

# Biogeography. Lecture 12

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# Outline

## Taxonomy

### Basic principles



# Taxonomy

## Basic principles



# Homo, Pan and troglodytes

- ▶ If we move chimp to human genus, its name should be “*Homo troglodytes*”
- ▶ Linnaeus described another “*Homo troglodytes*” but this name is **invalid** (based on the type consisting of orang and human bones mixture) so no conflict (fortunately)
- ▶ Still, moving species from one genus to another is based on the **opinion** but results in **name change** which is bad



# Typification

The process of tethering name to sub-taxon or type specimen:

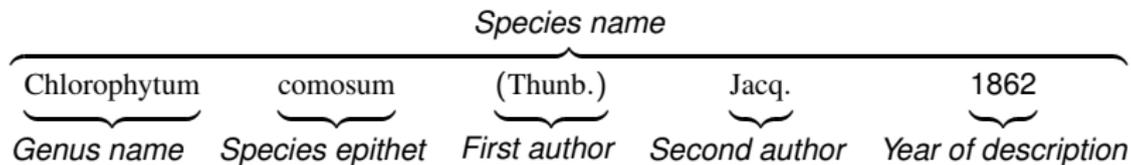
- ▶ Initially, oleaster family contained two genera, *Elaeagnus* and *Hippophaë* (sea-buckthorn). Second genus included *Hippophaë rhamnoides* (Siberian sea-buckthorn, **type species**) and *Hippophaë canadensis*.
- ▶ Thomas Nuttall decided to split sea-buckthorns and separate *Hippophaë canadensis* to the new genus. How to name these two genera?
- ▶ Since the first genus still contains *Hippophaë angustifolia*, the **type species**, it should keep the name *Hippophaë*
- ▶ The second genus can be named arbitrarily. Nuttall gave it name “*Shepherdia*”. As a result, the species which had name *Hippophaë canadensis*, became *Shepherdia canadensis*.

The same logic is applicable to the situation when you split species into two. However, in this case species name will be tethered to the physical **type specimen**—designated collection (in this case, herbarium) sample.



# Names and endings examples

English	Latin	Example 1	Example 2
Kingdom	Regnum	Vegetabilia	Animalia
Phylum	Phylum	Spermatophyta	Chordata
Class	Classis	Angiospermae (Magnoliopsida)	Mammalia
Order	Ordo	Liliales	Primates
Family	Familia	Asparagaceae	Hominidae
Genus	Genus	<i>Chlorophytum</i>	<i>Homo</i>
Species	Species	<i>Chlorophytum comosum</i> (Thunb.) Jacq. 1862	<i>Homo sapiens</i> L.



# Synonyms, homonyms and hemihomonyms

- ▶ **Synonyms** are older names, we can use it but it is better to avoid them
- ▶ **Homonyms** are same names for different taxa, we must eliminate them
- ▶ **Hemihomonyms** are “legal homonyms”, same names under different codes of nomenclature, e.g. *Oenanthe* (bird) and *Oenanthe* (plant). There is now the database of hemihomonyms.



# Miscellanea

- ▶ Intermediate ranks.
- ▶ Subspecies and cultivars.
- ▶ Shortcuts: “sp.”, “spp.”, “s. l.” (wide sense), “s. str.” (strict sense), “i. s.” (position unknown)



# $\alpha$ -taxonomy and $\beta$ -taxonomy

- ▶  $\alpha$ -taxonomy: species description
- ▶  $\beta$ -taxonomy: work with existing descriptions.
- ▶ How many species? 2,000,000 described; the feasible estimation is 4–5,000,000. There are also 20,000,000 names—most of them are synonyms and homonyms.



# Summary

- ▶ Subspecies are geographical races



# For Further Reading



**A. Shipunov.**

*Biogeography* [Electronic resource].

2014—onwards.

Mode of access:

[http://ashipunov.info/shipunov/school/biol\\_330](http://ashipunov.info/shipunov/school/biol_330)



**Biological classification.**

[http:](http://en.wikipedia.org/wiki/Biological_classification)

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