

A web GIS using Open source geospatial tools-Some case studies

Dr. S. Narendra Prasad, SAGON
and
Secretary Osgeo-India

Discussion meet on Open source geospatial- Current scenario
CISTUP, IISc
Bangalore

Kerala wetland conservation(www.keralawetlands.in)

Rajahmundry GIS(www.osgeo.in/google/sample.htm)

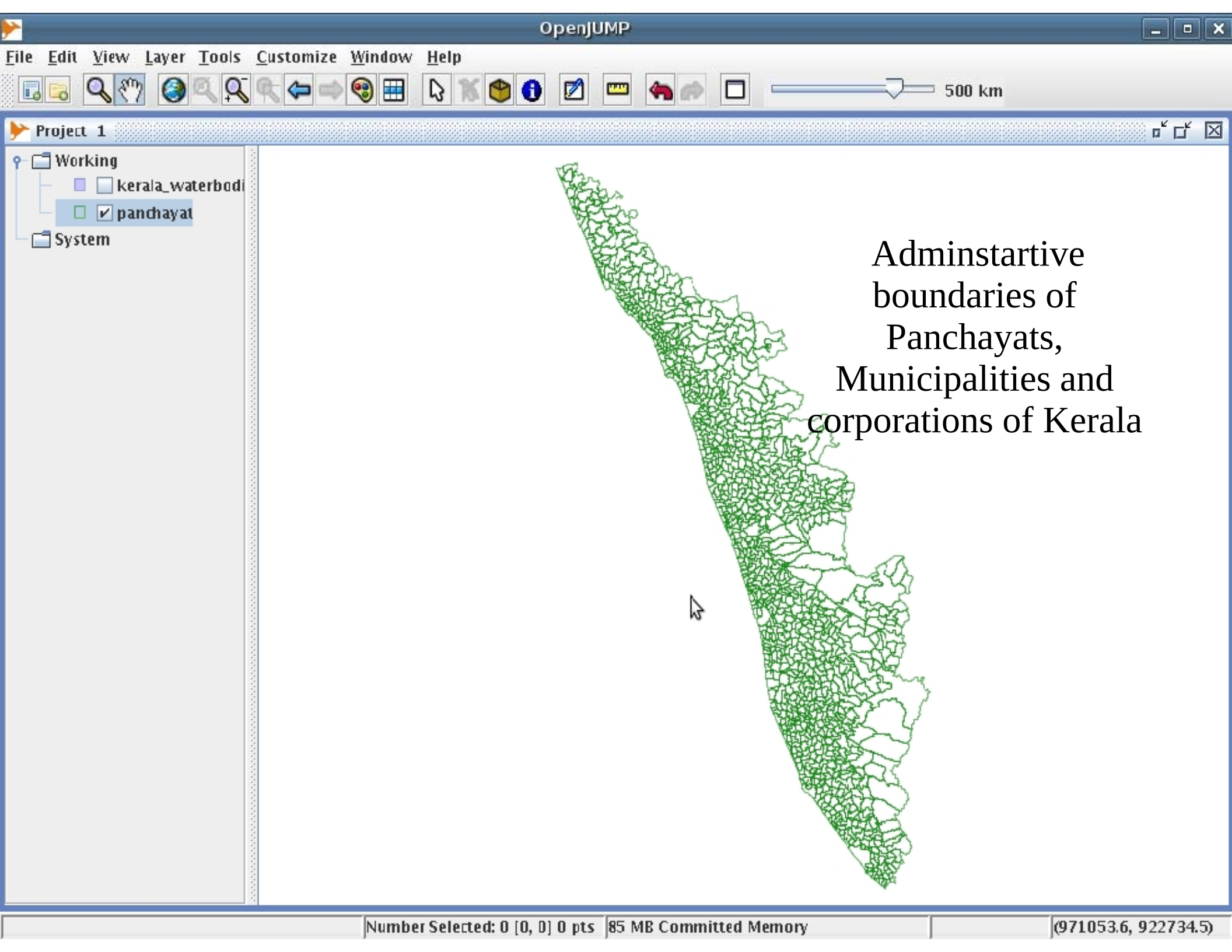
Biodiversity

Conservation(www.wetlandsofindia.org/attapady/attapady.php
)

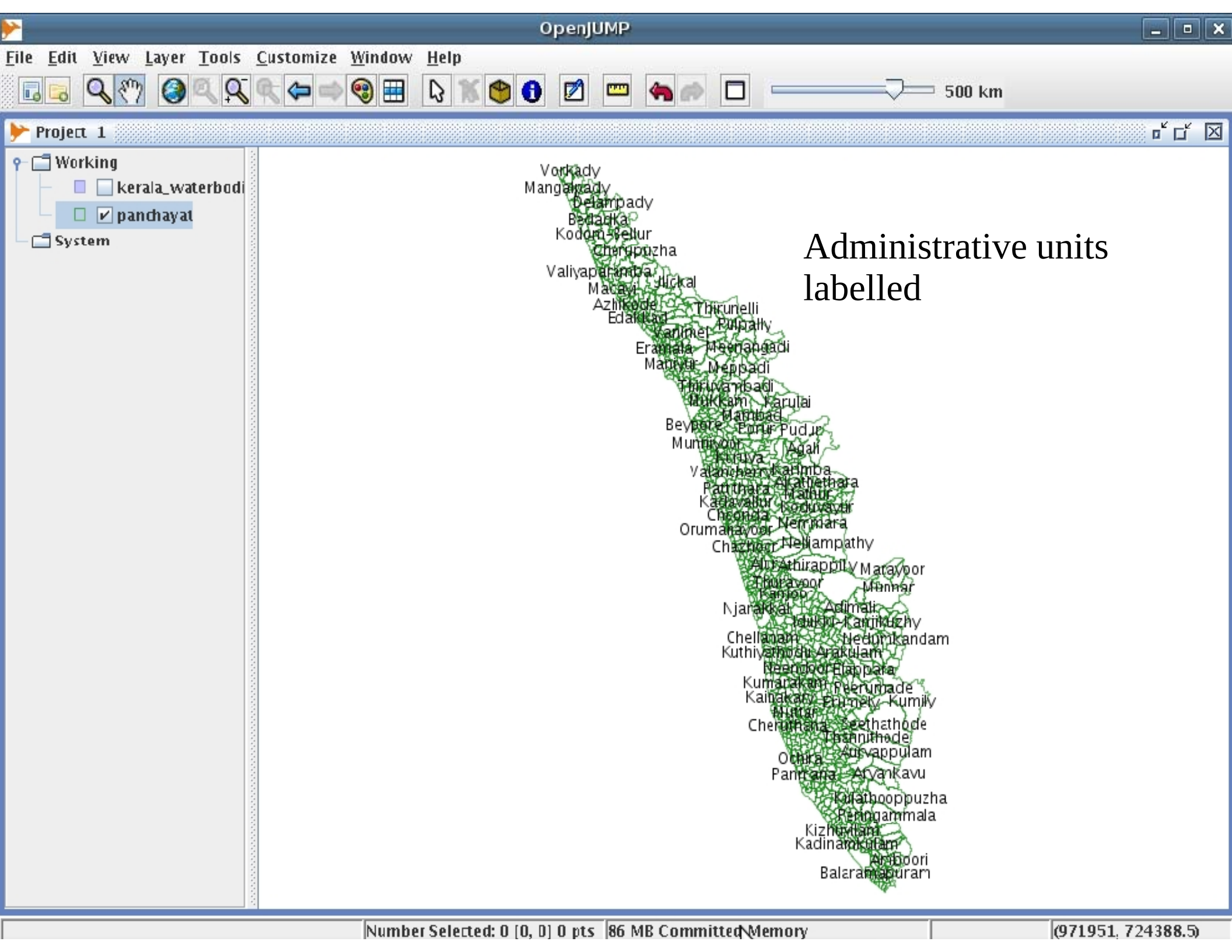
Thematic layers

1. Land use and land cover
2. Roads
3. Place Names
4. Drainage
5. Kerala State Boundary
6. Kerala Panchayats
7. Other administrative units like blocks or districts.

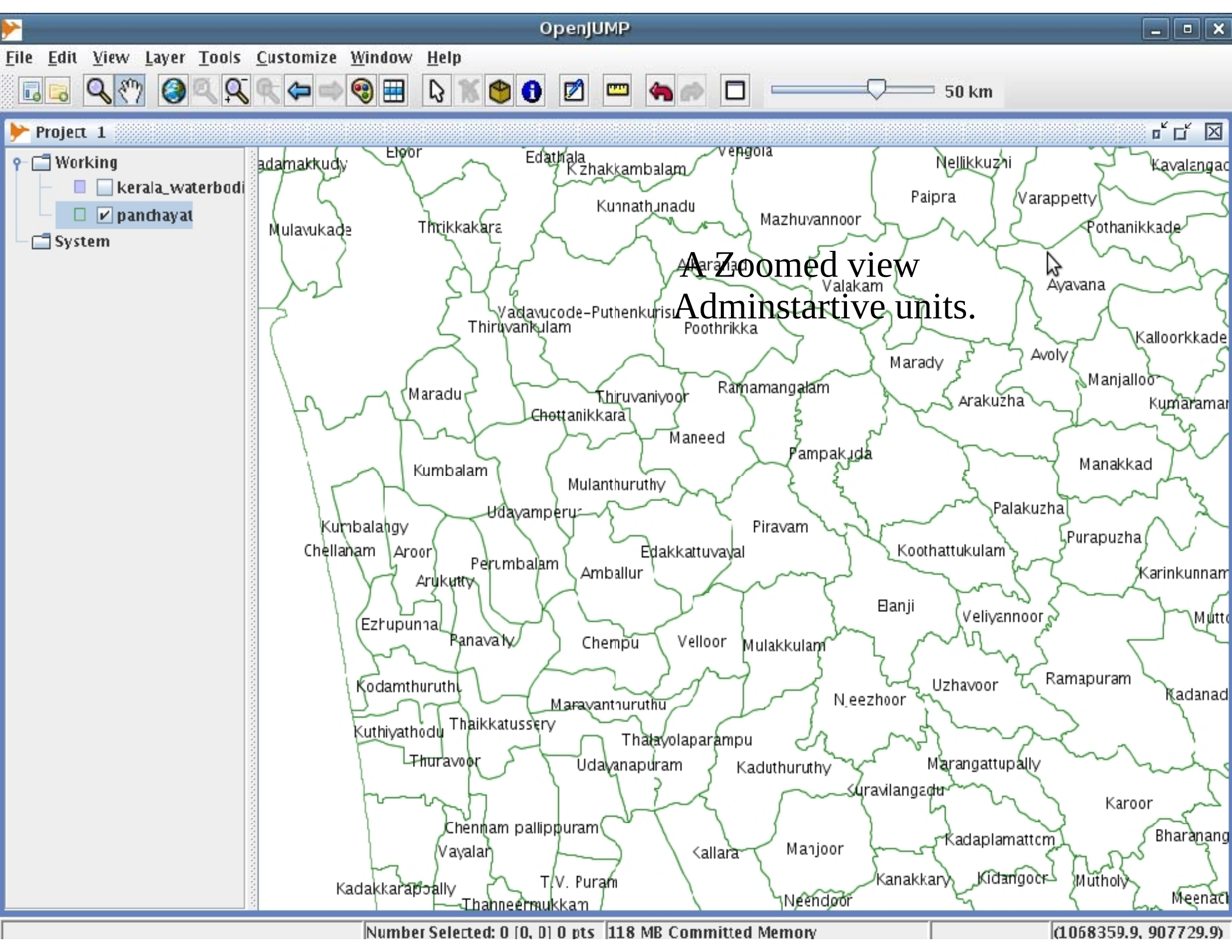
Desktop GIS

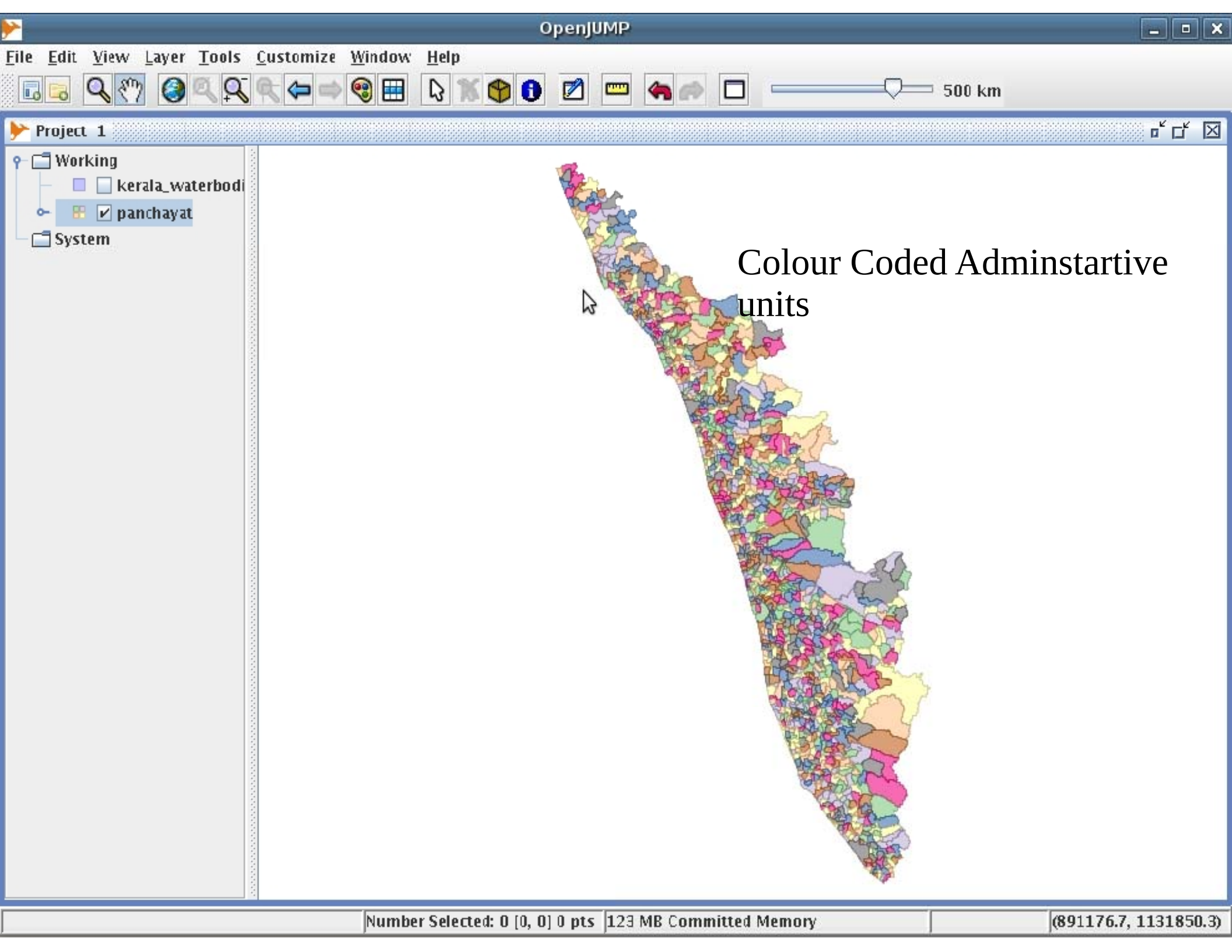


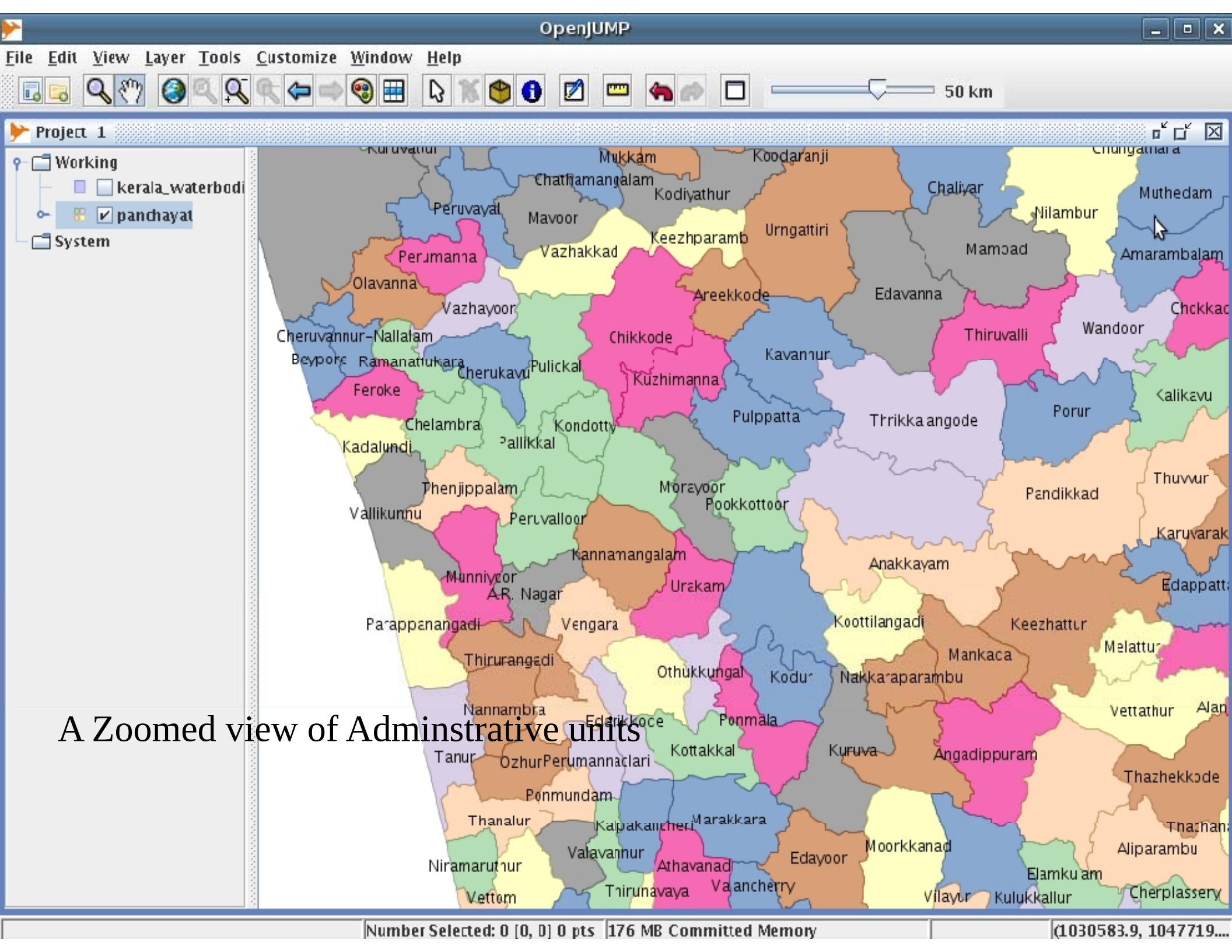
Adminstartive
boundaries of
Panchayats,
Municipalities and
corporations of Kerala



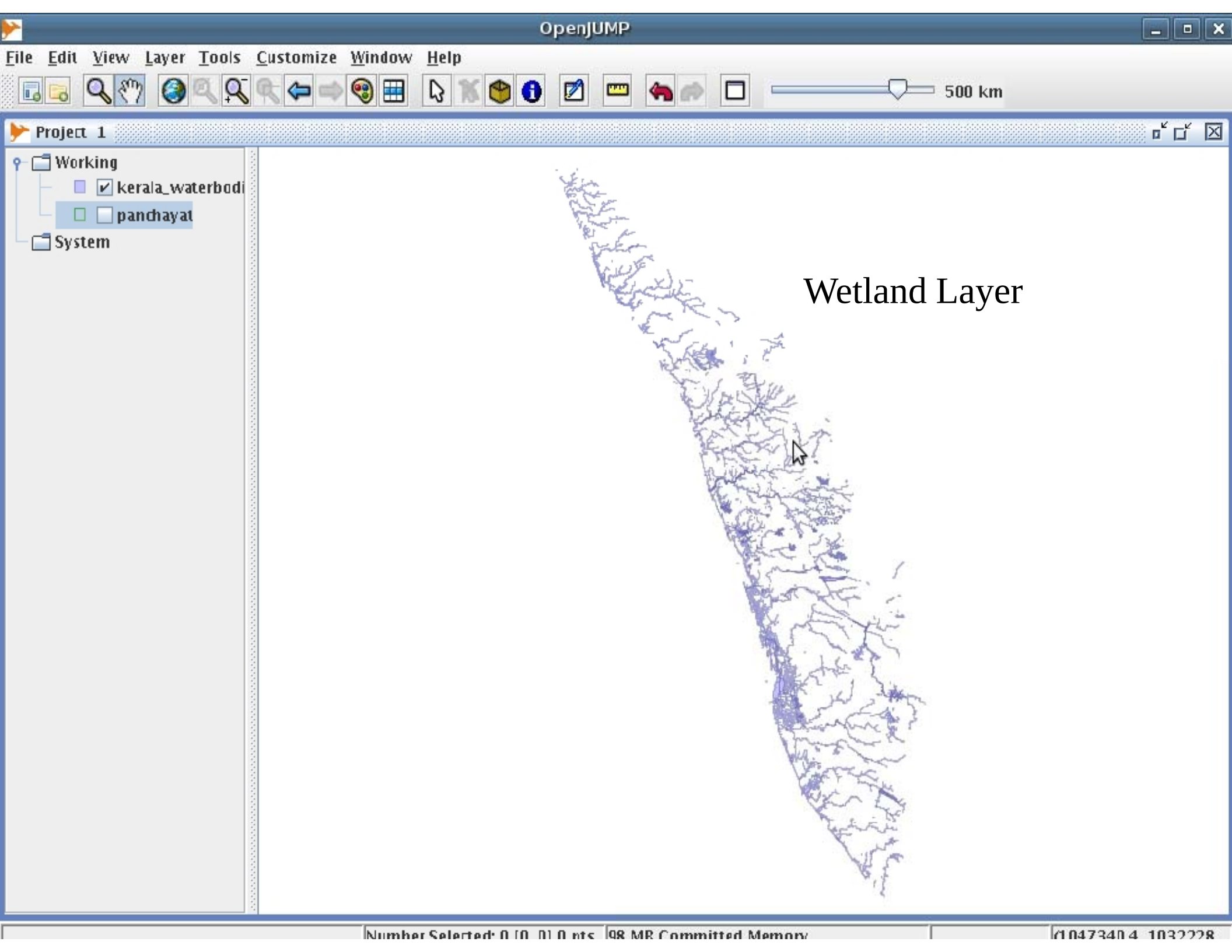
Administrative units
labelled



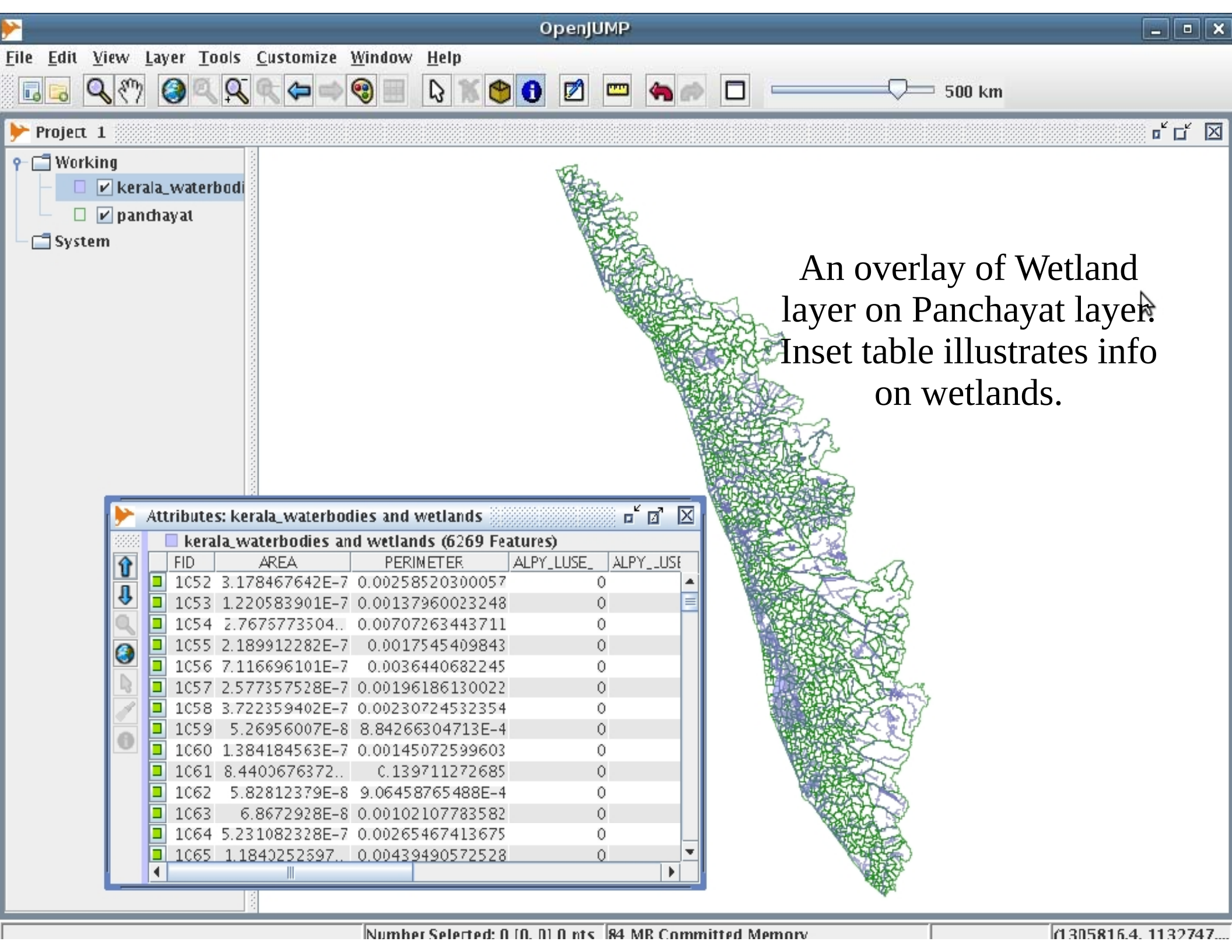




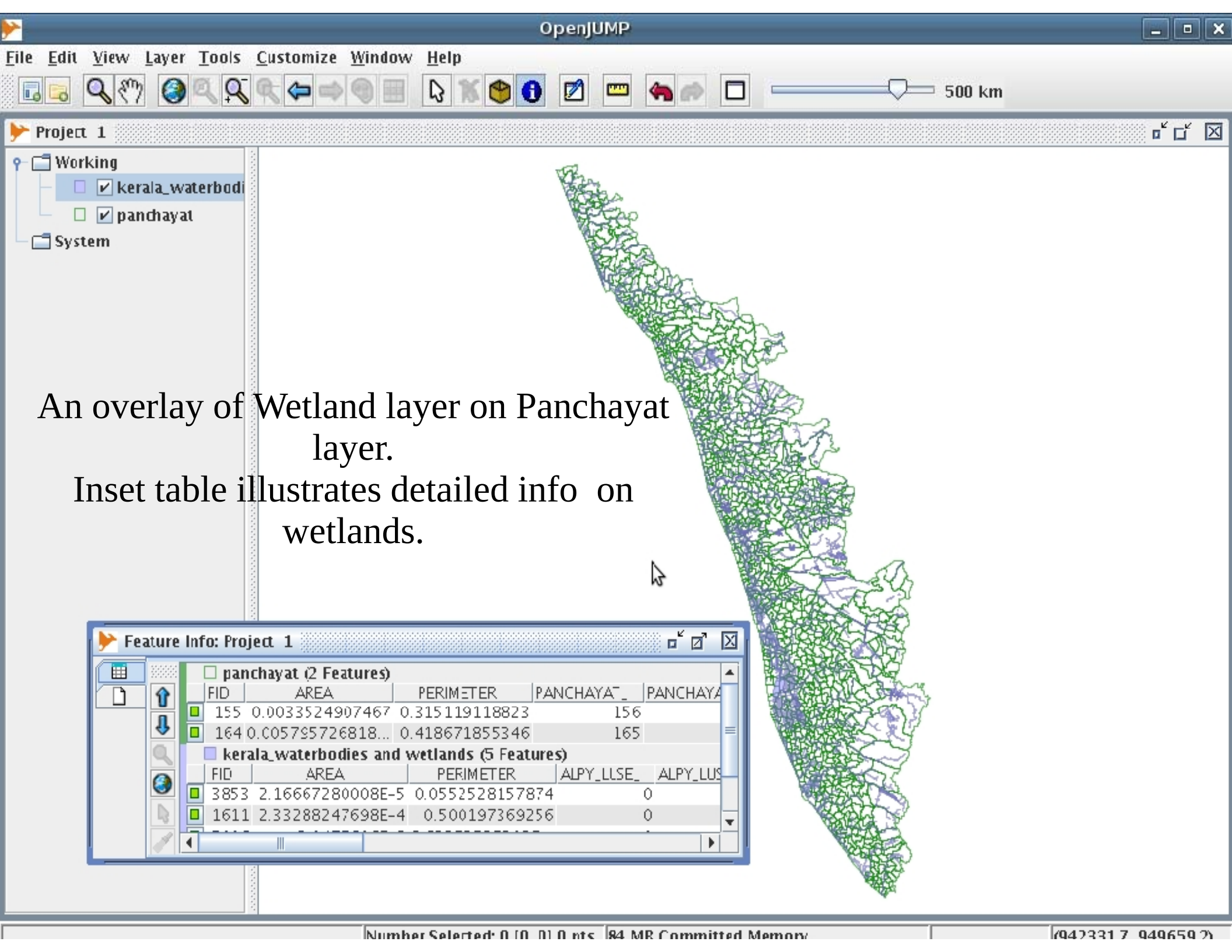
A Zoomed view of Adminstrative units



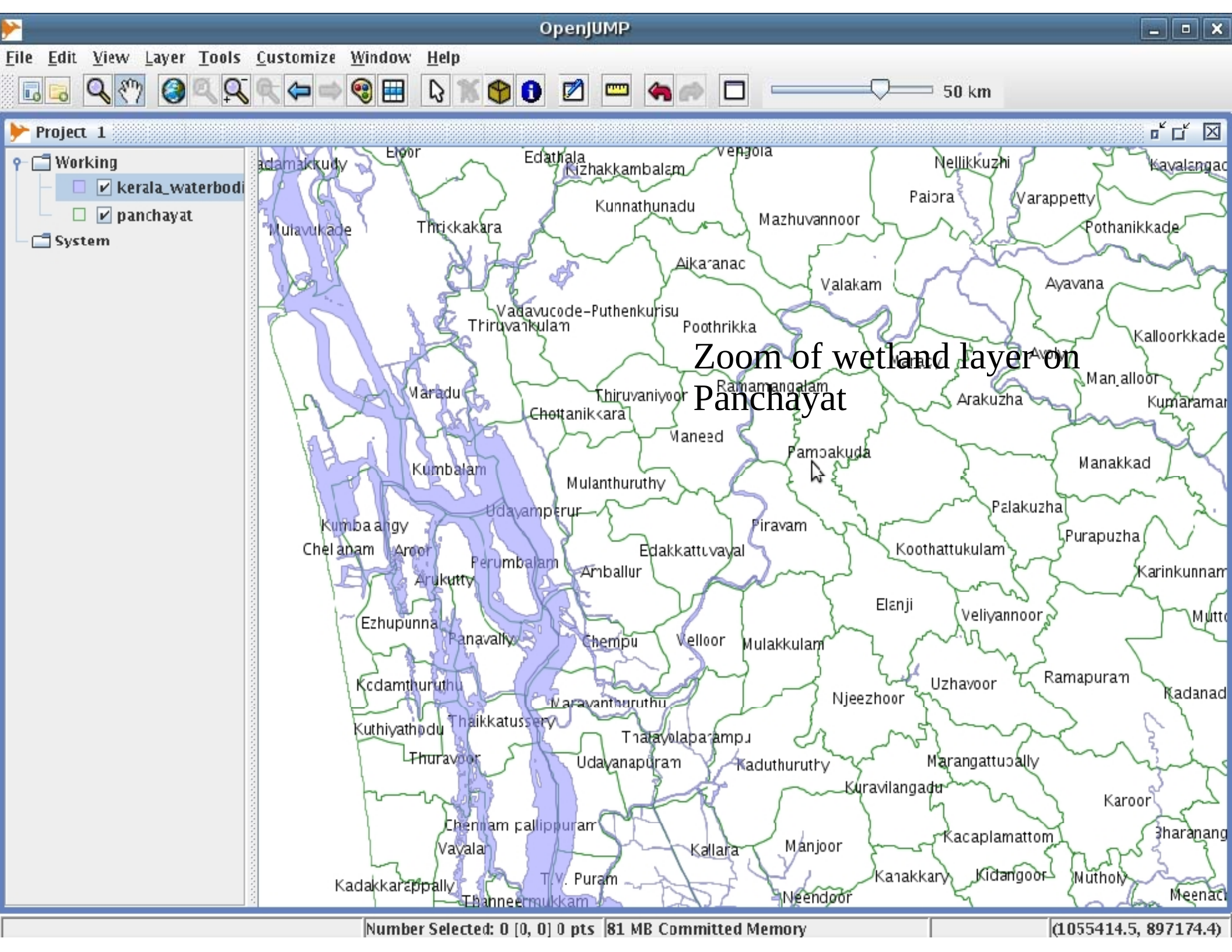
Wetland Layer

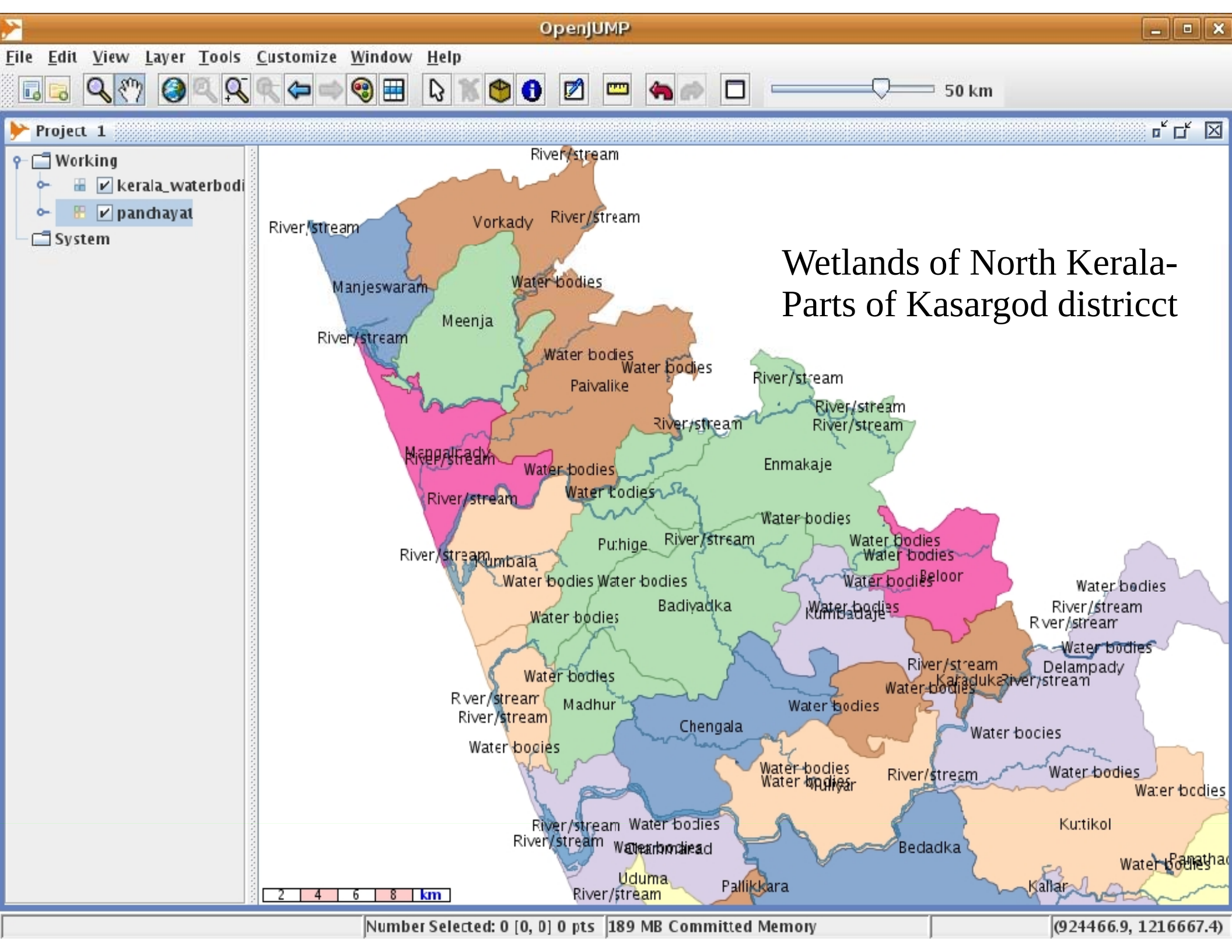


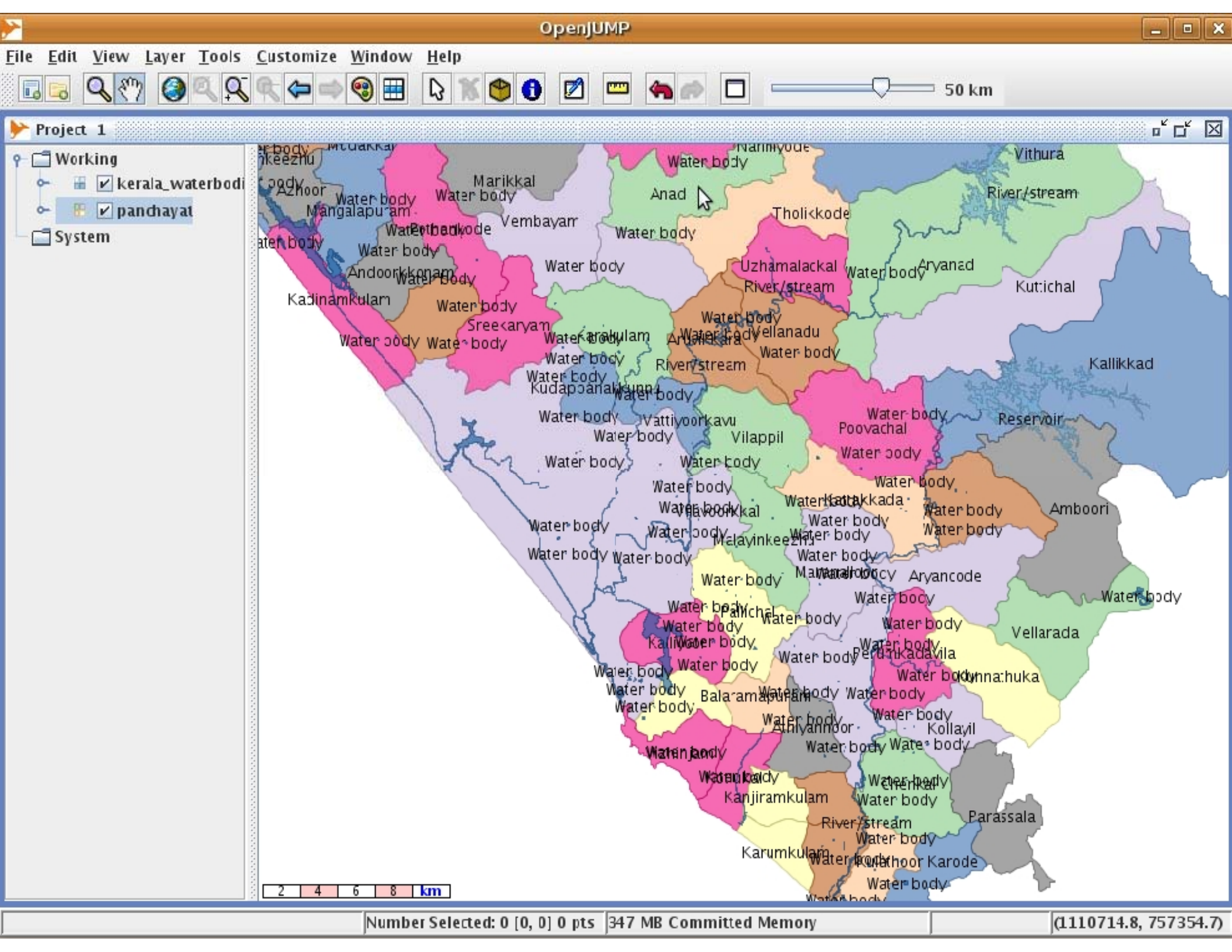
An overlay of Wetland layer on Panchayat layer. Inset table illustrates info on wetlands.

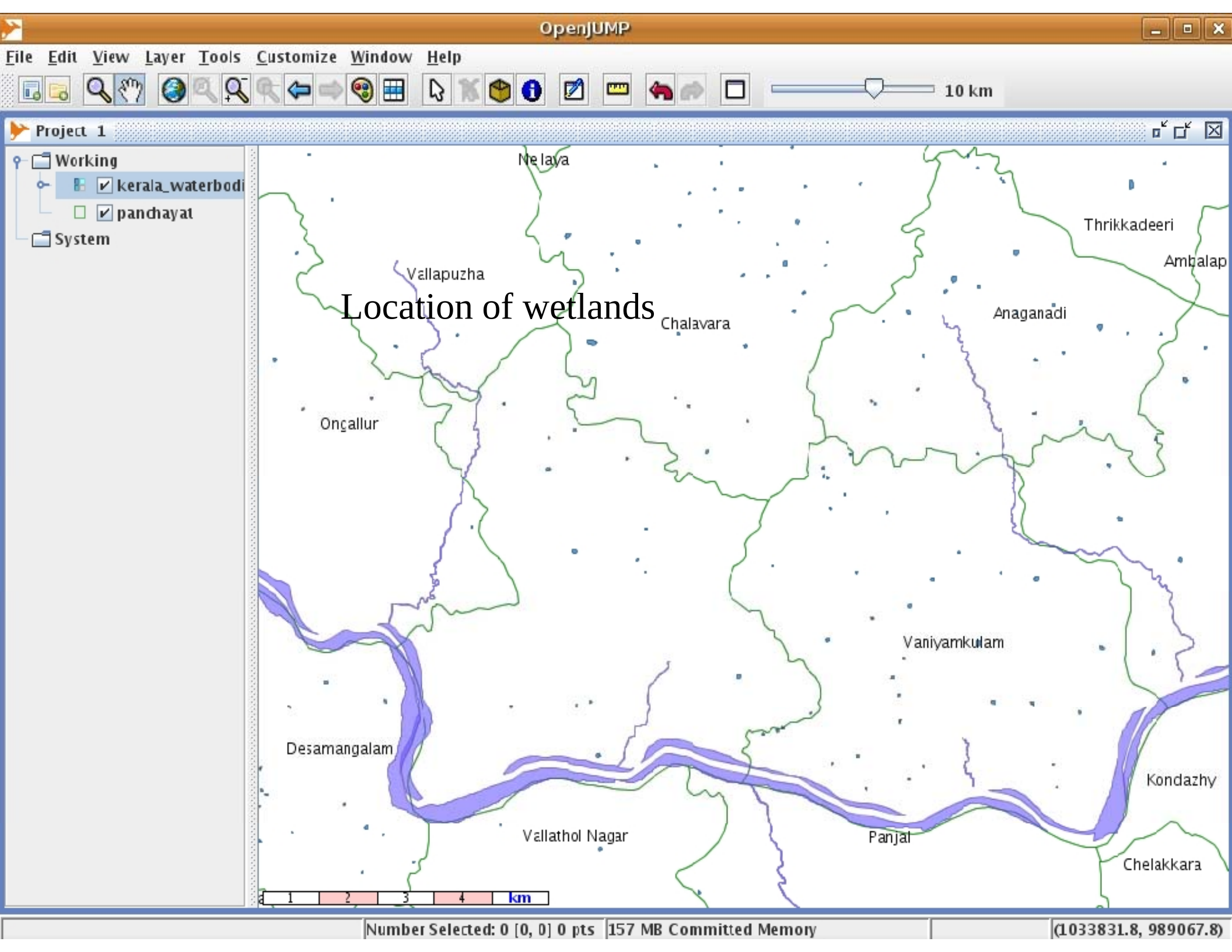


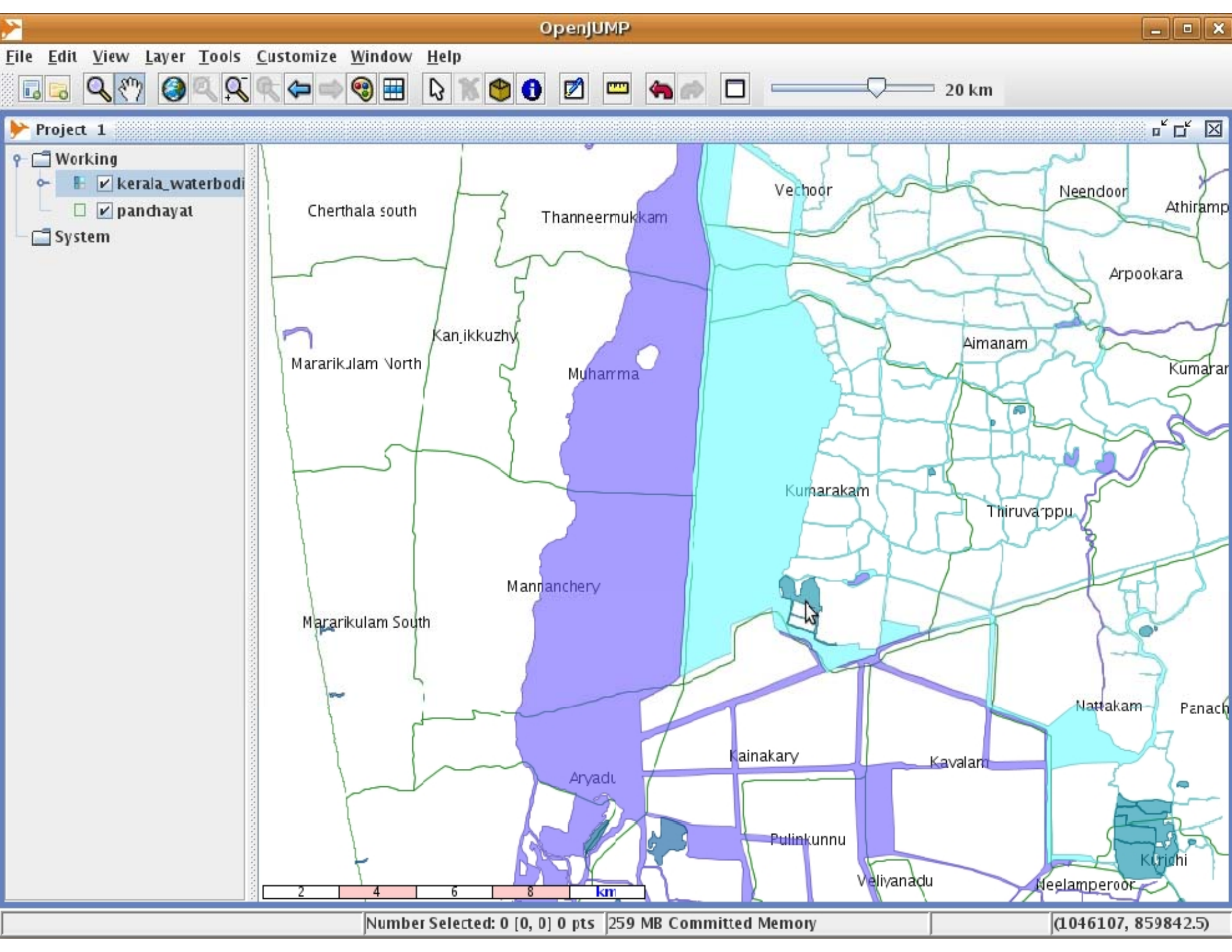
An overlay of Wetland layer on Panchayat layer.
Inset table illustrates detailed info on wetlands.

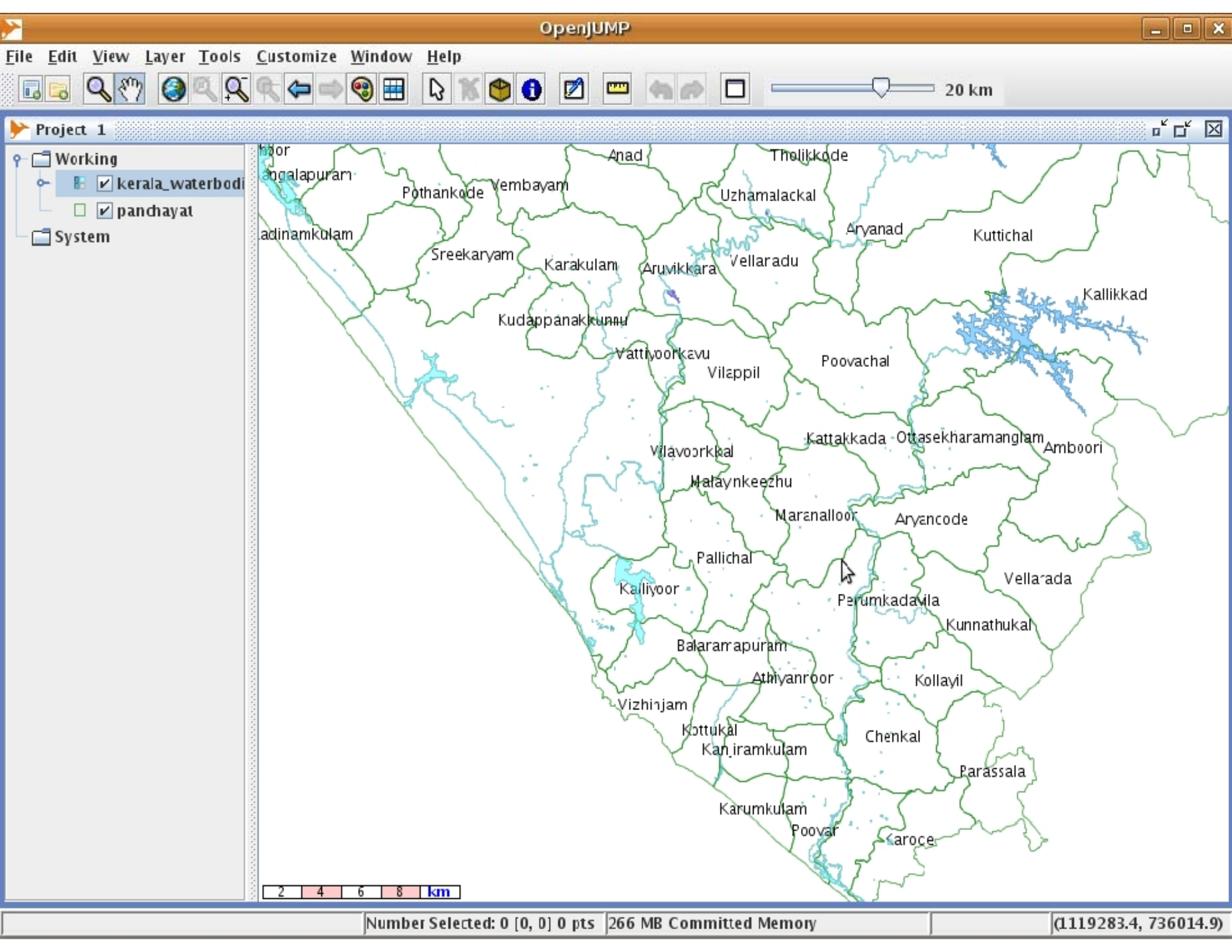












Web GIS

Database Structure

1. k_bnd (Kerala Boundary)
2. k_drainage (Kerala Drainage)
3. k_fallow (Fallow lands in Kerala)
4. k_paddy (Paddy Lands in Kerala)
5. k_panchayat (Panchayat boundaries for Kerala)
6. k_roads (Kerala Roads)
7. k_stat (Statistical table)
8. k_wetland (Kerala Wetlands)
9. k_biodiversity (Kerala PAN FISH data table)

WEB GIS Tools used

- Google Map API
- HTML
- CSS
- PHP
- Post GRE Sql
- Post GIS
- Ajax/XML
- OGR Library
- Open Jump

Data Processing

Data
Uploading using
OpenJUMP

Database
Design

Re/Projecting
Data using
GDAL library

Data
Cleaning using
OpenJUMP

Thematic Vector Data
Collection on
Land Use Land Cover
including wetlands

PostgreSQL
PostGIS
Database

Conversion of
data to XML

```
<markers>
  <marker lat="X" long="Y" id="1" />
  <marker lat="X" long="Y" id="2" />
  ...
</markers>
```

Web Page reads
in XML or KML
and displays as
data on the map

Google
Server

Provides services
for use in Map
(imagery, streets,
geocoding...)

API key = "XYZ"

Web Page

MAP

Wetlands Of Kerala

Web GIS

Search Add Overlay Geo Tools

Select District

☐ Municipality ☐ Panchayat

☐ Select Wetland Size

☐ (Radius in Meters)

☐ Panfish Data

Select Wetland Type

OK Reset



Wetlands Of Kerala

Kerala State!

Search Add Overlay Geo Tools

Select District ▾

☐ Municipality ☐ Panchayat

☐ Select Wetland Size ▾

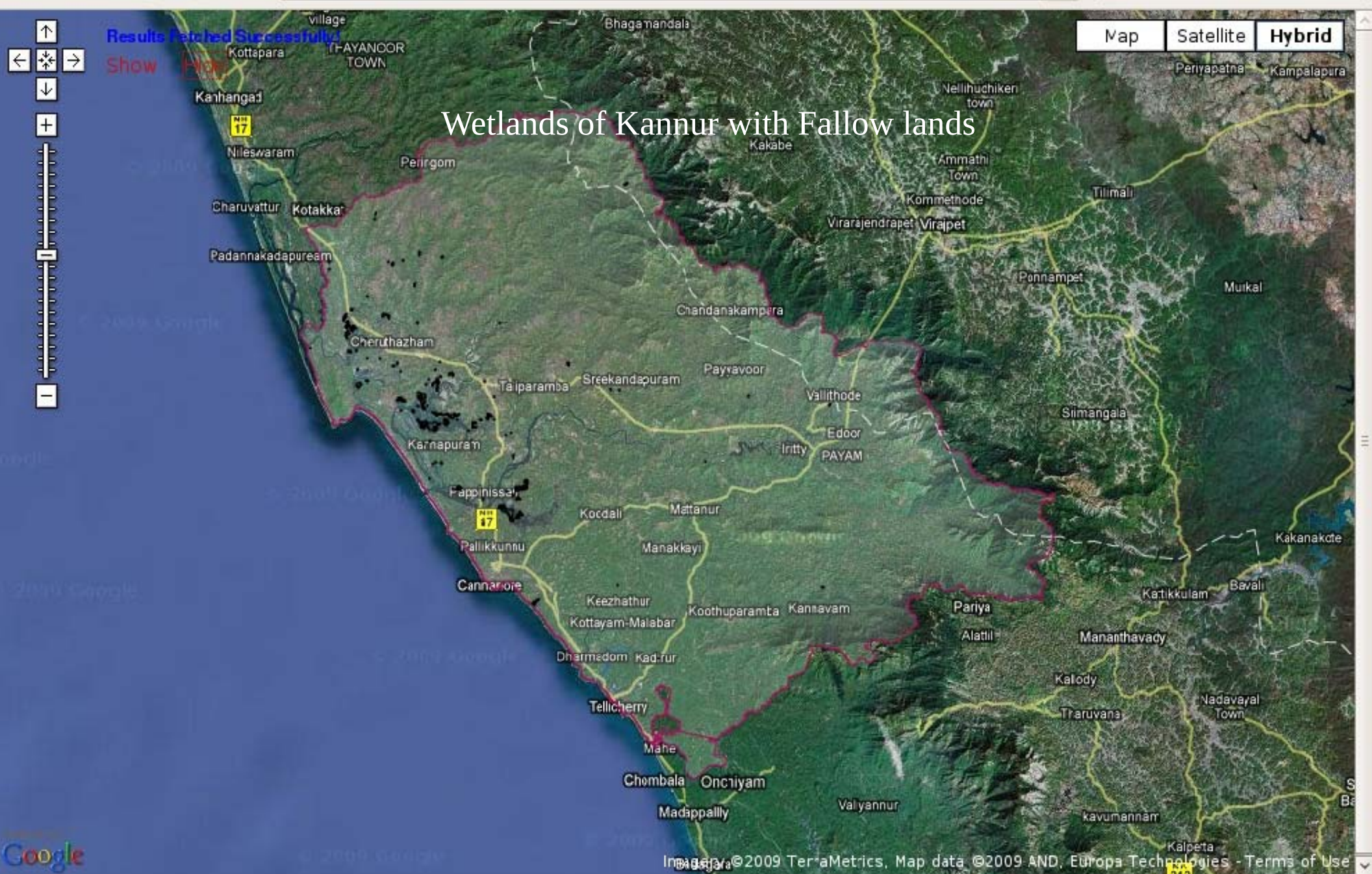
☐ (Radius in Meters)

☐ Panfish Data

Select Wetland Type ▾

OK Reset





Wetlands Of Kerala

Results Fetched Successfully!

Search Add Overlay Geo Tools

Malappuram

☐ Municipality ☒ Panchayat

Perumbadappu

Select Panchayat

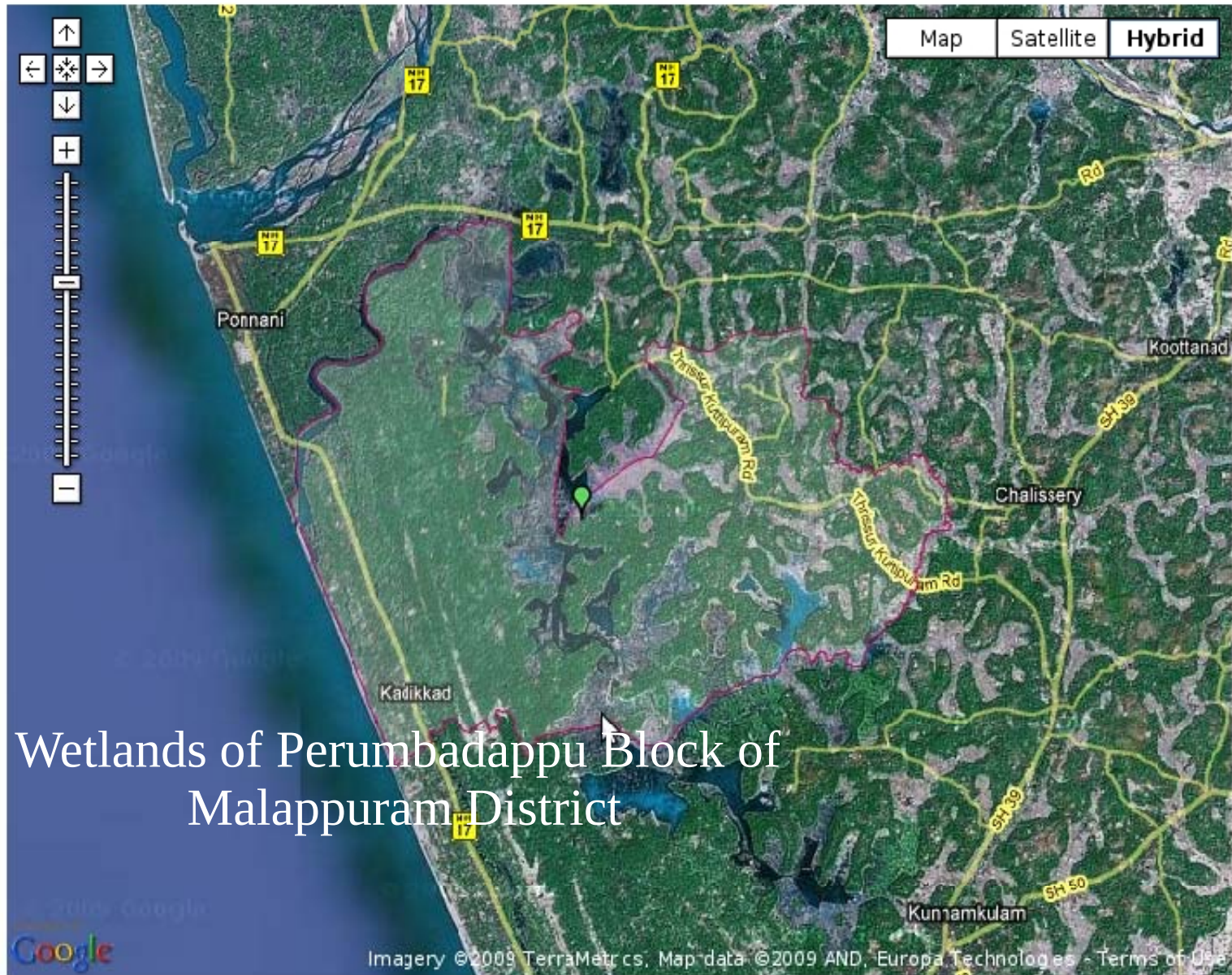
☐ Select Wetland Size

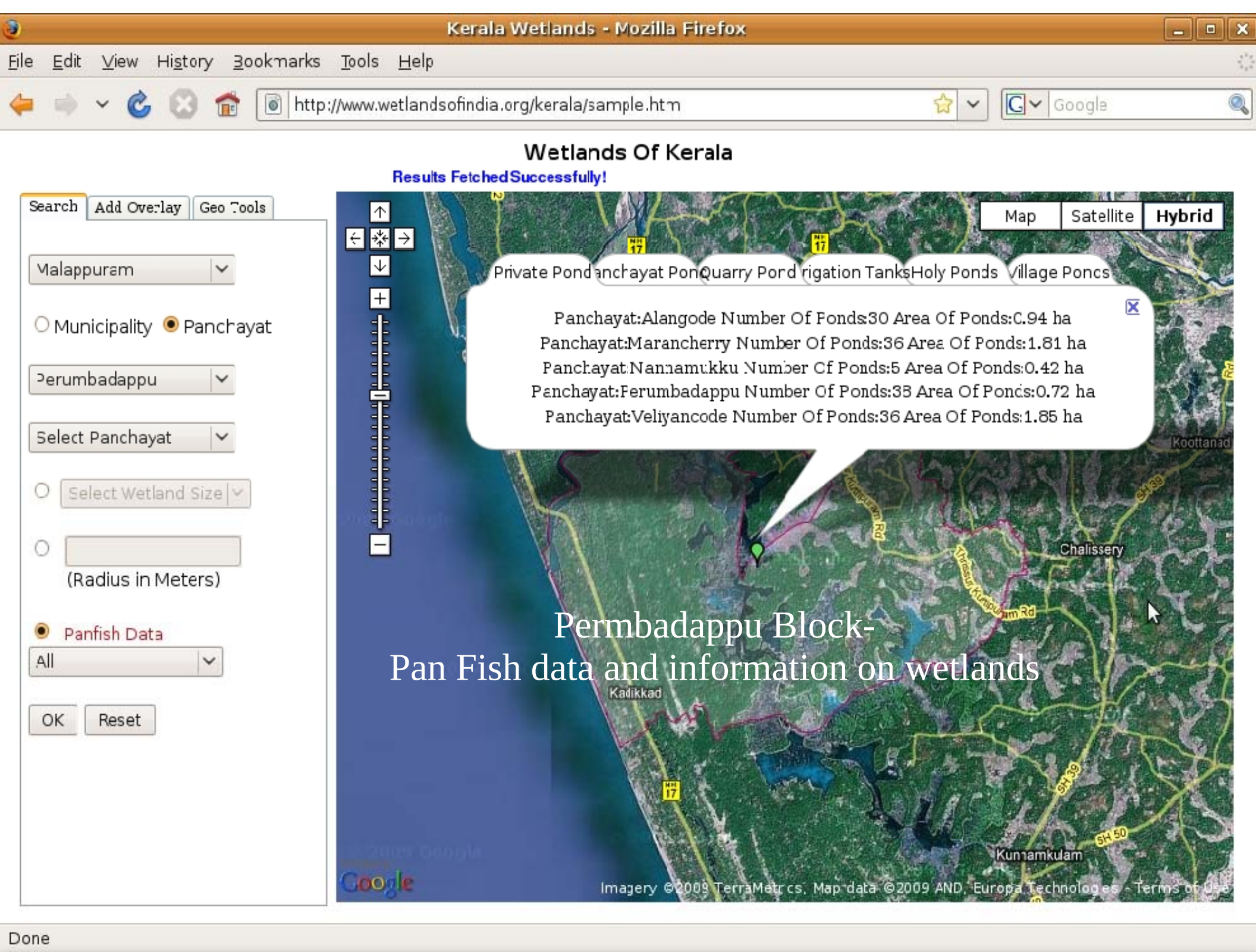
☐ (Radius in Meters)

☒ Panfish Data

All

OK Reset





Wetlands Of Kerala

Results Fetched Successfully!

Search Add Overlay Geo Tools

Malappuram

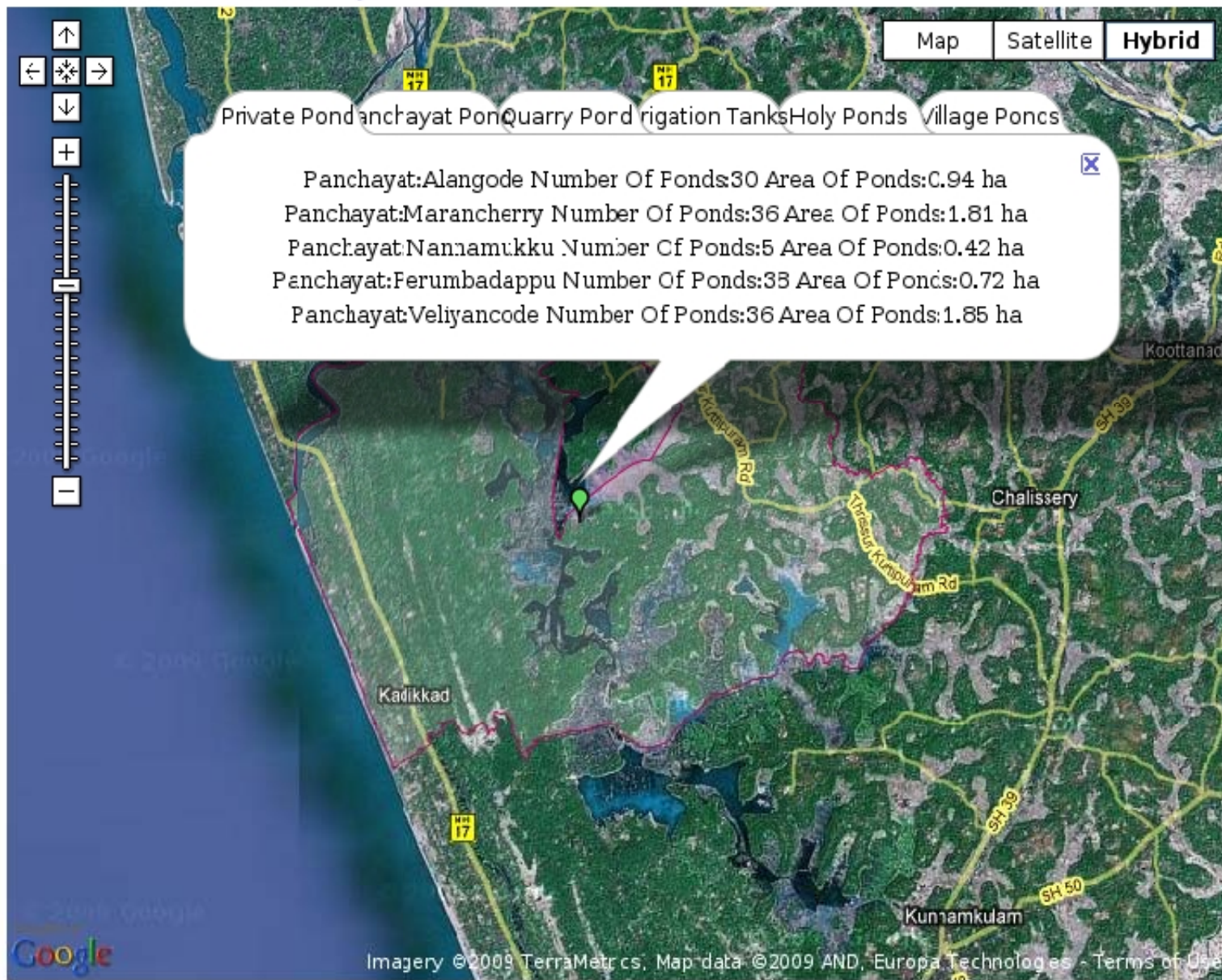
☐ Municipality ☒ Panchayat

Ferumbadappu

The Panchayat Fisheries Resource Databook is called Panfish book. The data pertains to water resources, fishes & others. The data in this site contains 14 types & aerial extent of wetlands. The data on these wetlands were collected in 2002 by Dept. of fisheries, Govt. of Kerala.

OK

Reset



Wetlands Of Kerala

Results Fetched Successfully!

Search Add Overlay Geo Tools

Palakkad

☐ Municipality ☒ Panchayat

Nemmara

Select Panchayat

☐ Select Wetland Size

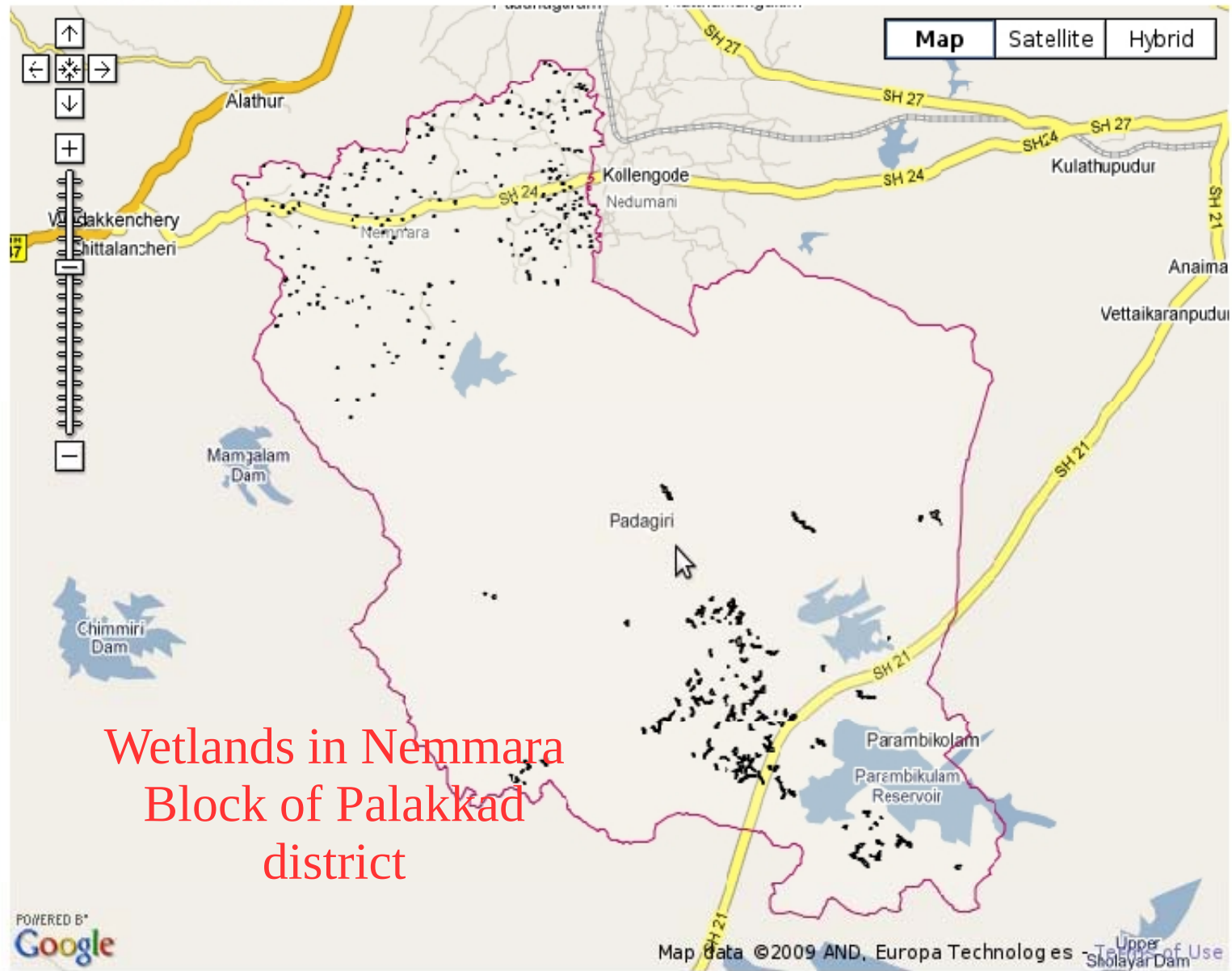
☐ (Radius in Meters)

☐ Panfish Data

Select Wetland Type

OK Reset

Total 355 Wetlands found



Wetlands Of Kerala

Results Fetched Successfully!

Search Add Overlay Geo Tools

Malappuram

☐ Municipality ☒ Panchayat

Perumbadappu

Marancherry

☐ Select Wetland Size

☐ (Radius in Meters)

☐ Panfish Data

Select Wetland Type

OK Reset

Total 0 Wetlands found



Wetlands Of Kerala

Results Fetched Successfully!

Search Add Overlay Geo Tools

Palakkad

☐ Municipality ☒ Panchayat

Nemmara

Select Panchayat

☐ Select Wetland Size

☐ (Radius in Meters)

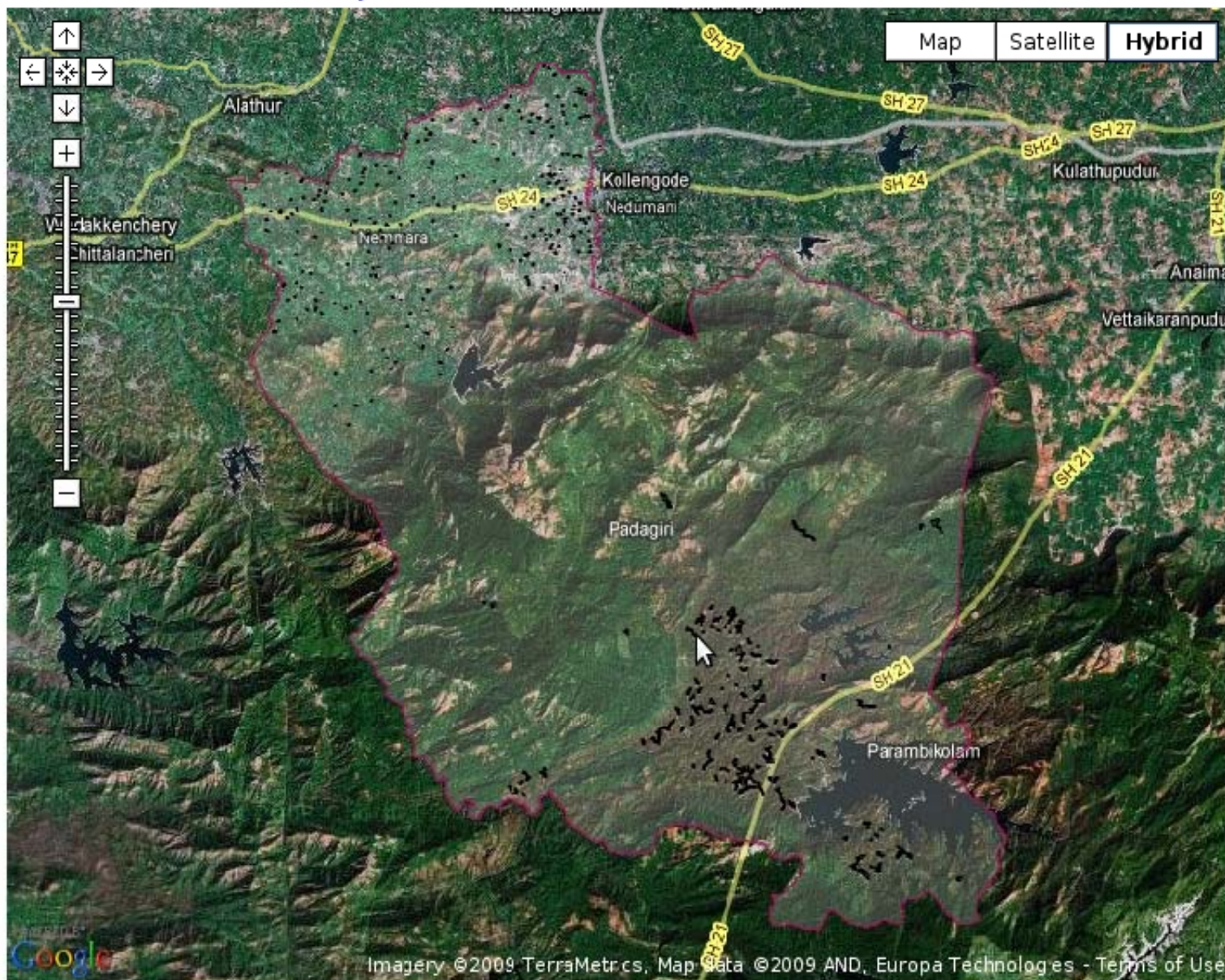
☐ Panfish Data

Select Wetland Type

OK

Reset

Total 355 Wetlands found



Wetlands Of Kerala

Results Fetched Successfully!

Search: Add Overlay Geo Tools

- ☒ Fallow Land
- ☒ Paddy Land
- ☒ Place Names
- ☒ Roads
- ☒ Drainage

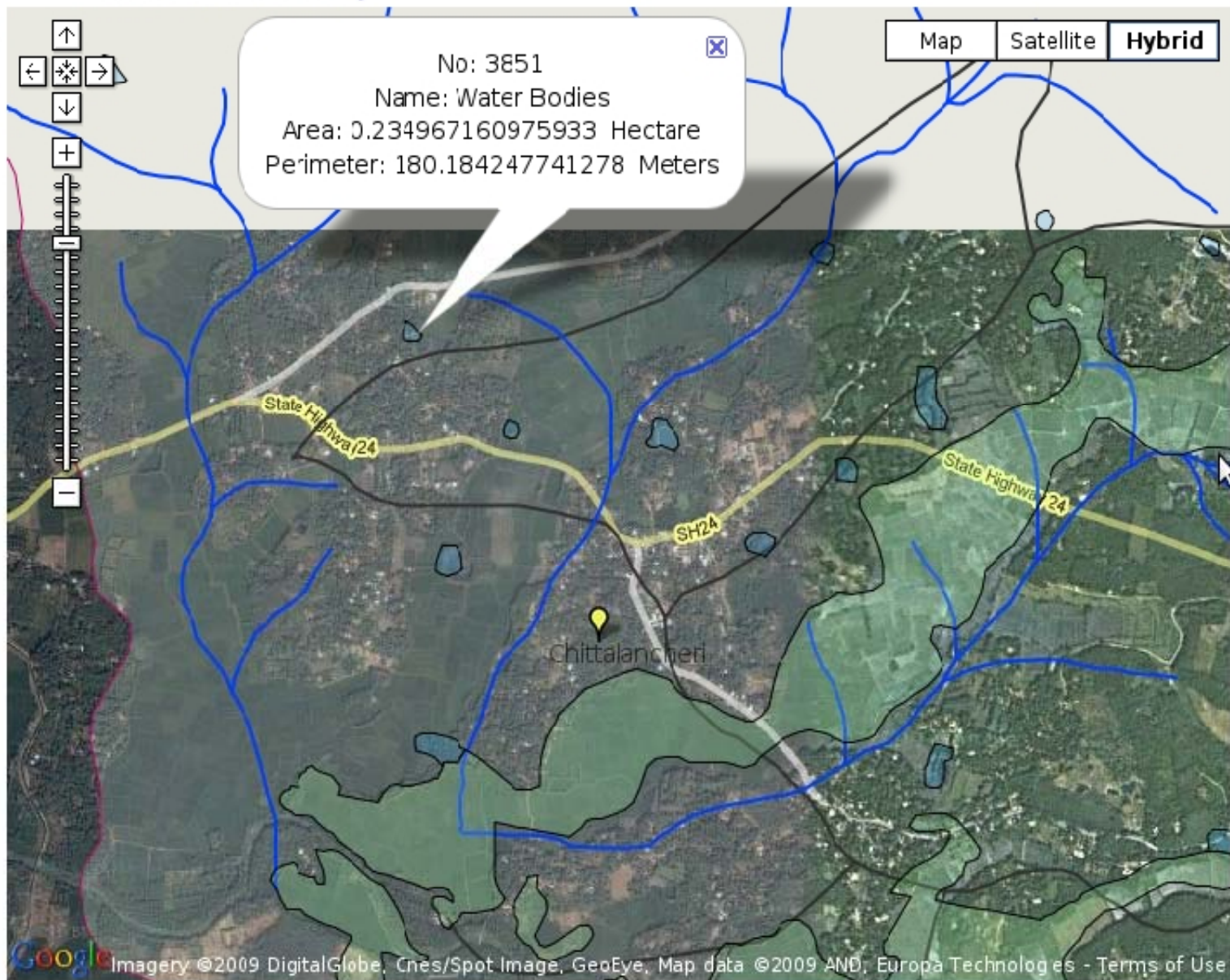


Wetlands Of Kerala

Results Fetched Successfully!

Search Add Overlay Geo Tools

- ☐ Fallow Land
- ☒ Paddy Land
- ☒ Place Names
- ☒ Roads
- ☒ Drainage



Wetlands Of Kerala

Results Fetched Successfully!

Search Add Overlay Geo Tools

- ☒ Fallow Land
- ☒ Paddy Land
- ☒ Place Names
- ☒ Roads
- ☒ Drainage



Wetlands Of Kerala

Results Fetched Successfully!

Search Add Overlay Geo Tools

- ☒ Fallow Land
- ☒ Paddy Land
- ☒ Place Names
- ☒ Roads
- ☒ Drainage



Wetlands Of Kerala

Results Fetched Successfully!

Search Add Overlay Geo Tools

Palakkad

☐ Municipality ☒ Panchayat

Chittur

Pattencherry

☐ Select Wetland Size

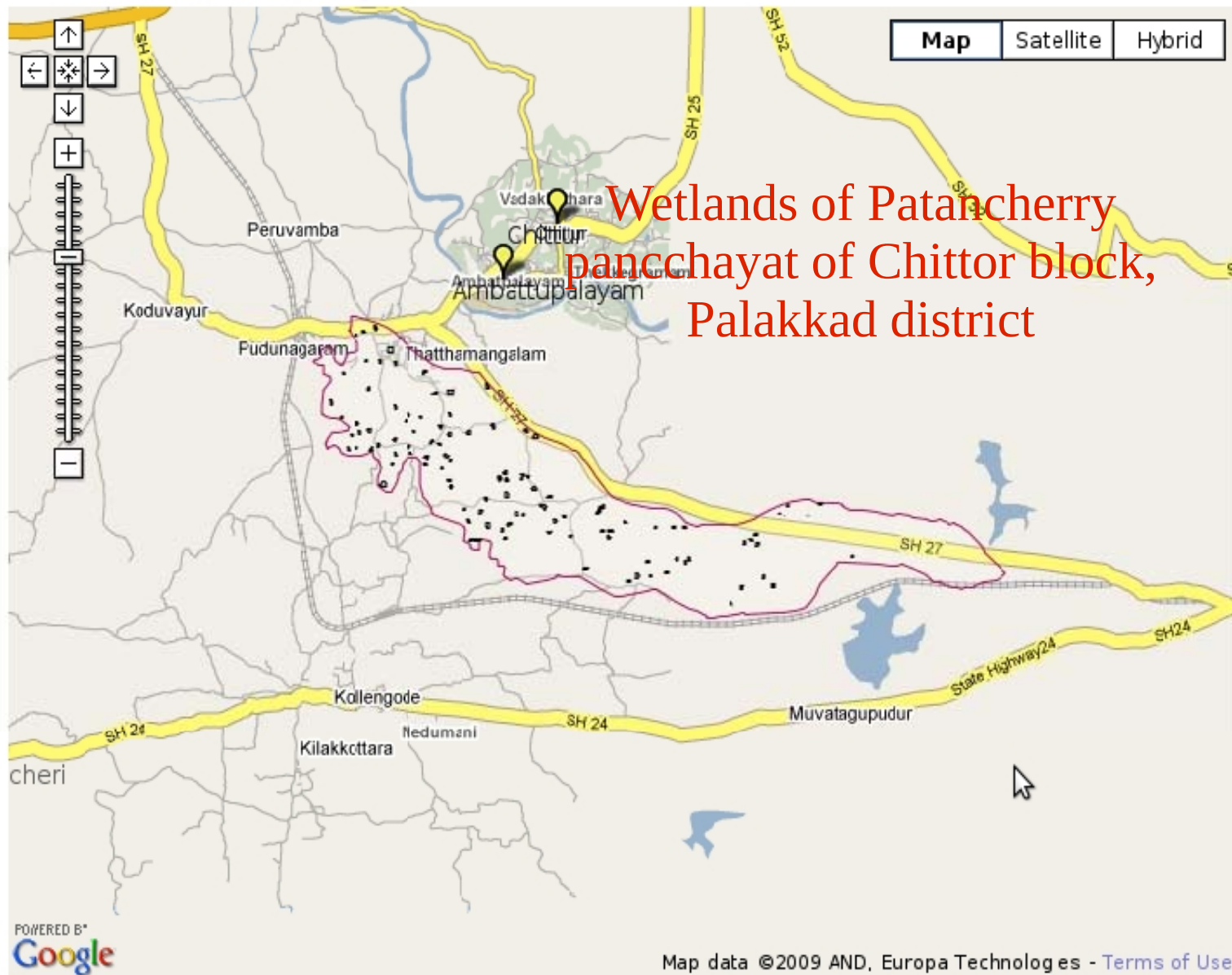
☐ (Radius in Meters)

☐ Panfish Data

Select Wetland Type

OK Reset

Total 110 Wetlands found



Wetlands Of Kerala

Results Fetched Successfully!

Search: Add Overlay Geo Tools

Palakkad

☐ Municipality ☒ Panchayat

Chittur

Pattencherry

☐ Select Wetland Size

☒ 2500
(Radius in Meters)

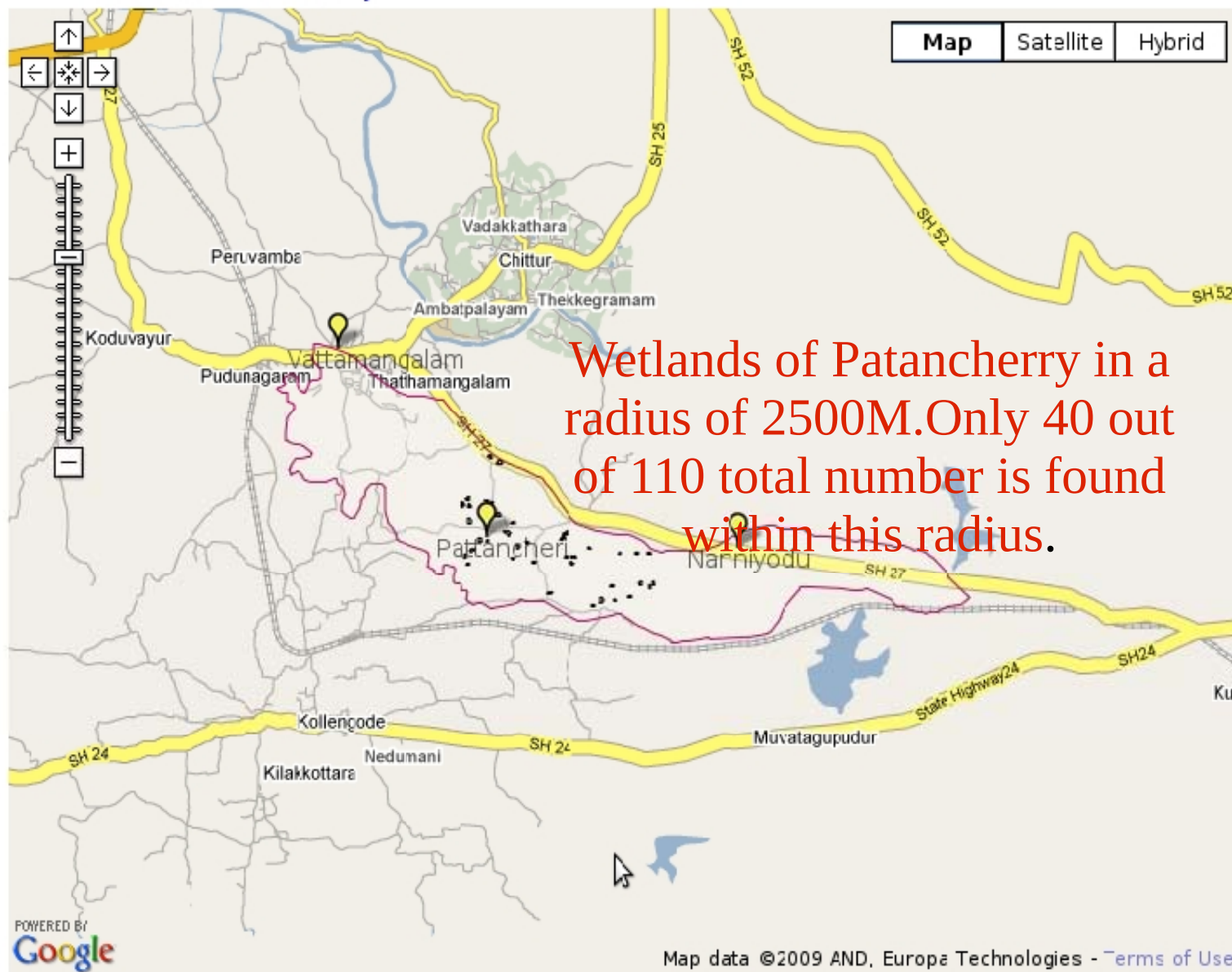
☐ Panfish Data

Select Wetland Type

OK

Reset

Total 40 Wetlands found



Wetlands Of Kerala

Results Fetched Successfully!

Search Add Overlay Geo Tools

Palakkad

☐ Municipality ☒ Panchayat

Nemmara

Nemmara

☐ Select Wetland Size

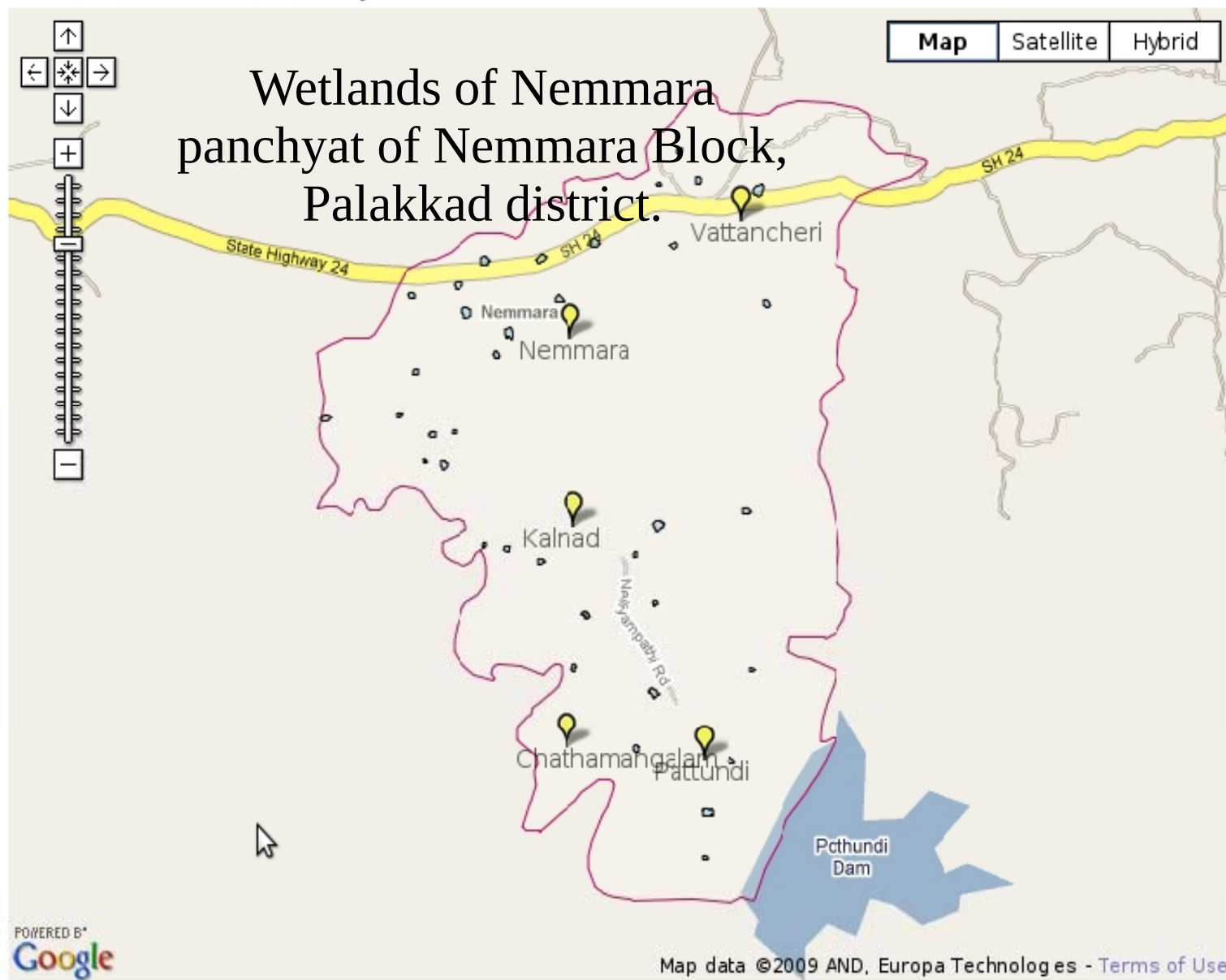
(Radius in Meters)

☐ Panfish Data

Select Wetland Type

OK Reset

Total 37 Wetlands found



Wetlands Of Kerala

Results Fetched Successfully!

Search Add Overlay Geo Tools

Palakkad

☒ Municipality ☐ Panchayat

Chittoor-Thathamanga

☐ Select Wetland Size

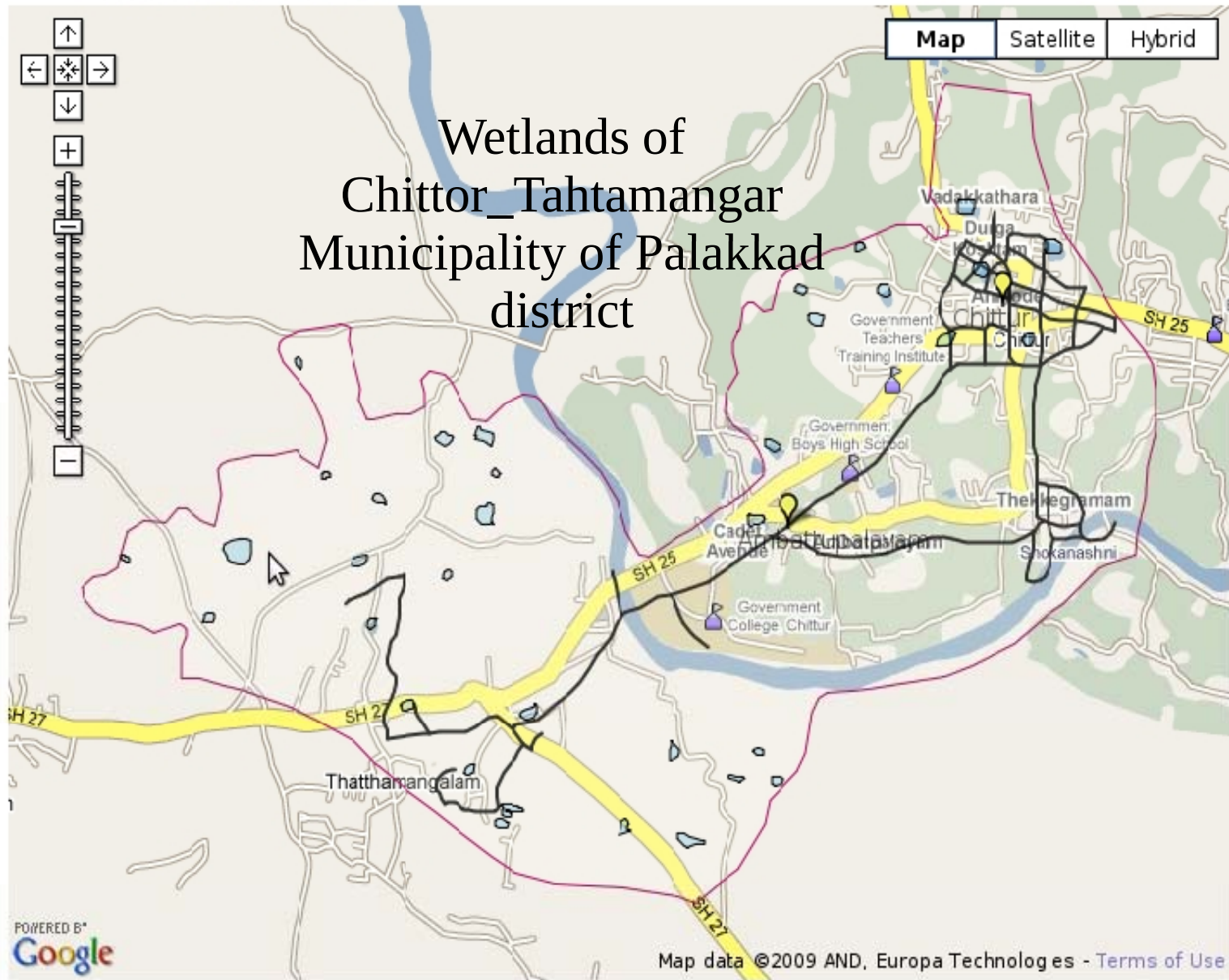
☐ (Radius in Meters)

☐ Panfish Data

Select Wetland Type

OK Reset

Total 35 Wetlands found



Wetlands Of Kerala

Results Fetched Successfully!

Search Add Overlay Geo Tools

Palakkad

☒ Municipality ☐ Panchayat

Chittoor-Thathamanga

☐ Select Wetland Size

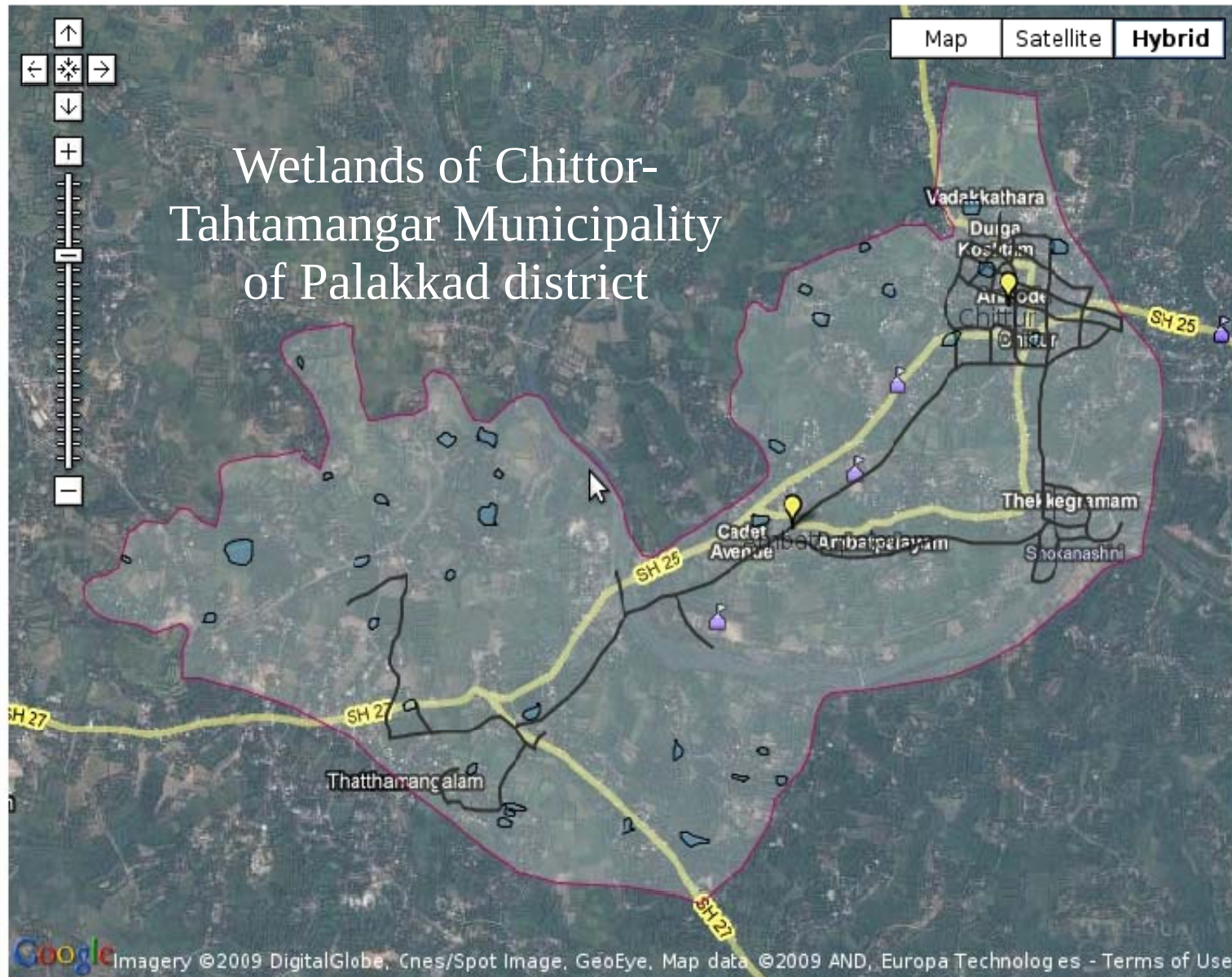
☐ (Radius in Meters)

☐ Panfish Data

Select Wetland Type

OK Reset

Total 35 Wetlands found



Wetlands Of Kerala

Results Fetched Successfully!

Search Add Overlay Geo Tools

Palakkad

☒ Municipality ☐ Panchayat

Chittoor-Thathamanga

☐ Select Wetland Size

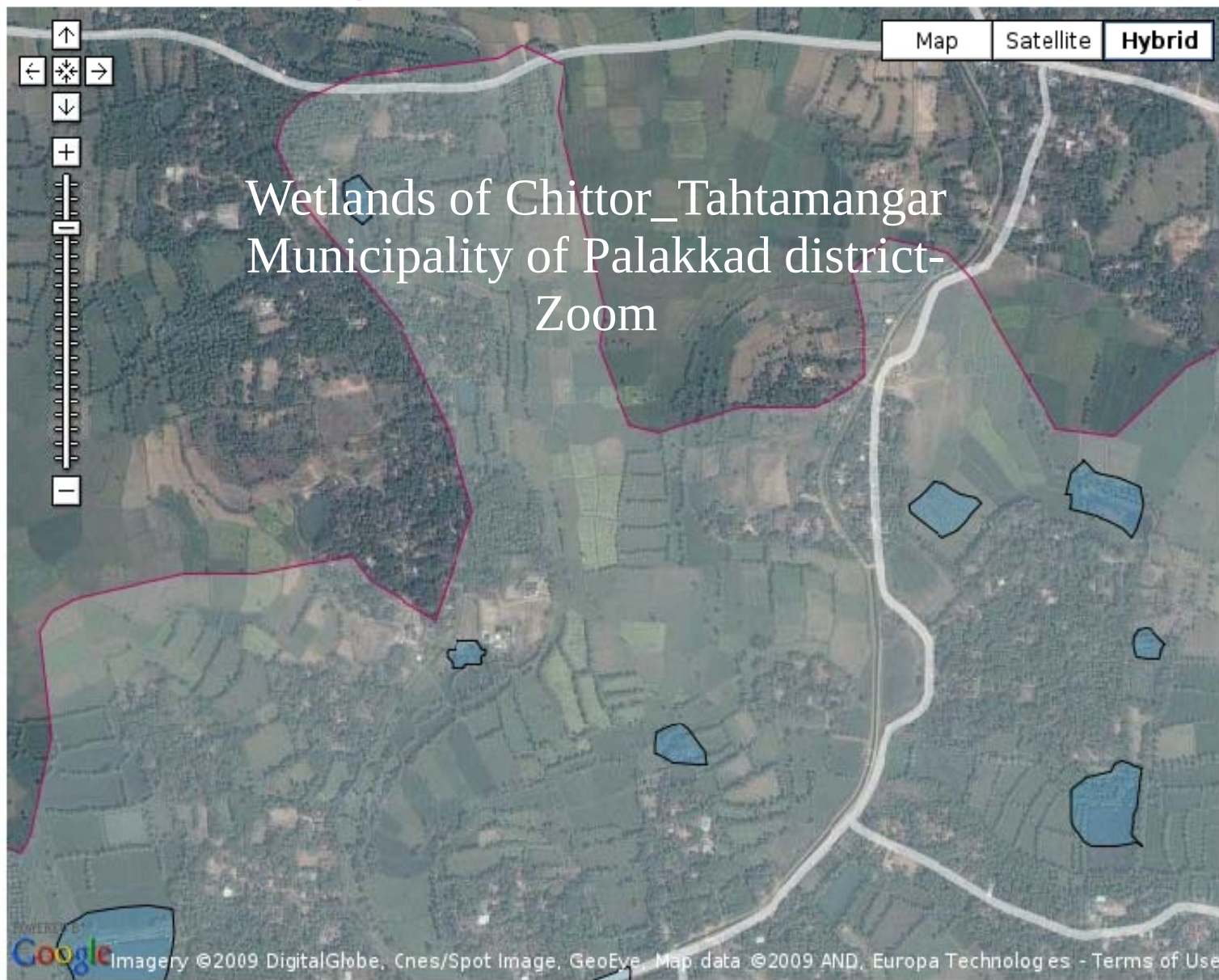
☐ (Radius in Meters)

☒ Panfish Data

Select Wetland Type

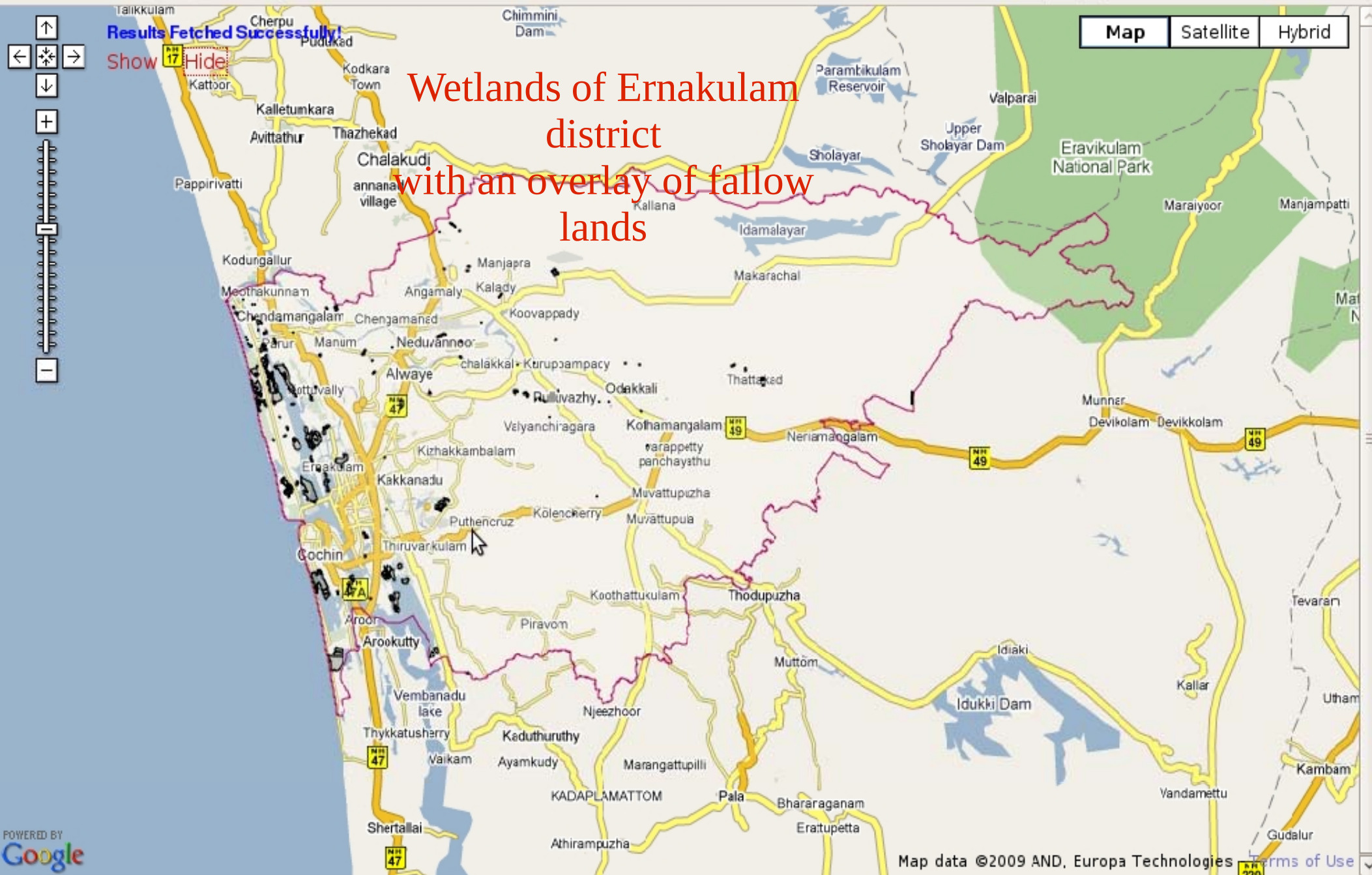
OK Reset

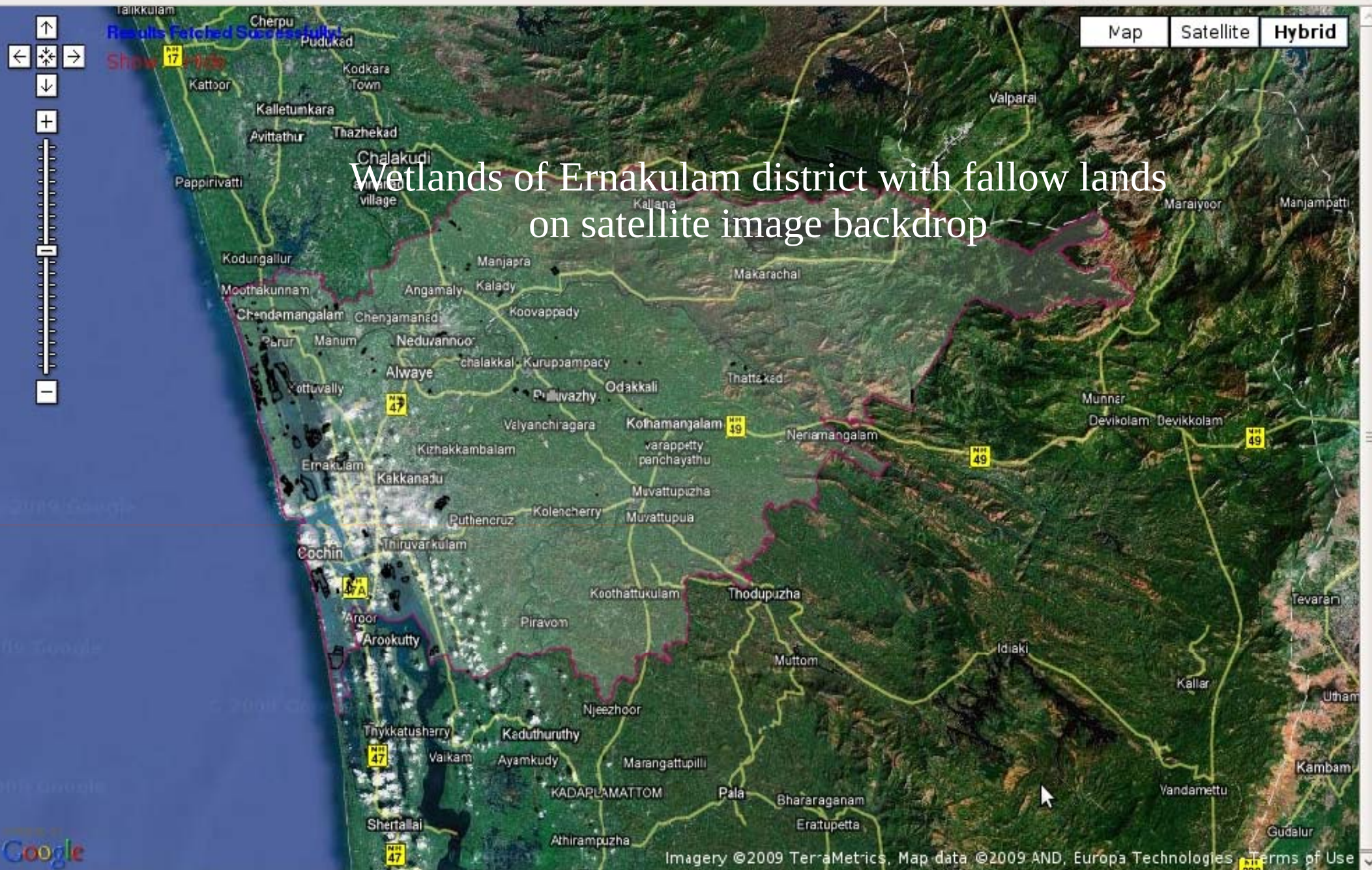
Total 35 Wetlands found



Map Satellite Hybrid

Wetlands of Ernakulam district with an overlay of fallow lands

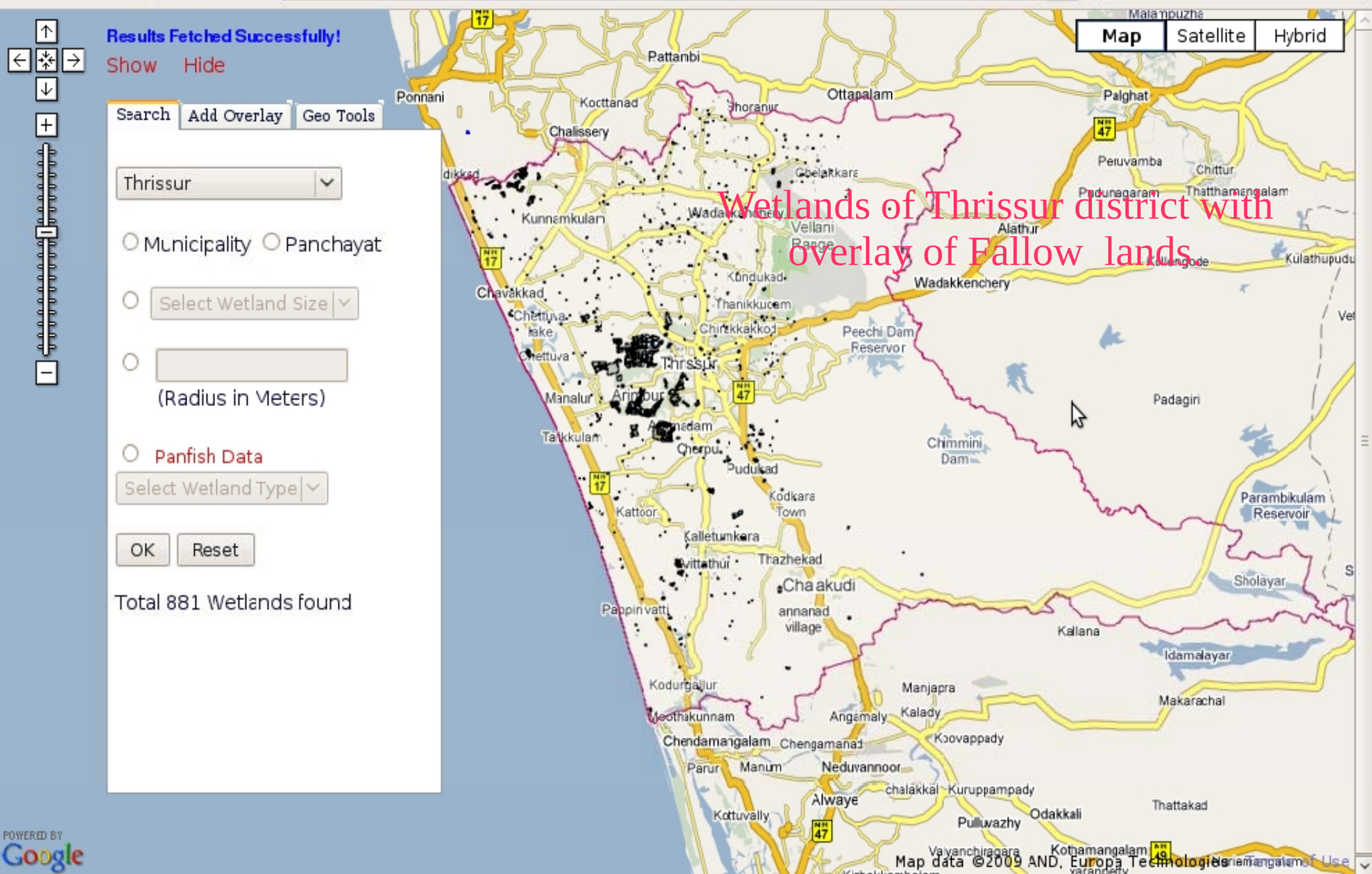


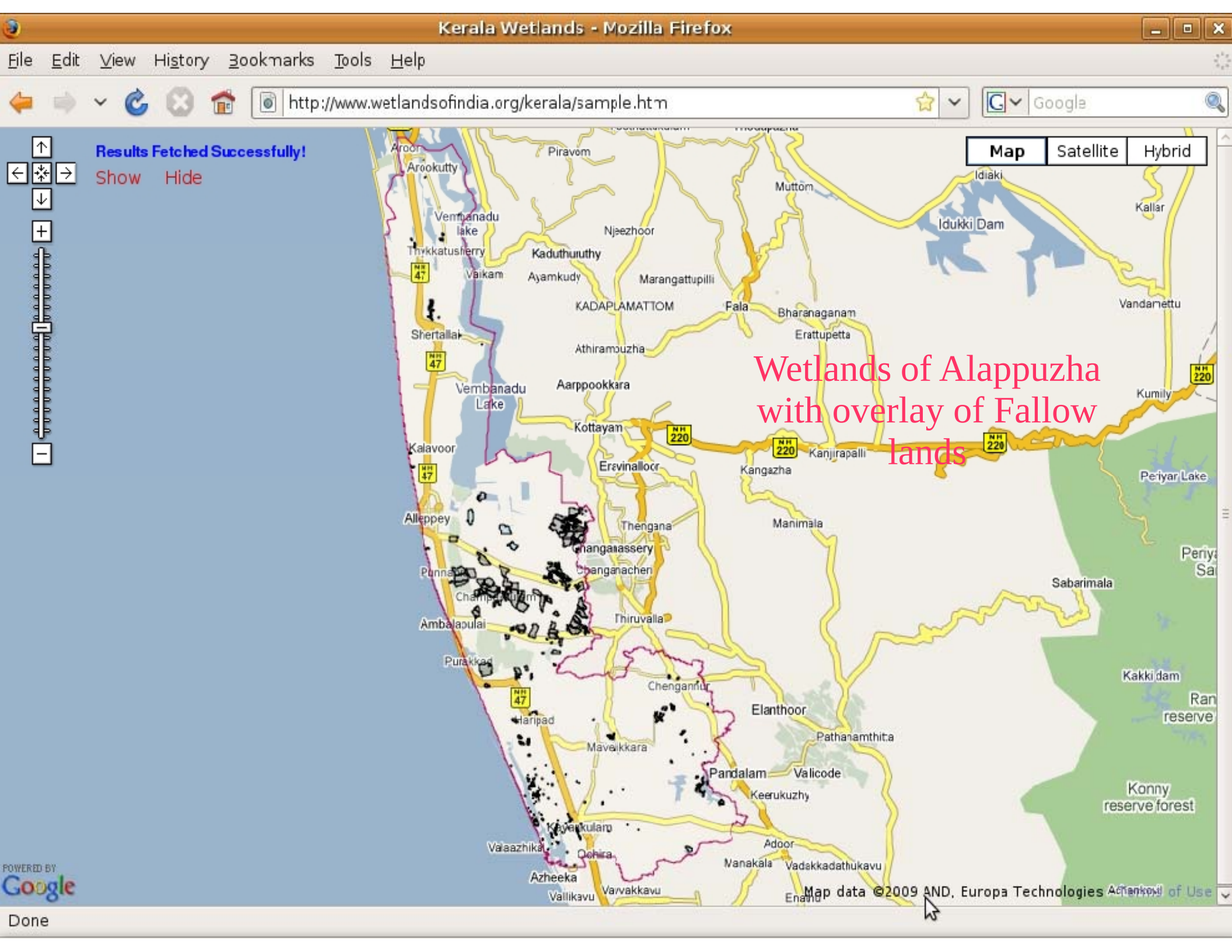


Results Fetched Successfully!

☒ Drainage

Map data ©2009 AND, Europa Technologies - [Terms of Use](#)



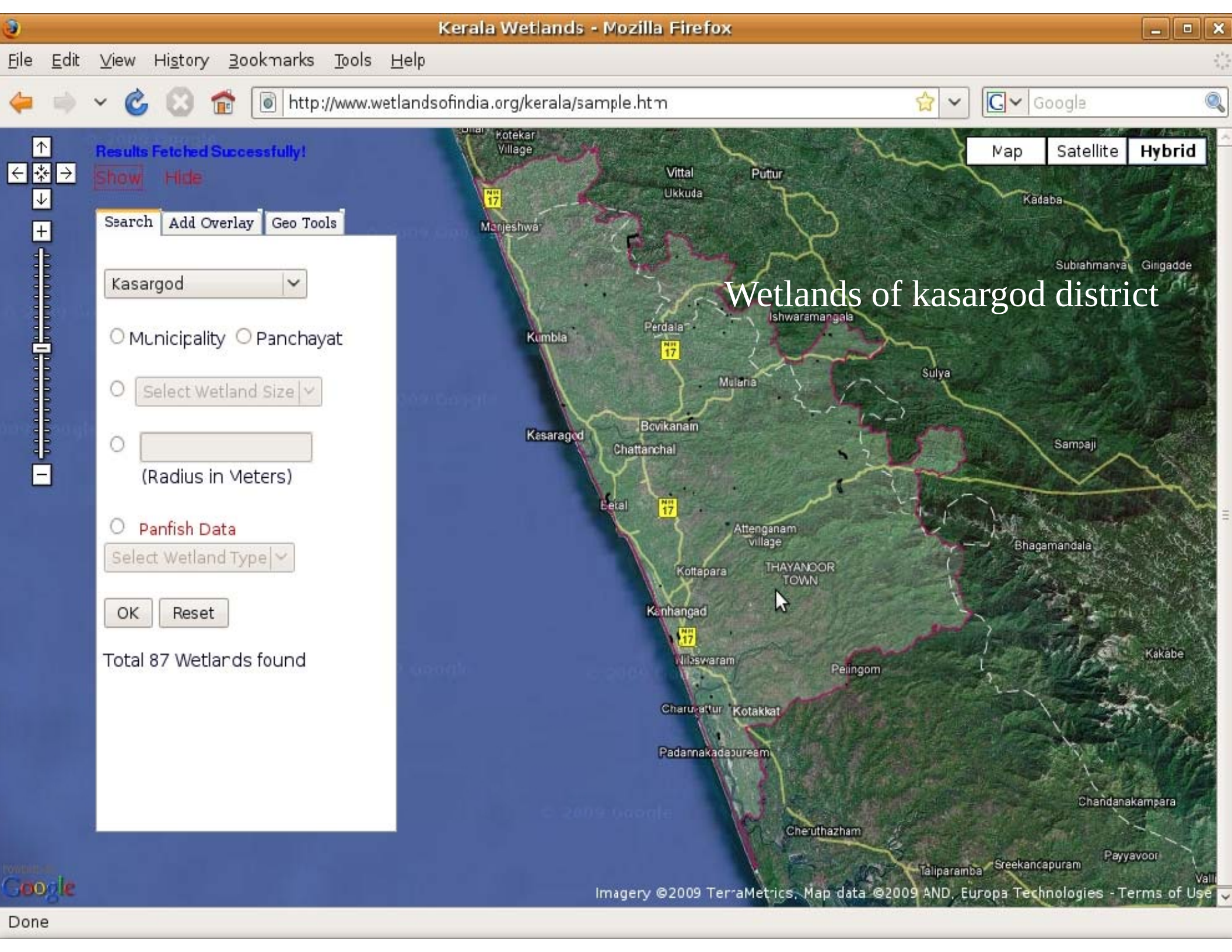


Map navigation controls: directional arrows, zoom in (+), zoom out (-), and a vertical zoom slider.

Results Fetched Successfully!
Show Hide

Map Satellite Hybrid

Wetlands of Alappuzha
with overlay of Fallow
lands



Map Satellite Hybrid

Results Fetched Successfully!

Show Hide

Search Add Overlay Geo Tools

Kasargod

Municipality Panchayat

Select Wetland Size

(Radius in Meters)

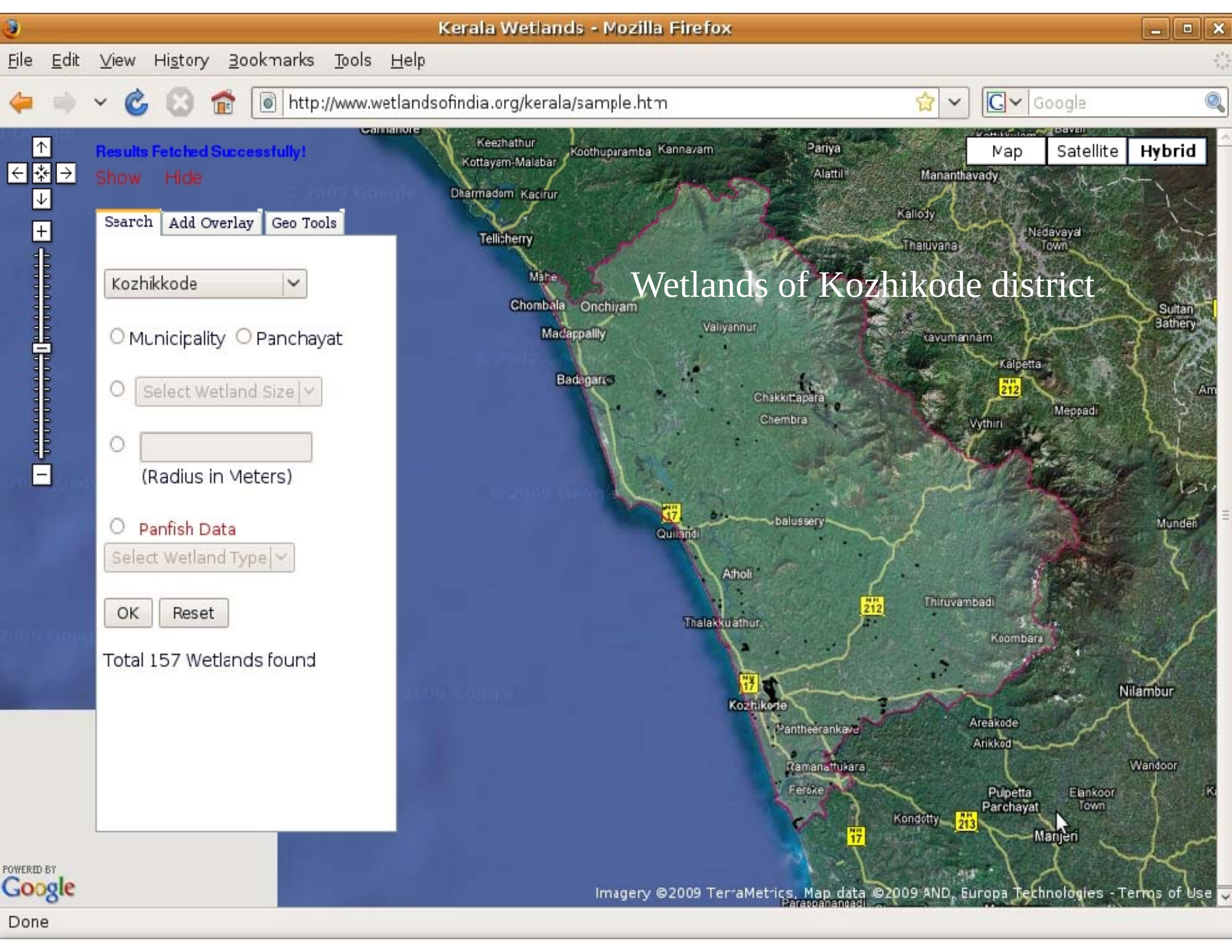
Panfish Data

Select Wetland Type

OK Reset

Total 87 Wetlands found

Wetlands of kasargod district



Map Satellite Hybrid

Wetlands of Kozhikode district

Results Fetched Successfully!

Show Hide

Search Add Overlay Geo Tools

Kozhikkode

Municipality Panchayat

Select Wetland Size

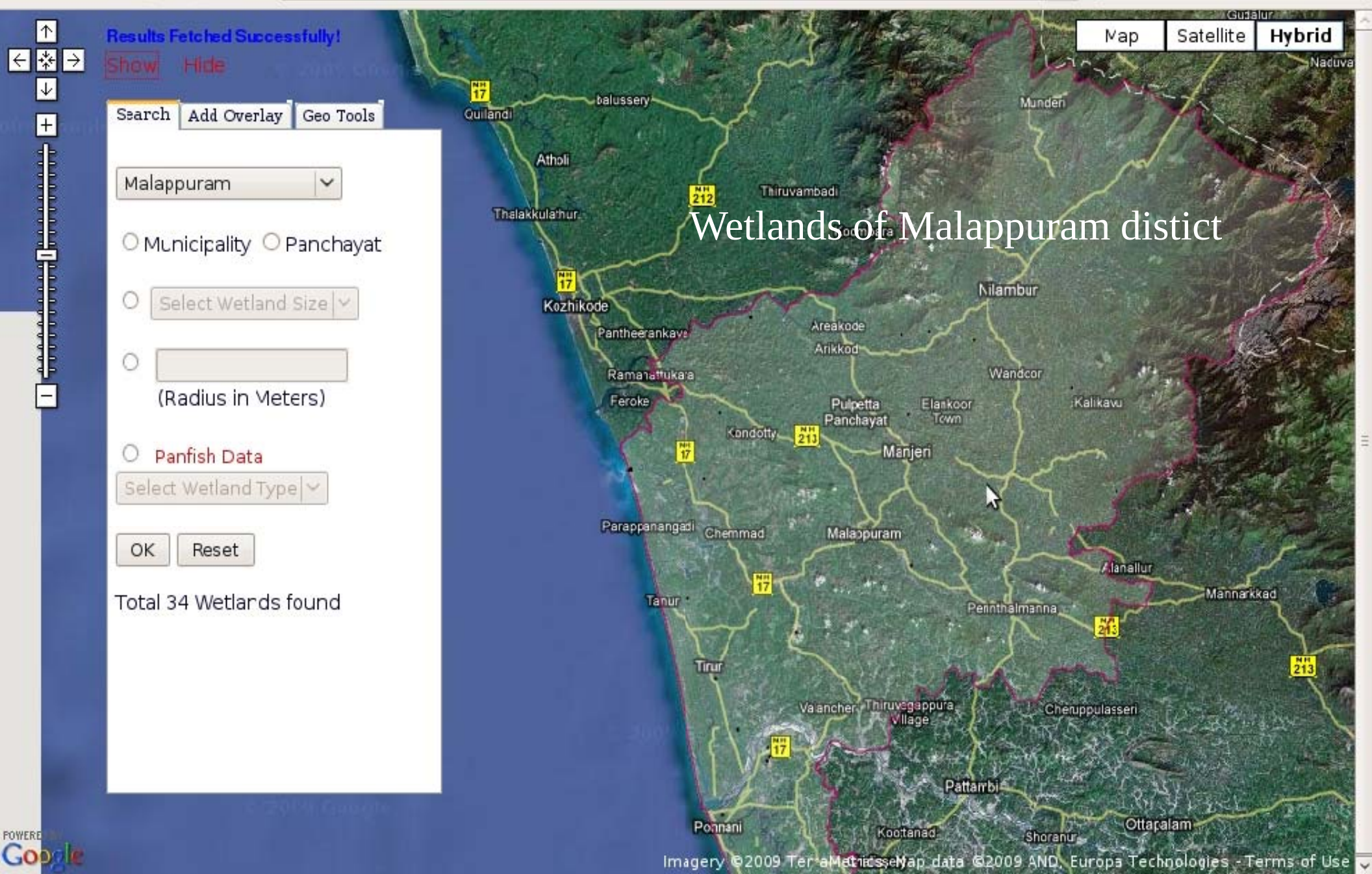
(Radius in Meters)

Panfish Data

Select Wetland Type

OK Reset

Total 157 Wetlands found





Results Fetched Successfully!

[Show](#) [Hide](#)[Search](#) [Add Overlay](#) [Geo Tools](#)

Palakkad

☐ Municipality ☐ Panchayat☐ Select Wetland Size☐ (Radius in Meters)☐ Panfish Data

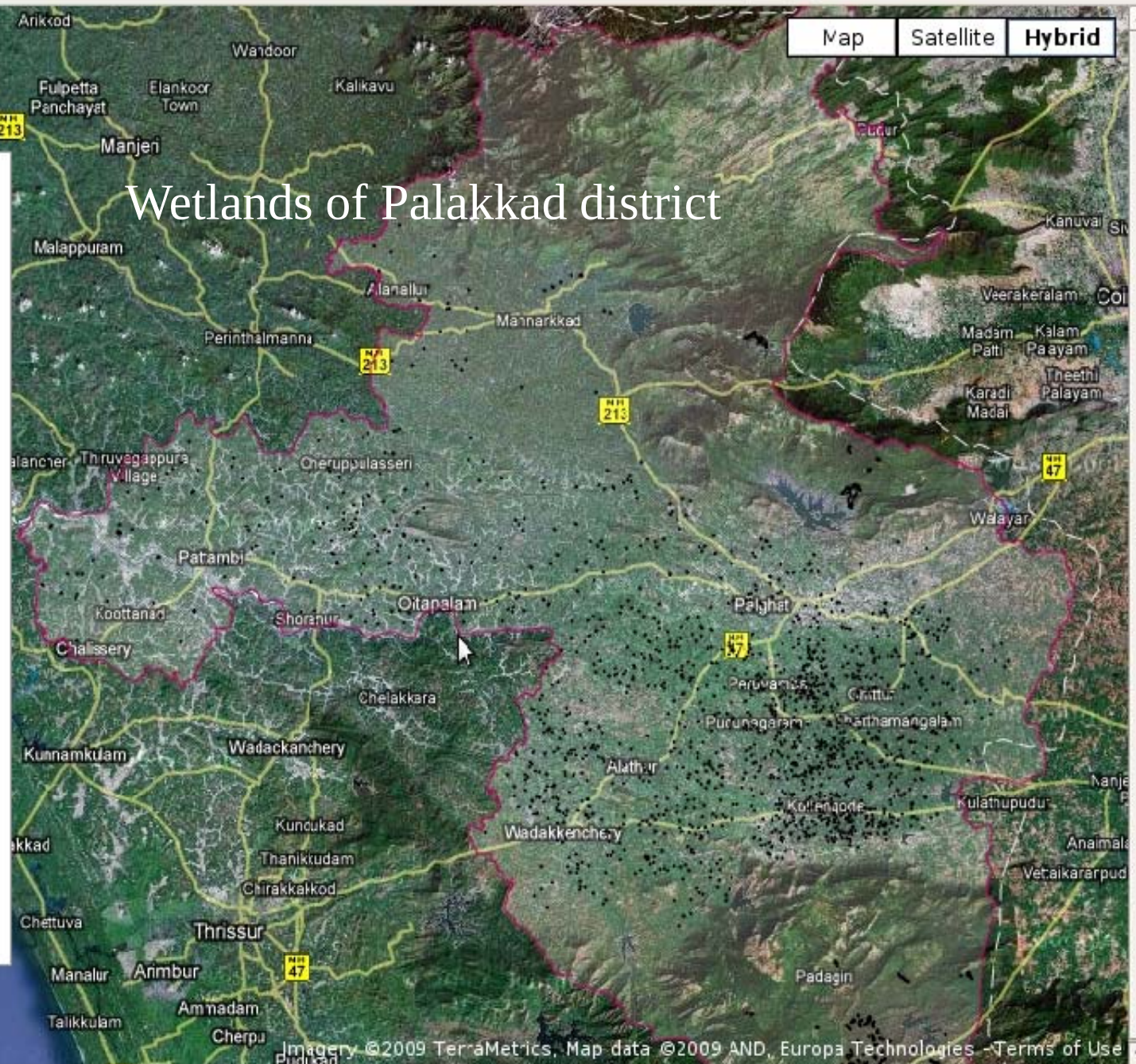
Select Wetland Type

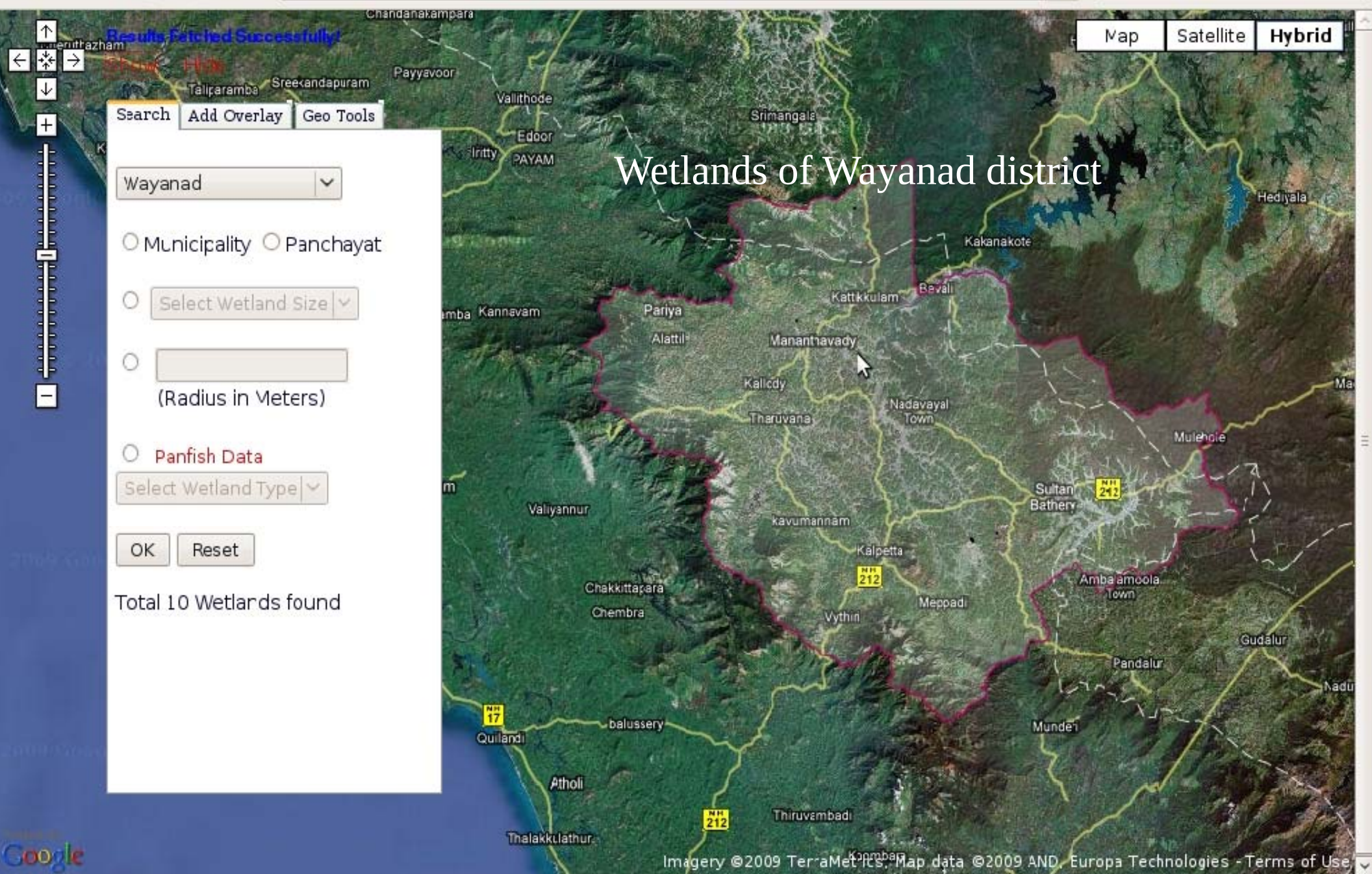
OK

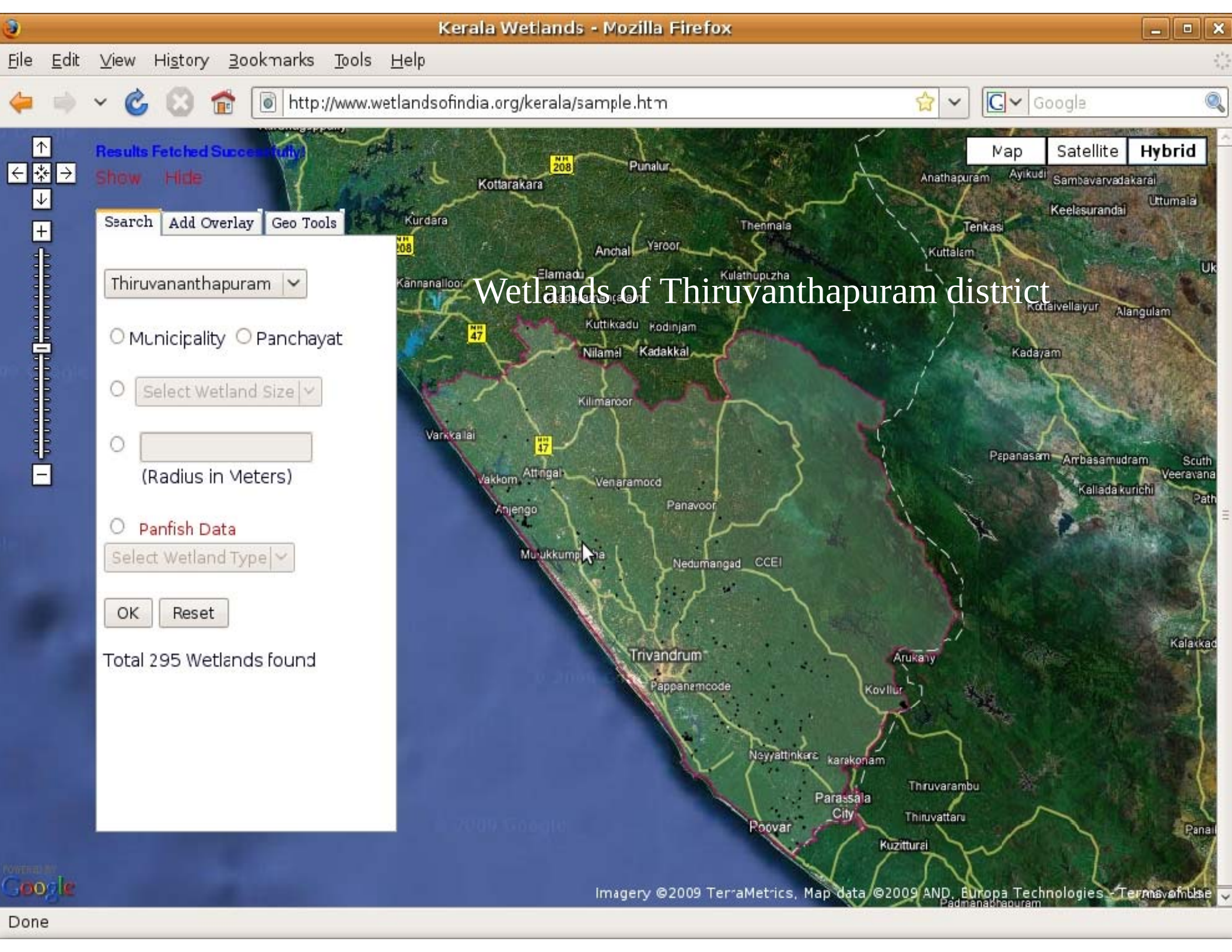
Reset

Total 2194 Wetlands found

Wetlands of Palakkad district









Results Fetched Successfully!

Show Hide

Search Add Overlay Geo Tools

Alappuzha

☐ Municipality ☐ Panchayat

☐ Select Wetland Size

☐ (Radius in Meters)

☐ Panfish Data

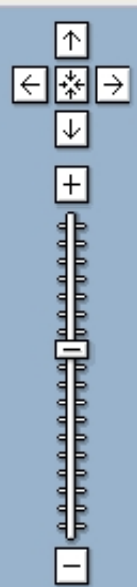
Select Wetland Type

OK Reset

Total 54 Wetlands found

Wetlands of Alappuzha district





Results Fetched Successfully!

Show Hide

Search Add Overlay Geo Tools

Alappuzha

☐ Municipality ☐ Panchayat

☐ Select Wetland Size

☐ (Radius in Meters)

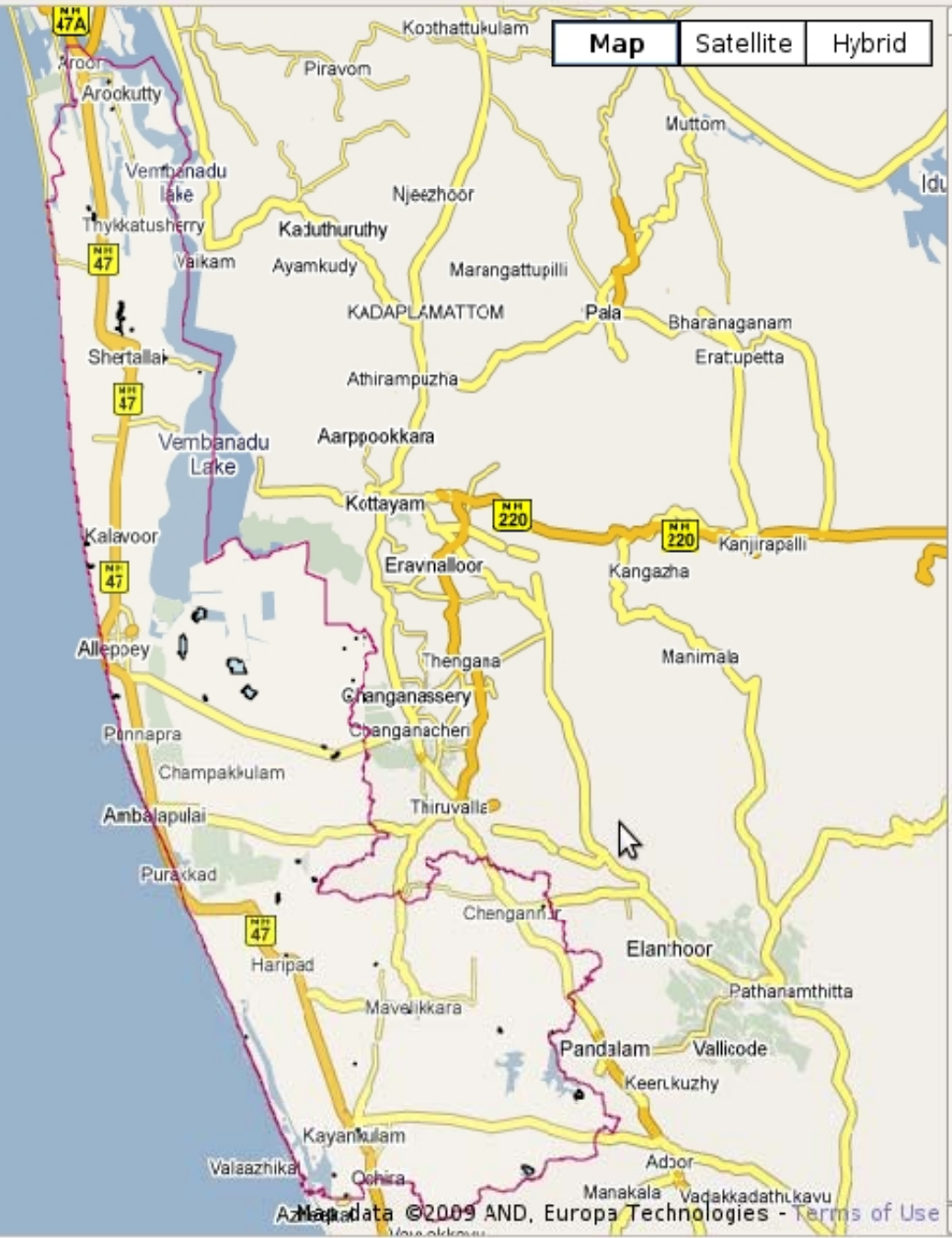
☐ Panfish Data

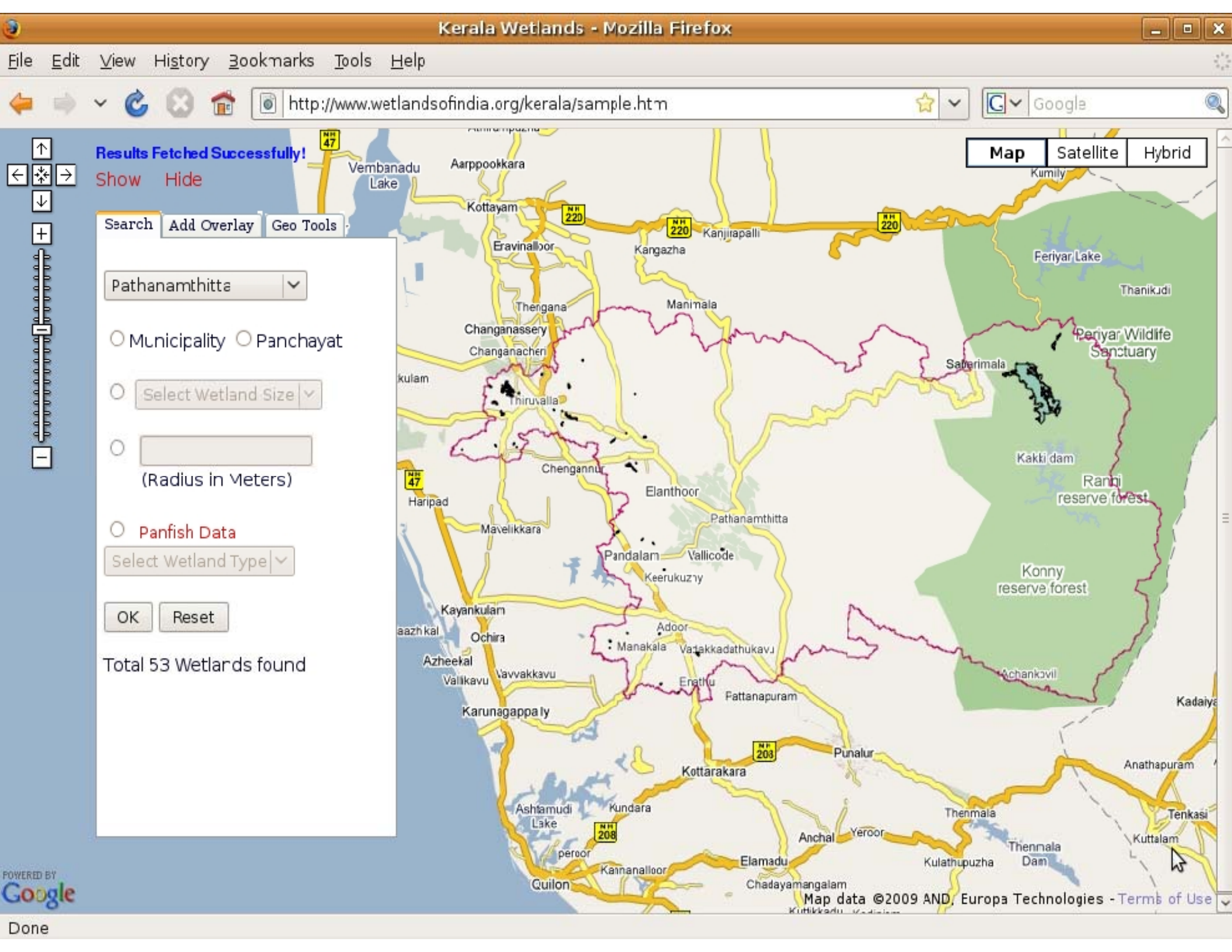
Select Wetland Type

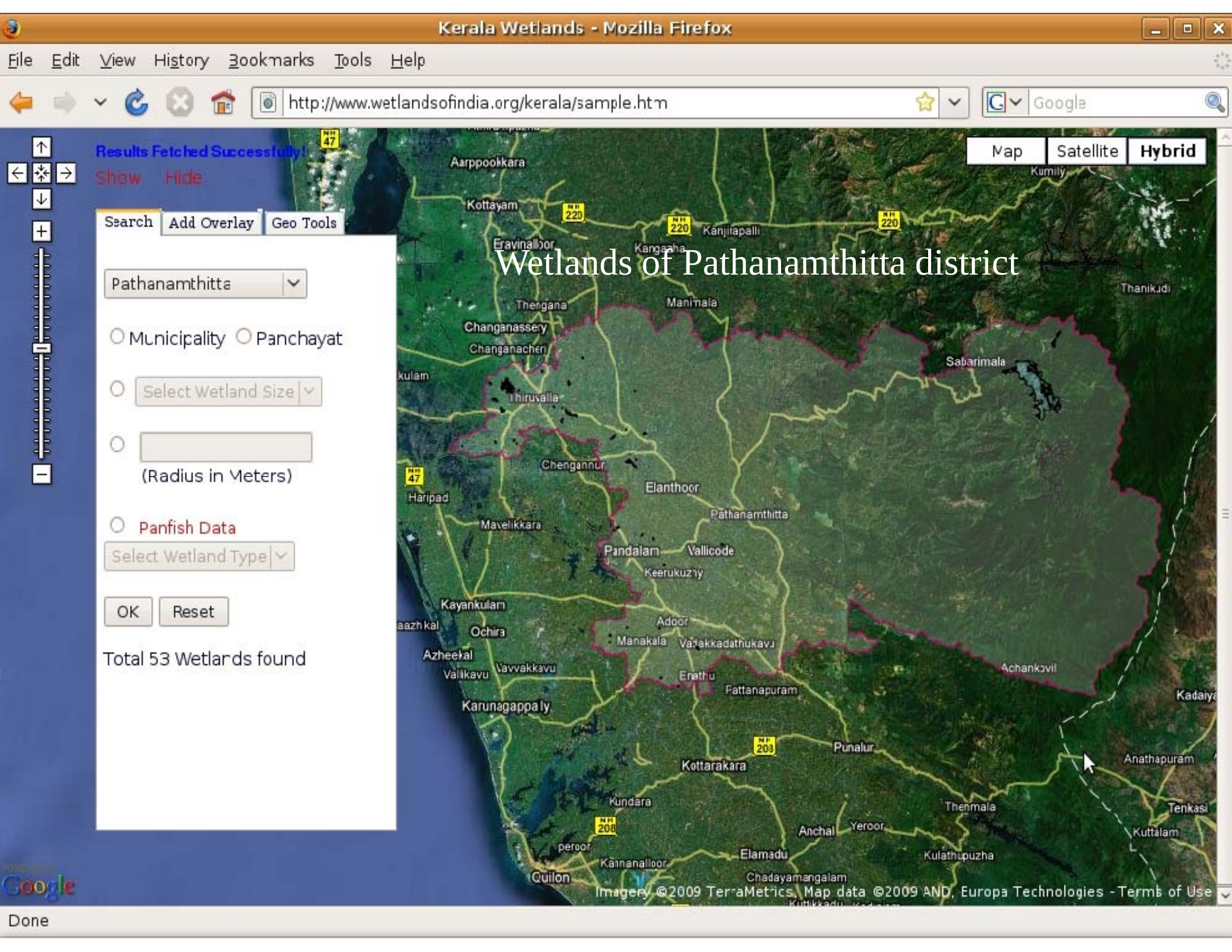
OK Reset

Total 54 Wetlands found

Map Satellite Hybrid







Results Fetched Successfully!

Show Hide

Search Add Overlay Geo Tools

Pathanamthitta

☐ Municipality ☐ Panchayat

☐ Select Wetland Size

☐ (Radius in Meters)

☐ Panfish Data

Select Wetland Type

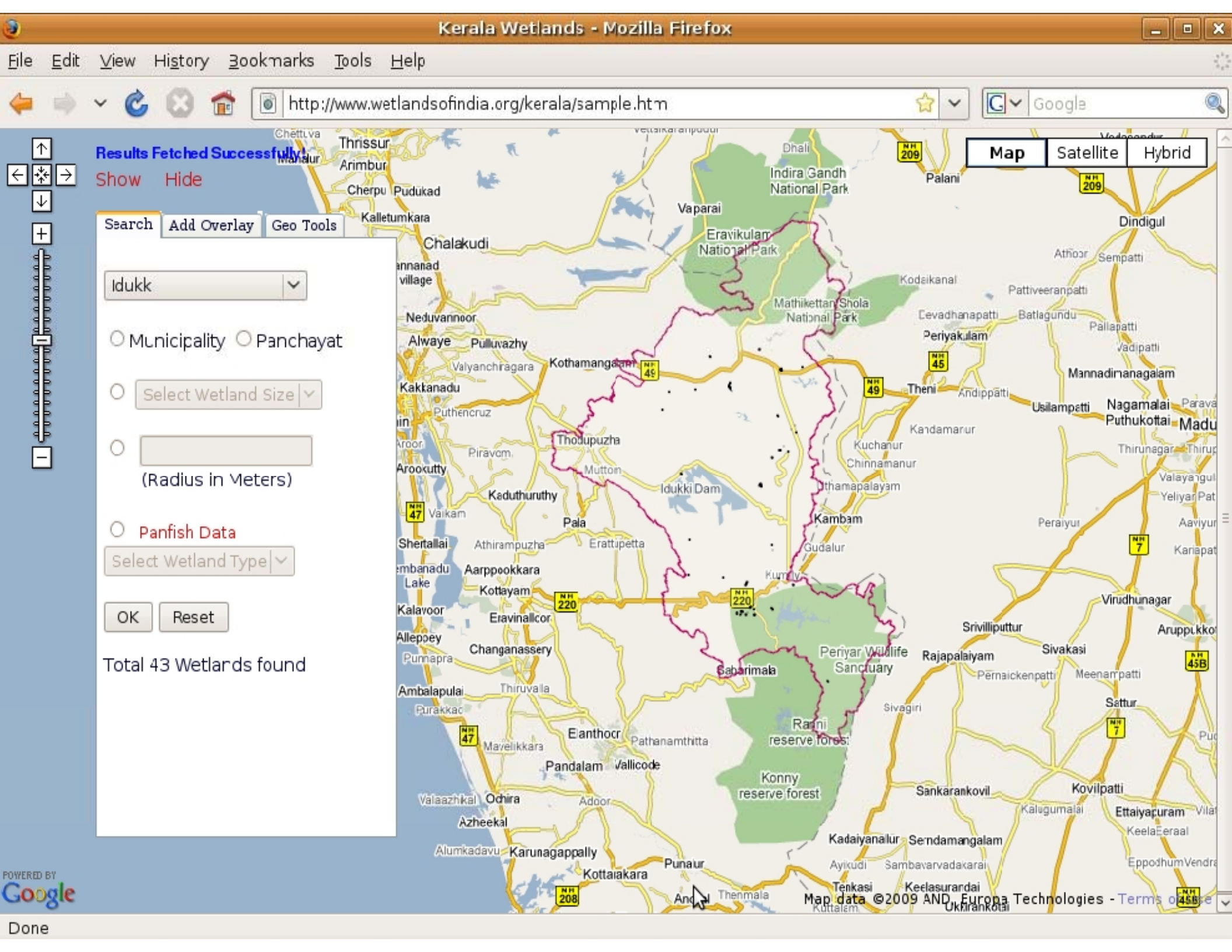
OK

Reset

Total 53 Wetlands found

Wetlands of Pathanamthitta district

Map Satellite Hybrid



Results Fetched Successfully

Show Hide

Search Add Overlay Geo Tools

Idukk

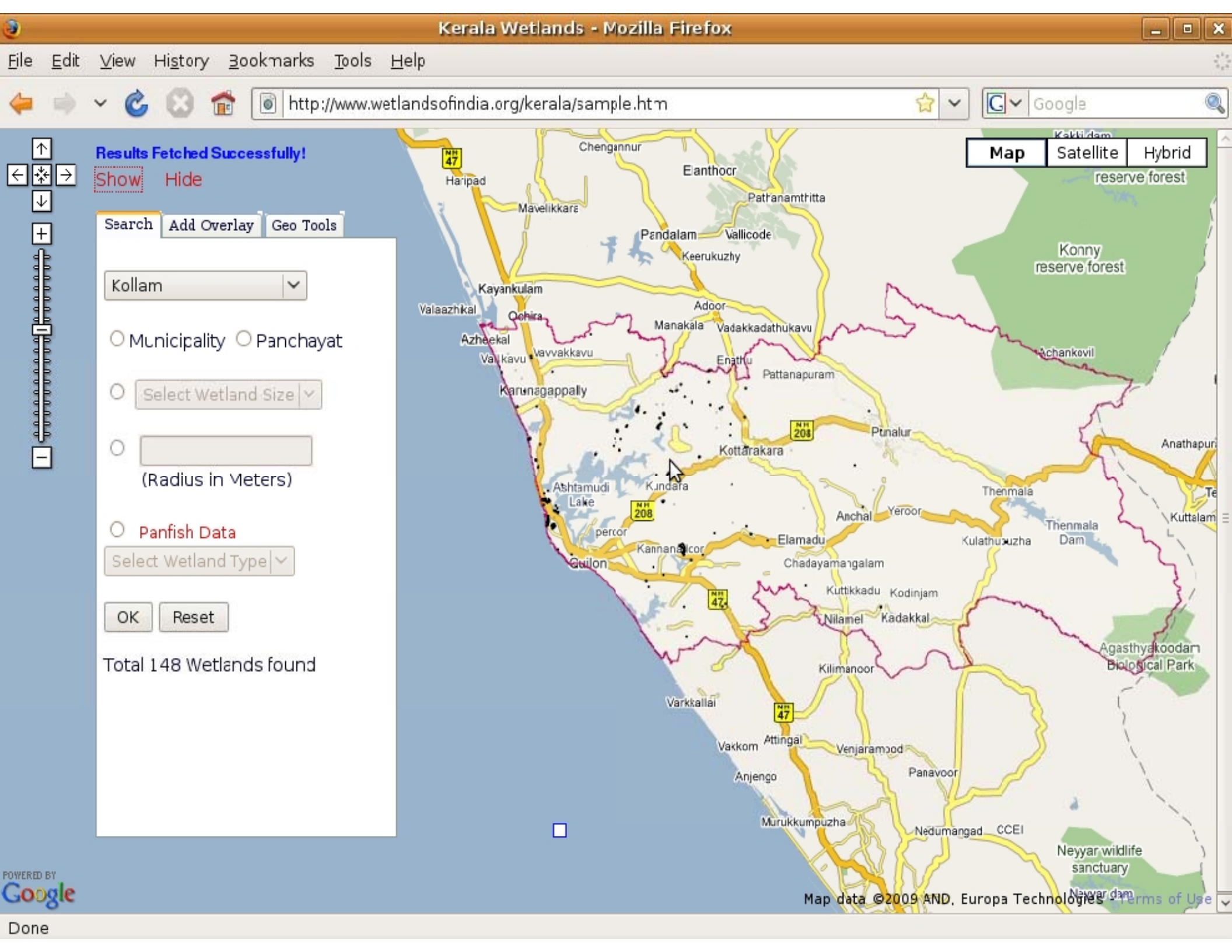
☐ Municipality ☐ Panchayat☐ Select Wetland Size☐ (Radius in Meters)☐ Panfish Data

Select Wetland Type

OK

Reset

Total 43 Wetlands found



Results Fetched Successfully!

Show Hide

Search Add Overlay Geo Tools

Kollam

☐ Municipality ☐ Panchayat

☐ Select Wetland Size

☐ (Radius in Meters)

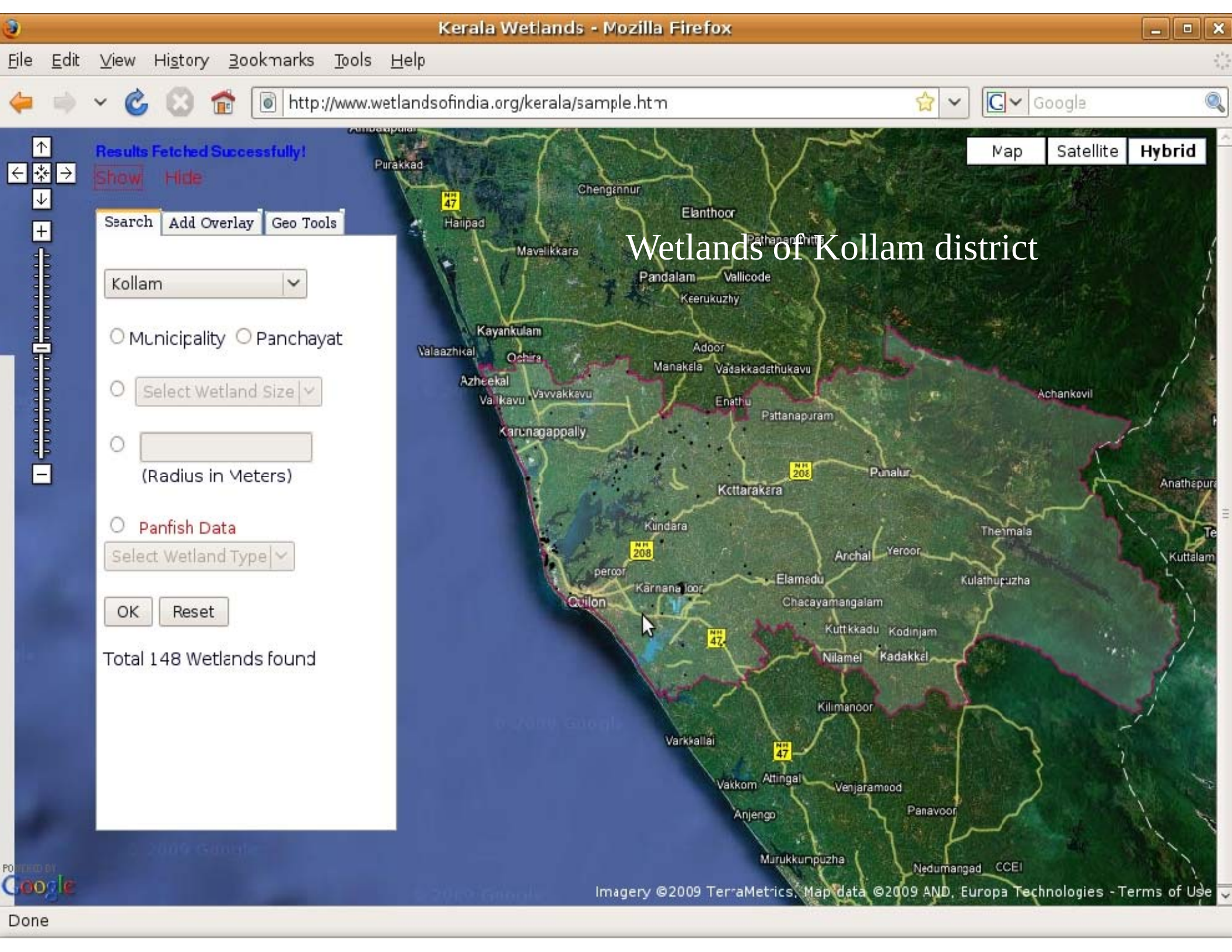
☐ Panfish Data

Select Wetland Type

OK

Reset

Total 148 Wetlands found



Results Fetched Successfully!

Show Hide

Search Add Overlay Geo Tools

Kollam

☐ Municipality ☐ Panchayat

☐ Select Wetland Size

☐ (Radius in Meters)

☐ Panfish Data

Select Wetland Type

OK Reset

Total 148 Wetlands found

Wetlands of Kollam district

Map Satellite Hybrid

Advantages:

- ❑ Free (except for developer time)
- ❑ Quick development time - depending on complexity of application
- ❑ End product is light weight application, client side scripting
- ❑ Intuitive user interface - general public already familiar with Google Maps interface and basic navigation
- ❑ Fast, good response time
- ❑ Google provides solid background services (satellite data, roads, traffic data, street view, geocoding)
- ❑ Effective for displaying selected GIS data - not every mapping application requires multiple, complex map layers
- ❑ Great on-line resources for learning, multitude of samples and tutorials
- ❑ Best for focused applications

- Intuitive user interface - general public already familiar with Google Maps interface and basic navigation
- Fast, good response time
- Google provides solid background services (satellite data, roads, traffic data, street view, geocoding)
- Effective for displaying selected GIS data - not every mapping application requires multiple, complex map layers
- Great on-line resources for learning, multitude of samples and tutorials
- Best for focussed applications

Thank you...