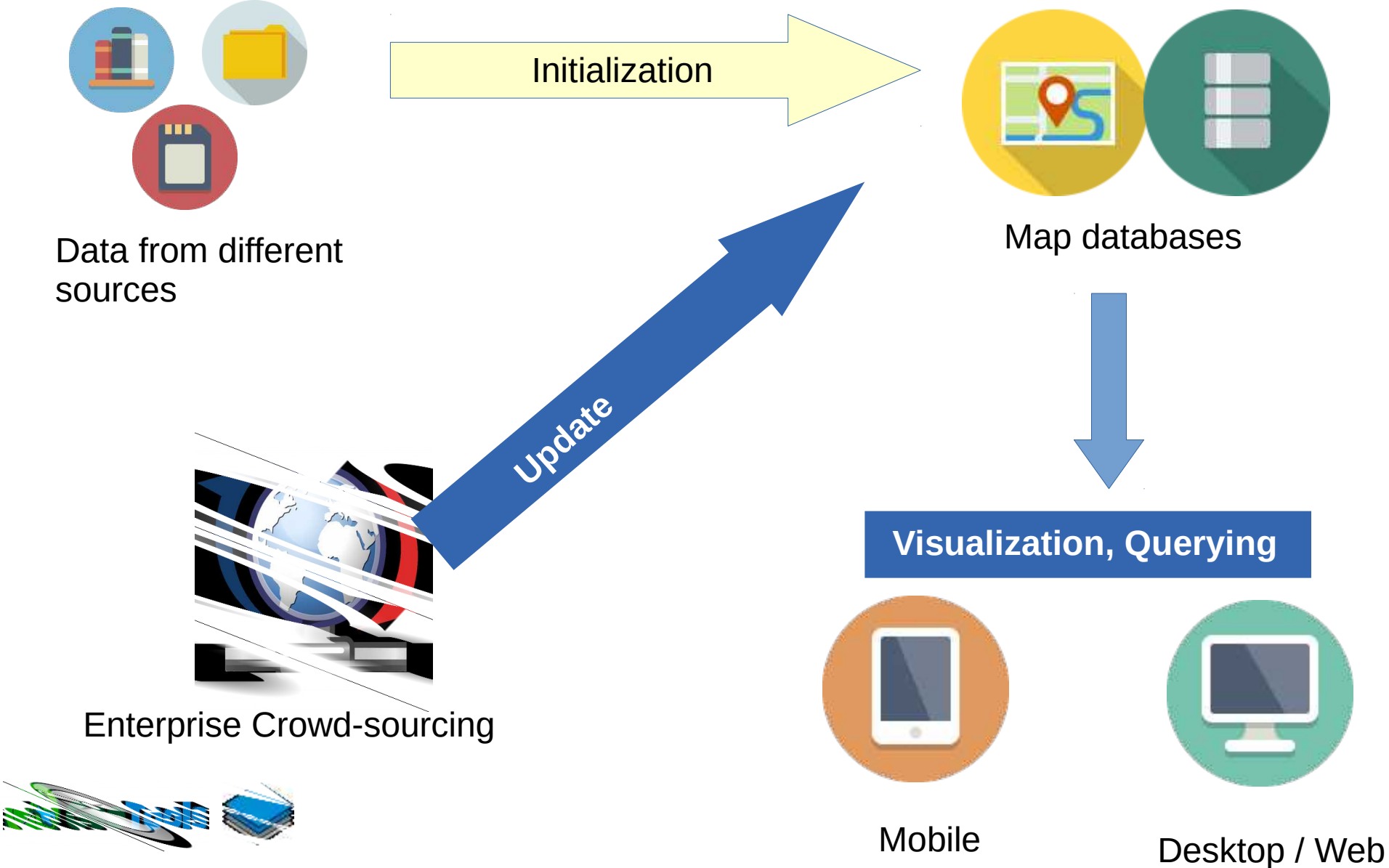


Western Ghats SDI

by

KAIINOS

# Spatial Data Infrastructure (SDI)

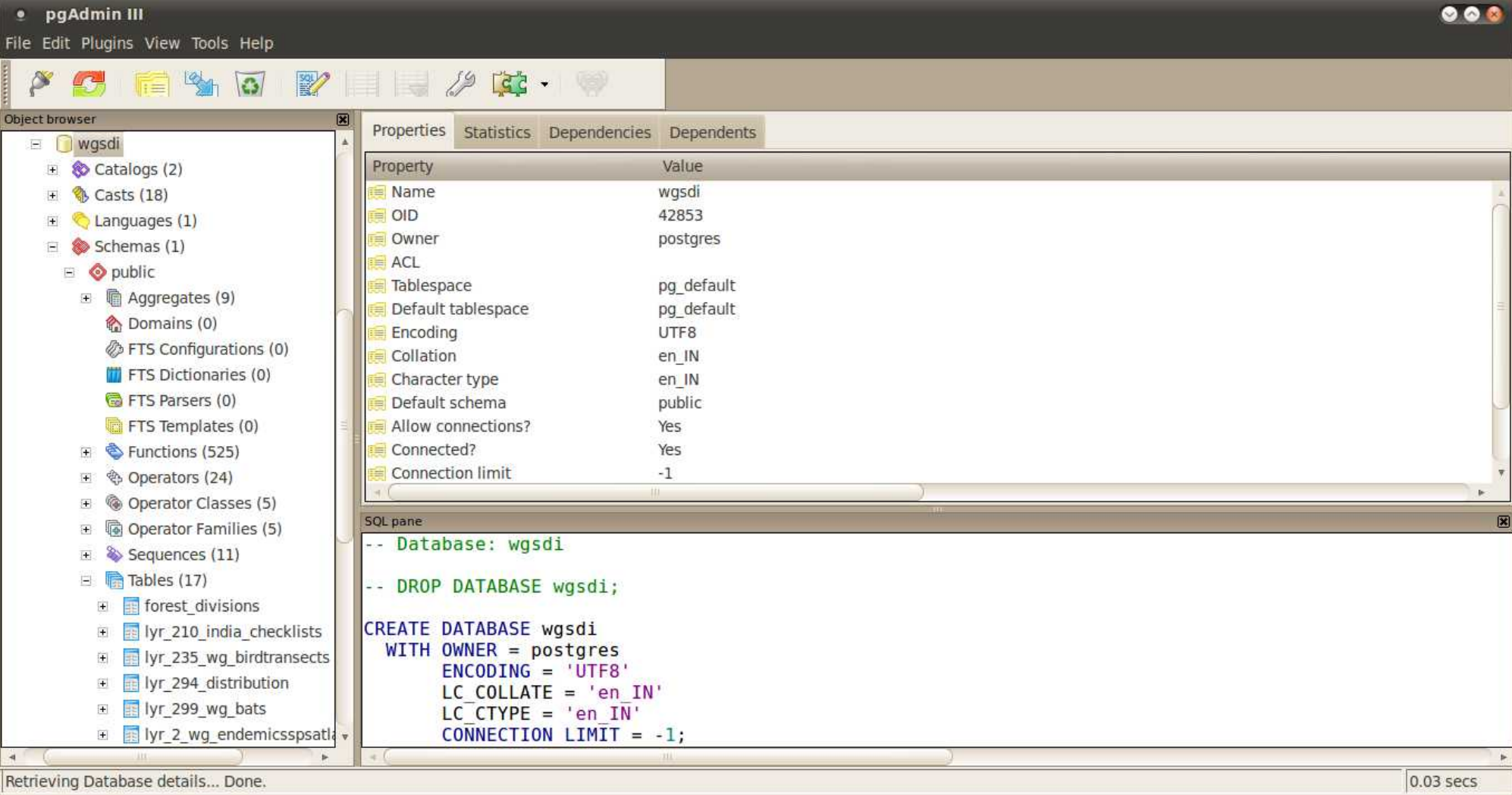


# Data sources

- 1) Abiotic – Rainfall, soil carbon, rivers, basins, temperature
- 2) Administrative Units – Districts, Forest divisions
- 3) Biogeography – Georegions
- 4) Conservation – Priority corridors, sites and links
- 5) Species – birds, elephants, fish, aquatic plants, bats
- 6) Threats – tourism infrastructure, dams and reservoirs

# Porting to a Spatial Database

Import data into Desktop GIS → Define Projections, clean data → Export to DB



The screenshot displays the pgAdmin III interface. On the left, the Object browser shows a tree view of the database structure, including catalogs, casts, languages, and schemas. The 'public' schema is expanded, showing various database objects like aggregates, domains, FTS configurations, functions, operators, and tables. The main pane shows the Properties tab for the 'wgsdi' database, listing various properties and their values. Below this, the SQL pane contains the SQL code to create the database with specific settings.

Property	Value
Name	wgsdi
OID	42853
Owner	postgres
ACL	
Tablespace	pg_default
Default tablespace	pg_default
Encoding	UTF8
Collation	en_IN
Character type	en_IN
Default schema	public
Allow connections?	Yes
Connected?	Yes
Connection limit	-1

```
-- Database: wgsdi
-- DROP DATABASE wgsdi;

CREATE DATABASE wgsdi
WITH OWNER = postgres
ENCODING = 'UTF8'
LC_COLLATE = 'en_IN'
LC_CTYPE = 'en_IN'
CONNECTION LIMIT = -1;
```

Retrieving Database details... Done. 0.03 secs

# Metadata schema

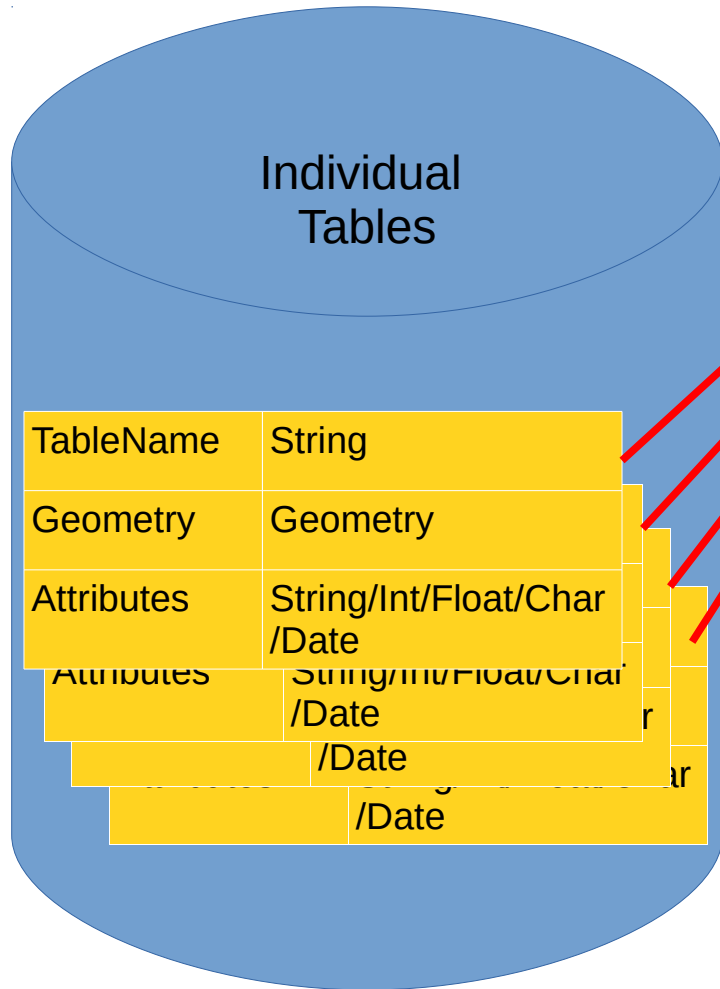


Table Name	String
Layer Name	String
Class	String
Geometry	Geometry
Description	String

**Meta data table**

**Tables linked to Meta data by their name**

**Projection System is assumed to be EPSG:4326 WGS 84**

# Data Publishing (1/2)

**GeoServer** Logged in as admin. [Logout](#)

## Welcome

Welcome

This GeoServer belongs to [OSGeo-India](#).

---

- 117 Layers [Add layers](#)
- 71 Stores [Add stores](#)
- 15 Workspaces [Create workspaces](#)

This GeoServer can be crawled by search engines through this [Sitemap](#).

**⚠** The master password for this server has not been changed from the default. It is **highly** recommended that you change it now. [Change it](#)

**🔒** Strong cryptography available

This GeoServer instance is running version **2.4.2**. For more information please contact the [administrator](#).

### Service Capabilities

- CSW 2.0.2
- WCS 1.0.0, 1.1.0, 1.1.1, 1.1
- WFS 1.0.0, 1.1.0, 2.0.0
- WMS 1.1.1, 1.3.0
- WPS 1.0.0
- TMS 1.0.0
- WMS-C 1.1.1
- WMTS 1.0.0

### About & Status

- Server Status
- GeoServer Logs
- Contact Information
- About GeoServer

### Data

- Layer Preview
- Workspaces
- Stores
- Layers
- Layer Groups
- Styles

### Services

- CSW
- WCS
- WFS
- WMS
- WPS

### Settings

- Global
- JAI
- Coverage Access

### Tile Caching

- Tile Layers
- Caching Defaults

# Data Publishing (2/2)

## Layer Preview

List of all layers configured in GeoServer and provides previews in various formats for each.

<< < 1 2 3 4 5 > >> Results 51 to 75 (out of 125 items)

Search

Type	Name	Title	Common Formats	All Formats
	wgsdi:lyr_212_wg_fire_2002	lyr_212_wg_fire_2002	OpenLayers KML GML	Select one
	wgsdi:lyr_381_tourism_information	lyr_381_tourism_information	OpenLayers KML GML	Select one
	wgsdi:lyr_294_distribution	lyr_294_distribution	OpenLayers KML GML	Select one
	wgsdi:lyr_219_wg_fire_2006	lyr_219_wg_fire_2006	OpenLayers KML GML	Select one
	wgsdi:lyr_306_rf_boundaries	lyr_306_rf_boundaries	OpenLayers KML GML	Select one
	wgsdi:lyr_372_prachi_mehta_elephant	lyr_372_prachi_mehta_elephant	OpenLayers KML GML	Select one
	wgsdi:lyr_3_wg_flow	lyr_3_wg_flow	OpenLayers KML GML	Select one
	wgsdi:lyr_367_india_georegions_sing	lyr_367_india_georegions_sing	OpenLayers KML GML	Select one
	wgsdi:lyr_262_wg_dam	lyr_262_wg_dam	OpenLayers KML GML	Select one
	wgsdi:lyr_1_wg_cepflandcorr	lyr_1_wg_cepflandcorr	OpenLayers KML GML	Select one
	wgsdi:lyr_308_soi_toposheet_50k_index	lyr_308_soi_toposheet_50k_index	OpenLayers KML GML	Select one
	wgsdi:lyr_305_forestdivisions	lyr_305_forestdivisions	OpenLayers KML GML	Select one
	wgsdi:lyr_299_wg_bats	lyr_299_wg_bats	OpenLayers KML GML	Select one
	wgsdi:lyr_257_soilcorban99	lyr_257_soilcorban99	OpenLayers KML GML	Select one
	wgsdi:lyr_rep_wg-districts	lyr_rep_wg-districts	OpenLayers KML GML	Select one
	wgsdi:lyr_215_wg_fire_2007	lyr_215_wg_fire_2007	OpenLayers KML GML	Select one

### About & Status

- Server Status
- GeoServer Logs
- Contact Information
- About GeoServer

### Data

- Layer Preview
- Workspaces
- Stores
- Layers
- Layer Groups
- Styles

### Services

- CSW
- WCS
- WFS
- WMS
- WPS

### Settings

- Global
- JAI
- Coverage Access

### Tile Caching

- Tile Layers
- Caching Defaults
- Gridsets
- Disk Quota

### Security

- Settings
- Authentication
- Passwords
- Users, Groups, Roles
- Data
- Services

Name

# Geonetwork Search

The screenshot displays the Geonetwork search interface. At the top right, the logo for "GeoNetwork OpenSource" is visible, with the tagline "Geographic data sharing for everyone". Below the logo, there are navigation links: "Home | Administration | Contact us | Links | About | Help". The user is logged in as "admin admin" and the language is set to "English".

The search interface is divided into several sections:

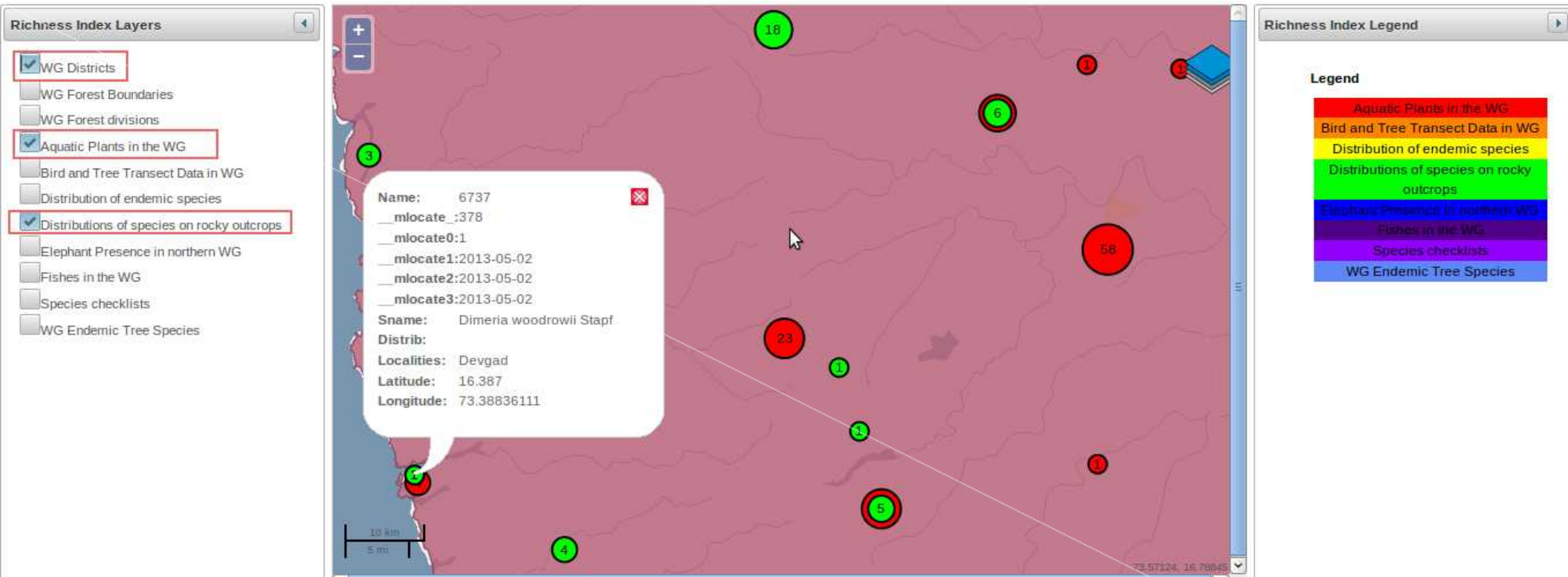
- Search Filters:** Located on the left, it includes a "WHAT?" section with input fields for "Any - with one of these words", "Title", and "Abstract". Below this is a list of search results with checkboxes, including "features (54 results)" and various layers like "lyr\_206\_temperature (1 result)". There is also a "WHEN?" section with a date input field and a "Type" dropdown menu set to "overlaps". A "Region" dropdown is set to "- Any -". A "Search" button is at the bottom left, along with "Reset", "Restrict to", and "Options" links.
- Map Section:** A "Show map" button is located at the top left of the main content area.
- Search Results:** The main content area displays "FIND INTERACTIVE MAPS, GIS DATASETS, SATELLITE IMAGERY AND RELATED APPLICATIONS". It shows "Aggregated results matching search criteria : 1-10/54 (page 1/6) , 0 selected". There are controls for "Select : all, none" and "actions on selection". The results are sorted by "Relevance".
- Result Details:** Three results are shown, each with a "Harvested" icon and a "No preview available" box. The first result is "LYR\_214\_WG\_FIRE\_2010" with keywords "features, lyr\_214\_wg\_fire\_2010", schema "iso19139", and extent "8.2189998626709 72.7639999389648 21.9930000305176 78.2490005493164". The second result is "LYR\_221\_WG\_FIRE\_2000" with keywords "features, lyr\_221\_wg\_fire\_2000", schema "iso19139", and extent "8.4419994354248 72.9159927368164 21.7050018310547 78.0860061645508". The third result is "LYR\_212\_WG\_FIRE\_2002".



# Visualization – Layer Visualization

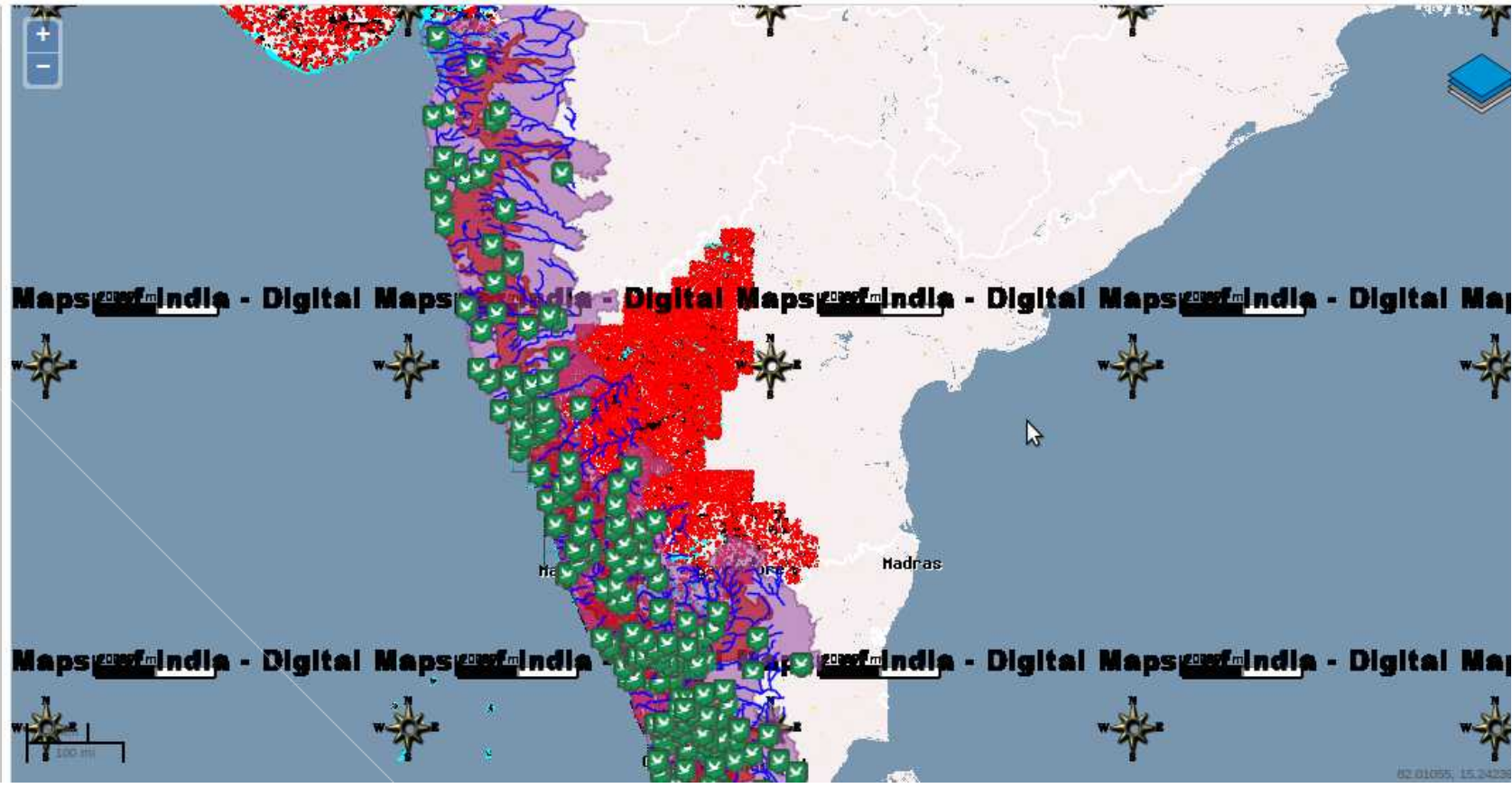


# Visualization - Cluster



# Visualization – SOI digital toposheets

- Simple visualization
- Base
  - Fire
  - Aquatic Plants in the WG
  - Bird and Tree Transect Data in WG
  - Distribution of endemic species
  - Distributions of species on rocky outcrops
  - Elephant Presence in northern WG
  - Fishes in the WG
  - Species checklists
  - WG Endemic Tree Species



# Updating Spatial Data – Web Application

Upload image and Add Coordinates

**Note:** Pan/Zoom on map, Drop a marker at the location where you captured photo. Marker is added to map when you click the map. The location latitude\*, longitude\* are automatically recorded.

Upload Photo: \*  No file chosen

Class: \*

Subclass: \*

Common name:

Binomial:

Locality: \*

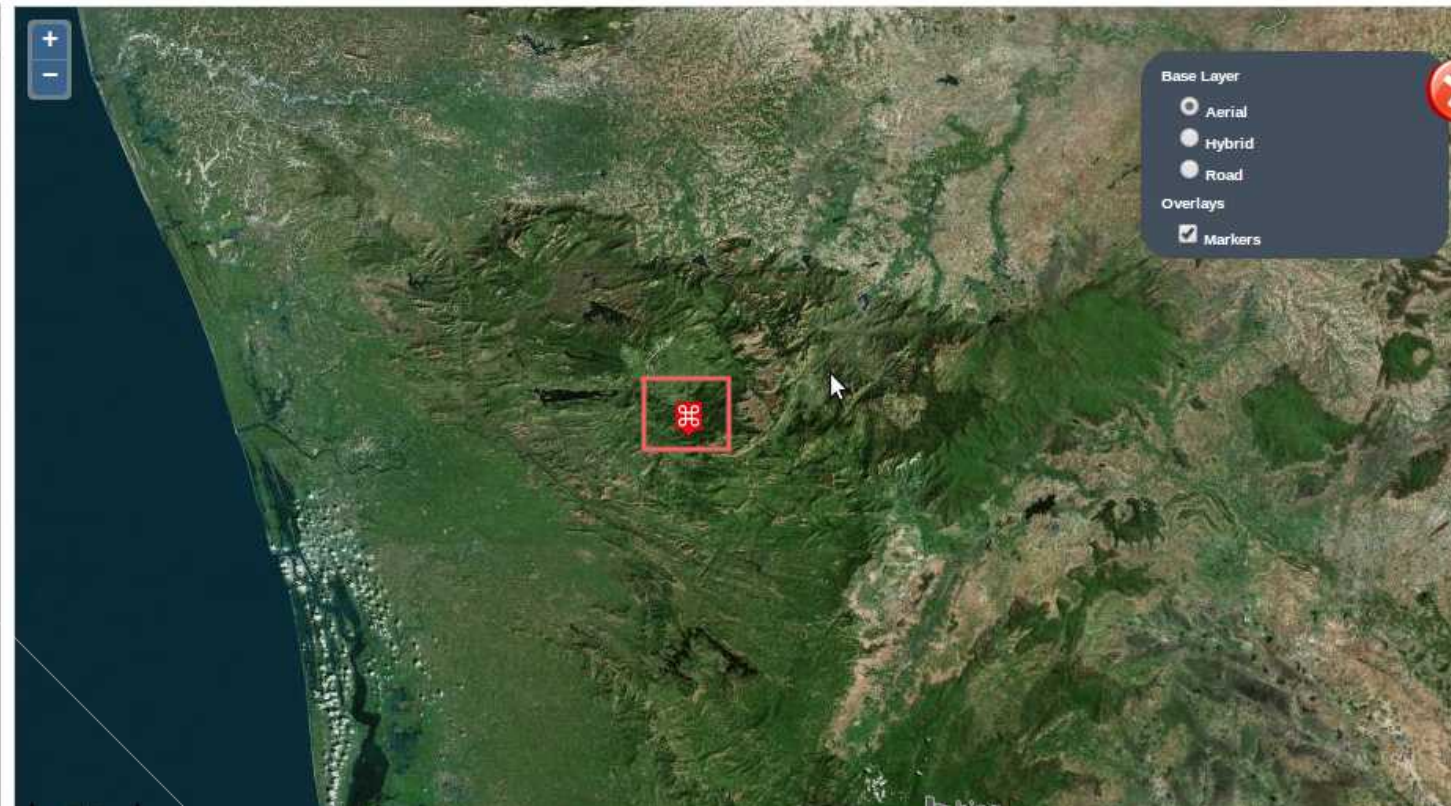
Habitat:

Longitude: \*






Latitude: \*

Altitude:

Remarks: \*



# Kriti Dash Board

-  Data Entry
-  Update App
-  Upload Data
-  Settings
-  Exit

# Updating Spatial Data Mobile App

UserName	kaushik@kaiinos.com
Category	Threats
Sub Category	Tourism infrastructure..
Common Name	
Bi_nomial Name	
Locality	
Habitat	
Remarks	
Latitude	17.44543000124395
Longitude	78.35035052150488
Altitude	562 5999755859375

# Mobile Form for threats

Common Name

Bi\_nomial Name

Locality

Habitat

Remarks


Latitude 17.44543000124395

Longitude 78.35035052150488

Altitude 543.5999755859375

Date 2014-04-04 14:12:25

 Photo

 Update Location

# Mobile form for Species

# Validation

Refresh

1 2

Username	Class	Sub Class	Common Name	Binomial	Locality	Habitat	Remarks	Date	Latitude	Longitude	Altitude	Photo	Moderate actions
kaushik@kaiin	Species	Distributions of	test	test1	hyd	urban	newtest	2014-04-02 17	17.445252089	78.350077384	542.157634565		
kaushik@kaiin	Species	Birds and anim	pigeon	pigeon	hyderabad	urban	new type	2014-04-03 11	17.445405903	77.354167000	541		
kaushik@kaiin	Species	Distributions of	ixj	nxh	nhxjj	hxhxx	xhxj	2014-01-09 14	17.445308254	78.350178021	530.599975585		
kaushik@kaiin	Species	Fishes in the W	big fish	newspave	guidelines	yummy	people	2014-01-09 14	17.445462564	78.350152624	535		

MAP

Username: kaushik@kaiinos.com  
Classtype: Species  
Subclass: Birds and animals data  
Commanname: pigeon  
Binomial: pigeon  
Locality: hyderabad  
Habitat: urban  
Remarks: new type

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# Spatial Data Access

WGSDI - Web Services

1 2 3 4

Title	Layer name	Type	WMS	WFS
Temperature	lyr_206_temperature	MultiPolygon	<a href="#">View image</a> <a href="#">Download pdf</a>	<a href="#">GeoJson</a>
WG Map Bounds	lyr_208_wg_mapbound	MultiPolygon	<a href="#">View image</a> <a href="#">Download pdf</a>	<a href="#">GeoJson</a>
WG Fire Area Estimates 2002	lyr_212_wg_fire_2002	Point	<a href="#">View image</a> <a href="#">Download pdf</a>	<a href="#">GeoJson</a>
WG Reconnaissance Soil Map	lyr_237_reconnaissance_soil	MultiPolygon	<a href="#">View image</a> <a href="#">Download pdf</a>	<a href="#">GeoJson</a>
Simple Vegetation map of the WG	lyr_249_wg_simple_14class_vegetation	MultiPolygon	<a href="#">View image</a> <a href="#">Download pdf</a>	<a href="#">GeoJson</a>
WG Soil Carbon Estimates in 1977	lyr_256_soilcorban77	MultiPolygon	<a href="#">View image</a> <a href="#">Download pdf</a>	<a href="#">GeoJson</a>
WG Soil Carbon Estimates in 1999	lyr_257_soilcorban99	MultiPolygon	<a href="#">View image</a> <a href="#">Download pdf</a>	<a href="#">GeoJson</a>
WG Subbasins	lyr_259_wg_subbasin	MultiPolygon	<a href="#">View image</a> <a href="#">Download pdf</a>	<a href="#">GeoJson</a>
WG Watershead	lyr_260_wg_watershed	MultiPolygon	<a href="#">View image</a> <a href="#">Download pdf</a>	<a href="#">GeoJson</a>
WG River	lyr_261_wg_river	MultiLineString	<a href="#">View image</a> <a href="#">Download pdf</a>	<a href="#">GeoJson</a>
WG Dams-Reservoirs	lyr_262_wg_dam	MultiPolygon	<a href="#">View image</a> <a href="#">Download pdf</a>	<a href="#">GeoJson</a>
WG Watershead basins	lyr_263_wg_basin	MultiPolygon	<a href="#">View image</a> <a href="#">Download pdf</a>	<a href="#">GeoJson</a>
Rainfall Data for Kerala WG	lyr_293_kerala_rf_data	Point	<a href="#">View image</a> <a href="#">Download pdf</a>	<a href="#">GeoJson</a>
Distribution of endemic species	lyr_294_distribution	Point	<a href="#">View image</a> <a href="#">Download pdf</a>	<a href="#">GeoJson</a>
Forest Divisions Map for the WG	lyr_305_forestdivisions	MultiPolygon	<a href="#">View image</a> <a href="#">Download pdf</a>	<a href="#">GeoJson</a>

1 2 3 4

# Challenges

## 1) Technical Challenges

- (a) Ever changing technology especially mobile
- (b) Knowledge of both worlds (Richness Index)
- (c) Creating a developer community

## 2) Operational Challenges

- (a) User community
- (b) Infrastructure
- (c) Funding