



The Digital Botanical Garden Initiative

DBGI

A brief presentation of the initiative



unine
Université de Neuchâtel

swissuniversities

**UNI
FR**



Fondation Jardin botanique scientifique
et universitaire de Neuchâtel

jbn
jardin botanique
neuchâtel

**Bota
Bota** Jardin Botanique
de l'Université de Fribourg
Botanischer Garten
der Universität Freiburg

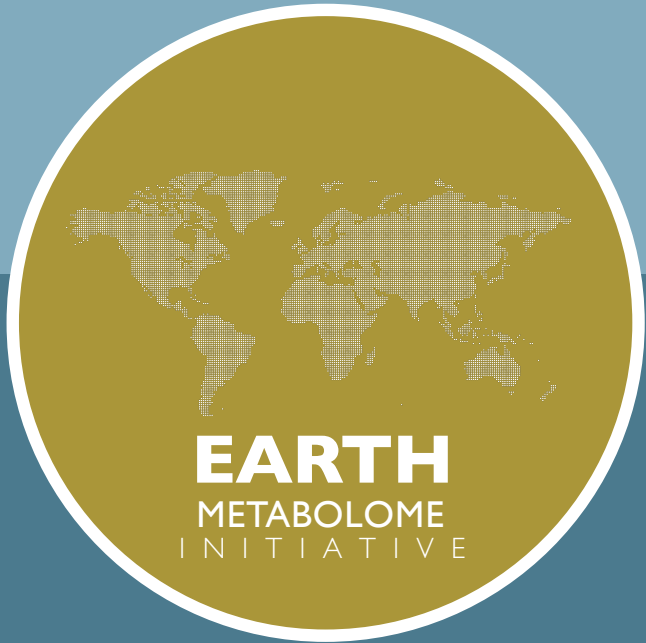
 **Swiss National
Science Foundation**

30.08.2023

Pierre-Marie Allard & Emmanuel Defossez



A massive undertaking ...



Profile the metabolic content of all currently known species on Earth.

... with three objectives

- *Explore and understand the chemical foundations of the biosphere*
- *Benefit human society*
- *Protect biodiversity*

Wildlife ecosystems



Diversity

(species)



Sampling

(easiness of)



Functions

(understanding of)



Conditions

(control of environmental)



Botanical gardens



Diversity

(species)



Sampling

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Functions

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Conditions

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Laboratory plants



Diversity

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Wildlife ecosystems



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Botanical gardens



Diversity
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Conditions
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Establish chemical
extracts libraries of
Swiss botanical
gardens

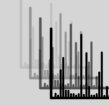


Swiss
Digital Botanical
Gardens Initiative





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Digitize, through mass
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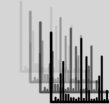


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Gather chemical
information and relevant
samples metadata in a
knowledge graph

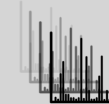


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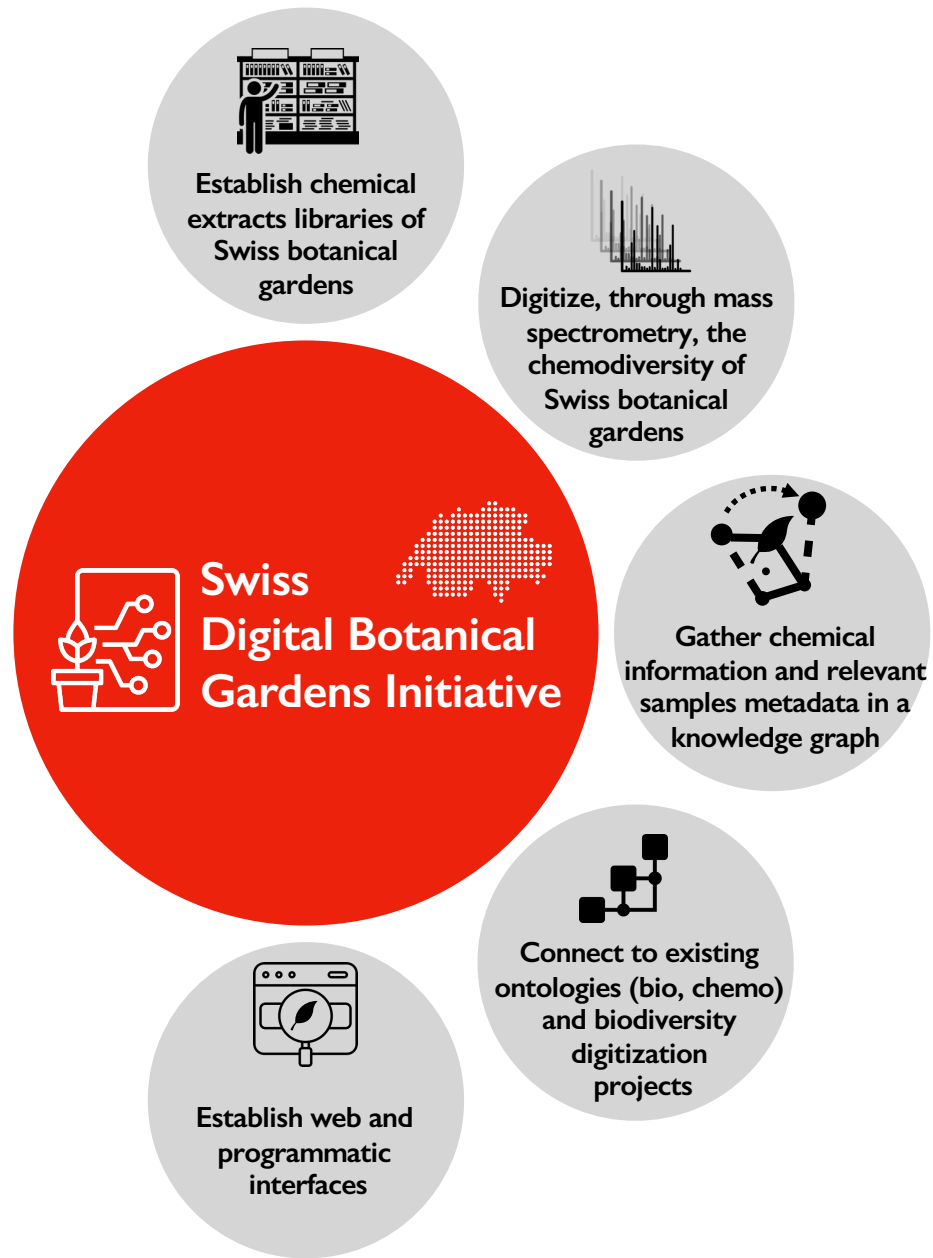


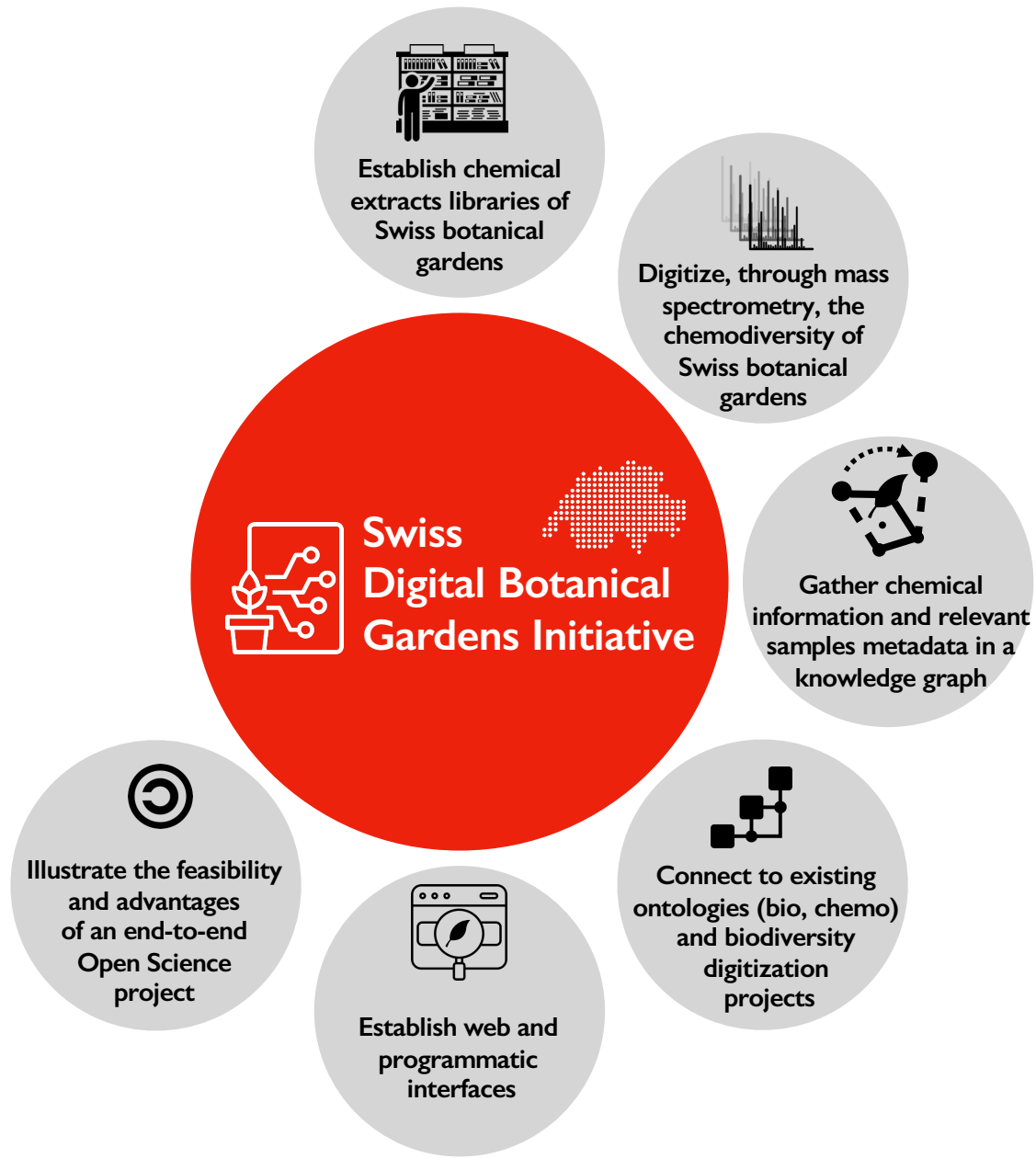
Connect to existing
ontologies (bio, chemo)
and biodiversity
digitization
projects

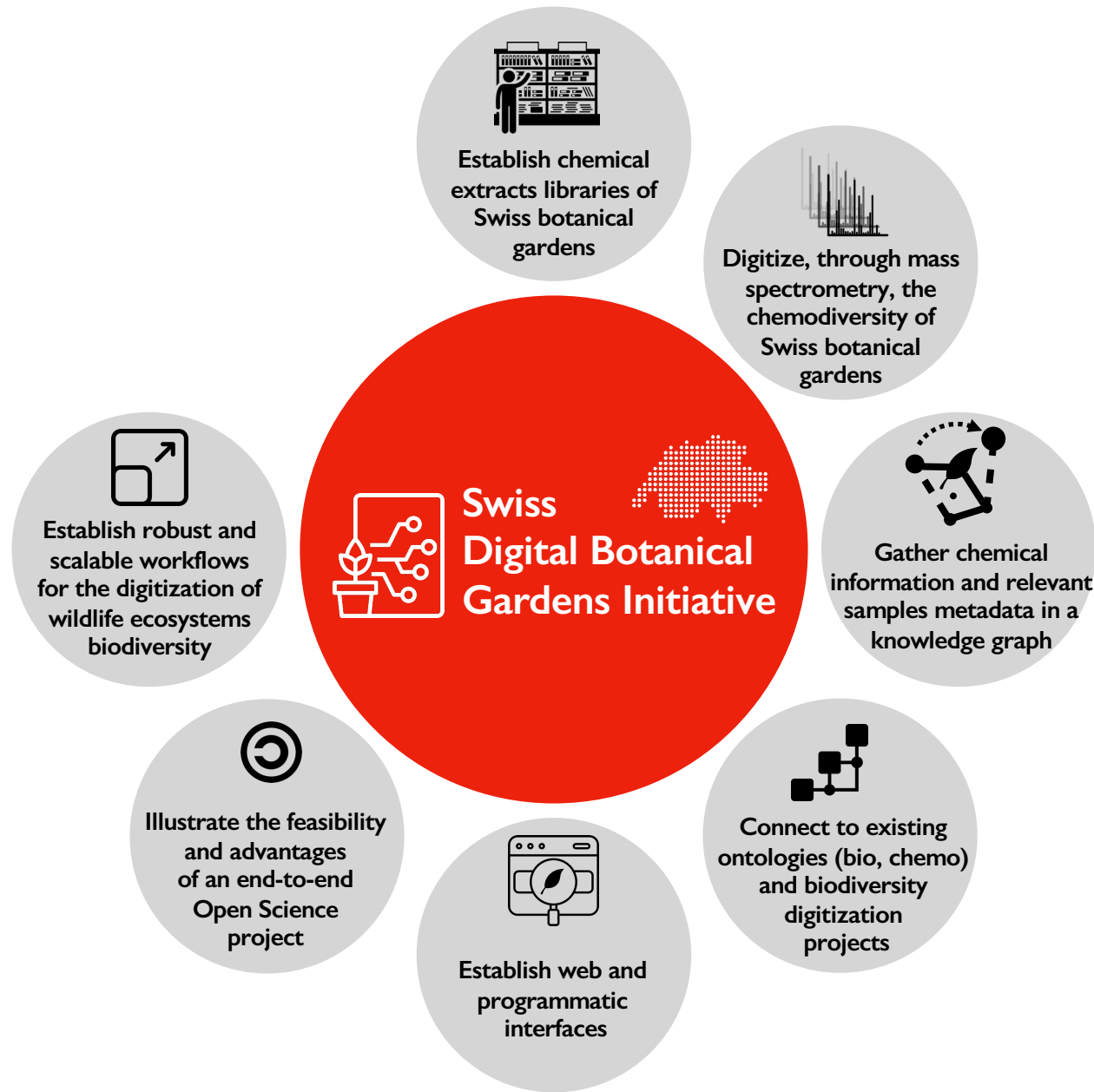


Swiss
Digital Botanical
Gardens Initiative





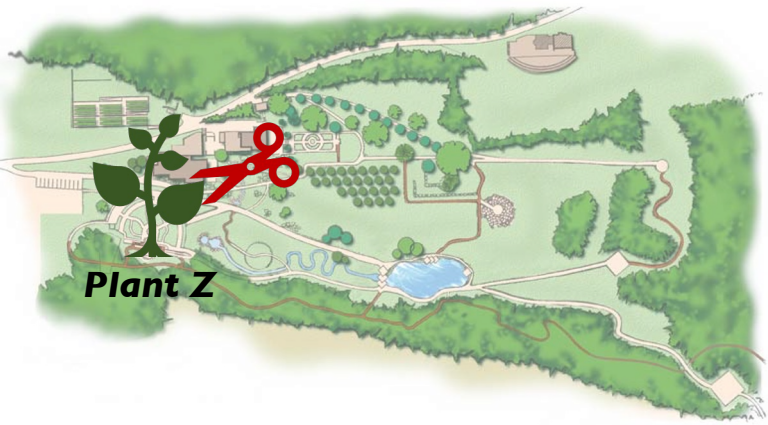




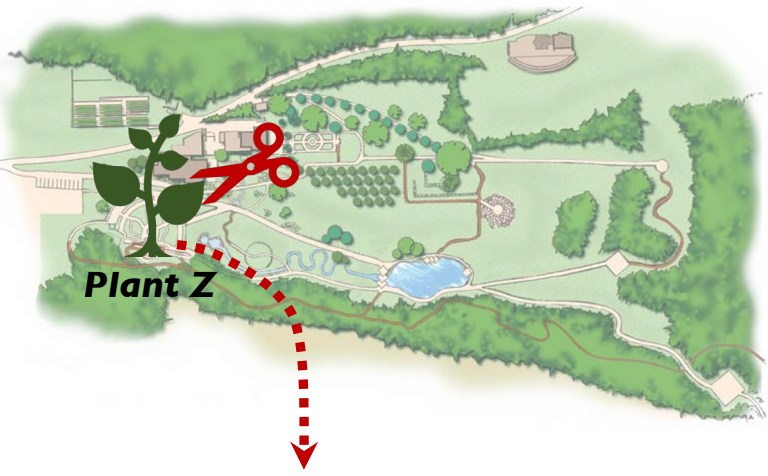


Overall protocol





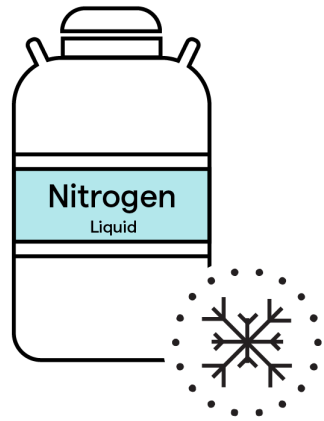
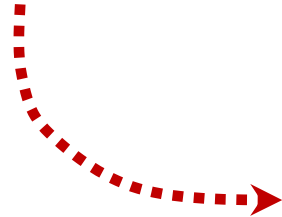
Plant Z

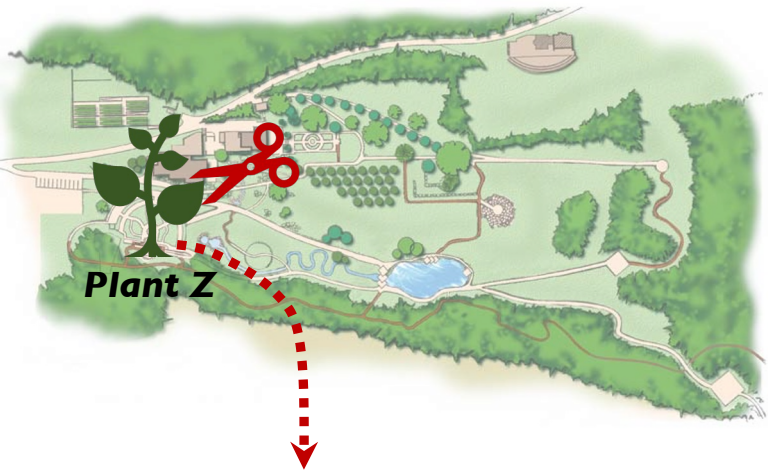


Large Close Sample Label

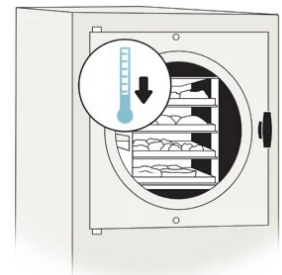
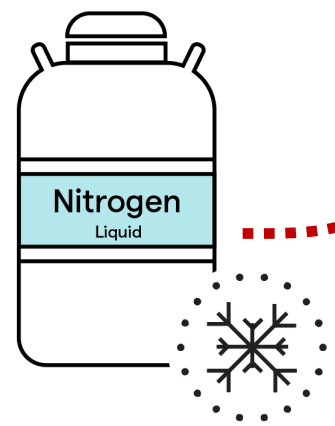


~1 Leaf

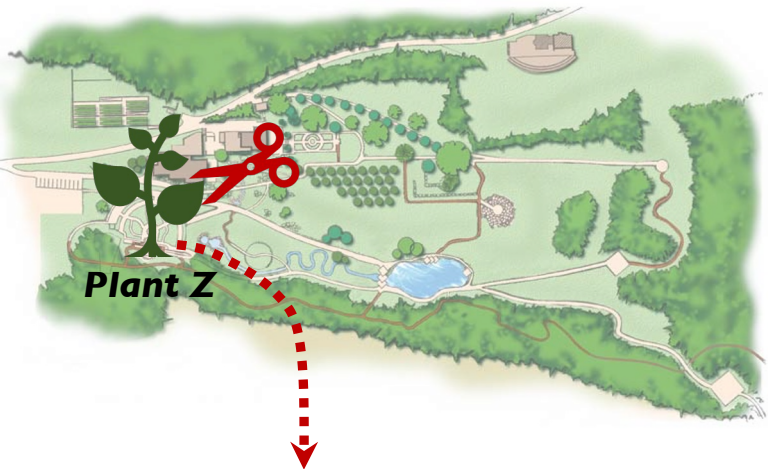




~1 Leaf



freeze-drying



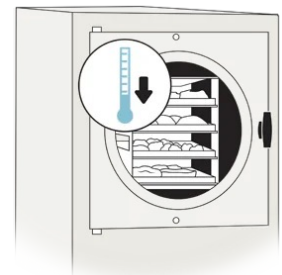
Grinding and Extraction



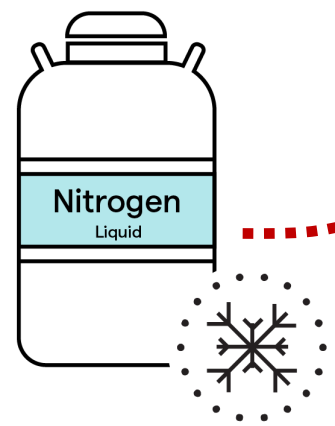
Large Close Sample Label



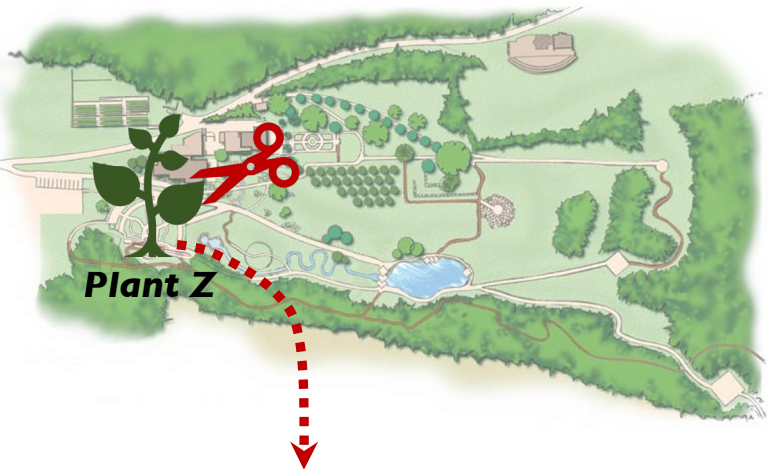
~1 Leaf



freeze-drying



Nitrogen
Liquid

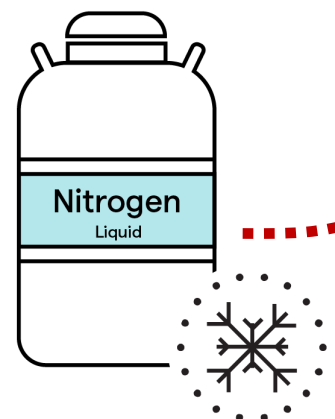


Plant Z

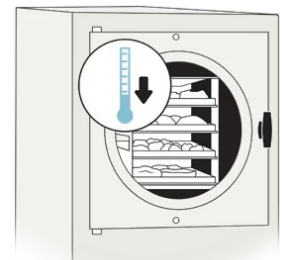
Large Close Sample Label



~1 Leaf



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freeze-drying

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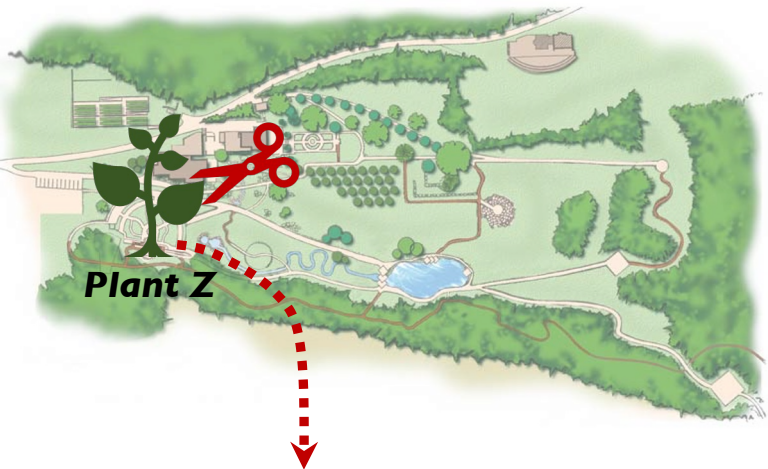


Collection
storage

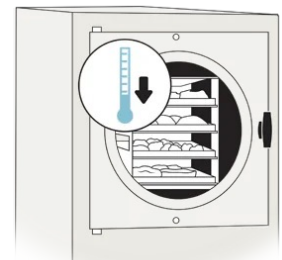
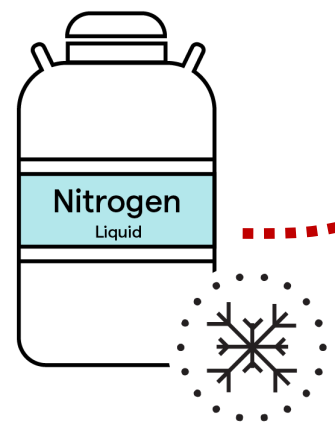


Profiling and
bioinformatic





~1 Leaf



freeze-drying

Grinding and Extraction



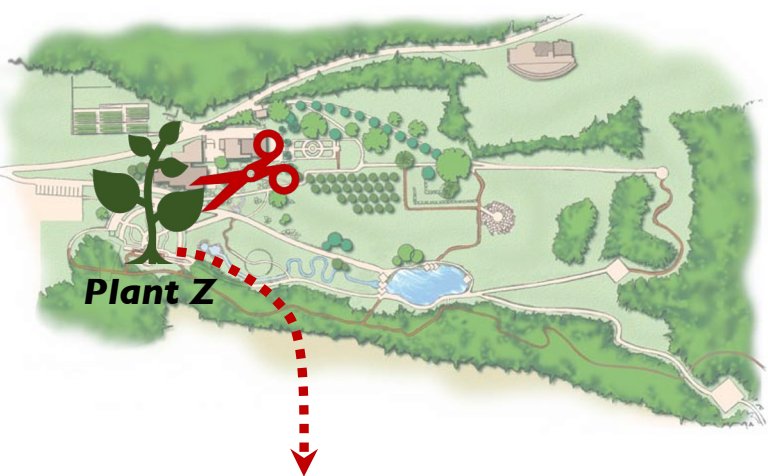
Collection storage



Profiling and bioinformatic



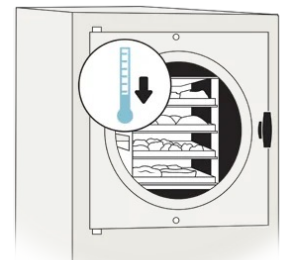
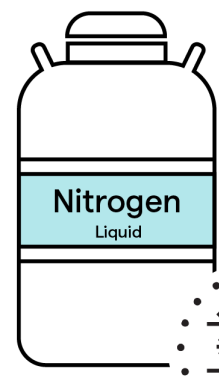
Plant metabolome



Large Close Sample Label



~1 Leaf



freeze-drying

Grinding and Extraction



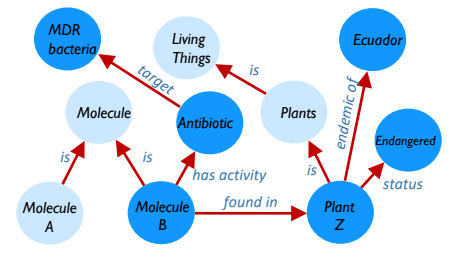
Collection storage



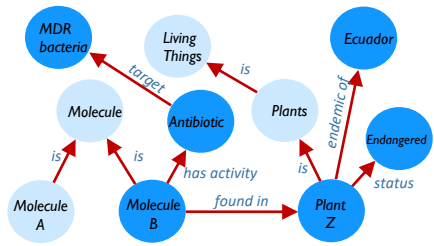
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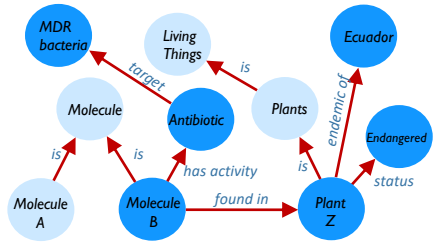


Open Knowledge Graph base



Knowledge management (acquisition, organization and sharing)

What is a Knowledge Graph ?

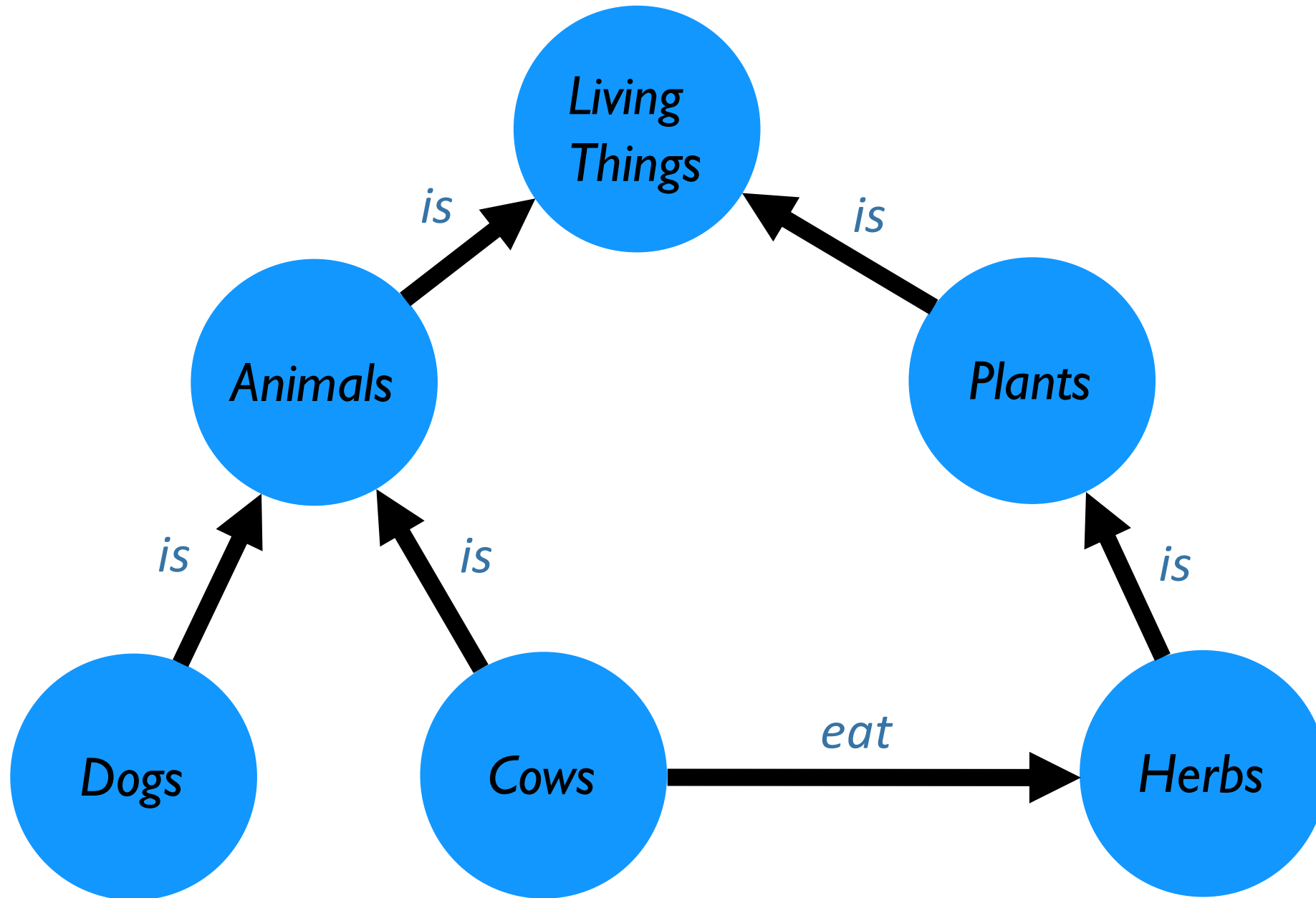


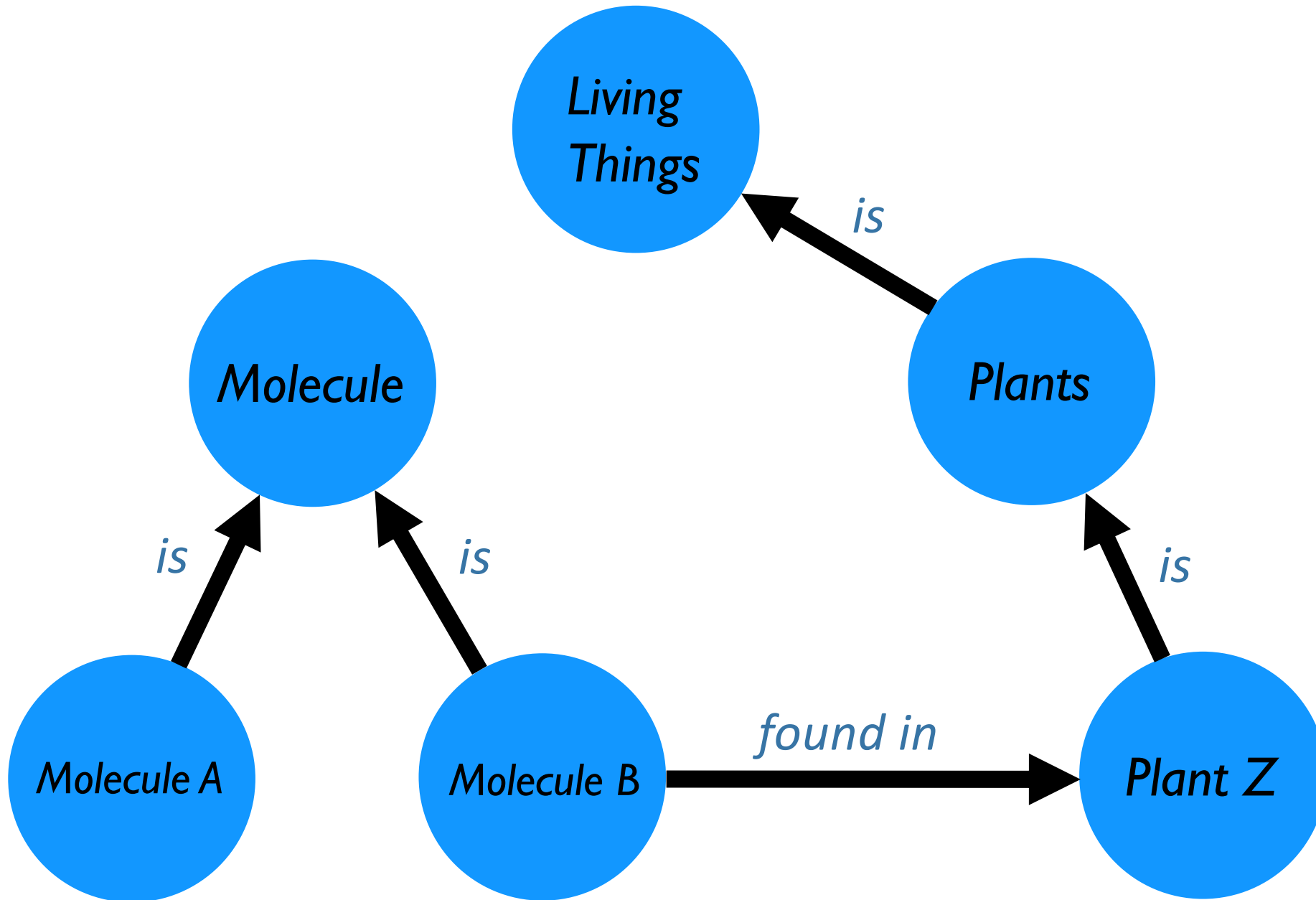
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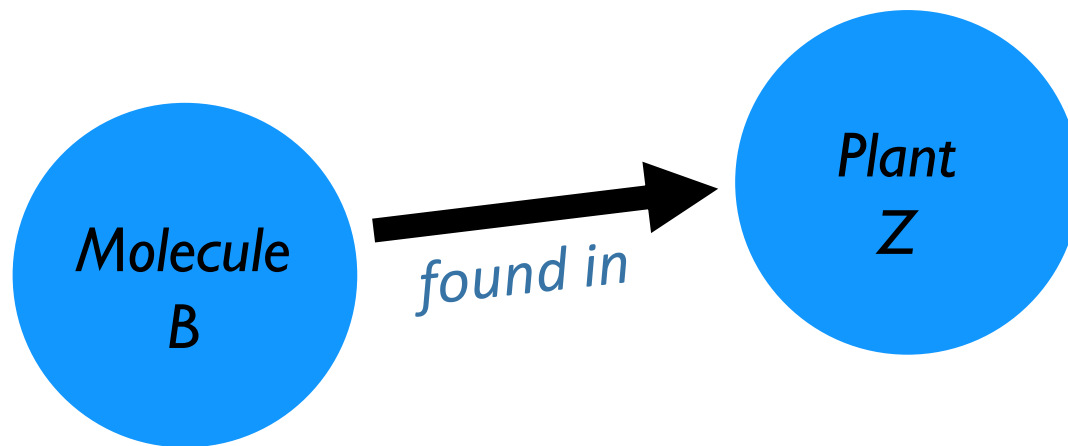


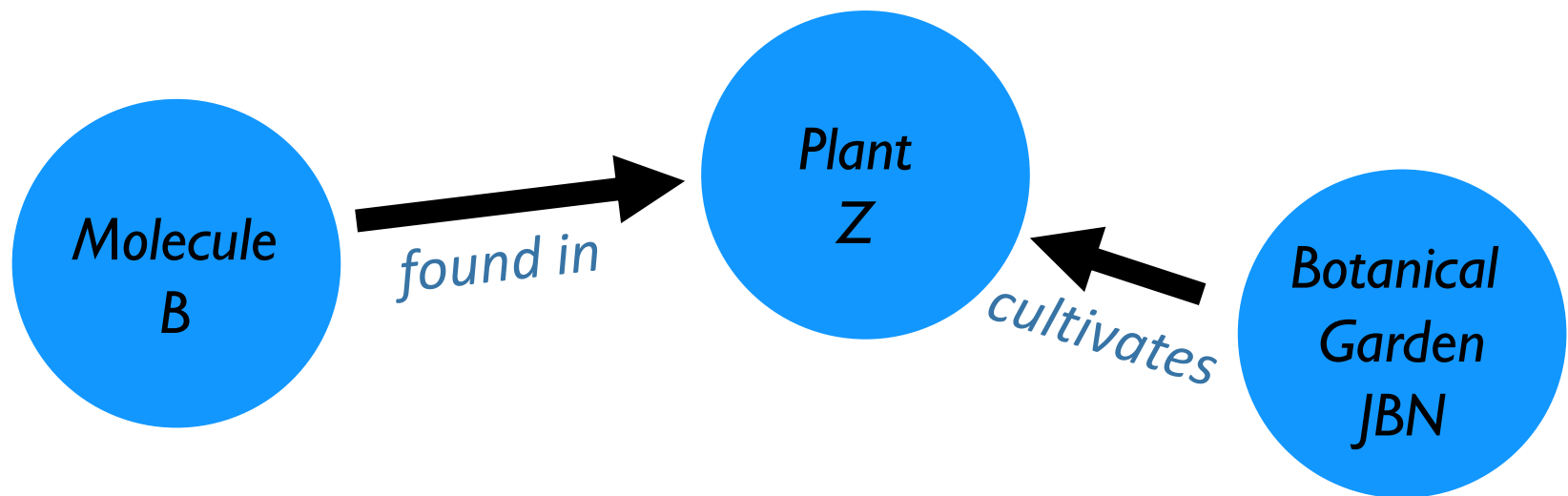
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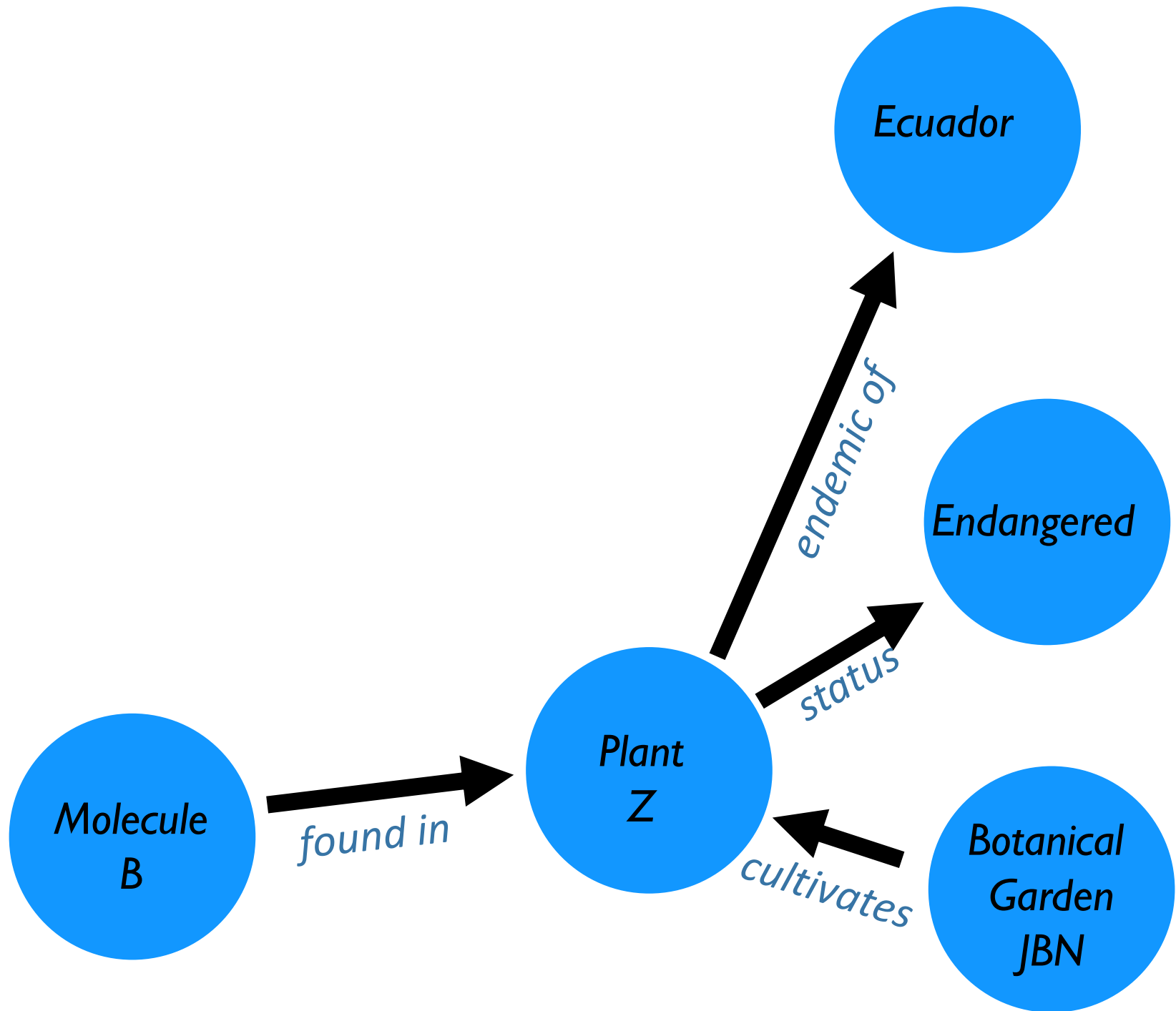


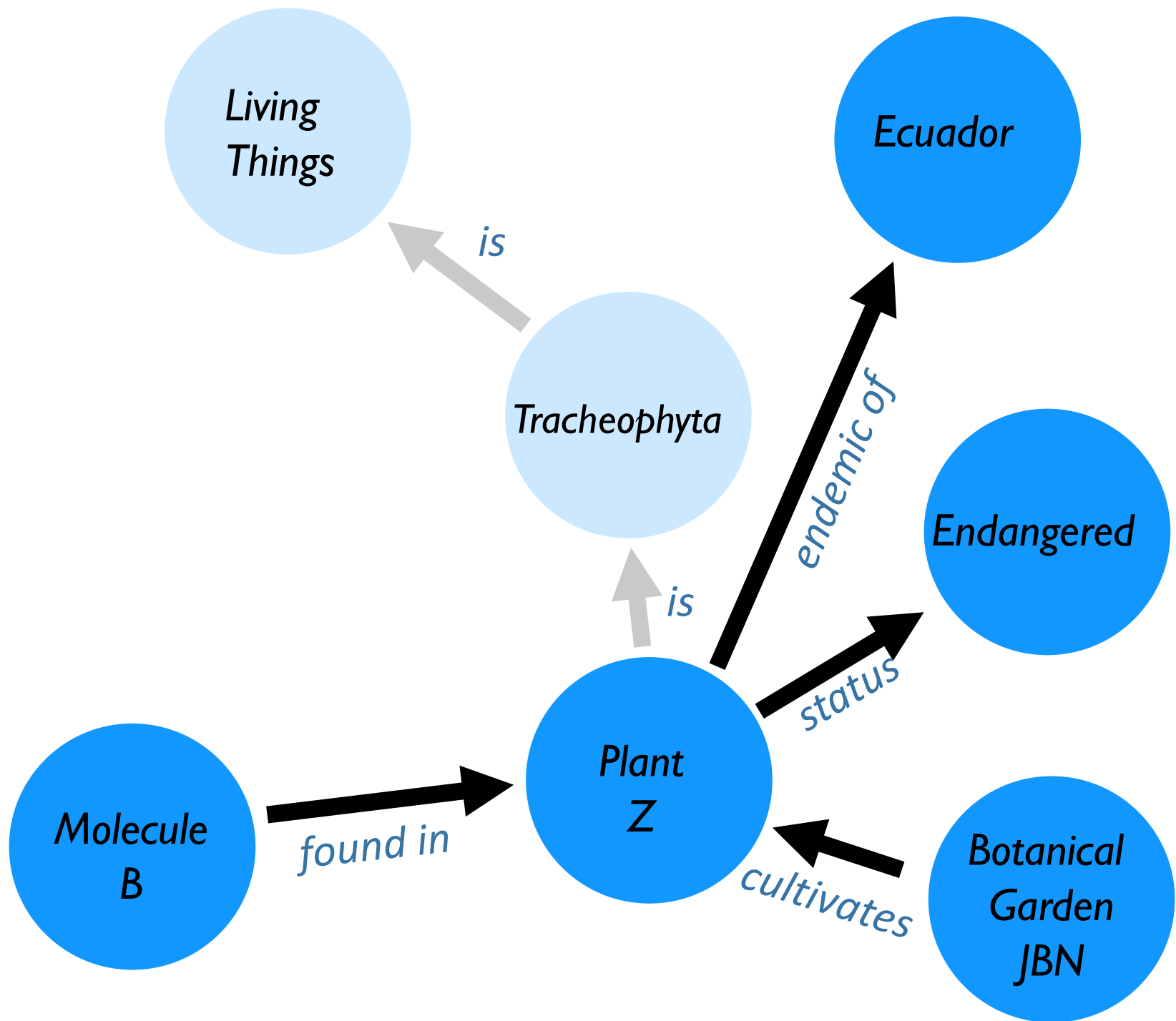


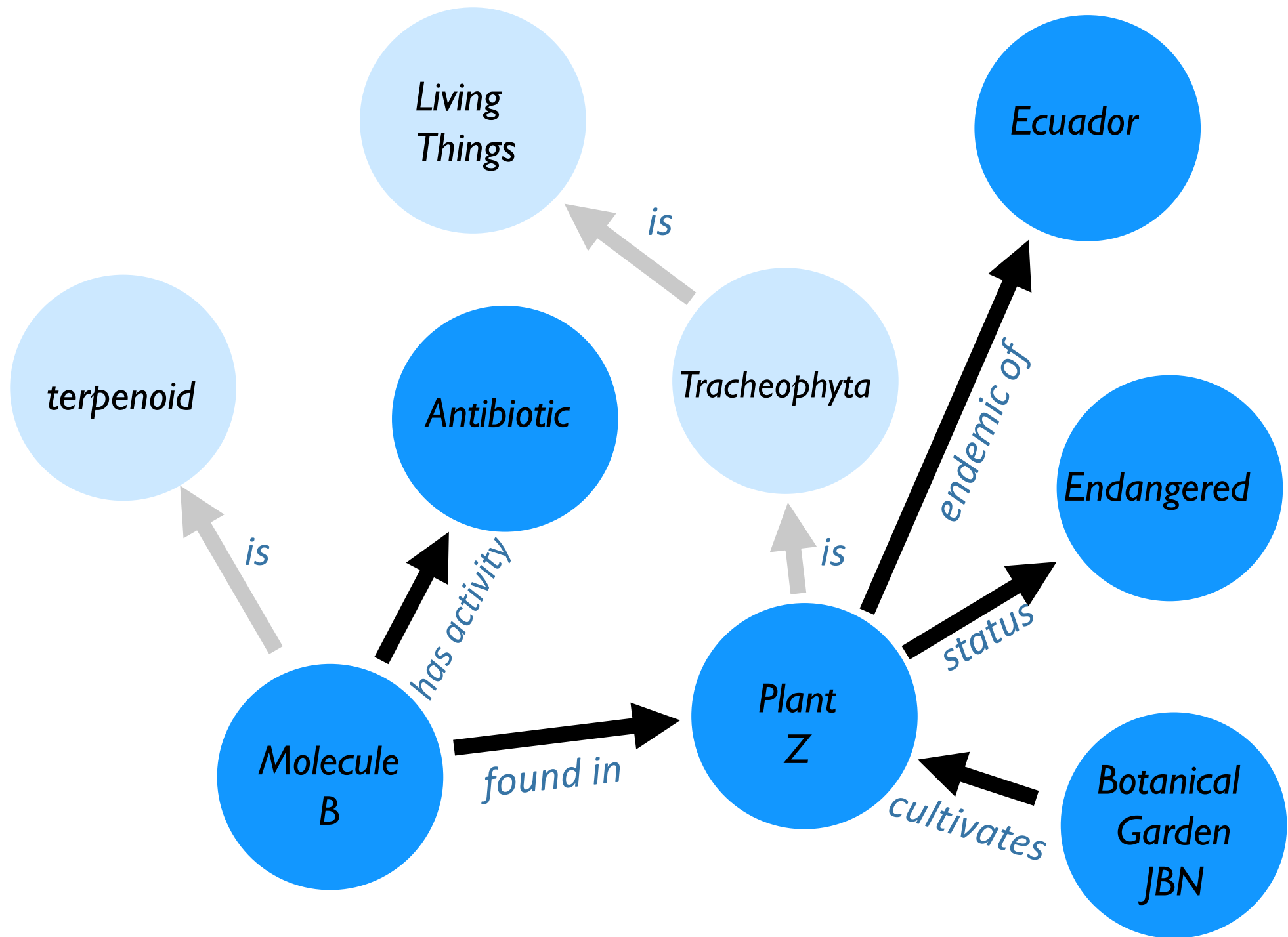


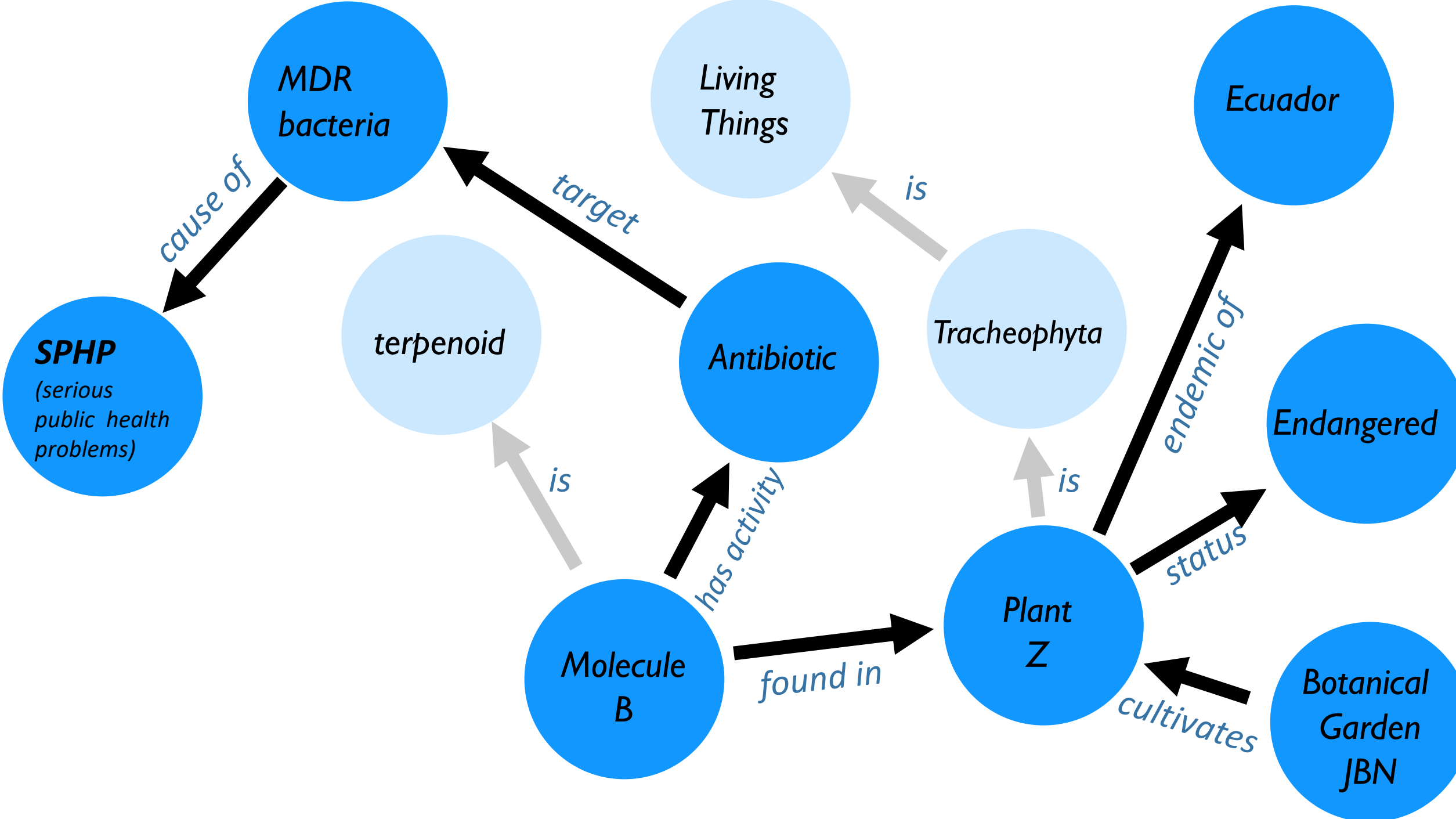






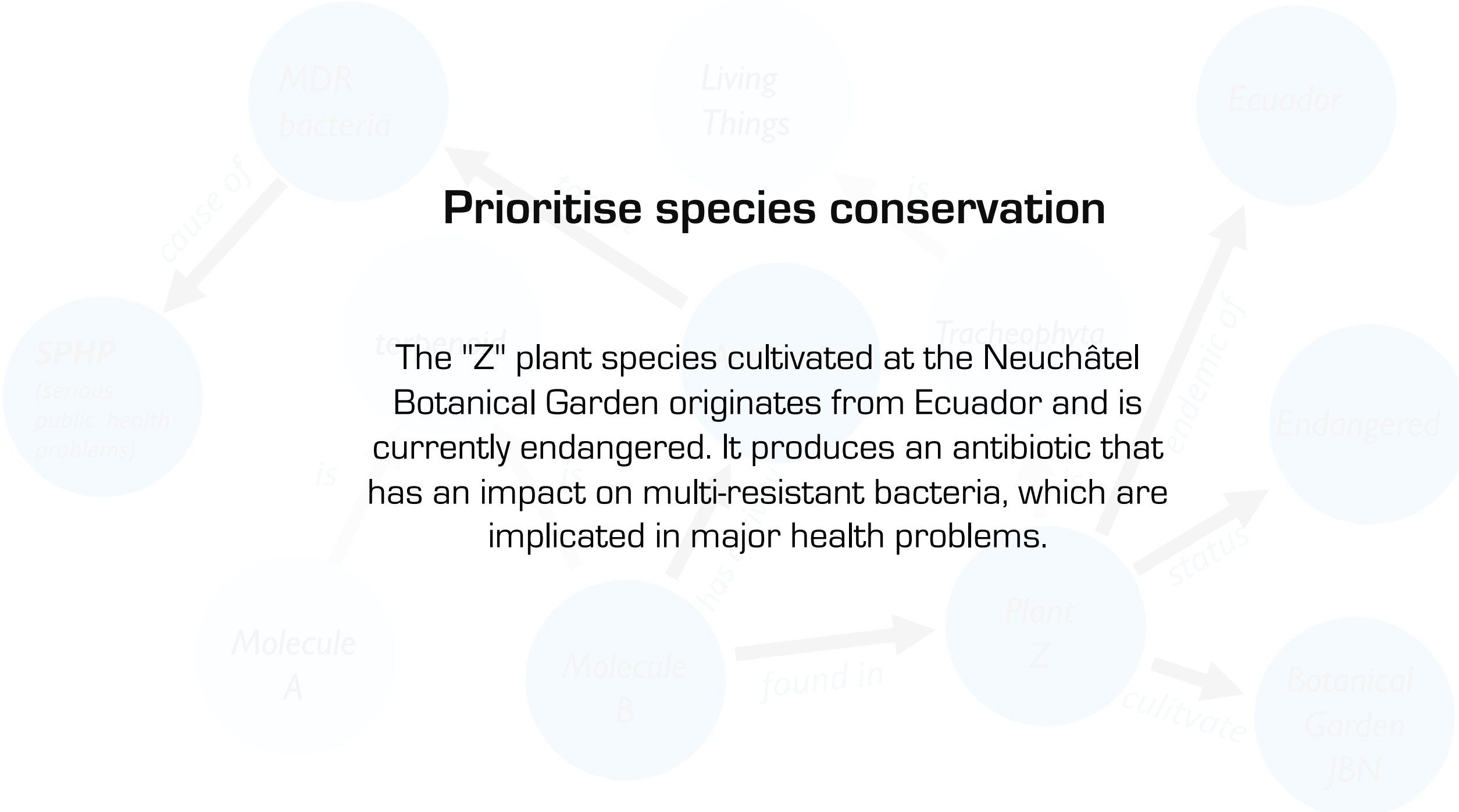







Prioritise species conservation

The "Z" plant species cultivated at the Neuchâtel Botanical Garden originates from Ecuador and is currently endangered. It produces an antibiotic that has an impact on multi-resistant bacteria, which are implicated in major health problems.




Overview **1,423** OBSERVATIONS **1,042** SPECIES **63** IDENTIFIERS **10** OBSERVERS [Stats](#)


Recent Observations [View All](#)




Cicer arietinum
Chickpea
1 11d



Lespedeza thunbergii
Thunberg's Lespedeza
1 11d

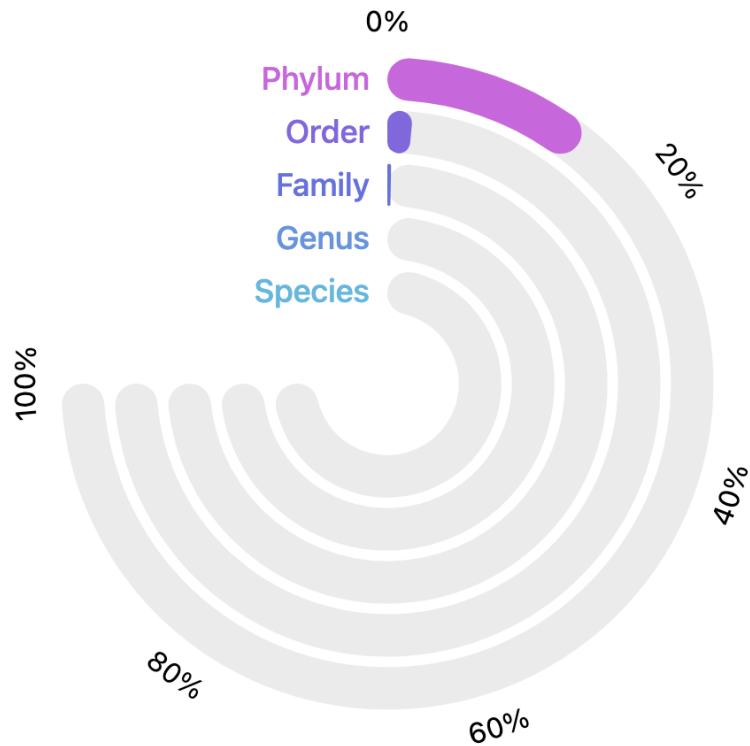


Genus *Glycyrrhiza*
1 11d



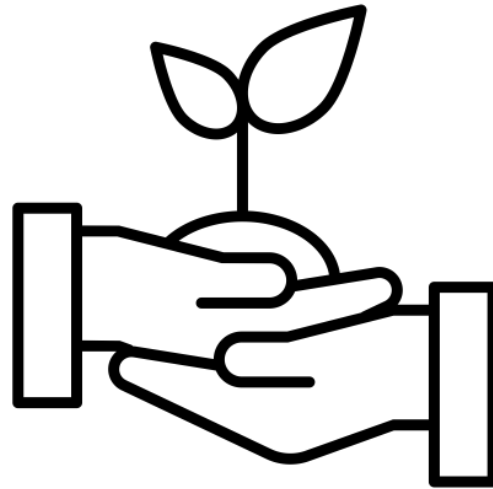
Lathyrus vernus
Spring Vetch
1 11d

Progress of Sampling by All Taxon Rank





We need help !



Get in touch :)

www.dbgi.org

dbgi@protonmail.com