

# Benefit or burden?

Publishing Article 17 Habitats Directive reports using INSPIRE data specifications

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# Aim of INSPIRE

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The INSPIRE directive aims to **benefit** European public authorities (and others, all member states) by making available relevant, **harmonized** and high quality geographic information that supports policies and activities impacting the **environment**.

INSPIRE defines common standards for environmental geo data to be implemented as webservice.

The **benefit** of INSPIRE has been described in use cases. One is the **reporting obligation** of the **Habitats Directive** (themes *Habitats and biotopes* and *Species distribution*).

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# Habitats Directive

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*The Habitats Directive ensures the conservation of a wide range of rare, threatened or endemic animal and plant species. Some 200 rare and characteristic habitat types are also targeted for conservation in their own right.*

Every **six years**, member states **report** an assessment of the conservation status of these habitats and species to the European Commission.

## Challenge

Assess implementation of INSPIRE compliant network services for these reports due in **2019** (period 2013-2018).

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# Implementation steps

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1. Extend INSPIRE **data specifications** to **map** the reporting formats and data specifications of the Habitats Directive to the INSPIRE data specifications;



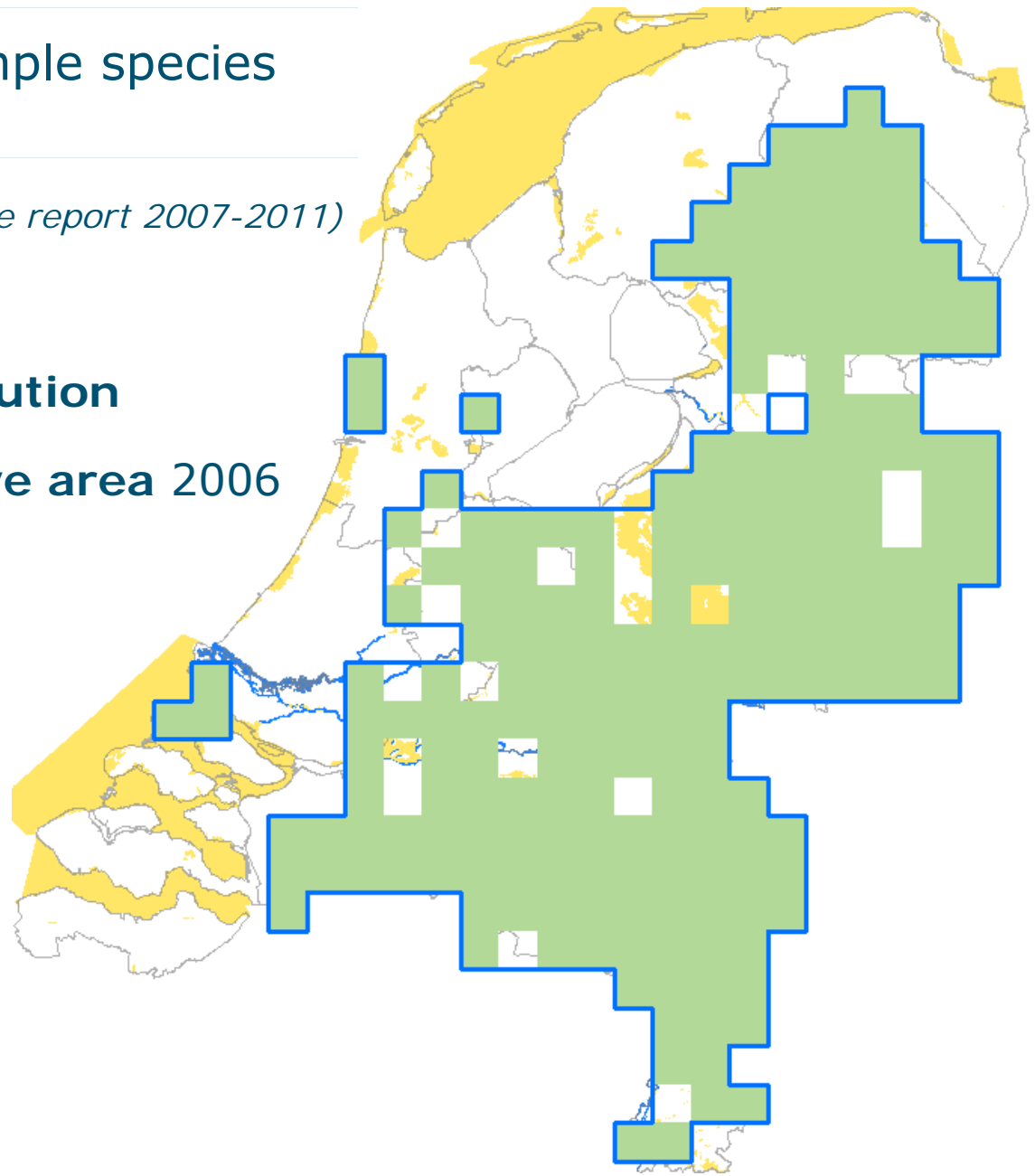
2. Create INSPIRE compliant **network services** which meets INSPIRE quality of service (**QoS**);
3. Address the **reporting** process.

# 1. Mapping: Example species

*(Dutch Article 17 Habitats Directive report 2007-2011)*

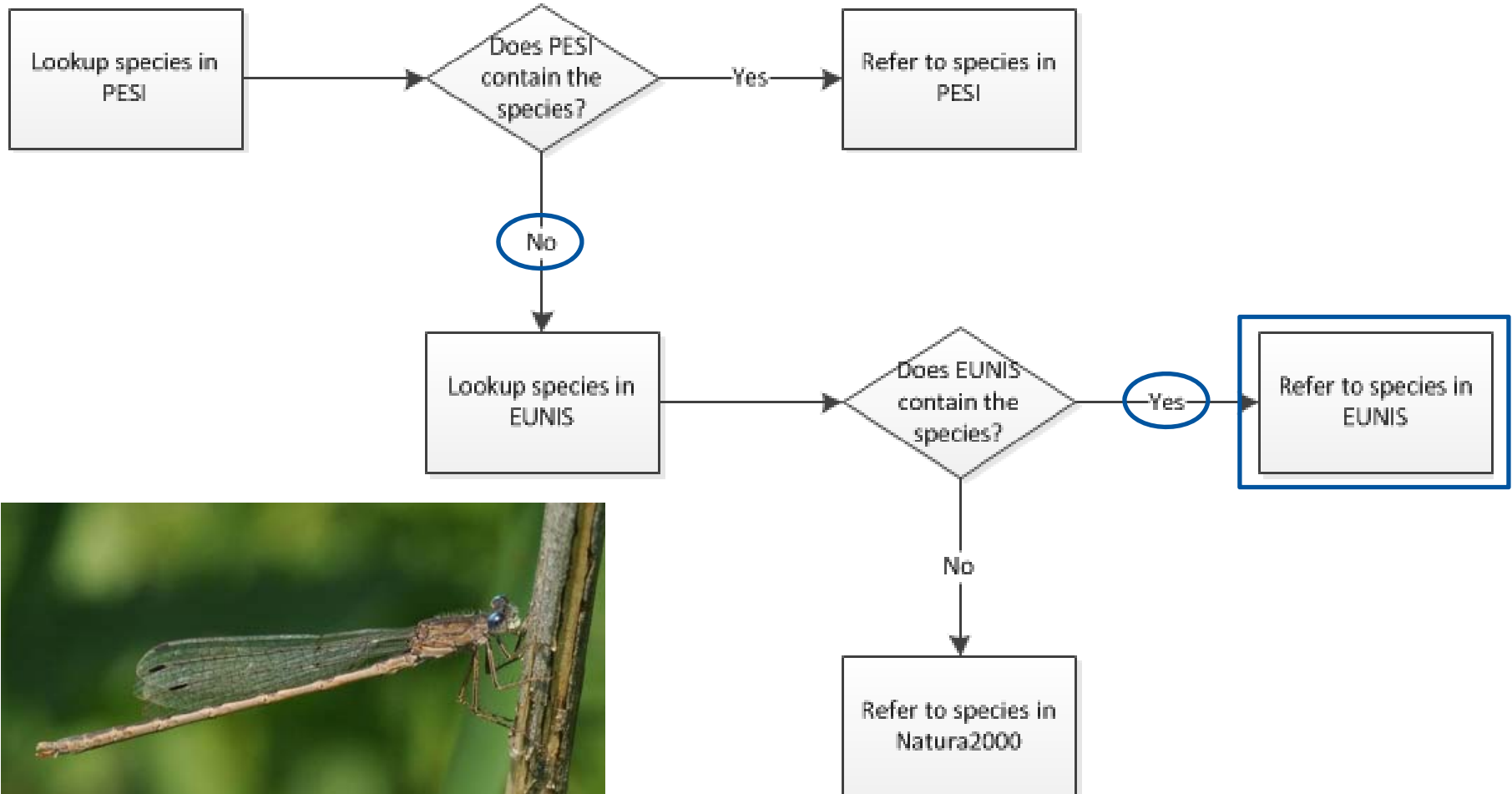
- Blue outline: **range**
- Green polygons: **distribution**
- Yellow: **habitat directive area 2006**

*rana lessonae* (Natura2000 code list)




# 1. Mapping: Species code lookup

*sympecma braueri*




# 1. Mapping: Problem No longer valid names

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38		1037	Ophiogomphus cecilia	Ophiogomphus ser
39		1038	Leucorrhinia albifrons	
40	Don't use (1039) for new entry, use (6182)	1039	Sympecma braueri	Sympecma paedisc
41	Don't use (1040) for new entry, use (6167)	1040	Stylurus flavipes	Gomphus flavipes
42		1041	Oxygastra curtisii	
43		1042	Leucorrhinia pectoralis	

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Scientific name is  [Search](#)


Display all available common names

Group	Order	Family	Scientific name	English common name	Valid name
Invertebrates	Odonata	Lestidae	<i>Sympecma braueri</i> (Synonym)		✗

Group Order Family Scientific name English common name Valid name

European Environment Agency (EEA)  
Kongens Nytorv 6  
1050 Copenhagen K  
Denmark  
Phone: +45 3336 7100

engineered by  
[EEA Web Team](#)

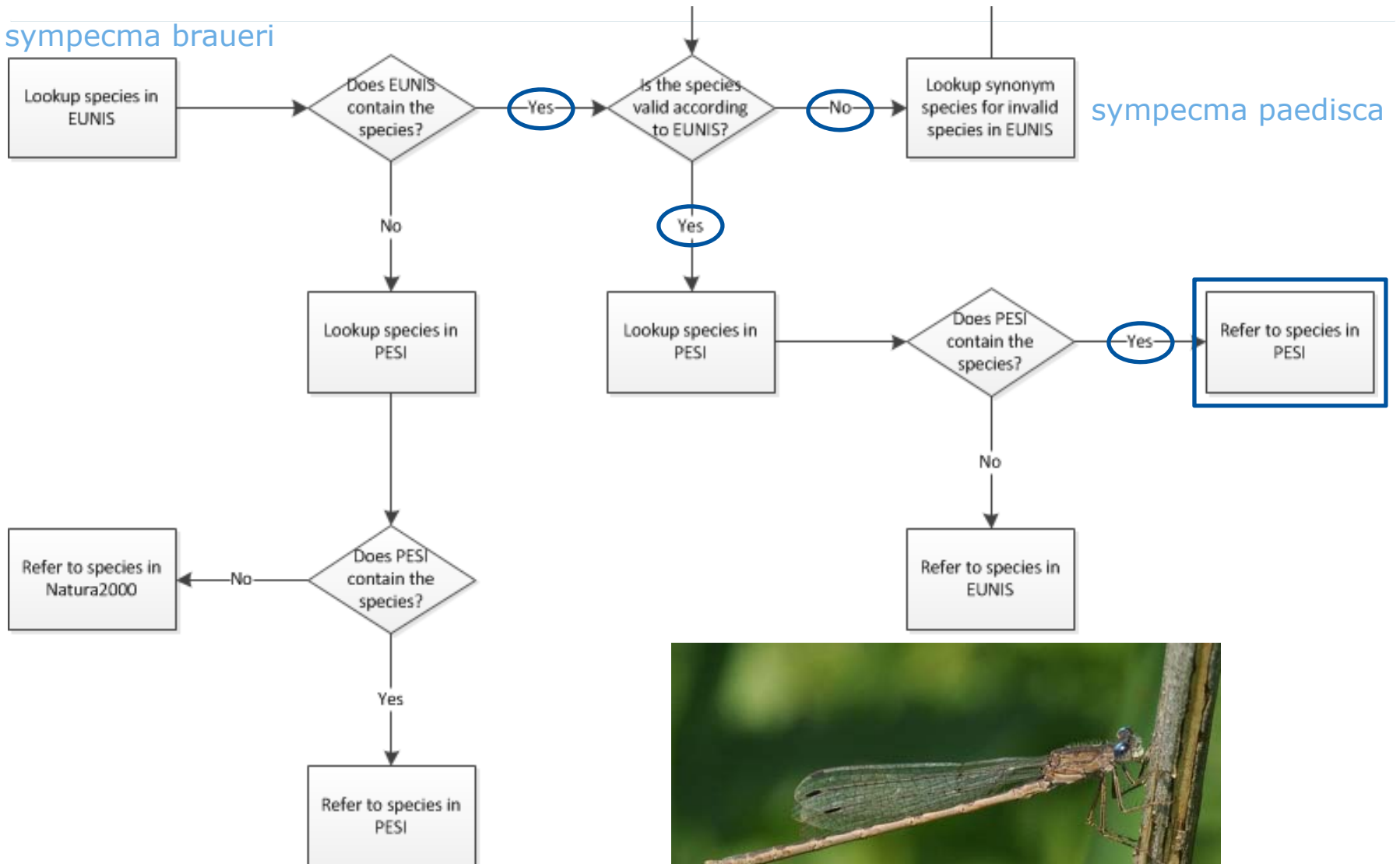
 [EUNIS login](#) [Software updates history](#) [Code for developers](#)

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# 1. Mapping: Species code look-up (alternative)

*sympecma braueri*



*sympecma paedisca*





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# 1. Mapping: issues

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- Missing fields: extension needed
- Distinct range and distribution
  - Have to include both range and distribution features
    - *New: range not requested for next reporting*
  - INSPIRE data model does not contain a field to discriminate between the two types
  - Include the distinction in the INSPIRE compliant GML. How?
    - Create extension:
      - Harmonization needed
    - Leave out range -> *will be*
      - Determine on EU scale to solve inter member state border inaccuracies

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## 2. Technical implementation

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Basic idea:

- Transform WFS out-of-the-box output to INSPIRE species distribution data specification data model
- Using XSLT stylesheet
- Can be applied to any WFS

Software used:

- GeoServer 2.7.2
  - INSPIRE plug-in
  - XSLT plug-in
- PostgreSQL 9.4/PostGIS 2.1

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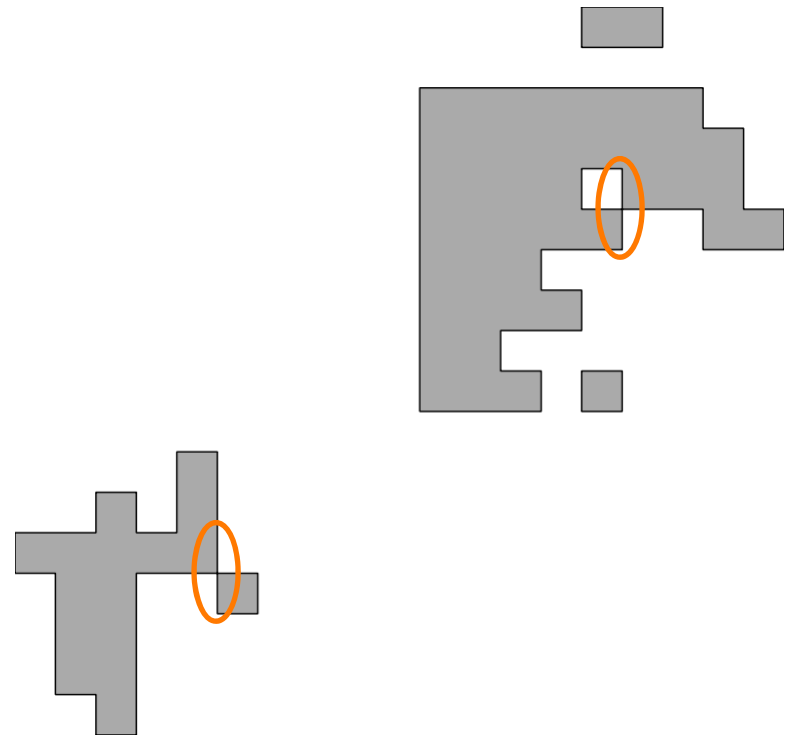
## 2. Technical implementation: steps

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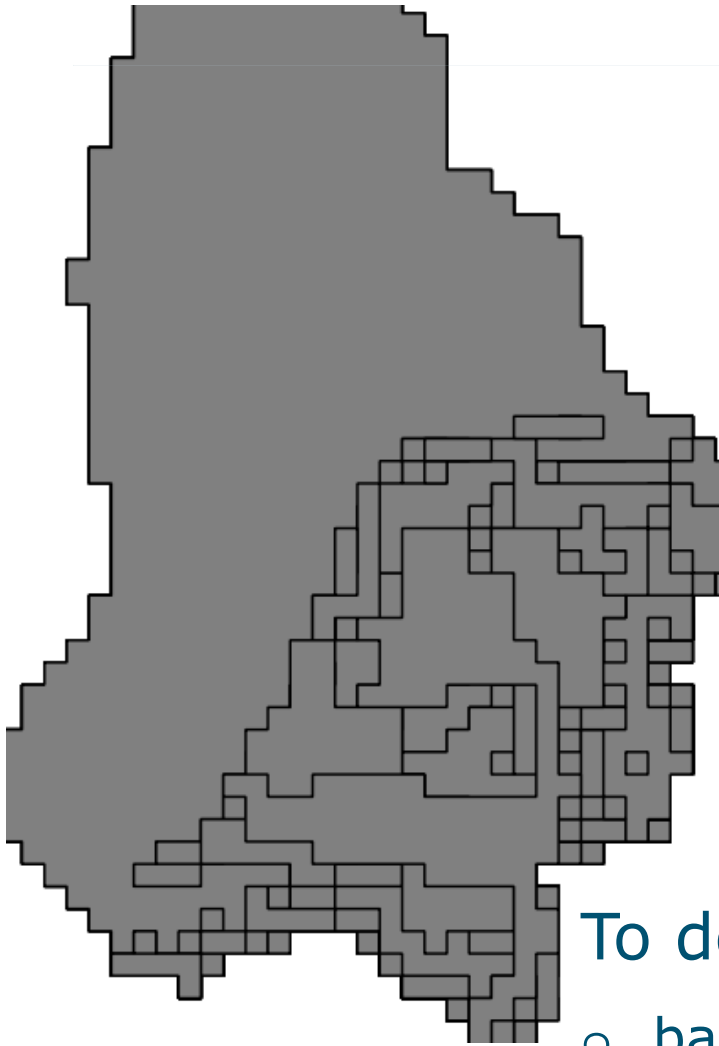
- Create table to look-up Nature2000 species in PESI and EUNIS
  - PESI: SOAP service
  - EUNIS: SPARQL end point
- Views in database to select features
- Publish features using GeoServer
  - Create style according to data specification for view service
  - Create XSLT to transform out-of-the-box GML to INSPIRE compliant GML for download service
- Extended capabilities (language) using GeoServer INSPIRE extension (*discovery*)

## 2. Technical implementation: issue invalid geometries according to validator

- Dutch INSPIRE validation:
  - Self intersections because of grid
  - Use PostGIS to fix geometry direction



## 2. Technical implementation: it works...



```
▼<gml:FeatureCollection xmlns:gml="http://www.opengis.net/gml/3.2"
xmlns:xlink="http://www.w3.org/1999/xlink"
xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
xmlns:base="http://inspire.ec.europa.eu/schemas/base/3.3"
xmlns:sd="http://inspire.ec.europa.eu/schemas/sd/3.0"
xmlns:wfs="http://www.opengis.net/wfs/2.0"
xmlns:hdbd="http://hdbd.services.geodesk.nl"
gml:id="nl_art17_species_distribution_etr">
▼<gml:featureMember>
▼<sd:SpeciesDistributionUnit gml:id="SD.SpeciesDistribution.fid-
-6c239f20_15119aecef7_-6760">
▼<sd:inspireId>
▼<base:Identifier>
▼<base:localId>
http://hdbd.services.geodesk.nl/species/distribution/1014
</base:localId>
<base:namespace>@ToDo</base:namespace>
<base:versionId>1.0</base:versionId>
</base:Identifier>
</sd:inspireId>
▶<sd:geometry>...</sd:geometry>
▼<sd:speciesName>
▼<sd:SpeciesNameType>
<sd:referenceSpeciesId xlink:href="http://www.eu-nomen.eu/portal/taxon
GUID=urn:lsid:faunaeur.org:taxname:431245"/>
<sd:referenceSpeciesScheme xlink:href="http://www.eu-nomen.eu/portal/">
<sd:referenceSpeciesName>Vertigo angustior</sd:referenceSpeciesName>
<sd:qualifier
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</sd:SpeciesNameType>
</sd:speciesName>
▼<sd:distributionInfo>
▼<sd:DistributionInfoType>
<sd:occurrenceCategory
xlink:href="http://inspire.ec.europa.eu/codelist/OccurrenceCategoryVal
<sd:residencyStatus
xlink:href="http://inspire.ec.europa.eu/codelist/ResidencyStatusValue/
```

To do:

- base:localId should come from owner
- *Ecologist war on species* solved by eu-nomen code list?

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## 3. Reporting

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- Current: member states **upload** the reporting files to Reportnet
- New: member states register a new report and Reportnet **downloads** the related datasets.

Consequences, **mechanism** to establish:

- Technical: download is correct
- Legal: member state fulfilled reporting obligation

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# Conclusion

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Implementation issues can be overcome, and therefore INSPIRE can be implemented for the next Habitat Directive reports. But ...

*...Why would member states want to do this?*

For the **reporting** use case, compared to the current process, an INSPIRE compliant network services is a

- benefit or*
- burden ?*

# Justification of efforts

Define other **cross border use cases** (*Who to use the service and for what?*) to change to the INSPIRE based process.

Thank you for your attention.  
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