



Spiders - It's not the Way we Think

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Commentary

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Commentary

Spiders, eight legged arthropod for many looks creepy or a yekk creature. When we think of spiders, for majority long & thin legged cellar spiders in corner of our room with messy web comes to mind. For some large huntsman spider with large legs in bathrooms & few with little garden may think of web weaving spiders, which have disturbed them for morning walk.

For majority of us spiders means web & we can't imagine spiders without web. Till now worldwide we have found 51,600 species of spiders from 135 families. Out of these 135 families only few families like Araneidae, Tetragnathidae, Linyphiidae, Uloboridae, Theridiidae are major weavers & there are few more which are truly dependent on their web for catching prey. Salticidae, family of spiders which is commonly called as jumping spiders have most number of spiders with 6000+ species from 657 genera. These spiders never make a web for hunting its prey. They are purely dependent on their eye sight & their long jump.

These jumpers are active in day time & rest at night. In contrary web making spiders are nocturnal. Instead of going to more of technical details on spiders or benefits of spiders, in this article I am introducing few spiders, which you may not think as spiders.

Let me begin with jumping spider itself.

Any one reading this article should have seen ants in your premises. But every ant you are seeing may not be an ant. There are spiders which resembles exactly like an ant. *Myrmarachne* species is one such example. Weaver

ants (*Oecophylla smaragdina*) are the common arboreal ants which also visit your house some time. *Myrmarachne platyleoides*, jumping spider looks exactly like weaver ant. Out of four pairs of legs this jumping spider lifts the first pair of legs & continuously moves them which make it to look like antenna of ants. If you watch closely you can see eight eyes & two body parts which clearly differentiate it from ants.

Though this ant mimic spider lives in close vicinity of ants, they never feed on them. Instead they use these ants as protection. Usually ants are never solitary. They leave together & help each other. Because of this unity & its power full bite (few ants' sting) many predators avoid them. So being with ants, for this jumper its gives indirect protection.

Females of this jumper looks exactly like weaver ant & males have large chelicerae with black mark on at tip which make them to look like a weaver ant carrying another injured weaver ant. Ants have two compound eyes & vision is not proper as spiders, which has simple eyes. Importantly ants doesn't rely on their eyes sight, instead they rely on their pheromones. Then why this mimicry? Or these spiders too release pheromones? Studies or going on & till then it's a mystery.

There is one more jumping spider, which looks exactly like a wasp or a bee from its rear end. This jumper has very powerful first pair legs, hence powerful jump. It's from genus *Rhene*.

Males of this genus have prominent patterns of wasp on their abdomen. Females are bit drab & have light markings. Intentions of nature designing such way are not clear and we can work on hypothesis. These jumpers are so strong that they can hunt any powerful insects & other spiders too.

Rhene rubrigrera is most colourful among this genus with male having bright red marking on its abdomen.

There are still more wonders in this world of jumpers, but for now let's move on to spiders on web.

As said earlier, not all spiders make web. Spiders from Araneidae are considered as true orb weavers which construct beautiful & perfect web. Which is architectural mystery? As a matter of protection from predators, especially birds which are active in day time, these orb weavers construct their web in dusk. All its hunting activity is during dark time, where we all will be sleeping. When dawn appears these orb weavers, destructs their own web & starts feeding on it as it's a greatest source of protein & orb weavers doesn't want to show any clue that they made web as it may hint birds to search their hiding place.

Orb weavers like *Parawixia* sp, *Eriovixia*, *Araneus* & *Neoscona* species are highly camouflaged and they hide under the leaf which is similar to its body colour or make leaf coiled and go inside to hide. Other than this above genus, there are three more genres which grab attention of nature enthusiasts

Polty's

Though there are nine described species from India, there are still more. There are the spiders which literally mimic stick or a seed or tree stump. Hence it's commonly known as Tree-stump spider. This spider constructs one of the most beautiful web during night time and they choose dry tree stump or small dry stick to rest. Actually these spiders don't hide like other orb weavers; instead they will be sitting so open that no predators can spot. They look like continuation of stick or tree stump.

Caerostris

These genus spiders are called Bark spiders. I am sure most of them would have seen documentary of Darwin's Bark spider on BBC earth. This belongs to same genus. Only one species from this genus is described till now from India & I am lucky to spot them in Western Ghats.

During night, this spider makes huge/largest & strongest web in entire spider world. Yes, it's not easy for us to break even a single thread of it. This spider Web is almost fifty times stronger than steel & this makes *Caerostris* web strongest material on earth!

Same spider during day time needs protection from birds and other predators. As dorsum abdomen of this spider looks exactly like tree bark, this orb weaver confidently rests

day time without fear.

Cyphalonotus

This genus is not been described in India, but there few photographic records from Western Ghats & I am lucky to witness on from Mangaluru, Karnataka. This Spider looks very similar to *Polty's*, but with slight difference in eye arrangements. I am not going for any anatomical details here. This spider's abdomen looks like broken twig, which makes spider more camouflaged and merges itself to background. This spider looks more beautiful in web too.

I can't forget to show beautiful *Eriovixia* species, which is described from Western Ghats, which looks very unique like sorting hat from Harry potter movie. Hence this is named as *Eriovixia gryffindori*.

Abdominal protrusion of this spider is bent and elongated which makes this to look like a sorting hat. This *Eriovixia* genus is known for its unique shape and coloration, where some looks like our samosa and some like bird dung too.

When we say about Bird dung mimic, more than *Eriovixia* genus there is another orb weaver from *Pasilobus* genus which looks exactly like bird dung!

Let it be any shit/dung, this makes us yukkk feeling. Similar feeling will be there for any predators, though there are some organisms which are dependent on excreta for their survival. As majority of predators has aversion to dung, this *Pasilobus* species of spiders resembles dung. During night time they construct hanging web with droplets on it, which probably release some pheromones to attract insects. As dawn approaches they coil the web along with prey & then make a ball out of it, mash then and finally rest on leaf and starts feeding on it. Bird dung like structure makes this spider unnoticeable to the external world.

There are two more genus of spiders from orb weavers which make similar web like *Pasilobus* and these two also have unique mimicry which our human brain can't imagine

Cyrtarachne

This genus for its protection has evolved such a way that, it mimics a snail or in some genus it resembles reptiles like Geko or snake head! We humans assume that this mimicry is for protection and true intentions of nature are definitely unknown.

In our Hypothesis, snails are not been fed by majority of predators. So when mimicking this *Cyrtarachne* genus

gets protection. Abdomen of this genus is bit transparent and when disturbed we can see cardiac activity inside. Blood movement pattern makes predators scare.

Paraplectana

Like *Pasilobus* and *Cyrtarachne* even this genus has similar web with droplets. For protection this spider looks like ladybird beetle. As we are aware bugs from family *Coccinellidae* like spiders are agriculture friendly and check insect populations. Most of the predators avoid feeding on these bugs as they release offensive odour when any predators try to feed on it. *Paraplectana* species has evolved such a way that it resembles like a ladybird beetle and gets good protection when resting on leaf during day.

I can give many more examples from same family, but I let's move to *Thomisidae* family, which are known as Flower crab spiders.

I am not going to show true flower crab spiders here, but will present with three unique genera from the family and all three doesn't depend on flowers.

Usually most of the genus from this family will be hiding on flowers and waiting for pollinators to visit that flower. Crab spiders don't miss to catch these visiting pollinators when hungry.

But there is a crab spider on tree bark which cannot be noted easily as it's almost blended with bark. Some times during breeding season we can see this spider on tip of leaf, where its coils leaf tip and lay their eggs and guard its egg sac.

This is *Boliscus* species and tiny eight eyes of this are almost invisible.

Similar to *Boliscus* species there is one more genus of Crab spider present on tree bark or on fallen twigs or on leaf litter. Though colour is similar to *Boliscus*, This spider is huge and one of the largest in *Thomisidae* family. As this spider is found in leaf litter it's called litter spider. This belongs to genus *Borboropactus*.

Borboropactus species is bit rare when compared to *Boliscus* and I have encountered it twice in Western Ghats.

Large but flat spider with long first pair of legs and body colour similar to surrounding makes this spider unnoticeable.

This character for above two spiders, gives good protection from predators. But this has extra advantage. All spiders from *Araneidae* family have this adaptability only for protection. But these two *Thomisidae* can hunt its prey using this protection as even prey can't identify predators.

Till now you have seen drab looking, camouflaged spiders, but there are too colourful spiders and one of them is *Platythomisus* species from *Thomisidae* family.

Females of this genus are Bright red and have black dots on it which looks like a toy. Even people with extreme arachnophobia may start loving spiders after seeing this beauty.

Males are yellowish in colour and possess black dots. There are infrequent recordings from India and again majority from Western Ghats. This is the reason why our Western Ghats and in total forests need to be protected.

Can we imagine a spider with Mirror?

Yes, we should. Here is a spider from *Theridiidae* family which belongs to genus *Thwaitesia* and commonly called as Mirror spider. Most of the *Theridiids* are nocturnal and even this hunt on ant's whole night. Mirror like particle on this spider's abdomen makes this spider look very unique and beautiful. This spider can contract & dilate its mirror. It is said that as a matter of protection it does so. When it contracts and dilates predators will be scared through this action. From same family there is one more genus by name *Molione*, which has three thorns on abdomen. These thorny projections make this *Theridiidae* very distinct from others and again thorns are sign of protection. Each spider is unique in itself and I have not touched even a percentage of it.

There is famous quote from unknown author,

“Seeing a spider isn't a problem. It becomes a problem when it disappears “

So it's time for us now to start looking outside for these tiny, helpful arachnids.

