Project Update: May 2021

1. Method of collecting specimens from the field

Before the field trips, we needed to determine the time spores are ripe (either not too old or too young). It was necessary to choose the right time to be able to collect specimens with spores.

Some of the necessary supplies and tools for sample collection are as follows:

- Newspaper, bags, absorbent paper: Bags are for caring specimens; newspaper, and absorbent paper are as the absorbing moisture materials.
- Specimen wood frame: to press specimens in the drying specimen process.
- Scissors to cut branches, knives and hoes.
- Etiket and field description notebook.
- Alcohol (if needed) and silica gel.
- Electrical heaters, cloth, etc.
- Ropes, pencils and markers.
- Personal tools and equipment: Backpacks, field clothes, shoes, socks that anti-leech, mosquito nets, hats, flashlights, tents, hammocks, medicines, foods, and cooking set.

Location: We pay attention to caves and limestone habitats but focus on Hagiang province, especially Bat Dai Son Nature Reserves of Dong Van Karst Plateau UNESCO Global Geopark.

Setting up field crew: The crew is composed of at least four members. The crew leader is experienced in species identification and/or the assistants should be experienced in participatory interview techniques to collect data from local people and local people and/or forest rangers.

Conducting the fieldwork: After selecting suitable routes with caves and limestone mountains).

Specimens' requirements: The specimens are collected with all parts of rhizomes, petioles, branches, and spores (except in a few special cases where the specimens may only need some parts). Depending on the conditions, the specimens can be dried by heaters or preserved in alcohol. This is important in the process of collecting samples in the field. In fact, as soon as the specimen is collected, it needs to be pressed well temporarily in order to make a better specimen later. We use two basic and common methods to preserve specimens from the field:

- Dry the specimen with blotters (blotter) and use heaters (hot fans) to dry.
- Some specimens will be temporarily preserved in alcohol during the field study and dried after finishing the field trips.

Methods of interviewing local people and forest ranger staff: Prepare a list of questions to ask local people and forest ranger staffs that helps the field trip can get the best results. Interviewing, e.g., focus group discussions.

2. The results

- In three sites and six survey routes in Hagiang province, we collected 25 specimens and morphological, ecological, and conservation status information.
- For each collected specimen, we recorded the location, time, morphological and ecological characteristics, geographical coordinates, and other information (use value, conservation) and etiket attached to the specimen.
- For each specimen, we collected three main types of samples:
 - Specimens for morphological studies.
 - Samples preserved in silica gel for molecular biology (DNA) research.
 - Spores/spores for SEM-scanning electron microscope and conservation studies.
- We made 50 collections of about 15 species of Dryopteridacea (including DNA materials and spores). The samples were collected mainly in caves and limestone cliffs at an altitude of 700-1300 m. Karst and cave areas are extremely fragile environments and habitat fragmentations are also found in Dong Van Karst Plateau UNESCO Global Geopark so if affected by unfavorable conditions can lead to habitat loss and degradation.
- The specimens were dried and currently deposited in Vietnam National Museum of Nature, Vietnam Academy of Science and Technology to serve the research, classification and identification and education.

Some field photos focusing on endangered (EN) Cyrtomium hemionitis elevation of 1300m.







