Project Update: July 2018

In the summer (June and July 2018), the project team conducted field works in Askot landscape of the western Himalaya to document floral diversity, anthropogenic pressure as well as sampling of soil to understand edaphic factors of caterpillar fungus habitat. The associated caterpillar fungus' habitats (alpine meadows) of the landscape support a high degree of endemism and habitats for rare, endangered and threatened Himalayan species including *Nardostachys jatamansi*, aconite, Brahmakamal, rhododendron and costus. Since last decade, thousands of harvesters have entered in various alpine pastures of the Askot landscape with cattle and logistics to search for caterpillar fungus, which makes ecological environment of the meadows more fragile.

Therefore, anthropogenic pressure and unsustainable harvesting of caterpillar fungus are increasing tremendously every year in ecologically fragile alpine meadows of the landscape. Consequently, livestock pressure, fuelwood burning and production of garbage from temporary harvesters' camps could become chronic disturbances that can have impact on entire alpine meadow ecosystem including soil, flora, fauna and micro-climate. The filed investigation was conducted to collect data in the Darma-Byans valleys and Chipla Kedar of the Askot landscape.

Quadrat sampling in caterpillar fungus habitat quantify floral diversity

For the estimation of associated vegetation composition, quadrat surveys were conducted in the caterpillar fungus' habitat of the landscape. The size and number of the quadrates was standardised using a species-area curve and identification of the specimens is in progress. Collected data will be processed to determine various

phytosociological indices, such as density, frequency, abundance, basal area and importance value index (IVI) (Cottam and Curtis, 1956) and associated species diversity with caterpillar fungus will be determined by using the Shannon-Wiener information function H' (Shannon and Weaver, 1963). Distinct ecological threats (presence of livestock, slashed trees for fuel wood, garbage etc.) have been identified and documented from the vicinity of harvesting sites to calculate disturbance indexes. For studying edaphic parameters (soil pH, moisture, water holding capacity, bulk density, soil organic matter, nitrogen, phosphorus, potassium etc.), plots were randomly selected and composite soil sampling was done from these plots. During the field visits, the project team also visited to the camps of harvesters in the alpine meadows for interaction and documentation of their knowledge as well as opinion related to caterpillar fungus harvesting and ecological threats in the landscape. The conversation with the harvesters has helped project team in getting more insights about the decreasing production of caterpillar fungus as well as increasing anthropogenic pressure in the pristine alpine meadows and how these activities would be threats for local wildlife and environment.

Sampled soil from caterpillar fungus habitat to measure edaphic factors

Plate-I: Recorded species during field work in the caterpillar fungus habitat

Ophiocordyceps sinensis

Primulamacrophylla stuartii

Fritillaria roylei

Arisaema jacquemontii

Plate-II: Recorded species during field work

Potentilla atrosanguinea

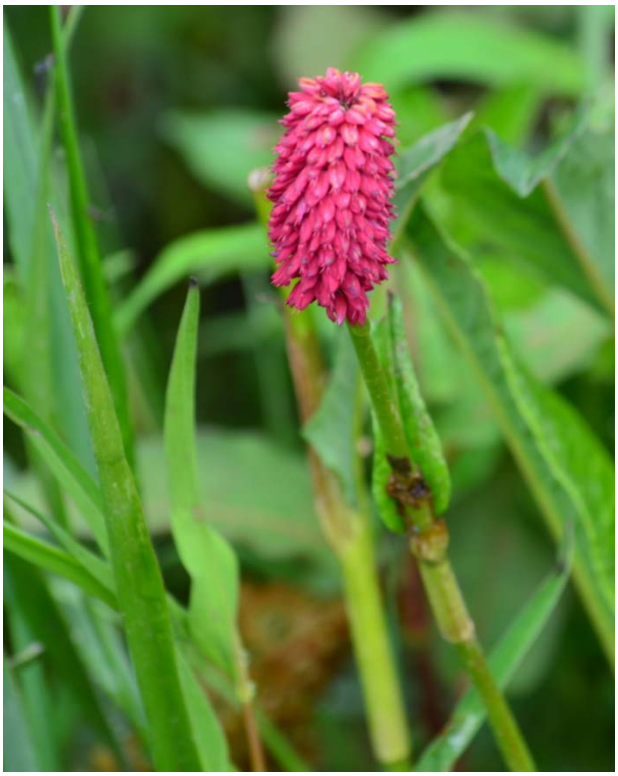
Meconopsis aculeata

Thermopsis barbata

Cortusa brotheri

Plate-III: Recorded species during field work

Lilium oxypetalum



Polygonum affinis

Rhodiola heterodonta

Anaphalis triplinervis

Plate-V: Anthropogenic activities in the alpine meadows

A typical accomodation for caterpillar fungus harvesters in the meadows

Harvesters are looking for caterpilar fungus in the meadows

Plate-IV: Anthropogenic activates in the alpine meadows

Produced garbage by caterpillar fungus harvesters in the alpine meadows

Abandoned shelters (tents) of caterpillar fungus harvesters after end of the harvesting