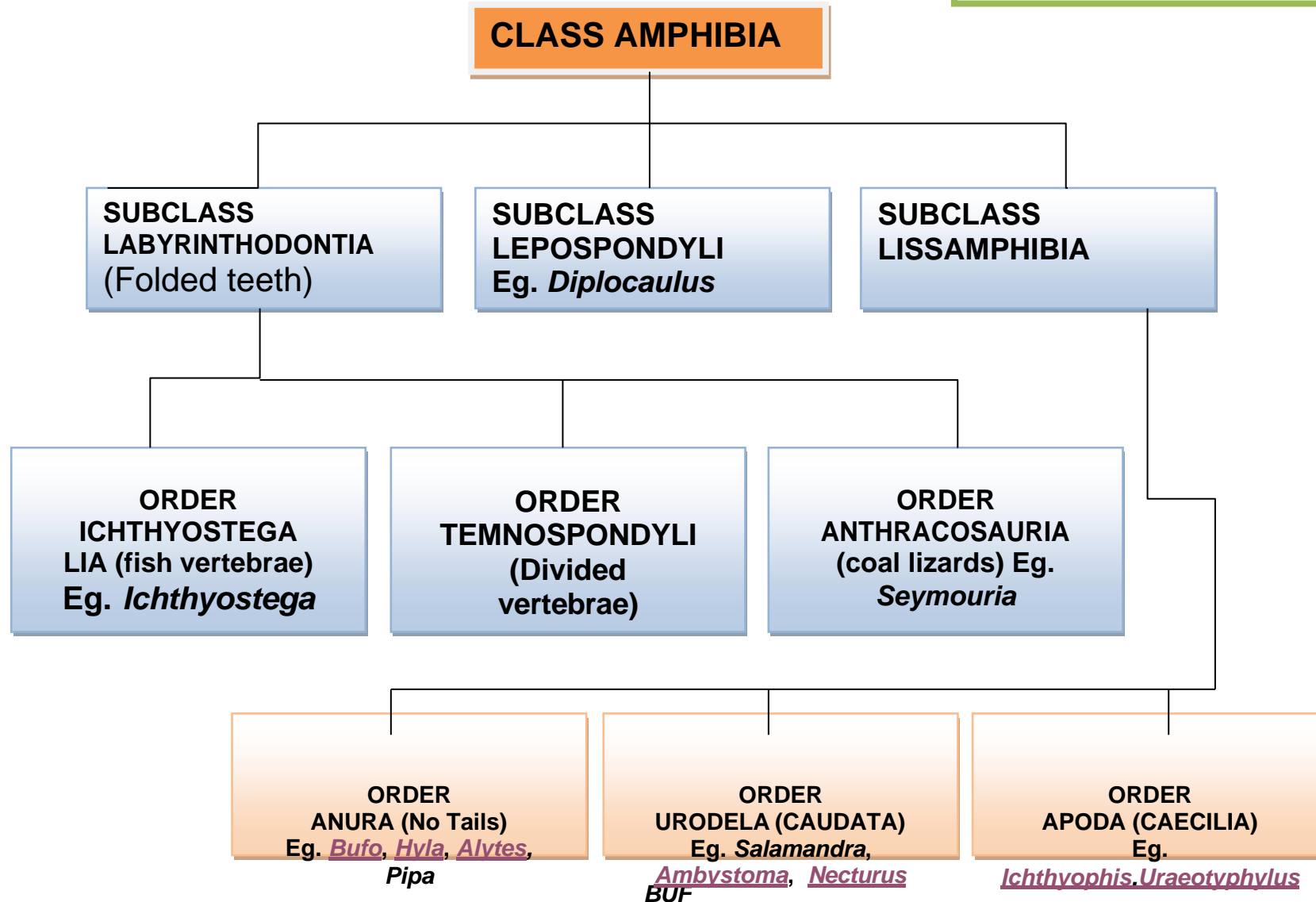


Classification flow chart

Museum Specimens: Amphibia

Compiled by: Dr. P.Jayaraj

Illustration Credits: Pooja Kumari, B.Sc (H) Zoology  
Chandini Mysa, B.Sc (H) Zoology



## Bufo

**Common name:** True - Toad

**Geographical Distribution:** *Bufo* is found all over the world except Australia and Madagascar.

*Bufo melnostictus* is found in Himalayas up to 3000 metres.

### Scientific Classification with Justifications

**Phylum: Chordata:** The presence of a notochord.

**Subphylum: Vertebrata:** Notochord replaced by Vertebral Column.

**Superclass: Gnathostomata:** Jawed Vertebrates

**Class: Amphibia:** cold blooded, scale less, glandular skin, can live in water and land both.

**Subclass: Lissamphibia :** Modern smooth amphibia.

**Order: Anura :** Body short and broad, head and trunk fused, neck and tail absent, forelimbs short, hind limbs long, gills absent, respiration by lungs.

**Genus : *Bufo***



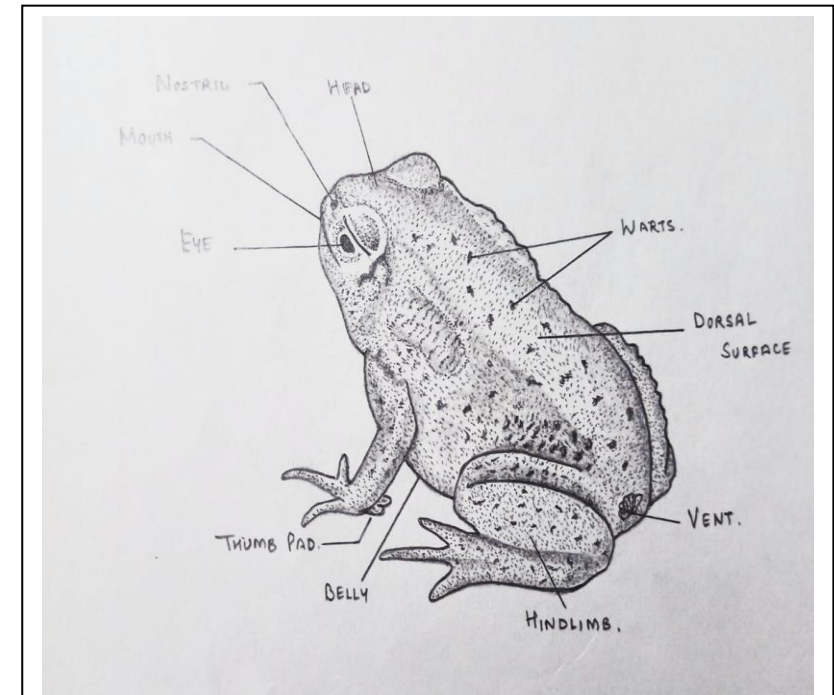
### Characteristic features:

- Body is divided into head and trunk.
- Skin is rough, dry and warty on the dorsal surface of the body and has more poisonous glands than mucous glands
- Head bears wide mouth, large protruding eyes with eyelids and very small nostrils.
- Tympanum is very well developed.
- **Paired Paratoid glands are present behind the tympanum.**  
**These glands secrete irritating poison fluid .**
- Forelimbs bear three webless fingers and a thumb pad.
- Hindlimbs have three toes with a greatly reduced web.
- Teeth are entirely absent.
- Vertebrae are procoelus. Ribs and sternum are absent.
- Eggs are laid in water in gelatinous strings
- Paratoid glands secrete bufotalus and bufoxus toxins which cause nausea, disturbance in respiration and muscles and also helps in heart functioning.

### Additional resources:

<https://youtu.be/KNDcsUtvBEg>

<https://www.youtube.com/watch?v=xrdhDCbP6mY>



**Bufo**

## Hyla

**Common name:** Tree Frog

**Geographical Distribution:** *Hyla* is cosmopolitan in damp forests in India, China, Africa, U.S.A and Canada. Miocene

### Scientific Classification with Justifications

**Phylum: Chordata:** The presence of a notochord.

**Subphylum: Vertebrata:** Notochord replaced by Vertebral Column.

**Superclass: Gnathostomata:** Jawed Vertebrates

**Class: Amphibia:** cold blooded, scale less, glandular skin, can live in water and land both.

**Subclass: Lissamphibia :** Modern smooth amphibia.

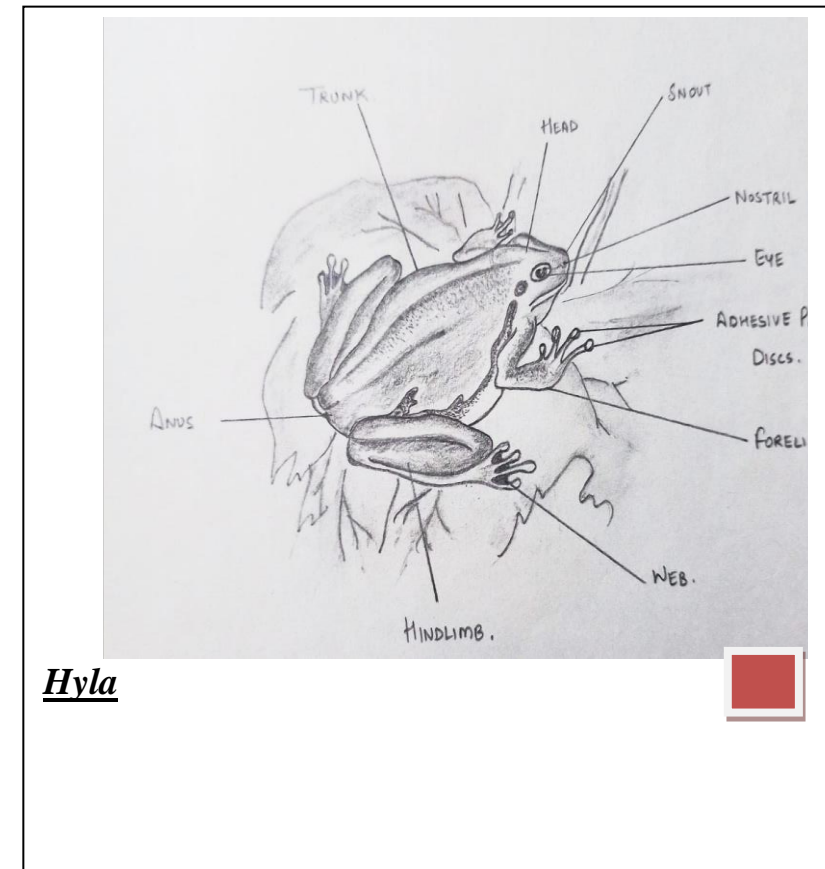
**Order: Anura :** Body short and broad, head and trunk fused, neck and tail absent, forelimbs short, hind limbs long, gills absent, respiration by lungs.

**Genus : *Hyla***



### Characteristic features:

- Body measures 2.5 to 7.5 cm in length and divided into head and trunk.
- Skin is smooth on the dorsal surface but bears papillae on the ventral surface.
- Head bears eyes, nostrils and tympanum.
- Fingers and toes have **adhesive pads** or **discs** for sticking on the smooth surface is poorly developed.
- **Vocal Sacs are greatly expanded and produced loud voice.**
- Teeth are present only in the upper jaw and absent in the lower jaw.
- Vertebrae are procoelus.
- Belly skin contains hygrosopic glands which help the animal to stick on leaf and twigs, etc.
- They exhibit **mimicry** and are remarkably protectively coloured.
- Fertilization is external.
- *Hyla arborea*, *H. versicolor* and *H. regilla*, etc. are all tree frogs and adapted for amphibious and arboreal life.
- In *Hyla goeldii*, the eggs are carried on the back of the female.
- *H. faber* also shows parental care.



### Additional resources:

- <https://youtu.be/tf1bytsDDho>

## Alytes

**Common Name-** Mid-Wife Toad

**Geographical Location-** Most of Europe and northwestern Africa

### **Scientific Classification with Justifications**

**Kingdom-** Animalia

**Phylum-** Chordata (presence of a notochord)

**Sub-phylum-** Vertebrata (presence of vertebrae in adults)

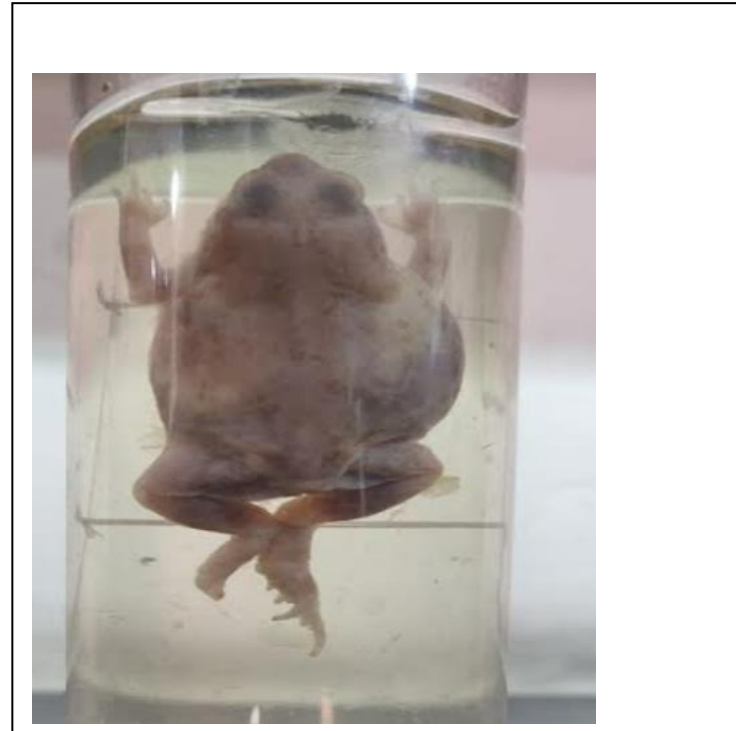
**Superclass-** Gnathostomata (jaw bearing animals)

**Class-** Amphibia (dual mode of living, skin moist and glandular)

**Sub-class-** Liss-amphibia (modern smooth amphibia)

**Order-** Anura (no tail)

**Genus-** Alytes

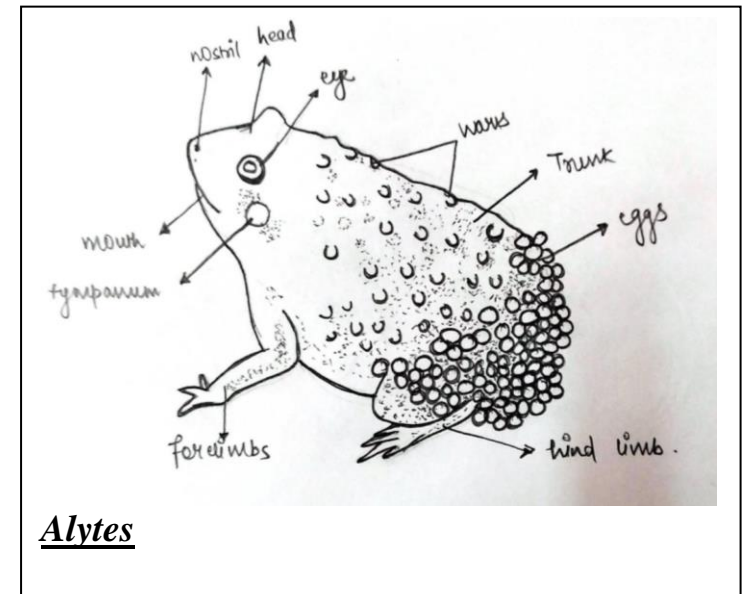


### Characteristic features:

- Body measures 5 -7.5 cm in length and divided into head and trunk.
- Body surface bears papillae dorsally as well as ventrally .
- Head bears wide mouth, nostrils and eyes with movable eyelids and large tympanum.
- Vocal - sacs are absent in males.
- Forelimbs with four fingers and hindlimbs with five toes.
- Upper jaws toothed.
- Vertebrae are opisthocoelous and adult have ribs.
- Males Alytes exhibits an extraordinary **parental care** of eggs.

### Additional resources:

- <https://www.youtube.com/watch?v=JGPABDEQGiY>



## Ambystoma

**Common name:** Tiger salamander

**Geographical distribution:** North America; from southeastern Alaska east to the southern part of Labrador, and south throughout all of the United States down to the southern edge of the Mexican Plateau.

### Scientific Classification with Justification:

**Phylum: Chordata:** The presence of a notochord.

**Subphylum: Vertebrata:** Notochord replaced by Vertebral Column.

**Superclass: Gnathostomata:** Jawed Vertebrates

**Class: Amphibia:** Cold blooded; aquatic and terrestrial; skin soft, moist and glandular and devoid of external scales; heart is three chambered.

**Subclass: Lissamphibia:** Modern smooth amphibia.

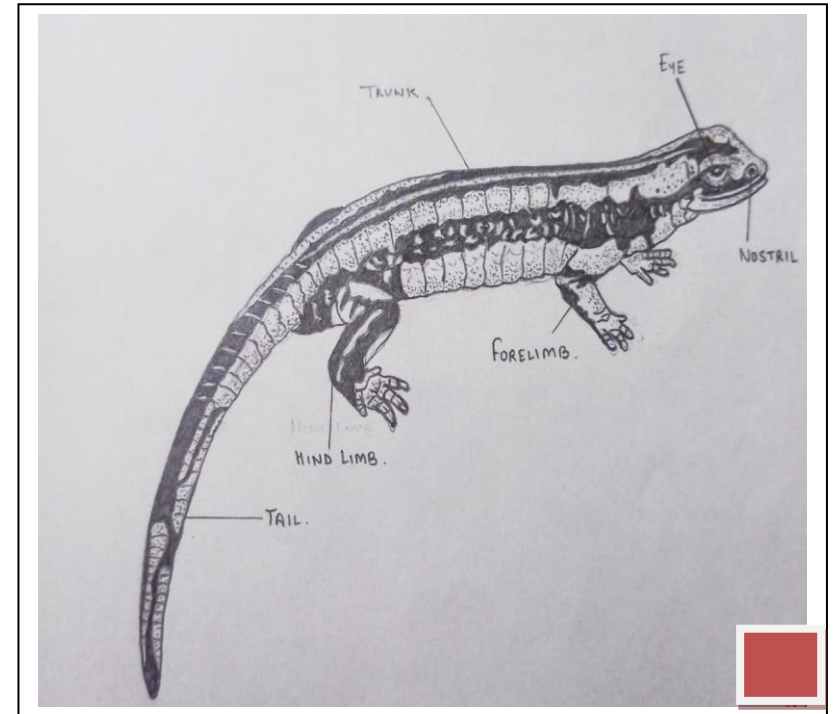
**Order: Caudata:** superficially lizard-like appearance, with slender bodies, blunt snouts, short limbs projecting at right angles to the body, and the presence of a tail in both larvae and adults.





### Characteristic features:

- It is commonly known as Eastern tiger salamander.
- The adult tiger salamander is a thick-bodied creature generally with yellow blotches or spots against a black background.
- It has a rather large head and a broad rounded snout. Their eyes are round.
- The belly is usually yellowish or olive with invading dark pigment.
- It has about 12-13 costal grooves.
- Males tend to be proportionally longer, with a more compressed tail and longer stalkier hind legs than the females.
- It exhibits seasonal breeding.
- Fertilization is internal and the development is indirect. It is oviparous.
- The eggs of the tiger salamander hatch into larvae which come in two forms, cannibalistic (meaning that they eat one another ) and non-cannibalistic larvae.
- Aquatic adult tiger salamanders live up to 25 years in captivity. Normal adults have reached ages of 16 years.



### Additional resources:

- <http://www.youtube.com/watch?v=asOCVEAwsCA&t=88s>

## Necturus

**Common name-** Common Mudpuppy.

**Geographical location-** eastern part of North American lakes.

### **Scientific Classification with Justification:**

**Kingdom-** Animalia

**Phylum-** Chordata(presence of a notochord)

Vertebrata(presence of vertebrae in adults)

**Superclass-** Gnathostomata(jaw bearing animals)

**Class-** Amphibia(dual mode of living, skin moist and glandular)

**Sub-class-** Liss-amphibia(modern smooth amphibia)

**Order-** Urodela(scaleless amphibia having well-developed tail, generally

2 limb, with or without external gills)

**Genus-**Necturus

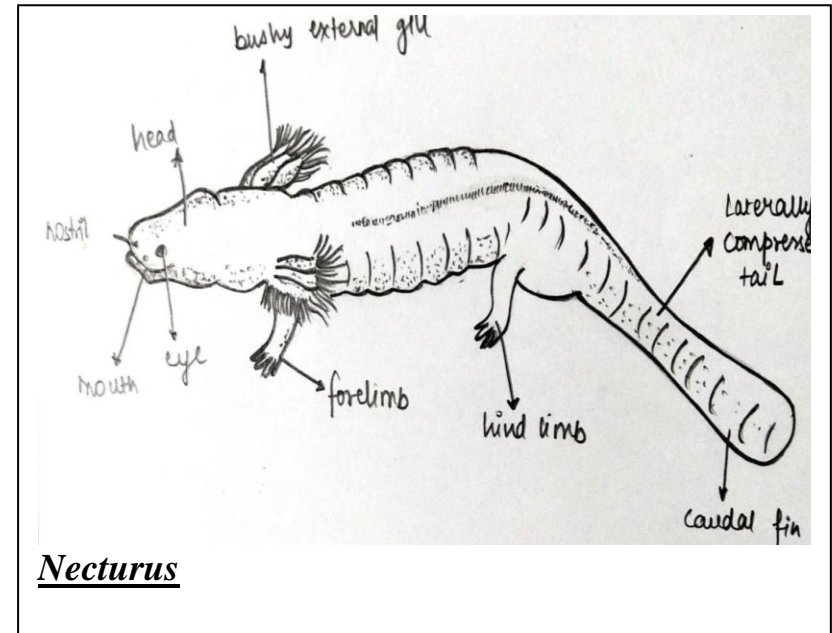


### Characteristic features:

- The common mudpuppy is a large aquatic salamander with a flat square head and a pair of distinctive red-coloured feathery gills on either side of its head.
- Tail is laterally compressed and bears a caudal fin.
- Forelimbs and hindlimbs are short and weak and provided with 4 digits only. First digit is lost and adapted for crawling on bottom of the rivers.
- Lungs are present.
- They have mucous glands that provide a slimy texture.

### Additional resources:

<https://www.youtube.com/watch?v=pt4Mz9JhSz0>



## *Uraeotyphlus*

**Common name-** White-lipped caecilian

**Geographical location-** endemic to Western ghats of south-west India

### **Scientific Classification with Justifications**

**Kingdom-** Animalia

**Phylum-** Chordata(presence of a notochord)

Vertebrata(presence of vertebrae in adults)

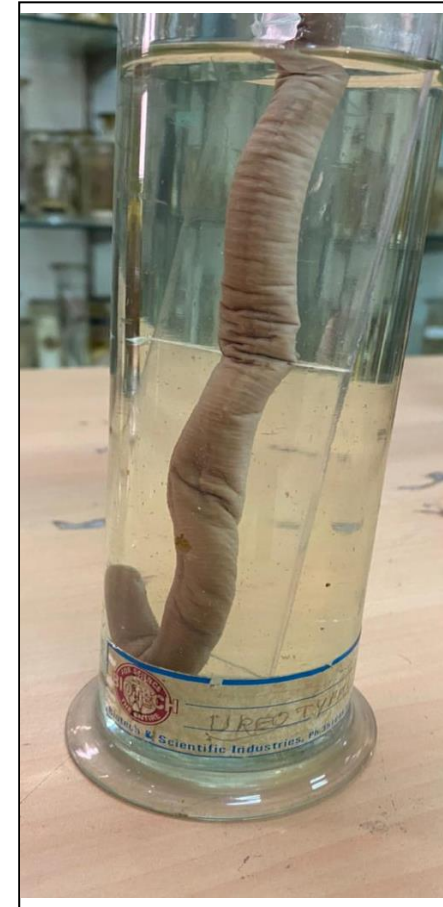
**Superclass-** Gnathostomata(jaw bearing animals)

**Class-** Amphibia(dual mode of living, skin moist and glandular)

**Sub-class-** Liss-amphibia(modern smooth amphibia)

**Order-** Apoda(vermiform, without limbs)

**Genus-** *Uraeotyphlus*

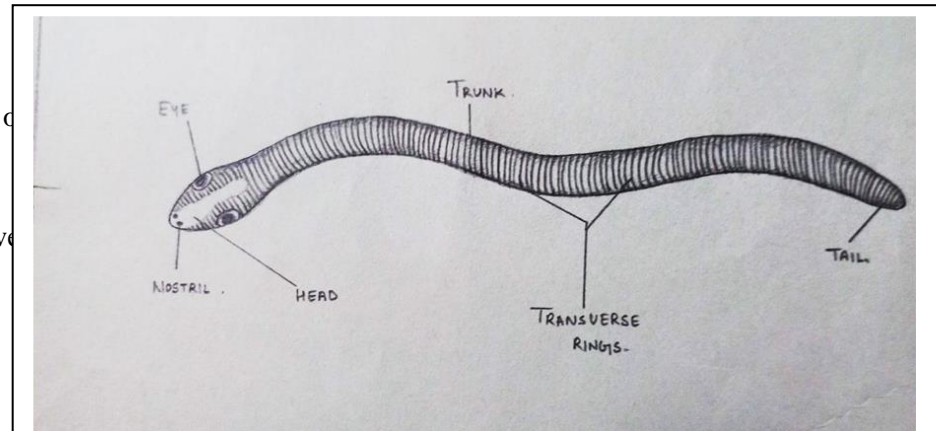


### Characteristic features:

- Body is elongated, vermiform and cylindrical in form
- Body divided into head, trunk and tail. Coloured dark-green, brown or white ventrally
- Skin is transversely grooved containing cycloid scales.
- Head small, scaleless, conical and bears limbless eyes which are covered
- Limb and limb girdles are entirely absent due to burrowing habit.
- Tail is short and rather vestigial.
- Fertilisation internal.

### Additional resources:

- <http://www.youtube.com/watch?v=asOCVEAwsCA&t=88s>



*Uraeotyphlus*

