

Morphological, Ecological and Behavioral Study of Millipedes (Diplopoda: Polydesmida: Paradoxosomatidae) In the field of Bambrood Dist. Jalgaon , Maharashtra, India.

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Abstract:

Millipedes are arthropods belong from class diplopoda (Millipedes) comprise the third most diverse class of terrestrial arthropods as a class, they are found everywhere. Millipedes are some of the oldest creatures to walk on land. They are detritivores, meaning they feed on dead plants and animals. The millipedes snacking recycles nutrients back into the soil at a much faster rate than plants and animals decomposing naturally. Body show head and trunk with many segments, each segment possesses a pair of legs hence it is called as hundred leggers but this word is not true, some millipedes possess maximum 730 to 750 legs totally. Millipedes protect themselves by curling up into a spiral whenever they feel threatened this protects their soft undersides. The characteristic feature of the group is the presence of diplosomites, double trunk segments formed from the fusion of two segments. They have as many as 200 pairs of legs two pairs on each diplosomite except for the first (head) segment, which is legless, and the next three segments, which each contain one pair of legs. In addition, each diplosomite (except for the first four) contains two pairs of internal organs. The head contains antennae, simple eyes (ocelli), and only a single maxilla. The length ranges from 2 to 280 mm (0.08 to 11 inches). The number of segments also varies, ranging from 11 to more than 100 in some species. All but one order of millipedes is armored with calcareous dorsal plates. They have exoskeleton, and many secrete a pungent, toxic liquid or gas from lateral glands. Many millipedes can also serve as indicators of environmental conditions and improve the structure content of organic matter and nutrient elements of soil.

Material and Methods:

Study Area

Bambrood is a small village it comes under the jalgaon district, in Maharashtra, India. Observation of millipedes was made through 6 quadrats (1 m × 1 m) in each study site and the mean number of millipedes/quadrat was calculated. Millipedes were collected from the study area by hand picking, and species were identified by using various field guides and available books, literatures.

Discussion:

Millipedes are from the phylum of Arthropoda, sub phylum Myriapoda, class Diplopoda and order Polydesmida. Body is divided into head and trunk. Head contains a pair of sensory organs known as the Tomosvary organs, ring like found at the base of the antennae, used to measure the humidity in the surrounding and also used as the chemoreceptor. Trunk consists of many segments which bear two pair of legs hence mentioned as diplopoda. The Diplopoda the name being characterized by having two pairs of jointed legs on most body segments; they are known scientifically as the class Diplopoda; the name being derived from this feature. They are generally harmless to humans, and live to one to 11 years. Millipedes spend most of their lives in the soil where they also overwinter. In the spring, millipedes lay between 20 and 300 eggs in the soil. Millipedes never run very fast they can easily be caught by their predators. When they feel insecure and in danger, they will coil their body into a tight spiral, protecting belly. In this paper I have discussed about the observation, diversity morphological and behavioral characters of the millipede. The male uses specially modified legs to transfer his spermatophore, or sperm packet, to her. She receives the sperm in her vulvae, just behind her second pair of legs. In most millipede species, the gonopods replace the legs on the 7th segment. Female millipedes burrow into the soil and dig nests where they lay their eggs. In many cases, the female millipede uses her own feces, her castings are just recycled plant matter after all to construct a protective capsule for her offspring. In some instances, the millipede may push the soil with her hind end to mold the nest. She deposits 100 eggs or more in the nest, and the hatchlings will emerge in roughly a month. Millipedes consume decomposing organic material and it contributes to decomposition and recycling of nutrients.

Millipedes are known to feed on a variety of organic matter, which includes low to highly nutritious substances. They are very clean arthropods, spend lots of time cleaning and polishing the different parts of the body, they have brush like hairs present in the groups on the second or third pair of legs, with the help of these they clean their antenna also.

Fig. 1. Millipede (Polydesmida) Segmented body with Legs



Fig. 2 Millipede (Polydesmida) Anterior Part of body showing Head, Trunk , Antenna , legs.



Fig. 3 Showing one pair of legs to segment Number 1,2,3



Fig. 4 Each segment bears two pair of legs

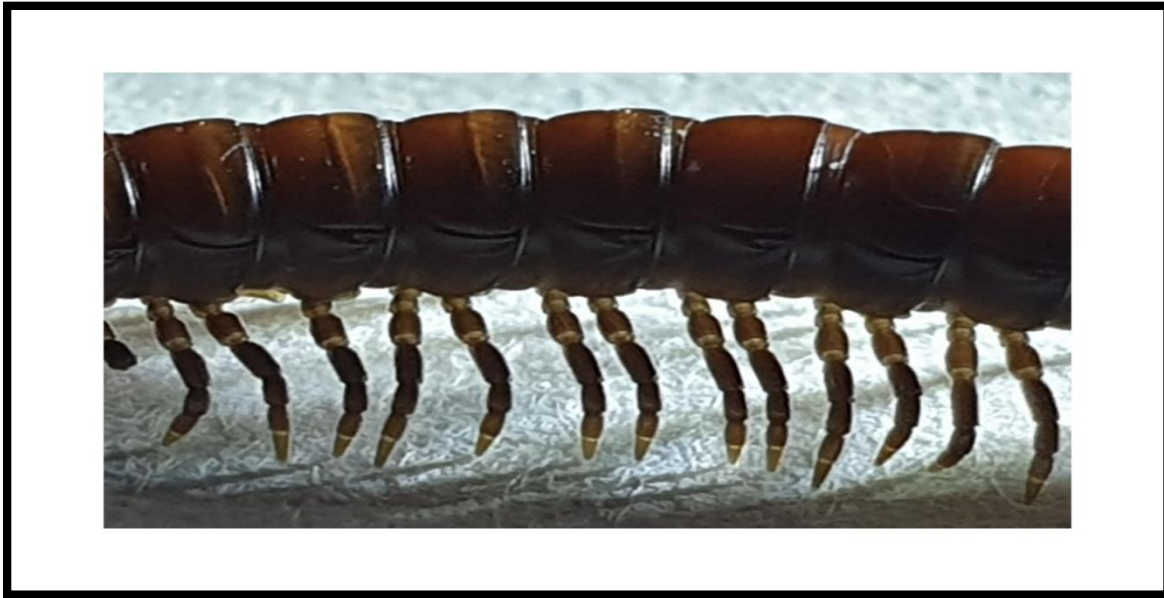


Fig. 5 Heterocladosoma species, Mating pair found at the field



Fig. 6 Polydesmida Mating pair



Fig. 7 Polydesmida Mating pair found in the earth crack



Fig. 8 Millipede Mating pair curl the body in to coil when threatened



Result and Conclusions:

Millipedes are rarely destructive, they never bite or sting to human, they are key to food chains serving as food for such predators as hedgehogs, shrews, frogs, lizards, birds, beetles etc. Millipedes are never considered endangered or threatened arthropods. The research results show that millipedes have no indirect effect in term of influencing biomass. They are beneficial in gardens breaking down organic matter and decaying plant matter. But simultaneously they eat on fruits, stems of plants. Millipedes are major consumer of fallen leaf litter and possess of 18-27% of calcium input to hard wood forest floors, hence millipedes can be important in calcium cycling.

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