

Botanic Gardens from A to Z

(526089; 2 – 4 credit points)

March 10 - May 14 2009,
Tue + Thu 8 – 10, Kaisaniemi

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Today's lecture

2. Thu March 12: *Setting the scene - what is a botanic garden?*
3. Tue March 17 – no lectures
 - read Darwin technical manual pp. 3-10 and 27-39 and Action Plan EU pp. 7-12
4. Thu March 19: *Collection curation*
 - principles of scientific curation
 - types of plant collections: herbarium, special herbarium (caryology, wood...), living, seed, tissue...
 - special challenges and possibilities of living collections; in particular: what is an accession?



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remember: aims of the course were...

- After completion of the course, students should be able to answer the following questions:
 - What is a botanic garden?
 - Which are the core fields of activity of BGs?
 - **What constitutes an accession, i.e., the basic unit of a BG collection?**
 - For which fields of research are BG collections particularly valuable?
 - Which are the specific benefits of BG collections in teaching and education of various target groups?
 - In which ways can and do BGs play a particular role in conservation?



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Independent task 2: define a *scientific plant collection*

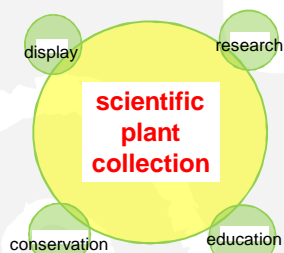
- from last time
- present your definition now!



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"Botanic gardens are institutions holding documented collections of living plants for the purposes of *scientific research, conservation, display and education.*"



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Principles of scientific collection curation

- a *documented* collection consists of *items* and *information* pertaining to those items
- there must be a system connecting the information to the items
 - registration code
 - register / database
- in a *scientifically documented* collection (=a scientific collection) the information is systematic, rigorous, and useful for research



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...principles of scientific curation

- in a scientific plant collection each item would typically bear the following info:
 - *data on origin*: where and when collected and by whom
 - *information on identity*: what did it look like when collected, what taxon is it thought to belong to, who thought so
 - *ancillary information*: ecological data on habitat, estimate of abundance, notes on other institutions holding duplicate material, notes on study or expedition, information on treatments



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...principles of scientific curation

- scientific collection curation means that the collection is:
 - augmented,
 - arranged, and
 - maintained as a scientific collection following certain scientifically sound principles
- scientific collection curation ensures the collection is as valuable as possible for research



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Types of plant collections

- herbarium:
 - pressed, dried plants attached to sheets (or in envelopes), i.e., *specimens*
 - label with information
 - each item is eternal and ±singular
- special herbarium collections:
 - e.g. fruits, cones, pieces of wood, pickled flowers, rhizomes etc. that cannot be pressed
 - items eternal but not singular → challenges for curation



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...types of plant collections

- living
 - seeds, tissue, or whole plants, small or large
 - information not attached
 - not eternal, not singular → challenges for curation
 - management requirements vary with time → big challenges!!!
 - living collections have much wider possibilities of utilisation → further challenges for curation
 - in particular: *accessions*, not specimens



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Independent task 3: what's the difference between a *specimen* and an *accession*?

- form pairs
- discuss c. 10 minutes, make notes
- think about the essential difference(s) between a *specimen* and an *accession*:
 - what is the fundamental biological difference?
 - how is it reflected in the possible research use of the material?
- present the outcome of your conversation



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Accession vs. specimen

- a specimen is a *fixed sample of an individual*
 - proves definitely that “this kind of plant grew in place X at time Y”
 - can be used as a type, because doesn't change
- an accession is a *population sample*
 - proves that “a population containing some of these genes grew in place X at time Y” (may prove that “a population containing these kinds of genomes grew in place X at time Y”, if collected as vegetative propagules)
 - not good as a type, because changes



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...accession vs. specimen

- an accession is a *living sample*
 - can be used for a number of things: physiological studies, breeding and other genetic work, developmental and phenological studies, ecological trials etc.
 - it can be multiplied, and
 - it can be made into a specimen



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...accession vs. specimen

- curational challenges of an accession
 - after registration, a specimen can be filed once and for all
 - an accession typically goes through a number of stages – and then it dies
 - an accession requires continuous technical *and* scientific curation

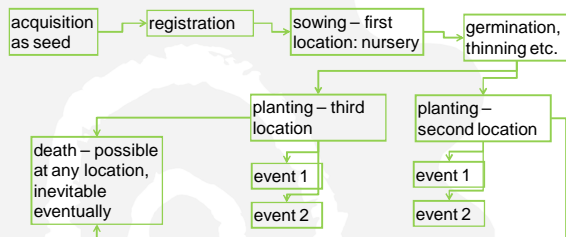


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...accession vs. specimen

- the typical 'life cycle' of an accession



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...accession vs. specimen

- the first challenge is to keep the information
 - attached to the accession
 - up to date
- the second challenge is to keep the accession as the original population sample



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Independent task 4: is it still the same accession, *i.e.*, same or different reg.number?

- form pairs, discuss c. 10 minutes, make notes
- answer the following questions; the same or a different accession:
 - I collect seeds from place X today, you collect tomorrow
 - I collect seeds from place X today and in a year from now
 - I collect seeds from accession 2001-1234
 - I take cuttings from accession 2001-1234
 - we receive cuttings from Kew's accession 2002-5678 today and in a year from now
 - I renew an annual plant every year from its own seeds
- present the outcome of your conversation



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Take-home message again:

“An accession in a BG collection is **a living population sample** and needs to be curated as such to retain its value“



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Course Programme

1. Tue March 10: *Course introduction*
2. Thu March 12: *Setting the scene - what is a botanic garden?*
3. Tue March 17 – *no lectures*
4. Thu March 19: *Collection curation*
5. Tue March 24: *Curation DEMO (hopefully)*
6. **Thu March 26 – no lectures**
 - read Darwin technical manual pp. 40-50 and 88-99



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