

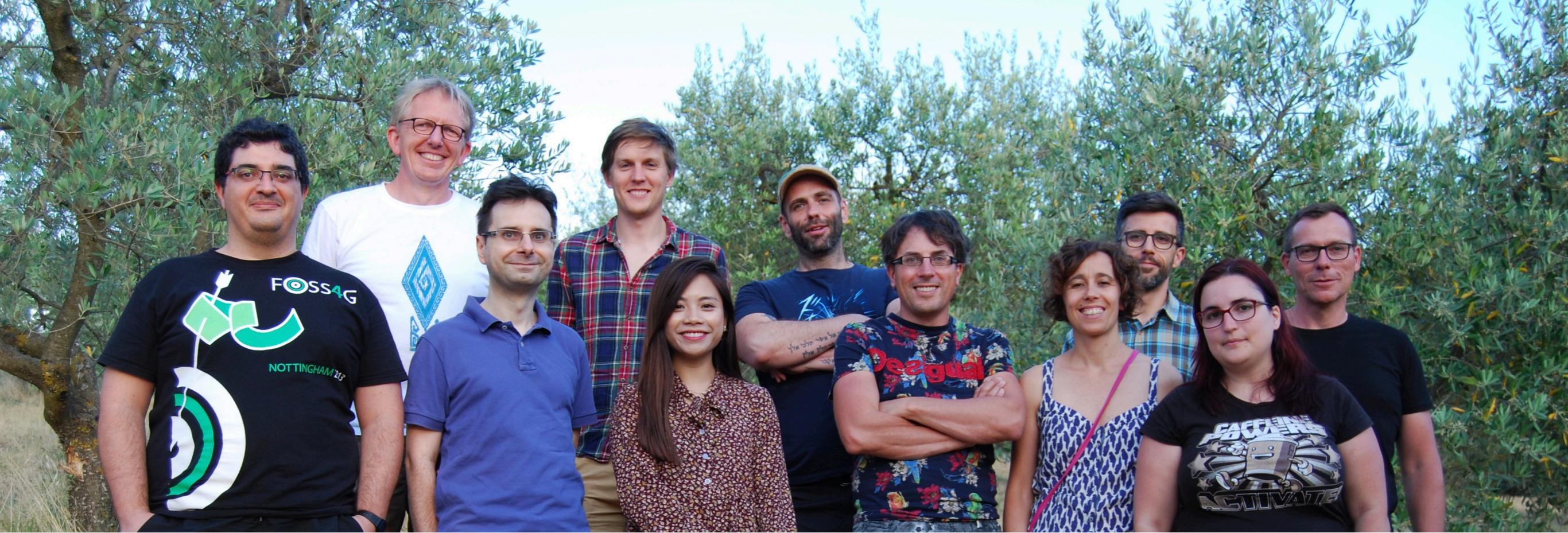


# An SLD+OWSContext extension for GeoPackage to migrate between GIS platforms

[geocat.net/bridge](http://geocat.net/bridge)

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- Currently 11 staff, based in NL and ES
- Founder of GeoNetwork
- Offering services on the OSGeo Stack
- 10yr anniversary of Bolsena Codesprint





# HOW TO MIGRATE TO QGIS?

# WHAT ABOUT GEOPACKAGE?

- Self contained single file package
- OGC standard
- Stores Vector, Raster and Tile sets
- Wide support on software and devices
- Extension mechanism
- Accepted metadata extension
- Already used on bridge to transfer data to Geoserver

# GeoPackage Extensions

This page lists GeoPackage extensions that are not currently part of the GeoPackage Encoding Standard. Often these are developed outside of OGC. It is often preferable to use an existing extension (even if it is proprietary) instead of developing your own. Extensions that have widespread adoption will be considered for OGC approval.

## Related Tables

This extension provides a mechanism for associating tables with existing feature or attribute tables in a GeoPackage. Among other things, it can be used to establish a many-to-many relationship between features and multimedia files. It was originally developed by Compusult and the plan is to test it during an upcoming OGC Interoperability Experiment.

## Feature Tile Link

This extension creates a link between a feature and tile table. A tile table containing tiles that represent or were generated from features can be linked to the feature table. The link enables feature queries when dealing with tiles representing features.

## Geometry Index

This extension defines a SQLite version agnostic way to index user feature table geometries by their bounding envelopes for fast ranged searches. Mobile implementations, including Android and iOS, use earlier versions of SQLite and can not rely on the R\*Tree Module implementation. Each geometry in a feature table is indexed by its geometry id and x, y, z, and m value ranges. The geometry index can be queried for fast retrieval of only geometries overlapping a desired envelope bounds.

## Aspatial Support (Legacy)

Support for aspatial data (ie. SQLite tables/views without a geometry column), potentially with associated metadata. This was used in GDAL 2.0 and GDAL 2.1, before the introduction of the 'attributes' data\_type of GeoPackage v1.2. Starting with GDAL 2.2, 'attributes' will be used by default instead.

# STYLED LAYER DESCRIPTOR

- OGC standard
- Supported in QGIS, Geoserver, deegree and OpenLayers
- SLD generation already available in Bridge

# OWS-CONTEXT

- OGC standard for capturing TOC information
- 3 encodings (XML, Atom & json (draft))
- Needs tweaking to support referencing content in tables

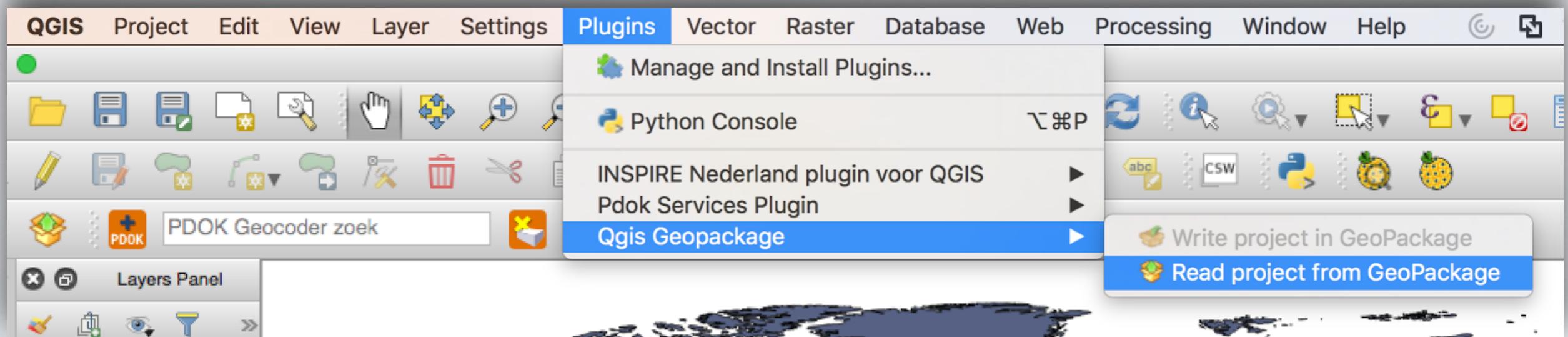
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  <title>Zettingsgevoeligheid</title>
  <updated>2017-07-19T20:28:44</updated>
  <category
    scheme="http://www.opengis.net/spec/owc/active"
    term="true" />
  <owc:offering
    code="http://www.opengis.net/spec/owc-atom/1.0/req/gpkg">
    <owc:content
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    <owc:styleSet>
      <owc:name>Zettingsgevoeligheid</owc:name>
      <owc:title>Zettingsgevoeligheid</owc:title>
      <owc:content
        href="#table=owc_style&name=Zettingsgevoeligheid"
        type="application/sld+xml" />
    </owc:styleSet>
  </owc:offering>
</entry>
```

# OWC EXTENSION

- ▶ gpkg\_contents
- ▶ gpkg\_geometry\_columns
- ▶ gpkg\_metadata
- ▶ gpkg\_metadata\_reference
- ▶ gpkg\_spatial\_ref\_sys
- ▼ owc\_context
  - name
  - abstract
  - author
  - timestamp
  - language
  - mime\_type
  - content
- ▼ owc\_style
  - name
  - abstract
  - mime\_type
  - content
  - timestamp

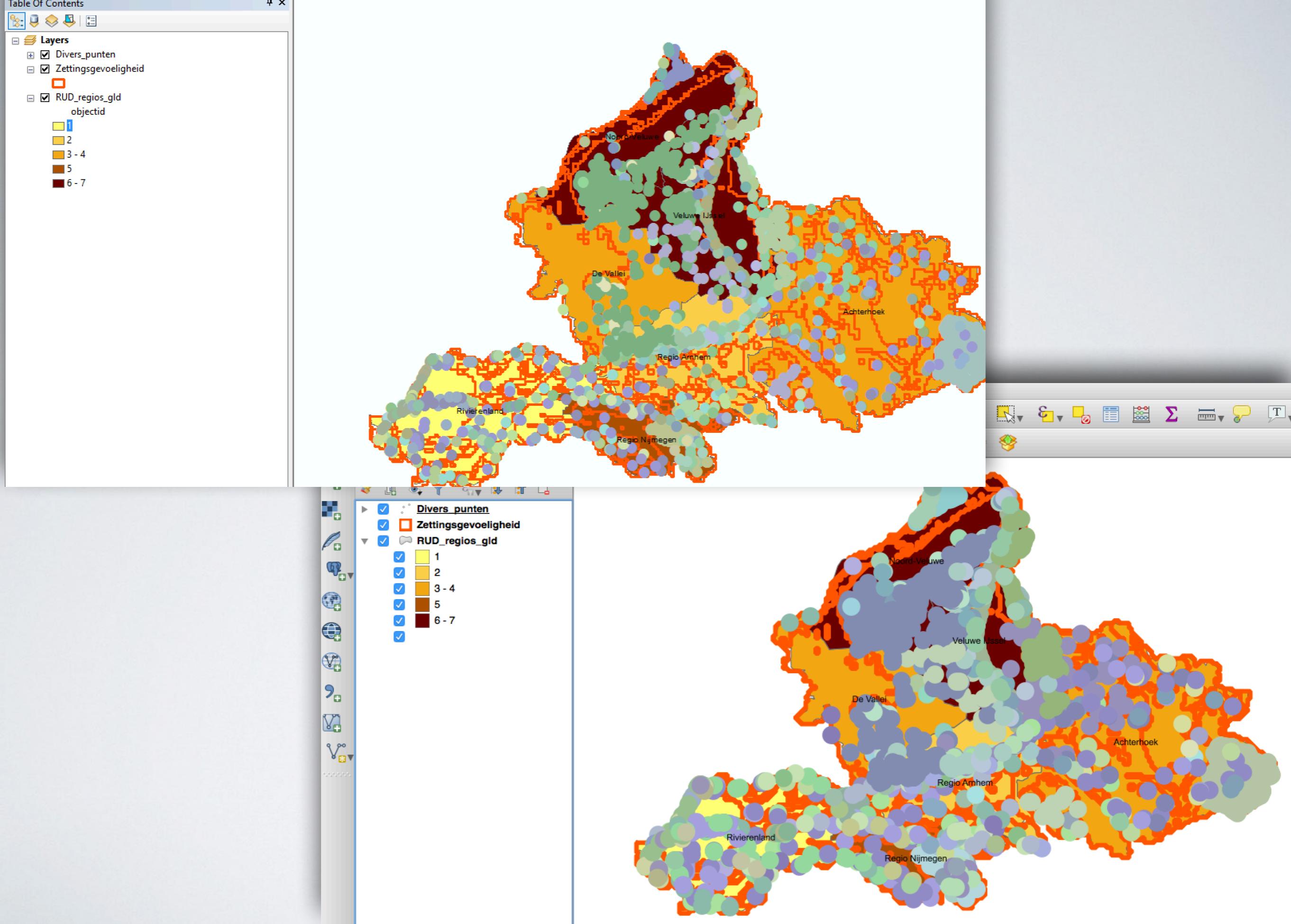
# QGPKG

- QGIS plugin started by Pirmin Kalberer
- Extended to include support for the OWC extension
- Pull request pending



# DEMO

<https://www.youtube.com/watch?v=CM9LSnMUfQU>



# POTENTIAL USE CASES

- GeoNetwork; export a map as a GeoPackage including data/styling/context for use in a Desktop GIS or mobile device
- QGIS; Package a QGIS project for use on a mobile device
- QGIS; Package a QGIS project for publication on GeoNetwork/GeoServer
- OpenLayers; Display a map based on GeoPackage content

# CHALLENGES

- SLD Implementation in Geoserver and QGIS is a bit different and/or incomplete.
- Interaction with OGC
- How to manage fonts

# OGC TESTBED 12/13

- Current OGC testbeds include a topic that engages with this topic
- Report testbed 12 <http://docs.opengeospatial.org/per/16-037.html>

# REFERENCES

- [geocat.net/bridge](http://geocat.net/bridge)
- [github.com/pka/qgpkg](https://github.com/pka/qgpkg)
- [github.com/geocat/qgpkg](https://github.com/geocat/qgpkg)
- [geopackage.org](http://geopackage.org)
- [owscontext.org](http://owscontext.org)
- [opengeospatial.org/standards/sld](http://opengeospatial.org/standards/sld)