

## **An Approach to the Virtual Flora of Mongolia - from a data repository to an expert system**

<http://greif.uni-greifswald.de/floragreif/>

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With funding of the LIS program of the DFG between 2009 and 2011 an internet portal for an information system to the Mongolian Vascular Plants was developed. Now (end of 2011) it is comprising an updated checklist of the country (based on Gubanov 1996) with various information including name, short description, habitat, distribution, unless valid conservation status for each taxon. 6450 records are represented by locality data and either digitalized herbarium specimens (1177), field images of the plants, including close-ups (733), or a combination of both. The idea of the project is (i) to make collections accessible, especially those of the long series of joint German-Mongolian expeditions lasting from 1962-on-going, (ii) enable online-comparison of material for interested persons, students, and researchers working in applied projects, (iii) creating a repository of digitalized herbarium data for botanists as well as for lay persons, and iv) to condense the widespread information on Mongolia's vascular plants to facilitate future revisions and monographs. In its current state, species, genera, and families of plants can be searched by taxon data, records or images. The taxon query offers growth form, conservation status, distribution and habitats, while record query covers collection and repository information including habitat and image query covers collector, image type (scan of herbarium sheet, species or habitat photo) and habitat information. Information is partitioned within two levels, first the taxon level where manifold information about a species can be found, including habitat and distribution within the phytogeographic regions of the country (based on Grubov 1955), and second the record level where the user finds detailed information to each record.

An integrated WebGIS application offers a dynamic distribution maps for each species within phytogeographic provinces (according to floristic literature) and a distribution map of all records (from our data base). Map layers on the country's administrative division, vegetation zones, biogeographic distribution units, topographical data and a satellite image can be overlaid onto the base map. In a second phase of the project, starting 2012, we plan to develop the information system into an expert system, creating a computer-aided identification tool based on easily accessible plant characters. Our aim is to lead the users to the level of a genus or a species group, where they can easily compare the specimen in question with the digitalized specimen information. Since printed determination books are often out of print, require special knowledge of botanical terms, with keys asking often for characters that cannot be easily observed in the field, a computer aided key would reach significantly more users. In addition, we will provide the upload of further records and images as a service for interested users. This information is open to be revised by experts. The WebGIS will be extended, e.g. by dynamic linkage of both types of distribution maps (phytogeographic provinces and species level records). In addition, a gazetteer service is going to be implemented.