

WII HERBARIUM

The scientific value of herbaria as a botanical repository of Earth's current and past diversity is globally acknowledged. The Wildlife Institute of India Herbarium recognised by the 'Index Herbariorum', is listed among the 3000 network of herbaria worldwide cited using the acronym 'WII' in the scientific and botanical publications.

The WII Herbarium was established in 1986 with a twofold purpose: (i) to create a repository of plant collections representing flora of different Protected Areas (PAs) of India and (ii) to develop a basic facility for aiding plant identification, floral inventory and access to plant databases for officer trainees, researchers and students of WII. Since its inception, the collection of plant specimens has grown steadily. Major boost to this subject was given during planning for biogeography based Protected Area Network in India under the leadership of Dr. W.A. Rodgers and Shri H.S. Panwar (1985- 1988).

One of unique features of WII herbarium is that it represents flora of a number of PAs of India. Based on the floristic surveys and inventory of species, database on the flora of PAs namely Asola Bhatti WLS, Bandhavgarh National Park, Grasslands in an around Pachmarhi Wildlife Sanctuary, Bodhghat submergence area (MP), Great Himalayan National Park, Pin Valley National Park, Kedarnath Wildlife Sanctuary, Valley of Flowers National Park, Cold-arid region of Nanda Devi BR, Rajaji National Park, Eravikulam National Park, PAs of Andhra Pradesh, Jaldapara Wildlife Sanctuary, Gorumara National Park, Hemis National Park, Dachigam National Park, Rann of Kutch, Pakhui Wildlife Sanctuary (AP) etc has been prepared. At present, WII Herbarium houses more than 20,000 specimens for ready reference, which represent more than 200 families of vascular plants (Angiosperms, Gymnosperms and Pteridophytes) including type specimens of 07 species of angiosperms namely *Berberis rawatii*, *Rhododendron rawatii*, *Peristylus sahanii*, *Nervilia panchetyana*, *Oxygraphis kumaonensis*, *Bistorta tenuifolia* var. *gidarensis* and *Ceropegia kumaonensis* and wet collection of two species of angiosperms. WII Herbarium is frequently visited by botanists studying or revising a particular plant group. It also receives requests from scientists and students of other countries, interested in collating occurrence and distribution data. This highlights the utility of WII Herbarium for a range of users/audience and therefore also the need for increasing its visibility, reach and accessibility.

GUIDELINES FOR PLANT COLLECTION AND SUBMISSION

Successful plant identification is a team effort. Proper identification begins with the submission of a good-quality specimen accompanied by accurate and complete information. Please follow the guidelines and submit the best specimen possible.

SPECIMEN COLLECTION

1. A very important part of the plant collection work is recording of the field notes. Detailed notes should be entered in the field note book at the time of collection in the field itself. Researchers / students / trainees may collect field note books from WII Herbarium before proceeding to field trip. An application for issuing field note book should be duly forwarded by the Project Investigator/Supervisor and submitted to the Nodal Officer, Herbarium.
2. As collection of WII Herbarium represents the flora of a number of PAs of India, it is important to note that the users should ensure to collect native/endemic/unique/rare species only. It is recommended that submissions refrain from including any common or exotic species, such as *Lantana camara* and *Parthenium hysterophorus*, unless the plant collector is working on the flora of a PA.
3. Collect a representative sample from all parts of the plant. Collection should be made of the material in all stages of development. If necessary, 2-3 trips to the same place should be made to collect different stages of the specimen.
4. Collections should preferably contain flowers or fruits or both. Must collect a healthy, disease and insect free specimen. Do not collect dead, decayed and scraps of plants.
5. Due to various considerations, at least two-three specimens of each plant should be collected; this is done particularly to facilitate distribution and exchange. Of the specimens, two will be mounted and kept in the herbarium and the rest will be kept as duplicates.
6. Press the specimen between two pieces of cardboard or wrap the specimen in dry paper towel or newspaper and place in a paper or plastic bag. Do not use plastic if there is a lot of moisture associated with the sample.
7. All the specimens of the same plant/species should be given the same collection number. The collection number must attach to the specimen in the field itself and this number will always go with the specimens even if there is a possibility of change of name at a later date.
8. In case of herbaceous species and grasses, whole plant including the underground parts must be collected or if it is woody, a twig that can easily fit into the herbarium sheet can be collected. It must be 35-40 cm long.
9. Succulent plants like Cacti, *Euphorbia* and members of Crassulaceae present unusual difficulties in making herbarium specimens. Their thick succulent tissues take very long time to dry and so they require special attention. Hence, either the tissues should be killed by dipping in boiling water or excess of tissues removed by hollowing out the thick organs. Treating with alcohol or strong formalin can also kill the tissue. While recording the characters of succulents, especially the spiny succulents, details of shape, size and the arrangement of spines and joints should be noted.
10. Some plants like *Lemna* and *Wolffia* are microscopic and cannot be processed for the herbarium in the usual way. These plants should be collected in mass with the collection number, notes etc., sun dried and put in a packet and the whole packet will be pasted on the herbarium sheet. These can also be preserved in any of the liquid preservatives used for embryological or anatomical studies.

11. Ferns should be collected with their basal slender, whereas aquatic plants should be collected gently with both hands and placed between the dryers.
12. Some aquatic lithophytes such as the members of Podostemaceae cannot be detached from the rocky substratum and a portion of the rock needs to be broken apart for collecting them. The rock with the plant has to be either dried or preserved in liquid medium.
13. Rare and threatened species such as orchids and insectivorous plants should be collected after careful understanding population of the species.
14. The size of the herbarium sheet on which the specimens will be finally mounted is approximately 28×42 cm and this limits the size of the collected plants or twigs.
15. High quality, in-focus images can be submitted to the herbarium which are extremely useful in identifying plants. Useful images show plant details, such as growth habit, leaf and stem characteristics, and flower and fruit characteristics.

SPECIMEN SUBMISSION

1. As collection of WII Herbarium represents the flora of a number of PAs of India, it is important to note that the users should ensure to submit endemic/unique/rare species only. It is recommended that submissions refrain from including any common or exotic species, such as *Lantana camara* and *Parthenium hysterophorus*, unless the plant collector is working on the flora of a PA.
2. Ensure submission of healthy specimen. Strictly avoid to deposit any sun dried, dead or decayed materials to the herbarium.
3. It should be ensured that the specimens are properly pressed, preserved.
4. All the collected specimens should be mounted properly on the herbarium sheets (28×42 cm) with the help of fevicol or glue and stitched. The leaves should be mounted in a way that both sides (abaxial and adaxial) of the leaves are easily visible, however it should be ensured that the lower surface of at least one leaf is turned over and mounted on the herbarium sheet.
5. It has to be ensured that the mounted specimens are spread neatly and uniformly, and fixed on the sheet. All parts of the plant should be easily visible for study.
6. After mounting a specimen, fill-up the herbarium label and attach at the right-side lower corner of the sheet.
7. The species mounted on herbarium sheets along with field note book and specimen submission form should be submitted to the herbarium office. It is mandatory to submit a 'Plant Identification Request Form' and 'Specimen Submission Form' duly forwarded by the respective Head of the Department/Project Investigator/Supervisor to the Nodal Officer, WII Herbarium. Processing of the specimens will be delayed if the provided information is insufficient.