

# Exploration of FELLOW trait dataset

The objective of this document is to:

- visually explore the trait database
- understand trait coverage / data gaps
- check for possible inconsistencies

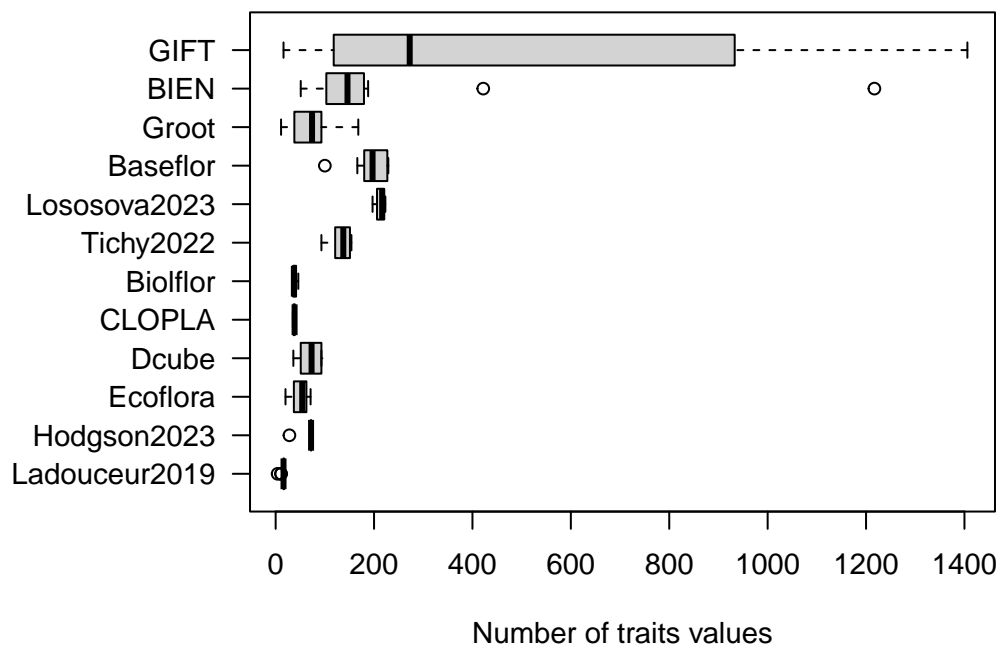
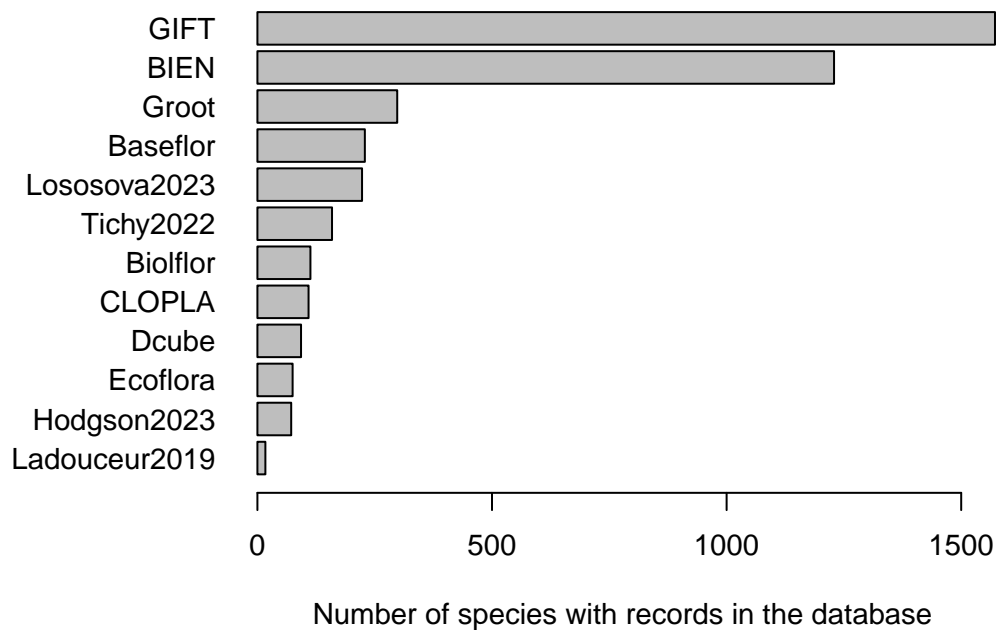
## Description of the species list

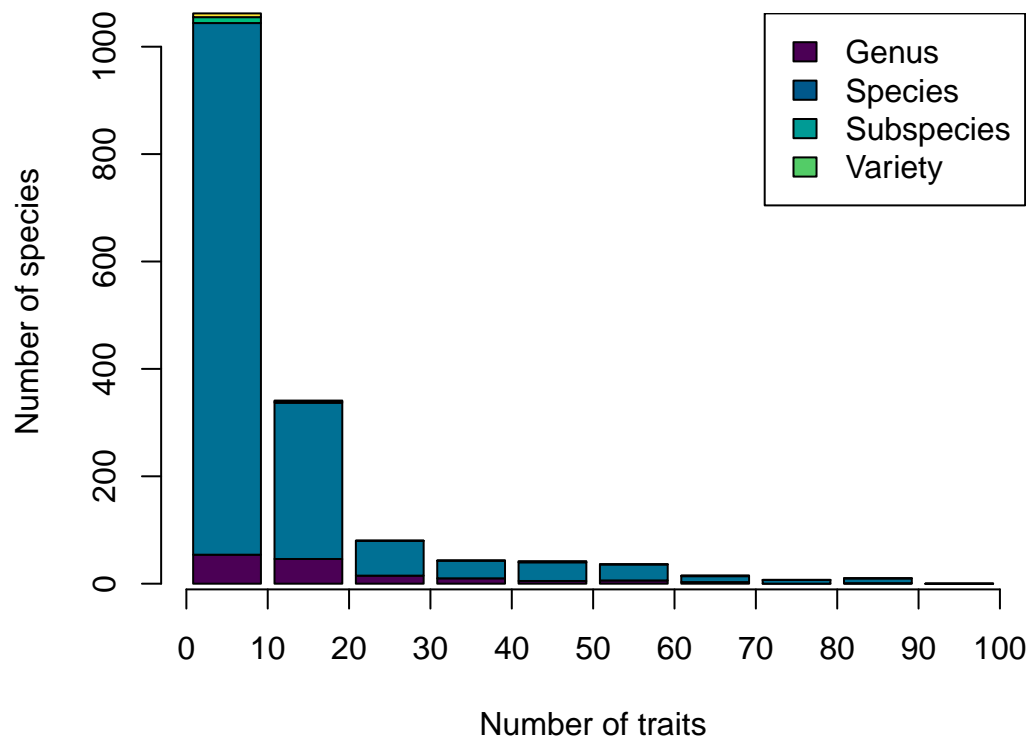
We compiled the species lists from 0 datasets. After cleaning and harmonization, there were 1636 unique taxa.

GENUS	SPECIES	SUBSPECIES	VARIETY
140	1471	14	11

## Description of trait databases

So far, we compiled 103 traits for 1636 taxa gathered from 12 trait databases. But there are many missing values.





## Summary of trait completeness

Trait	N database	N taxa	Completeness (%)
Growth.form	4	1565	96
Plant.height	7	1342	82
Lifecycle	2	1279	78
Seed.mass	6	965	59
Photosynthetic.pathway	1	880	54
Dispersal.mode	4	593	36
Pollination.syndrome	3	430	26
Flower.color	3	283	17
Leaf.width	1	262	16
Chorology	1	229	14
Habitat	1	227	14
Dispersal.distance	1	218	13
Flowering	2	212	13
Sexuality	1	208	13
Pollination	1	207	13
Inflorescence	2	205	13
Fruit.type	2	196	12
SLA	4	184	11
Leaf.length	1	179	11
Root.mycorrhizal.colonization	1	168	10
Leaf.area	2	165	10
Ellenberg.Salinity	1	154	9
Flower.length	2	154	9
Ellenberg.Light	1	151	9
Leaf.dry.mass	1	143	9
Ellenberg.Reaction	1	141	9
Root.mass.fraction	1	137	8
Ellenberg.Nutrients	1	134	8
Ellenberg.Moisture	1	121	7
Leaf.dry.mass.content	1	105	6
Leaf.nitrogen.content	1	101	6
Root.N.concentration	1	100	6
Diaspore.exposure	1	93	6
Diaspore.type	1	93	6
Ellenberg.Temperature	1	93	6
Specific.root.length	1	86	5
Root.diameter	1	79	5
Anemochory	1	78	5
Root.C.concentration	1	74	5

Trait	N database	N taxa	Completeness (%)
Root.tissue.density	1	74	5
Canopy.diameter	1	72	4
Canopy.height	1	72	4
Epizoochory	1	68	4
Diaspore.mass	1	65	4
Flower.width	2	54	3
Root.C.N.ratio	1	54	3
Leaf.carbon.to.nitrogen.content	1	51	3
Root.depth	2	51	3
Seed.length	1	46	3
Root.dry.matter	1	41	3
offspring	1	39	2
offspring.wsmall	1	39	2
Clonal.index	2	38	2
Diaspore.height	1	37	2
Flower.UV.reflectance	1	37	2
Hydrochory	1	36	2
lateral.spread	1	35	2
Root.lateral.spread	1	34	2
Vegetative.propagation	1	28	2
Flowering.duration	1	17	1
Flowering.onset	1	17	1
Seeding.onset	1	17	1
Seeding.season	1	17	1
Clonal.cyclicity	1	16	1
Clonal.presence	1	16	1
Fruit.color	1	16	1
Seed.dormancy	1	16	1
Clonal.spread	1	11	1
Root.length.density	1	11	1
Radial.growth	1	4	0

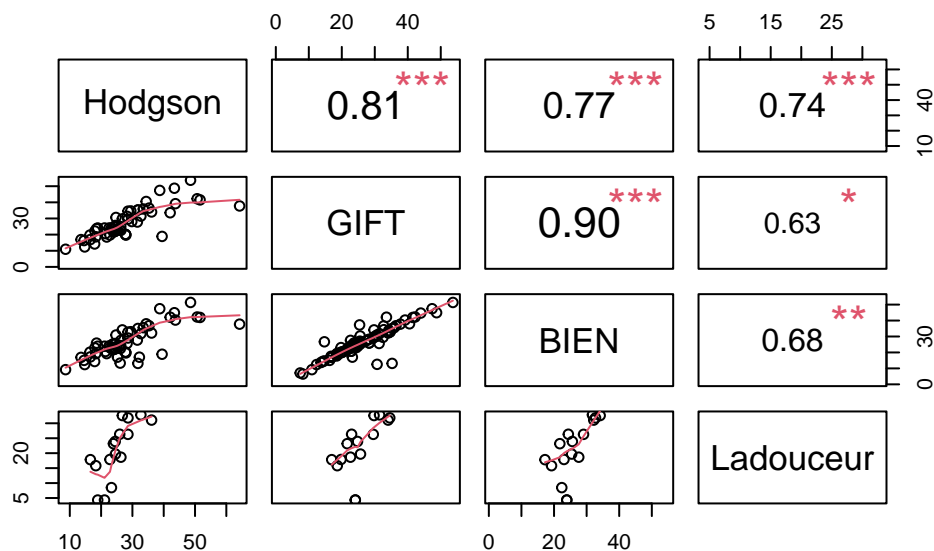
Taxa with no trait information (N=46).

[1] "Afrocayratia gracilis"	"Albertisia scandens"
[3] "Allium chinense"	"Ammannia priureana"
[5] "Ampelocissus leonensis"	"Aralia"
[7] "Baissea zygodioides"	"Blumea"
[9] "Calliandra"	"Campylostemon warneckeanus"
[11] "Canthium"	"Carex wahlenbergiana"
[13] "Cissus microdonta"	"Cleome"
[15] "Clerodendrum splendidum"	"Conyza"
[17] "Dalbergia heudelotii"	"Dimetia capitellata"
[19] "Drimia"	"Eragrotis"
[21] "Erica galioides"	"Hediotis"
[23] "Hybanthus"	"Impatiens trilobata"
[25] "Keetia leucantha"	"Laggera gracilis"
[27] "Leptochloa caerulescens"	"Leptoderris miegei"
[29] "Mariscus"	"Melastoma"
[31] "Neptunia prostrata"	"Paederia farinosa farinosa"
[33] "Parinari"	"Pyrenacantha macrocarpa"
[35] "Rorippa"	"Rubus tonkinensis"
[37] "Salomonina"	"Salvinia nymhellula"
[39] "Sida alnifolia"	"Sieruela coeruleorosea"
[41] "Sieruela hirta"	"Sieruela rutidosperma"
[43] "Stephania"	"Tragia spathulata"
[45] "Triclicera"	"Zanthoxylum"

## Comparison

### SLA

There are four sources of information for Specific leaf area (SLA) : Hodgson et al. 2023 (in mm<sup>2</sup>/mg), GIFT (in cm<sup>2</sup>/g), BIEN (in m<sup>2</sup>/kg = mm<sup>2</sup>/mg), and Ladouceur et al. 2023 (in cm<sup>2</sup>/g).



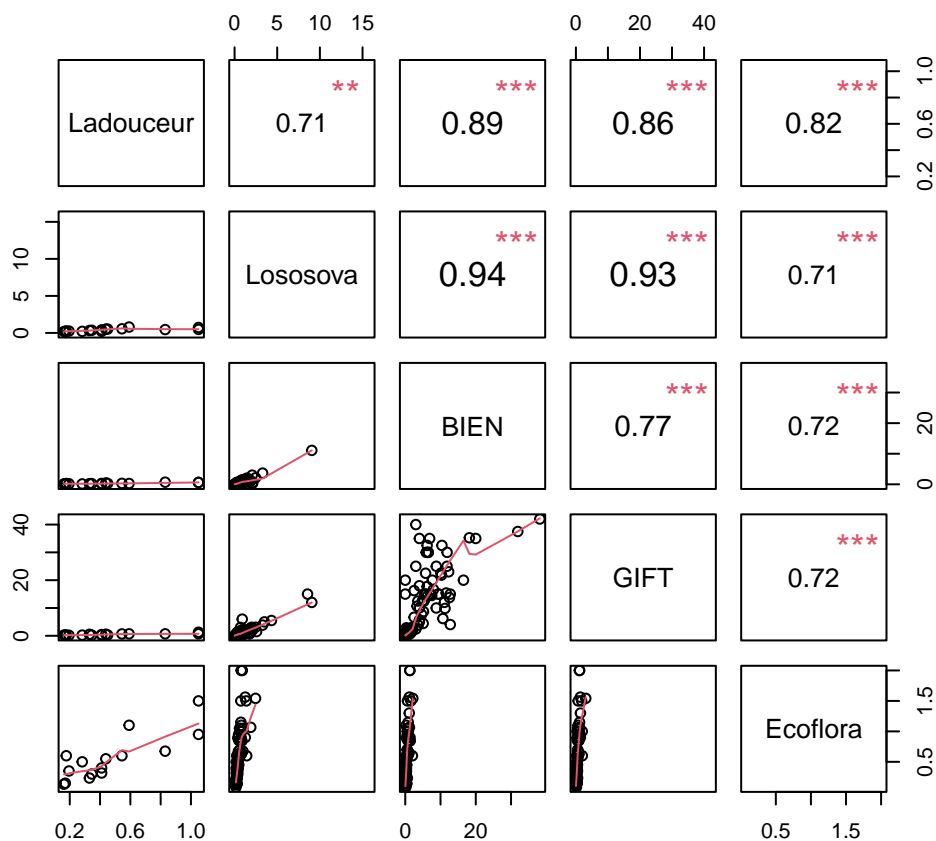
Values are highly correlated, so we could imagine filling the missing values (using preferred data sources or averaging them).

### Number of SLA values:

Hodgson	GIFT	BIEN	Ladouceur	filled
72	114	146	16	184

## Plant height

There are seven sources of information for plant height.



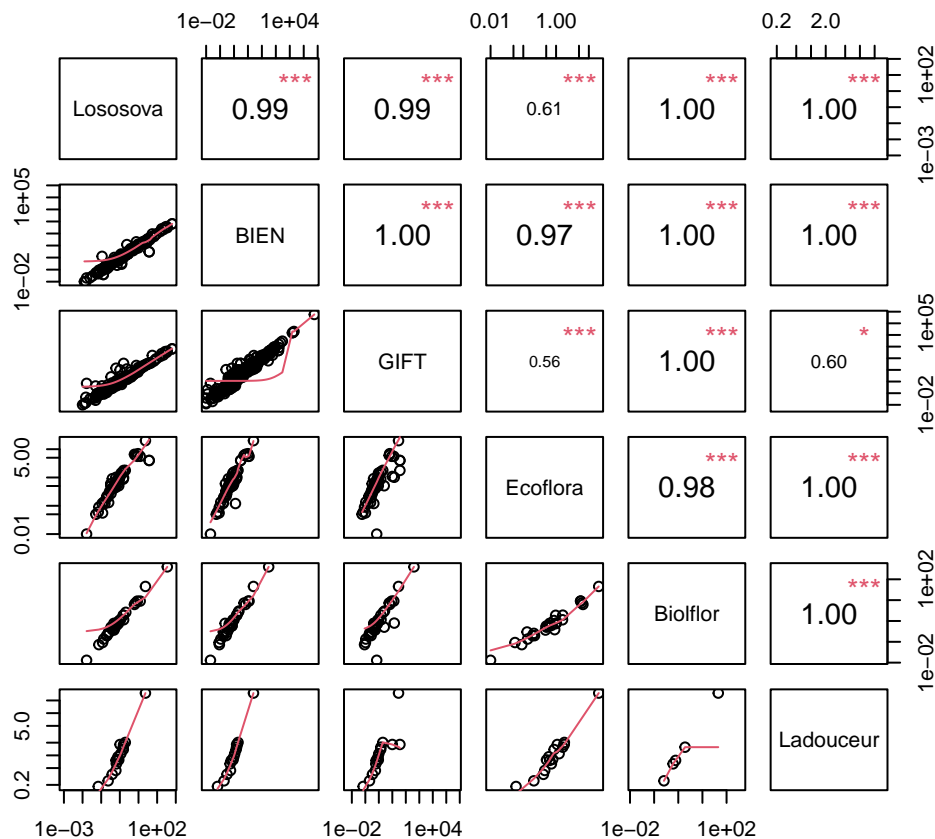
Number of Plant height values:

Ladouceur	Lososova	BIEN	GIFT	Ecoflora	filled
16	215	188	1047	71	1073



## Seed mass

There are six sources of information for seed mass



Number of Seed mass values:

Lososova	BIEN	GIFT	Ecoflora	Biolflor	Ladouceur	filled
197	422	955	54	34	16	965