



A WEB-BASED GIS FOR *Aedes albopictus* AND CHIKUNGUNYA VIRUS SURVEILLANCE IN THE EMILIA-ROMAGNA REGION

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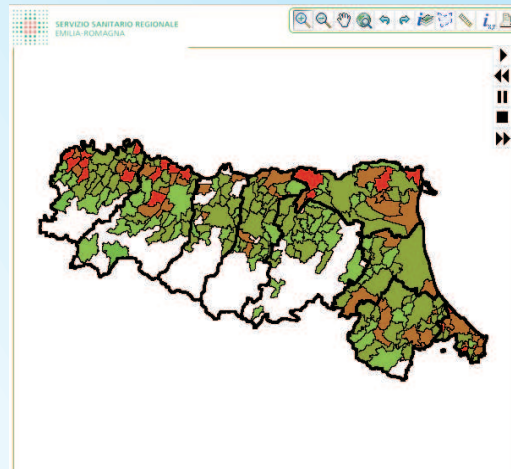
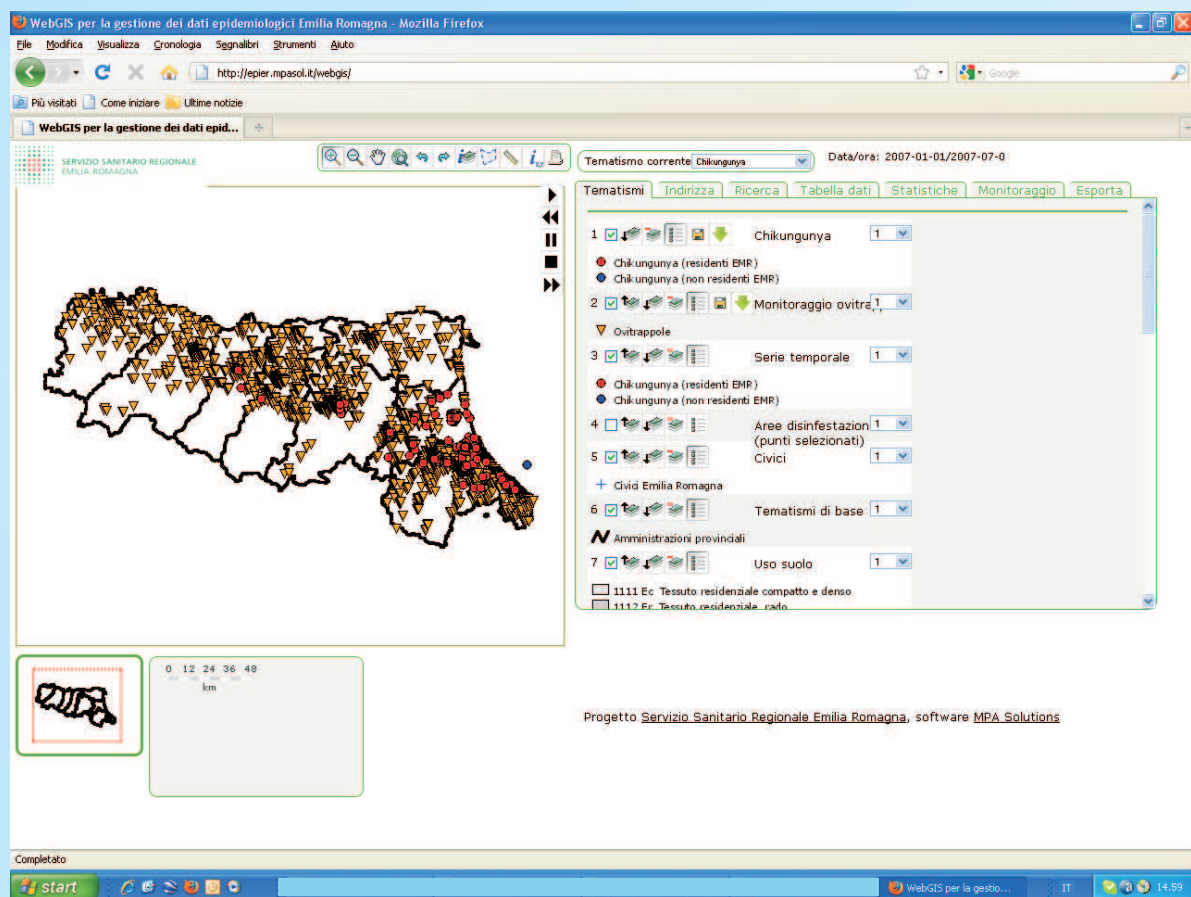
Introduction

The *Aedes albopictus* survey group of Emilia-Romagna Region, Italy, collaborates in multidisciplinary context (entomology, epidemiology, informatics, public health) to develop a Web-Based Geographic Information Systems (Web-GIS) that enable storage, processing, and analysis of spatial monitoring and public health data, managed together with other external data in the open source Relational Database Management System (RDBMS) PostgreSQL (<http://epier.mpsol.it>).

A PostgreSQL session consists of the following cooperating processes: a server process which manages the database files, accepts connections to database from client application and performs actions on database on behalf of the clients; the user's client (frontend) application to perform database operations. PostGIS open source software was implemented to add support for geographic objects to PostgreSQL relational database. PostGIS "spatially enables" the PostgreSQL server, allowing it to be used as a backend spatial database for Web-GIS. The Regional Web-GIS, dedicated to professionals and to public health care decision-makers, provides specific web interface that includes maps, legends, controls for executing queries on relational data, for creating thematic maps (choropleth maps), time series and layers (shapefiles), reports, and Excel data extraction for vector control program and for Chikungunya virus (CHIKV) survey and control in Emilia-Romagna Region.



WEB-GIS properties

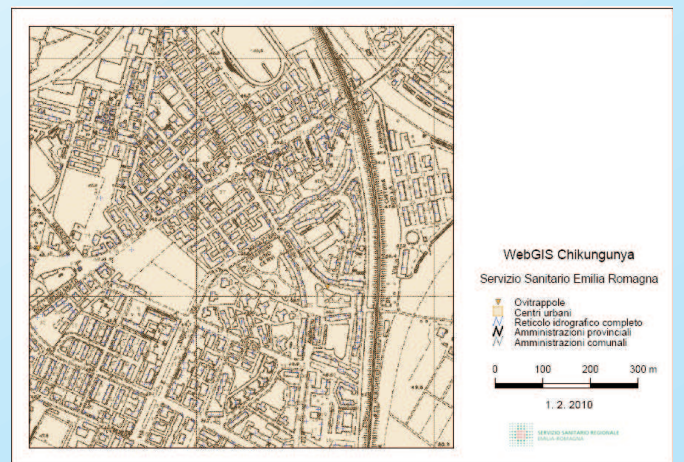
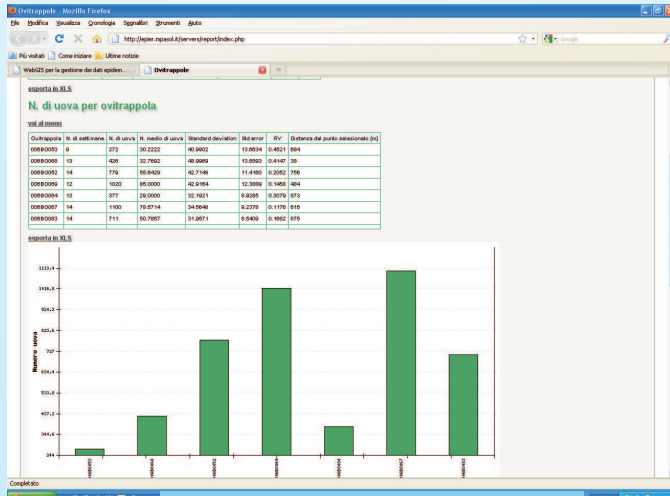
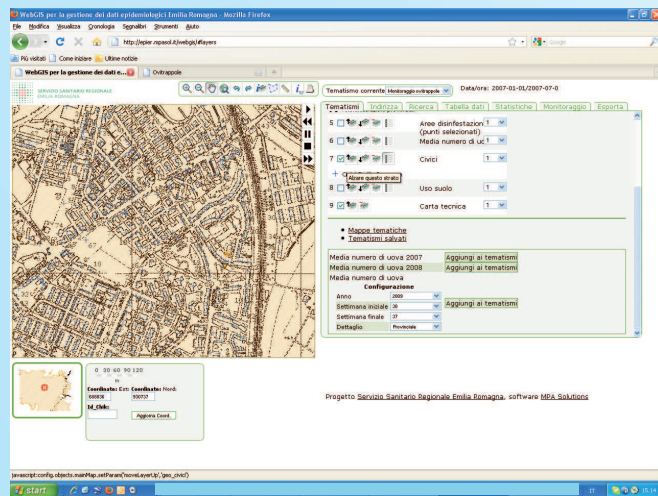


From the Web-GIS main windows, the user can visualize interactive layers like ovitraps individual data and set of data, Chikungunya cases, administrative borders, land use, etc.

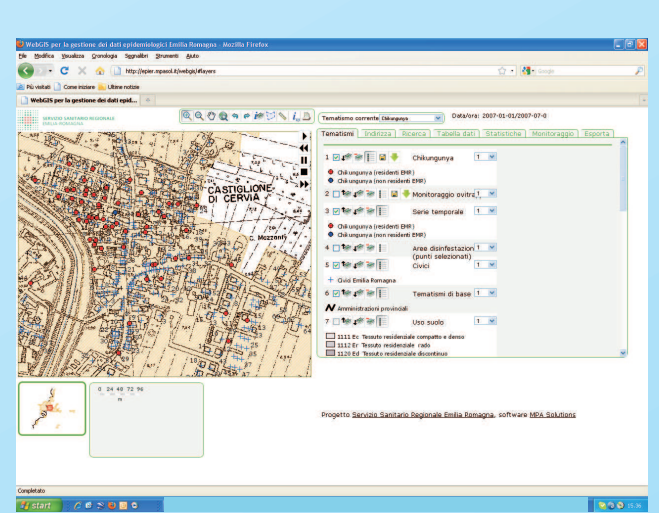
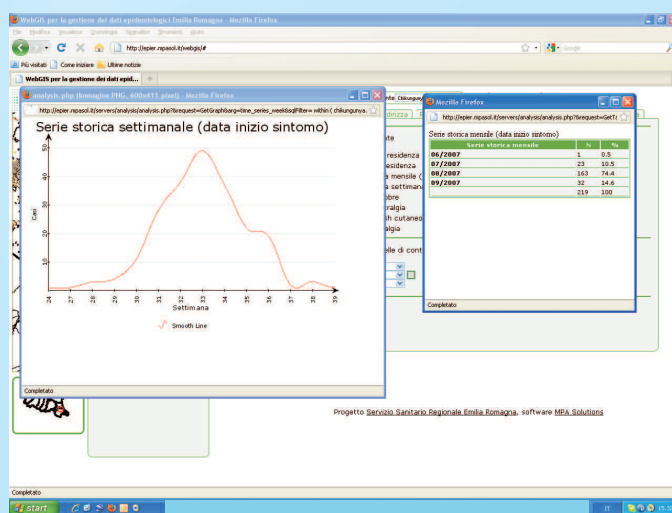
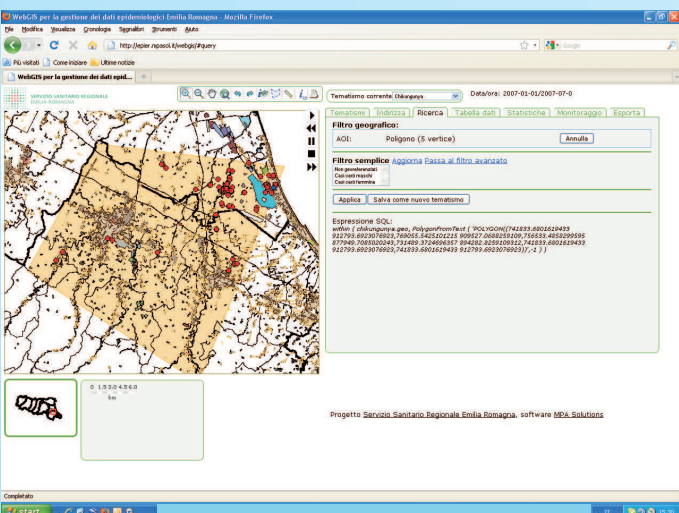
The Web-GIS allows to create choropleth maps of mean eggs density for municipalities or provinces calculated for the required range of monitoring weeks. Using choropleth maps the user can visualize where *Ae. albopictus* densities are too much higher and he could organize specific control programs focused in these areas.

Choropleth maps are also useful to identify cluster areas with high epidemiologic risk.

Web-GIS main window; on the left the navigable map and, on the right, the legend and statistical tools.



The Web-GIS allows to select ovitraps in a buffer and to generate statistics, excel exportable of the data and also to print a pdf map with legends useful to organize specific control programs.



The Web-GIS allows to georeference Chikungunya suspected and/or confirmed cases, to create statistics and graphics about a possible outbreak, generate automatically maps and list of premises to treats in a buffer around each suspected case.

ACKNOWLEDGMENTS

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