

Walk on the sand bed streams

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Dipterocarp forests are always special. The diversity of flora and fauna is astonishing and the beauty of the forest with tall trees mesmerize the observers. For any naturalists walking in the forests of north-east India is like a walking into some treasure trove. When Dr. Kashmiri Kakati asked me to visit Joypur Reserve Forest to prepare a checklist of one of my recent obsession – odonates (commonly called Dragonflies and Damselflies) I was more than happy to look for these bejeweled denizens of aquatic habitats.

Dragonflies and damselflies are among the most ancient insects, and probably the first to master the art of flying. They made their appearance about 250 million years ago. There are about 6,000 species known worldwide of which in India we have around 536 species.

Although dragonflies and damselflies belong to two different groups, their lifestyle (breeding habits and dependence on water) is similar. However, they differ in structure and form of their bodies. Like moths, dragonflies spread their wings out while resting, whereas damselflies keep them closed, hold them together dorsally in the manner of some butterflies. Damselfly eyes are separated, while in most dragonflies, the eyes touch each other. Dragonflies are found around aquatic habitat as well as drier areas, whereas damselflies are found mainly around water bodies.

Odonates surpass all other groups of insects in their flying skills. Odonates have uncoupled wings, that is unlike moths, butterflies, wasps and bees, fore and hind wings are unattached to each other and they beat independently. The powerful thoracic muscles help them in long sustained flight and good maneuverability. Odonates can hover and turn 180° while in flight and can fly backwards. Dragonflies and damselflies, for example, inspired aeronautical engineers to study their flight patterns to build helicopters.

The life-cycle of odonates is closely associated with water. They feed, breed, and develop around water. Some species prefer lakes and ponds while some others prefer running water such as rivers and hill streams. The objective of the odonate survey in Joypur Reserve forest is to prepare a checklist of species in different habitats within. Although the major flora and fauna of this region is fairly well documented, there have been no recent surveys on odonates. Survey conducted on odonates in Joypore Reserved Forest is unique because this region is being explored after more than 70 years. This survey was conducted in forest streams and nearby fallow lands, for five days in July 2010 and resulted in the documentation of 40 species of odonates (21 dragonfly species and 19 damselfly species).

About 20 species of odonates recorded here such as Ground Skimmer *Diplacodes trivialis*, Fulvous Forest Skimmer *Neurothemis fulvia*, Brown-Backed Red Marsh Hawk *Orthetrum chrysis*, Crimson-Tailed Marsh Hawk *Orthetrum pruinosum*, Crimson Marsh Glider *Trithemis aurora* and Stream Glory *Neurobasis chinensis* are common found all over India. There are about 15

damselfly species which were unique to this region and few of them were new records for this region.

One of the major findings of this short survey is the occurrence of Black and yellow *Coelicerca* *sp.* along the forest streams. This species is unique as it could be a new species for science. Apart from this there are few more species such as *Agriocnemis* *sp.* and *Rhinocypha* *sp.* are new to science as well since they were not documented and described by previous works.

Interesting thing about the streams of this Joypur forest was that the substrate of the stream was largely sandy. I was accompanied by two enthusiastic local men Lakhindra and Dilip during my stream walks. They mentioned that there are two types of streams occur over here: sandy substrate and rocky. I was walking mainly in sandy streams.

It's an amazing experience to walk in the forest stream. Both sides of the stream were packed with beautiful ferns, lianas and huge buttressed tall trees. We were constantly looking for odonates especially where there is open in the canopy, where sunlight falls on the stream. We could see the sand bed through the crystal clear water. We were looking carefully in that kind of potential places especially along the bank, on small boulders, where twigs sticking out of the water. These are the microhabitats where one can find odonates.

There were many distractions while walking in the knee deep water. Hoolocks, squirrels, trogons, laughing thrushes were calling and moving about. Brilliantly colored butterflies fluttering and mud puddling along the sandy banks of the stream. Restless Forktail's chirps and fly away from us and never gave a chance to have a good look at them. But once we spot glittering wings of a dragon or a damsel nothing can divert us from them. Because they are very special.

Why? It is not just that, this region is not been explored much on the odonates. It's also because of the stream substrate. Substrate of the stream can affect the life found within the stream habitat. It's an important deciding factor for the occurrence of odonates. Species which we see in standing waterbodies mostly be a generalists i.e. they can feed and breed even in the disturbed and polluted water. But forest dwelling odonates are habitat specialists. They will be restricted to specific regions where they get specific food and prefer particular place (micro-habitat) to breed.

If we alter the course of the stream, if we build a check-dam across the stream and arrest or regulate the flow, it will not only affect the health of the stream ecosystem but also affect several other inhabitant's life such as these odonates.

Streams are like veins of the forests. Odonates are integral part of these stream ecosystems. They not only indicate the health of the stream but also add an intrinsic aesthetic value for the stream they live in. Walking in the Joypur forest stream will never be interesting without these flying beauties.