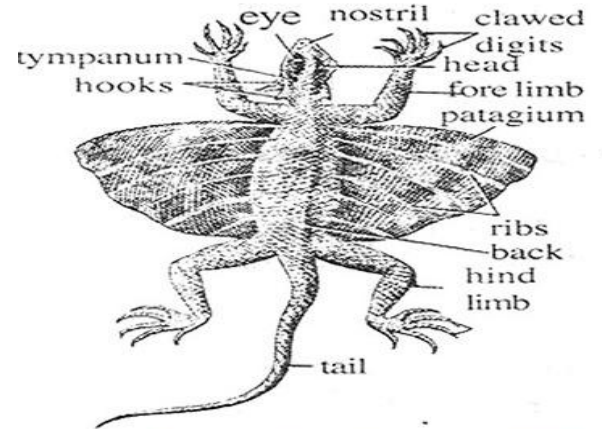
20.DRACO

GENERAL NAME : FLYING LIZARD

PHYLUM: CHORDATA
SUB-PHY: VERTEBRATA
CLASS: REPTILIA

Habit and habitat :

While not capable of powered flight they often obtain lift in the course of their gliding flights. Glides as long as 60 m (200 ft) have been recorded, over which the animal loses only 10 m (33 ft) in height, which is quite some distance, considering that one of these lizards is only around 20 cm (7.9 in) in total length (tail included).^[1] They are found in South Asia and Southeast Asia, and are fairly common in forests, areca gardens, teak plantations and shrub jungle.



DRACO-FLYING LIZARD

CHARACTERS:

- 1.Body is dorsoventrally flattened, thin and light.
- 2.Limbs are pentadactyl and fingers end in powerful claws.
- 3.Skin is dry and scaly. Scales are ectodermal in origin. Skin is devoid of glands.
- 4.Skin extends as an extensive patagium in between fore and hind limbs.
- 5.Patagia are supported by five soft rib like bones. These lizards can fly in air using the patagia as wings. During rest, the patagia are much folded. Patagia are attractively colored.
- 6.Sexually dimorphic forms.
- 7.Gular pouch is present just beneath the neck. This pouch is larger in males. Spines in these pouches help in holding the leaves.
- 8.Eyes are small but conspicuous. Head is triangular while dentition is heterodont.
- 9.Tongue is short and thick.
10. Vertebrae are procoelous.
11. Tail is long, soft and whip like.

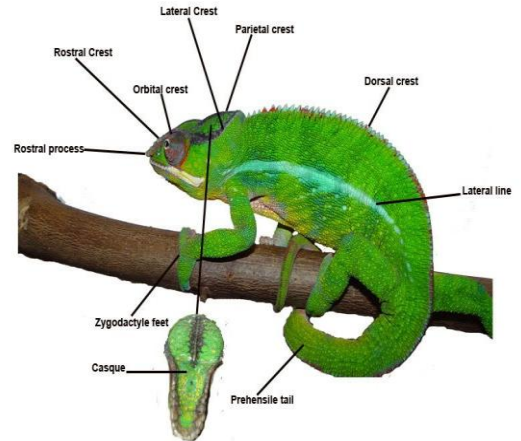
IDENTIFYING FEATURES:

Draco is a [genus](#) of [agamid lizards](#) that are also known as **flying lizards**, **flying dragons** or **gliding lizards**. These lizards are capable of [gliding flight](#); their ribs and their connecting membrane may be extended to create "wings" ([patagia](#)), the hindlimbs are flattened and wing-like in cross-section, and a flap on the neck (the [gular flag](#)) serves as a horizontal stabilizer. *Draco* are [arboreal insectivores](#).

21. CHAMELEO

Chameleons inhabit all kinds of [tropical](#) and mountain [rain forests](#), [savannas](#), and sometimes [deserts](#) and [steppes](#). The typical chameleons from the subfamily Chamaeleoninae are [arboreal](#), usually living in trees or bushes, although a few (notably the [Namaqua chameleon](#)) are partially or largely [terrestrial](#). Most species from the subfamily Brookesiinae, which includes the genera [Brookesia](#), [Rieppeleon](#), and [Rhampholeon](#), live low in vegetation or on the ground among [leaf litter](#). Many species of chameleons are threatened by extinction. Declining chameleon numbers are due to habitat loss

PHYLUM: CHORDATA
SUB-PHY: VERTEBRATA
CLASS: REPTILIA



CHARACTERS:

1. An arboreal lizard having the capacity to change its color in relation to the surroundings.
2. Mimicry is its prime feature.
3. Insectivorous organism moving very slowly in between the leaves on the tree branches.
4. Skin is rough, dry and is embedded with granular scales.
5. Body is laterally compressed with a dorsal crest.
6. Body is divided into a head, a neck, a trunk and a tail.
7. Eyes are conspicuous and independent of the movement. Vision is monocular.
8. Tongue is long, sticky and helps in feeding.
9. Dentition is acrodont.
10. Vertebrae are procoelus. Skull is fused to the first vertebra.
11. A number of air sacs are formed from the lungs internally.
12. Fingers in the limbs fuse to form into two bundles. In forelimbs, the inner three and outer two fuse to form two bundles. In the hind limbs, the inner two and outer three unite in the same fashion. These are used to grasp the tree branches.
13. Presence of crown or a hood is the characteristic feature of this organism.
14. Tail is prehensile and helps in twisting around the branches.

IDENTIFYING FEATURES

Chameleons are distinguished by their [zygodactylous](#) feet; their very extensive, highly modified, rapidly extrudable tongues; their swaying gait;^[2] and crests or horns on their brow and snout. Most species, the larger ones in particular, also have a [prehensile](#) tail.

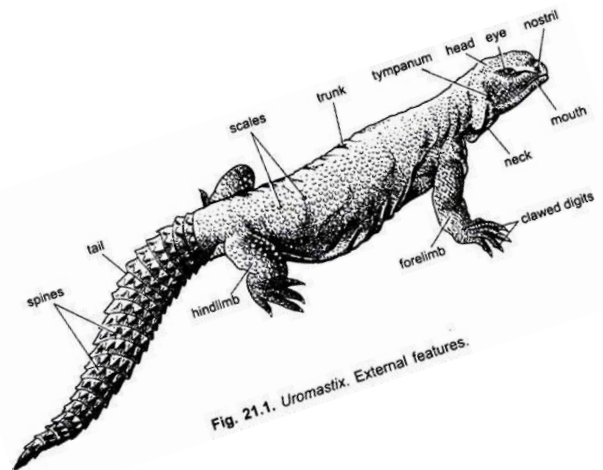
22. UROMASTIX

GENERAL NAME; DESERT LIZARD

PHYLUM: CHORDATA
SUB-PHY: VERTEBRATA
CLASS: REPTILIA

HABIT AND HABITAT

Uromastix inhabit a range stretching through most of [North](#) and [Northeast Africa](#), the [Middle East](#), ranging as far east as [Iran](#). Species found further east are now placed in the genus [Saara](#).^[4] *Uromastix* occur at elevations from sea level to well over 900 m (3,000 ft). They are regularly eaten, and sold in produce markets, by local peoples. *Uromastix* tend to bask in areas with surface temperatures of over 50 °C (120 °F).



CHARACTERS:

- 1.it is a common lizard seen in sandy areas and deserts.
- 2.It resembles the wall lizard except for the presence of spinous tuft over the tail.
- 3.Body is divided into a head, neck, trunk,and tail. Cloaca is a tranverse slit at the junction of the trunk and tail.
- 4.Tail can regenerate when lost.
- 5.Skin is dry, rough, and covered by ectodermal scales.
- 6.It can withstand higer temperatures of the environment and is poikilothermous in nature.
- 7.Skull is of diapsid type and jaws are toothed.
- 8.It generally feeds on insects and frogs.
- 9.Oviparous organism.

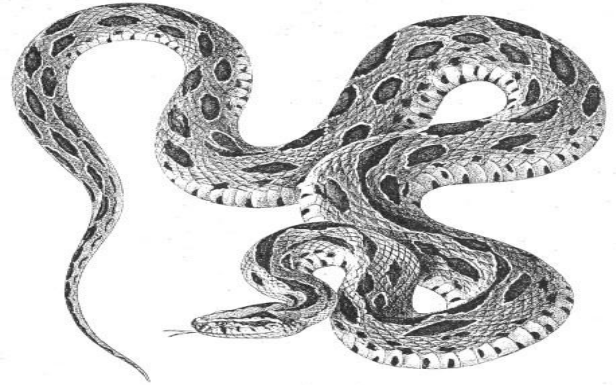
IDENTIFYING FEATURES:

Their spiked tail is muscular and heavy, and can be swung at an attacker with great velocity, usually accompanied by hissing and an open-mouthed display of (small) teeth.^[6] *Uromastix*s generally sleep in their burrows with their tails closest to the opening, in order to thwart intruders.^[6]

23. VIPER RUSSELI

GENERAL NAME: RUSSELS VIPER

PHYLUM: CHORDATA
SUB-PHY: VERTEBRATA
CLASS: REPTILIA



HABIT AND HABITAT

The snake is mostly found in open, grassy or bushy areas, but may also be found in [second growth forests](#) (scrub jungles), on forested plantations and farmland. It is most common in plains, coastal lowlands, and hills of suitable habitat. Generally, it is not found at altitude, but has been reported as far up as 2300–3000 m (7,500-9,800 ft). Humid environments, such as [marshes](#), [swamps](#), and [rain forests](#), are avoided

CHARACTERS:

1. It is commonly called as a chain viper growing to a length of 3-5.5 ft. body is long and stout.
2. Head is triangular and is covered by ovoid scales.
3. Eyes are conspicuous with a vertical pupil inside.
4. Ventral scales are wide and cover the entire ventral surface.
5. Head has a dorsal spot in between the two eyes.
6. Nostrils are large and hence produce hissing sound.
7. Three rows of colored rings are present over the body arranged in the form of chains.
8. Sub caudals are divided.
9. Oviparous organisms.

IDENTIFYING FEATURES

The head is flattened, triangular, and distinct from the neck. The snout is blunt, rounded, and raised. The nostrils are large, each in the middle of a large, single [nasal scale](#). The lower edge of the nasal scale touches the [nasorostral](#) scale. The supranasal scale has a strong crescent shape and separates the nasal from the nasorostral scale anteriorly. The [rostral scale](#) is as broad as it is high

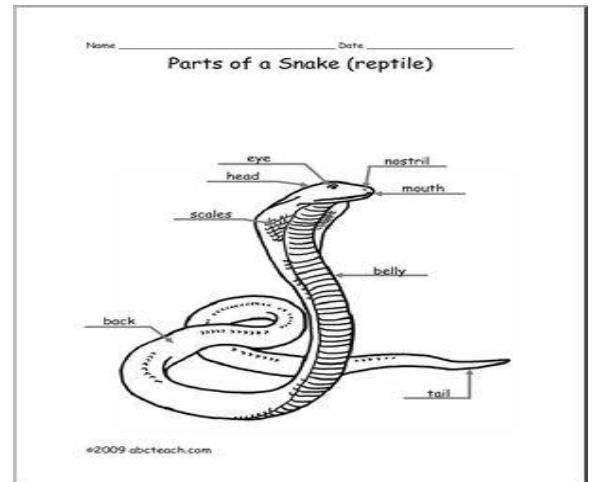
24. NAJANAJA

GENERAL NAME: COBRA

PHYLUM: CHORDATA
SUB-PHY: VERTEBRATA
CLASS: REPTILIA

HABIT AND HABITAT

The Indian Cobra inhabits a wide range of habitats throughout its geographical range. It can be found in dense or open forests, [plains](#), agricultural lands ([rice paddy fields](#), wheat crops), rocky terrain, wetlands, and it can even be found in heavily populated urban areas such as villages and city outskirts, ranging from sea-level to 2,000 metres (6,600 ft) in altitude. This species is absent from true [desert](#) regions. The Indian cobra is often found in the vicinity of water. Preferred hiding locations are holes in embankments, tree hollows, [termite mounds](#), rock piles and small mammal dens.



CHARACTERS:

1. Body measures about 5-6 feet and is coloured light brown or yellowish green with colored spots.
2. Anteriorly, the head is covered by plated.
3. Ribs in the neck region can expand to form the hood with spectacle on the dorsal side and two black scars on the ventral side.
4. Tongue is protrusive and bifid.
5. Jaws are toothed of which maxillary teeth modify to form poisonous fangs to inject poison on to the prey.
6. Third supra labial touches the nostril and eye.
7. A small triangular wedge or keel scale is present in between the fourth and fifth sub-labial scales.
8. Ventrals are wide and sub caudals are divided.
9. Oviparous organisms feeding on rats and frogs.
10. Very active snake raising its anterior body tounfold the hood and produce hissing sound.
11. Poison is powerful and acts on nervous system. Hence it is a neuropoison.

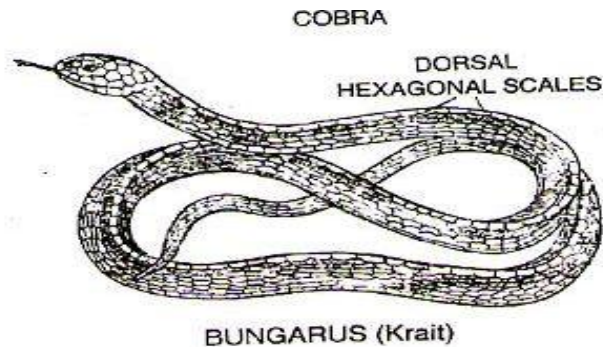
IDENTIFYING FEATURES

The Indian cobra varies tremendously in colour and pattern throughout its range. The [ventral scales](#) or the underside colouration of this species can be grey, yellow, tan, brown, reddish or black. [Dorsal scales](#) of the Indian cobra may have a hood mark or colour patterns.

25. BUNGARUS COERULENS

GENERAL NAME: KRAIT

PHYLUM: CHORDATA
SUB-PHY: VERTEBRATA
CLASS: REPTILIA



HABIT AND HABITAT

All kraits are nocturnal. They are more docile during the daylight; at night, they become very active, but are not very aggressive even when provoked. They are actually rather timid, and often hide their heads within their coiled bodies for protection. When in this posture, they sometimes whip their tails around as a type of distraction

CHARACTERS:

1. Body measures about 4-6 feet and is colored shiny black or gray with white cross bands on the dorsal side. These bands are light in color towards anterior half and dark towards posterior half.
2. Mid dorsal scales are hexagonal and ventral are wide extending the entire ventral side.
3. Sub caudals are entire and tail is tapering.
4. Head is covered by plates. Fourth sub labial is large. Ventral side is light white in color.
5. Nocturnal in habit and always move in pairs.
6. It bites when disturbed.

IDENTIFYING FEATURES

Colouration is generally black or bluish black, with about 40 thin, white crossbars which may be indistinct or absent anteriorly. The pattern, however, is complete and well defined in the young, which are marked with conspicuous crossbars even anteriorly; in old individuals, the narrow white lines may be found as a series of connected spots, with a prominent spot on the vertebral region. A white preocular spot may be present; the upper lips and the belly are white.

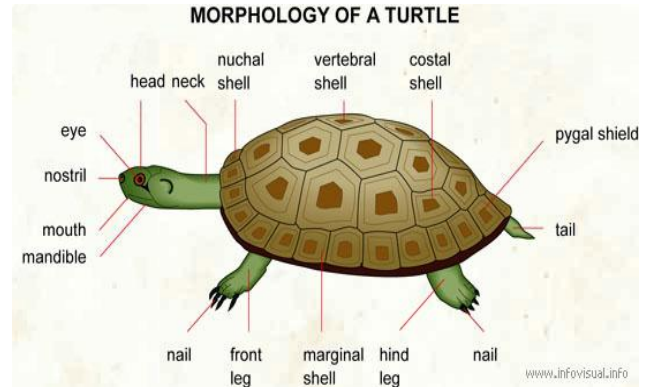
26. TRIONYX

GENERAL NAME: LEATHERY TURTLE

PHYLUM: CHORDATA
SUB-PHY: VERTEBRATA
CLASS: REPTILIA

Habitat: freshwater (rivers and tributaries, lakes), but enters brackish ("marine") waters.

The **African softshell turtle** or **Nile softshell turtle** (*Trionyx triunguis*) is a large species of turtle from fresh-water and brackish habitats in Africa (larger parts of East, West and Middle Africa) and the Near East (Israel, Lebanon, Syria and Turkey).^[1] It is the only extant species from the genus *Trionyx*, but in the past many other softshell turtles were placed in this genus; they have now been moved to various other genera.¹



CHARACTERS:

1. It is a common fresh water terrapin inhabiting Indian rivers.
2. Body is dorsoventrally flattened and hence is flat in appearance.
3. Body is protected by a shell covered by a thick and soft skin fold.
4. Head is an elongated one with a pointed anterior end bearing a pair of nostrils at its terminus.
5. Mouth is antero- ventral and is surrounded by fleshy lips.
6. Nine dorsal vertebrae of the carapace are fused with each other.
7. The dorsal shell plates unite to form the carapace which is fused with the ribs.
8. Laterally, the carapace has eight lateral coastalplates surrounded by a circle of marginal plates.
9. A pair of epiplastrons, a central epiplastron, paired hyo and hypo plastrons, a single posterior plastron contribute for the formation of the plastron on the ventral side.
10. The fusion lines or sutures are clearly visible on the ventral side of the plastron.
11. Vertebrae of the tail and neck are freely movable.
12. Feet are like oars and help in swimming. The inner three fingers of the feet are clawed.

IDENTIFYING FEATURES

Mouth is antero- ventral and is surrounded by fleshy lips.

Nine dorsal vertebrae of the carapace are fused with each other.

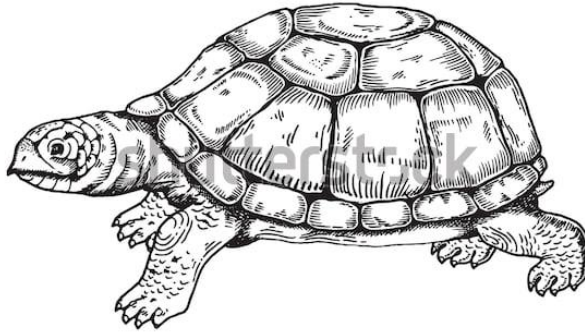
The dorsal shell plates unite to form the carapace which is fused with the ribs.

Laterally, the carapace has eight lateral coastalplates surrounded by a circle of marginal plat.

27. TESTUDO ELEGANS

GENERAL NAME: GIANTOR TERRESTRIAL TOTOISE

PHYLUM: CHORDATA
SUB-PHY: VERTEBRATA
CLASS: REPTILIA



HABIT AND HABITAT :

The carapace of *G. elegans* is very convex, with dorsal shields often forming humps; the lateral margins are nearly vertical; the posterior margin is somewhat expanded and strongly serrated. It has no nuchal scute, and the supracaudal is undivided, and curved inward in the male; the shields are strongly striated concentrically. The first vertebral scute is longer than broad, and the others are broader than long, with the third at least as broad as the corresponding costal. The plastron is large, truncated or openly notched in front, and deeply notched and bifid behind

CHARACTERS:

1. it is a large sized organism inhabiting fresh water, marine and terrestrial environments.
2. It feeds on worms and insects.
3. Jaws are edentate and skull is of anapsid type.
4. It hibernates during winters.
5. The body is protecte by a hard shell made of dorsal carpace and ventral plastron.
6. Carapace is composed of a number of coloured hexagonal plates.
7. The shell is also covered by thin fold of skin.
8. Dorsal side is convex and the ventral side is almost flat.
9. Head, limbs and tail are movable and can retreat into the shell when disturbed.
10. Oviparous organisms laying eggs in pits made in the sand.
11. Limbs are modified for walking on land.
12. Uricotelic organisms excreting uricacid.

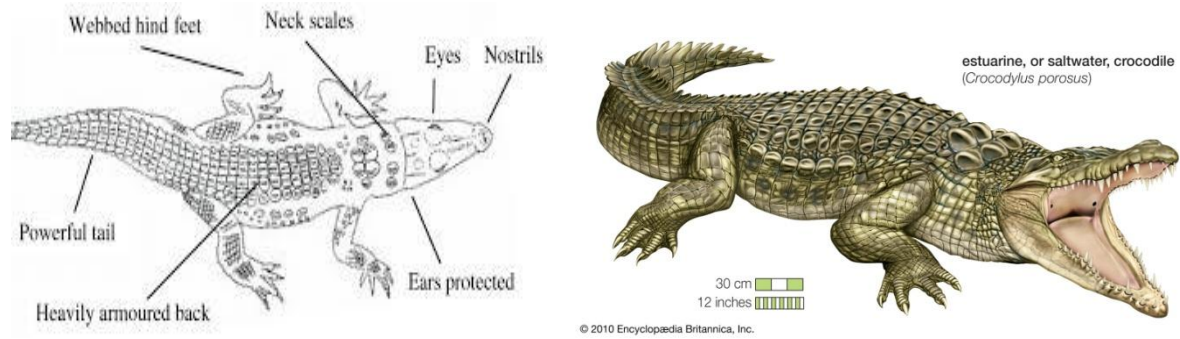
IDENTIFYING FEATURES

The body is protecte by a hard shell made of dorsal carpace and ventral plastron.
Carapace is composed of a number of coloured hexagonal plates.
The shell is also covered by thin fold of skin.
Dorsal side is convex and the ventral side is almost flat.

28. CROCODILUS POROSIS

GENERAL NAME: CROCODILE

PHYLUM: CHORDATA
SUB-PHY: VERTEBRATA
CLASS: REPTILIA



HABIT AND HABITAT :

The **saltwater crocodile** (*Crocodylus porosus*) is a [crocodilian](#) native to [saltwater](#) habitats and [brackish wetlands](#) from [India](#)'s east coast across [Southeast Asia](#) and the [Sundaic region](#) to northern [Australia](#) and [Micronesia](#). It is among the largest crocodiles and regarded as dangerous by people who share the same environment. It was hunted for its skin throughout its range up to the 1970s, and is threatened by illegal killing and [habitat loss](#)

CHARACTERS:

- Strong and heavy or robust body measuring about 12-13 feet in length.
- Body divided into a head, a neck, a trunk and a tail.
- Fore and hind limbs are pentadactyl and clawed. Webbed feet are used in swimming.
- Leathery skin forming the external covering is warty on the dorsal side and highly protective.
- Head is elongated half moon shaped one with terminally placed nostrils and a wide mouth.
- Jaws possess thecodont and pointed, sharp homodont teeth.

First tooth fits into a pit and fifth one into a notch, Ear openings are covered by skin.

- Tongue is used in food collection.
- Four chambered heart leading to a complete double circulation.
- Cold blooded organisms having diaphragm in between the thoracic and abdominal cavities.
- Urinary bladder is absent and hence release the excretory products as and when they are formed.
- Oviparous organisms showing parental care during embryonic development.

IDENTIFYING FEATURES

Strong and heavy or robust body measuring about 12-13 feet in length.

Body divided into a head, a neck, a trunk and a tail.

Fore and hind limbs are pentadactyl and clawed. Webbed feet are used in swimming.

Leathery skin forming the external covering is warty on the dorsal side and highly protective

AVES

29. PSITACULLA CRAMERI

GENERAL NAME: PARROT

HABIT AND HABITAT :

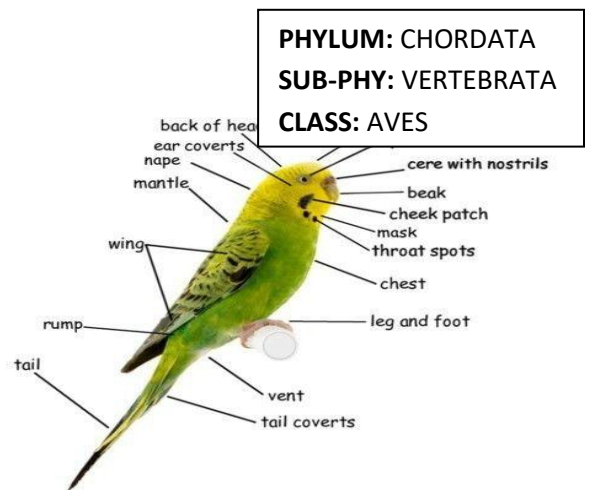
In the wild, rose-ringed parakeets usually feed on buds, fruits, vegetables, [nuts](#), berries, and [seeds](#). Wild flocks also fly several miles to forage in farmlands and orchards, causing extensive damage.

In India, they feed on [cereal grains](#), and during winter also on [pigeon peas](#).^[7] In Egypt during the spring, they feed on [mulberry](#) and in summer they feed on [dates](#) and nest inside palm trees and eat from sunflower and corn fields.

CHARACTERS:

1. Body is covered by attractive green feathers.
2. Short, hooked, beak is bright reddish in color. Jaws are toothless. Upper jaw is bigger than the lower one and is longer with a pointed curved tip. This can move on the frontal bone.
3. Tail feathers are longer than the contours and wing feathers.
4. It is a pure herbivore feeding on fruits, seeds and vegetables.
5. In the hind limb second and third fingers are forwardly directed while the first and fourth are backwardly directed to facilitate grip over the substratum.
6. Syrinx is well adapted for producing sweet sound and even it can speak on training.
- 7.
8. Males have a pink girdle at the neck region and a black spot near the throat.

IDENTIFYING FEATURES

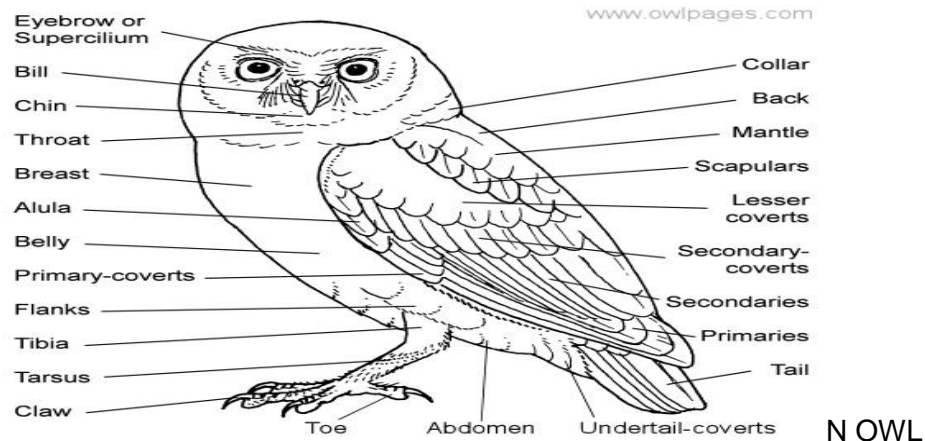


The rose-ringed parakeet is sexually dimorphic. The adult male sports a red and black neck ring, and the hen and immature birds of both sexes either show no neck rings, or display shadow-like pale to dark grey neck rings. Both sexes have a distinctive green colour in the wild, and captive bred ringnecks have multiple colour mutations including blue, violet and yellow. Rose-ringed parakeets measure on average 40 cm (16 in) in length, including the tail feathers, a large portion of their total length.

30. BUBO BUBO

PHYLUM: CHORDATA SUB-PHY: VERTEBRATA CLASS: AVES

GENERAL NAME: HOR



HABIT AND HABITAT :

This bird has distinctive ear tufts, with upper parts that are mottled with darker blackish colouring and tawny. The wings and tail are barred. The underparts are a variably hued buff, streaked with darker colour. The facial disc is poorly developed and the orange eyes are distinctive.

CHARACTERS:

1. Universally distributed nocturnal bird inhabiting forests, gardens and dense vegetations.

2. It feeds on small birds, rats, lizards and other organisms.
3. It can stand erect on its hind legs.
4. Head bears a pair of conspicuous golden eyes, hook like beak, pair of long horn like feathers.
5. Heavy body is guarded by thick brown colored feathers having spots.
6. Behind the eyes, external auditory meatus is a large opening behind the eyes on the head.
7. They protect the crops from the attack of rodents by feeding on them.hence they have economic significance.
8. In day time, they live in bushes and amongst the tree branches.

IDENTIFYING FEATURES

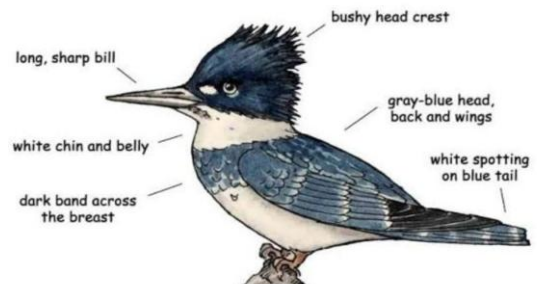
The **Eurasian eagle-owl** (*Bubo bubo*) is a species of [eagle-owl](#) that resides in much of [Eurasia](#). It is also called the **European eagle-owl** and in Europe, it is occasionally abbreviated to just **eagle-owl**.^[3] It is one of the largest species of [owl](#), and females can grow to a total length of 75 cm (30 in), with a wingspan of 188 cm (6 ft 2 in), males being slightly smaller.^[4]

31. **ALCEDO ATHES**

GENERAL NAME: KING FISHER

PHYLUM: CHORDATA SUB-PHY: VERTEBRATA CLASS: AVES

Belted Kingfisher
Ceryle alcyon



HABIT AND HABITAT :

The **common kingfisher** (*Alcedo atthis*) also known as the **Eurasian kingfisher**, and **river kingfisher**, is a small [kingfisher](#) with seven subspecies recognized within its wide distribution across [Eurasia](#) and [North Africa](#). It is resident in much of its range, but [migrates](#) from areas where rivers freeze in winter.

This [sparrow-sized](#) bird has the typical short-tailed, large-headed kingfisher profile; it has blue upperparts, orange underparts and a long bill. It feeds mainly on fish, caught by diving, and has special visual adaptations to enable it to see prey under water. The glossy white eggs are laid in a nest at the end of a burrow in a riverbank

CHARACTERS:

1. A small bird living along the banks of water areas.
2. Hind limbs have three or four fingers fused at their base.
3. Beak is formed of strong jaws.
4. Light body covered by deep colored feathers.
5. Feet have three forwardly directed and one backwardly directed fingers such feet help in holding the branches with a firm grip.
6. They live on the surface of water and feed on fishes, frogs etc.,

IDENTIFYING FEATURES

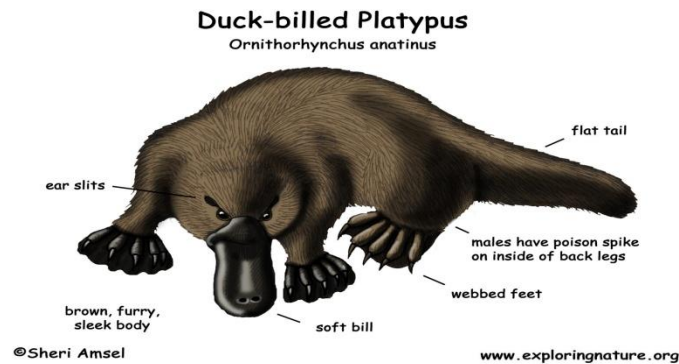
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MAMMALS

32. ORNITHORHYNCHUS

GENERAL NAME: DUCK BILL

PHYLUM: CHORDATA
SUB-PHY: VERTEBRATA
CLASS: MAMMALIA



HABIT AND HABITAT :

The body and the broad, flat tail of the platypus are covered with dense, brown [fur](#) that traps a layer of insulating air to keep the animal warm.^{[10][15]} The fur is waterproof, and the texture is akin to that of a [mole](#).^[18] The platypus uses its tail for storage of fat reserves (an adaptation also found in animals such as the [Tasmanian devil](#)^[19]). The [webbing on the feet](#) is more significant on the front feet and is folded back when walking on land. The elongated snout and lower jaw are covered in soft skin, forming the bill. The nostrils are located on the dorsal surface of the snout,

CHARACTERS:

1. It is a small burrowing mammal seen along the banks of water pond and rivers in Australia and Tasmania.
2. Body is covered by fine hair.
3. Head is well differentiated with a long, and smooth forming fur covering over the body, flattened beak covered by the thin skin fold.
4. Nostrils are located at the tip of the beak.
5. Eyes are small and protected by eyelids, eye balls are covered by nictitating membrane.
6. Adults are edentate and have no external ear pinnae.
7. Corpus callosum is absent in the brain.
8. Pentadactyl limbs with curved fingers.
9. Web is present in the fingers of the limbs.
10. Tail is flat and ore like helping in swimming.
11. Pectoral girdle has 'T' shaped inter clavicle.
12. Sweat glands are modified to form mammary glands.
13. Teats are absent and hence milk oozes out through small pores.
14. Females have neither uterus nor oviduct as they are oviparous. Eggs are laid in the nest built at their own.
15. Males have testes in association with kidneys in the abdominal cavity.

IDENTIFYING FEATURES

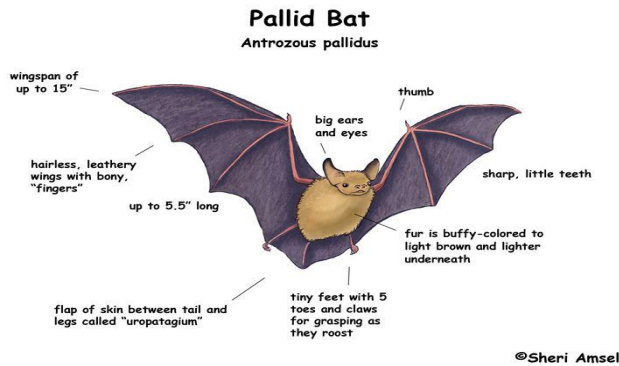
Body is covered by fine hair.

Head is well differentiated with a long, and smooth forming fur covering over the body, flattened beak covered by the thin skin fold. Nostrils are located at the tip of the beak. Eyes are small and protected by eyelids, eye balls are covered by nictitating membrane.

33. PTEROPUS

GENERAL NAME: FLYING FOX

PHYLUM: CHORDATA
SUB-PHY: VERTEBRATA
CLASS: MAMMALIA



HABIT AND HABITAT :

Flying foxes eat fruit and other plant matter, and occasionally consume insects as well. They locate resources with their keen sense of smell. Most, but not all, are nocturnal. They navigate with keen eyesight, as they cannot echolocate. They have long life spans and low reproductive outputs, with females of most species producing only one offspring per year. Their slow life history makes their populations vulnerable to threats such as overhunting, culling, and natural disasters. Six flying fox species have been made extinct in modern times by overhunting.

CHARACTERS:

1. It is a flying mammal and hence the forelimbs are modified into wings.
2. Body is divided into a head, neck and trunk. Tail is absent.
3. Body is covered by black or dark colored hair. Ventral hair is soft.
4. Head is elongated with a pair of conspicuous eye having sharp sight.
5. External ear pinnae are large and very sensitive to sound waves.
6. They are seen hanging from the tree branches during resting times.
7. Limbs are pentadactyl and toes are clawed.
8. Lateral skin is extended into patagium.

9. Patagium is supported by fore limb bones and first two fingers are clawed.
10. Premolars are grooved and digestive system has an enlarged pyloric stomach.
11. Bats can receive ultrasonic waves released from their body to identify the obstacles in their way. This echo mechanism make them to escape from hitting the surfaces even during high speed movement.

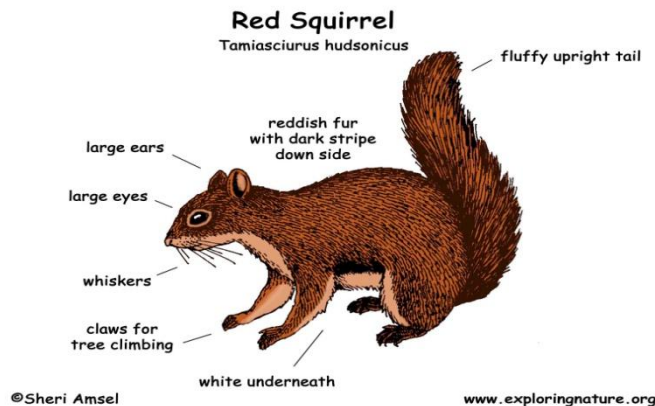
IDENTIFYING FEATURES

Body is divided into a head, neck and trunk. Tail is absent.
 Body is covered by black or dark colored hair. Ventral hair is soft.
 Head is elongated with a pair of conspicuous eye having sharp sight

34. FUNAMBULUS PALMARUM

GENERAL NAME: SQUIRREL

PHYLUM: CHORDATA
SUB-PHY: VERTEBRATA
CLASS: MAMMALIA



HABIT AND HABIOTAT :

These squirrels eat mainly nuts and fruits. They are fairly vocal, with a cry that sounds like "chip chip chip" when danger is present. They are opportunists in urban areas, and can be easily tamed and trained to accept food from humans. Naturally active, their activity reaches levels of frenzy during the mating season. They tend to be very protective of their food sources, often guarding and defending them from birds and other squirrels.

CHARACTERS:

1. Head is small with an elongated snout having a pair of nostrils, a pair of conspicuous black eyes, a pair of large ear pinnae and long vibrissae near the tip of the snout.
2. The organism can sit on its hind limbs while the fore limbs are used for holding the food.
3. Body is dorsally having four to five colored longitudinal stripes.
4. Tail is covered with dense tuft of hair.
5. Forelimbs are shorter than the hind limbs. Digits are clawed.
6. Incisors work as chiseles for cutting the vegetable food material.
7. Teeth show continuous growth. Hence they are put in constant use in food collection.

IDENTIFYING FEATURES

Head is small with an elongated snout having a pair of nostrils, a pair of conspicuous black eyes, a pair of large ear pinnae and long vibrissae near the tip of the snout