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FIELD DIARY

SPIDERS IN MELGHAT

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PREFACE.....

As a part of Wildlife week 2007, a workshop was organized at A.V. theatre of Sant Gadge Baba Amravati University, jointly by Directorate, Melghat Tiger Reserve, Zoology Department of Sant Gadge Baba Amravati University and Nature Conservation Society, Amravati. The subject of the workshop was "Study of Spiders in Melghats". Eminent scientists from Zoological Survey of India, Sant Gadge Baba Amravati University, Professor Sawant of Shivaji University, Kolhapur and research scholars from the University participated in the workshop. A field visit was organized as a part of the workshop in the deep ravines of Melghat Tiger Reserve during which more than 100 species of spiders were identified from the Melghat Tiger Reserve.

This workshop along with the field visit acted as an instant eye-opener for the study of spiders in the reserve and within a very short span of time, the enthusiasm and hard work of the research students and scientists of the university, resulted not only in the discovery of a new species but also a whole new family of spiders was discovered in the Melghat Tiger Reserve. This is a tremendous job done by the Zoology Department of the University. My hearty congratulations to the whole team of participants of the project and I hope this zeal and hard work would result in finding of more species of spiders and other fauna in Melghat Tiger Reserve. Nature Conservation Society is also congratulated for their co-operation in this project.

361 Genera of spiders are found all over India and Melghat Tiger Reserve boasts of 66 of them. I am confident this field Diary of spiders in Melghat would attract attention of nature lovers and scientists towards these beautiful small faunal species. I sincerely hope that the alliance of Directorate with Department of Zoology and Nature Conservation Society will be continued in future and lead to many more discoveries in Melghat Tiger Reserve.

I am thankful to Honorable Vice Chancellor Dr. Ms. Kamal Singh for encouraging the researchers and taking keen interest in this scientific document.

B.S.Hooda
I.F.S.
Conservator of Forests and
Field Director Project Tiger Melghat

Man has been closely associated with plants and animals from prehistoric times. arachnids especially spiders are exceedingly interesting subject for study, for some of the most remarkable exhibitions of intensive powers are presented by them. The most characteristic feature of the spiders life is the use of its silk, the spider has hit upon the device of turning its food into silk and using it as a net to catch more food.

The spiders operate within the balance of nature and their role in nature's plan is beneficial to man who must live on what he grows. Spiders are found almost everywhere in enormous number., the natural enemies of insects, keep hard of Agricultural pest as well as destructive and disease carrying insects, under positive control on account of their vast numbers and they destroy a far greater number of insects than do birds or other insectivores.

All spiders have venom which is secreted by a poison gland and injected through a fang. However, this venom is mainly used to kill the large number of insects and mites on which they feed daily. The venom of only three species from South Africa is potentially dangerous to man.

Only the female is able to bite through the skin but in most cases a full dose of venom is not injected. The venom is of a neurotoxic nature and causes symptoms and localized pain.

In the process of evolution and evolutionary changes a number

of unique plants and animal species have disappeared and in the recent past, many other have either became extinct or are threatened due to man's ignorance about the role of plants and animals in maintaining ecological balance and also due to his interferences in nature and unwise activities. With the object of conserving the buties of nature and the environment. an idea and theme of the diary displaying our beautiful and fascinating Life in Nature is given the present shape to this diary of beautiful arachnids found in Melghat Tiger Reserve. We hope this venture of ours will be a humble way, focusing attention of the public on the importance of conservation of our unique Living Natural Resources in Melghat.

Arachnids, show a great diversity of adaptations, they are distributed from the seashore to the top of mountains. Hingston(1935) observed a tiny jumping spider on the top of Mount Everest.

As many as 1451 speciesof spiders, out of a total of 39882 spider species from the world are reported from India.

The existence of many arachnids is under threat especially *Tarantulas* from Man's unwise activities. A number of national and international organizations and societies are engaged in the conservation and preservation of natural environment, including wild life, plants and animals.

This unique field diary, giving photographs of some of the beautiful arachnids is an appeal to the lovers of Nature and beginers in the research field to save, preserve and conserve whatever wonderful and magnificent heritage left for the joy of future generations. Till date (December, 2007) we have recorded 204 spider species in Melghat and the checklist is given, in this field diary else where The present checklist includes 43 new species recorded from Melghat. We have also recorded 6 new Genera of spiders in Melghat which will be included in the checklist later on. We are happy to record one more new spider whose characters have made us to declare it from a new family. Its photograph is given in the diary at the beginning and the specimen is preserved in the department of Zoology.

Spiders are predatory invertebrate animals that have two body segments, eight legs, no chewing mouth parts and no wings. They are classified in the order **Araneae**, one of several orders within the larger class of arachnids, a group which also contains scorpions, whip scorpions/pseudoscorpions, phalangids(Daddy long legs), solfugids, mites and ticks. The study of spiders is known as arachnology. Spiders, like many other invertebrates, have traditionally suffered a lack of attention from conservation professionals and the general public.

Spiders play an important role in stabilizing or regulating insect populations because they are one of the most numerous insectivores and exhibit a wide variety of lifestyles and foraging strategies. Spiders possess the characteristics of predators that can contribute to density-independent limitation of prey, including self-damping, high levels of polyphagy, and life cycles that are asynchronous to those of prey species. While biological control by spiders has not been clearly demonstrated in natural systems, evidence in agro-ecosystems has been found in several studies and benefits to primary producers have been measured.

Additionally, spiders are an important food source for birds, lizards, wasps and other animals. In a study of trunk arthropods, spiders provided a relatively constant food source throughout the year for bark-gleaning birds (Peterson *et al.* 1989)

All spiders produce silk, a thin, strong protein strand extruded by the spider from six spinnerets most commonly found at the end of the abdomen. Many species use it to trap insects in webs, although there are also many species that hunt freely. Silk can be used to aid in climbing, form smooth walls for burrows, build egg sacs, wrap prey, and temporarily hold sperm, among other applications.

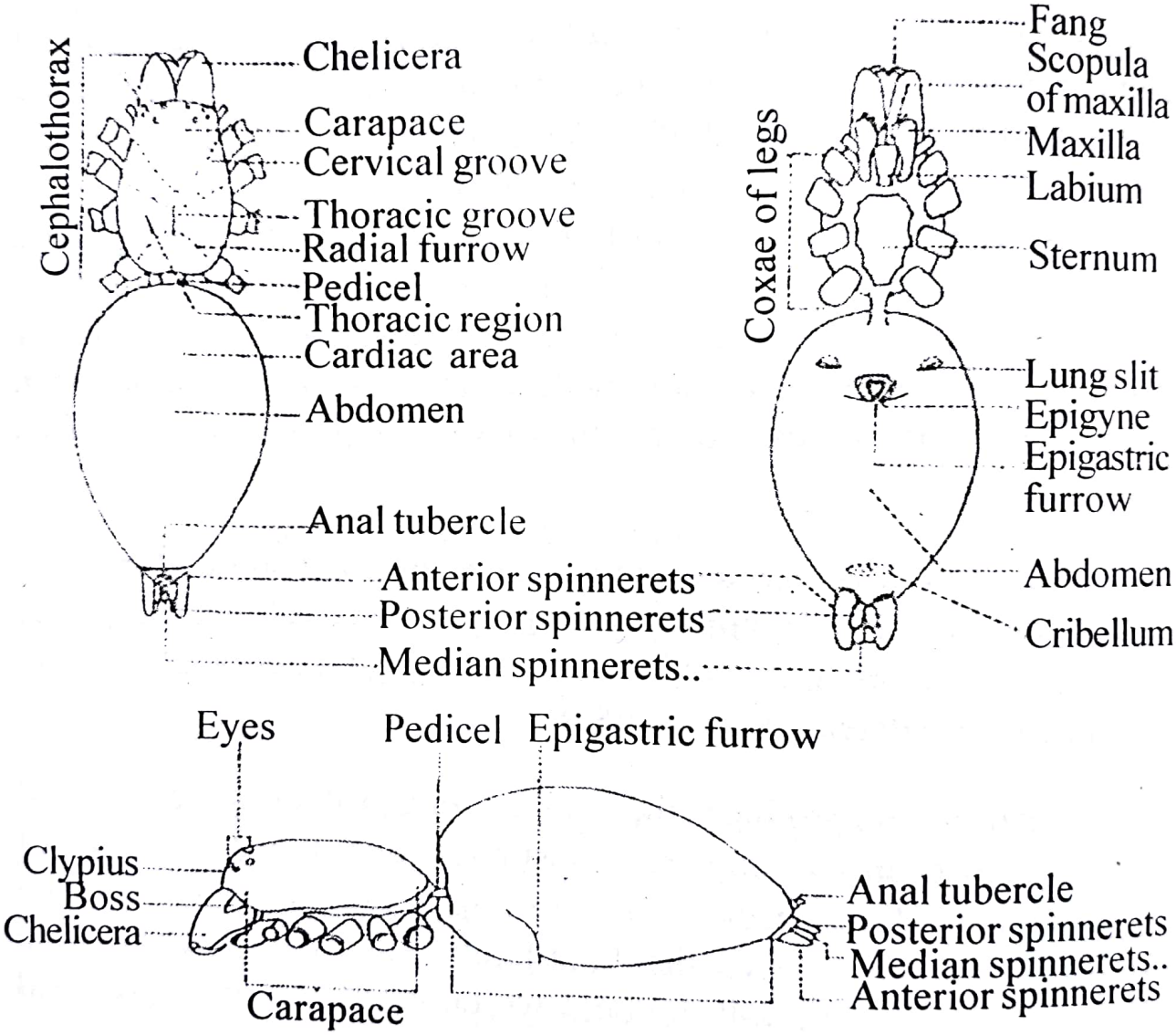
All spiders except those in the families Uloboridae and Holarchaeidae, and in the suborder Mesothelae (together about 350 species) can inject venom to protect themselves or to kill and liquefy prey. Only about 200 species, however, have bites that can pose health problems to humans.Many larger species' bites may be quite painful,

but will not produce lasting health concerns.

Spiders are distributed from seashore to the top of the mountains. In 1973 Skylab 3 took two spiders into space to test their web-spinning capability in free-fall.

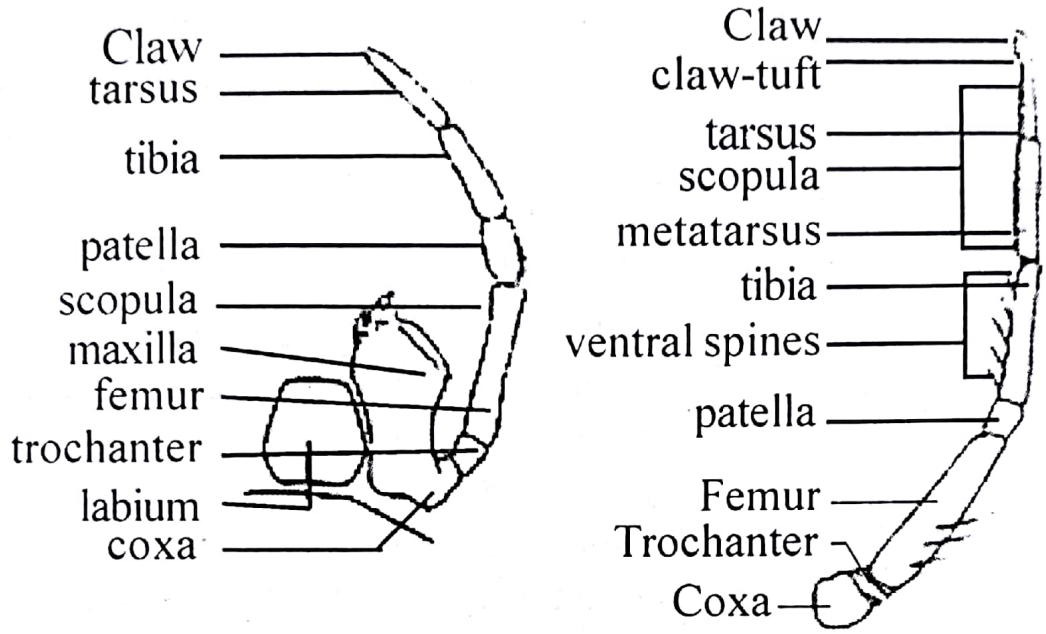
Morphology

Spider anatomy: (1) four pairs of legs (2) cephalothorax (3) abdomen



Spiders, unlike insects, have only two body segments instead of three: a fused head and thorax (called a cephalothorax) and an abdomen . The exception to this rule are the assassin spiders, whose cephalothorax seems to be almost divided into two independent units. Except for a few species of very primitive spiders (family Liphistiidae), the

abdomen is not externally segmented. The abdomen and cephalothorax are connected with a thin waist called the pedicle or the *pregenital somite*, a trait that allows the spider to move the abdomen in all directions. This waist is actually the last segment (somite) of the cephalothorax and is lost in most other members of the Arachnida (in scorpions it is only detectable in the embryos).



Cephalothorax

The shape of cephalothorax is variable from species to s pecies. All spiders have eight legs, although a few ant-mimicking species use their front legs to imitate antennae, which spiders lack. Their eyes are single lenses rather than compound eyes, ranging from simple light/ dark-receptors to eyes rivaling those of a pigeon (some jumping spiders).

They have pedipalps, at the base of which are maxillae next to their mouth that aid in ingesting food; the ends of the palp are modified in adult males into elaborate and often species-specific structures used for mating. Since they don't have any antennae, they use specialised and sensitive hair on their legs to pick up scent, sounds, vibrations and air currents.

Spiders lack the ability to chew their food. Instead, like other arachnids, they have a tiny proboscis which they use to suck up the liquid parts of their prey. However, they are able to eat their own silk.

Sense organs

Spiders usually have eight eyes in various arrangements, a fact which is used to aid in taxonomically classifying different species. Most species of the Scytodidae, Sicaridae have six eyes, although most of the families have eight , four (eg., Tetrablemidae) or even two (most Caponiidae) eyes. Sometimes one pair of eyes is better developed than the rest, or even, in some cave species, there are no eyes at all. Several families of hunting spiders, such as jumping spiders and wolf spiders, have fair to excellent vision. The main pair of eyes in jumping spiders even see colors.

Net-casting spiders have enormous, compound lenses that give a wide field of view and gather available light very efficiently.

However, most spiders that lurk on flowers, webs, and other fixed locations waiting for prey tend to have very poor eyesight; instead they possess an extreme sensitivity to vibrations, which aids in prey capture. Vibration sensitive spiders can sense vibrations from such various mediums as the water surface, the soil or their silk threads. Also changes in the air pressure can be detected in the search for prey.

Respiration and circulation

Spiders have an open circulatory system; i.e., they do not have true blood, or veins to convey it. Rather, their bodies are filled with haemolymph, which is pumped through arteries by a heart into spaces called sinuses surrounding their internal organs.

Spiders have developed several different respiratory anatomies, based either on book lungs, a tracheal system, or both. Mygalomorph and Mesothelae spiders have two pairs of book lungs filled with haemolymph, where openings on the ventral surface of the abdomen allow air to enter and diffuse oxygen. This is also the case for some basal araneomorph spiders like the family Hypochilidae, but the remaining members of this group have just the anterior pair of book lungs intact while the posterior pair of breathing organs are partly or fully modified into tracheae, through which oxygen is diffused into the haemolymph or directly to the tissue and organs. This system has most likely evolved in small ancestors to help resist desiccation. The trachea were originally connected to the surroundings through a pair of

spiracles, but in the majority of spiders this pair of spiracles has fused into a single one in the middle, and migrated posterior close to the spinnerets.

Among smaller araneomorph spiders we can find species who have evolved also the anterior pair of book lungs into trachea, or the remaining book lungs are simply reduced or missing, and in a very few the book lungs have developed deep channels, apparently signs of evolution into tracheae. Some very small spiders in moist and sheltered habitats have no breathing organs at all, and instead breathe directly through their body surface. In the tracheal system, oxygen interchange is much more efficient, enabling cursorial hunting (hunting involving extended pursuit) and other advanced characteristics as having a smaller heart and the ability to live in drier habitats.

Digestion

Digestion is carried out internally and externally. Spiders that do not have powerful chelicerae, secrete digestive fluids into their prey from a series of ducts perforating their chelicerae. These digestive fluids dissolve the prey's internal tissues. Then the spider feeds by sucking the partially digested fluids out. Other spiders with more powerfully built chelicerae masticate the entire body of their prey and leave behind only a relatively small residue of indigestible materials. Spiders consume only liquid foods. Many spiders will store prey temporarily. Web weaving spiders that have made a shroud of silk to quiet their envenomed prey's death struggles will generally leave them in these shrouds and then consume them at their leisure.

Spiders are capable of digesting their own silk, so some spiders may eat their used webs. When a spider drops down on a single strand of silk and then returns, it will generally rapidly consume the strand of silk on its way back up.

Spinnerets

The abdomen has no appendages except from one to four (usually three) modified pairs of movable telescoping organs called spinnerets, which produce silk. The suborder *Mesothelae* is unique in having only two types of silk glands - thought to be the ancestral condition. All other spiders have the spinnerets further towards the posterior end of the

body where they form a small cluster, and the anterior central spinnerets on the tenth segment are lost or reduced (suborder Mygalomorphae), or modified into a specialised and flattened plate called the **cribellum** (parts of suborder *Araneomorphae*), which produces a thread made up of hundreds to thousands of very fine dry silk fibers resulting in a woolly structure that traps prey. The cribellate spiders were the first spiders to build specialized prey catching webs. Later some groups evolved (called ecribellate) that use silk threads dotted with sticky droplets to capture prey ranging from small arthropods to sometimes even small bats and birds.

Size

Spiders occur in a large range of sizes. The smallest, dwarf spiders of the subfamily Erigoninae, are less than 1 mm (about .05 inches) in body length. The largest and heaviest spiders occur among tarantulas, which can have body lengths up to 90 mm (about 3.5 inches) and leg spans up to 250 mm (about 10 inches).

Coloration

Only three classes of pigment (ommochromes, bilins and guanine) have been identified in spiders, although other pigments have been detected but not yet characterized. Melanins, carotenoids and pterins, very common in other animals, are apparently absent. In some species the exocuticle of the legs and prosoma is modified by a tanning process, resulting in brown coloration.

Bilins are found for example in *Micrommata virescens*, resulting in its green color. Guanine is responsible for the white markings of the European garden spider *Araneus diadematus*. It is in many species accumulated in specialized cells called guanocytes. In genera such as *Tetragnatha*, *Leucauge*, *Argyrodes* or *Theridiosoma*, guanine creates their silvery appearance. While guanine is originally an end-product of protein metabolism, its excretion can be blocked in spiders, leading to an increase in its storage.

Structural colors occur in some species, which are the result of the diffraction, scattering or interference of light, for example by modified setae or scales. The white prosoma of *Argiope* results from hairs reflecting the light, *Lycosa* and *Josa* both have areas of modified

cuticle that act as light reflectors.

Life cycle

The spider life cycle progresses through three stages: the embryonic, the larval, and the nympho-imaginal.

The time between when an egg is fertilized and when the spider begins to take the shape of an adult spider is referred to as the embryonic stage. As the spider enters the larval stage, it begins to look more and more like a full grown spider. It enters the larval stage as a prelarva and, through subsequent moults, reaches its larval form, a spider-shaped animal feeding off its yolk supply. After a few more moults (also called instars) body structures become differentiated. Soon, all organ systems are complete and the animal begins to hunt on its own; it has reached the nympho-imaginal stage.This stage is differentiated into two sub-stages: the nymph, or juvenile stage and the imago, or adult stage. A spider does not become sexually mature until it makes the transition from nymph to imago. Once a spider has reached the imago stage, it will remain there until its death. After sexual maturity is reached, the general rule is that they stop moulting, but the females of some non-araneomorph species will continue to moult the rest of their lives.

Lifespan

Many spiders may only live for about a year, but a number will live two years or more, overwintering in sheltered areas. The annual influx of 'outdoor' spiders into houses in the fall is due to this search for a warm place to spend the winter. It is common for female tarantulas to live up to twenty years.

Reproduction

Spiders lay eggs, which are packed into silk bundles called *egg sacs*. Spiders often use elaborate mating rituals (especially the visually advanced jumping spiders) to allow conspecifics to identify each other and to allow the male to approach and inseminate the female without triggering a predatory response. If the approach signals are exchanged correctly, the male spider must (in most cases) make a timely departure after mating to

escape before the female's normal predatory instincts return.

Sperm transmission from male to female occurs indirectly. When a male is ready to mate, he spins a web pad upon which he discharges his seminal fluid. He then dips his pedipalps (also known as *palpi*), the small, leg-like appendages on the front of his cephalothorax, into the seminal fluid, picking it up by capillary attraction. Mature male spiders have swollen bulbs on the end of their palps for this purpose, and this is a useful way to identify the sex of a spider in the field. With his palps thus charged he goes off in search of a female. Copulation occurs when the male inserts one or both palps into the female's genital opening, known as the *epigyne*. He transfers his seminal fluid into the female by expanding the sinuses in his palp. Once the sperm is inside her, she stores it in a chamber and only uses it during the egg-laying process, when the eggs comes into contact with the male sperm for the first time and are fertilized; this may be why the vivipary has never evolved in spiders.

Very unusual behaviour is seen in spiders of the genus *Tidarren*: the male amputates one of his palps before maturation and enters his adult life with one palp only. The palpi constitute 20% of the body mass of males of this species, and since this weight greatly impedes its movement, by detaching one of the two he gains increased mobility. In the Yemeni species *Tidarren argo*, the remaining palp is then torn off by the female. The separated palp remains attached to the female's epigynum for about four hours and apparently continues to function independently. In the meantime the female feeds on the palpless male.

Sacrificial males

It is a common belief that male spiders, which usually are significantly smaller than the females, are likely to be killed after or during mating, or sometimes even before mating.

Even in some species of widow spiders, which are named exactly for this belief, the male may live in the female's web for some time without being harmed. However, in over 60% of cases the female of one species,the Australian redback spider, kills and eats the male after it inserts its second palpus into the female genital opening Males that 'sacrifice' themselves gain the benefit of increasing their paternity

relative to males who do not get cannibalized since they feed the female that will lay and tend the resulting fertilized eggs.

In many other species, males are sometimes killed by females. In at least some of these cases it's likely that the males are simply mistaken as prey. The risk of this happening is greater if the female is hungry. To counter this, some male spiders offer a "bribe" to the female, in form of a fly or other prey, prior to the mating.

Ecology

Spiders have a great range of variation and lifestyle, although all are predatory. While spiders are generalist predators, in actuality their different methods of prey capture often determine the type of prey taken. Thus web-building spiders rarely capture caterpillars, and crab spiders that ambush prey in flowers capture more bees, butterflies and some flies than other insects. Groups of families that tend to take certain types of prey because of their prey capture methods are often called *guilds*. A few spiders are more specialized in their prey capture. *Dysdera* captures and eats sowbugs, pillbugs and beetles, while pirate spiders eat only other spiders. Bolas spiders in the family Araneidae use sex pheromone analogs to capture only the males of certain moth species. Despite their generally broad prey ranges, spiders are one of the most important links in the regulation of the populations of insects.

Behavior

Spiders show a wide variety of behavior, from the ballet-like mating dances of certain jumping spiders to the seeming athletics of bolas spiders snatching their prey. Most diversity comes with the mode of predation, for example whether the spider waits for it in its orb web, or hunts it down.

Predatory techniques

Although spider predatory technique is diverse, as soon as a spider makes contact with its prey, it will usually bite it. Spiders bite their prey, and occasionally animals that cause them pain or threaten them, for two reasons: First, they inflict mechanical damage, which, in

the case of a spider that is as large as or larger than its prey, can be severe. Second, they can inject venom via their hollow fangs. Many genera, such as the widow spiders, inject neurotoxins that can spread through the prey's entire body and interfere with vital body functions. Other genera inject venom that produces tissue damage at the bite location. In the larger victims that do not die from these attacks, painful lesions over a wide area can remain for an extended time. The spitting spiders have modified their poison glands to produce a mixture of venom and sticky substance that works as glue and immobilises the prey.

Although there are no herbivore spiders, some species in the families Anyphaenidae, Corinnidae, Clubionidae, Thomisidae and Salticidae feed on plant nectar.Several spider species are also known to feed on bananas, marmalade, milk, egg yolk and sausages in captivity.

Spider webs

Some spiders spin funnel-shaped webs, others make sheet webs, spiders like the black widow make tangled, maze-like, webs, and still others make the spiral "orb" webs that are most commonly associated with spiders. These webs may be made with sticky capture silk, or with "fluffy" capture silk, depending on the type of spider. Webs may be in a vertical plane (most orb webs), a horizontal plane (sheet webs), or at any angle in between. Most commonly found in the sheet-web spider families, some webs will have loose, irregular tangles of silk above them. These tangled obstacle courses serve to disorient and knock down flying insects, making them more vulnerable to being trapped on the web below. They may also help to protect the spider from aerial predators such as birds and wasps.

The spider, after spinning its web, will then wait on, or near, the web for a prey animal to become trapped. The spider can sense the impact and struggle of a prey animal by vibrations transmitted along the web lines.

Other species of spiders do not use webs for capturing prey directly, instead pouncing from concealment (e.g. trapdoor spiders) or running them down in open chase (e.g. wolf spiders). The net-casting spider balances the two methods of running and web-spinning in its feeding habits.

This spider weaves a small net which it attaches to its front legs. It then lurks in wait for potential prey and, when such prey arrives, lunges forward to wrap its victim in the net, bite and paralyze it. Hence, this spider expends less energy catching prey than a primitive hunter such as the Wolf spider. It also avoids the energy cost of weaving a large orb-web. The diving bell spider does not use its web directly in prey capture, but has modified it into an underwater diving bell. Even species whose ancestors were building spiral orb webs have given rise to spiders who no longer make webs, for instance some Hawaiian spiny-legged spiders (genus *Tetragnatha*, family Tetragnathidae) have abandoned web construction entirely.

Some spiders manage to use the 'signaling snare' technique of a web without spinning a web at all. Several types of water-dwelling spiders will rest their feet on the water's surface in much the same manner as an orb-web user. When an insect falls onto the water and is ensnared by surface tension, the spider can detect the vibrations and run out to capture the prey.

Hunting spiders: Many spiders do not build webs for catching prey. Some examples include:

- Brazilian wandering spider
- Brown recluse spider
- Huntsman spiders
- Jumping spiders (Salticidae)
- Lynx spiders (Oxyopidae)
- Nursery web spiders
- Spitting spiders
- Tarantulas
- Wolf spiders (Lycosidae)
- Yellow sac spider

Ambush predators

Some actively lure prey and may capture them with a sticky ball of silk on a line; others (like the crab spiders, trapdoor spiders, or the six-eyed sand spider) wait in a high-traffic area and directly attack their prey from ambush.

Defense

All spiders will attempt to protect themselves by biting, especially if they are unable to flee. Some tarantulas have a second kind of defense, a patch of urticating hairs, or urticating setae, on their abdomens, which is generally absent on modern spiders and Mesothelae. These ultra-fine hairs causes irritation and sometimes even allergic reactions in the attacker. Certain other species have specialized defense tactics. For example, the golden wheeling spider (*Carparachne aureoflava*) of the desert of Namibia escapes tarantula hawks (a species of wasp that lays its eggs in a paralyzed spider so the larvae have enough food when they hatch) by flipping onto its side and cartwheeling away.

Social spiders

A few species of spiders that build webs live together in large colonies and show social behavior, albeit not as well evolved as in social insects. The most social species is probably *Anelosimus eximius*, which can form colonies of up to fifty thousand individuals.

Web types

Tangleweb spiders

Members of this group (family Theridiidae) are characterized by irregular, messy-looking, tangled, three-dimensional (non-sticky) webs, generally low and anchored to the ground or floor and wall. They are commonly found in or near buildings; some build webs in bushes. The spider generally hangs in the center of its web, upside-down. Prey is generally ground-dwelling insects such as ants or crickets, in addition to small flying insects. These include the infamous black widows, the minute happyface spider, and thousands of other species.

Orb web spiders

Spiders in several families (eg., Araneidae, Tetragnathidae, Nephilidae) spin the familiar spiral snare that most people think of as the typical spider web. On an average, an orb-weaving spider takes 30 minutes to an hour to weave a web. They range in size from quite large (6+ cm) to very small (<1 cm), but all are quite harmless to humans,

beyond the shock entailed from walking into a face-height web and having a large spider dangling from your nose. Many of the daytime hunters have a 'ferocious' appearance, with spines or large 'fangs', but they are almost invariably inoffensive, preferring to drop on a dragline to the ground when disturbed, rather than bite, which can nevertheless be quite painful.

Other forms of webs

Many other groups spin webs in a variety of structural styles.Some (the Linyphiidae) make various forms of bowl-or dome-shaped webs with or without a flat sheet or a tangled web above or below. Some make a flat platform extending from a funnel-shaped retreat, with generally a tangle of silk above the web. The common northern hemisphere 'funnel-web', 'house' or 'grass' spiders are only superficially similar to the notorious Sydney funnel-web spider, and are generally considered to be quite harmless. Some of the more primitive group Atypidae may make tubular webs up the base of trees, from inside which they bite insects that land on the webbing. These spiders look quite ferocious, but are not generally considered to be particularly dangerous to humans.

Spider bite and symptoms and first-aid :

All spiders secrete venom through a gland. It is injected through a fang. However, this venom is mainly used to kill the large number of insects and mites on which they feed daily. The venom of only a few species is potentially dangerous to man. Only the female is able to bite through the skin but in most cases a full dose of venom is not injected.

The venom of spider is of neurotoxic nature and causes systemic symptoms and localised pain. Young children and people with heart and lung problems are however more sensitive to the venom.The following symptoms are observed shortly after some has been beeten.

* Severe abdominal cramps and cramps in the chest and limbs, particularly at the articulation joints.
* The victim perspires heavily and suffers from excessive mucus secretion.

* Body temperature increases abnormally in most cases pu to 39.5°C or drop below normal.
* nausea and vomiting occurs and the victim becomes hyperactive.
* Death can be resulted by heart failure or respiratory problems.

Other symptoms of venomous spider bites include headache, nausea, vomiting, dizziness, abdominal pain, and partial loss of muscle control. Sweating occurs in varying degrees, particularly around site of the bite. Swelling of the affected area is common, as is a quickening of the heart-beat.

Treatment : Inject 5ml of the antivenom subcutaneously or intramuscularly or if a doctor is available, intravenously as soon as possible. The victim must be kept still and calcium gluconate (10 ml) can be given by a doctor to get relieved from the pain.

In India spiders are known from the following 60 families

1. Agelenidae
2. Amaurobiidae
3. Anyphaenidae
4. Araneidae
5. Atypidae
6. Barychelidae
7. Cithaeronidae
8. Clubionidae
9. Corinnidae
10. Cryptothelidae
11. Ctenidae
12. Ctenizidae
13. Deinopidae
14. Desidae
15. Dictynidae
16. Dipluridae
17. Eresidae
18. Filistatidae
19. Gnaphosidae
20. Hahniidae
21. Hersiliidae
22. Hexathelidae
23. Homalonychidae
24. Idiopidae
25. Linyphiidae
26. Liocranidae
27. Lycosidae
28. Mimetidae
29. Miturgidae
30. Mysmenidae
31. Nemesiidae
32. Nephilidae
33. Ochyroceratidae
34. Oecobiidae
35. Oonopidae
36. Oxyopidae
37. Palpimanidae
38. Philodromidae
39. Pholcidae
40. Pimoidae
41. Pisauridae
42. *Prodidomidae*
43. Psechridae
44. Salticidae
45. Scytodidae
46. Segesteriidae
47. Selenopidae
48. Sicariidae
49. Sparassidae
50. Stenochilidae
51. Tetrablemmidae
52. Tetragnathidae
53. Theraphosidae
54. Theridiidae
55. Theridiosomatidae
56. Thomisidae
57. Titanoecidae
58. Trochanteriidae
59. Uloboridae
60. Zodoriidae
61. Gajabesidae(New)

How to collect spiders?:

The easiest way to capture and collect spiders is to scare them

into a dry container and then transfer them into a container with alcohol. The container can be placed in a freezer for a few minutes. In the freezer the spider will enter torpor and die relatively quick and may experience less trauma. Carbon dioxide gas can also be used to anesthetize spiders before collecting. The following are a few basic methods used while collecting spiders.

1. Visual search

Walk through the habitat and search visually for spiders, their webs or retreats (curled leaves, silken cases) walls of houses, building and basement, which are spider haunting grounds.

2. Sweeping

Using a heavy insect net sweep through the soft vegetation or tall grass with vigor. After a few sweeps, dump the content of the net onto a flat sheet and capture the spiders. This is one of the best methods for capturing active hunters such as jumping (salticidae), lynx nursery-web, and sac or ghost spider (oxyopidae, Lycosidae, Clubionidae). Small web-building species are also frequently captured.

3. Beating

This method is similar to sweeping. In this case spread the cloth sheet under a bush or the low branches of tree. Grab the branches and give them a vigorous shaking, alternatively strike them with a stick or stiff branch. Spiders will be dislodged from their location and fall on to the sheet.

Beating and sweeping technique do not work well in wet conditions. If there is heavy dew or if it has rained recently the net and the spiders will stick to the wet cloth and are often damaged or killed during the sweeping. Avoid sweeping and beating in such conditions.

4. Pitfall trapping

This method is effective for capturing ground-living spiders. Any smooth sided container buried within the ground surface will work. Some prefer to have a funnel at the top of the container. Inside the pit, place a second cup so that the contents can be removed without disturbing the edge of the pit. This edge is the crucial key to success. If a spider detects a lip or a ridge, it is likely to walk around rather then tumble into

the trap. To avoid the problem of rain, place a cover over the pit. The smaller the gap between trap and lid will, reduce accidental captures of small vertebrates. Sometimes pits are left "dry" but normally filled with auto antifreeze in the pits. This will kill and preserve the captives with minimal evaporation. In either case the problem encountered are dry pits-small spiders will be kilied or eaten by centipedes and other organisms. In wet pits the fluid may attract wildlife, which could be poisoned. Antifreeze is available in two forms: ethylene glycol-based and propylene glycol-based. Propylene glycol is preferred because it is not that toxic.

5. Litter Sampling

With help of gloves, collect a large amount of leaf litter and place them over a large funnel that is Fitted with *A* to *Vi* inch hardware-cloth or wire screen. The funnel should be placed in a rack with the opening over a cup with alcohol. Suspend a bright light over the top of the leaf litter. Ensure bulb is at lest 3 inches away from the top of the litter but *never let it touch the leaves.* As the pile of leaves dries out the small organisms will migrate down and eventually fall through the funnel into the alcohol-filled cup.

The two tools that render the best result in the shortest amount of time are kick nets and sweep nets.

MARCH/APRIL 2008

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APRIL 2008

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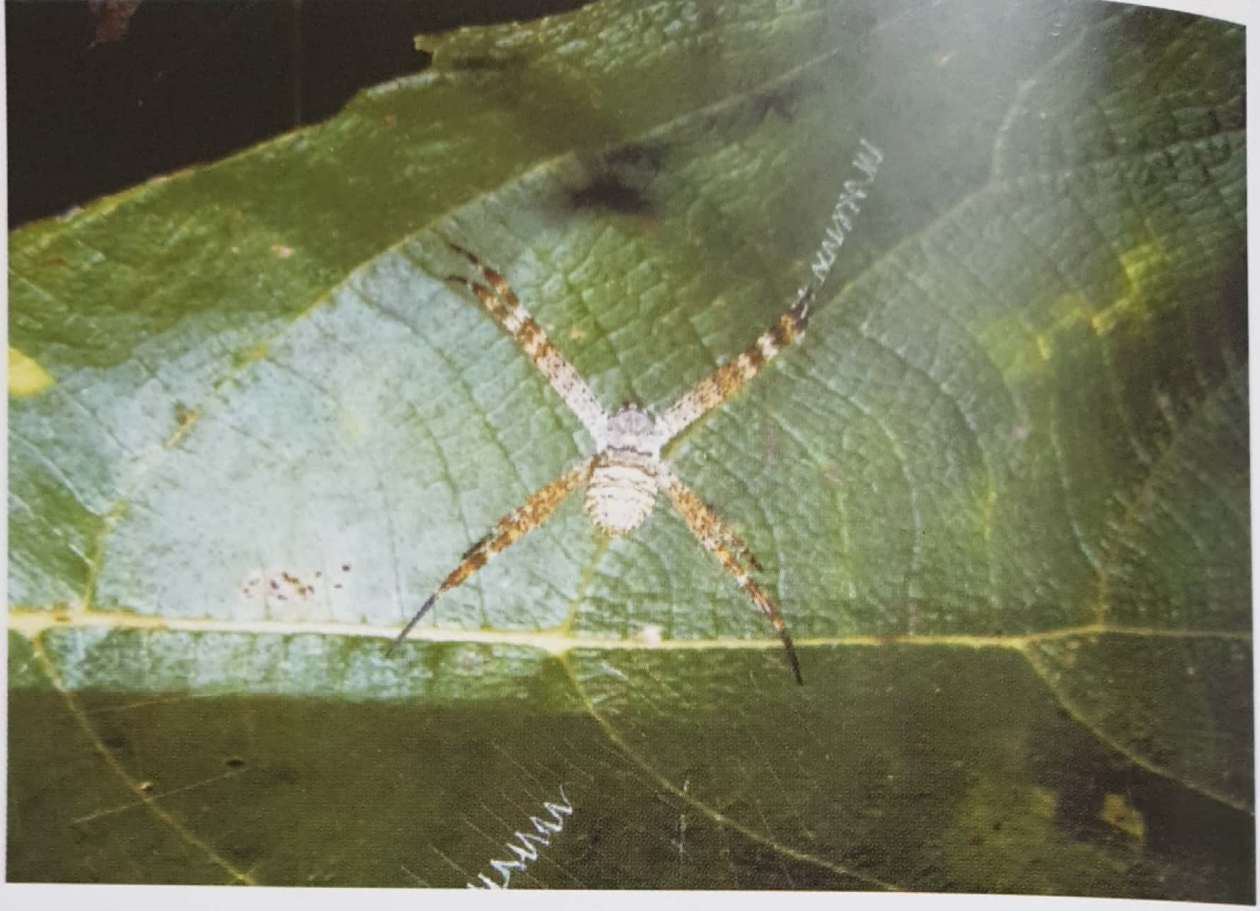
Gajabesidae:New Family from Melghat , Lateral view

Gajabesidae: New Family from Melghat , Dorsal view



Family : Araneidae *Argiope aemula* (Male)Dorsal view

Family : Araneidae *Argiope aemula (Female)* Ventral view

Family : Araneidae *Argiope sp.* (Male)

Family : Araneidae *Argiope sp.* (Female)

Family : Araneidae *Cyclosa moonduensis* (Female)

Family : Araneidae *Cyclosa hexatuberculata* (Female)

Family : Araneidae

Chorizopes khanjenes

Family : Araneidae

Chorizopes calciope

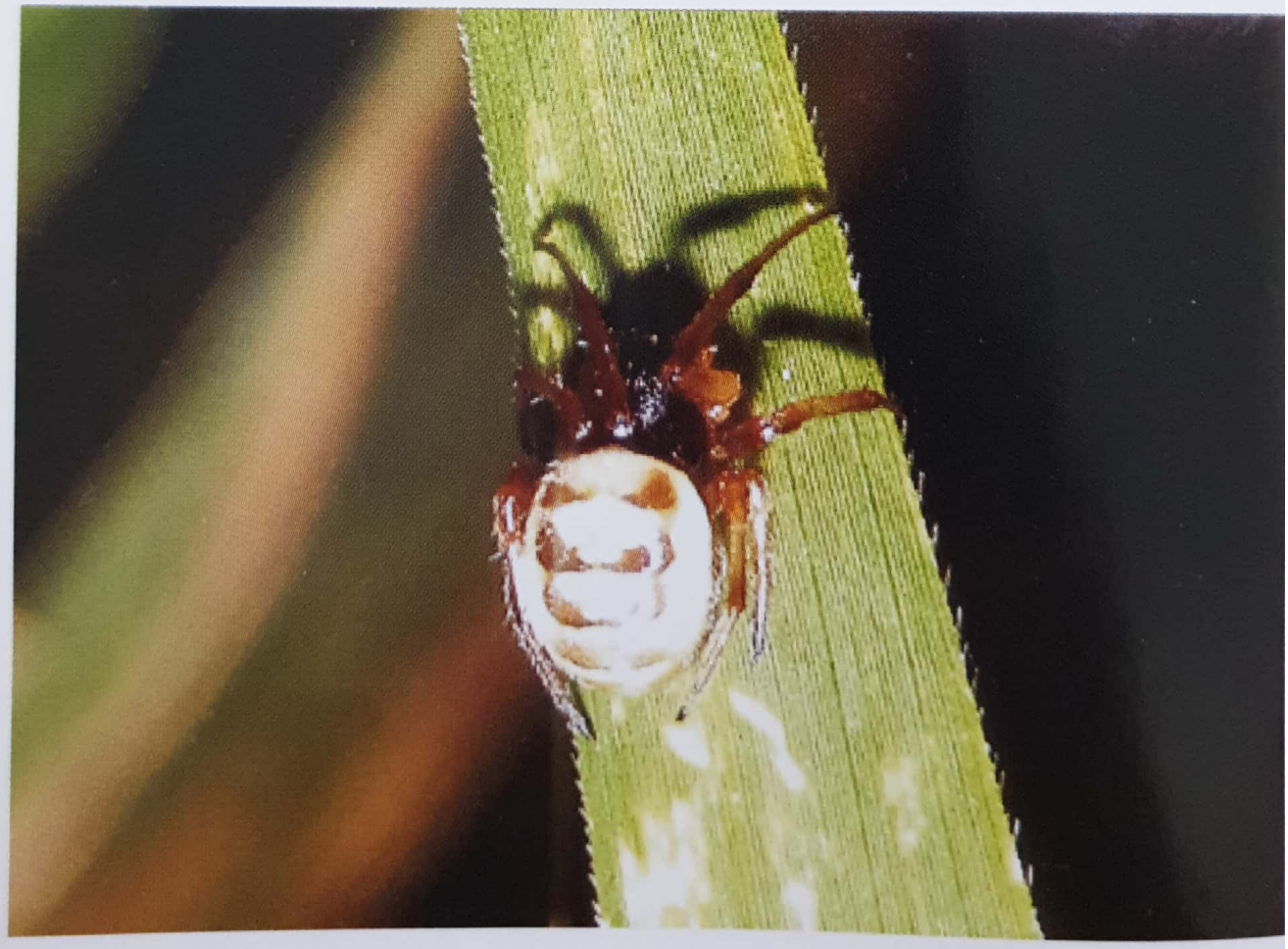
Family : Araneidae *Araneus sp.*

Family : Araneidae *Cyclosa simoni* (Female)

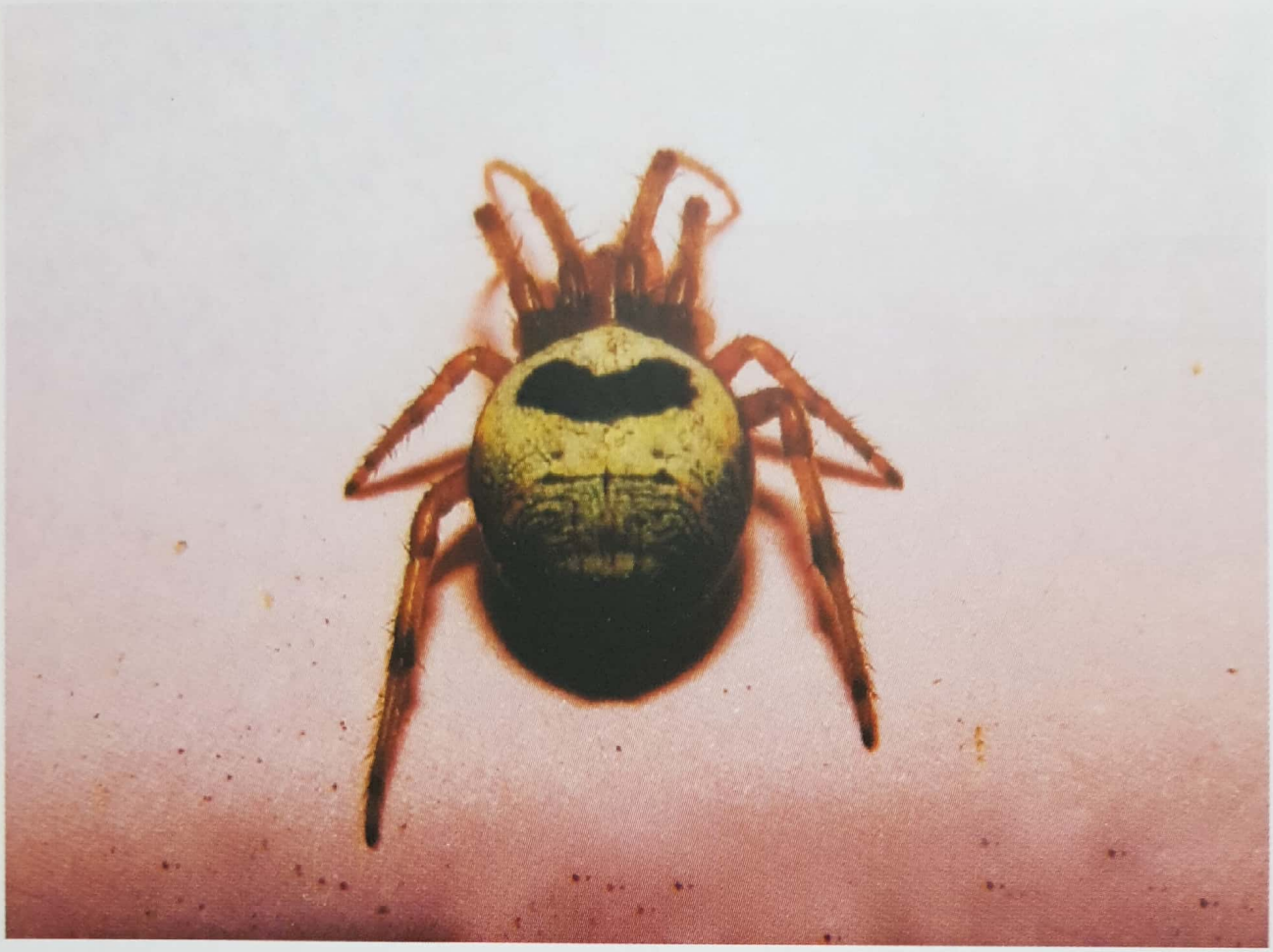
Family : Araneidae *Neoscona theis* (Female)

Family : Araneidae *Neoscona sinhagadensis* (Female)

Family : Araneidae *Neoscona mukerjei* (Female)



Family : Araneidae *Zygeilla Sp* (Female)



Family : Araneidae *Araneus sp.*

Family : Araneidae *Araneus mitificus.*

Family : Araneidae *Araneus pahalgaonensis* (Female)

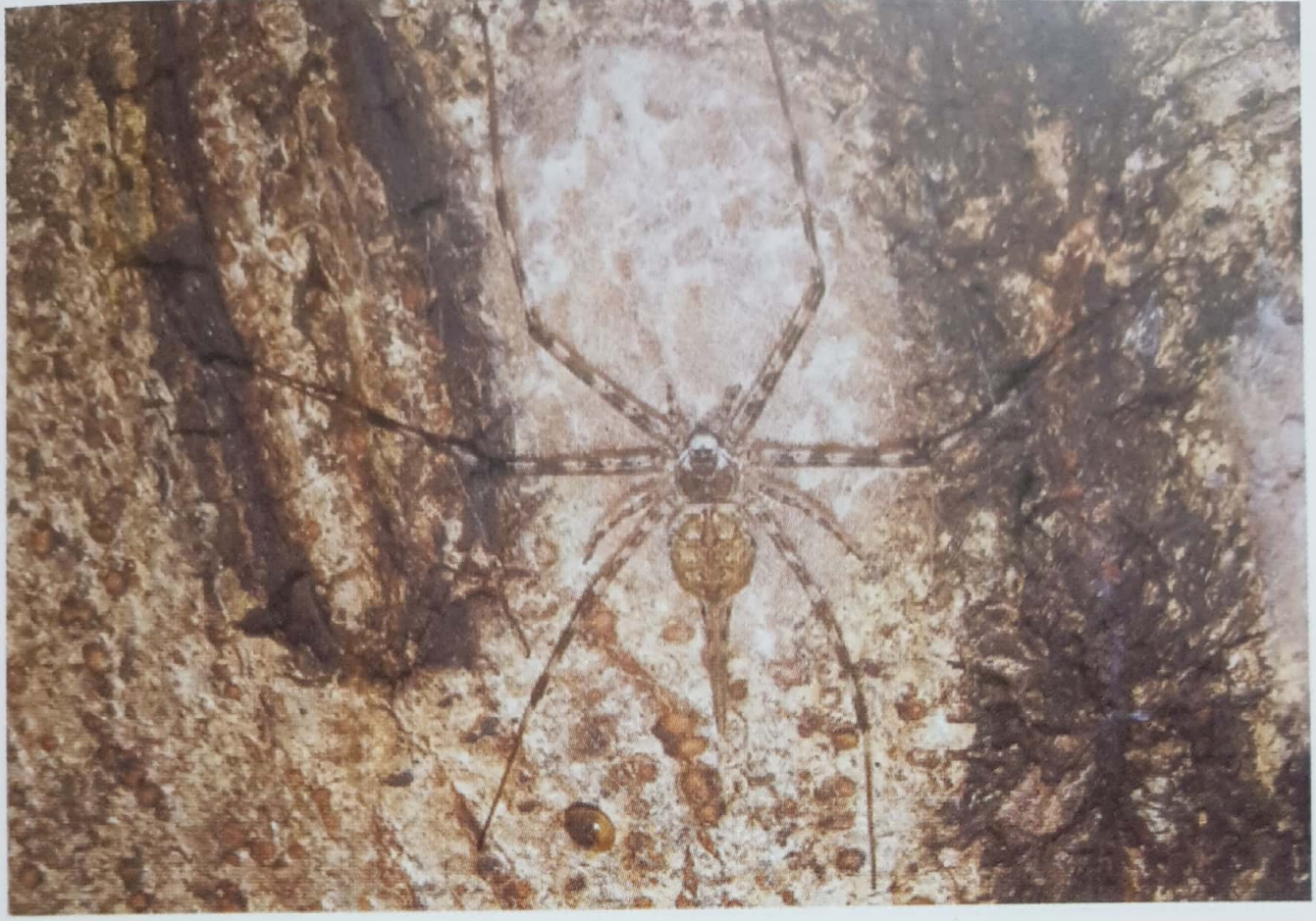
Family : Araneidae *Neoscona sp.* (Male)

Family : Gnaphosidae *Zelotes choubeyi*.(Female)

Family : Gnaphosidae *Zelotes mandae* (Female)

Family : Miturgidae *Cheracanthium insigne*

Family : Miturgidae *Cheracanthium danieli*



Family : Hersiliidae *Hersilia savignyi* Lucas (Female)

Family : Hersiliidae *Hersilia* (Female)

Family : Lycosidae

Hippasa partita

Family : Lycosidae

Hippasa sp. (New)

Family : Lycosidae *Hippasa pisaurina*

Family : Lycosidae *Hippasa holmerae*

Family : Lycosidae

Pardosa sp. (New)

Family : Lycosidae

Lycosa sp.(New)

Family : Lycosidae

Paradosa timida (Male)

Family : Lycosidae

Hippasa sp. (Female)

Family : Lycosidae — *Hippasa loundesi Gravely*

Family : Lycosidae — *Hippasa sp.* (Female)

Family : Lycosidae

Lycosa sp.(New)

Family : Lycosidae

Hippasa greenalliae

Family : Oecobiidae *Oecobius putus*

Family : Oxyopidae *Hamantaliwa sp.*(New)

Family : Oxyopidae *Oxyopes pankaji* (Female)

Family : Oxyopidae *Oxyopes chittrae* (Female)

Family : Oxyopidae *Oxyopes burmenicus* (Female)

Family : Oxyopidae *Oxyopes sp. New*

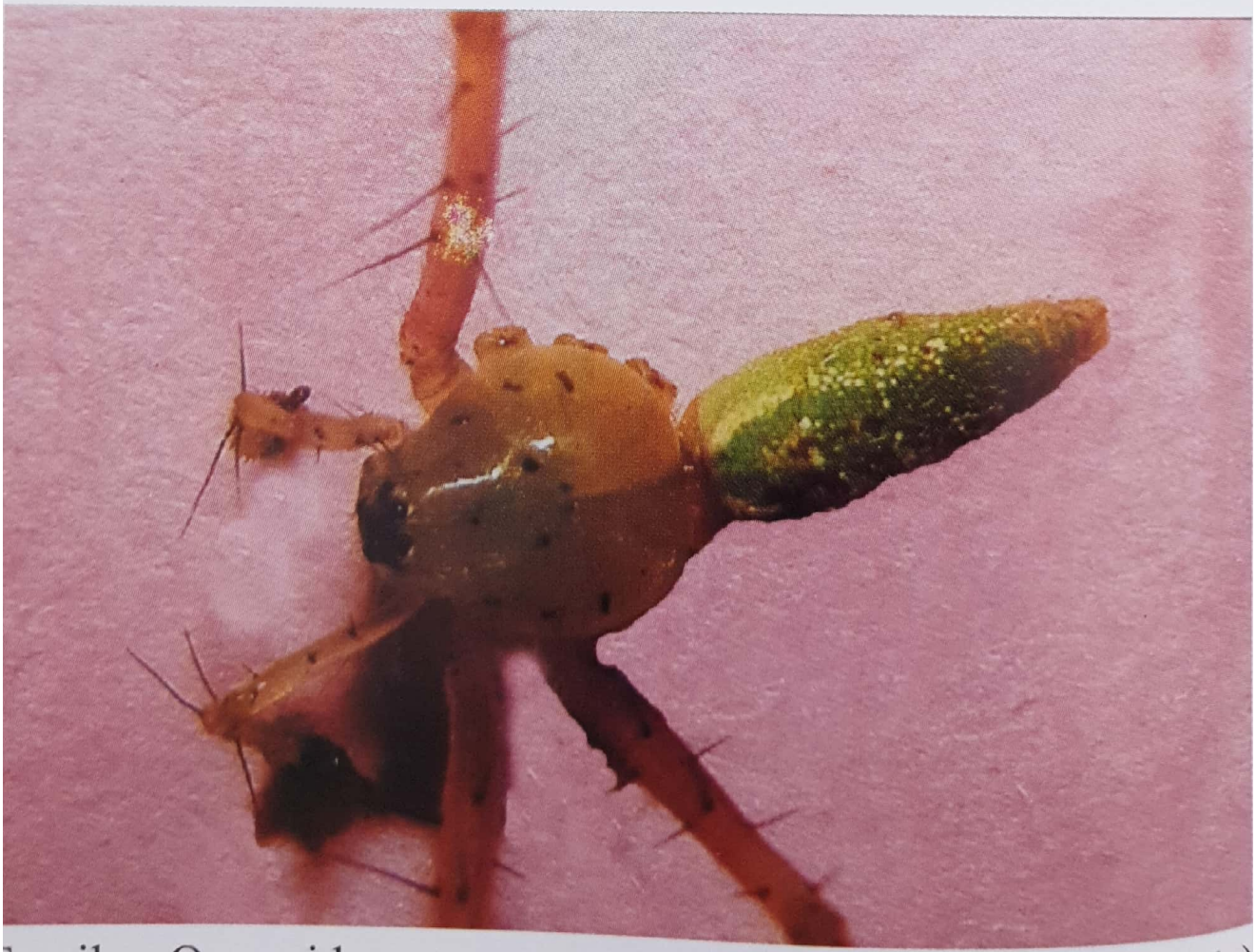
Family : Oxyopidae

New Genus & sp. (Male)

Family : Oxyopidae

Oxyopes sp.(Female)

Family : Oxyopidae *Peucetia sp.*(Female)



Family : Oxyopidae *Peucetia sp.*(Male)

Family : Oxyopidae

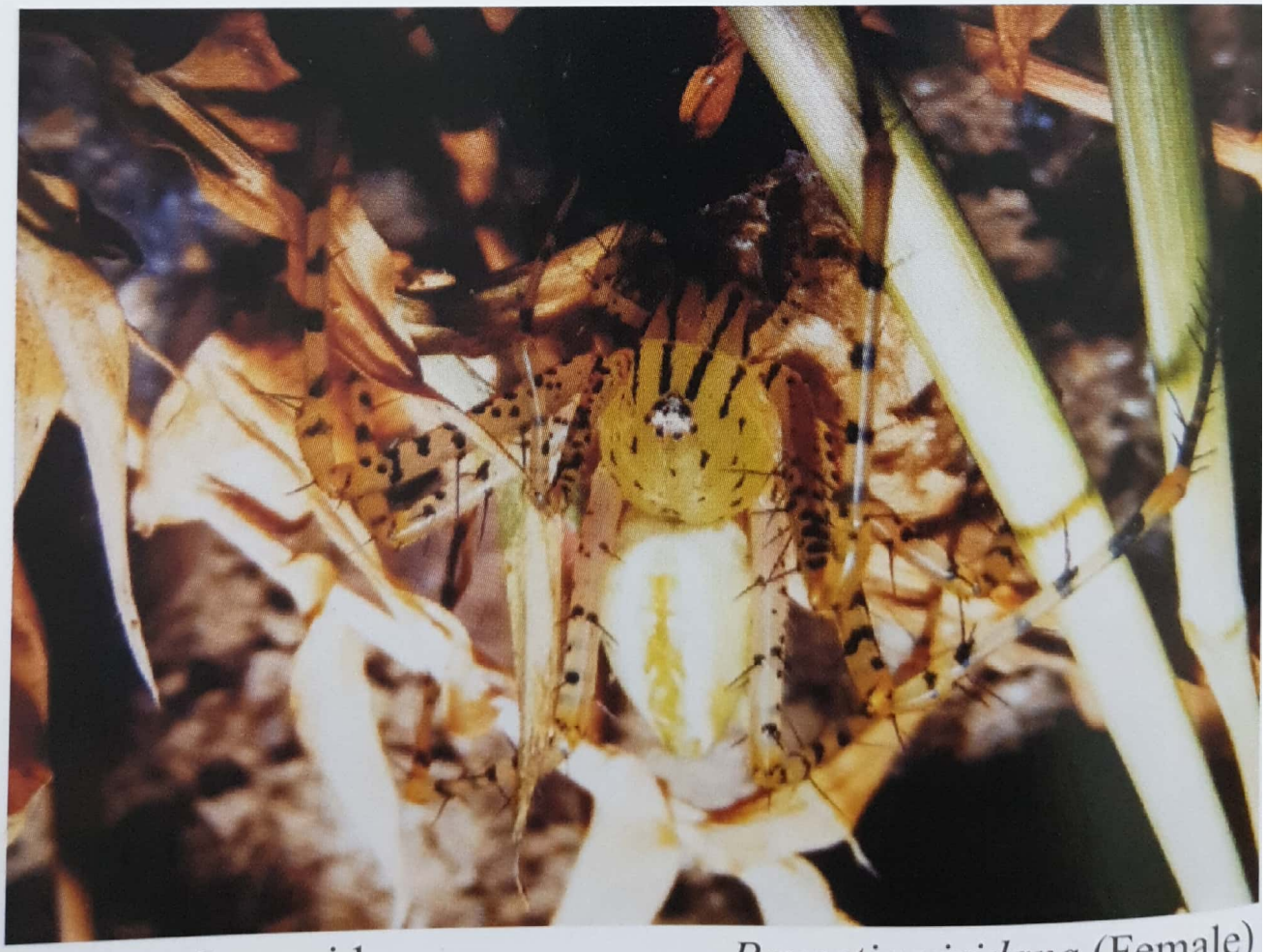
Peucetia sp. (Female)

Family : Oxyopidae

Peucetia latikae (Female)

Family : Oxyopidae

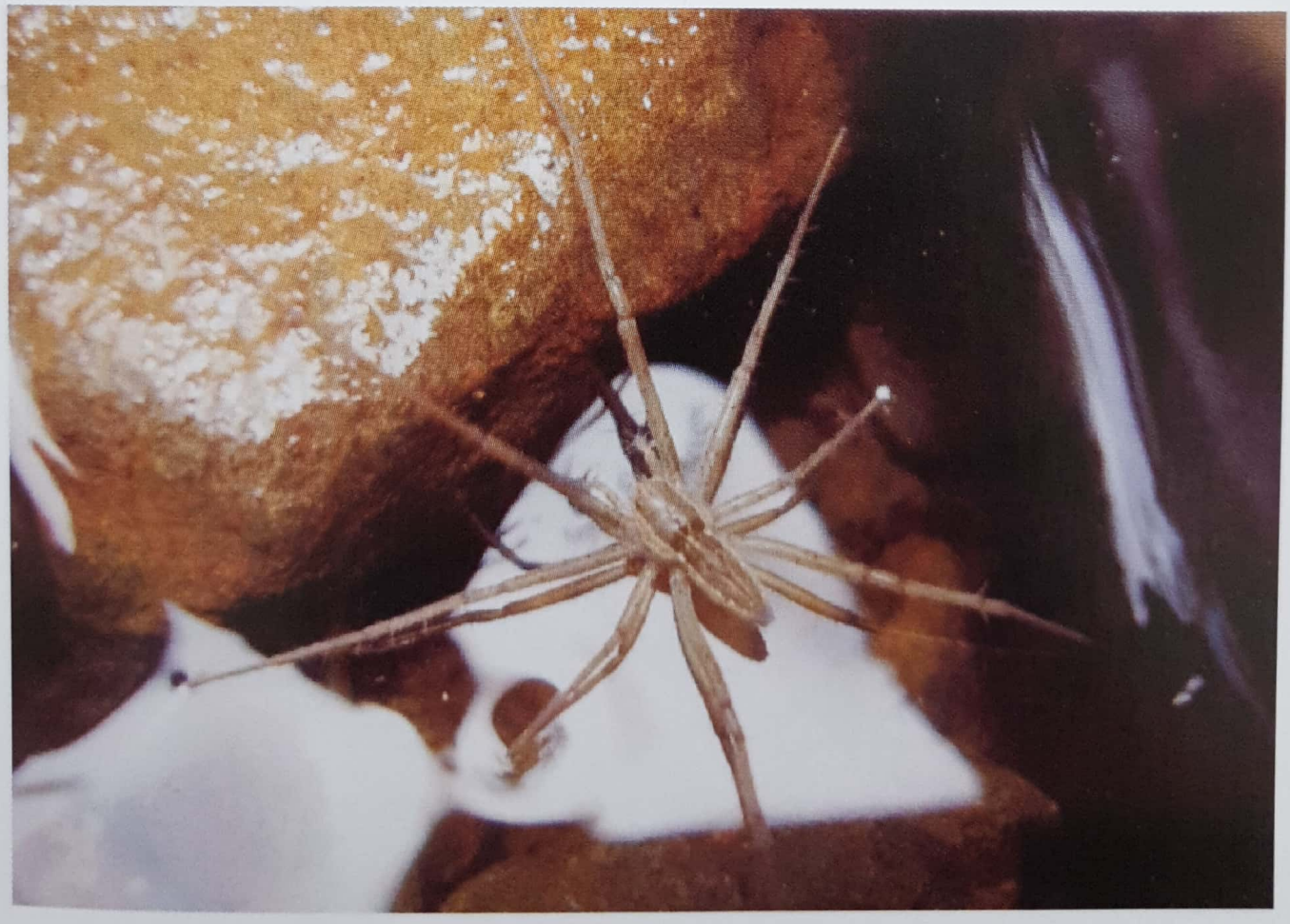
Peucetia sp. (Female)



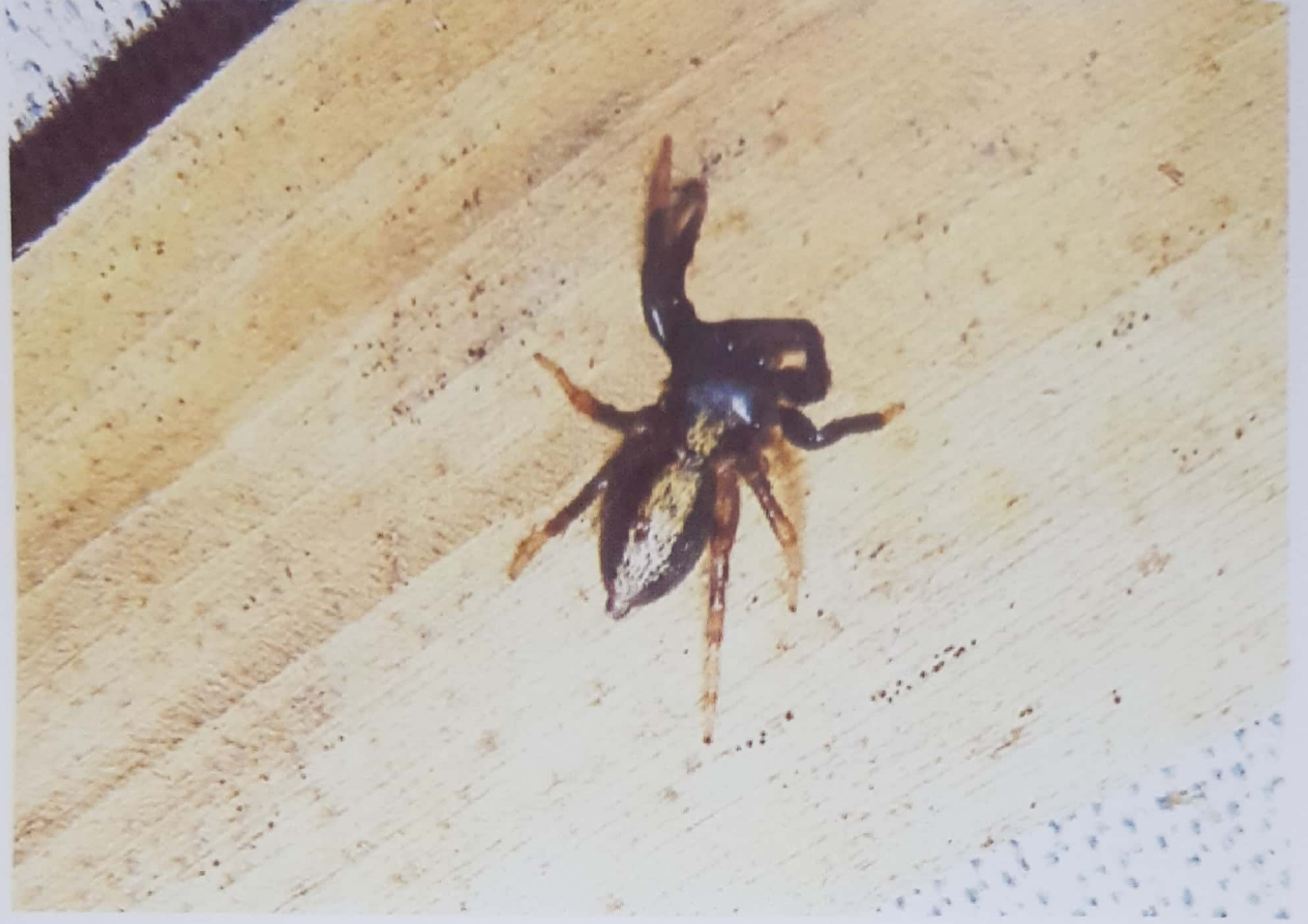
Family : Oxyopidae

Peucetia viridana (Female)

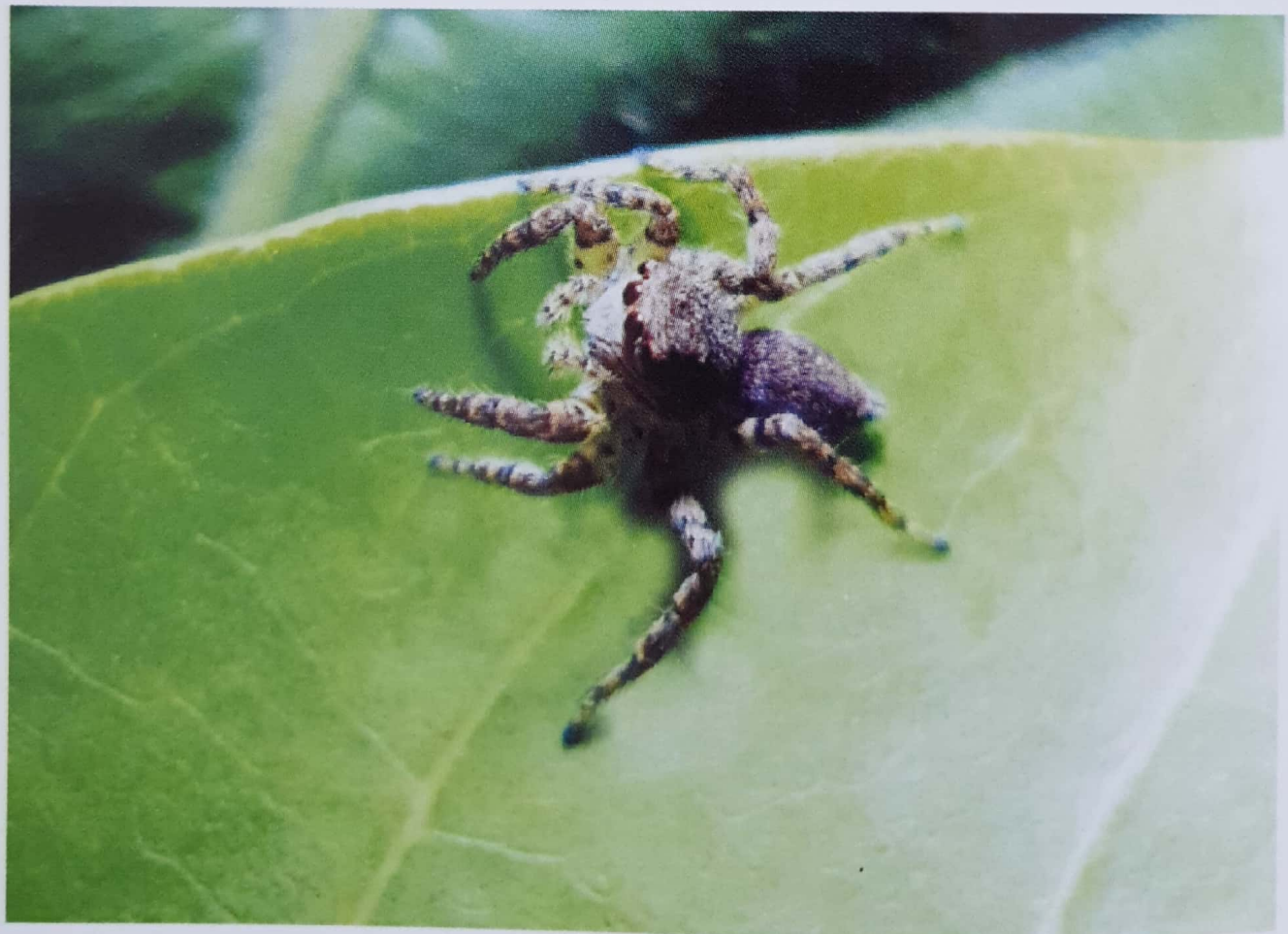
Family : Pisauridae — *Pisaura sp.* (Female)



Family : Pisauridae — *Thalassius marginellus* (Female)



Family : Salticidae *Marpissa anusuae* (Female)



Family : Salticidae *Marpissa decorata* (Female)

Fam,ily : Salticidae

Phidippus sp. (Female) New

Family : Salticidae

Phidippus (Male)

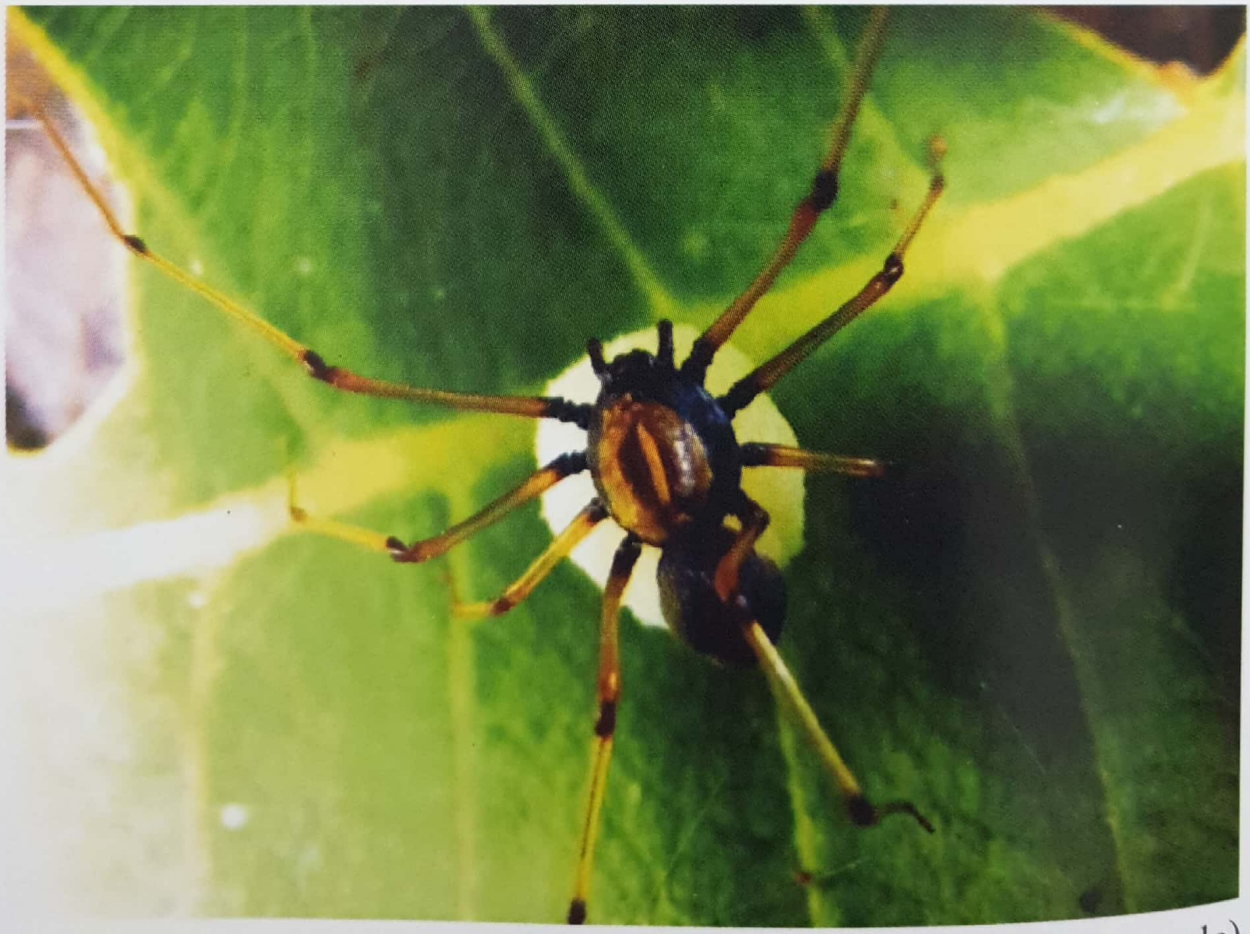
Family : Salticidae *Phidippus yashodharae* (Male)

Family : Salticidae *Marpissa sp.* (Female)

Family : Salticidae *Phlegra dhakuriensis* (Female)

Family : Salticidae *Euophrys chiriatapuensis* (Female)

Family : Salticidae *Telamonia dimidiata* (Female)



Family : Salticidae *Scytodes thoracica* (Female)

Family : Scytodiidae — *Scytodes alfredi*

Family : Sparassid ae — *Heteropoda venatoria* (Female)

Family : Sparassidae *Heteropoda venatoria* (Male)

Family : Thomisidae *Thomisus sp.*

Family : Theridiidae *Theredion sp.* (Dorsal view)

Family : Theridiidae *Theredion sp.* (Ventral view)

Family : Thomisidae *Thomisus* (Female)

Family : Thomisidae *Thomisus sp.* (Male)

Family : Thomisidae

Xysticus sp.(Female)

Family : Thomisidae

Xysticus minutes (Female)

Family : Thomisidae *Thomisus beautifularis* (Female)

Family : Thomisidae *Misumenops kumaonensis.*(Female)

Family : Thomisidae

Misumena sp. (Female)

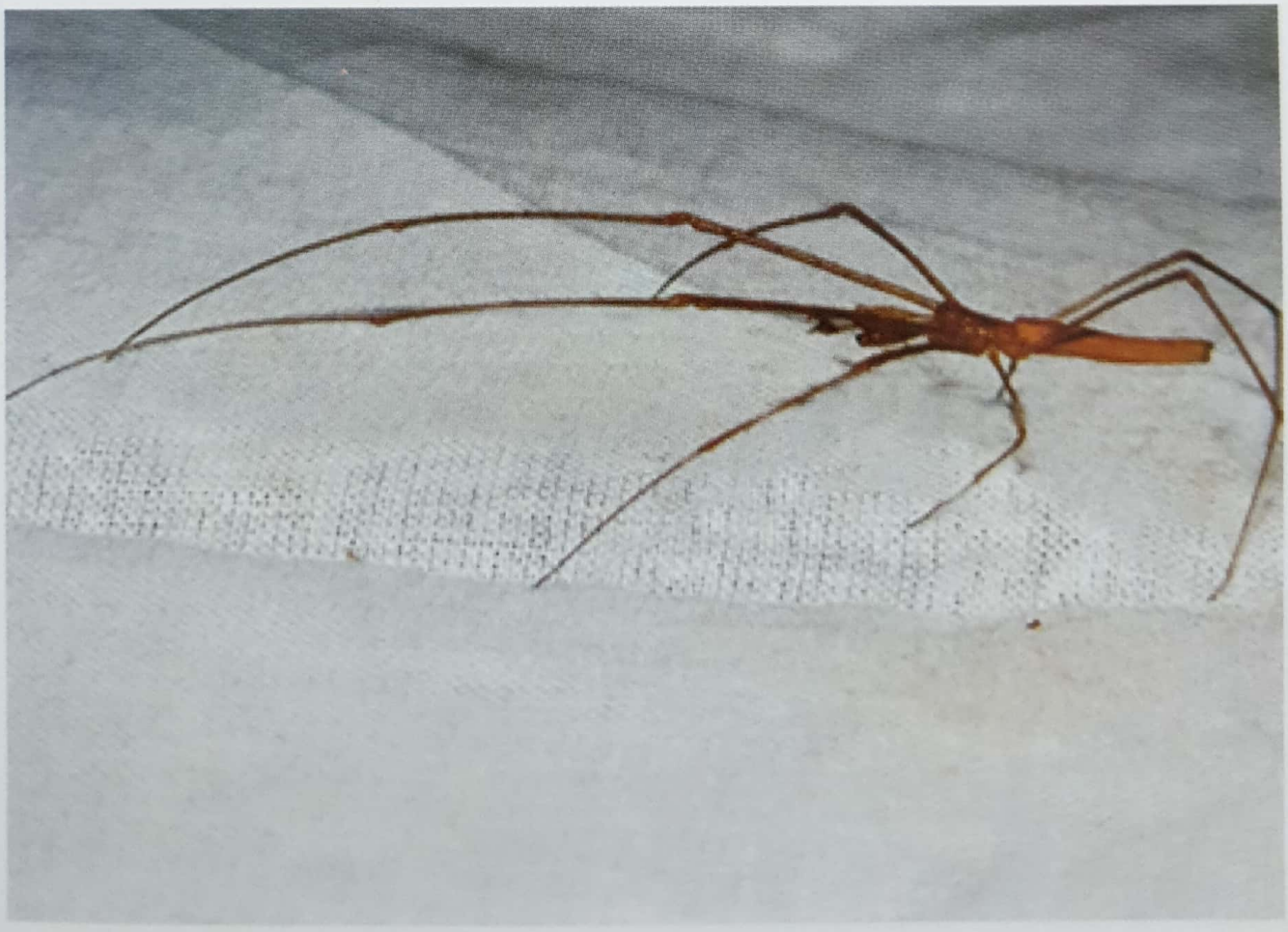
Family : Thomisidae

Misumena sp. (Male)

Family : Tetragnathidae *Leucauge decorata* (Dorsal view)

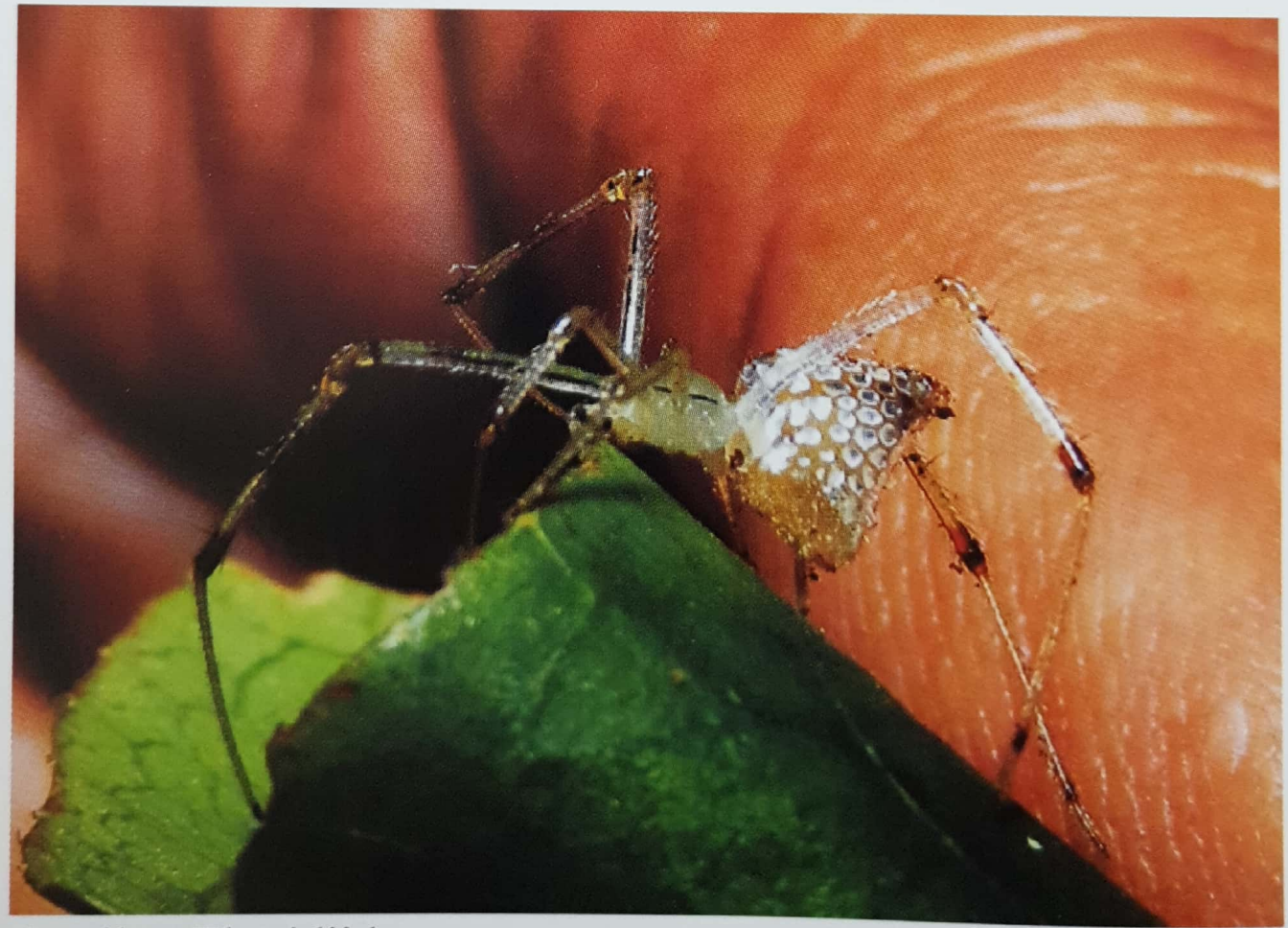
Family : Tetragnathidae *Tetragnatha sp.* New

Family : Tetragnathidae *Guizygeilla melanocrania*



Family : Tetragnathidae *Tetragnatha mandibulata* (Female)

Family : Theridiidae *Argyrodes sp.*

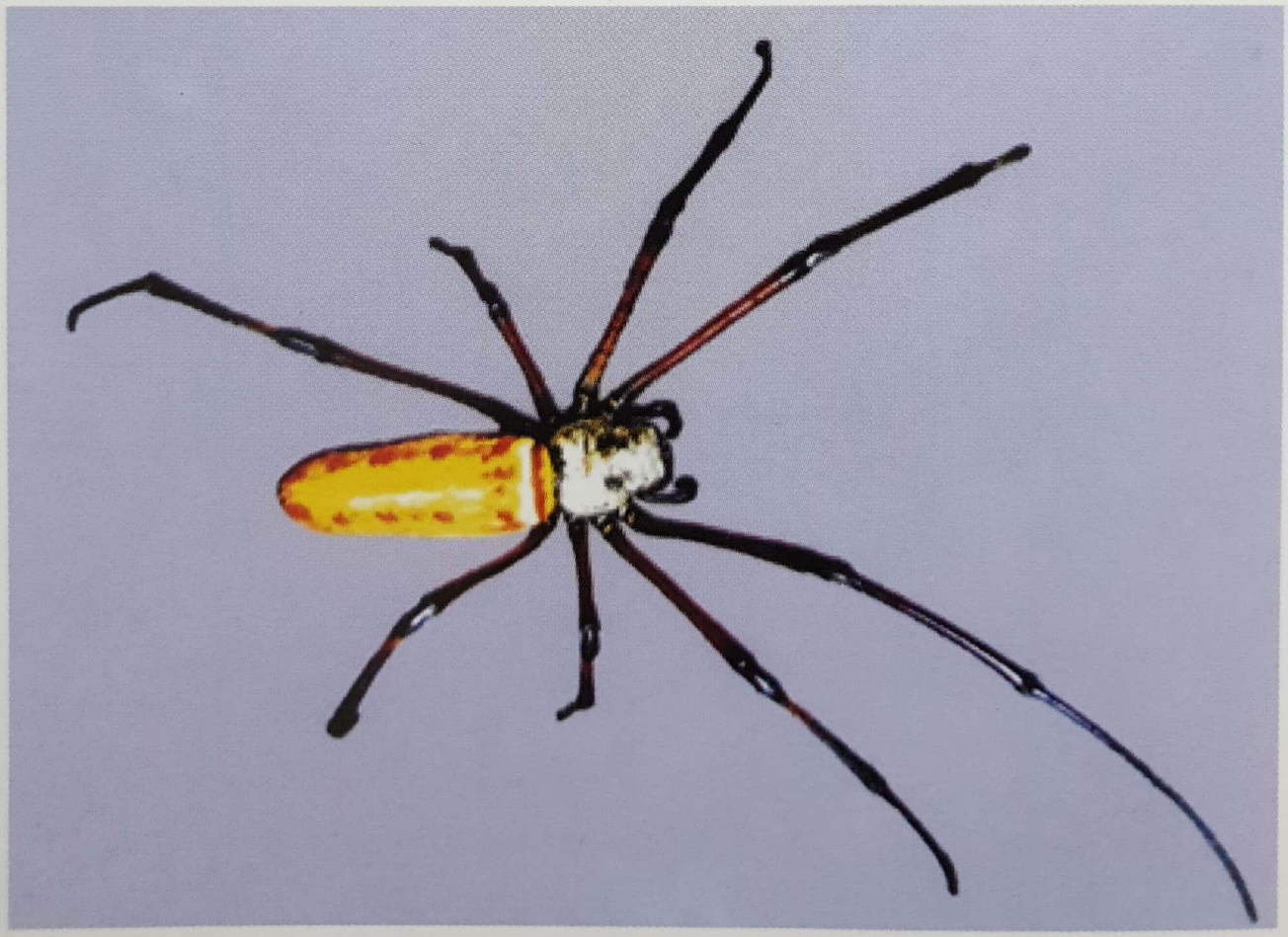


Family : Theridiidae *Argyrodes sp.*

Family : Nephilidae *Nephila sp.* (Male)

Family : Nephilidae *Nephila sp.* (Female)

Family : *Nephilidae* *Nephila sp.*New



Family : Nephilidae *Nephila sp.* (male)

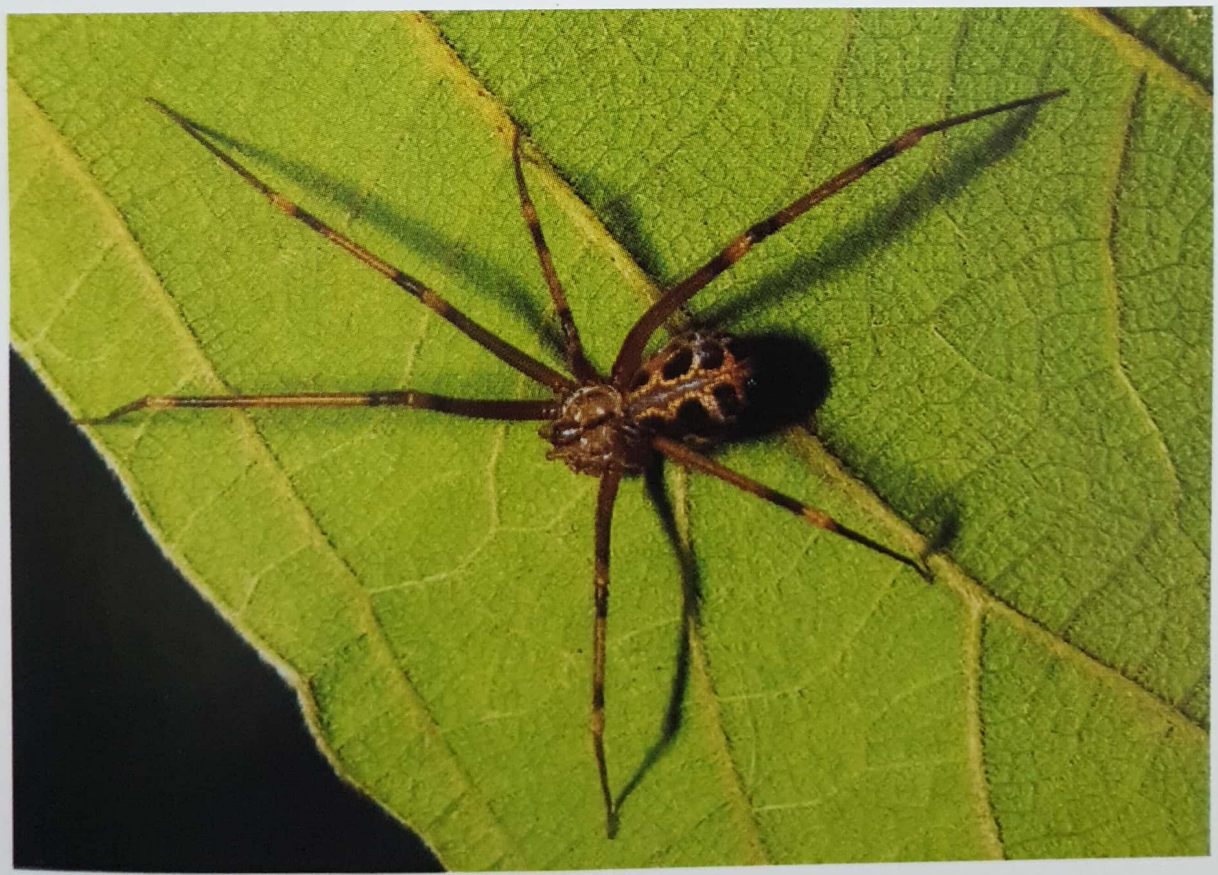
Family : Theridiosomatidae *Theridiosoma sp.*

Family : Tetragnathidae *Leucauge decorata* (Lateral view)

Family : Theridiidae *Rhomphaea sp.*

Family : Not Identified

Family : T*etragnathidae*



Family : Sicariidae

Loxosceles sp.

Family : Sparassidae *Heteropoda sp* (Female).

Family : Araneidae *Gastrocantha sp.*

MARCH 2009

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MARCH 2009

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MARCH / APRIL 2009

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DEPARTMENT OF ZOOLOGY
SANT GADGE BABA AMRAVATI UNIVERSITY, AMRAVATI

The Department of Zoology is committed to excellence in teaching, research and community service in the fields of animal biology and sustainable management of the environment in India and particularly Melghat, by providing stimulating and supportive conditions for students and staff.

Through enquiry, exploration and experiential learning, the department aims to produce post graduates fully conversant with biological principles and rigorously trained in skills of reasoning, hypothesis generation, reading and writing, practical techniques and the sound scientific application of research findings, so that they are competent and versatile in dealing with future demands.

The department promotes varied research programmes focused on contemporary issues and basic and applied concepts in animal biology, with particular emphases on the ecology of terrestrial (including spiders) and freshwater animals, evolution, systematic, physiology, and molecular biology and provides consultative expertise in solving problems relating to interactions among humans, plants, animals and the environment.

Curricular aspects :

The department offers a full time two years teaching course leading to Masters Degree in Zoology. It has an intake capacity of 30 students. There are four compulsory papers at M.Sc.I : 1. Animal structure and function, 2. Molecular cell biology and tools and techniques for Biology 3.Gamete Biology, Genes and differentiation,4.Endocrinology and Environmental Physiology. There are two common papers at M.Sc. II level, 1. Molecular Cytogenetics and 2. Cell Function and Biostatistics and there are two special papers on Molecular Biology including Immunology and Tissue culture.

During the tenure of the course, every student has to take up practical course based on their common and special papers which covers experiments on Cytology, Genetics, Ethology, Embryology, Animal cultures, Molecular Biology, Colorimetry, Chromatography,

Electrophoresis, Bioinformatics, Biostatistics, Haematology, Histochemistry and Environmental analysis. The students have to complete a project work of 40 marks .

Thus the theory and practical course taught is laying strong foundations for learning and research activity in order to make the education system more effective, job oriented and need based. The curricula for all the papers and practicals are reviewed and updated usually after every four or five years.

Research, Consultancy and Extension :-

The department admits the students for research leading to Ph.D. degrees.Dr. G. N. Vankhede, Professor is a recognized supervisor for research. At present 10 students are doing research for Ph.D. degree. Twenty six research scholars of this department have already awarded Ph.D. twenty eight students have completed M.Phil. The research is being carried out in the field of Molecular Biology , Environment , wild-life conservation , endocrinology, toxicology, physiology, limnology and reproductive biology.

During the last 10 years forty four research papers of departmental faculties have been published in journals of international repute, 92 papers have been presented in National symposia and conferences and five in International conferences.

The department is running a "Centre for wildlife education and conservation" as an extension activity. An International training course on "Environmental Education" is planned from December, 2008, in collaboration with Nature Conservation Society, Amravati and Smith Sonian University, USA.

Infrastructure and Learning Resources :

The department is situated in a building having about 2951.02 square metres area. This department has all basic infrastructure, well equipped laboratories with a separate laboratory for research activities, departmental library, cubicles for faculties and a museum cum seminar hall. Apart from the University library, we have a departmental library for the reference purpose. If felt necessary, audio-video facilities are also extended in the departmental library. In addition to own library

books the department has received books and back volumes of various journals as donations from publishers and retired professors. All our faculty members (regular and contributory) take interest in providing library facilities to the students and creating interest among them for literature and research.

Symposia , workshops and conventions held :

The department organized following National symposia , workshops and conventions:

(1) National symposium on "Recent Trends in Life Sciences with special reference to wild-life conservation" ; Nov.2002

(2) National symposium on "Three Decades of Project Tiger in Melghats";October, 2004

(3) Workshop on "Molecular Biology" ; August , 2004

(4) Convention on "Stem Cell" ; December , 2006

(5) Workshop on"Techniques in Molecular Biology and Immunology", january, 2008

Research Projects :-

The department has completed four research projects till date and one Major research project entitled "*Development of an Assessment system and evaluation of the ecological status of rivers in the Satpuda*" is going on.

Dr. G. N. Vankhede
Head

CHECKLIST OF SPIDERS IN MELGHATS

i) Family :- Araneidae

1) *Araneus mitifica* (Simon) Female
2) *Araneus sp.* (New). Female.
3) *Araneus pahalgaonensis* Tikader and Bal. Male.
4) *Argiope aemula* (Walckenaer). Female.
5) *Argiope* sp. Male and Female.
6) *Chorizopes anjanes* Tikader. Male.
7) *Chorizopes calciope* (Simon) Female.
8) *Chorizopes khanjanes* Tikader. Female.
9) *Cyclosa bifida* (Doleschall). Female.
10) *Cyclosa confraga* (Thorell). Female.
11) *Cyclosa hexatuberculata* Female.
12) *Cyclosa insulana* (Costa). Male.
13) *Cyclosa moonduensis* Tikader. Female.
14) *Cyclosa neilensis* Tikader. Female.
15) *Cyclosa simoni* sp. Male.
16) *Cyclosa sp.* (New) Female.
17) *Cyclosa sp.* (New) Female.
18) *Cyclosa spirifera* Simon. Female.
19) *Cyrtarachne bengalensis* Tikader. Female.
20) *Cyrtophora cicatrosa* (Stoliczka). Female.
21) *Cyrtophora citricola* (Forskal). Female.
22) *Gasteracantha sp.* (New). Female.
23) *Larinia chloris* (Audouin). Female.
24) *Larinia phtisica* (L. Koch). Male.
25) *Neoscona achine* (Simon). Female.
26) *Neoscona achine* (Simon). Male.
27) *Neoscona bengalensis* Tikader and Bal. Female.
28) *Neoscona laglaizei* (Simon)
29) *Neoscona lugubris* (Walckenaer). Female.
30) *Neoscona mukerjei* Tikader. Female and Male.
31) *Neoscona nautica* (L. Koch). Female.
32) *Neoscona odites* (Simon). Female.
33) *Neoscona rumpfi* (Thorell). Male.
34) *Neoscona sinhagadensis* (Tikader). Female.
35) *Neoscona sinhagadensis* (Tikader). Male.
36) *Neoscona sp.* (New). Male.

37) *Neoscona shillongensis* Tikader and Bal. Female.
38) *Neoscona theis* (Walckenaer, 1842). Female.
39) *Neoscona theis* (Walchenaer). Male.
40) *Zygiella indica* Tikader and Bal. Male and Female.
41) *Zygiella sp.* (New). Female.

ii) FAMILY :- CLUBIONIDAE
42) *Clubiona analis* Thorell. Female.
43) *Clubiona filicata* Cambridge. Female.
44) *Clubiona nicobarensis* Female.
45) *Clubiona* sp. (New). Female.
46) *Oedignatha sp.*

iii) FAMILY :- CORINNIDAE
47) *Castianeira albopicta* (Gravely). Female.

iv) FAMILY :- DICTYNIDAE
48) *Dictyna bedeshai* Tikader. Female.

v) FAMILY :- ERESIDAE
49) *Stegodyphus pacificus* Pocock. Female.
50) *Stegodyphus sarasinorum* Karsch. Male and Femle.
51) *Stegodyphus mirandus* Pocock. Male and Female.

vi) FAMILY :- GNAPHOSIDAE
52) *Callilepis chakanensis* Female.
53) *Gnaphosa kailana* Tikader. Female.
54) *Gnaphosa poonaensis* Tikader. Female.
55) *Gnaphosa pauriensis* Tikader and Gajbe. Male.
56) *Gnaphosa sp.* (New). Male.
57) *Megamyrmecion ashae* Tikader and Gajbe. Female.
58) *Nomisia harpax* O. P. Cambridge. Female.
59) *Nodocion sp.*
60) *Zelotes chandosiensis* Tikader and Gajbe. Female.
61) *Zelotes choubeyi* Tikader and Gajbe. Female.
62) *Zelotes desioi* Caporiacco. Female.
63) *Zelotes kusumae* Female.
64) *Zelotes mandae* Tikader and Gajbe. Female.
65) *Zelotes mandlaensis* Tikader and Gajbe. Female.
66) *Zelotes poonaensis* Tikader and Gajbe. Male.

67) *Zelotes sajali* Tikader and Gajbe. Female.
68) *Zelotes surekhae* Tikader and Gajbe. Female.
69) *Zelotes sataraensis* Tikader and Gajbe. Female.

vii) FAMILY :- HERSILIIDAE
70) *Hersilia savignyi* Lucas. Female.
71) *Hersilia sp.* (New) Female.

viii) FAMILY :- LYCOSIDAE
72) *Arctosa sp.*
73) *Arctosa himalayensis* (Tikader and Malhotra)
74) *Evippa shivajii sp. nov.* Female.
75) *Hippasa agelenoides* (Simon). Female.
76) *Hippasa greenalliae* (Blackwall)Female.
77) *Hippasa holmerae* Thorell. Female.
78) *Hippasa loundesi* Gravely. Female.
79) *Hippasa lycosina* Pocock. Female.
80) *Hippasa madhuae* Female.
81) *Hippasa olivacea* (Thorell)
82) *Hippasa partita* (Cambridge). Female.
83) *Hippasa pisaurina* Pocock. Male.
84) *Hippasa sp.* (New). Female.
85) *Hippasa sp.* (New). Female.
86) *Lycosa sp.* (New).Female.
87) *Lycosa lambi* (Tikader and Malhotra)
88) *Lycosa poonaensis* Female.
89) *Lycosa shillongensis* Female.
90) *Pardosa annandalei* (Gravely). Female.
91) *Pardosa birmanica* Simon. Female.
92) *Pardosa minutus* Tikader and Malhotra. Female.
93) *Pardosa sp.* (New). Female.
94) *Pardosa sumatrana* (Thorell). Female.
95) *Pardosa timida* (Simon). Male.

ix) FAMILY :- MITURGIDAE
96) *Cheiracanthium danieli* Tikader. Female.

x) FAMILY :- NEPHILIDAE
97) *Nephila clavata* Female.
98) *Nephila kuhlii* Doleschall. Female.

99) *Nephila pilipes* Male and Female.
100) *Nephila obusta* Tikader. Male and Female.
101) *Nephila sp.* (New). Femlae.

xi) FAMILY :- NEW FAMILY (PROPOSED NAME FAMILY GAJBESIDAE)

102) Gen. nov.

xii) FAMILY :- OECOBIIDAE

103) *Oecobius putus* Male.

xiii) FAMILY :- OONOPIDAE

104) *Inschnothyreus deccanensis* Female.
105) *Triaeris melghaticus* (Bastawade, 2002)

xiv) FAMILY :- OXYOPIDAE

106) *Oxyopes burmenicus* (Thorell). Female.
107) *Oxyopes chittrae* Tikader. Female.
108) *Oxyopes jabalpurensis* Gajbe and Gajbe. Male and Female.
109) *Oxyopes pankaji* Gajbe and Gajbe. Female.
110) *Oxyopes pawani* Gajbe. Male.
111) *Oxyopes sp.* (New). Female.
112) *Oxyopes sp.* (New). Male.
113) *Oxyopes sp.* (New). Female.
114) *Oxyopes shweta* Tikader. Female.
115) *Peucetia latikae* Tikader. Female.
116) *Peucetia jabalpurensis* Gajbe and Gajbe. Female.
117) *Peucetia sp.* (New). Female.
118) *Peucetia viridana* Pocock, 1900. Male and Female.

xv) FAMILY :- PALPIMANIDAE

119) *Palpimanus vultuosus* (Simon)

xvi) FAMILY :- PHILODROMIDAE

120) *Philodromus jabalpurensis* Female.
121) *Thanatus jabalpurensis* Female.
122) *Tibellau jabalpurensis* Female.

xvii) FAMILY :- PHOLCIDAE

123) *Pholcus phalangioides* Female

124) *Pholcus sp.* (New). Female.
125) *Pholcus walckenaer* Male and Female.

xviii) FAMILY :- PISAURIDAE
126) *Pisaura gitae* Female.
127) *Pisaura sp.* (New) Female.
128) *Thalassius albocinctus* (Doleschall). Female.

xix) FAMILY :- SALTICIDAE
129) *Euophrys chiriatapuensis* Tikader. Female.
130) *Marpissa andamanensis* Female.
131) *Marpissa anusuae* Tikader and Biswas. Female.
132) *Marpissa bengalensis* Tikader. Female.
133) *Marpissa decorata* Tikader. Female.
134) *Marpissa dhakuriensis* Tikader. Female.
135) *Marpissa kalapani* Female.
136) *Marpissa mandali* sp. nov. Female.
137) *Marpissa sp.* (New). Female.
138) *Marpissa sp.* (New). Male.
139) *Myrmarachne orientales* Tikader. Male.
140) *Myrmarachne poonaensis* Tikader. Female.
141) *Phidippus bengalensis* Tikader. Female.
142) *Phidippus bhimrakshiti* Female.
143) *Phidippus indicus* Tikader. Female.
144) *Phidippus sp.* (New) Male.
145) *Phidippus sp.* (New) Female.
146) *Phidippus yashodharae* Male.
147) *Phlegra dhakuriensis* Tikader. Female.
148) *Plexippus paykullii* Female.
149) *Pseudicius sp.* (New). Female.
150) *Rhene sanghrakshiti* Female.
151) *Rhene khandalensis* Female.
152) *Salticus ranjitus* Tikader. Male.
153) *Telamonia dimidiata* (Simon). Femlae.

xx) FAMILY :- SCYTODIDAE
154) New sp. Female.
155) *Scytodes alfredi* Female.
156) *Scytodes thoracica* (Latreille, 1802). Female.

xxi) FAMILY :- SICARIIDAE

157) *Loxosceles rufescens* Female.

xxii) FAMILY :- SPARASSIDAE

158) *Heteropoda* sp. (New) Female.
159) *Heteropoda venatoria* Male and Female.
160) *spariolenus sp.*

xxiii) FAMILY :- TETRAGNATHIDAE

161) *Leucauge celebesiana* (Walckenaer). Female.
162) *Leucauge culta* (O. P. Cambridge). Female.
163) *Leucauge sp.* (New). Female.
164) *Leucauge decorata* (Blackwall). Female.
165) *Leucauge fastigata* (Simon). Female.
166) *Leucauge tessellata* (Thorell). Female.
167) *Tetragnatha mandibulata* Walckenaer. Male and Female.
168) *Tetragnatha sp.* (New). Female.
169) *Tetragnatha geniculata* Karsch. Female.
170) *Tetragnatha sp.* (New). Male
171) *Tetragnatha sp.* (New). Female.
172) *Guizygiella melanocrania* (Thorell). Female.

xxiv) FAMILY :- THERIDIIDAE

173) *Argyrodes carnicobarensis* Male.
174) *Argyrodes gouri* sp. Female.
175) *Argyrodes jamkhedes* Male and Female.
176) *Rhomphaea sp.* Male
177) *Theridiian sp.* (New). Female.
178) *Theridiian sp.* (New). Male.
179) *Theridiian sp.* (New). Female.

xxv) FAMILY :- THOMISIDAE

180) *Misumena decorata* Female.
181) *Misumena sp.* (New). Male.
182) *Misumenoides deccanes* Tikader. Female.
183) *Misumenoides gwarighatensis* Male and Female.
184) *Misumenops kumaonensis* Tikader. Female.
185) *Pistius robusta* Basu. Female.
186) *Synaema decorata* Tikader. Female.

187) *Thomisus andamanensis* Female.
188) *Thomisus beautifularis* Basu. Female.
189) *Thomisus dhakuriensis* Tikader. Female.
190) *Thomisus memae* Sen and Basu. Female.
191) *Thomisus pathaki.* Female.
192) *Thomisus pugilis* Stoliczka. Female.
193) *Thomisus sp.* (New). Female.
194) *Thomisus sorajaii* Basu. Female.
195) *Thomisus whitakeri* Female.
196) *Thomisus shivajiensis* Tikader. Female.
197) *Thomisus projectus* Tikader. Female.
198) *Thomisus sp.* (New). Female.
199) *Xysticus sp.* (New). Female.
200) *Xysticus jayantius* Tikader. Female.
201) *Xysticus minutes* Tikader. Female.
202) *Xysticus roonwali* Tikader. Female.

xxvi) FAMILY :- ULOBORIDAE

203) *Uloborus danolius* Tikader. Female.
204) *Uloborus sp.* (New). Female.

SPIDER RECORDS FROM INDIA AND MELGHAT

Sr. No.		India*		Melghat	
	Family	Genera	Species	Genera	Species
1	*Agelenidae*	2	10	—	—-
2	*Amaurobiidae*	2	4	—-	—-
3	*Anyphaenidae*	1	1	—-	—
4	*Araneidae*	27	149	10	41
5	*Atypidae*	1	1	—	—
6	*Barychelidae*	4	5	—-	—-
7	*Cithaeronidae*	2	2	—	—
8	*Clubionidae*	3	23	1	4
9	*Corinnidae*	9	35	2	2
10	*Cryptothelidae*	1	1	—-	—
11	*Ctenidae*	2	14	—-	—-
12	*Ctenizidae*	1	1	—-	—
13	*Deinopidae*	1	1	—-	—-
14	*Desidae*	1	2	—-	—
15	*Dictynidae*	8	11	1	1
16	*Dipluridae*	2	4	—	—
17	*Eresidae*	1	4	1	3
18	*Filistatidae*	3	10	—-	—
19	*Gajbesidae*	—-	—-	1	1
20	*Gnaphosidae*	28	134	5	18
21	*Hahniidae*	3	4	—-	—
22	*Hersiliidae*	3	6	1	2
23	*Hexathelidae*	1	1	—-	—
24	*Homalonychidae*	1	1	—-	—
25	*Idiopidae*	3	11	—-	—
26	*Linyphiidae*	15	24	—-	—
27	*Liocranidae*	1	7	—-	—
28	*Lycosidae*	17	126	4	24
29	*Mimetidae*	2	3	—-	—
30	*Miturgidae*	3	29	1	1
31	*Mysmenidae*	1	1	—	—
32	*Nemesiidae*	1	3	—	—
33	*Nephilidae*	—	—-	1	5
34	*Ochyroceratidae*	1	1	—-	—
35	*Oecobiidae*	2	5	1	1

36	*Oonopidae*	4	13	1	2
37	*Oxyopidae*	4	66	2	13
38	*Palpimanidae*	2	3	1	1
39	*Philodromidae*	7	43	3	3
40	*Pholcidae*	4	6	1	3
41	*Pimoidae*	1	3	—	—
42	*Pisauridae*	8	17	2	3
43	*Prodidomidae*	2	9	—	—
44	*Psechridae*	2	5	—	—
45	*Salticidae*	62	182	10	25
46	*Scytodidae*	1	9	1	3
47	*Segestriidae*	2	2	—	—
48	*Selenopidae*	1	6	—	—
49	*Sicariidae*	1	1	1	1
50	*Sparassidae*	10	80	2	3
51	*Stenochilidae*	1	2	—	—
52	*Tetrablemmidae*	4	10	—	—
53	*Tetragnathidae*	12	52	3	12
54	*Theraphosidae*	10	51	—	—
55	*Theridiidae*	18	53	2	6
56	*Theridiosomatidae*	1	1	—	—
57	*Thomisidae*	37	154	7	23
58	*Titanoecidae*	1	1	—	—
59	*Trochanteriidae*	1	5	—	—
60	*Uloboridae*	5	22	1	2
61	*Zodariidae*	7	20	—	—
TOTAL		361	1450	66	203

* Siliwal, M.; Molur, S. and Biswas, B. K. (2005): Zoos Print Journal Vol. 20, No. 10. pp. 1999-2049.

Important phone numbers

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NOTES

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