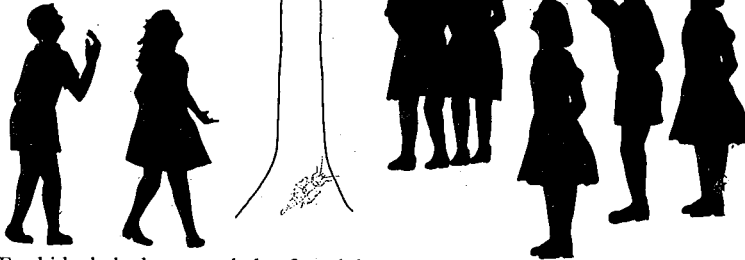




ABC of Indian Insects

*A Colouring Book **

B.A. Daniel



* For kids, lads, lasses and also for adults



ABC of Indian Insects

A Colouring Book

(For kids, lads, lasses and also for adults)

B.A. Daniel

Zoo Outreach Organisation, India
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79, Bharathi Colony

P.O. Box 1683

Peelamedu, Coimbatore 641 044 TN, India.

Email: herpinvert@vsnl.com

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Design and Text:

B.A. Daniel

Art:

J. Vijayanand, ZOO, India.

Rachel Mills, UK.

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About this book...

An Insect is an animal that has no backbone (invertebrate). Insects have jointed legs and the body of the adult insect is distinctly divided into three regions: head, thorax and abdomen. An insect will have two or four wings and six legs. Dragonflies, beetles, bugs, housefly etc., are examples of insects. Spiders, crabs, millipedes and centipedes are not insects. Animals with backbones are called vertebrates – people, bears, tigers, birds, snakes, frogs, fish, etc.

Insects are found everywhere on the earth: inside the house, kitchen, school, office, playground, garden, library, ponds, lakes, rivers, mines, forests and even within man, animals and plants. Insects are the most dominant group of all living things.

Man considers a few insects like mosquitoes, flies, fleas, bed bugs and certain beetles and moths as harmful and destructive, but the fact is that most of the insects are useful, either directly or indirectly. Among invertebrates, insects in particular play a very important role for human and other animals in their daily life, which most people do not realise. Insects do good things for man – they spread pollen, which gives birth to plants. Insects like butterflies, dragonflies, and certain beetles are beautiful and provide a charming surprise when we find them quietly fluttering among flowers and plants in gardens and forests. Scientists have proved that insects are essential for the survival of man, plant and animals.

So insects make Man's life better in many ways. What has man done for the insects however? Nothing good! Man has changed his surroundings, which has resulted in destruction of habitat of insects. This has caused the decline and even disappearance of many wild creatures including insects.

Some men make their living by catching insects like beetles, bugs, butterflies and selling them for use in decorative items or for insect collectors in other countries. Even catching insects for fun and hobby collections can be very harmful, particularly to rarer species.

India is one of the most bio-diversity rich countries and has a vast number of insects. Many of them are beautiful. Scientists say that insects are decreasing in number and the rate of disappearance of insects is not known but it is estimated to be quite a lot. Now, man has to do something positive for insects so that they don't disappear forever.

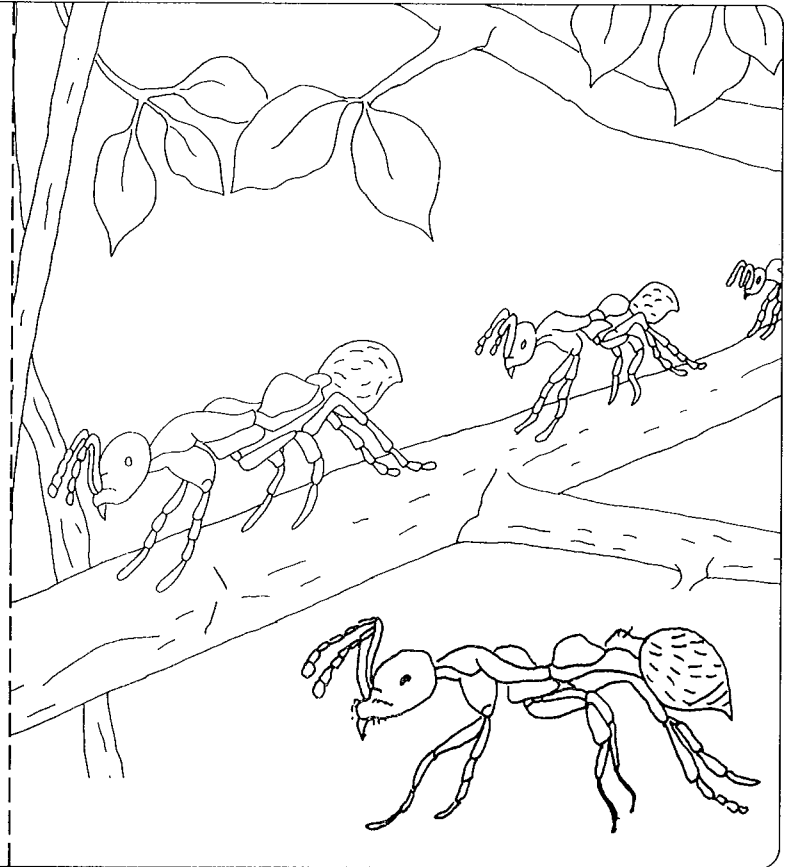
One of the best ways to achieve this is to educate the public of which children are an important target group. Children are naturally curious and bright and will carry lessons of their childhood right into their adult life, where they will be responsible or irresponsible consumers.

A colouring book on Indian Insects is one way to teach about the life history, its living place and its importance in the ecosystem. This colouring book has been designed so that its most effective application is when an adult or older child helps a small child to use it. There are 26 insects in this ABC book. It is hard to speak of so many insects in a small child's language so we have aimed the information at an older group. It is our hope that this group might also become fascinated with the great variety of insects and the habitats they occupy by teaching children.

Aa is for

Ant

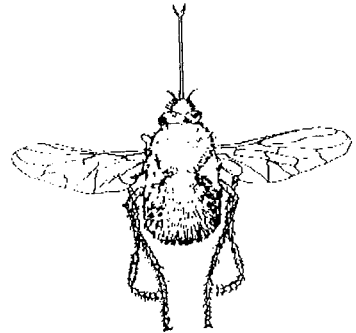
Ants are social insects. They live in colonies. A colony consists of a queen, workers, soldiers, males and females. Wingsless females are sterile and they are the workers. The queen ant is responsible for egg laying. Ants feed on substances like dead and living animals, plants, seeds, fungi, fruits, pollen, and nectar. Ant nests are used as shelter for other invertebrates like mites, spiders, caterpillars and beetles. More than 500 kinds of ants are present in India. Colour Black in green background



Bb is for

Beefly

The Beefly has a stout hairy body and large slender wings. They fly at great speed. They dart suddenly a short distance forward, backward, or sideways and then hover for a few seconds in a new position. The females lay their eggs close to the nests of bees and wasps. The larvae of the bee flies are parasitic on other insects. They also lay their eggs on eggs of grasshoppers and beetles. The colour of the wing is green blue and body brown.



Cc is for
Cricket

Crickets are burrowing insects of the ground and field. They have well developed hind legs adapted for jumping. The first pair of wings is leathery and the hind wings are transparent and broad. The males chirp. Chirping helps the sexes to find one another. Females have a well-developed egg-laying apparatus. The eggs are laid singly in the ground. The young ones are called nymphs. Give light brown for the wings and body dark.



Dd is for

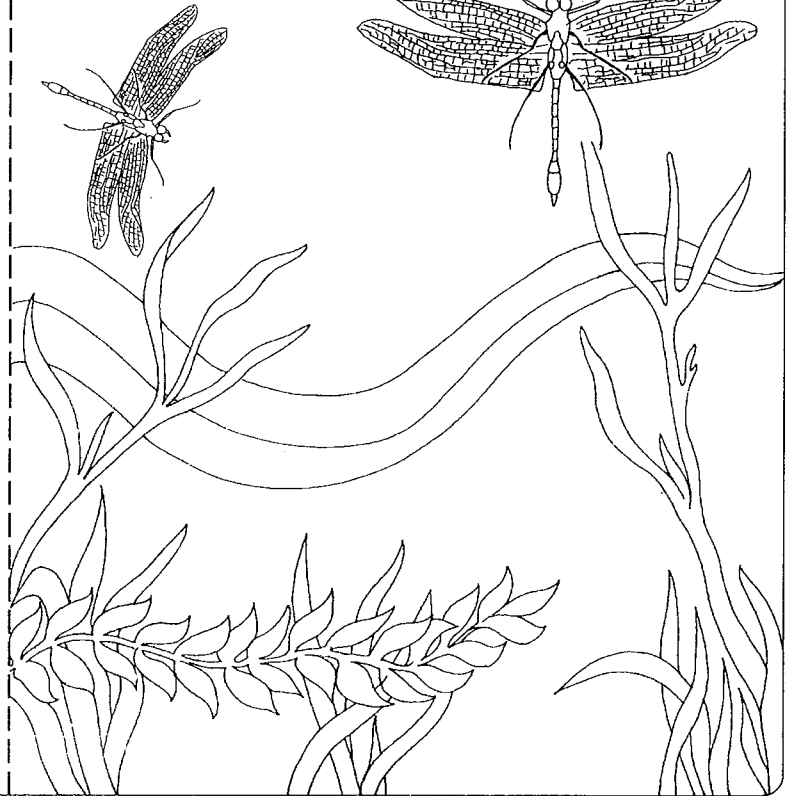
Dragonfly

Adult dragonflies feed on other insects like mosquitoes. The adults live on land and air while the young ones live in water. The young ones resemble the colour of the bottom surface of the pond or lake in which they live.

The nymphs are capable of swimming but move by crawling.

The adults have very large eyes.

The dragonflies are extremely skilful in flying. At rest they keep their wings at right angles to the body like an aeroplane. The females lay their eggs on the surface of the water or on the tissue of the water plants.



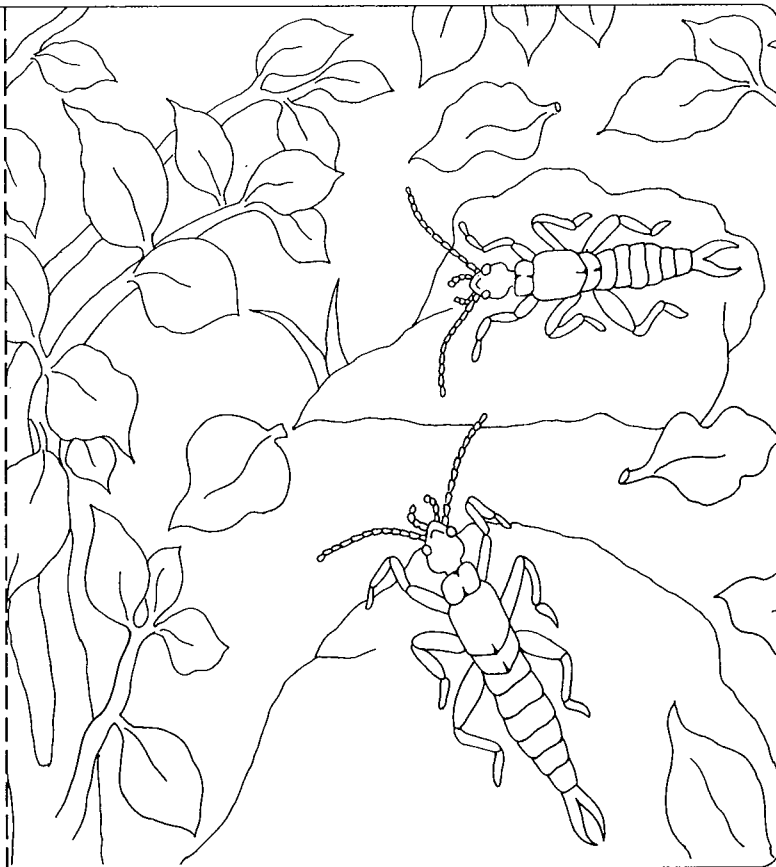
Ee

is for

Earwig

Earwigs live in damp areas, mostly found under stones leaf litter and loose bark of trees.

They feed on decayed organic matter. The wings are horny which do not extend to the tip of body but conceal the membrane-like hind wing. The abdomen bears a pair of toothed forceps. They lay eggs in clusters and guard them to keep off fungal and bacterial spores. These are active during nighttime. Colour the wing black and the body with light brown.



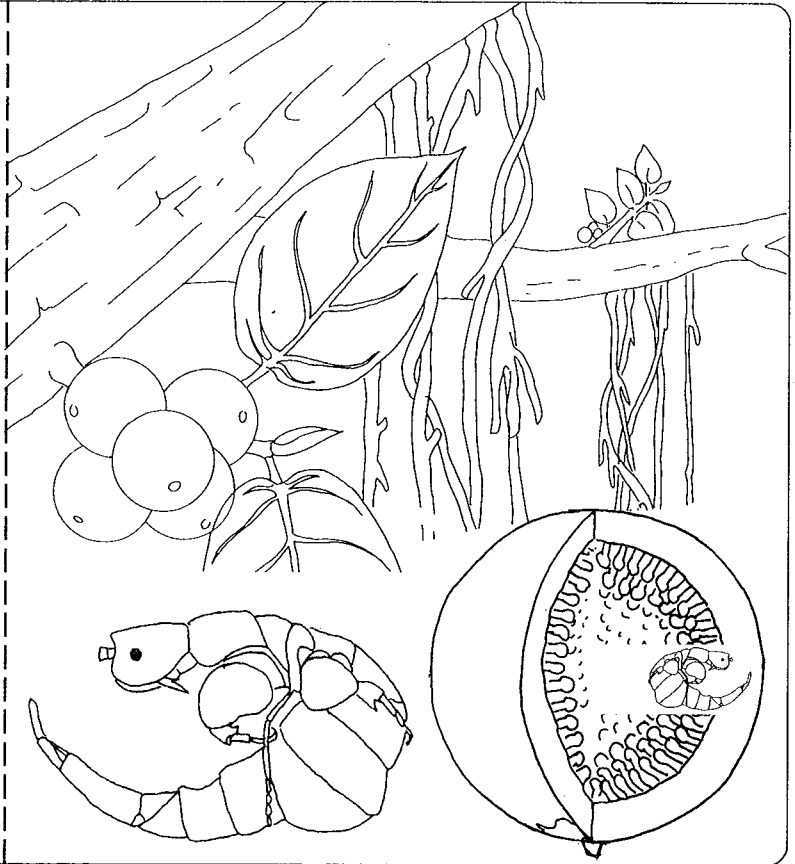
Ff

is for

Fig wasp

Fig wasp has an important association with the Fig plant.

They play a major role in pollination. These insects live with in receptacles and pollinate. If fig insects fail to pollinate, the fruit falls without maturing. Absence of this insect will result in the disappearance of the fig tree. Colour body of the insect with light colours



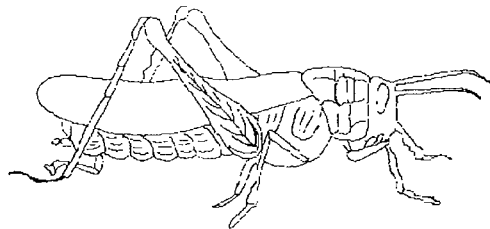
Gg is for Grasshopper

There are two types of grasshoppers: long horned and short horned grasshoppers.

Grasshoppers are capable of jumping and are ground-living forms. Certain type of grasshoppers move from one place to another in large numbers.

They feed on plants. Female

grasshopper possess a long swordlike egg laying device at the tip of the abdomen. They lay 50 - 100 eggs in the soil by drilling a hole with the egg laying device.



Hh

is for

Horsefly

Adult Horseflies usually visit flowers but often feed on horse or cattle and hence their name. They feed on any warm-blooded animals.

Horseflies have piercing and sucking type of mouthparts.

Horseflies have one pair of wings and the hind wing is modified as balancing organ called halteres. These approach their hosts with a loud hum (ZZZZ.....).



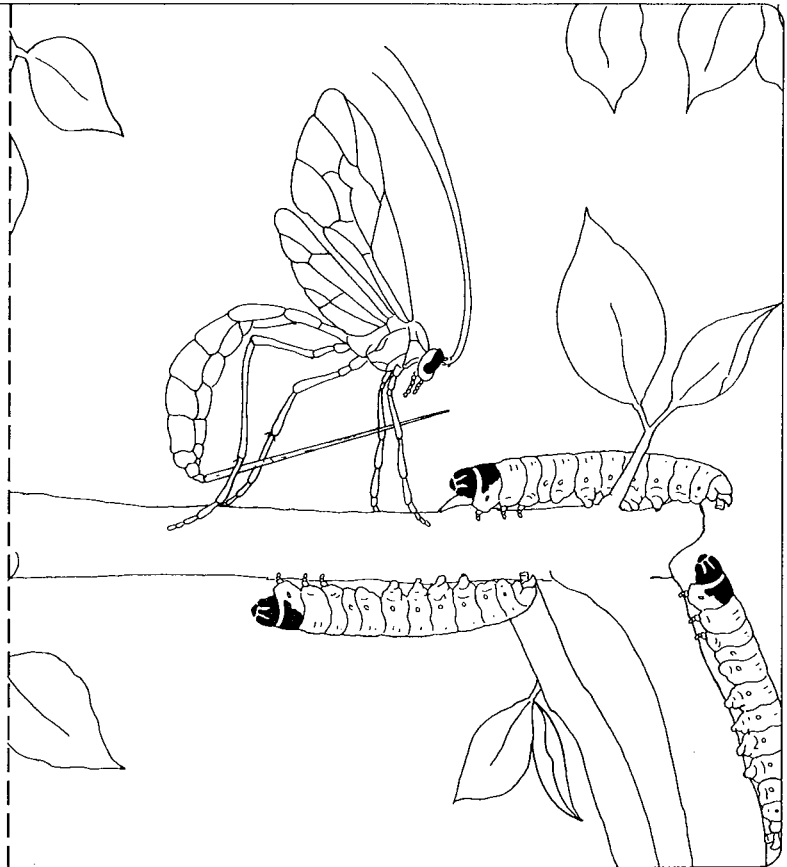
li is for
Ichneumon fly

Ichneumon fly is a wasp-like insect. Adult Ichneumon flies are active during daytime.

They visit flowers.

The females lay their eggs on the larva or pupa of butterflies, beetles and certain flies. The abdomen of this insect is long.

The egg -aying apparatus is often six times the length of the body.

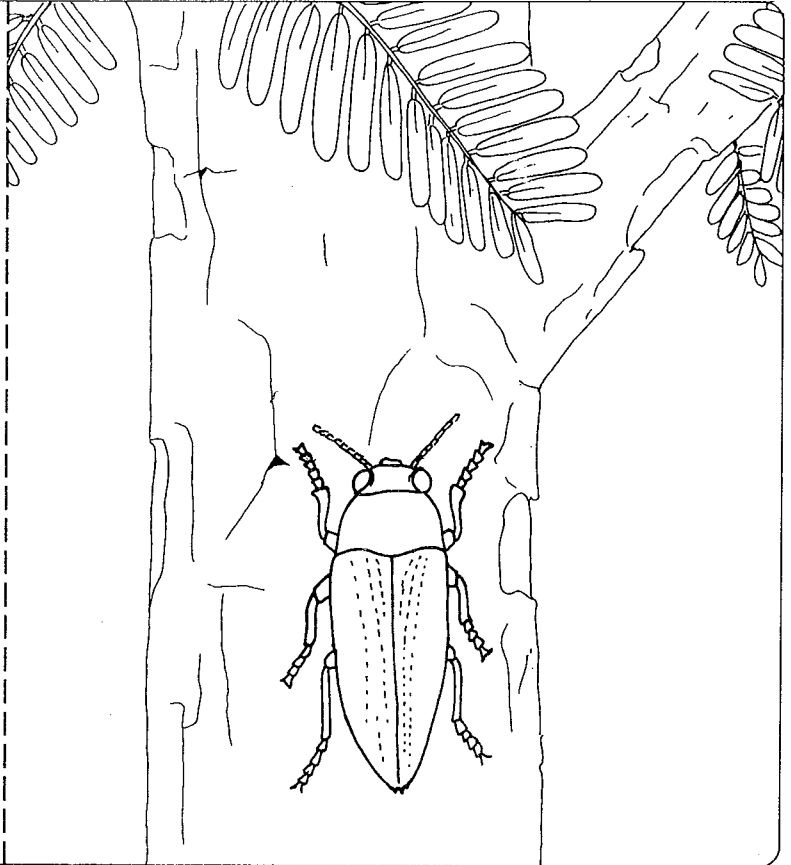


Ji

is for

Jewel Beetle

Beetles are hard-bodied insects and the first pair of wings is modified in to a structure called elytra, which is not fitted for flight. The elytra of the jewel beetle are beautiful and it attracts the attention of man and has been utilized in embroidery and other works of art in India and other countries. Most of the beetles of this group are tree borers and cause damage to various cultivated plants. The colour of the elytra is metallic green



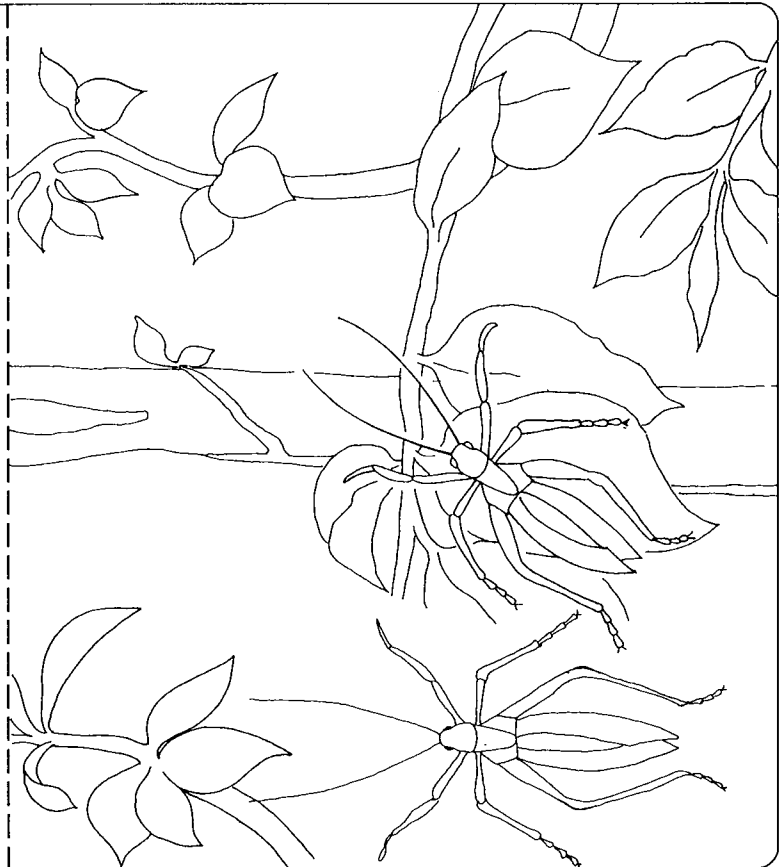
Kk is for

Katyids

Katyids are popularly called long-horned grasshoppers.

They are active during daytime and can be found on plants resembling the leaves in colour and design.

This is an adaptation to escape from their enemies. They also feed on the plants. The egg laying apparatus present at the tip of the abdomen of the female is long and sword like. The colour of the insect is leaf green.



Ll is for

Lepisma

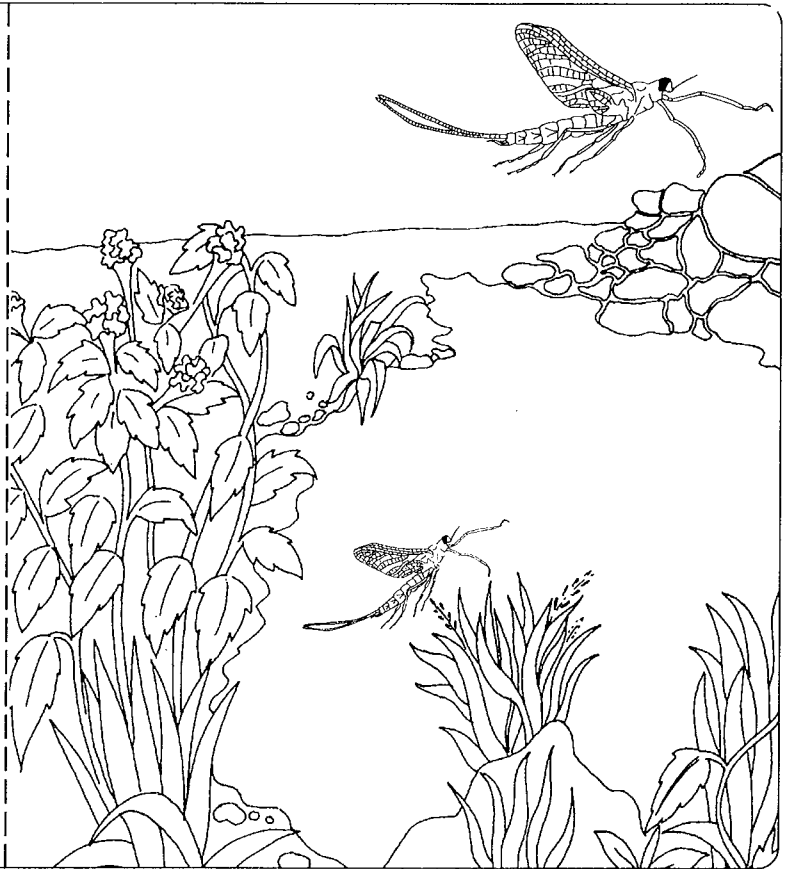
Lepisma is called Bristle tail or Silverfish. These are wingless insects. This insect can be seen running across the wall when they are disturbed from their hiding place beneath old papers or books where they live in great number. Outside the house, they feed on dry and decayed materials. Their skin is covered with small scales that give it a silvery appearance and its name.



Mm is for

Mayfly

Adult mayflies live for only a few hours. Young ones inhabit rocky streams, lakes and ponds. The may fly has three thread-like filaments protruding from the end of the abdomen. The adult emerges from the nymph in the evening time and after mating they die. The females after mating lay thousands of eggs in the water before they perish. The nymphs feed upon the aquatic plants. Fishes eat the mayfly nymphs.



Nn is for

Nepa

These are commonly called as 'Water Scorpion'. These are aquatic bugs but not adapted for swimming. They crawl slowly over the muddy bottom of a pond or creep through the aquatic vegetation. They feed on other invertebrates. They have a long respiratory tube located at the hind end of the body.

The females lay eggs with a pointed, toothed apparatus, placing them in notches cut in the tissues of water plants.

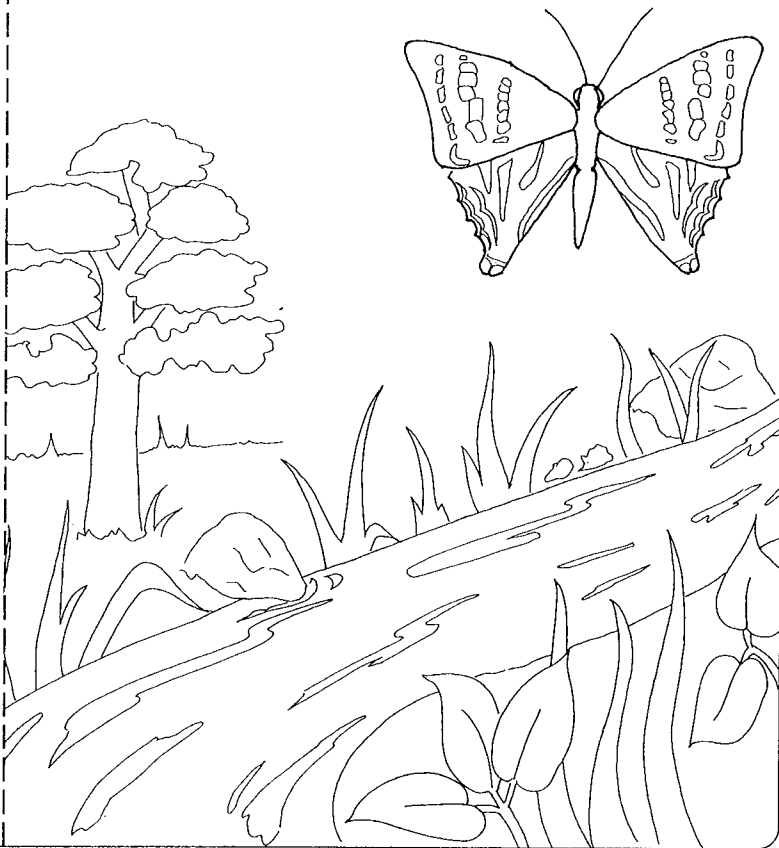
Colour light brown.



O o is for

O range punch

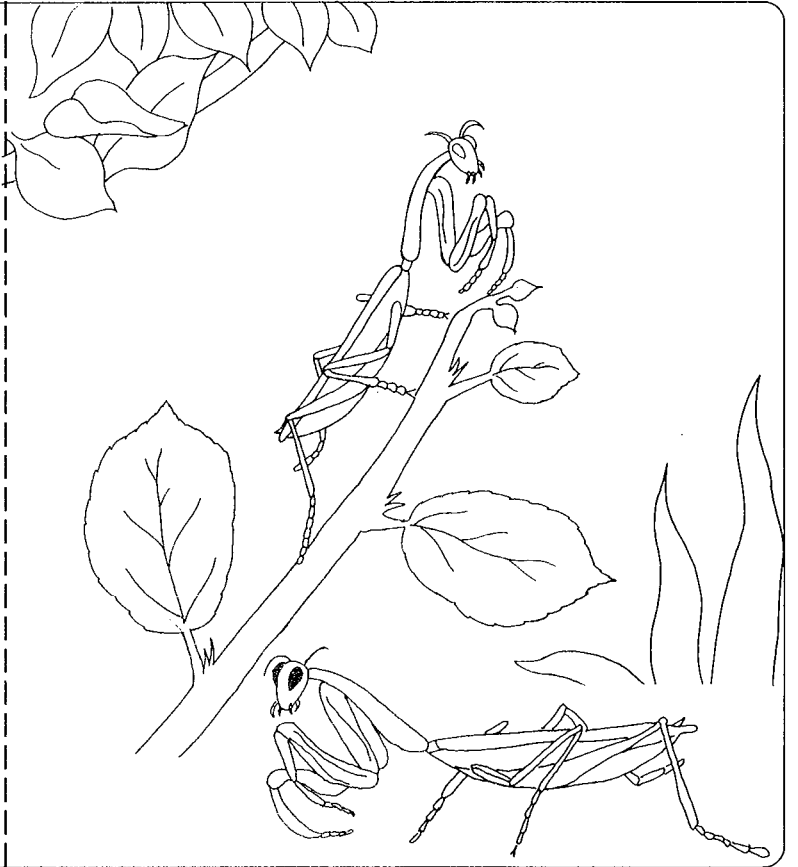
Orange punch is the English common name of this butterfly. It is rare and found in the regions of Assam. Its average wingspan (i.e., double the distance from the tip of the forewing to the middle of the body) measures to 45-50 mm. Orange punch fly in sunshine near streams. These fly quickly and settle frequently on projecting leaves of bushes of trees. Their colour is dark brown with orange broken bands.



Pp is for

Praying Mantis

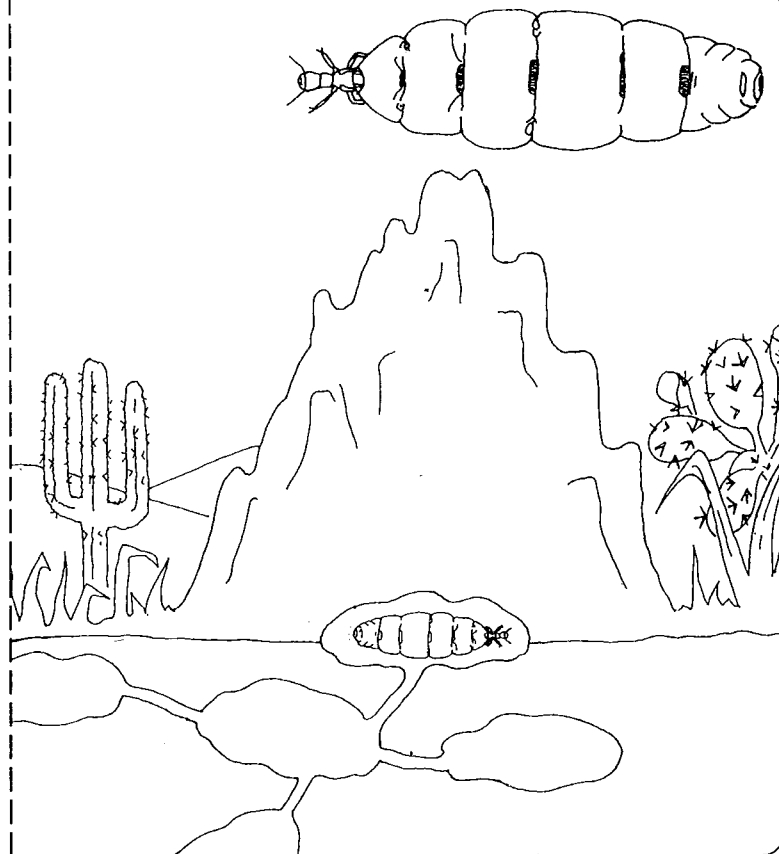
These are medium or large and carnivorous. They are easily identified by the peculiar form of its front legs which is well adapted to catch its prey. These remain motionless for long periods at a time. The mantids holds their forelegs raised to gether in front and hence it is called praying mantis. The eggs are laid in an egg case (ootheca) which is attached to twigs, barks, walls, and other objects. Colour is leaf green.



Qq is for

Queen termite

The queen termite is the reproductive individual of a termite colony. The queen termites grow very large and finally can hardly move. Certain queen termites like *Odontotermes* can reach up to a length of 12-13cm. During the process of development of the colony the queen devotes herself for egg laying. They are called 'egg-laying machine'. Colour head and thorax light brown and abdomen half-white



Rr is for

Rhinoceros Beetle

This is one among the striking insects among beetles. These are black. The female is hornless but the male has a stout, upright horn on the head and look like a 'Rhino'.

These are active during nighttime, but are not often seen at large. Rhinoceros beetle is a great pest of coconut plantations, destroying the tissue at the leaf-bases.

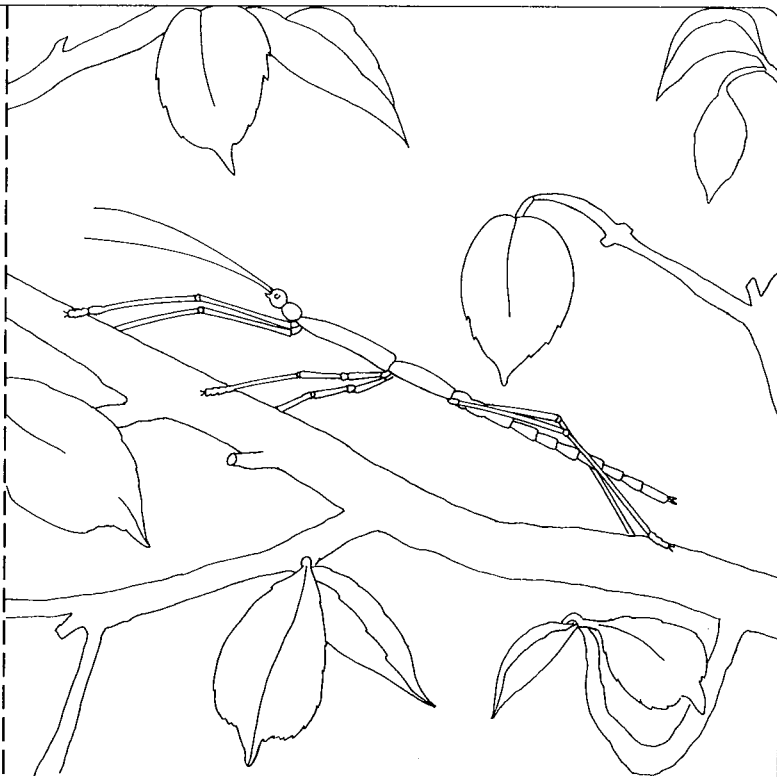


Ss is for

Stick Insect

Stick insects are large and mostly without wings. This is an example for insects that camouflage by resembling the foliage or, more frequently, twigs of the vegetation on which they occur and feed. The eggs are deposited singly.

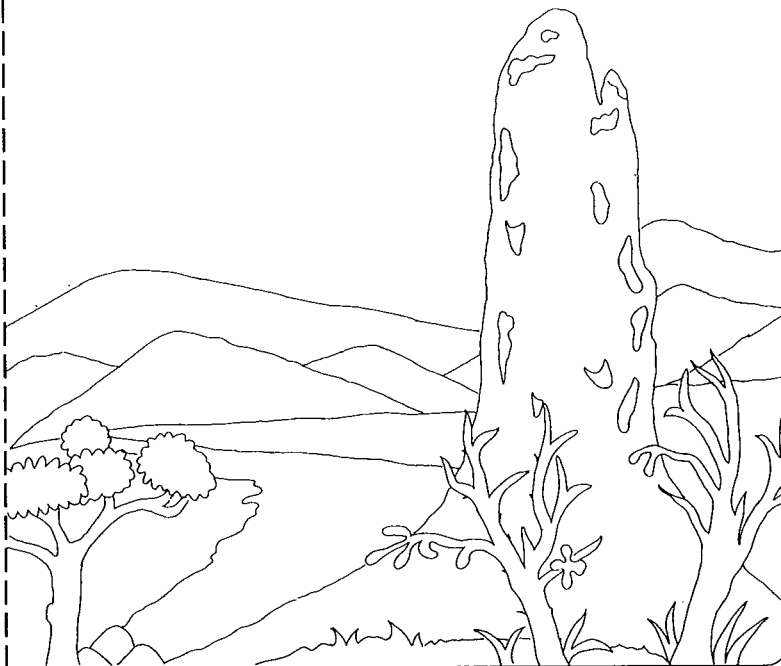
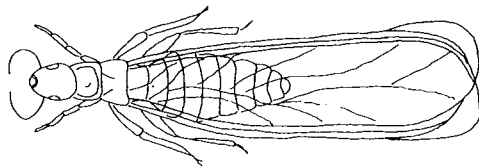
Colour of the insect is green or light brown.



Tt is for

Termite

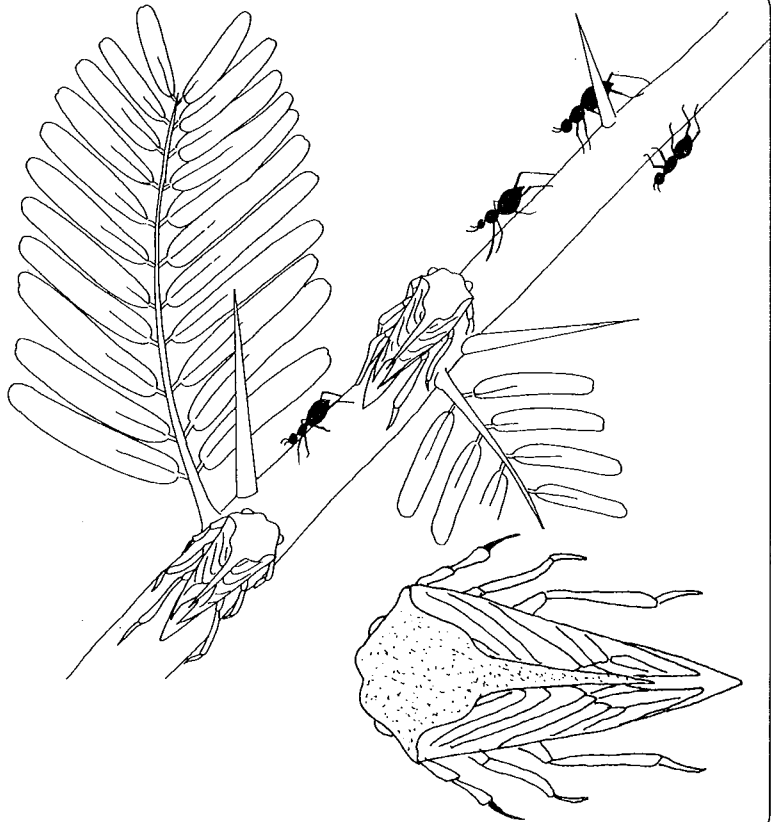
Termites are social insects. Termite colonies are found beneath the surface of the earth or in the dead branches of trees. They also build termite mounds. The Colony consist of 3 distinctive castes such as males, reproductive castes and worker/soldier castes. Wings are very similare elongate and membranous, flat over the back when at rest. The wingless individuals are called soldiers and workers. They keep the soil in constant circulation which allow the entry of air and moisture into the soil.



Uu is for

Umbonia

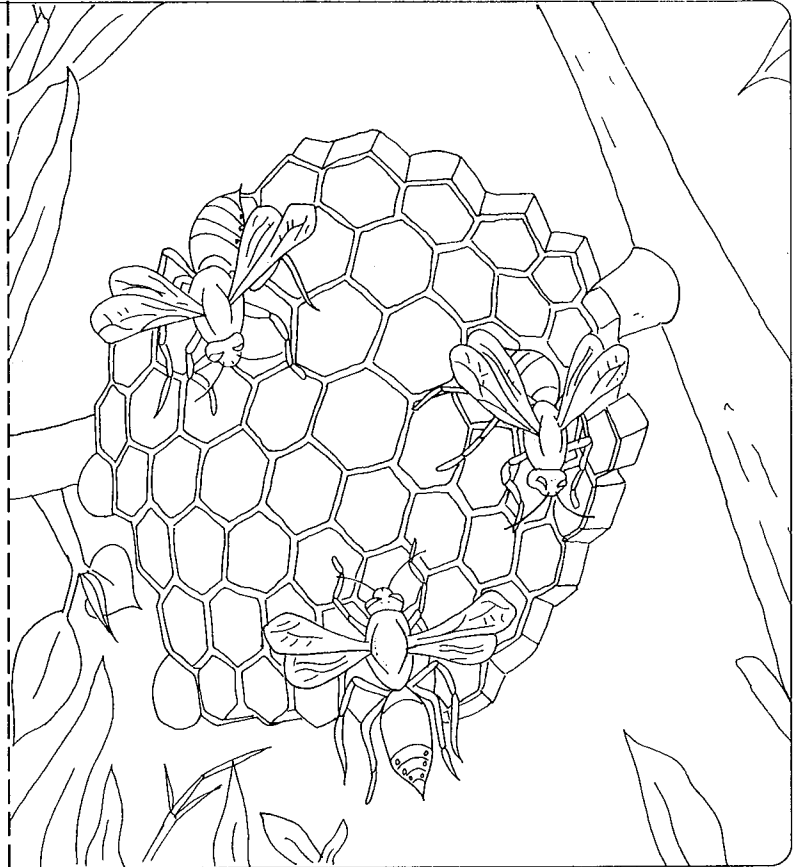
These are bugs popularly called as treehoppers. These insects are easily identified by the presence of a prominent elevated hood or process, lying over the abdomen. These have a symbiotic relationship with ants. Ants attend both young ones and adults. When ants strike the umbonia with their antennae, umbonia exude a sweet liquid from its body, which will be eaten by the ants. The ants, in turn, protect the umbonia from its enemy. Its colour is light green



Vv is for

Vespa

Some wasps are social and some are single. Some wasps exhibit nest-building habit, some dig tunnels in the ground; a few construct tubular nests in wood or stems. There are also mason or potter wasps constructing vase-like nests of mud or clay. Certain other wasps, rather than building their own nests, make use of deserted nest of another wasp or of a nail-hole. They mostly prey on caterpillars. The predated larvae are stored in the cell where eggs are laid.



Ww is for

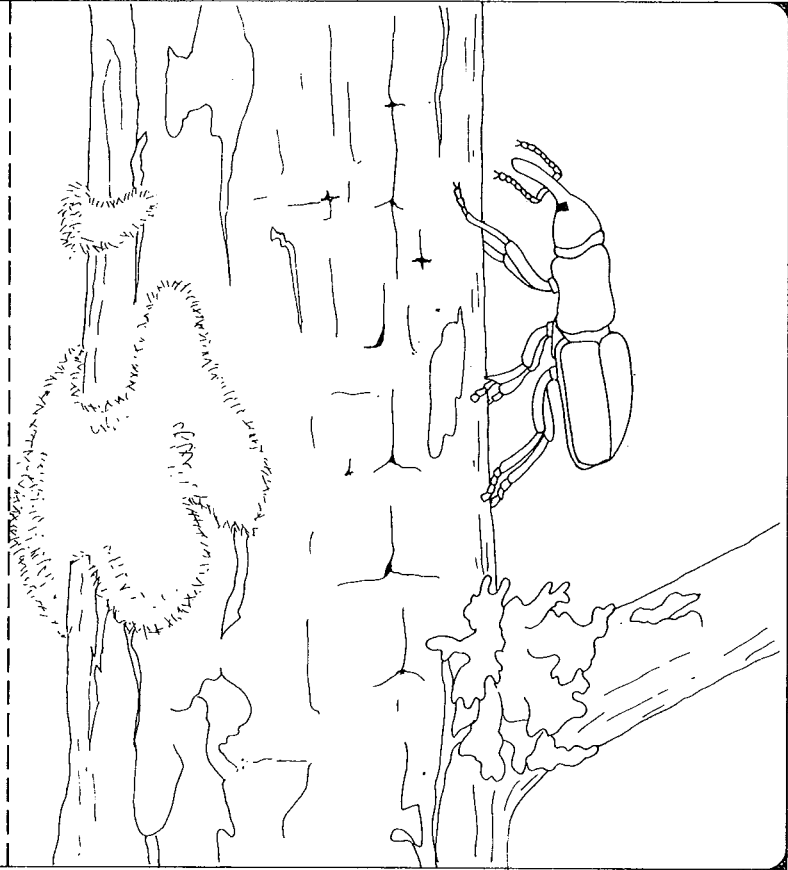
Weevil

Weevils are otherwise called as a snout beetles, which is one among the largest number of the beetles.

These are identified by the long snout-like projection of the head. Most of the beetles are either grey or brown. The larvae of weevils are legless and feed on roots or internal tissues of plants.

Most weevils are injurious either as larvae or imago to seeds of certain food crops.

The colour is grey.



Xx is for

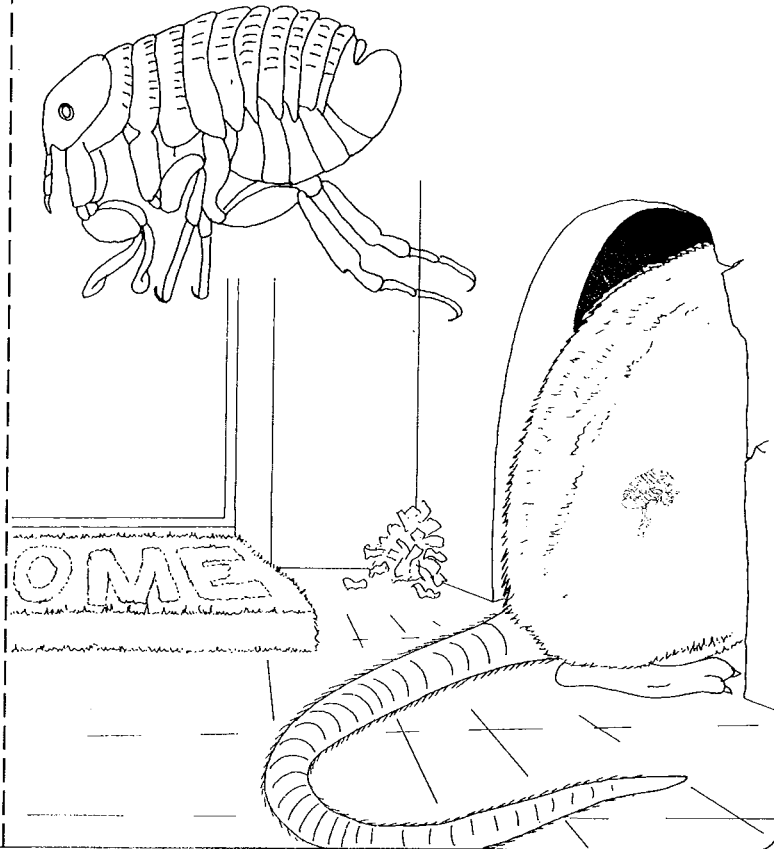
Xenopsylla

The Rat Flea

Rat fleas are small, laterally compressed, jumping, blood sucking insects. They are laterally flattened so that they can crawl rapidly through hair and feathers. The body is covered with large and small spines which point backwards. This also facilitates rapid movement through the hair or feathers. The third pair of legs is fitted for leaping. They do not jump straightforward, but take a complete somersault in mid-air.

The rat flea spread plague.

Its colour is brown

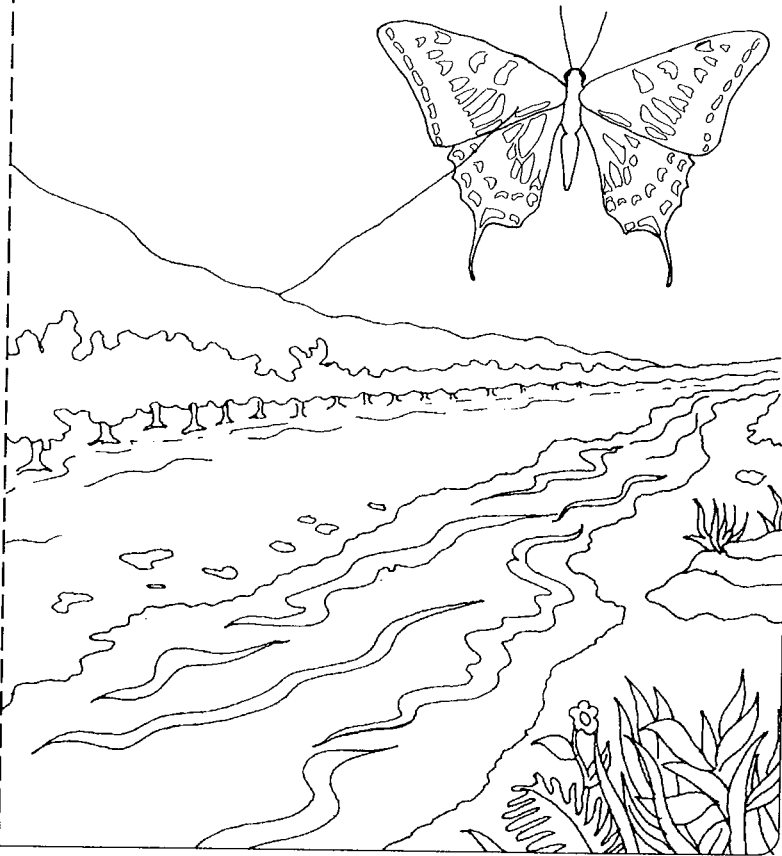


Yy is for

Yellow swallow tail

Butterfly

These butterflies bear a tail like projections in its wing and hence they are called as "tailed butterflies". The wingspan of this butterfly measures between 70-90mm. These are mostly found in northeast India particularly from Assam to Sikkim. They are fast fliers. They dwell in the open, grassy, flower covered meadows of the hills and is often found in gardens also. Colour bands yellow in brown.



Zz is for

Zaitha

Giant water Bug

Giant water bugs are large, flat, leathery and brown. This aquatic insect is rapacious, feeding on small fishes, tadpoles, insects and small other invertebrates. They show a high degree of parental care where the males carry the eggs till the nymphs hatch.

