



# Sarovar Saurabh

## *Wetland Ecosystem*

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### Introduction

The Sálim Ali Centre for Ornithology and Natural History (SACON) brings out the second issue of SAROVAR SAURABH, an ENVIS Newsletter on wetland ecosystems, sponsored by the Ministry of Environment and Forests, Govt. of India. The major goal of the Newsletter is to share information about wetlands with various users and, to highlight conservation issues of relevance to wetland community of professionals, managers, environmentalists and other stakeholders.

This newsletter deals with use of Geo-server, a novel class of ICT tools to publish wetland related information on the Internet. These tools are being extensively used in the ENVIS website on wetland ecosystem successfully for the last one and half years. The use of these tools has evolved over this period and is documented for the first time and illustrated. It is again hoped that stakeholders in wetland conservation and all other ENVIS centres can make use of these tools effectively to communicate, educate and create public awareness of their own subject areas.

To make this effort worth while the editorial team of SARVAR SAURABH seeks active participation of its readers in terms of providing information, news, views, photographs and articles on issues of wetland conservation.

We welcome your feedback on the Newsletter and its contents.



Salim Ali Centre for  
Ornithology and Natural History



## Geoserver - an Open Source Server

### Web-GIS using GeoServer

GeoServer an Open Source server that connects the information to the Geospatial Web. With GeoServer one can publish data such as:

- A. Maps/images (using the WMS)
- B. Actual data (using the WFS)

### How to load the spatial data using shapefiles in PostGIS

To load shapefiles in PostGIS database, use the Loader utility: the shp2pgsql command of PostGIS.

- **Command for converting shapefile to sql file**  
Shp2pgsql file.shp table \_name>file.sql
- **Loading data in PostGIS**  
Psql -U username -d dbname -f file.sql

These commands will load the shapefile data successfully in the database.

### Starting up GeoServer

1. Start up GeoServer by going to the Start menu or by running startup.bat in the bin/ directory of your geoserver install.
2. Use your web browser and navigate to:  
http://localhost: 8080/geoserver/welcome.do

### Log In

- From the welcome page select the **Config** link located near the top left of the page:



- You will be asked to log in. The default username is **admin** and default password is **geoserver**:



### Create a Data store

1. Click on Config again and you will be taken to the main config page.
2. Select the Data link:



- You are now in the data store page. It can be a shapefile or database location.
- Select the New link and then select PostGIS database and enter Datastore ID as indiastate. Hit New button.



- Enter the PostGIS connection details as follows



- Hit Submit and click the Apply button located in the upper left hand corner of the page

### Create Feature type

1. Head back to the Data Config page:
2. Click on the FeatureType link on the Data Configuration page. On the Feature Type page, click on the New button:



1. On the Create New FeatureType page:
2. From the drop down list select indiastate::indiastate
3. Click New



You are now at the FeatureType editor page.

1. From the drop down list labeled Style, select polygon. This will determine how your features will be rendered.
2. In the text field labeled SRS enter the value 4326.
3. Hit the Generate button. This will generate the bounding box of the dataset.



4. Hit Submit. Finally, hit Apply button & Save button to save the changes to disk on the left of the screen.

#### Preview your data

<http://localhost:8080/geoserver/mapPreview.do> or just navigate to the welcome page and click on **Demo** and then on **Map Preview**



and allow users to update, delete, and insert geographic data. (Using uDig) **Starting up GeoServer**



#### Advantages:

1. It is Open Source Server for publishing vector and raster maps
2. Stores spatial data into PostGIS, allowing geospatial queries.
3. It allows users to update, delete, and insert geographic data using software like uDig, OpenJUMP etc
4. GeoServer supports KML and KMZ output so that data can be served onto Google Earth.

#### Disadvantages:

1. Need to install GeoServer along with Web server
2. Need to have knowledge of clients like MapBuilder, MapBender, uDig, OpenJUMP etc

#### Conclusion

Proper integration of Geoserver with Web server thus eliminating the need for user installation on individual user hardware.

#### Important Links

- **GeoServer**  
<http://docs.codehaus.org/display/GEOS/Home;jsessionid=aEZ91X4vfrH63CqtM->
- **MapBuilder- Client for GeoServer**  
<http://communitymapbuilder.org/>
- **uDig-User friendly desktop internet GIS**  
<http://udig.refractor.net/confluence/display/UDIG/Home>
- **PostgreSQL-Advanced open source database**  
<http://www.postgresql.org/>
- **PostGIS**  
<http://postgis.refractor.net/>

#### SACON's participation in Seminar/Workshops

- **Geohorizon 2007 symposium**, 16-17 March 2007, Anna University, Chennai
- National Conference on **Biodiversity Conservation and Human Well-Being**, 8-10 February 2007, Osmania University, Hyderabad
- **First Wetland Link International Asia Symposium**, 24-26 January 2007, Honk Kong
- **Map World Forum 2007**, 21-25 January 2007, Hitex City, Hyderabad

#### Future plans for Wetlands of India

##### A) Remote Sensing and GIS approach:

1. Mapping of wetlands of size 2 ha and above for the 1990 base year in rest of the states of India
2. Mapping of Ramsar sites of India and comparing with the present status
3. Habitat change assessment and creation of spatial databases by using Thematic Mapper datasets of 1990-2000 (A period of 10 years).
4. The updation of spatial datasets by using Land use and Land cover (LULC) datasets (provided by National Remote Sensing Agency)
5. Updation of biodiversity information of the wetlands of the country.

##### B) Wetland Informatics:

In the future, Wetlands of India website will be having following features.

1. Wetlands of India website will be the central hub for all wetland related information in India.
2. The website will run on SACON's own server.
3. Development will be done using FOSS or free tools  
OS: Linux  
Language: Java  
Databases: PostgreSQL or MySQL  
GIS tools: GRASS  
Web-GIS tool: GeoServer, MapBuilder, uDig, OpenJUMP etc.  
Web-Blog: WordPress  
And other FOSS tools as per the requirement
4. Indian Wetland Species Directory (IWSD). This will have taxonomic data, images, geographic locations etc.
5. Wetland Markup Language (WML). This will guide all the other organizations working on wetlands to have uniform data which will facilitates easy data exchange.
6. Digital Wetland Publication Project. Using DjVu plug in technology.



7. Developments of data acquisition tools and make the available to other organizations to digitize data related to the wetland.
8. All the databases (currently available or will be developed in future) will be inter-linked.

## News Updates

### ■ Old Carambolim Lake to be made bird sanctuary

The Goa Government has proposed to restore the glory of the old Carambolim Lake of north Goa by formally converting it into a bird sanctuary. The State Government's move comes in the wake of a High Court order, said Chief Secretary J.P. Singh on Thursday. The lake, which was once known for attracting a large number of migratory birds, has been neglected over the years. According to nature lovers, one of the reasons being the proximity of the Konkan railway track passing from this khazan land area. Mr. Singh said that the Agriculture Department would take steps to clean the lake. The Forest Department would develop the lake area into a bird sanctuary, Mr. Singh said. The Government would notify 30 metres as no development zone around the lake as per the Court directive.

(Source: *The Hindu*, August 31, 2007)

### ■ Courser's habitat under threat again !

The last known habitat of the critically endangered and enigmatic bird of Andhra Pradesh — Jerdon's Courser (*Rhinoptilus bitorquatus*) — could once again come under threat. The bird is not found anywhere else in the world. The Irrigation Department's latest realignment plans of the Telugu Ganga Canal project, has the potential to wipe away 89 hectares of shrub jungle, typical habitat of the bird, near the sites where the bird was spotted in the recent years at Sri Lankamalleswara Sanctuary, Kadapa, a recent report from Bombay Natural History Society (BNHS) says. The proposed realignment plans for the canal, if implemented, would cut across the scrub jungle habitat, says the report. "The realignment is precariously close to the boundary of the Sri Lankamalleswara Sanctuary, Kadapa, as well as the sites where the Courser's presence was recorded regularly between 2000-06," the report says.



The report goes on to add that "canal alignment has to be shifted so that it would border the scrub jungle habitat without actually changing the length of the canal, which is 2.2 km. The canal alignment may be shifted so that the only place of this bird can be saved for posterity." "The new alignment being pushed by the Irrigation Department, during the course of our negotiations, would further risk the habitat of the Courser. We have already given an alternative proposal of alignment and we feel that our proposal would protect the bird's habitat. If the matter is not solved, then we will have to submit our report directly to Central Empowered Committee (CEC) of Supreme Court," S. Ashok Kumar, who is holding talks with the Irrigation Department on behalf of the BNHS in Andhra Pradesh, told *The Hindu*.

Thanks to the intervention of the CEC earlier this year, the Department had agreed to re-route the canal, to protect the last known habitat of this bird, the numbers of which hover between 20 and 80. The CEC had directed the stakeholders, including the BNHS, wildlife officials and the Irrigation Department, to chalk out a 'via media' to save the bird and its habitat. "It is sad that we have to fight so much to conserve this rare bird which should be considered the 'Pride of Andhra Pradesh'. However, I am sure, if all the stakeholders sit together once again to discuss, we can save this beautiful bird," says BNHS researcher P. Jeganathan. (Source: *The Hindu*, August 19, 2007)

### ■ Kolleru regains its splendour



The revival of Kolleru lake, country's largest fresh water lake, finally seems to be yielding exceptional results. A report prepared by city-based wildlife organisations, which conducted annual Asian Waterfowl Census (AWC), points towards a drastic

increase in the number of migratory birds.

Conservative estimates of these organisations indicate that for the first time in years, over 80,000 birds of about 100 species have flocked the lake during the ongoing migratory season that lasts till March. Conservationists, however, make it clear that the census was done only during January-February months and unofficial estimates of the number of birds that would have visited the lake during the entire migratory season could easily touch the magical two-lakh mark. It may be recalled that operation Kolleru concluded on June 15 last year and within six months, the fresh water lake managed to attract so many species of birds. "In a year, the lake would become the best wetland region in the country. Conservatively, after the revival, the number of birds arriving to lake Kolleru has trebled," says Pranay Waghre from Nallamalai Foundation.

Over 60 pelicans, a whopping 5,000 storks, 47,000 Ibises of three varieties, a variety of ducks and geese, about 600 unidentified varieties of ducks, 890 cormorants, 8,635 number of gulls and another 110 unidentified terns and a host of hawks, kingfishers and wagtails have been spotted by the team of conservators and bird counters. The team has also identified 5,901 egrets of four varieties, 230 little Grebe and several other bird species that are not commonly found in wetland region. The AWC was taken up only to count the wetland birds. AWC is an international programme that focuses on monitoring the status of water birds and wetlands. Nallamalai Foundation, Birdwatchers Society of Andhra Pradesh, Raptor Conservation Foundation and Society for Imparting Wildlife Awareness were involved in the AWC. "The birds that we have recorded are only wetland birds. There are even more different varieties of birds that do not fall in this category. This year, the lake has managed to attract even those species of birds as well," says Mr. Waghre. (Source: *The Hindu* Feb 15, 2007)

## Upcoming Events

- 12th World Lakes Conference (Taal 2007), 28 October -2 November 2007, Jaipur, Rajasthan.

Organized by: Ministry of Environment and Forests, Government of Rajasthan and International Lake Environment Committee Foundation (ILEC)

Website: [www.taal2007.org](http://www.taal2007.org)

Contact: [secretariat@taal2007.org](mailto:secretariat@taal2007.org)

- National Conference on Wetlands, Science and Society - An Assessment of their Integration, 11-13 December 2007, Delhi.

Organized by: Department of Botany, University of Delhi

Contact: [wetlands\\_dubs@rediffmail.com](mailto:wetlands_dubs@rediffmail.com)

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