



GIS software and applications

OIE Collaboration project Workshop



OIE Collaborating Centre for epidemiology, training
and control of emerging avian diseases



OIE Headquarters



Overview

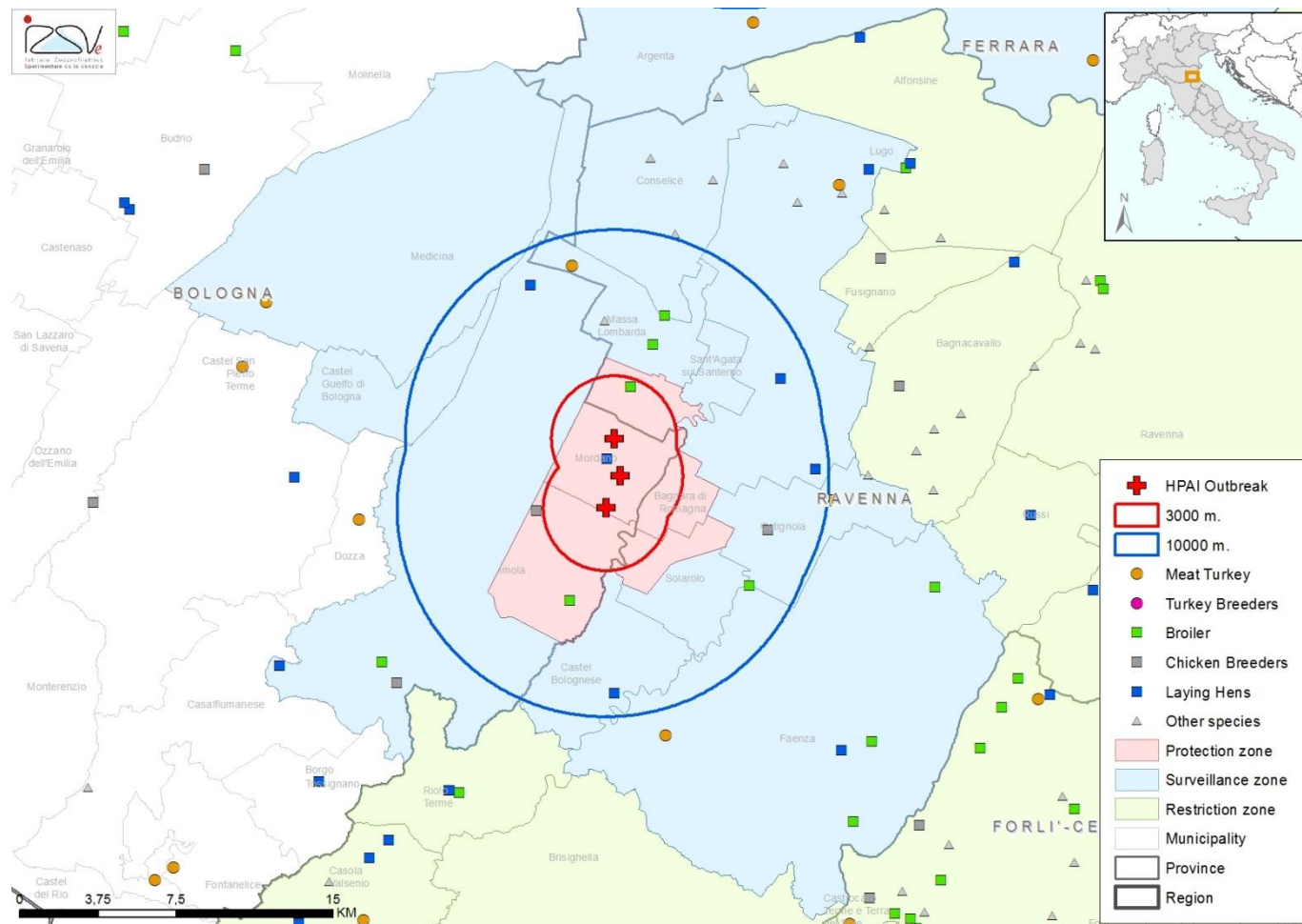
- Desktop GIS applications
 - Examples
- WebGIS applications
 - Type of web application
 - Display / Acquisition
- Metadata Catalogue

Desktop GIS Applications

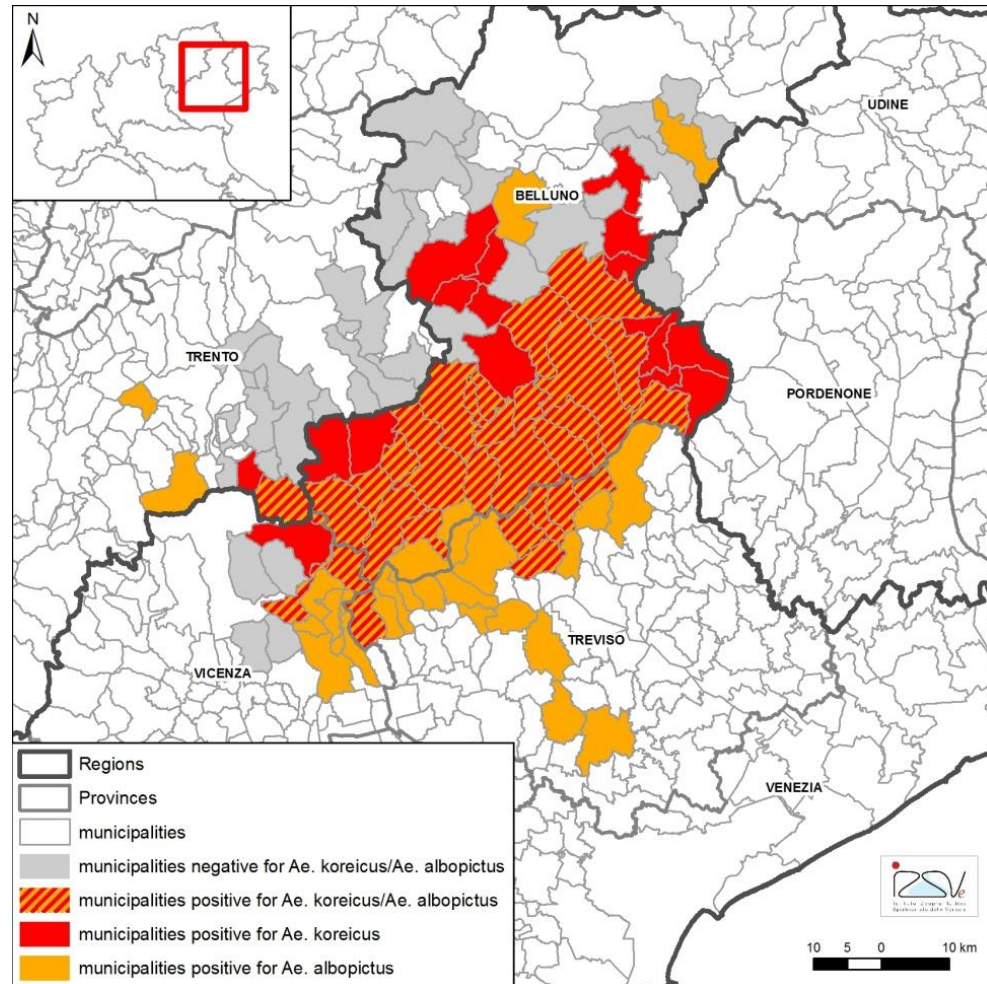
The GIS software used to work with data on the personal computer. (i.e. ArcGIS, Quantum GIS)

- Analysis
 - Emergency (outbreak -> farm selection inside buffers)
 - Monitoring
- Thematic Maps
 - Species classification
 - Density and distribution (Kernel density)
- Automate operations (Model builder)

Emergency – new outbreak



Monitoring



2013

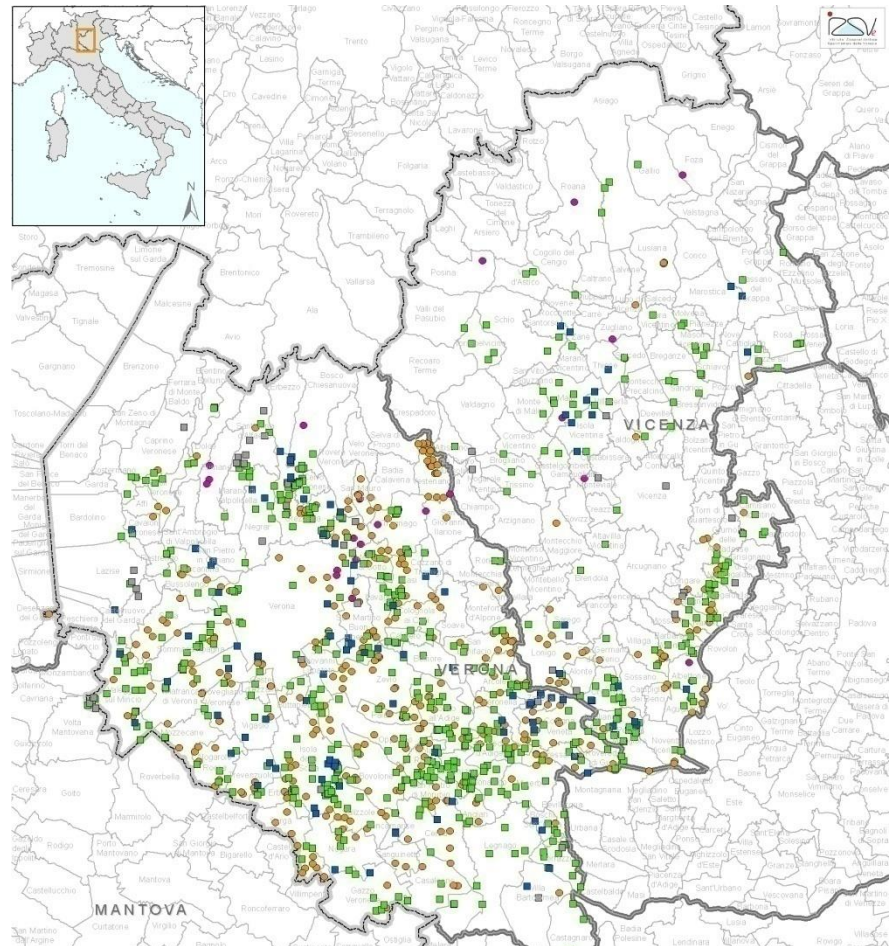
Thematic Maps

Species classification

- Meat Turkey
 - Turkey Breeders
 - Broiler
 - Chicken Breeders
 - Laying Hens
- Municipality
 - Province
 - Region

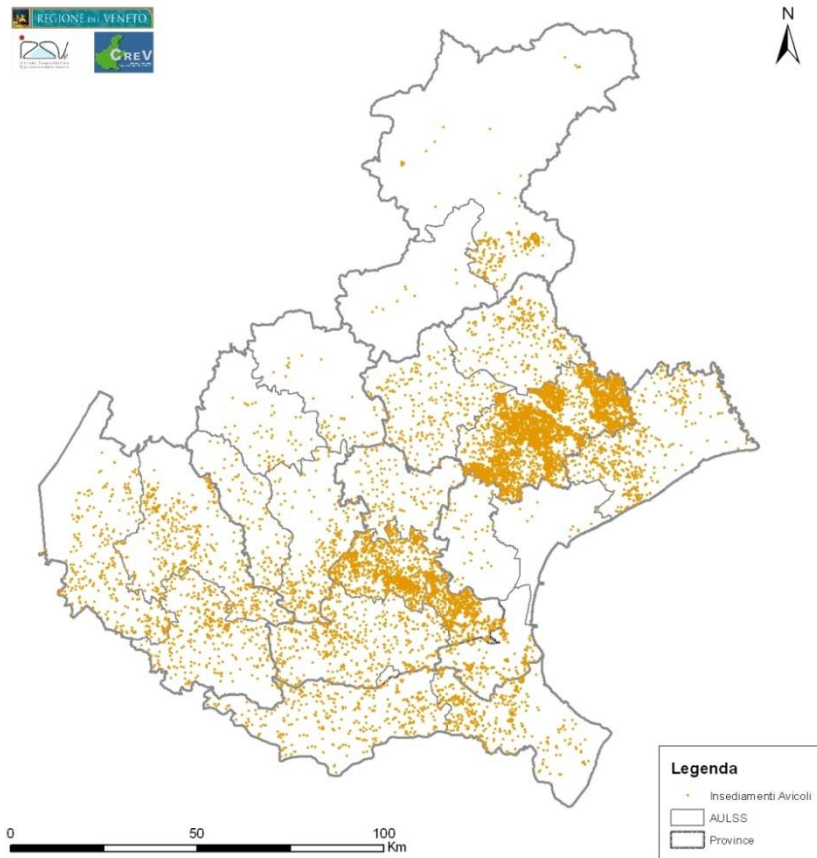
Symbols – Species

Colors – Type of production

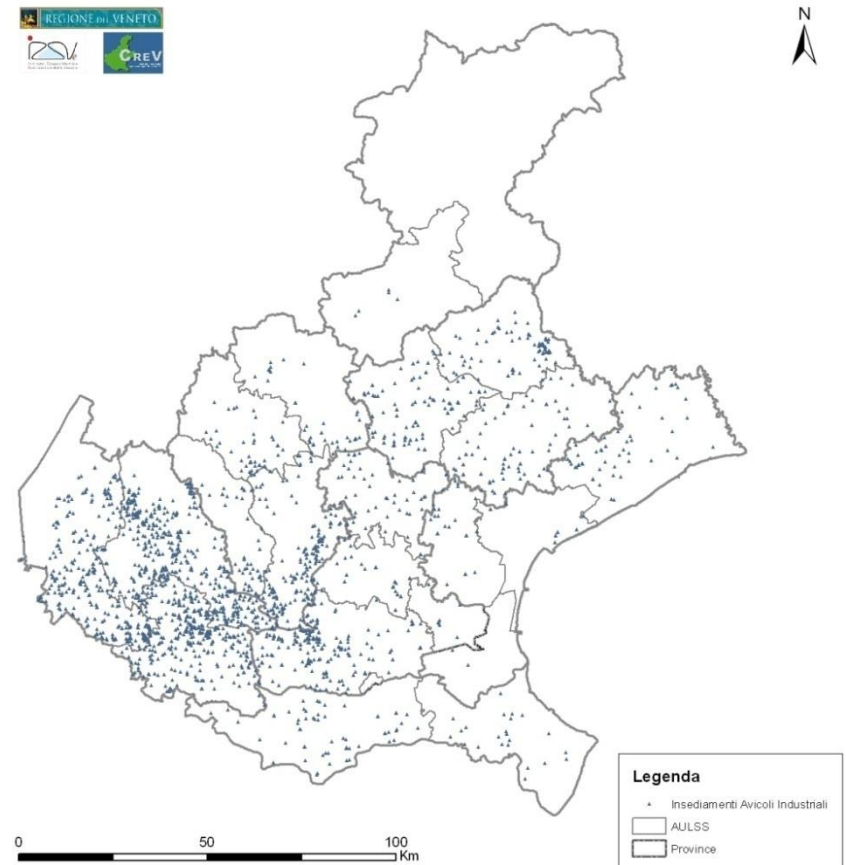


Thematic Maps

Species distribution



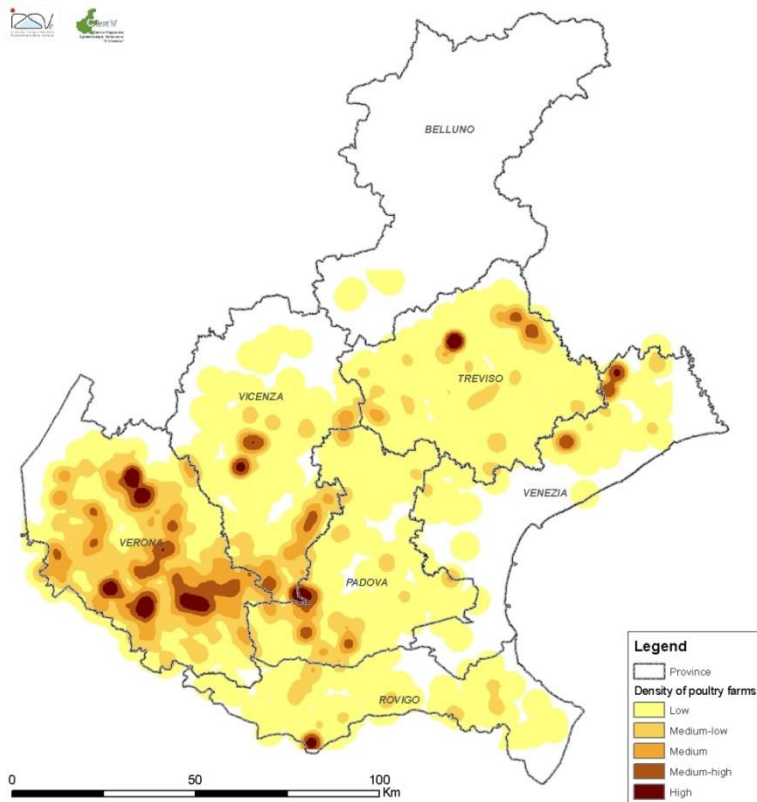
All poultry farms



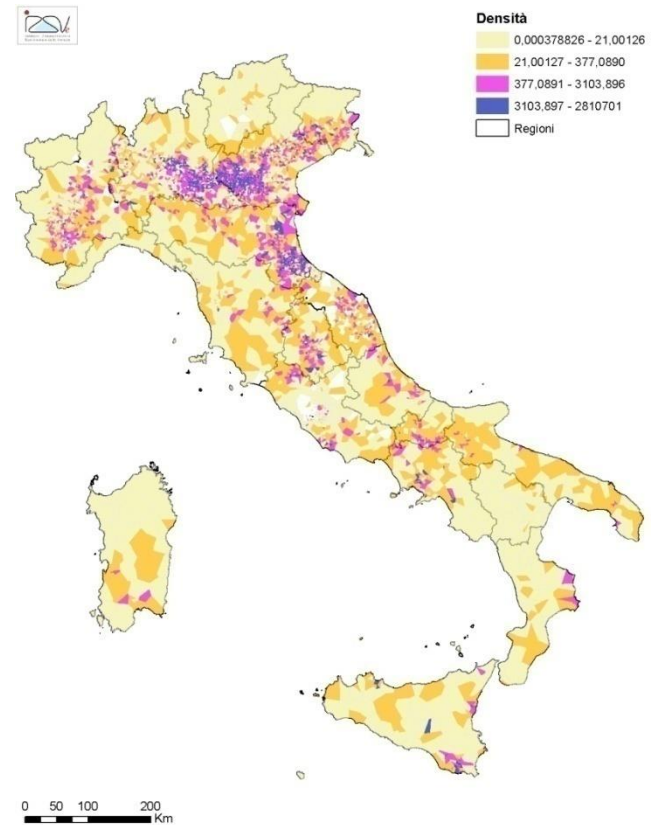
Industrial poultry farms

Thematic Maps

Density



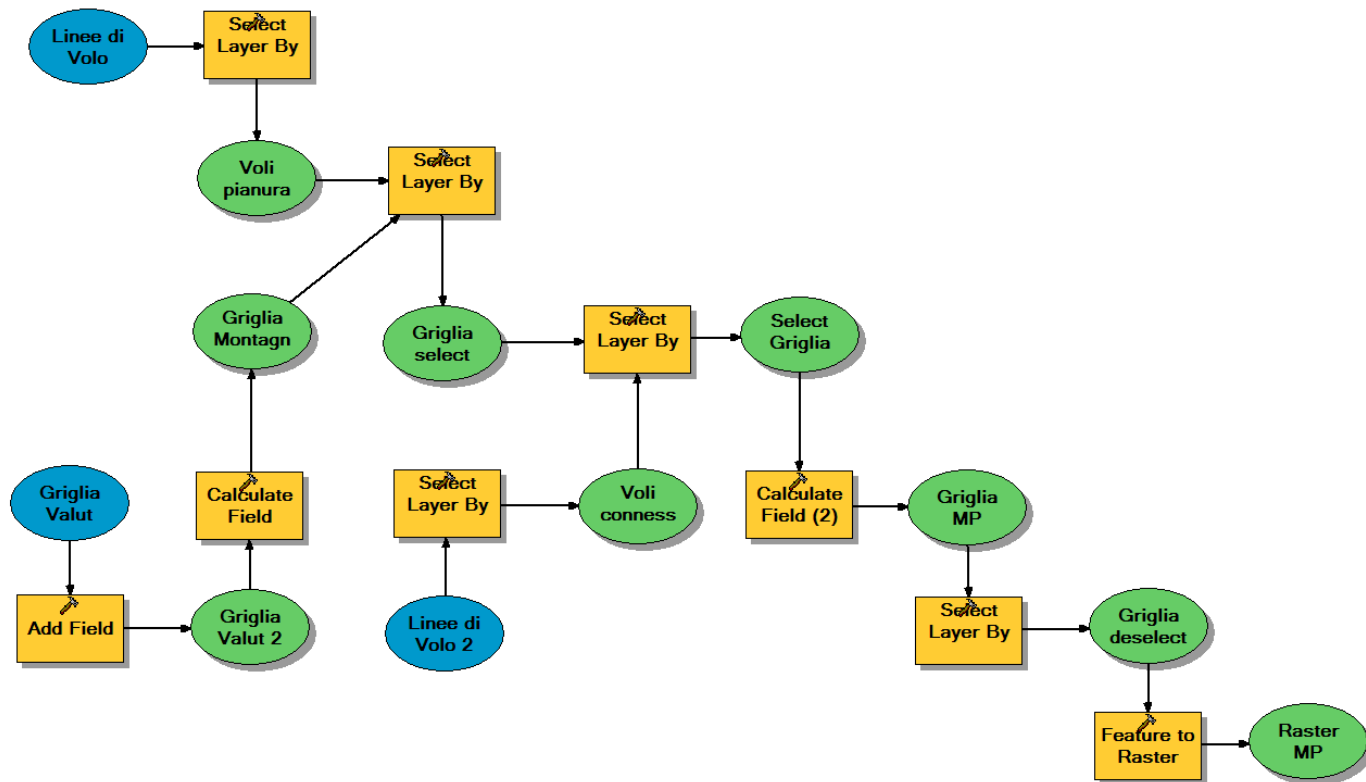
Kernel density



Thiessen Polygon

Automate operations

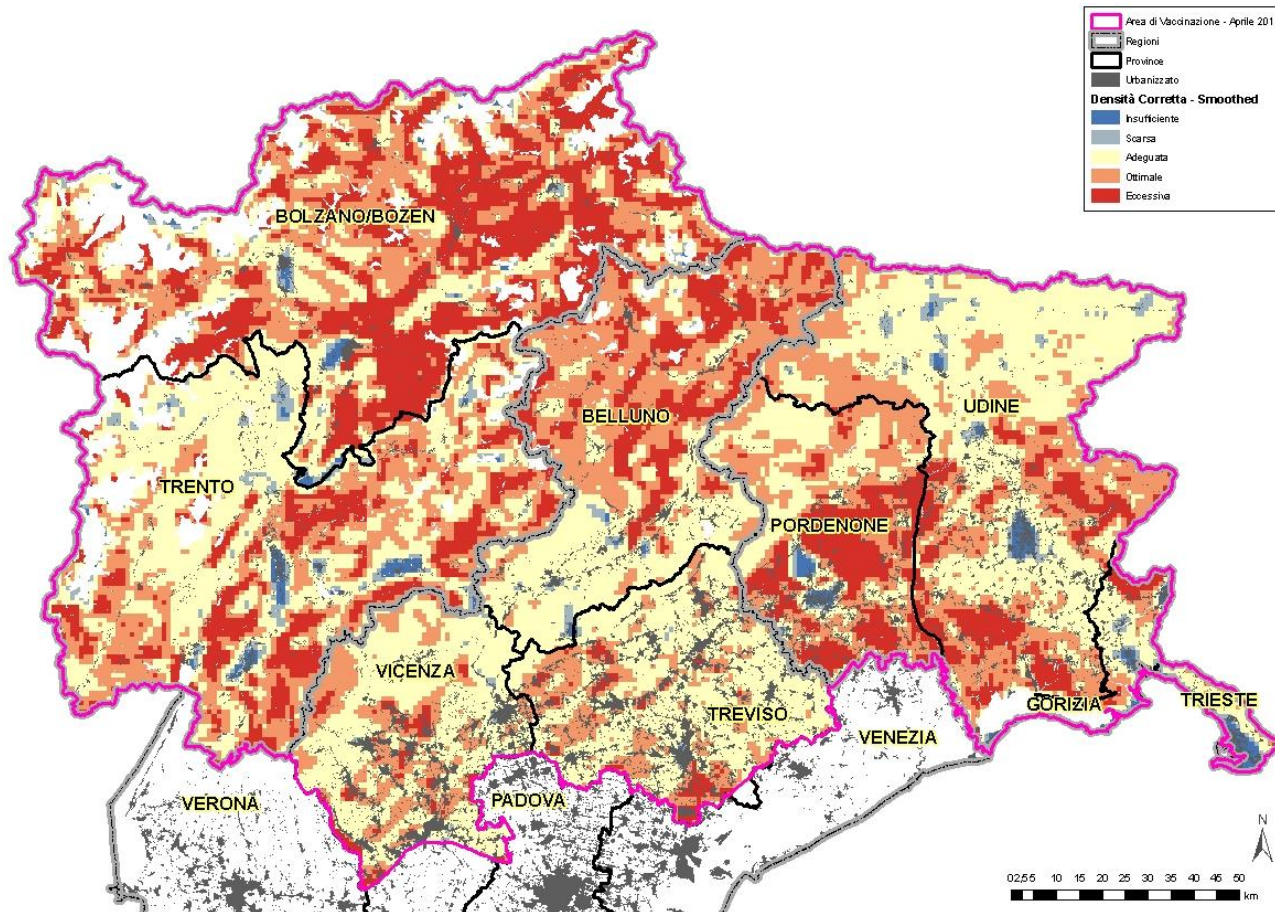
ESRI Model Builder



Developed for evaluation of fox aerial oral vaccination

Automate operations

Resulting map



WebGIS Applications

WebGIS applications display geographical data combined with other information to support decision makers.

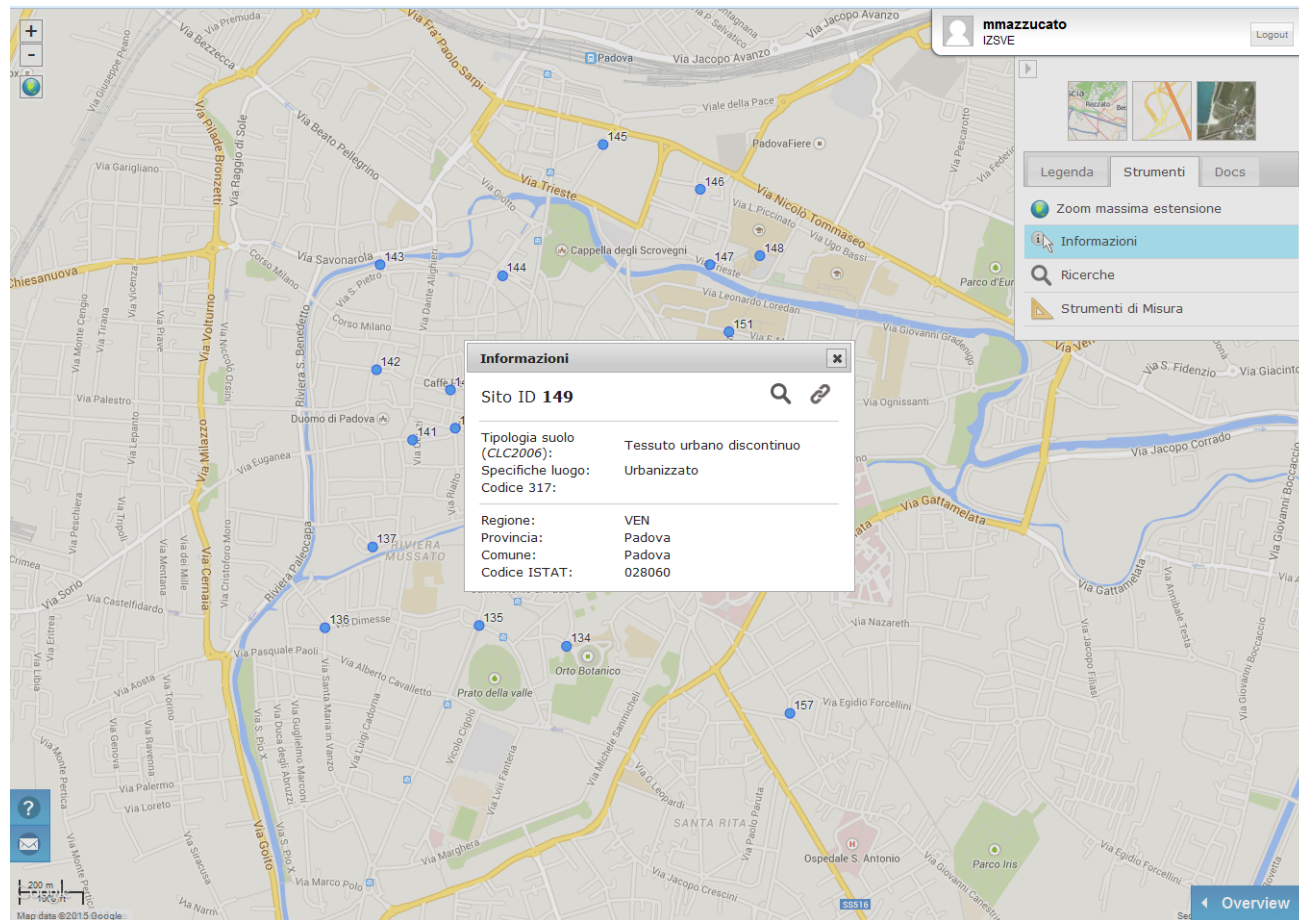
Type of web application:

- GIS “driven”
- GIS “supported”

Used for:

- Display information
- Acquire information

GIS “driven”



Main content is the map and a small dialog contains information related to a selected element on the map

GIS “supported”

SITI ▾

Elenco siti inseriti

ID Sito	Tipologia luogo	Specifiche luogo	Codice 317	F. U.	Georef.
325	Seminativi in area non irrigua	Urbanizzato		1	✓
324		DA COMPILARE		1	⊗
323		DA COMPILARE		1	⊗
322		DA COMPILARE		1	⊗
321	Seminativi in area non irrigua	DA COMPILARE		2	✓

◀ Pagina 17 di 34 ▶

Esporta dati | Cerca/Filtra | Aggiungi | Modifica | Elimina

RICERCA

ID Sito: Tipologia luogo: Codice 317: Freq. Umana: Comune: Provincia: Sito attivo:

FILTRA | ANNULLA FILTRO

Visualizzazione sito ▾

Sola lettura: I dati non sono modificabili.

ID Sito: 321

Tipologia suolo (LAND USE CLC2006): Specifiche luogo: Codice 317: Freq. Umana:

Seminativi in area non irrigua | DA COMPILARE | 2

Posizione geografica ▶ Visualizza Mappa

Provincia: Comune: Cod. ISTAT:

Verona | Erbe | 023032

[Lat]: [Lon]: WGS 84

45,234662 | 11,000028

[X]: [Y]: Gauss Boaga fuso Ovest

1656994,614 | 5011050,605

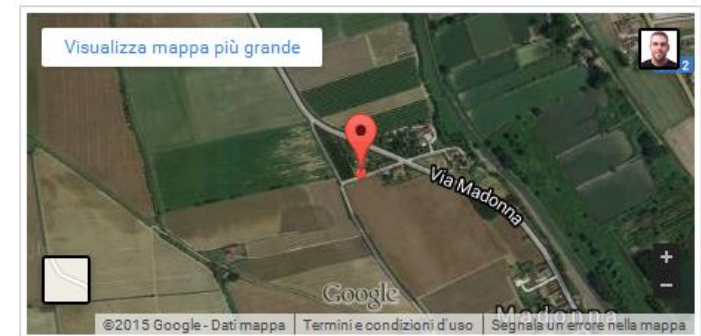
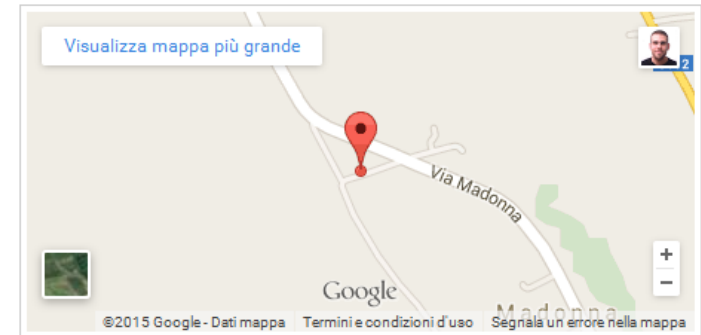
Visualizza mappa più grande

45°14'04.8"N 11°00'00.1"E

Visualizza mappa più grande

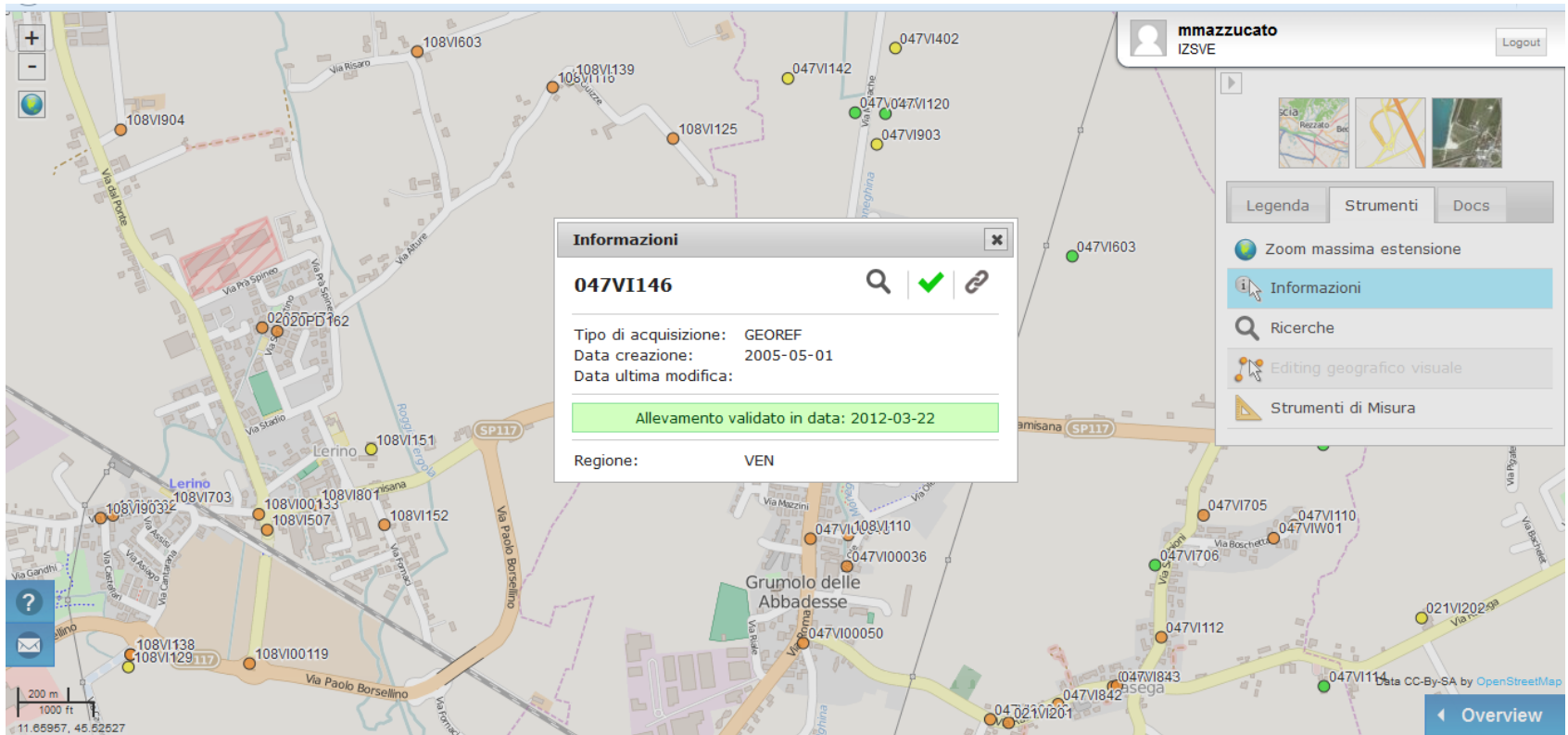
Questo sito di cattura risulta **ATTIVO** per l'anno in corso.

Anni di attività: 2013 2014



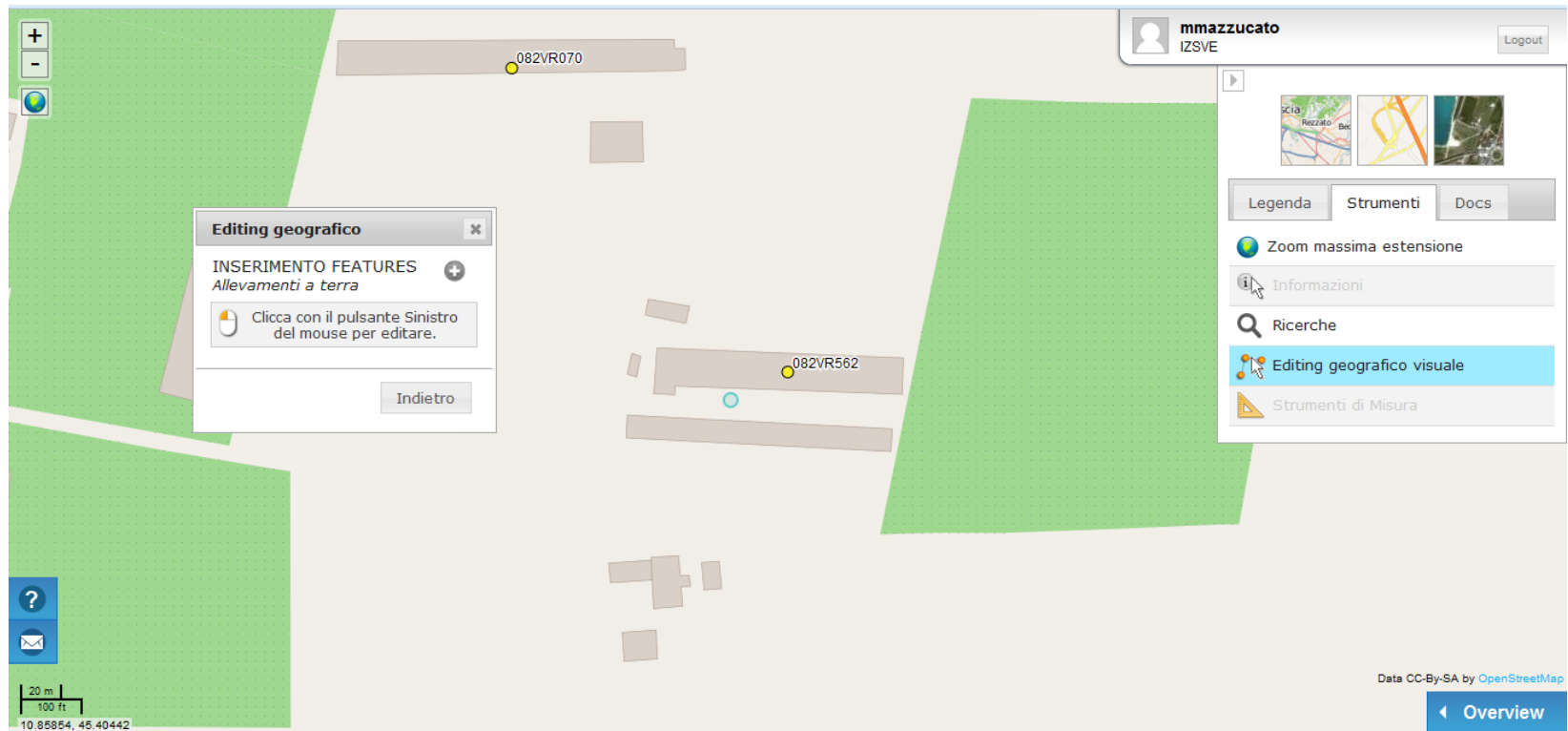
Main content is data displayed in different ways (dashboard) and the map is **only a part** of the interface.

Display information



[Display information video](#)

Acquire information



[Acquire information video](#)

Metadata Catalogue

Metadata is the information that describes data:
'who, what, where, when, why and how' , quality,
conditions of access and re-use.

Metadata Catalog records information about metadata
and offers the possibility to query for data items
based on descriptive attributes.

Metadata Catalogue

- Search
- Evaluation
 - Data policy
 - How get the data
 - Who has the data
 - Data description
- Download
 - Different formats (GML, KML)

Metadata Catalogue

<http://metadati.izsvenezie.it/geonetwork/srv/eng/main.home>



The screenshot displays the IZSV metadata catalog web application. The header features the IZSV logo and the text 'metadata catalog'. Navigation links include Home, Administration, Contact us, Links, About, and Help. A language dropdown is set to English, and a user login section shows 'User: Caiq Caiq' with a Logout button. The main interface is divided into search and map sections. The search section on the left has tabs for 'Simple Search' and 'Advanced Search'. It includes input fields for 'WHAT?' (containing 'unità epidemiologiche') and 'WHERE?' (with a map of Northern Italy). A search button and a 'Reset' link are present. Below the search area is a list of resource categories such as Applications, Audio/Video, Case studies, Conference proceedings, Datasets, Directories, Interactive resources, Maps & graphics, Other information resources, Photo, Physical Samples, Registers, and Z3950 Servers. A 'GeoRSS' section at the bottom lists specific metadata items in Chinese and Italian. The right sidebar contains the heading 'FIND INTERACTIVE MAPS, GIS DATASETS, SATELLITE IMAGERY AND RELATED APPLICATIONS' and a section titled 'GEONETWORK'S PURPOSE IS:' with a bulleted list of goals: improving access to spatial data, supporting decision making, promoting multidisciplinary approaches, and enhancing understanding of geographic information. It concludes with a statement about GeoNetwork's role in sharing geographically referenced information.

IZSV
Istituto Zooprofilattico
Sperimentale della Venezia

metadata
catalog

Home | Administration | Contact us | Links | About | Help |

English

User: Caiq Caiq Logout

Simple Search | Advanced Search

Show map

WHAT?
unità epidemiologiche

WHERE?

Search

Reset

Options

Applications
Audio/Video
Case studies, best practices
Conference proceedings
Datasets
Directories
Interactive resources
Maps & graphics
Other information resources
Photo
Physical Samples
Registers
Z3950 Servers

GeoRSS

自然地名
行政地名
省级行政区划
地市级行政区划 Administrative Division-Municipal
Ambiti della Regione Veneto - Istituzione nuovi ambiti di monitoraggio - DPR n. 43 del 11/05/2012
区县级行政区划
道路中心线
铁路
单线水系
面状水系

FIND INTERACTIVE MAPS, GIS DATASETS, SATELLITE IMAGERY AND RELATED APPLICATIONS

GEONETWORK'S PURPOSE IS:

- To improve access to and integrated use of spatial data and information
- To support decision making
- To promote multidisciplinary approaches to sustainable development
- To enhance understanding of the benefits of geographic information

GeoNetwork opensource allows to easily share geographically referenced thematic information between different organizations. For more information please contact

Geonetwork

- Open source
- Used in numerous SDI (FAO was the first)
- OSGeo (Open Source Geospatial Foundation) with powerfull comunity
- <http://geonetwork-opensource.org/>



Metadata Catalogue

ISO 19115

Dataset title (M) (MD_Metadata/MD_DataIdentification.citation/CI_Citation.title)	Metadata point of contact (M) (MD_Metadata.contact/CI_ResponsibleParty)
Dataset reference date (M) (MD_Metadata/MD_DataIdentification.citation/CI_Citation.date)	Metadata date stamp (M) (MD_Metadata.dateStamp)
Abstract describing the dataset (M) (MD_Metadata/MD_DataIdentification.abstract)	Dataset topic category (M) (MD_Metadata/MD_DataIdentification.topicCategory)
Dataset language (M) (MD_Metadata/MD_DataIdentification.language)	
Geographic location of the dataset (by four coordinates or by geographic identifier) (C) (MD_Metadata/MD_DataIdentification.extent/EX_Extent/EX_GeographicExtent/EX_GeographicBoundingBox or EX_GeographicDescription)	Metadata language (C) (MD_Metadata.language)
Dataset character set (C) (MD_Metadata/MD_DataIdentification.characterSet)	Metadata character set (C) (MD_Metadata.characterSet)
Additional extent information for the dataset (vertical and temporal) (O) (MD_Metadata/MD_DataIdentification.extent/EX_Extent/EX_TemporalExtent or EX_VerticalExtent)	Dataset responsible party (O) (MD_Metadata/MD_DataIdentification.pointOfContact/CI_ResponsibleParty)
Lineage (O) (MD_Metadata/DQ_DataQuality.lineage/LI_Lineage)	On-line resource (O) (MD_Metadata/MD_Distribution/MD_DigitalTransferOption.onLine/CI_OnlineResource)
Spatial representation type (O) (MD_Metadata/MD_DataIdentification.spatialRepresentationType)	Metadata file identifier (O) (MD_Metadata.fileIdentifier)
Distribution format (O) (MD_Metadata/MD_Distribution/MD_Format.name and MD_Format.version)	Metadata standard name (O) (MD_Metadata.metadataStandardName)
Metadata standard version (O) (MD_Metadata.metadataStandardVersion)	Reference system (O) (MD_Metadata/MD_ReferenceSystem)
Spatial resolution of the dataset (O) (MD_Metadata/MD_DataIdentification.spatialResolution/MD_Resolution.equivalentScale or MD_Resolution.distance)	

This Table and content is excerpted from the ISO 19115 Standard.

CAIQ metadata

List of CAIQ metadata:

- Administrative divisions
- Names of administrative divisions
- Natural geographic name
- Railroad
- Street line
- Waterline

CAIQ metadata

Evaluation

The screenshot displays the 'metadata catalog' interface. The header includes the logo of the Institute of Geomatics Engineering (IGE) and navigation links: Home, Administration, Contact us, Links, About, and Help. The user is logged in as 'Caiq Caiq' with a 'Logout' option. A 'Show map' button is visible on the left. The main content area is divided into several sections:

- SPATIAL REPRESENTATION INFO**
 - Vector spatial representation**
 - Topology level: Geometry only: Geometry objects without any additional structure which describes topology
 - Geometric objects**
 - Geometric objects**
 - Geometric object type: Composite: Connected set of curves, solids or surfaces
 - Geometric object count: 928300
- REFERENCE SYSTEM INFORMATION**
 - Reference system**
 - Reference system identifier**
 - Identifier**
 - Unique resource identifier: 4326
 - Codespace: EPSG
 - Version: 8.1.1
- DISTRIBUTION INFORMATION**
 - Distribution**
 - Distribution format**
 - Format**
 - Name: Shapefile
 - Transfer options**
 - Digital transfer options**
 - Transfer size: 230.679
- METADATA INFO**
 - File identifier: 4d87b9ea-96a9-4e7a-afbe-0bf3439d7663
 - Metadata language: Chinese(Other)
 - Character set: UTF8: 8-bit variable size UCS Transfer Format, based on ISO/IEC 10646
 - Hierarchy level: Dataset: Information applies to the dataset
 - Hierarchy level name: dataset
 - Date stamp: 2015-03-14

What information is important for metadata?

< mandatory >

- Title
- Reference Date (*Publication, Revision*)
- Abstract
- Language
- Point of contact (*Distributor, Owner*)
- Geographic location of the dataset (*extent*)



Thanks for attention



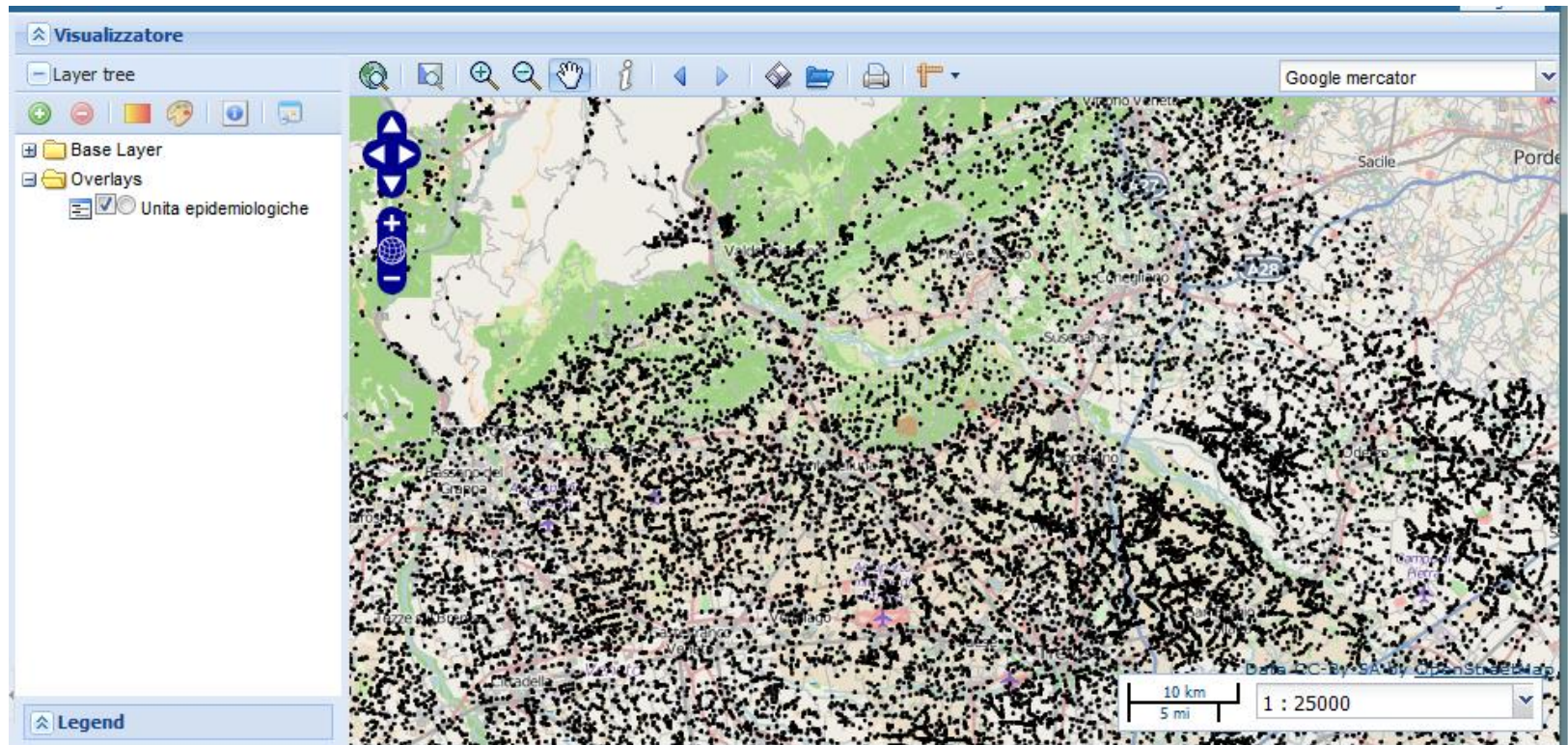
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and control of emerging avian diseases



OIE Headquarters



Data Evaluation - Map



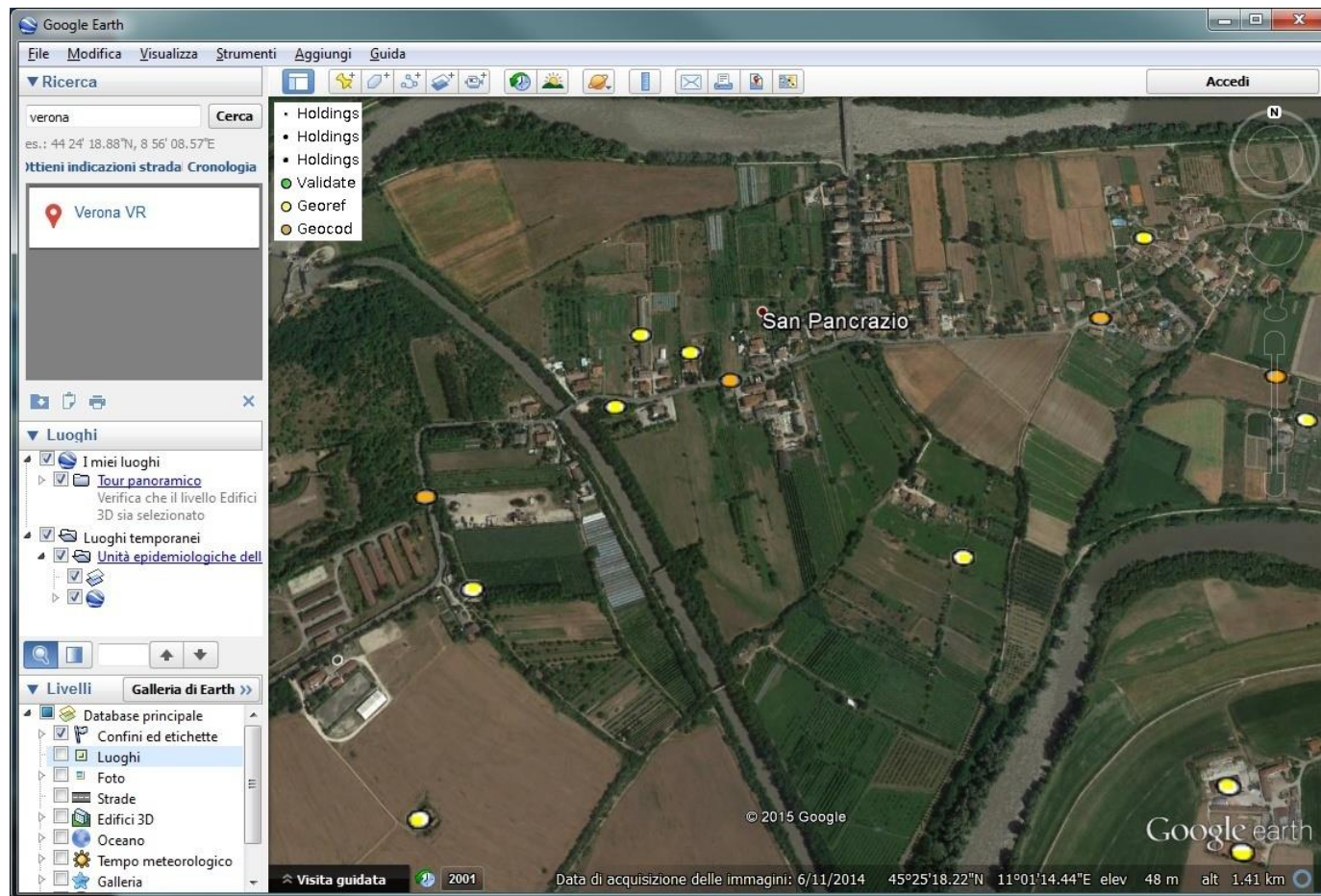
Metadata Catalogue

Data Download (GML)

```
-<wfs:FeatureCollection xsi:schemaLocation="http://metadati.izsvenezie.it/ http://metadati.izsvenezie.it:8080/geoserver/izsve/wfs?service=WFS&version=1.0.0&request=DescribeFeatureType&type=izsve%3Aue_allevamenti http://www.opengis.net/wfs http://metadati.izsvenezie.it:8080/geoserver/schemas/wfs/1.0.0/WFS-basic.xsd">
  -<gml:boundedBy>
    <gml:null>unknown</gml:null>
  </gml:boundedBy>
  -<gml:featureMember>
    -<izsve:ue_allevamenti fid="ue_allevamenti.fid--60a02b18_14cdbcebe38_72da">
      <izsve:gid>48484</izsve:gid>
      -<izsve:geom>
        -<gml:Point srsName="http://www.opengis.net/gml/srs/epsg.xml#4326">
          <gml:coordinates decimal="." cs="," ts=" ">13.05625635,45.63723005</gml:coordinates>
        </gml:Point>
      </izsve:geom>
      <izsve:codice317>034VEW10</izsve:codice317>
      <izsve:z>0</izsve:z>
      <izsve:cod_com_ab>034VE</izsve:cod_com_ab>
      <izsve:codcom>27034.0000000000000000</izsve:codcom>
      <izsve:codprov>VE</izsve:codprov>
      <izsve:codreg>VEN</izsve:codreg>
      <izsve:asl>10</izsve:asl>
      <izsve:typeofcapture>GEOCOD</izsve:typeofcapture>
      <izsve:typeofvalidation>
      <izsve:datecreation>2012-08-25</izsve:datecreation>
      <izsve:userlastmod>U00019</izsve:userlastmod>
      <izsve:nestate>3</izsve:nestate>
    </izsve:ue_allevamenti>
  </gml:featureMember>
  -<gml:featureMember>
    -<izsve:ue_allevamenti fid="ue_allevamenti.fid--60a02b18_14cdbcebe38_72db">
      <izsve:gid>48485</izsve:gid>
      -<izsve:geom>
        -<gml:Point srsName="http://www.opengis.net/gml/srs/epsg.xml#4326">
          <gml:coordinates decimal="." cs="," ts=" ">12.87796192,45.81559636</gml:coordinates>
        </gml:Point>
      </izsve:geom>
      <izsve:codice317>040VEW00</izsve:codice317>
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      <izsve:typeofvalidation>
      <izsve:datecreation>2012-08-25</izsve:datecreation>
      <izsve:userlastmod>U00019</izsve:userlastmod>
      <izsve:nestate>3</izsve:nestate>
    </izsve:ue_allevamenti>
  </gml:featureMember>
</wfs:FeatureCollection>
```


Metadata Catalogue

Download (KML)



CAIQ example

Search

The screenshot shows the 'metadata catalog' interface. A red box highlights the search filters on the left side, which include:

- Simple Search** and **Advanced Search** tabs.
- WHAT?** text input field.
- WHERE?** section with a map of Northern Italy and a dropdown menu set to **- Any -**.
- Search** button.
- Reset** and **Options** links.

The main content area displays a list of metadata records, each with a 'Show map' link and a 'Metadata' button. The records are:

- 道路中心线** (Road Center Line): Downloadable Data, Schema iso19139, Extent 73.962998 18.223501 134.336658 53.422109.
- 铁路** (Railway): Downloadable Data, Schema iso19139, Extent 76.048991 18.289739 133.133732 53.006864.
- 自然地名** (Natural Place Name): Downloadable Data, Schema iso19139, Extent 73.510218 18.158507 135.063674 53.554705.

Each record also includes 'Create', 'Edit', 'Delete', and 'Other actions' buttons, and is owned by 'CAIQ'.

At the bottom, there is a 'Previous' link and a page number '1'.