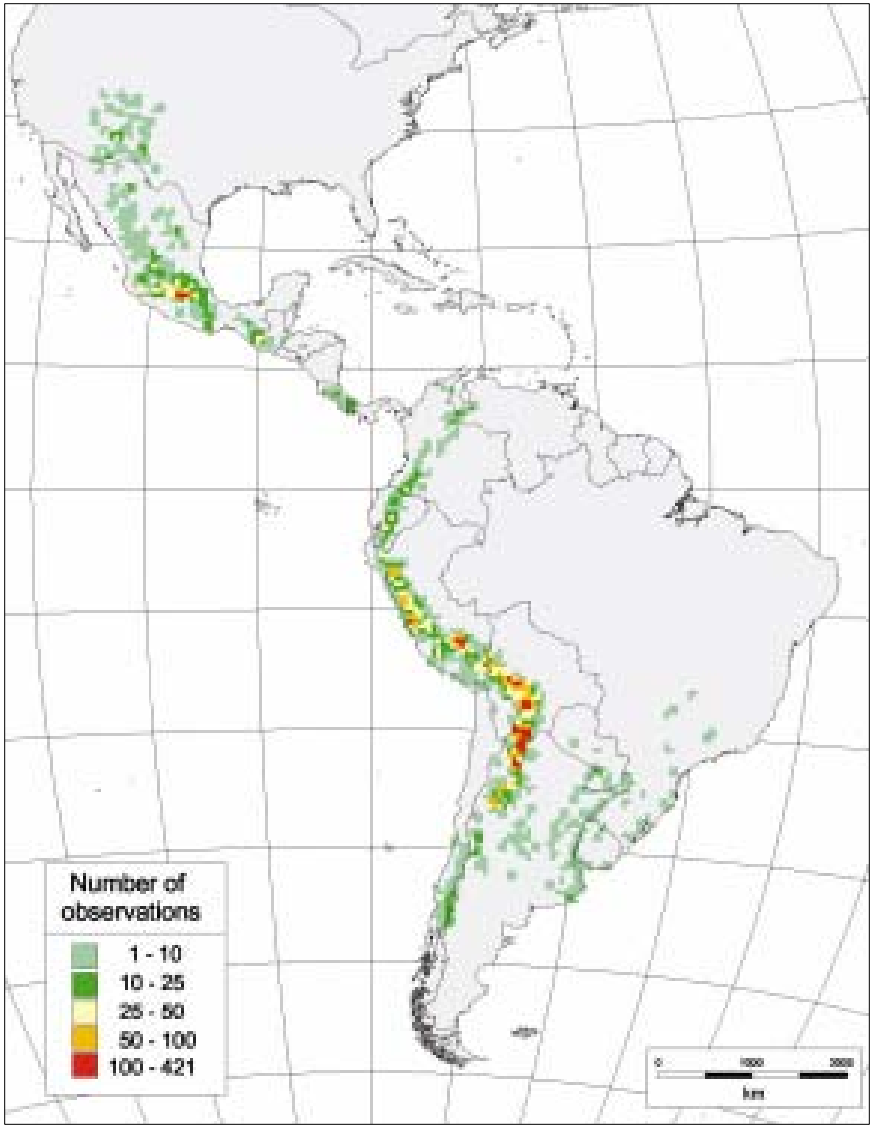
DOMAIN MODEL TASK

BIODIVERSITY OF WILD POTATO SPECIES



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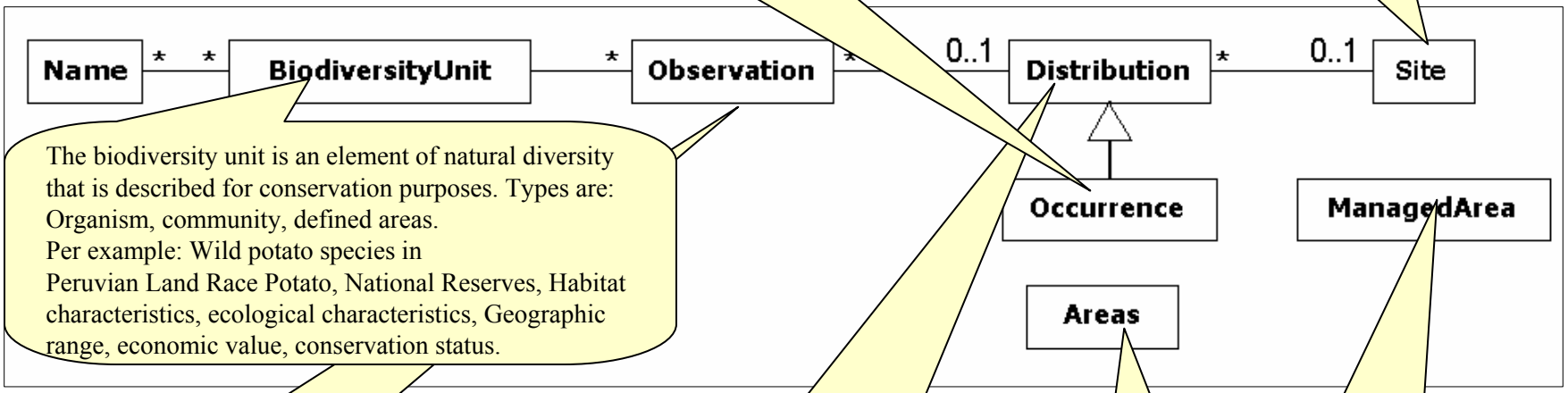
I. BIODIVERSITY & LOCATION DOMAIN MODEL

Biodiversity High-Level [illegible]nships (ESRI)



Specie is *Present* actually or *absent*

Where is species presence

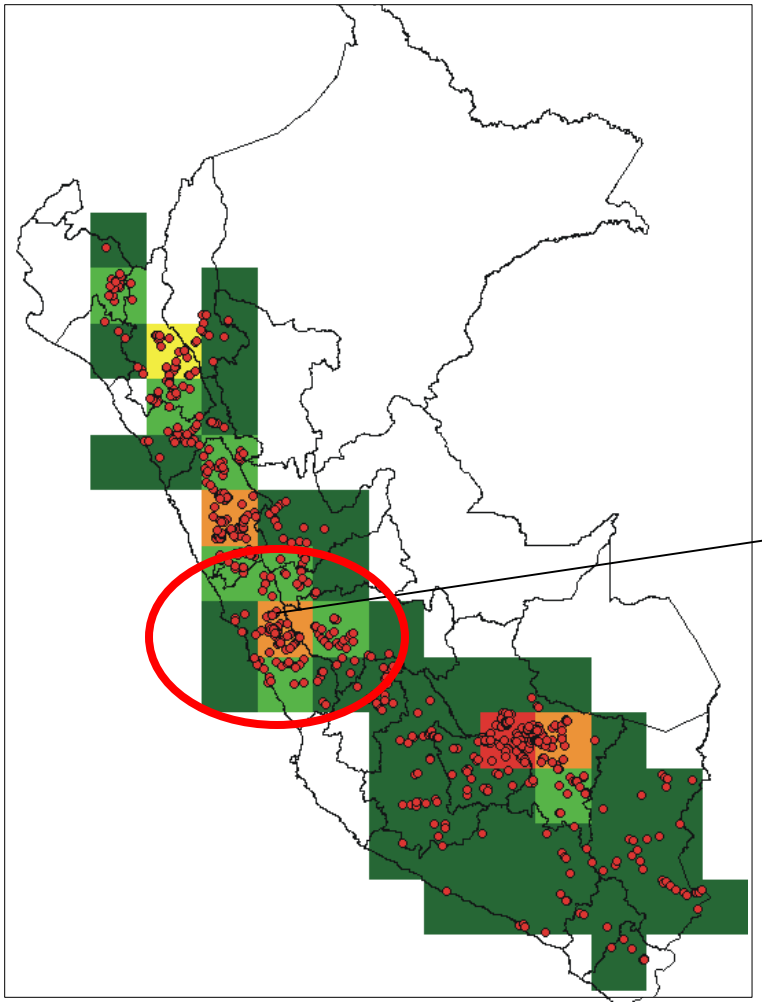
The biodiversity unit is an element of natural diversity that is described for conservation purposes. Types are: Organism, community, defined areas.
Per example: Wild potato species in Peruvian Land Race Potato, National Reserves, Habitat characteristics, ecological characteristics, Geographic range, economic value, conservation status.

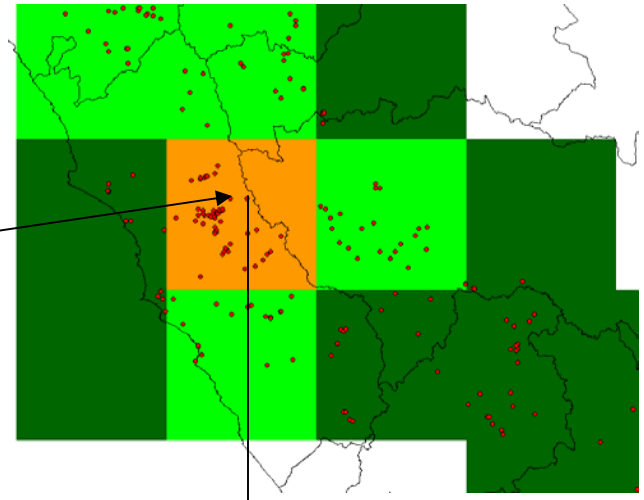
Observation comprised multiple registration, that occur during the same period of time. Types are: species, habitats, process, ecosystems, threats. Registration are often cross reference
Per example: Collection and Database of species, Herbarium Databases, Germplasm Database.

Assumed each distribution for a period of time. Types are: Know, Predicted, Potential, Historical. Most of the distribution relates objects describe the environment present with the distribution.
The Trend distribution objects is different because it describes a summary of differences in distribution over the time, per example number potato cultivated is less compared with wild potato more species.

Conservation areas, National Reserve, Planning, restoration, farm park, research protected

Two types natural and administrative area.
Natural types are: eco-region, landscape, watershed, stopover, anomaly, biodiversity hotspot, island, endemism area.
Administrative area are: Planning, restoration, mitigation, development, management, farm, parks, forestry, game areas, research protected, stewardship, sustainability, conservation areas, project.



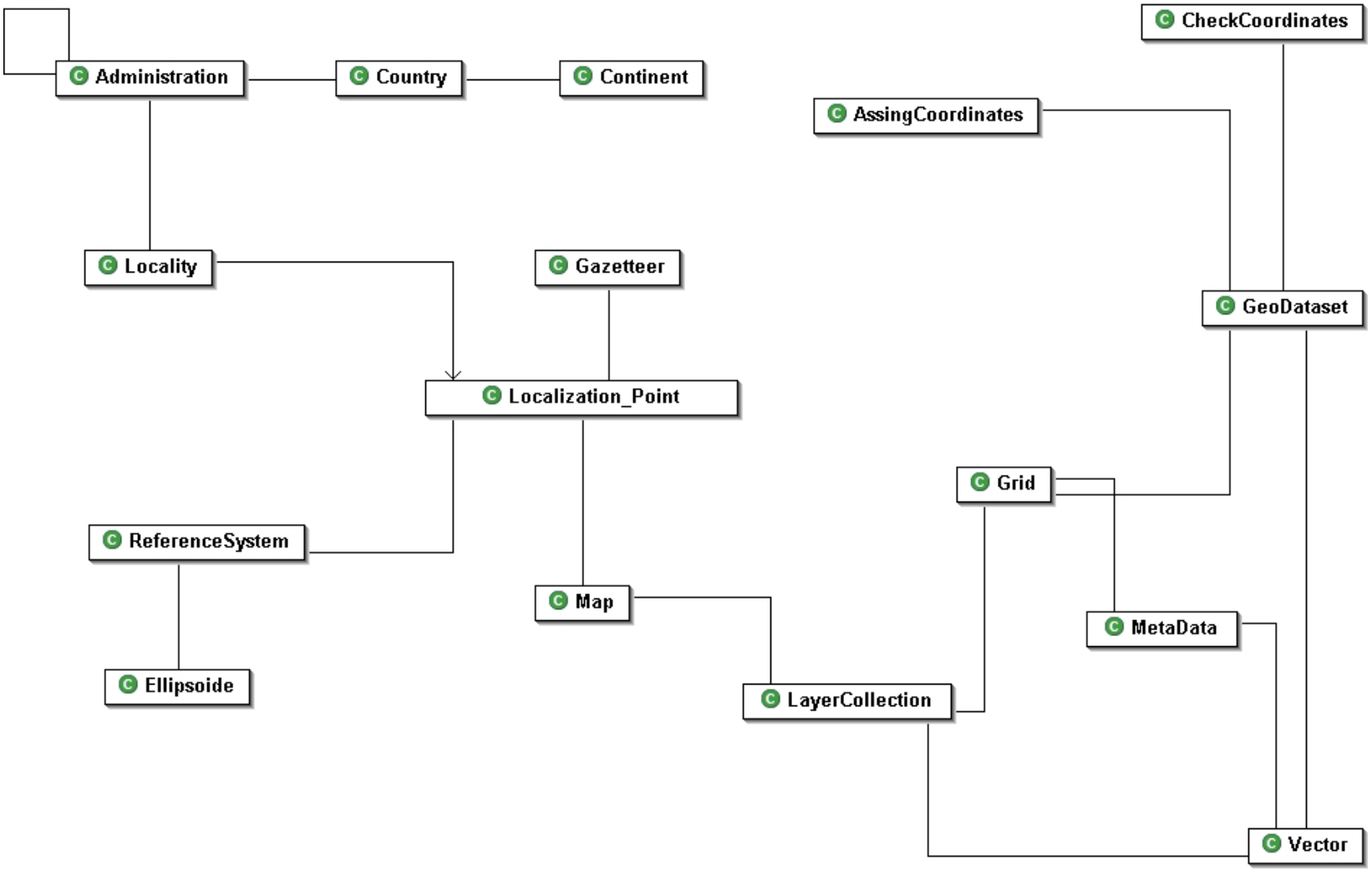


96 observations

(Col 4, row 8)

Where and how is distributed wild potato in Peruvian and how DIVA GIS analyzes this distribution and richness

DIVA-GIS Domain Model for Location & GeoDataset Quality Control



II. THE OPEN GIS STANDARDS AND TOOLS

VISION: A world in which everyone benefits from geographic information and services made available across any network, application, or platform.

OGC Vision Advancing Around The World

- UK Ordnance Survey (think USGS NMD) using ‘only’ GML format to distribute its new, premier MasterMap product
- Canada Geospatial Data Infrastructure (CGDI) using ‘only’ OGC Web Service Specifications for geographic components
- Australia CANRI using ‘only’ OGC Web Service Specifications for geographic components
- European Union INSPIRE framework built around OGC Web Services for geographic components
- NASA Earth Science Gateway v1, prototype uses OGC Web Services for geographic components
- Canadian Forestry Service implements OpenGIS based process to integrate forestry data nationwide
- Open Location Services being built into consumer offerings from major location services vendors

OpenGIS® Specifications

- Simple Feature Access – OLE, SQL, CORBA (3 specs)
- Catalog 1.1.1
- Coordinate Transformation 1.1
- Grid Coverages 1.0
- Web Map Service 1.2 (WMS)
- Web Map Context 1.0*
- Geography Markup Language 3.0 (GML)
- Web Feature Service 1.0
- Filter 1.0
- Style Layer Descriptor 1.0 (SLD)
- Web Coverage Service 1.0 (WCS)*
- Web Terrain Service 0.0 (WTS)
- Open LS 1.0
- Multitude of Interoperability Program Reports (DIPRs)

CORBA (Common Object Request Broker Architecture) provides a specification for the object-oriented distributed systems in a language, operating system, platform and vendor independent way.

Software Tools

- Free/Open Source
  - DeeGree http://deegree.sourceforge.net/
  - University of Minnesota http://mapserver.gis.umn.edu/
  - George Mason University http://laits.gmu.edu/
  - ISIG/WEB A Web-based Tool for Viewing and Editing Maps

III. OTHER ONTOLOGIEST & AND MODELS

Here is a selection of existing OWL ontology that you might want to try.

•COUNTRIES.-The ISO 3166 Code List of countries. Contributed by Dieter E. Jenz.

•FGDC-CSDGM.- Ontology for Content Standard for Digital Geospatial Metadata (CSDGM) of Federal Geographic Data Committee (FGDC). Contributed by Akm Saiful Islam, Bora Beran , Volkan Yargici and Michael Piasecki.

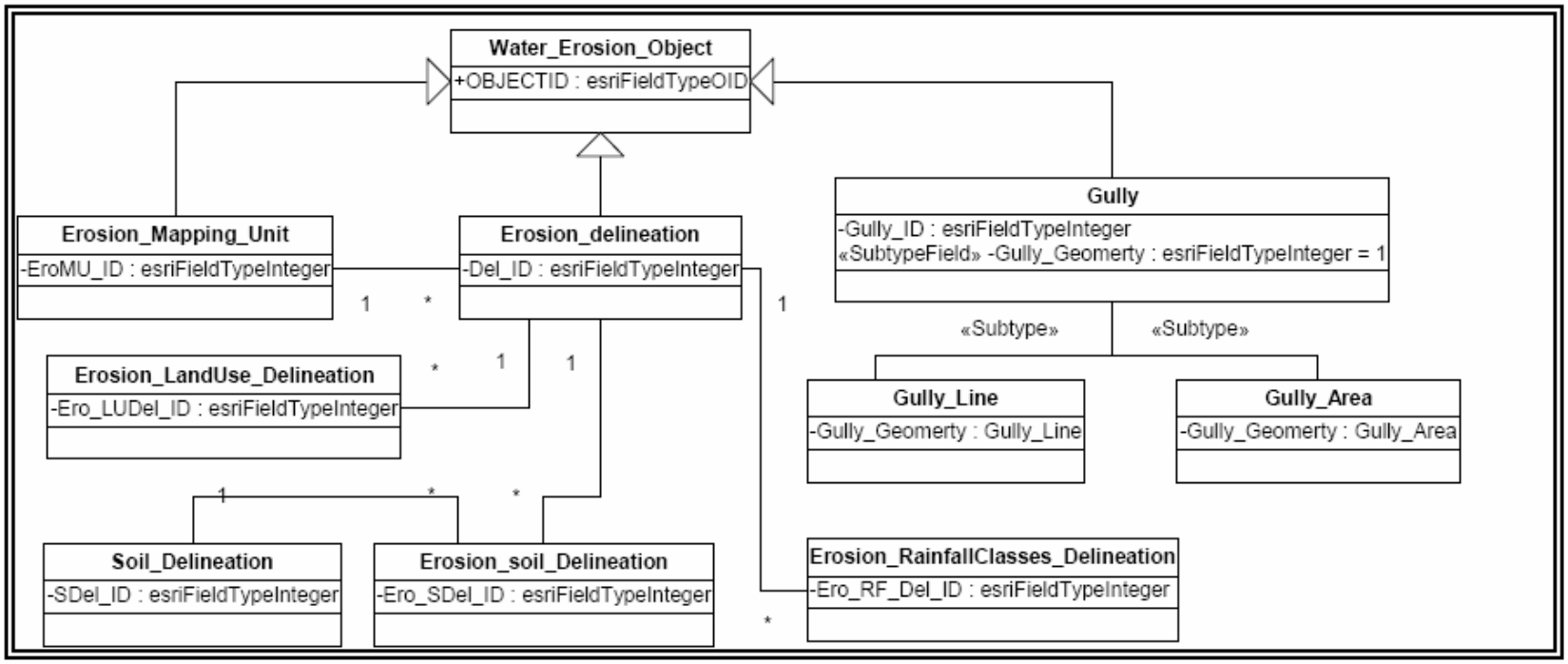
•ISO-19108.-Ontology for Geographic Information - Temporal Schema (ISO 19108). Contributed by Akm Saiful Islam.

•ISO-METADATA.-An ontology representing Geographic Information Metadata - (ISO 19115). Contributed by Akm Saiful Islam, Luis Bermudez, & Michael Piasecki.

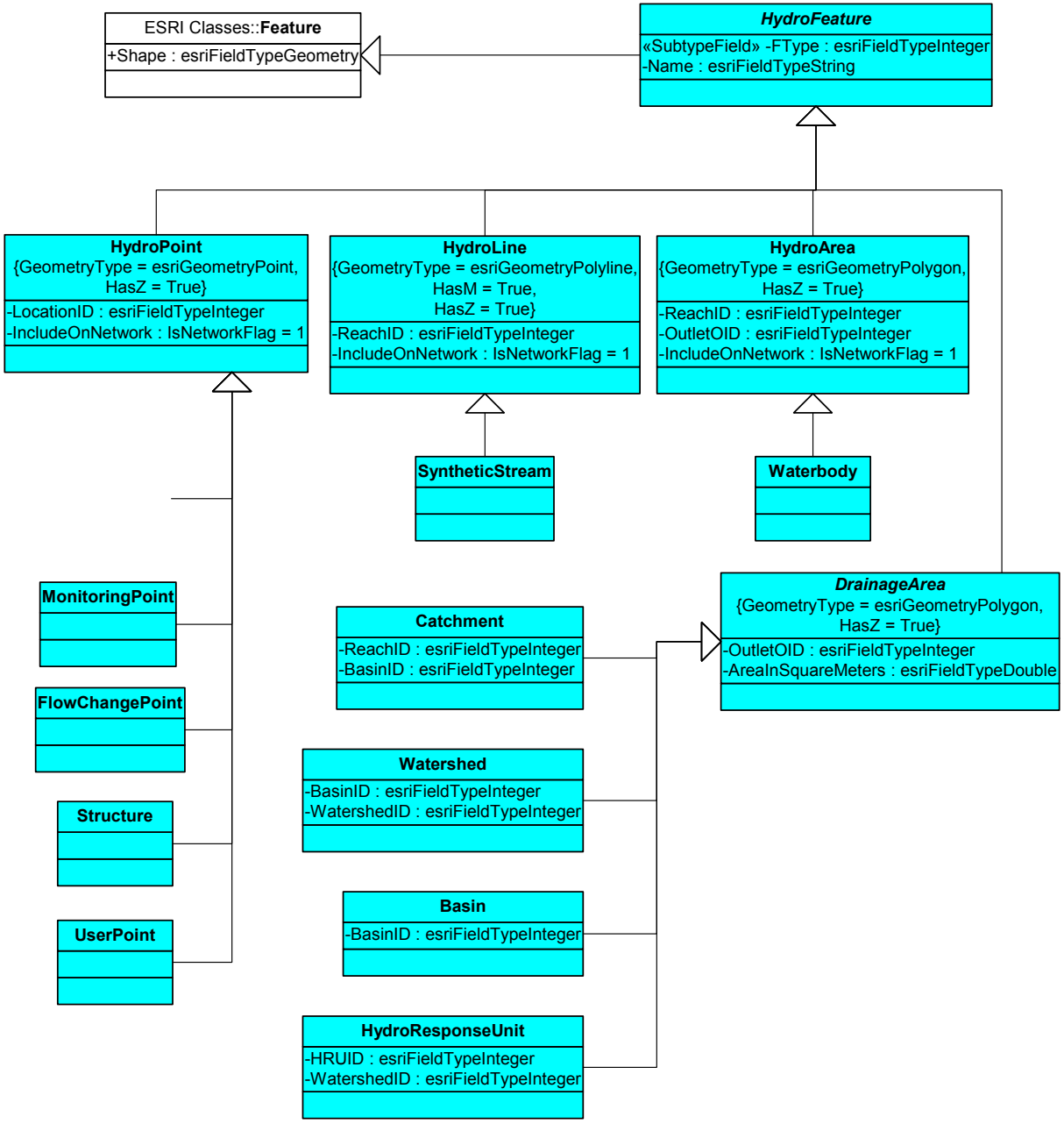
•OGC.- Ontology for Geography Markup Language (GML3.0) of Open GIS Consortium (OGC). Contributed by Contributors: Zafer Defne, Akm Saiful Islam and Michael Piasecki.

Example Models

1.- Soil - erosion by Water (ITC)



2.-Unified Modeling Language representation of Hydrology (ESRI)



IV. POTENTIAL INTERNATIONAL PARTNERS

GLOBAL BIODIVERSITY INFORMACION FACILITY
http://www.gbif.org/links/standards

ENVIRONMENTAL SYSTEM RESEARCH INSTITUTE
http://www.esri.com

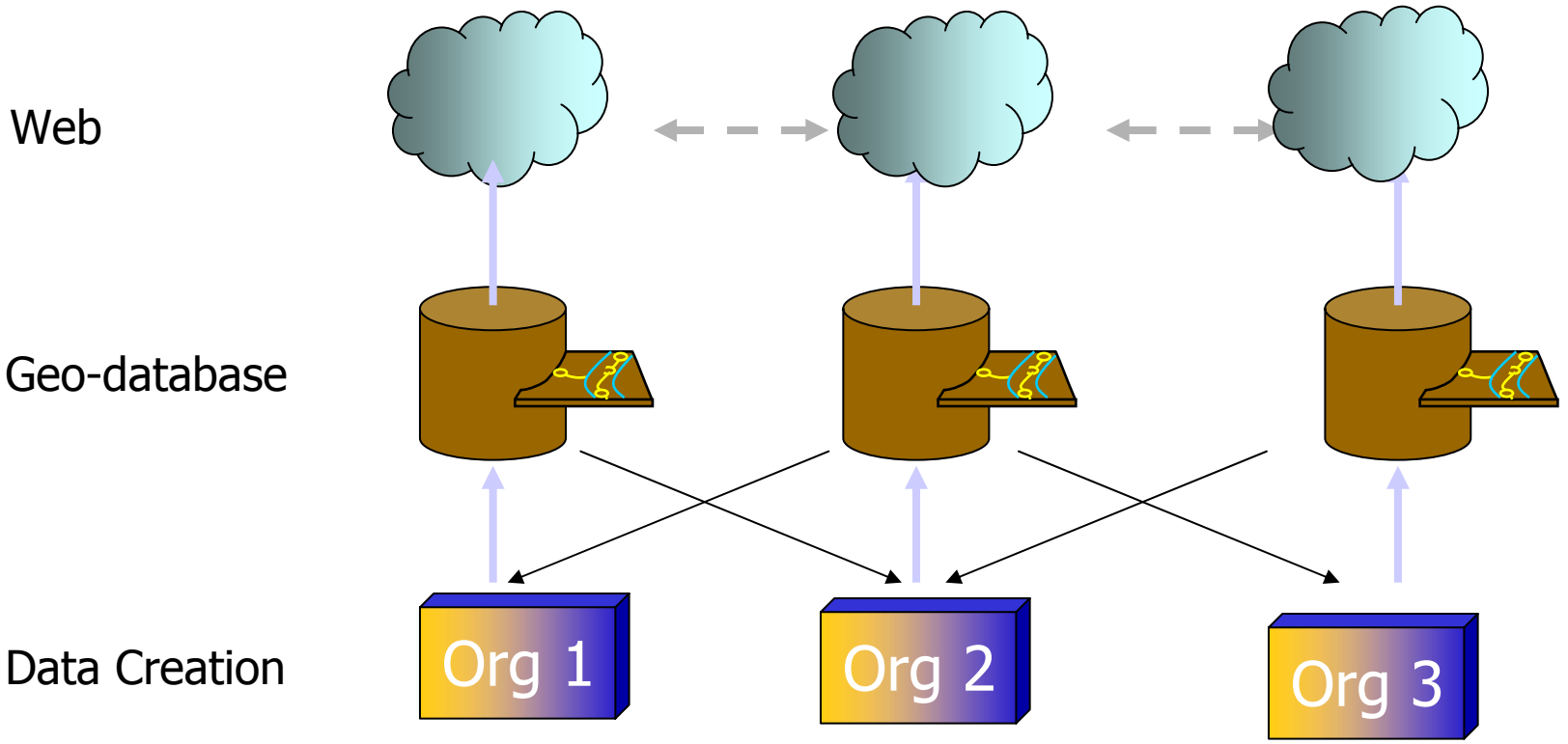
INTERNATIONAL INSTITUTE GEO-INFORMATION SCIENCE AND EARTH OBSERVATION
http://www.itc.nl

CENTER FOR RESEARCH IN WATER RESOURCES, UNIVERSITY OF TEXAS AT AUSTIN
http://www.crwr.utexas.edu/giswr

CARLETON UNIVERSITY, OTTAWA, CANADA
Department of Geography and Environmental Studies
http://www.carleton.ca
http://www.carleton.ca/gcrc/caap/papers/liu_thesis_proposal_032004.pdf

V. Integrating GeoDataset Partners

Geography and Collaboration



Technology Challenges

1. Discovery and Access to Data and Information
   (Highly distributed,heterogeneous formats and services, lacking in documentation/metadata)
2. Interchange standards (formal metadata content specifications, domain ontology's)
   and advanced tools to publish and query systems based on these
3. Analysis and Modeling
4. Research vision limited by desktop capabilities: size/complexity, software availability