



Cockroach management, a municipal approach. City of Madrid (Spain)

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Introduction

Pest prevention and control in public areas (sewer system, public facilities, etc.) in Spain is carried out by municipalities.

Two species of cockroaches are present in Madrid:



Oriental Cockroach (*Blatta orientalis*)



American Cockroach (*Periplaneta americana*)

Methods

In Madrid, municipal cockroach management implicate:

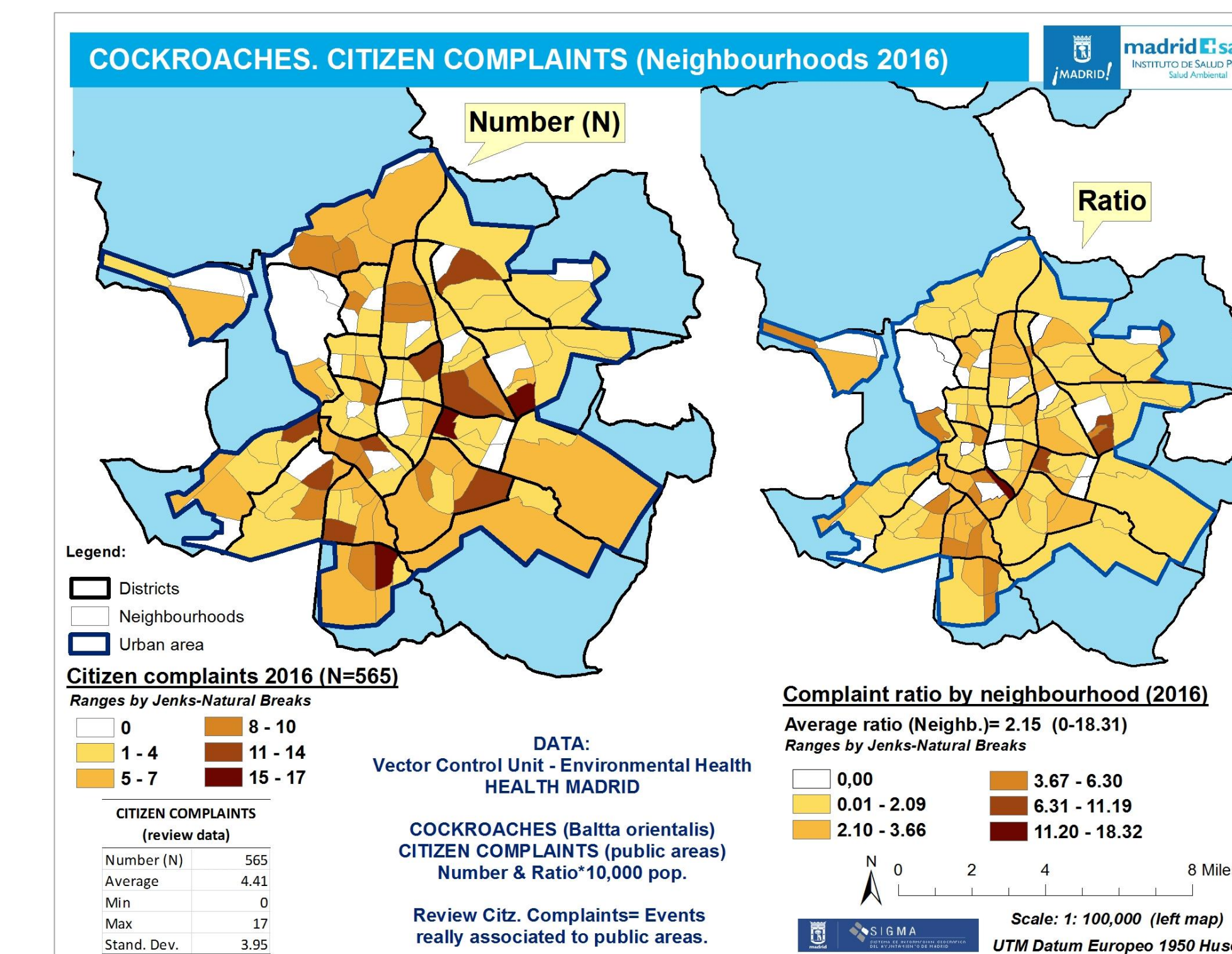
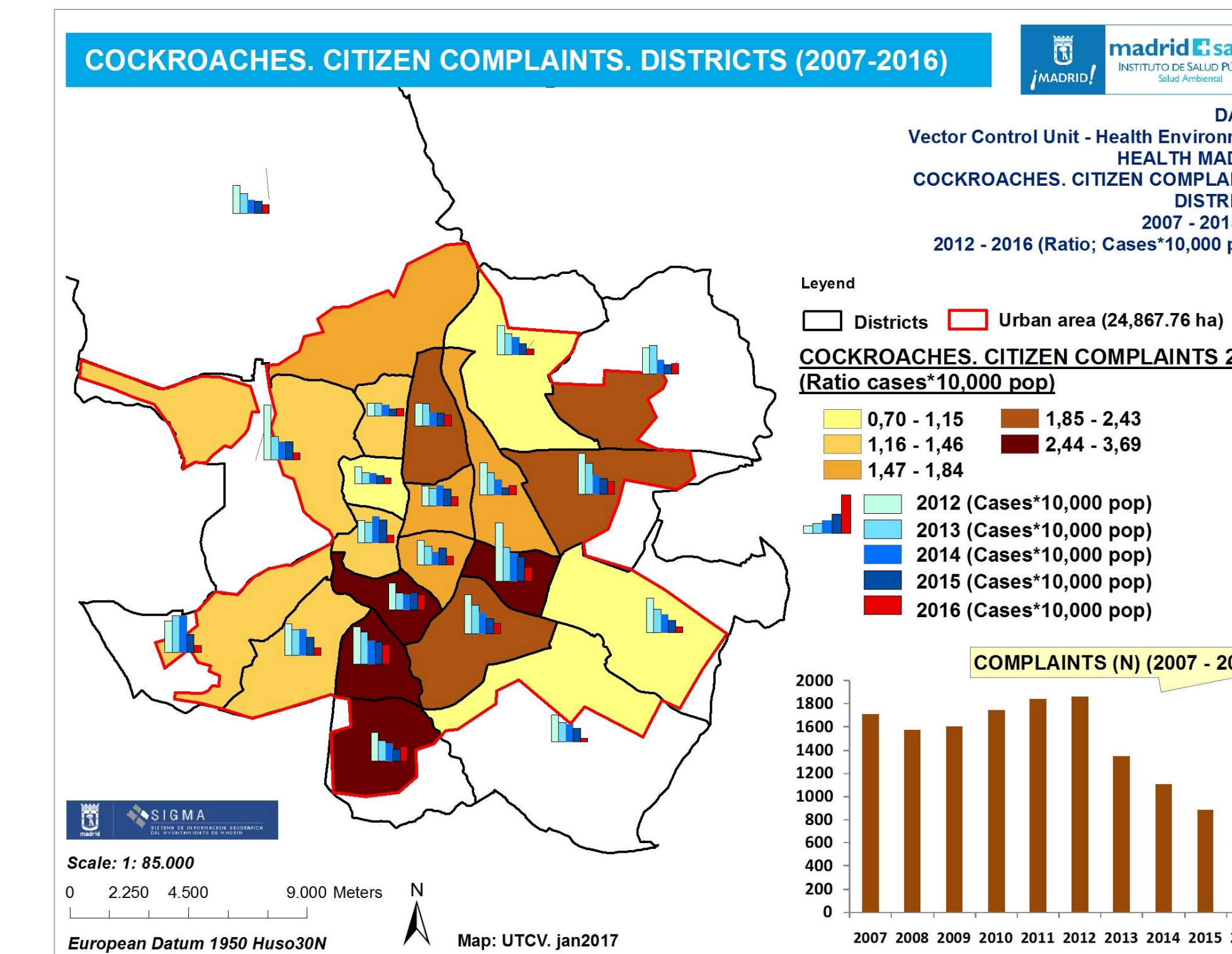
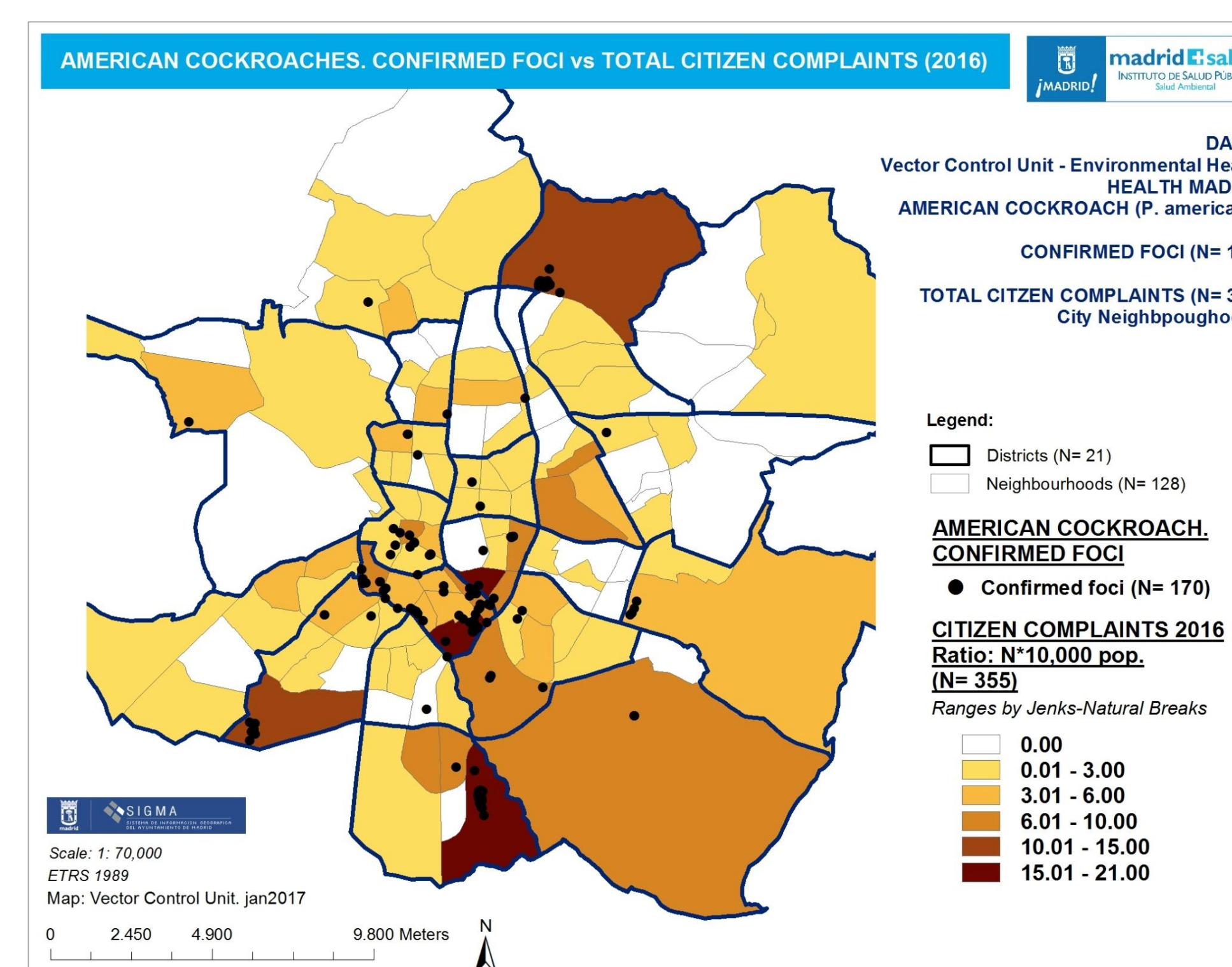
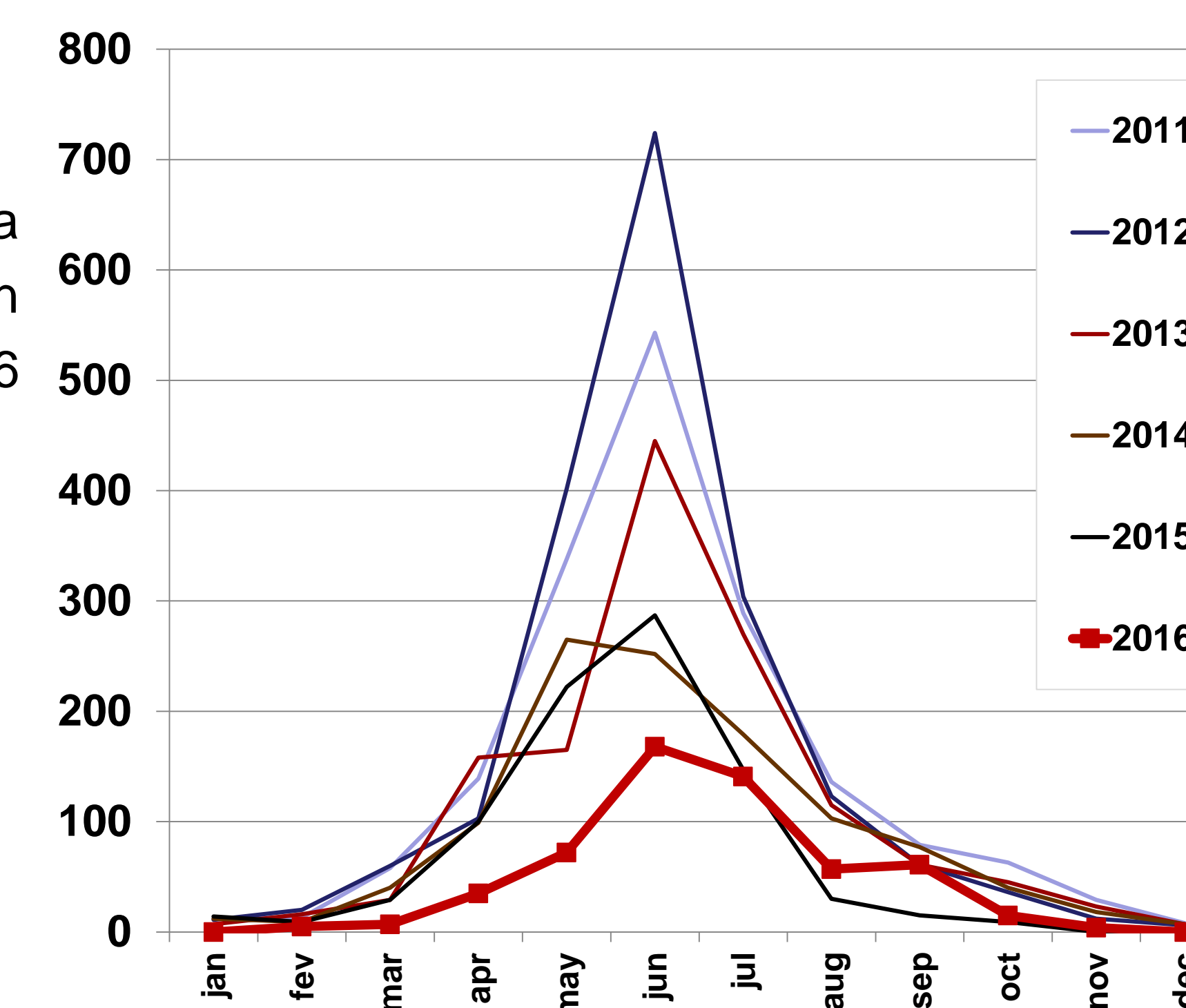
- Promotion of education, information and citizen commitment.
- Environmental management (habitats prevention, early detection and control). Green areas design and management.
- Planned inspection and treatment (insecticide baits) of municipal sewer system and other subterranean facilities.
- Citizen complaints management.
- Synergy with private pest control operators: Information sharing and coordinated interventions.
- Global information management. Corporative GIS for integrated city management (SIGMA).
- Continuous pest monitoring.

Results

- ❖ Cockroaches standardised pest indicators show a drastic reduction on citizen complaints (2013-2016).
- ❖ This reduction is related to insecticide baits strategy introduction (2012).
- ❖ In Madrid, cockroaches are marked seasonal insects.
- ❖ American cockroaches need specially designed monitoring and control programs. These insects have colonised most eastern cities of Spain (Mediterranean areas), and show a strong tendency to expand throughout the rest of the territory.

- ❖ Insecticide baits are a patent alternative to traditional biocide sewer treatments. Environmental and labour safety and insects dispersion control are all huge advantages.
- ❖ Pest control in cities needs of powerful and integrated GIS-based information system investment technologies.
- ❖ Private pest control companies and citizens are very important actors. New strategies of communication and collaborations must be introduced.

Citizen complaints. Reviewed data Intra and inter-annual evolution 2011-2016



Cockroaches. Citizen complaints. Spatial distribution (districts and neighbourhoods) Yearly evaluation

AMERICAN COCKROACH

Specific program and treatment strategies have been developed for this insect.

Foci monitoring maps (2016) [Left]

Special postcode maps designs for private pest control companies bidirectional information and collaboration. [Right]

References and cited literature

- Bonnefoy X., Kampen H. & Sweeney K. *Public Health Significance of Urban Pests*. World Health Organization (2008).
- Takken W. & Knols B.G.J. *Emerging pest and vector-borne disease in Europe*. Wageningen Academic Publishers. The Netherland (2007)
- www.madridsalud.es (City corporative and environmental and pest prevention and control information and maps)
- www.rentokil.es



Conclusions

- Local authorities need to improve knowledge and commitment about pest infestations foci and rates on non-public sceneries. Indoors and subterranean facilities pest management deficits lead to substantial control failures.
- More friendly-environmental biocides are necessary. Efficient options for outdoors cockroaches treatment are actually scarce in Europe. Further research is mandatory.
- Cockroach monitoring and census in public sewer system are costly and present certain degree of scientific uncertainties. Populations estimate and monitoring are often bad managed.
- Geographic Information Systems (GIS) technologies are actually essential tools for pest prevention and control in urban areas.

Further Research

- Cockroach monitoring (municipal sewer systems).
- Research about control methods.
- A more powerful partnership between citizens, municipal services, private operators, and universities (Integrated Pest Management; IPM).