

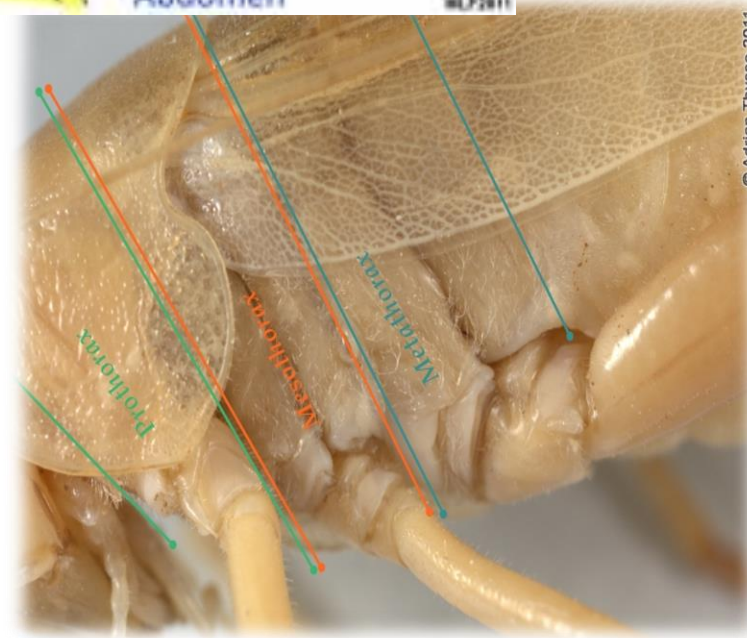
# Thorax Morphology Ak Grasshopper (*Poekilocerus pictus*)



**Thorax is consisted of three segments**

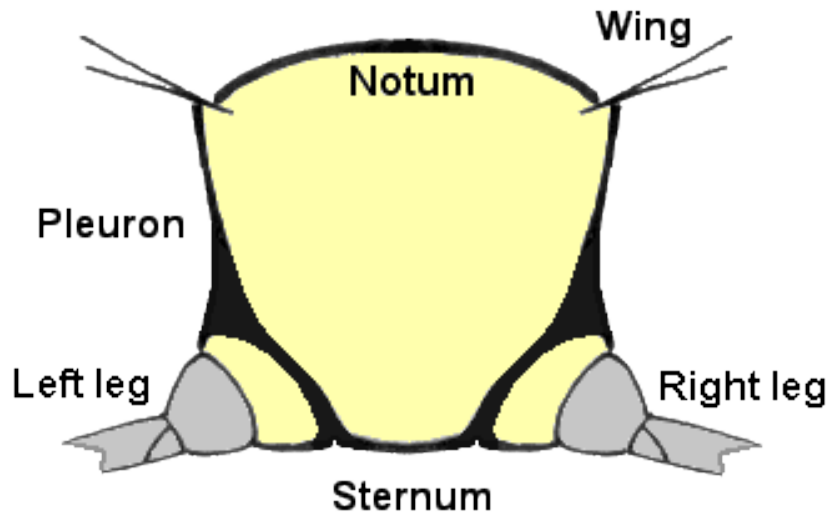
1. Prothorax
2. Mesothorax
3. Metathorax

Each segment bears a pair of legs on the lower side.  
Mesothorax and Metathorax (pterothorax) bear a pair of wings on the upper side.



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(Sides)

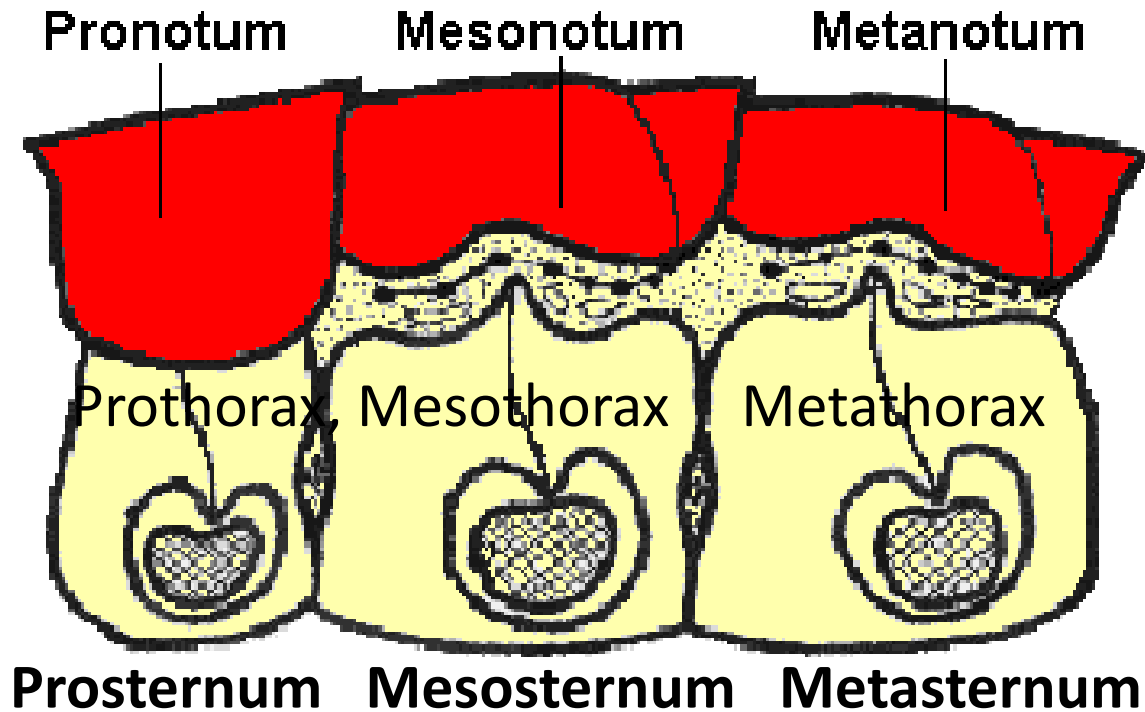


Each thoracic segment has **four sides**

1. The upper or dorsal side is the **notum** or **tergum**
2. The lower or ventral side is the **sternum**
3. Two lateral side is the **pleuron**.

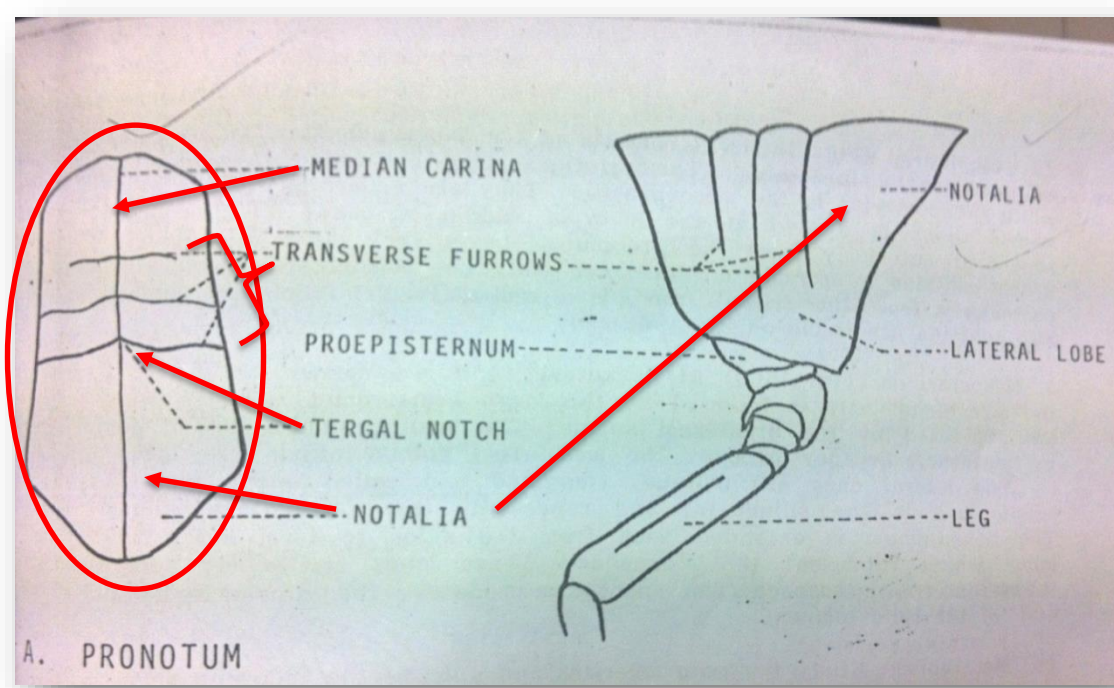
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Generally the prefixes pro, meso and meta are used for indicating a sclerite or a leg on the Prothorax, Mesothorax and Metathorax respectively.



# Thorax Morphology Ak Grasshopper (*Poekilocerus pictus*)

## (Prothorax-ProNotum)



**Pronotum:** Large saddle-like structure, present between head and bases of fore wings.

Covers the upper and lateral sides of the prothorax. Lateral sides are **lateral lobes**.

**Notalia:** hood-like structure on posterior end of pronotum, overlaps the sides slightly and upper side of the mesothorax entirely

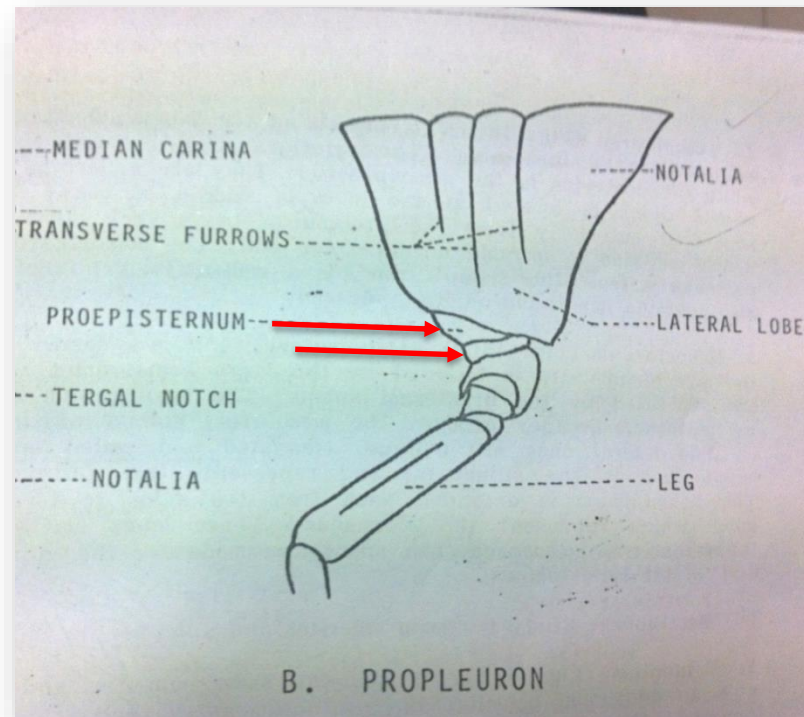
**Transverse Pronotal Furrows:** Three transverse furrows on pronotum.

**Median Carina:** a very fine rather an ill-defined longitudinal ridge in the center of pronotum.

**Tergal Notch:** is a forward bent from the mid-dorsal line of the last prominent transverse furrow.

# Thorax Morphology Ak Grasshopper (*Poekilocerus pictus*)

## (Prothorax-Propleuron)



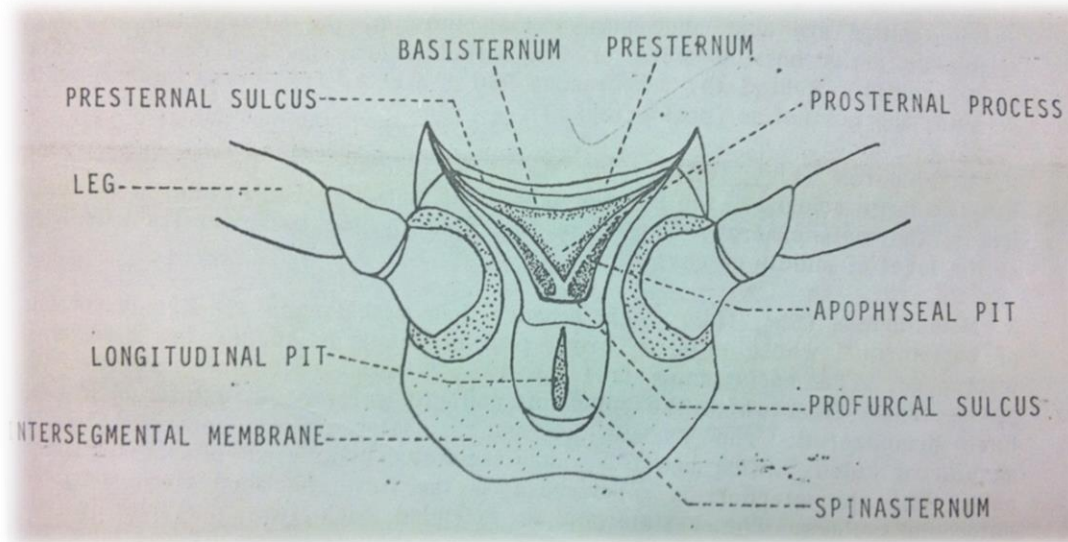
**Proepisternum:** an anterior small triangular sclerite in front of proleg base just below the anterior part of lower margin of lateral lobe.

**Proepimeron:** a smaller posterior sclerite of proepimeron slightly above the leg base and just posterior to the proepisternum.

**Propleural Sulcus:** separates the Proepisternum and Proepimeron.

# Thorax Morphology Ak Grasshopper (*Poekilocerus pictus*)

## (Prothorax-Prosternum)



**Prosternum:** is between the bases of the prolegs and more deeply sunk as compared to meso- and metasternum. It is roughly rectangular and divided into three sclerites.

**Presternum & Basisternum:** The anterior sclerites are narrow sclerites in front of peg-like **prosternal process**. These two sclerites are separated by a **presternal sulcus**.

**Spinasternum:** is the last shield-like sclerite with a narrow **longitudinal pit** in a center.

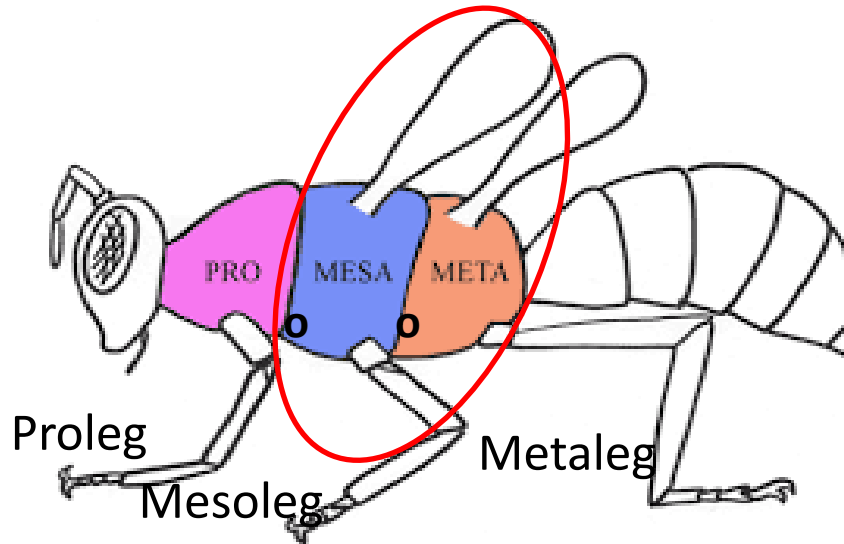
**Profurcal Sulcus:** It separates Spinasternum from basisternum by a transverse profurcal sulcus which lies just posterior to the prosternal process.

**Apophyseal Pits:** are two pits at the ends of Profurcal Sulcus. Each pit located on the side of the prosternal process lies in an oblique fashion.

**Intersegmental Membrane:** lies on the lateral and posterior sides of the spinasternum.

# Thorax Morphology Ak Grasshopper (*Poekilocerus pictus*)

## (Pterothorax)



**Pterothorax:** The mesothorax and metathorax are more or less welded together to form pterothorax (thorax bearing wings).

The anterior pair of wings arises from mesothorax and the posterior pair from metathorax.

**Forewings:** The fore wings are narrow and slightly thickened to form tegmina which function mainly for the protection of hind wings.

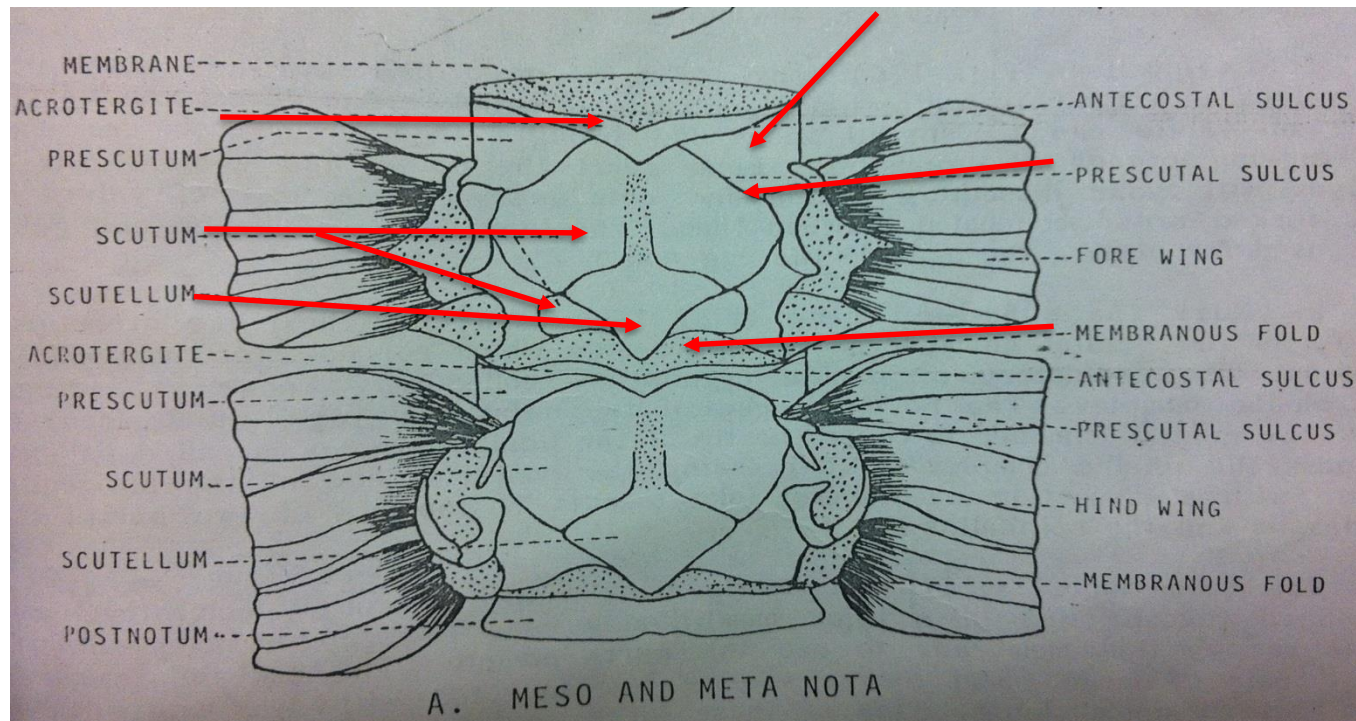
**Hindwings:** The hind wings are thin, membranous and folded like a fan under the fore wings when the insect is at rest.

**Thoracic Spiracles:** spiracles of mesothorax and metathorax.

**Meso and Metalegs:** Legs of mesothorax and metathorax.

# Thorax Morphology Ak Grasshopper (*Poekilocerus pictus*)

## (Meso & Meta Nota)



**Acrotergite:** broad V-shaped intersegmental sclerite after intersegmental membrane. It is limited posteriorly by the **antecostal sulcus** behind.

**Scutum:** is the largest somewhat raised sclerite behind the acrotergite, divided into two parts.

**Prescutum:** are triangular areas on the anterior sides of Scutum.

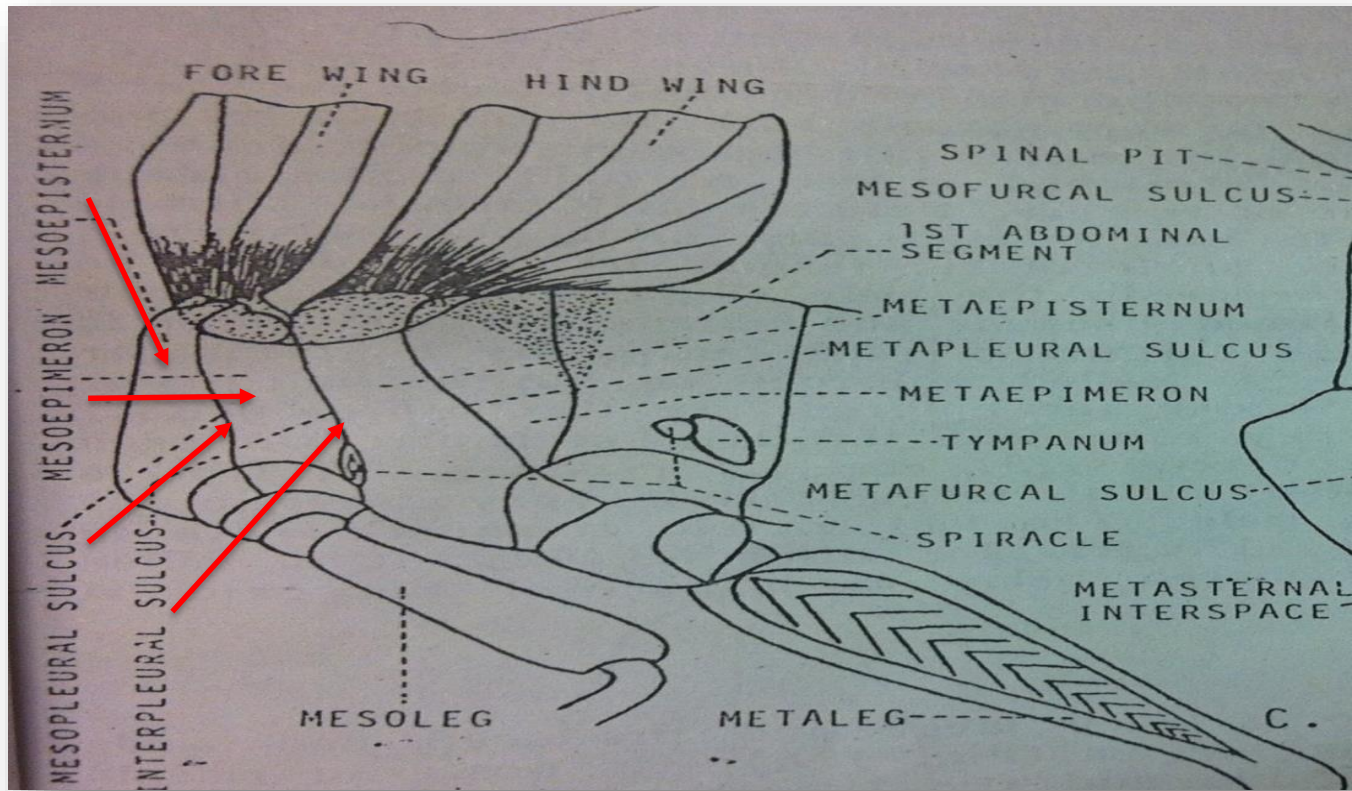
**Prescutal Sulcus:** separates each part of the prescutum from the scutum.

**Scutellum:** is elevated, median and backwardly directed triangular sclerite posterior to scutum.

**Membranous Fold:** is transverse and at the end of mesonotum, by some morphologists is considered to be the part of scutellum.

# Thorax Morphology Ak Grasshopper (*Poekilocerus pictus*)

## Meso & Meta Pleuron)



**Mesopleuron:** consists of two large sclerites between the bases of mesoleg and fore wing.

**Mesoepisternum:** is the anterior sclerite.

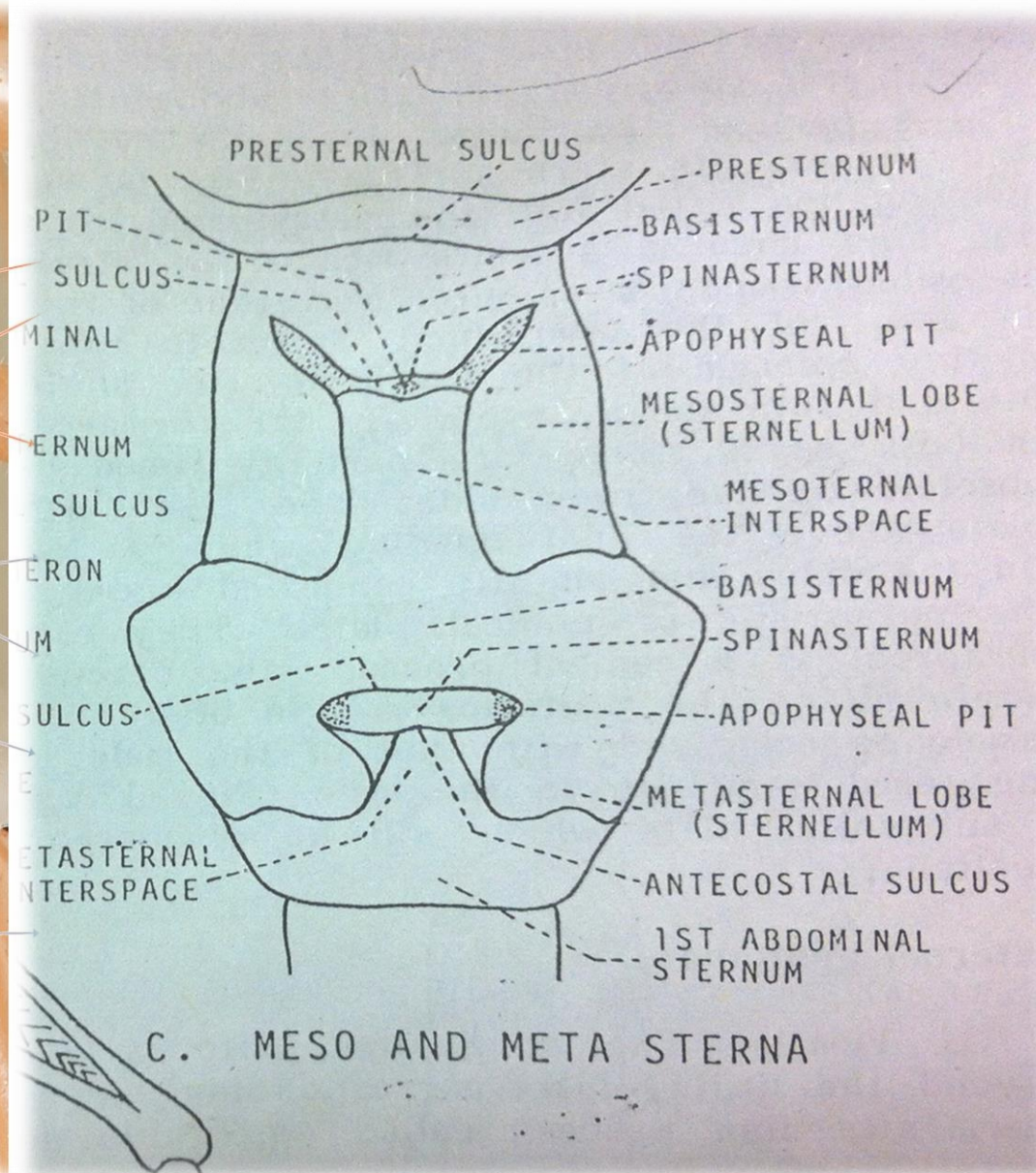
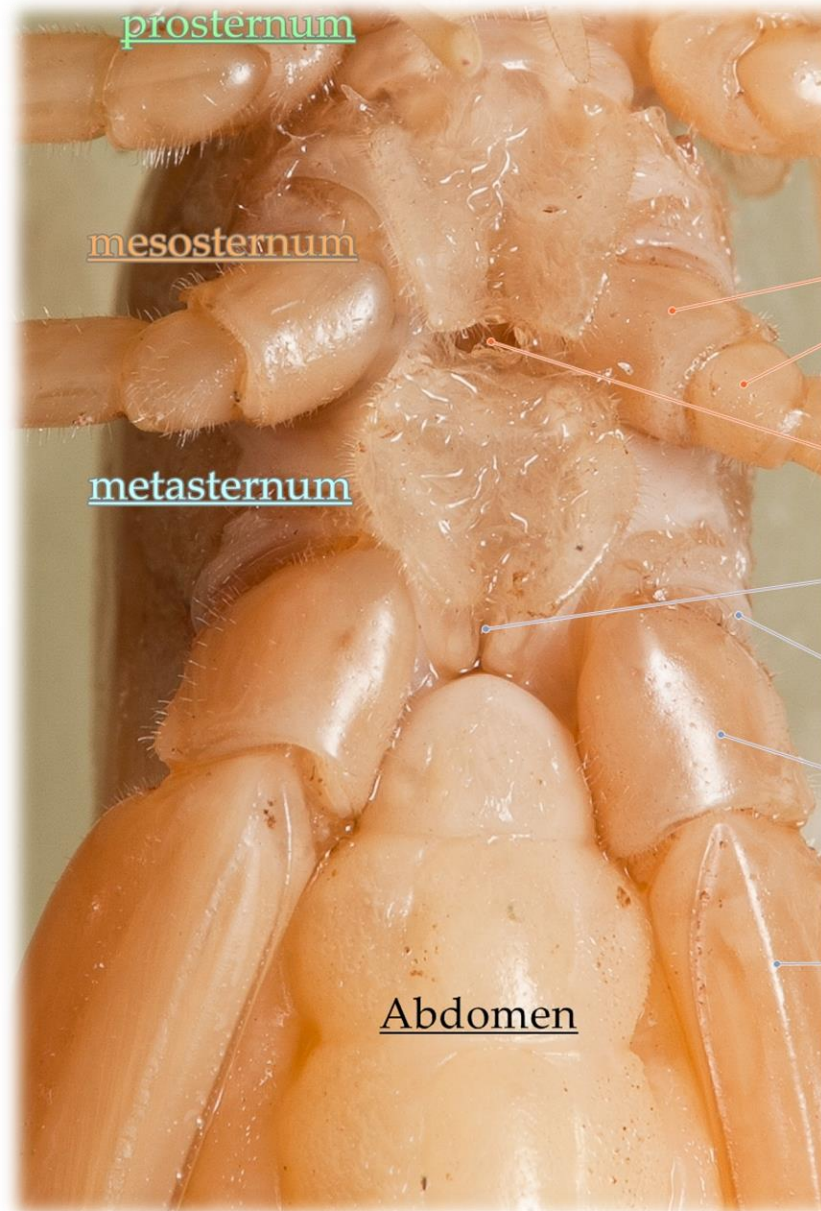
**Mesoepimeron:** is the posterior sclerite.

**Mesopleural Sulcus:** is located at the level of middle of coxa and separates mesoepisternum and mesoepimeron

**Interpleural Sulci:** separate mesopleuron anteriorly from the propleuron and posteriorly from metapleuron which contain a spiracles on lower ends.

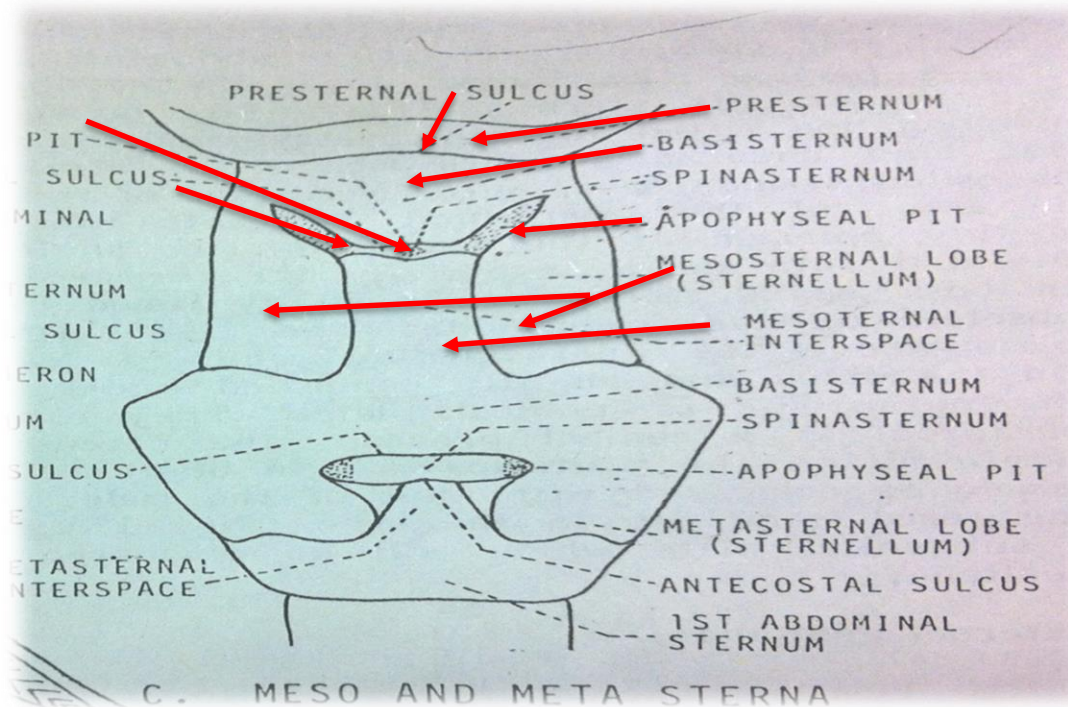
# Thorax Morphology Ak Grasshopper (*Poekilocerus pictus*)

## Meso & Meta Sterna)



# Thorax Morphology Ak Grasshopper (*Poekilocerus pictus*)

## Meso & Meta Sterna)



**Presternum:** is a narrow transverse sclerite at anterior end of mesosternum.

**Basisternum:** is a large sclerite posterior to presternum.

**Presternal Sulcus:** separates the sclerites “Presternum and Basisternum”.

**Mesofurcal Sulcus:** a rather broader groove on posterior end of basisternum with three pits.

**Apophyseal Pits:** are lateral pits in mesofurcal sulcus which are oblique and elongated.

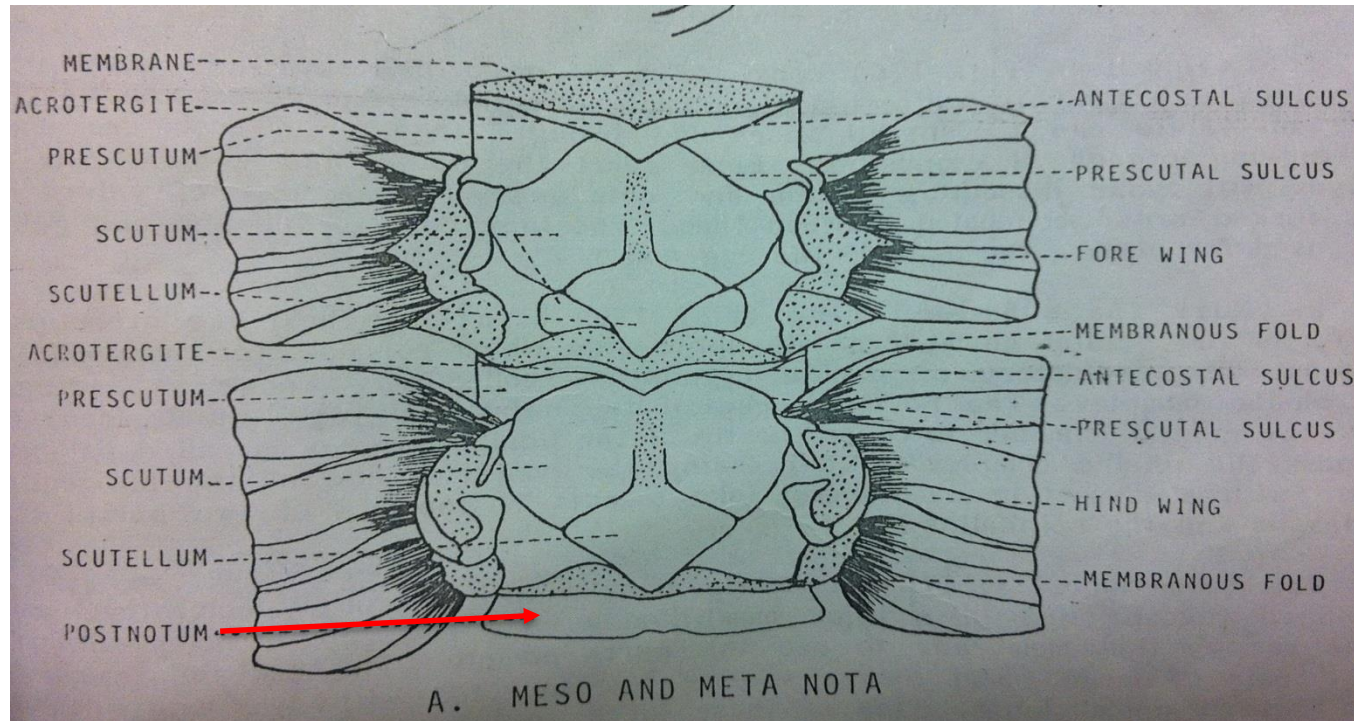
**Spinal Pit:** is middle pit in rudimentary spinasternum along mesofurcal sulcus.

**Mesosternal Lobes:** back from the basisternum, sides form large lobes representing sternellum.

**Mesosternal Interspace:** is in between mesosternal lobes. It accommodates the anterior median prolongation of the metasternum.

# Thorax Morphology Ak Grasshopper (*Poekilocerus pictus*)

## (Meso & Metathorax)

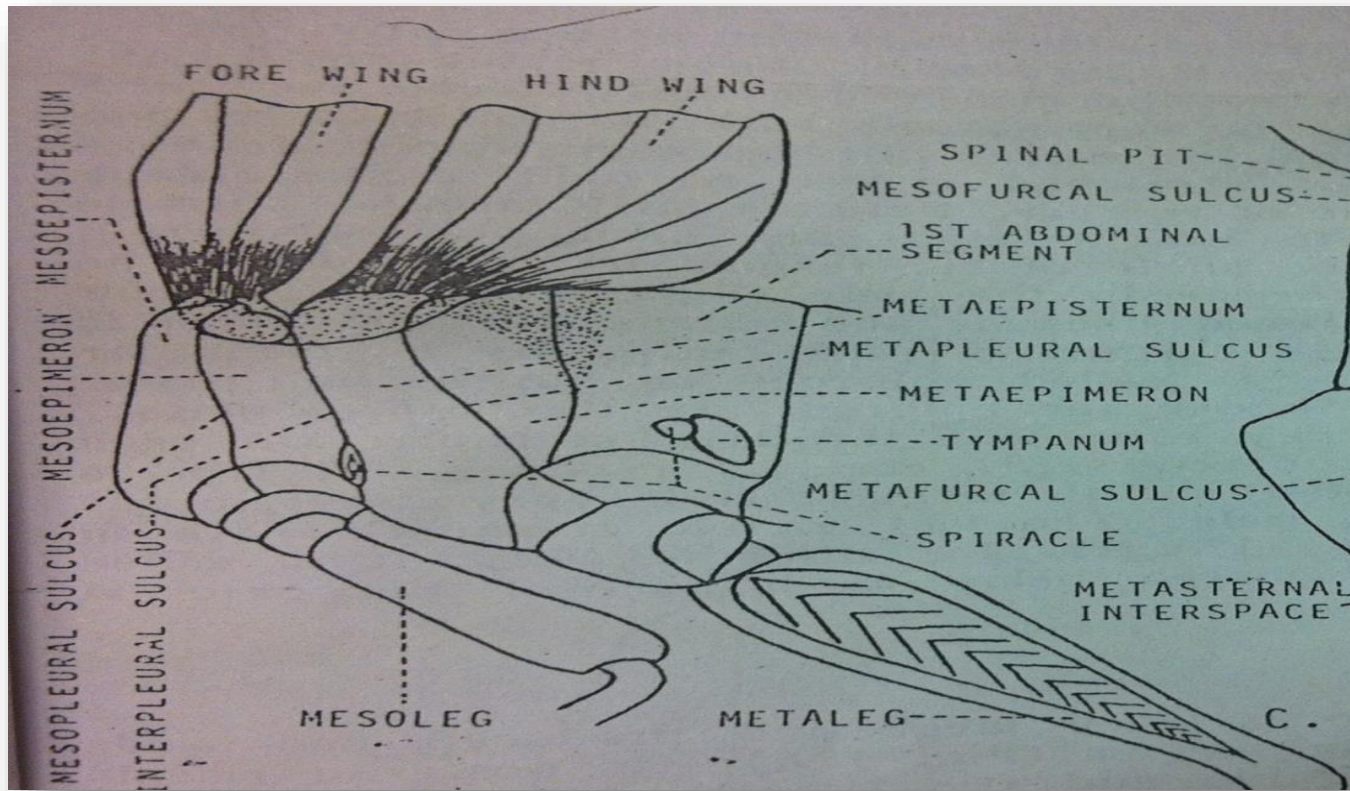


### Metanotum vs Mesonotum

- Metanotum has an additional broad, transverse intersegmental sclerite, the postnotum at the end.
- The acrotergite is much narrower than that of the mesonotum.
- Two triangular areas of the prescutum are also much smaller than those of the mesonotum.

# Thorax Morphology Ak Grasshopper (*Poekilocerus pictus*)

## (Meso & Metathorax)

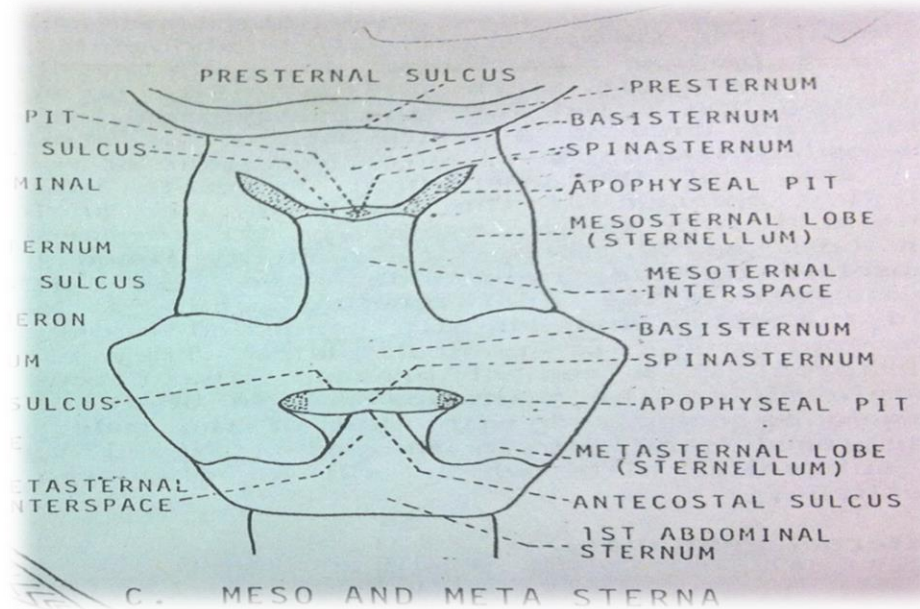


### Metapleuron

It is similar in structure to the mesopleuron. It has two large sclerites, the anterior one is the **metaepisternum** while the posterior one is the **metaepimeron**. These are separated by the **metapleural sulcus** lying at the level of middle of coxa.

# Thorax Morphology Ak Grasshopper (*Poekilocerus pictus*)

## (Meso & Metathorax)



### Metasternum vs Mesosternum

- Metasternum is broader than mesosternum.
- Basisternum is larger with anterior broad prolongation is fitted into mesosternal interspace.
- The spinasternum is without spinal pit and its corresponding internal process
- Metafurcal sulcus has two widely separated apophyseal pits on its lateral ends.
- The spinasternum is separated from the first abdominal sternum by the antecostal sulcus.
- Metasternal interspace accommodates the anterior median prolorgation of the first abdominal sternum.