

**Project Update: April 2022**

**Work progress:**

**1. Methodology opted for fieldwork:**



Figure 1: Plots marking method. Figure 2: Sweeping net.

Prior to the fieldwork, we sorted the techniques which we will be going to use during the fieldwork. For diversity assessment sampling plots of 100 x 100 m were marked with colorful tapes (fig. 1) within which random sampling was done using the sweeping net (Fig. 2) and handpicking methods, whereas, for documenting abundance, long-exposure photography (Fig.3. with the help of Nikon D5300) was done.

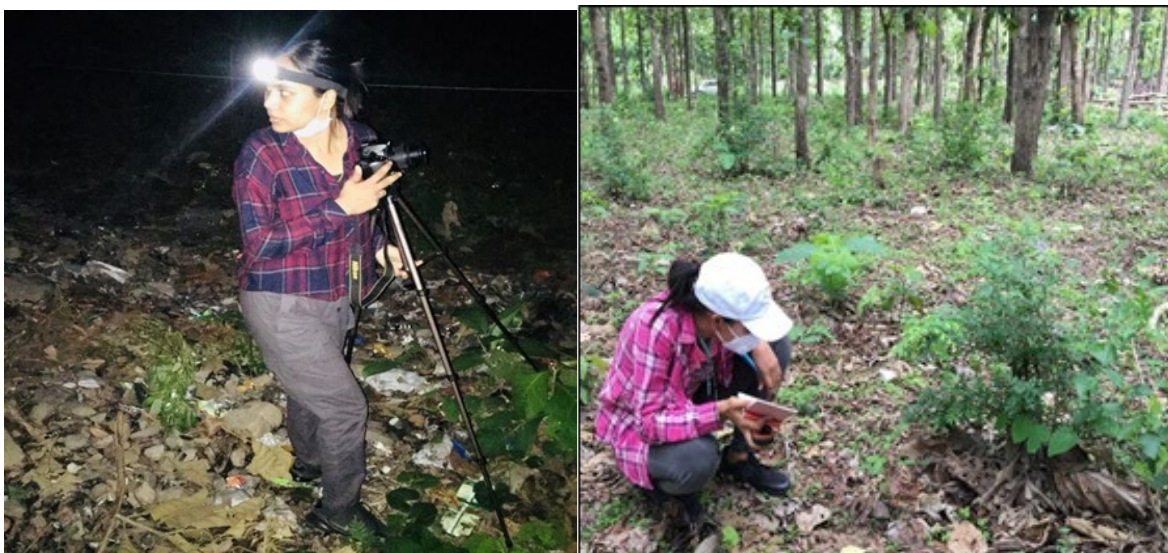


Figure 3: Digital photography. Figure 4. Vegetation inventory.

To have an account of vegetation an inventory was prepared (Fig. 4), within the nested quadrat of 25 x 25m.

## 2. Field Work

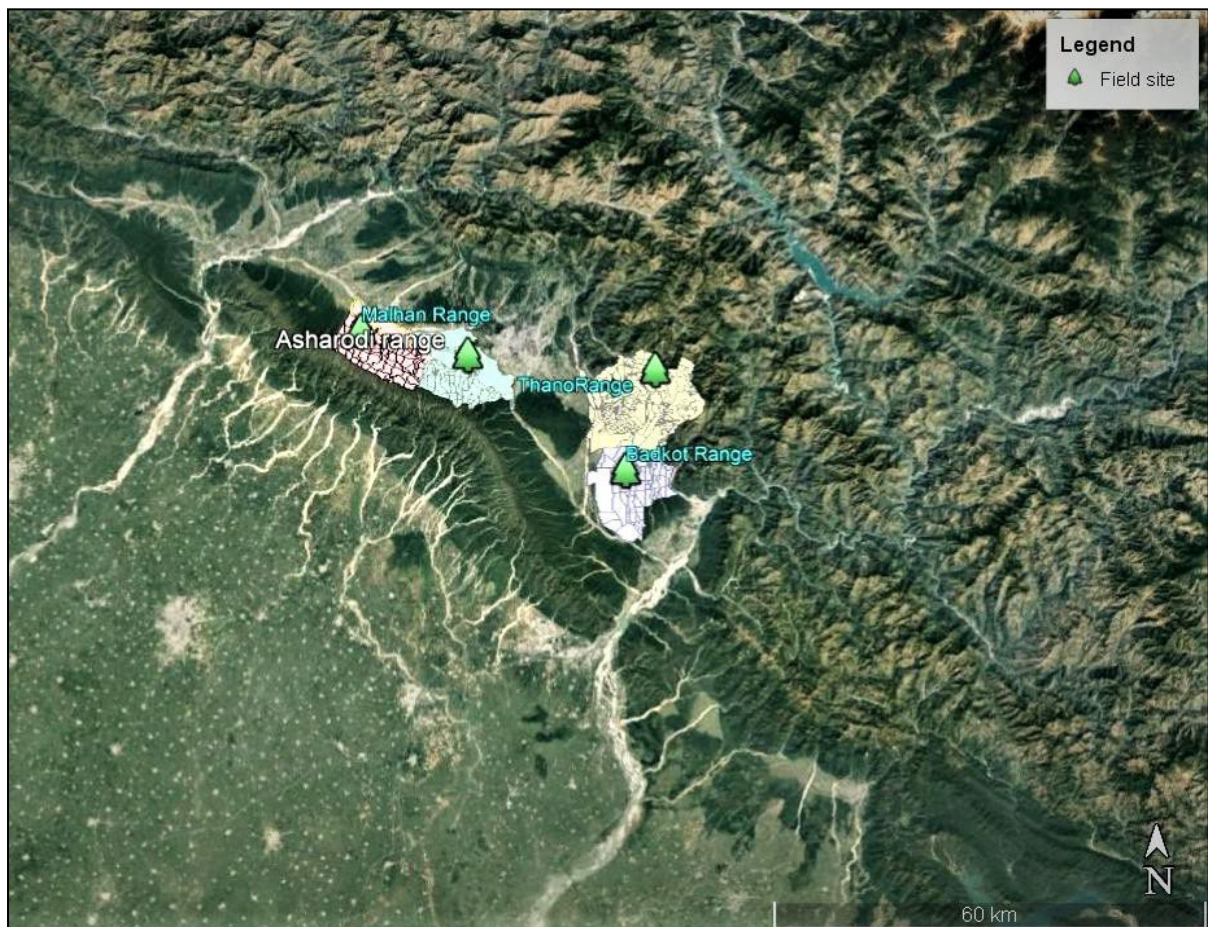


Figure 5. Field locations.

Fireflies (Lampyridae) are seasonal insects, which emerge with the onset of summers and vanish as winter commences. We started the sampling with Thano Range (Fig.5) in mid-June 2021, as there was a mandatory lockdown (April-June) for all due to the covid pandemic.

Being nocturnal, fireflies were sampled at night, however, vegetation inventory within the quadrats of 25 x 25m were made during the daytime survey. Fields were sampled alternately for 4 months (June-September).

Environmental variables: temperature, humidity, light intensity, and wind speed, were measured using appropriate devices (Hygrometer, lux meter and anemometer respectively).



Figure 6: Recording data. Figure 7. Informal interactions with locals.

All the data recorded from the field was upheld in the datasheets (Fig. 6) and maintained properly.

While we were conducting the sampling there were lots of local people who got curious seeing our sweeping nets and cameras and wanted to know about what we were doing, leading to informal interactions. So, these kinds of interactions (Fig. 7) were also there throughout the fieldwork, which was a very good experience.

### **3. Laboratory Work**

After fieldwork, the next step was to preserve the samples carefully and for that stretching of fireflies was done with the help of entomological pins and placed in insect box (Fig. 8).

This was not a lab-dependent process, so we did it in the basecamp making benefit out of the hot summer days, placing all the samples in the insect boxes. After September when the season was over, all the pinned samples were transferred to the laboratory for identification. We use the stereoscope microscope for specimen identification, but it is still under process, which will be accomplished shortly.



Figure 8: Fireflies samples pinned in the insect box.

#### 4. Challenges faced in the field



Figure9: Captured from Badkot Range. Figure 10: Captured from Malhan Range.

The first and foremost challenge was the Covid pandemic which hits the whole world hard, and due to the compulsory lockdown, it was not possible to carry out the fieldwork.

Secondly, our fieldwork was exclusively at the night and there was an immense risk of elephant (Fig. 9) and leopards (Fig. 10) in the ranges. In the sampling locations of Thano and Badkot, lots of elephant killing incidents were recorded during the sampling season in 2021 which hindered the work time to time. But great thanks to the forest department who manage to divide their manpower in those hard times

just to keep up our safety guard.

### 5. Outreach programme



Figure 11: Explaining life cycle of fireflies to students.

Escalating awareness among communities was one of the most indispensable components of this study. To fulfill the aim, we created a strategy that does not confine us to the workshops.



Figure 12: Interview to local news channel. Figure 13: Article in newspaper.

However, we have organised workshops for the school children (Fig. 11), but we

also arranged talks in the local news channel (Fig. 12), published an informative article in the newspaper (Fig.13), and created an Instagram page named "Doon fireflies" (Fig. 14). The reason for opting these approaches was just to reach out to the people who could not attend the workshops, so we broadened the space and made a smooth track for knowledge to flow brilliantly among a diverse range of audiences. Other than this a firefly counting survey was also conducted on the occasion of "World Firefly Day" (3<sup>rd</sup> – 4<sup>th</sup> July). Besides this, as I mention above informal interactions (Fig. 6) with local people was also there, where we gave them brief knowledge about fireflies.

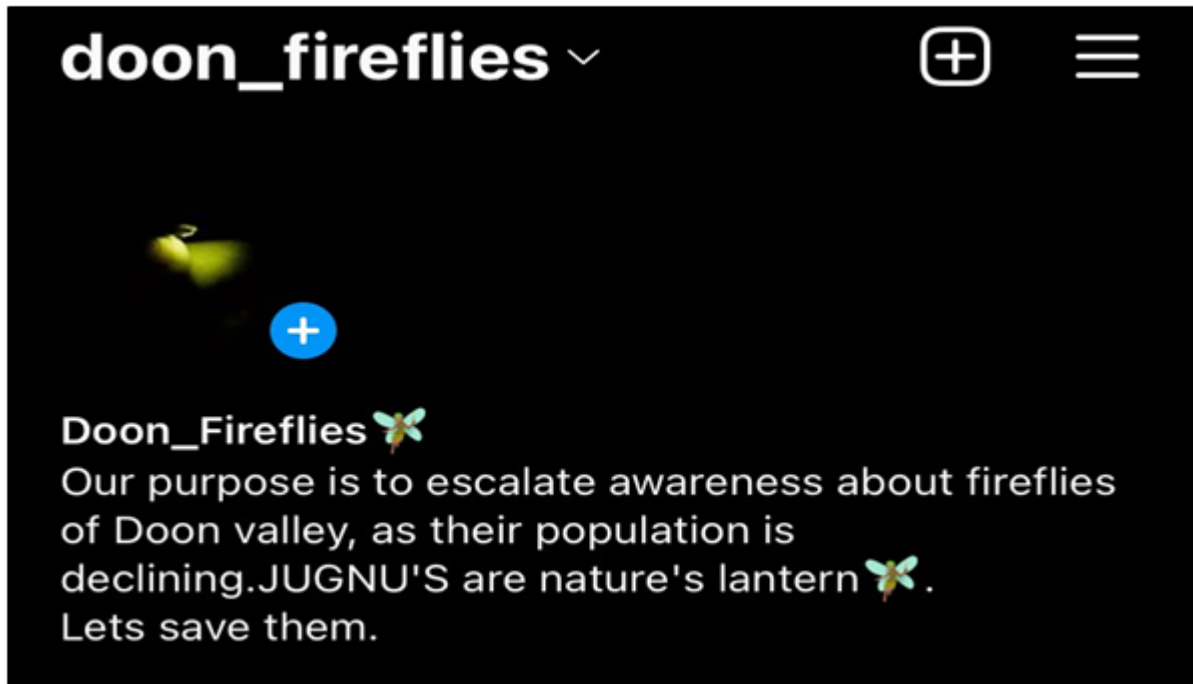


Figure 14: Our social media page.

## 6. Future Plan

- To sample the remaining locations.
- Identification of the specimens.
- Data analysis.