

Testudines - turtles:

Ancient order of reptiles:

Some date to 220 mya (Triassic).

*Odontochelys semitestacea*

With teeth and incomplete shell

Turtles are unmistakable - everyone recognizes turtles.

Have a carapace and plastron bound together with a bridge.

(May be highly modified, and even reduced in some species).

Divided into two main groups based on how they retract their head (sideways or straight back).

Neck vertebrae (8) are remarkably similar despite this.

No teeth, though a good beak (very sharp in carnivorous species).

Presumably have decent night vision (lots of rods) as well as color vision (cones present).

Found world wide except in cold or extremely dry regions (found in American Southwest desert areas).

Fourteen families, with over 280 species (Wikipedia lists over 320).

Many are endangered (25 are about to become extinct, a further 40 are likely to become extinct).

Causes are the usual ones: traditional medicine, gourmet food, pet trade, habitat destruction, etc.

(Some turtles are farm raised).

Chelidae.

Side necked turtles from Australia and South America

Somewhat flattened skulls (dorso-ventrally).

Generally aquatic.

Carnivorous species will retract their neck and then suddenly launch their head forward when prey swims past.

Includes Rheodytes (Fitzroy River turtle) that can breathe using it's cloaca.

A few forms are more terrestrial (particularly in Australia).

Mata mata is a member of this family.

## Pelomedusidae

African side necks (called “African mud turtles” by your text)

The genus *Pelusios* has a hinged plastron, which helps protect the turtle (turtle can withdraw into shell more completely)

Most of these are not well known (probably due to the fact that they're in Africa and inhabit slow moving waters (that creates all kinds of problems!)).

Are thought to be mostly carnivorous.

Generally smaller in size, though a few get close to 1/2 m carapace length.

## Podocnemidae

Used to be classified with Pelomedusidae (and sometimes still are)

South American Side necks, and surprisingly in Madagascar.

Generally more streamlined shells - live in rivers.

Most are actually herbivorous, but will catch anything they can come across.

Some get large - the Giant River Turtle (*Podocnemis expansa*) can get to 1m.

(See also pictures in text)

## Chelydridae

Found in the Eastern U.S., Yucatan, and Central America (into Ecuador).

Only two species (two genera)

Long tails, large heads, rough carapace (lots of spines & protrusions)

Eat anything. *Macrochelys* has a worm like projection on it's tongue it can use as a lure.

*Macrochelys* is more aquatic than *Chelydra*.

*Chelydra* is Fairly common, and found around here (frequently seen at Huntley Meadows).

## Cheloniidae

Hard shelled sea turtles.

Found world wide, even in cooler areas.

6 species. Includes some of your “iconic” sea turtles like the green sea turtle and Hawksbill.

Generally fairly large.

Unfortunately many are critically endangered.

Shells were used to make combs and other implements.

(Turtles were placed on fire, scutes would drop off, and then released (but few turtles survived)).

Some can become toxic - hawksbills like to eat cnidarians.

Some can also navigate tremendous distances - some evidence that they return to the same beaches they were born at (sometimes after being thousands of miles out at sea).

## Dermochelidae

Leatherback sea turtles.

One species. Pretty easy to identify - very big, with leathery shell.

Eat mostly jellyfish and other jelly-like invertebrates.

Have endothermy - but muscle based (i.e., muscle contractions warm up body).

Heat is maintained by being huge and having oils in the skin.

Found worldwide

Also migrate great distances (crossing oceans, and even moving into different oceans).

## Carettochelyidae

Pig nosed turtles. Won't say too much about these.

Found only in northern Australia and southern New Guinea.

Think "Sea turtle" for estuaries and large rivers.

Limbs modified as flippers, shell smooth (covered with skin, but no scutes visible).

Omnivorous

## Trionychidae

Softshells. Found world wide.

No scutes, underlying bones reduced, shell covered with leathery skin.

Unmistakable in appearance.

Shells also flattened with more streamlined appearance.

Some get quite large (close to 1m).

Some are active predators, others will wait and camouflage themselves on the bottom of streams, etc., and wait for prey to swim by (some do both). Will also eat some plant material.

Several species in the U.S.

All are generally aquatic, and usually don't come out on land (there are some exceptions).

#### Dermatemydidae

Another small group (only one species).

Restricted to southern Mexico.

Found in slow moving water, fairly large (up to 65cm).

Herbivorous, and totally aquatic.

Critically endangered

You might remember that this species can lose its scutes quite easily.

#### Kinosternidae

Mud and musk turtles. Several species found in eastern U.S., but range extends through central America and into the northern third of South America (including portions of Amazon basin).

About 22 species (exact number is in flux).

Plastron may have one or even two hinges.

Usually smaller, but fairly wide spread.

*Sternotherus* and *Kinosternon* are both found around here.

Carnivorous.

Larger than average head size, probably due to diet favoring mollusks.

Don't swim well - prefer to walk across bottom. *K. flavescens* is more terrestrial than most.

*S. odoratus* has scent glands along the bridge that release foul smelling scent.

(It's the best known for doing this, but others will do this as well).

#### Emydidae

One of the larger families of turtles with about 50 species.

North America, Europe, into North Africa, also found in parts of South America.

Lots of variety.

Generally large plastron (sometimes hinged).

Occur in all kinds of habitats:

Aquatic, terrestrial, or a bit of both.

Includes a lot of our common turtles: *Terrapene*, *Graptemys*, *Pseudemys*, *Chrysemys*, *Trachemys*, etc.

#### Platysternidae

Big headed turtle

Only one species - *Platysternon megacephalum*.

Sometimes placed in with the Emydids, or even in Testudinoidea.

Found only in south east Asia.

Not well known. Occurs in streams at higher elevations (above 700mm).

Carnivorous (at least in captivity).

#### Geomydidae

Asian River Turtles

Over 65 species, and 23 genera.

Wide range of sizes.

A bit similar to Emydids in the sense that they inhabit a wide variety of habitats.

Anything from carnivorous to strictly herbivorous.

Many are in areas that are difficult to study.

Are often used for food - many may disappear before long.

The pet trade has also made a mess of some of these since all kinds of hybrid turtles are showing up that make it difficult to figure out what is a valid species or subspecies.

#### Testudinidae

Tortoises

Wide spread successful group with over 45 species.

Columnar type hind legs

Almost all have a high domed carapace (exception is the pancake tortoise).

All are terrestrial, and found in almost any kind of habitat.

In the U.S., several species of *Gopherus* (Gopher tortoises).

*Gopherus polyphemus* is found in Florida and Georgia.

*Gopherus agassizii* from American southwest.

Includes Galapagos and Aldabra tortoises.

Also includes some very strange animals such as pancake tortoises (*Malachersus tornieri*) and turtles of the genus *Kinixys*.

*Kinixys* is unique because it can close its shell using a hinged carapace.

*Malachersus tornieri* is odd because it's so flattened.

And we are done with turtles!