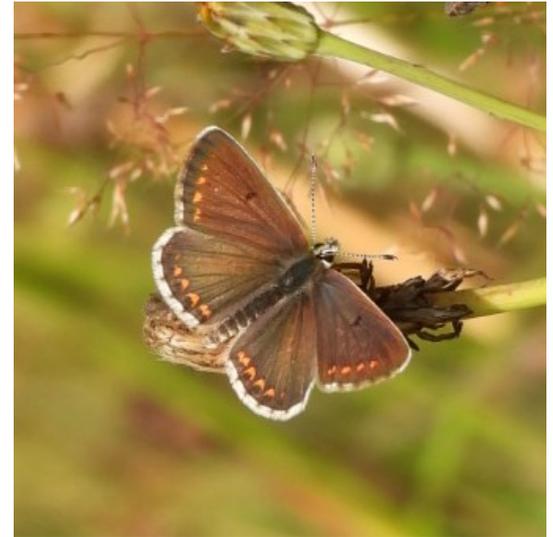


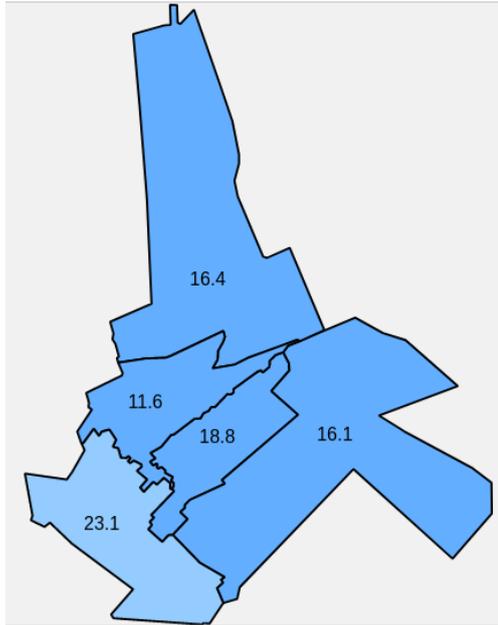
Extended value from existing biodiversity observations

- Coöperatief Meten Natuurlijk U.A.
- Citizen Science initiative
- SMAL: Measure PM air quality (> 3 years)

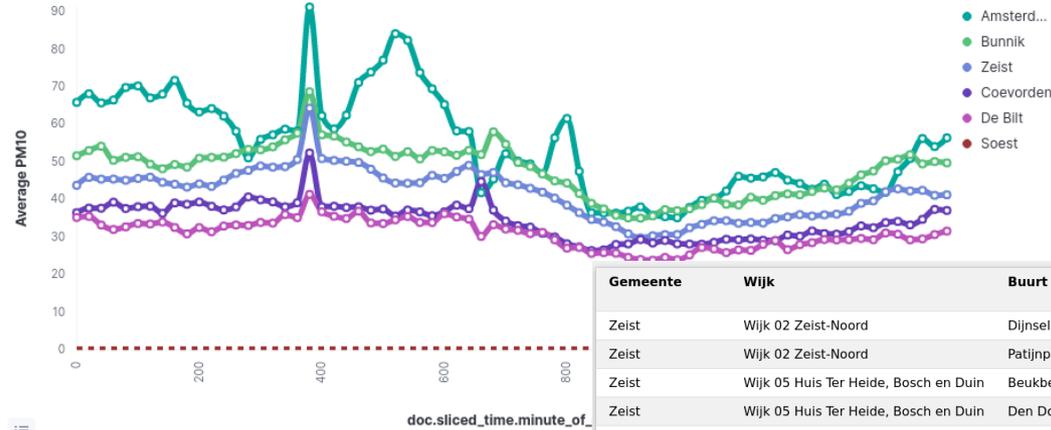


Bruin blauwtje
Aricia agestis
red list, common, native

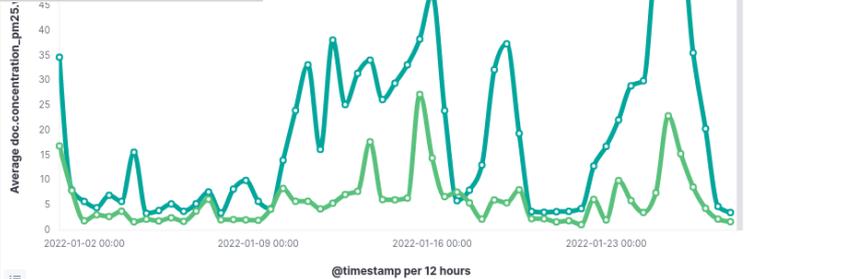
From data to Insights



SMAL-* : Average PM10 per minute of day per Gemeente



istogram



Gemeente	Wijk	Buurt	LKI	PM10 [µg/m³]	PM2.5 [µg/m³]	Aantal metingen
Zeist	Wijk 02 Zeist-Noord	Dijnselburg	1	9.39	2.49	21
Zeist	Wijk 02 Zeist-Noord	Patjnpark	2	17.5	3.04	8
Zeist	Wijk 05 Huis Ter Heide, Bosch en Duin	Beukbergen	2	10.13	2.06	7
Zeist	Wijk 05 Huis Ter Heide, Bosch en Duin	Den Dolder-Noord	3	20.57	3.47	7
Zeist	Wijk 05 Huis Ter Heide, Bosch en Duin	Huis ter Heide-Noord	3	21.79	4.82	7
Zeist	Wijk 05 Huis Ter Heide, Bosch en Duin	Huis ter Heide-Zuid	2	12.99	3.29	7
Zeist	Wijk 04 Zeist-Oost, Zeister Bos en omgeving	Austerlitz	1	9.43	2.5	7
Zeist	Wijk 04 Zeist-Oost, Zeister Bos en omgeving	Kerckebosch	3	21.67	3.59	7
Zeist	Wijk 04 Zeist-Oost, Zeister Bos en omgeving	Verspreide huizen Austerlitz	2	17.17	3.56	7
Zeist	Wijk 03 Zeist-West	Nijenheim	3	26.69	4.68	8
Zeist	Wijk 03 Zeist-West	Griffensteijn en Kersbergen	2	18.99	3.61	7
Zeist	Wijk 01 Centrum Zeist	Carré	2	18.83	2.99	14
Bunnik	Wijk 00 Bunnik	Bunnik	2	18.91	3.59	14
Coevorden	Wijk 10 Coevorden	Klinkenvlier	3	26.2	5.15	8
Amsterdam	Slotermeer-Zuidwest	Buurt 5 Zuid	2	19.12	3.24	7
De Bilt	Bilthoven Noord	Bilthoven Noord	2	12.13	2.27	7
Utrechtse Heuvelrug	Wijk 02 Leersum	Leersum	3	21.83	3.49	7

Biodiversity

When is an area bio-diverse?

- Number of unique species in an area?
- Common / rare / very rare ?
- Native / import ?
- On Red List ?
- Laws / regulation ?

Ecosystem dependancies?



The problem

- 1) Finding (re)usable open biodiversity data is hard
- 2) Data is stored in different data sources and formats
- 3) Combining continuous data requires technical skills
- 4) Matching data-schemas is time consuming
- 5) Generating reports / visualizations requires tooling
- 6) Crawling through big data can be addictive

- Number of unique species?
- Are they common / rare / very rare?
- Native / import?
- On a Red List?
- Laws / take special measures?



Geelhartje (Fairy flax)
Linum catharticum
Red list, rare, native

Goals

Use open biodiversity data to achieve:

- Better insights for citizens
- Better insights for municipalities
- More participating citizens?
- Better protection of areas / species?
- Improved policy making?



Neushoornkever
(European Rhinoceros beetle)
Oryctes nasicornis
rare, native

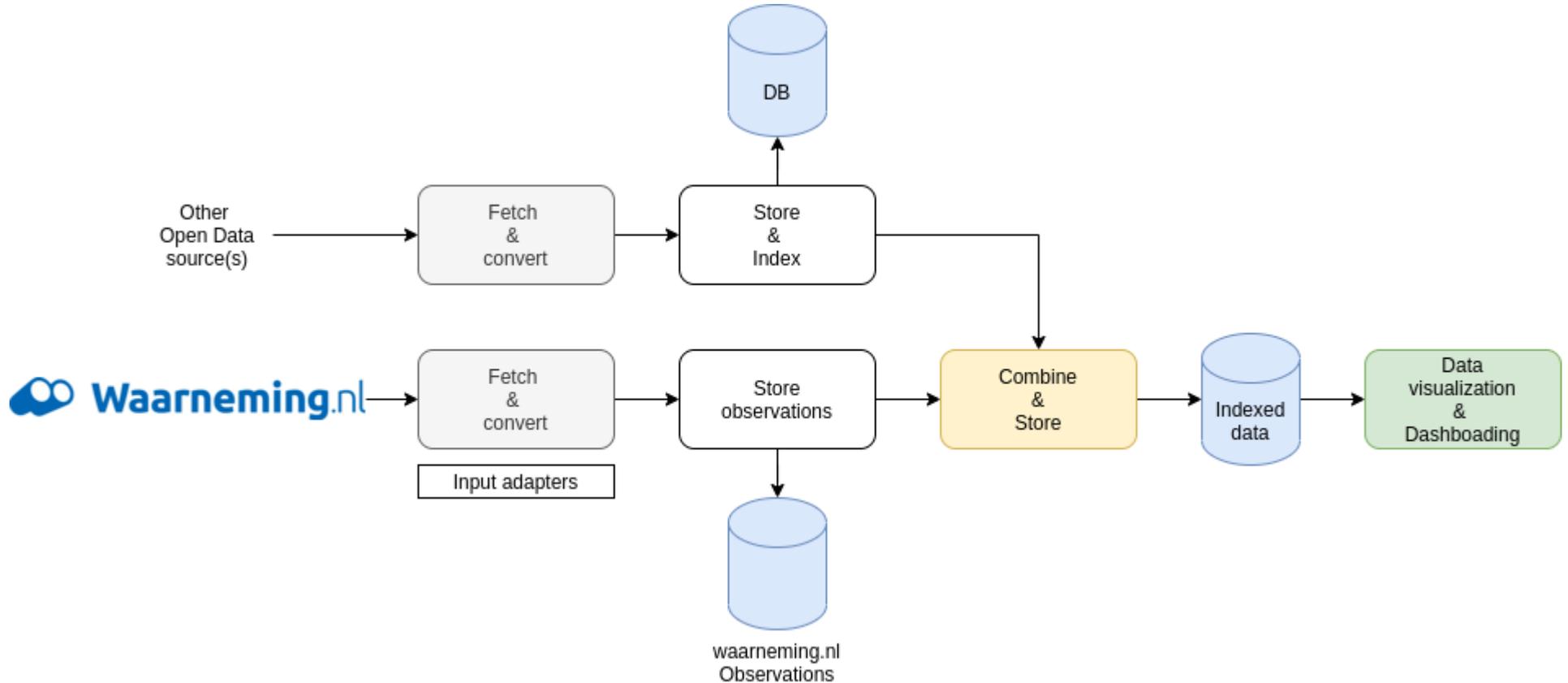
The Idea

- What Open Data sources are available ?
- Automated ingest / import
- Data processing
- Mix / Combine
- Dashboarding
- Insights



Slanke mantelanjer
(Childing pink)
Petrorhagia prolifera
red list, very rare, native

Technical solution:



Potential stakeholders ?

- Citizen science communities
- Municipalities
- Researchers
- Ecologists
- ... ?



Sierlijk rendiermos
(Delicate clad lichen)
Cladonia ciliata
red list, rare, native

Species Management plan



Door JrPol - Eigen werk, CC BY-SA 4.0,
<https://commons.wikimedia.org/w/index.php?curid=40108812>

Huismus

(House sparrow)

Passer domesticus

red list, common, native



Door Paweł Kuźniar (Jojo_1, Jojo) - Eigen werk, CC BY-SA 3.0,
<https://commons.wikimedia.org/w/index.php?curid=962740>

Gierzwaluw

(Common swift)

Apus apus

common, native



Door Barracuda1983 - Eigen werk, CC BY-SA 3.0,
<https://commons.wikimedia.org/w/index.php?curid=2077104>

Vleermuis

(2..3 species)

Room for improved policy making?



Kammetjesstekelzwam (Coral Tooth)
Hericium coralloides
red list, very rare, native



Craquelérussula
Russula cutefracta
red list, very rare, native

Discussion

- What should a dashboard contain for:
 - Citizens ?
 - Scientists / Ecologists ?
 - Municipalities ?