

#### Global Biodiversity Information Facility

# Biodiversity Information Fund for Asia (BIFA)





Data mining of historical herbarium specimens from the Korean peninsula using the Brahms database: A look at the biodiversity informatics project of North Korea

#### GBIF IN ASIA: DATA STATUS, MOBILIZATION, GAPS AND USE

Maofang Luo, GBIF Secretariat



Number of occurrence

records

#### **TWO EFLORA WEBSITES SINCE 2014**

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		Demotratificaceae (5)     Dronoteridaceae (5)		
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## **PROJECT SCHEME**

# Digitization historic collections of North Korea

• Data gathering collections deposited in Foreign country

### Scientific Name

Name update with Korean Peninsula Flora checklist

# Mapping collection data

• Georeferencing the place names in specimen label

#### **MAJOR COLLECTORS IN KOREA**



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# DATABASE SUMMARY

#### 33,930 mappale data

- 27,825 Specimens
- 6,105 Observed data
- 1,373 Type specimens282 Collectors3,471 Geographic names16 Herbaria





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#### BOTANICAL RESEARCH AND HERBARIUM MANAGEMENT SYSTEM

BRAHMS is used by research institutions globally supporting collection management in herbaria, botanic gardens and seed banks; taxonomic study; botanical survey; diversity analysis and many further categories of botanical research initiative

#### Downloads

Version 7 update notes

The largest single database to date with ca. 2 million specimens runs at the National Herbarium of the Netherlands, accessed via terminal services by all of the main Dutch herbaria and also published online. The country with the highest number of individual projects (2012) is Brazil. BRAHMS is a powerful database management system for botanical researchers and herbaria. It provides wide-ranging and innovative functionality to gather, edit, analyse and publish botanical data, optimizing its use for the widest possible range of curation services and research outputs. Find out more in English, French, Spanish, Portuguese and Russian.

#### OXFORD UNIVERSITY HERBARIA



- The Amp .// Welliana plants oc.ac.sk/bol/ordent

Search Stats Resources Logie

This website provides access to the specimens and images now available online at Oxford University Herbaria (COSF, FHO, FHOw). There are also finis to websites for the historical herbaria that have been databased. Established in 1621, Oxford University Herbaria includes the oldest herbarium in the United Kingdom and is the fourth oldest herbarium in the world. Collectively, the herbaria hold approximately 1,000,000 botanical specimens (including at least 35,000 types) from across all taxonomic groups and geographic regions.

As well as being home to specimens, books, manuscripts and illustrations of historical importance, the herbaria host modern research programmes investigating plant systematics, together with theoretical and empirical work on systematic methods, phylogenetics and macroevolution. The herbaria are also at the forefront of developing and implementing methods to capture and document botanical data, as well as analysing patterns of global plant diversity.



Sauth Hara

Special collections:

Seventeenth century Jacob Exbart the Younger's Hortug

Eighteenth century Dilenturis Historia Muscorum Sathoroian Herbarum

Twendeth century Charlotte Treven's watercolour callection

Curator: Dr Stephen Harris (stephen harris@plants.ox.ac.uk)



Coded University Herbana comprises the Daubery (FHO) and Fielding-Druce (OXF) herbana, together with a xylanum (FHOw). The Dauberny Herbanium was previously known as the Oxford Forest Herbanium. The history of the Herbania in the Department of Plant. Sciences is closely linked to that of the Oxford University Bolanic Garden.

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#### The Daubeny Herbarium (FHO) The <u>Daubeny Herbarium (FHO)</u> has been collected

together over the last century and is composed primarily of specimens from Central and South America, South-

East Asia and expectally Tropical Africa. As a former forest herbarum, the collection is based towards woody species, particularly groups such as the Fabaceae. Meliaceae and Pinaceae. Large collections of spiritpreserved and drifed fluits are associated with FNO.

#### The Fielding-Druce herbarium (OXF)

The Fielding-Druce herbarrum (CXF) contains some of the oldest collections in the United Kingdom. Four of the more significant pie-19th centary herbaria are those of Robert Monson (1950-53), William Sherard (1959-1726), Johannus Dilenus (1964-1747) and John Sibthorp (1758-96). The type-Inch Fielding Herbarium was begeathed to the University by Herry Borron Fielding (1905-1951), and contains all non-British material collected since 1756. The collection of British pients centres around the herbarium of George Clandge Druce (1950-1932).



n \*

English.





#### GENERAL DIFFICULTIES WITH THE GEOREFERENCING PROCESS IN NORTH KOREA

- Inconsistent place names and misspellings Gazeeteers
- •
- Place names that have since changed location and/or are no longer in use
   Nomenclature
- Vague, imprecise, confusing and/or contradictory locality descriptions, and various combinations
   Data cleaining

#### **T.B. LEE HERBARIUM DB**

PROVISIONAL CHECKLIST OF VASCULAR PLANTS FOR THE KOREA PENINSULA FLORA (KPF)



CHIN-SUNG CHANG, HUI KIM, & KAE SUN CHANG

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Updated June 2014

designpost

Review all available recent and old literatures and present a checklist based on sensu lato species concept

# **PLANT EXPLORATION HISTORY**

Komarov, V. L.



Nakai, T.

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## **PROJECT OBJECTIVES**

This proposed project has three primary objectives:

1) To establish a database, a network of specimens collected by U. Furie/E. Taquet and E.H. Wilson deposited at foreign herbaria about North Korea that will develop and share tools,

2) To provide photos of specimens deposited at E, KYO, TI, and A and to make the data accessible through the GBIF website,

and 3) To provide data of relatively recent specimens housed at SNUA about woody plants in Korea.

The intellectual merit of this project is in the types of occurrence data with georeference.



### **DATASETS & SOURCES**

Title of dataset	Taxonomic/geographic scope	Approximate number of records (specimens) and sources	Current format (e.g. undigitized, digitiz ed)
Faurie/Taquet data	Vascular plants/South Korea	13,000	photos (4,000) – low quality
	including some parts of	E, KYO, TI, A, P,	of digitized
	North Korea	LE, B	
E.H. Wilson data	Vascular plants/ South-	1,200	Photos (1,000) – low quality
	North Korea	A	of digitized
SNUA data	Vascular plants/South	15,000	Undigitized
	Korea	SNUA	

#### **SNUA & WILSON, TAQUET, AND FAURIE DATA**





#### MAJOR HERBARIUM DEPOSITED HISTORIC COLLECTIONS OF NORTH KOREA

Specimen



#### FAURIE'S AND TAQUET'S COLLECTION ITINERARY (1901-1914)





# (LOW QUALITY) IMAGES WILL BE PRESENTED







# Edinburgh

# Arnold Arboretum



#### DATA CLEANING PROCESS WHICH WAS CONDUCTED ABOUT SNUA SPECIMENS PAST YEARS [FIGURE IS FROM MATTEW ET AL., 2014]





### **DISTRIBUTION MAPS**





# **PROJECT TIMELINE**

#### **Faurie/Taquet collections**

- Photo labelling and sorting
- Visiting herbarium in Japan (TI & KYO)

#### **SNUA collections**

- input/Bar coding of SNUA specimens
- Georeferencing and data cleaning

Information dissemination and preparation of data papers





# **PROJECT SUSTAINABILITY**

Overall Objective: Mobilize existing knowledge within the Korean Peninsula

Strategic goal: Data mining of historical collections in Korea: major foreign collectors (T. Nakai, J. Ohwi, V.L. Komarov and other collecors) from North Korea and Data mobilization of existing data about South Korean vascular plants deposited at SNUA

**Outcome** ca. 100,000 occurrence records with georeference & data publications

**Indicator** present updated georeferenced data set with available specimen images

**Baseline** present maps of occurrence data



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