

MOSQUITO



ALERT



*A study led by Mosquito Alert shows that citizen science is a useful and reliable tool for studying the mosquitoes driving global epidemics*

*Another study quantifies the passive transport of tiger mosquitoes between Spanish provinces by car*

*The use of the platform and citizen observations is promoted to launch the first pilot tests with the management portal*

Annual report

Mosquito Alert

2017

# MOSQUITO ALERT

*Mosquito Alert Annual Report 2017 - Citizen science project results*

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Photographs: authors (under  Creative Commons, where indicated).

 Mosquito Alert

CEAB-CSIC, CREA, ICREA, MEC.

 Obra Social "la Caixa"

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# About the project

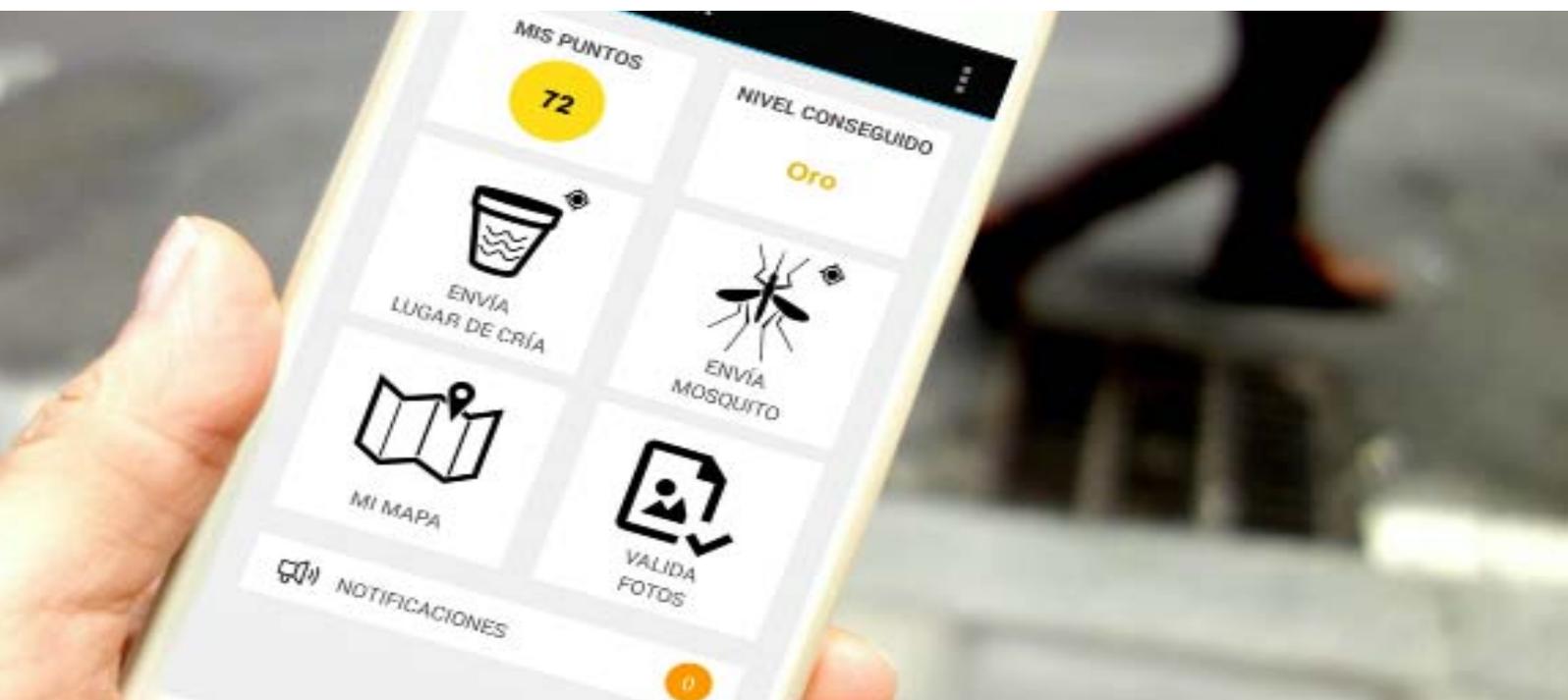
# 1

Mosquito Alert is a citizen science observatory for monitoring and controlling tiger mosquitoes (*Aedes albopictus*) and yellow fever mosquitoes (*Aedes aegypti*), invasive species that are vectors of global diseases such as the dengue, chikungunya and Zika fevers.

The Mosquito Alert app enables citizen to report observations of such mosquitoes and their breeding sites. The data thus provided complement scientific work and make it possible to study the mosquitoes' distribution.

Managers from public authorities use the Mosquito Alert platform as a new source of information for implementing monitoring and control measures. Users of the app, meanwhile, receive recommendations for keeping their homes free from the species in question.

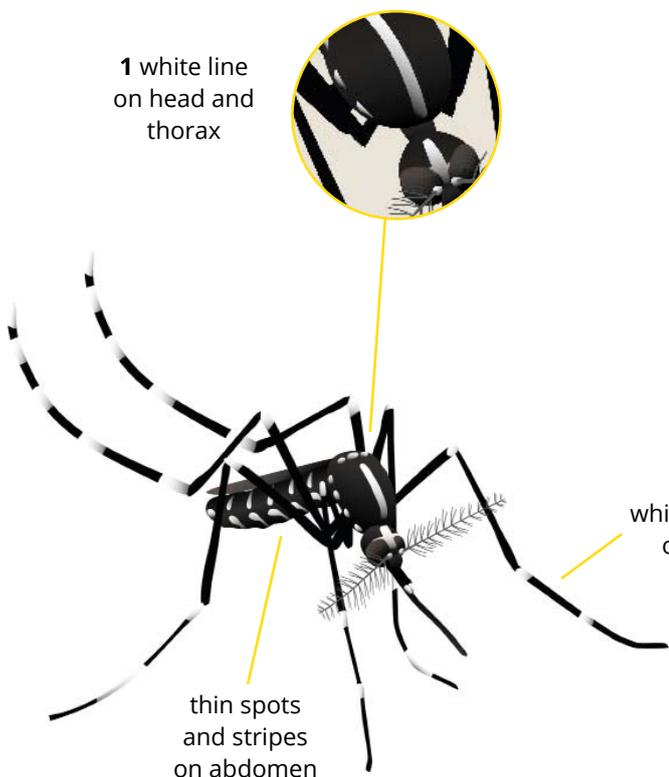
Mosquito Alert is an effective, inexpensive early-warning system that is part of Spain's health and research system



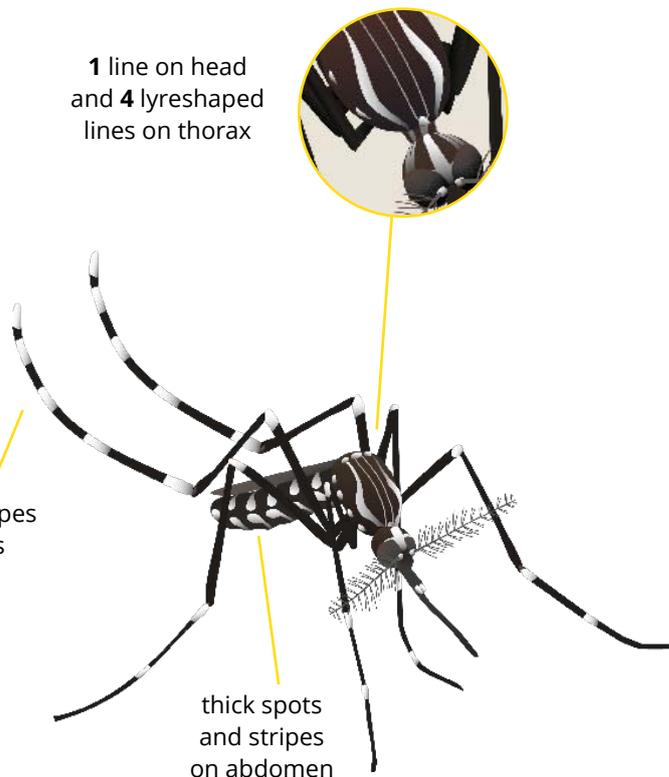
## The tiger mosquito and the yellow fever mosquito

The tiger mosquito has been spreading along the country's Mediterranean coast and increasingly further inland since 2004. This is mainly due to climate change and globalization. On the other hand, the yellow fever mosquito has been added as another invasive species of interest, it is similar to the tiger mosquito specially for its behaviour and the disease transmission

capacity. In December 2017, the yellow fever mosquito **was found in the Canary Islands for the first time in decades in Spanish territories, in the island of Fuerteventura.** After this sighting, a new surveillance actions have started to prevent the expansion of this species through the other Canary Islands and its arrival to the Iberian Peninsula.



Tiger mosquito  
*(Aedes albopictus)*



Yellow fever mosquito  
*(Aedes aegypti)*

## Breeding sites

In urban areas, tiger and yellow fever mosquitoes breed in small receptacles containing stagnant water. Thanks to Mosquito Alert, citizens can help the authorities responsible for monitoring and controlling mosquitoes detect breeding sites, such as **gutters, drains** and **ornamental fountains** in public roads.

On private property, tiger mosquitoes breed in small receptacles containing stagnant water in yards or on balconies. As the public authorities are unable to apply treatments on such property, we raise awareness among citizens with a view to them eliminating possible breeding sites in their homes themselves.



## Distribution and diseases

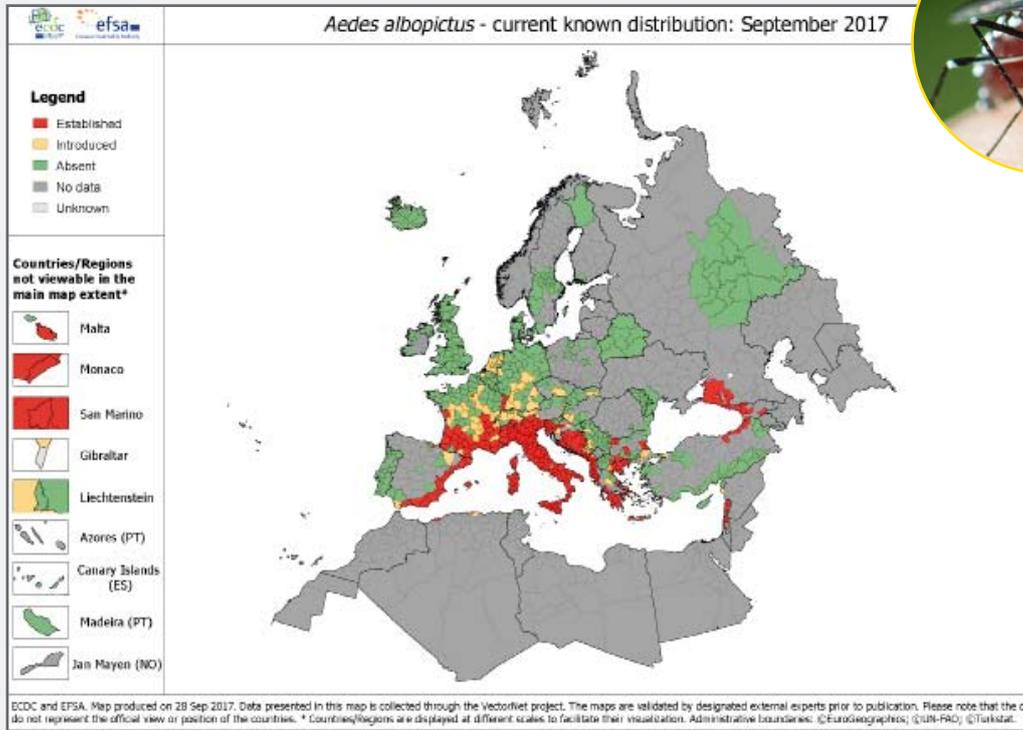
The dengue, chikungunya and Zika fevers are not endemic in Spain. However, their transmission cannot be ruled out because of a very high level of human mobility and the presence of the tiger mosquito in its period of greatest activity (June - October). To prevent such transmission, it is crucial to be aware of the presence of the relevant species, minimize their numbers in areas in which they have established themselves and control their spread. The **tiger mosquito** can currently be found along the Mediterranean coast and

is widespread in Asia and South America. A total of 540 municipalities in Spain have been affected, according to data spanning 2004 and 2015 (Collantes et al. 2016). The **yellow fever mosquito** can be found in Africa, in countries close to the tropics and subtropics, northern Brazil and southeast Asia. It is also present in the southeast of the USA, in northern Australia, along the east coast of the Black Sea and in Madeira. In December 2017 it was found in the island of Fuerteventura.

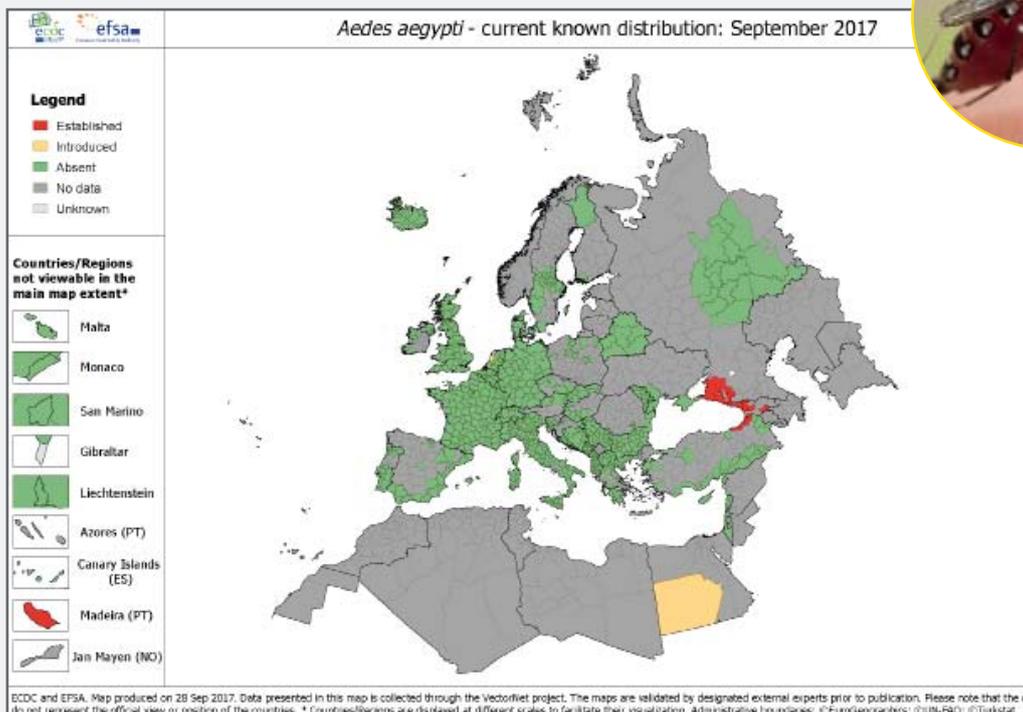


Photo: Roger Eritja ©

## The tiger mosquito distribution in Europe (2017)



## The yellow fever mosquito distribution in Europa (2017)



# The Mosquito Alert project, a 360-degree observatory





## Citizen observations

Collecting data

Citizens use the Mosquito Alert app to take and share geotagged photos of tiger or yellow fever mosquitoes and their breeding sites in public areas. They also receive notifications through it.



## Expert validation

Validating data

A team of experts validate the photos and identify the species of mosquito shown. Validation results are sent to the users involved.



## Interactive map

Collecting data

Validated sightings are published on an interactive map, where their details can be viewed, analysed and shared.



## Science

Using data

We use the data citizens provide to study the distribution and spread of tiger and yellow fever mosquitoes.



## Management

Using data

We collaborate with the public administration to improve the surveillance and control of the tiger mosquitos in areas where it has been established and to detect it in new areas. We promote direct communication between managers and citizen through notifications.



## Education & community building

Rising awareness and communication

More and more territories are applying control measures and sending in data via the app, thanks to the project's tools for communication, information and education. We also involve schools using open schooling methodologies and the project has begun to be implemented in many other countries.



# Results and achievements in 2017



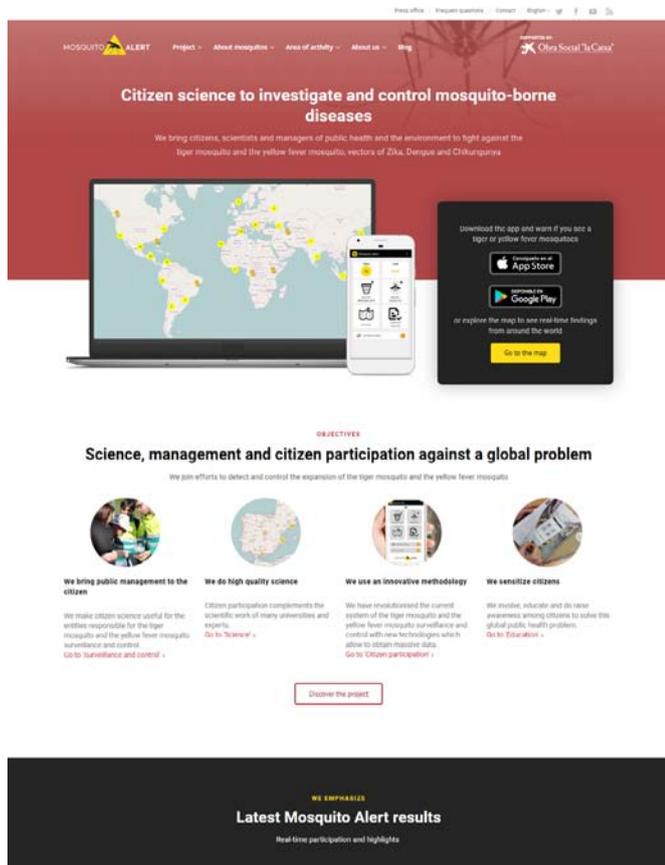
## 2.1 Technological platforms

### Website and app



### New website

We have updated our brand renewing our website areas, now organised in four areas of activity: citizen participation, science, surveillance and control and education.



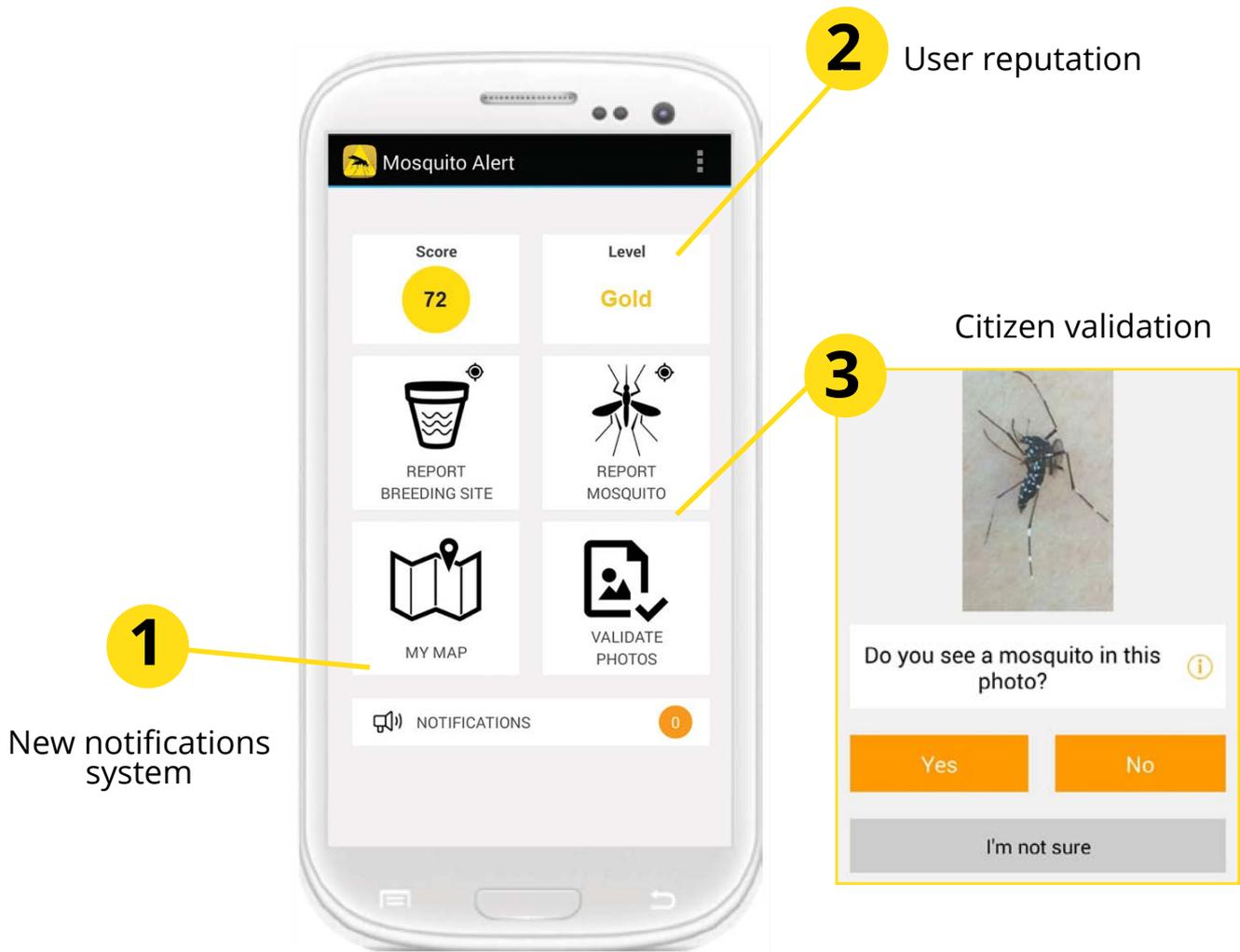
### New features of the app

- 1 Direct communication:** we have developed a notification system which allows scientists and mosquito managers to send information via app to participants. For instance, the validation result of the reports or the treatment actions that have been carried out.
- 2 User reputation:** users get score according to the amount of sent reports and quality.
- 3 Citizen validation:** participants can also validate photos from others, thus getting better score.

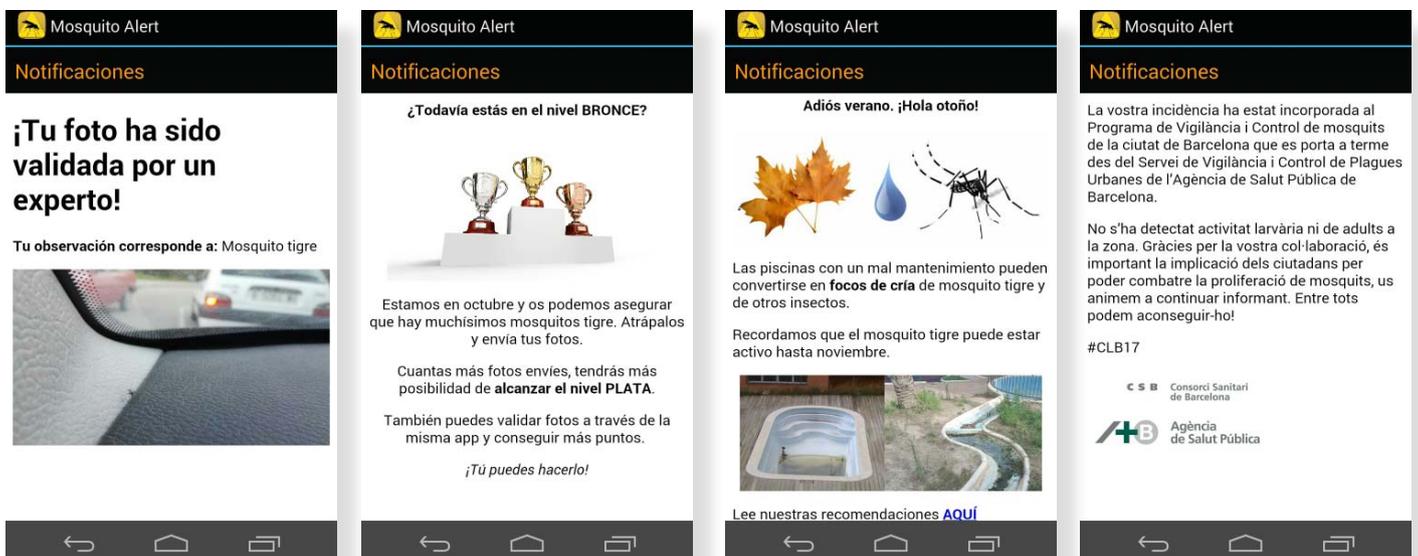
### The app in figures

	2017	Acumulado 2014 - 2017
Downloads (Android + iOS)	7.415	45.005
* Reported observations of tiger mosquitos	1.760	10.038
Reported observations of yellow fever mosquitos	3 (Perú)	6 (Perú, Pakistán, Guatemala)
Reported observations of breeding sites	991	2.354

\* total number of reported observations before expert validation.



### Examples of notifications sent during 2017 (Spanish and Catalan only)



## Public observations map



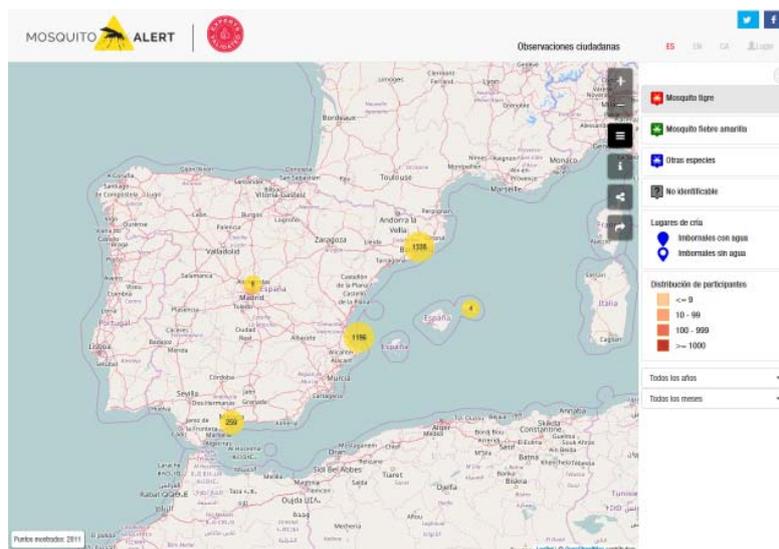
Validated sightings are published on Mosquito Alert’s interactive map. This interface can be used to view and analyse all such reports since 2014. In 2017, with the collaboration of Dipsalut (Girona Provincial Council’s public health body) and the work of SIGTE (Servei de Sistemes d’Informació Geogràfica i Teledetecció Espacial de la Universitat de Girona) the map has been updated with new functions to simplify viewing and exporting data from one or more areas. These new tools simplify tiger mosquito monitoring and control.

The new functionalities of the map allow:

- **Select multiple layers of different observations at the same time.**
- **Share map views through social media and URL.**
- **Export and download data in different file formats.**
- **Search and visualize observations of a determined city.**
- **Visualize data from different years, months or a determined date.**



**Dipsalut**  
Organisme Autònom de Salut Pública  
Diputació de Girona





## Citizen validation



Another goal is to obtain citizen that identifies the tiger mosquito and the yellow fever mosquito quickly and effectively, **without the need for expert validation**. Thanks to the Scifabric work and their expertise in creating crowdcrafting platforms, we have a map in which citizen validations made with the app can be showed.

The map shows all the tiger mosquito reports that have been validated by 5 participants minimum. Each photo has a fiability value according to all validations, so they have a final percent of fiability. In addition, the map shows the most active months in terms of validations and allows to visualize them in every municipality.

[> Go to the map](#)



MOSQUITO ALERT About

Busca por ciudad, provincia, país o código postal

<b>Tigre</b>	74,00%	50 personas	
Tigre	60,00%	50 personas	
Tigre	54,55%	11 personas	
Tigre	100,00%	5 personas	

**Distribución por meses para últimos resultados**  
Desde Junio 2014 - Octubre 2017



ene Feb Mar Abr May Jun Jul Ago Sep Oct Nov Dic

## 2.2 Citizen observations

### Expert validation

A team of entomologists analyzes only the observations that contain a photo. Three experts identify the species for each observation independently. One more expert checks those validation results and if they coincide with a tiger or yellow fever mosquito,

he assigns **“possible”** or **“confirmed”** categories depending on the quality of the photo. The final result is published in the public map and notified to the participant with a notification. Sometimes the experts add notes together with the result.

#### Dr. Roger Eritja

Expert validation supervisor  
Entomologist of the Baix Llobregat  
Mosquito Control Service



**Sarah Delacour**

Coordinator of the National Plan of entomological surveillance at airports and ports against vectors of diseases.



**Simone Mariani**

Mosquito's ecology expert. He collaborates with different projects about monitoring and cartography of its populations in Catalonia.



**Pedro María Alarcón-Elbal**

Medical Entomology-Veterinary expert. Lecturer and researcher at Universidad Agroforestal Fernando Arturo de Meriño de Jarabacoa, Dominican Republic



**Mikel Bengoa**

Expert in tiger mosquito control. Director of the consultancy Moscard Tigre.



**Rosario Melero-Alcíbar**

Expert in Medic and Veterinary Entomology. Entomology Coordinator of Fundación IO. Researcher at Entomological Surveillance National Plan of ports and airports against



**Santi Escartin**

Director of XATRAC. Participates in the Tiger Mosquito Surveillance Programme of Girona and coordinates breeding sites cartography in Tarragona and Girona.



**María Ángeles Puig**

Expert in biology and ecology of aquatic insects. Researcher of CEAB-CSIC.



**Ignacio Ruiz**

Expert in Medic and Veterinary Entomology. Researcher at Center of Biomedical Research of La Rioja (CIBIR).

## Results of expert validation

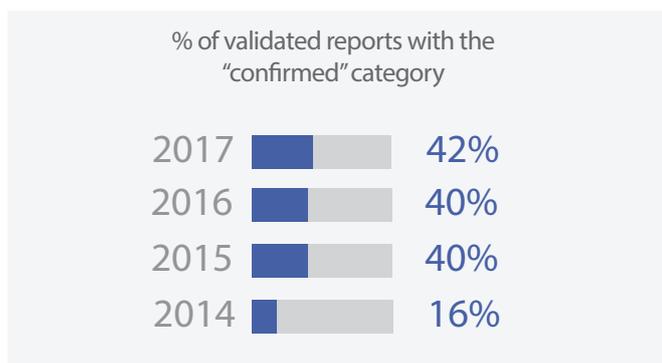
Categories	Confirmed tiger mosquito	Possible tiger mosquito	Confirmed yellow fever mosquito	Possible yellow fever mosquito	Other species	Unidentifiable	Breeding sites	Without photo
Number of reports	537	424	2	1	323	1690	695	727
Characteristics	White line on head and thorax identified	Other characteristics typical of the species identified	Lyre-shaped lines in thorax identified	Other characteristics typical of the species identified	Characteristics of other species of mosquito identified	No identifiable characteristics of any particular species	Not validated by an expert but the wrong ones are discarded	Not validated
Examples								

	Total	Daily average (from May to November)
Number of reports received during 2017	3.672	17
Number of validated reports ("unidentifiable" and "without photo" not included)	1.982	9
Number of validated reports with the "confirmed tiger mosquito" category	537	3

## Reliability of citizen data

The photos taken by citizen are getting better every year. In 2017, the **42%** of all validated reports were placed in the **"confirmed tiger mosquito"**

category. The number of **"confirmed" reports is still bigger than "possibles"** although quite less than in 2016.



**A selection of some of the best photos in the “confirmed tiger mosquito” category (2017)**



## 2.3 Science

### Mosquito Alert exposes that citizen science is a useful and reliable tool for studying the mosquitoes driving global epidemics

A study led by Mosquito Alert researchers published in *Nature Communications* (Palmer et al. 2017) shows that citizen science has allowed the researchers to cover much more geographic space in comparison to traditional methods, reducing the economic cost of the two-year study eight-fold. The study has used data sent by citizen from 2014 to 2015 with the Mosquito Alert app.

The results suggest that this citizen system developed by Mosquito Alert in Spain can be scaled up globally in a future and design new studies on the risk of disease transmission within the contexts of globalization, climate change, and increasing social inequality.

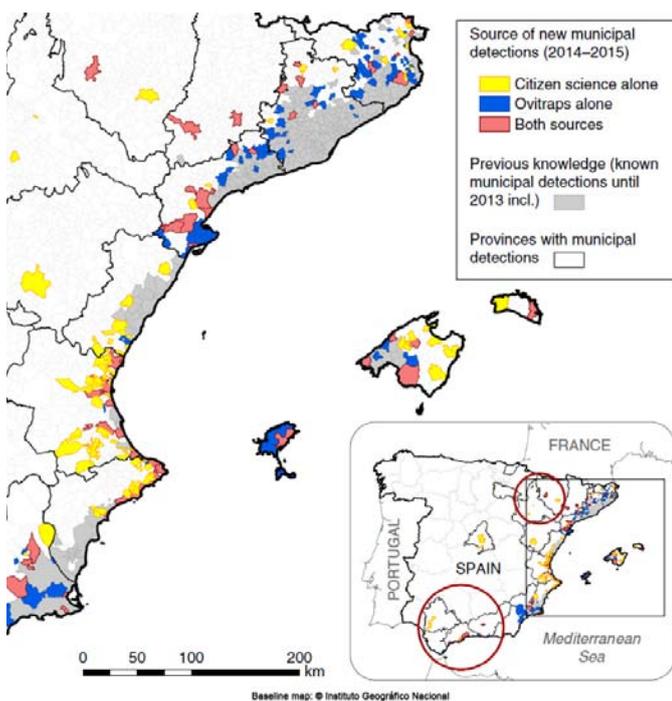


Figure: Palmer et al. (2017). Citizen science provides a reliable and scalable tool to track disease-carrying mosquitoes. *Nature Communications*, 8:916.

## The passive transport of tiger mosquitoes between provinces in Spain by car has been quantified for the first time

Another relevant study published by the Mosquito Alert team in *Scientific Reports* (Eritja et al. 2017) confirms that 5 out of every 1,000 daily car trips in the Metropolitan Area of Barcelona during the summer carries a tiger mosquito to.

The work shows that unwitting transport of tiger mosquitoes in private vehicles is a clear mechanism for their dispersal. The researchers inspected vehicles at random in checkpoints at toll-booths and vehicle inspection stations, and also gained data from alerts made by citizens

using the Mosquito Alert app. The scientists created a mathematical model with these data at its core in order to predict the movement of tiger mosquitos between Spanish provinces and in cars. Barcelona is the greatest mosquito-exporting province, followed by Tarragona, Valencia, Alicante,

and Murcia. In a future the researchers will study transportation patterns and, using the model, be able to extrapolate the predictions to any place, year, and season to have a better understanding of how this insect is dispersed and be able to propose measures to halt the invasion.

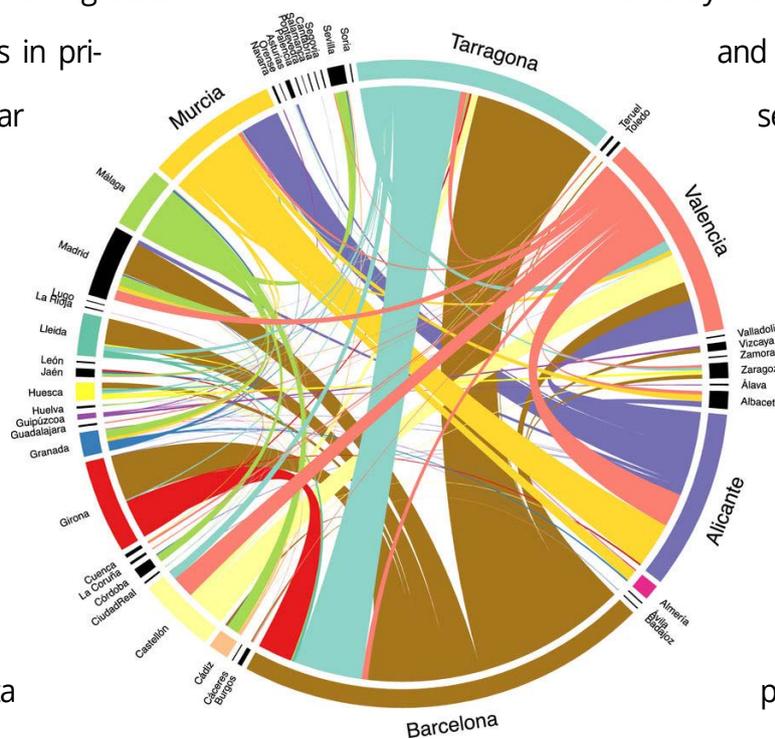


Figure: Eritja et al.



Photos of tiger mosquito inside the cars sent by citizen using the Mosquito Alert app.

## Scientific articles published

- Eritja R, Palmer JRB, Roiz D, Sanpera-Calbet I, Bartumeus F (2017) Direct Evidence of *Aedes albopictus* Dispersal by Car. *Scientific Reports* 7:14399.
- Palmer JRB, et al. (2017) Citizen Science Provides a Reliable and Scalable Tool to Track Disease-Carrying Mosquitoes. *Nature Communications* 8:916.
- Millet, J. P., Montalvo, T., Bueno, R., Romero-Tamarit, A., Prats-Urbe, A., Fernandez, L., ... & Zika Working Group in Barcelona (2017). Imported Zika Virus in a European city: how to prevent local transmission?. *Frontiers in Microbiology*, 8, 1319.
- Ceccaroni, L., & Piera, J. (2017). Analyzing the Role of Citizen Science in Modern Research (pp. 1-355). Hershey, PA: IGI Global. doi:10.4018/978-1-5225-0962-2.
- Garriga J, Piera J, Bartumeus F (2016). A Bayesian Framework for Reputation in Citizen Science. Proceedings of the Workshop on Data Science for Social Good (2017). European Conference on Machine Learning and Principles and Practice of Knowledge Discovery (ECML PKDD). Skopje, Macedonia (18-22 September, 2017).
- Palmer JRB, Brocklehurst M, Tyson E, Bartumeus F (2016) Global Mosquito Alert In Citizen

Science: Innovation in Open Science, Society and Policy. (UCL Press) Edited by: Muki Haklay, Aletta Bonn, Susanne Hecker, Anne Bowser, Zen Makuch and Johannes Vogel (in press).

- Tyson E., Bowser A., Bartumeus F., and Pauwels E. (2016) Global Mosquito Alert Consortium: A Roadmap Towards a Common Protocol and Platform for Citizen Science Vector Monitoring (to be shown to future funders or public health administrations) (to be published).

## Citations in third parties' scientific works

- BDEBATE Sinopsis (2017). El Zika y otras enfermedades por mosquitos. ¿Estamos preparados? Biocat.
- SIGTE (2017). Visualización y gestión de grandes volúmenes de datos en un cliente web. El proyecto Mosquito Alert. UNIGIS.



## Presentations in scientific or technical conferences

- 23/11/2017. 1st Italian Citizen Science Conference. Roma
- 22/11/2017. Citizen Science Training School. COST Action – CA15212 Citizen Science, Barcelona.
- 21/11/2017. XIV JORNADA CREAM SCB ICHN: invasions biològiques. Recerca i gestió. Barcelona
- 14/11/2017. Debats ICREA-CCCB. Planeta 2050. Barcelona
- 1-6/10/2017. 7th International Congress of the Society for Vector Ecology (SOVE). Palma de Mallorca.
- 18-22/9/2017. The European Conference on Machine Learning & Principles and

Practice of Knowledge Discovery in Databases. ECML PKDD 2017. POSTER Skopje, Macedonia.

- 13/9/2017. Social Inequality and Disease-Vector Mosquitoes: An Interspecies Feedback Loop. University of Berkeley.
- 6-8/9/2017. Congreso SESPAS – Ciencia para la acción. Barcelona
- 13/7/2017. Jornada Informativa: situación de las enfermedades transmitidas por vectores en España. Madrid.
- 21/6/2017. XIV Congreso de Salud Ambiental organizado por la Sociedad Española de Sanidad Ambiental (SESA). Zaragoza
- 1-2/6/2017. 11as Jornadas SIG Libre UdG. Girona
- 30/5/2017. Barcelona Cicle de l'Aigua S.A. Barcelona.
- 25/5/2017. 4t dia de la ciència ciutadana. Barcelona.
- 23-24/5/2017. BDEBATE. Zika virus and other mosquito-borne viruses. Science for preparedness and response in the Mediterranean region. CosmoCaixa Barcelona.
- 17-20/5/2017. #CitSci2017 Conference Information. Minnesota
- 15/5/2017. Dilluns de ciència CSIC – Cómo los humanos estamos transformando la



- tierra: La era del «antropoceno». CEAB-CSIC.
- 21/4/2017. Seminari Hospital General Vall d'Hebrón. Hospital Vall d'Hebrón, Barcelona.
  - 3-4/4/2017. Harnessing Citizen Science to Tackle Mosquito-Borne Diseases: Towards a locally based, yet Global Platform. Technical Workshop. Geneva.
  - 13-16/3/2017. VIIIth EMCA Conference. Montenegro
  - 8/2/2017. Citizen Science and Open Data: a model for Invasive Alien Species in Europe. Brussel·les
  - 23/1/2017. Mosquito Mappers: Citizen Scientist Action, Healthy Communities. Washington DC
  - 18/1/2017. The Crowd & the Cloud: Empowering Citizens to Support their Own Development through Data. United Nations.
  - 16-18/1/2017. First United Nations World Data Forum, South Africa.



Global Mosquito Alert Consortium workshop, Ginebra. Photo: GMAC

## A work of Mosquito Alert is recognized by the worldwide scientific community



A solid research studying deeply Mosquito Alert data which includes various social aspects related to the risk of disease transmission through mosquitoes won the second prize of the contest “Falling Walls LAB-Marie Skłodowska-Curie Actions”. The contest is promoted by the Marie Skłodowska-Curie program with the aim of highlighting the best

projects carried out by researchers belonging to this prestigious European program. The researcher John Palmer of Pompeu Fabra University and member of Mosquito Alert presented his scientific project highlighting the achievements thanks to citizen participation combined with scientific work. > [Read more](#)

John R.B. Palmer at the presentation. Photo: MSCA



## 2.4 Management

*Collaboration with administrations in surveillance and control of the tiger mosquito in cities where it is established and others where begins to be problematic.*

### Collaborations and agreements with the public administration and private companies

#### ■ Kit for managers

We have developed a free kit for managers with dissemination and education material for doing prevention campaigns together with the city councils. It also includes instructions to use the map and the reports to do surveillance actions in the municipalities.



#### ■ First steps with “Diputació de Barcelona”

During the prevention campaign some material of Mosquito Alert was included at the “Urban pests” of the main website for city councils of the Barcelona province.

[> See website](#)

#### ■ City of Barcelona

One more collaboration with the Public Health Agency of Barcelona (ASPB), that validates data sent from participants in the city and include this data in their surveillance and control programs since 2015. In 2017, a total of **152 incidences** were sent with the app and answered by the ASPB. 139 of them were inspected and in **16 tiger mosquito activity was detected**, followed by treatment actions in the breeding sites.

#### ■ City of Valencia

The Public Health Administration of the City of Valencia supports and uses the Mosquito Alert app as an extra tool to do surveillance and control actions in the city, together with the Lokímica company.

[> Read more](#)



Press conference in Valencia. Photo: Valencia City Council

### ■ Girona province

Thanks to the collaboration with Dipsalut (Girona Provincial Council's public health body) we have developed new tools to better visualize data from the map and the private portal for managers.

[> Read more](#)

### ■ Collaboration agreement with ANECPA

The Spanish National Association for Environmental Health Businesses will contribute the knowledge of professional pest control agents to Mosquito Alert's popular platform for citizen science and mosquito control. [> Read more](#)

### ■ Government of Catalonia

Mosquito Alert is included at the health portal "[Canal Salut](#)". A new project "PICAT" is assigned in collaboration with ISGlobal and Vall d'Hebrón Institute of Research (VHIR).

### ■ Community of Madrid

Mosquito Alert is included at the Program for Entomological Surveillance and Sanitary-Environmental Control of Transmitting Vectors of Arboviruses (Dengue, Chikungunya and Zika), according to the collaboration agreement in 2016.

[> Read more](#)

Collaboration agreement with ANECPA.



## More collaborative campaigns and sensibilization

During 2017 we have offered collaborations with municipalities to do sensibilization activities related to the tiger mosquito together with the city councils. Some of them are:

- Badalona City Council
- Terrassa City Council
- Sabadell City Council
- Benalmádena City Council
- El Baix Montseny
- La Pobla de Claramunt City Council
- Vinaròs City Council

“ECOVITA” exhibition at Baix Montseny.



### Junts podem eliminar-los!

Les fotos que envies amb l'app apareixen validades en un **mapa públic** que qualsevol persona pot consultar des del web.

Aquest mapa de punts de mosquits i llocs de cria pot ser molt útil per a les **entitats i gestors de salut pública** que treballen en les estratègies de seguiment i control d'aquests mosquits.

Si entre tots ajudem a fer aquestes accions de control i prevenció farem front a les **molesties** que ens provoquen aquests insectes. A més, és important per reduir al màxim el risc de transmissió de malalties per aquests mosquits.






**Ajuntament de Terrassa**

Medi Ambient i Sostenibilitat  
www.terrassa.cat/mediambient

Segueix-nos a:

 @Mosquito\_Alert

 /mosquitoalert

www.mosquitoalert.com

Llicència d'aquest document: CC by Mosquito Alert

## Lluita contra els mosquits transmissors de malalties!





Descarrega't l'app i envia fotos dels mosquits i els seus llocs de cria!

Example of a leaflet in Catalan used in a municipality campaign.

## A new platform for managing promoted by Dipsalut



In May 2017, MosquitoAlert and Dipsalut (the Public Health entity for the region of Girona, Spain) unveil **a new platform which will improve management of the tiger mosquito in Spain**. The map is based on the public map but with new management functionalities. The new tools consist of a map which allows the combination of region-specific information with scientific and technical data, as well as citizen reports on tiger mosquito sightings and breeding sites in urban areas. Managers can send notifications to citizen to update about the treatment actions answering their incidences and remind them tips

to prevent breeding sites at home. With this portal, the Mosquito Alert project continues with its work to integrate the efforts of citizens with those of public officers responsible for the environment and public health. The private portal can only be accessed through a collaboration agreement. In 2017, the first pilot tests with the private portal were done with the **Public Health Agency of Barcelona, Dipsalut** and the **Valencia City Council** with the **Lokímica** company. The goal is to scale up the functionalities and distribute its use among the public administrations.

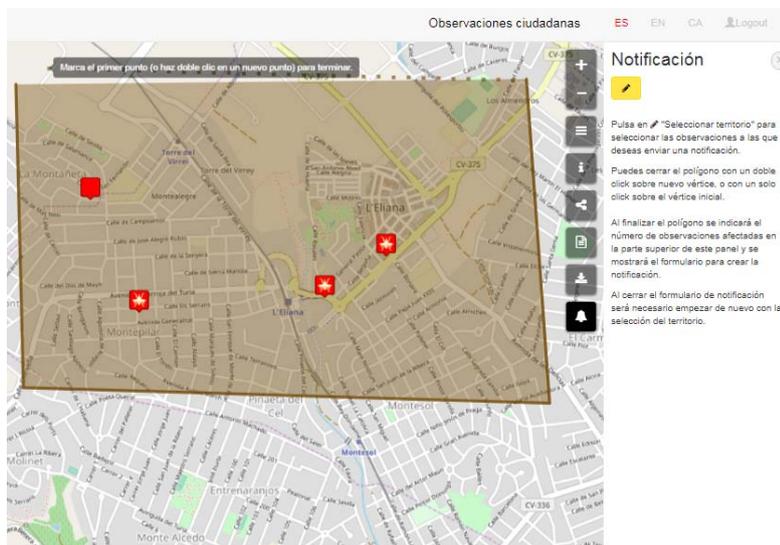
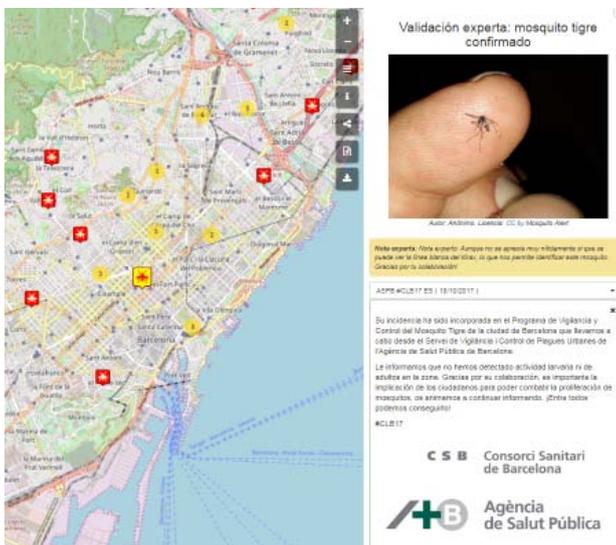
[> Read more](#)



Press conference at Dipsalut.

Functionalities of the private portal:

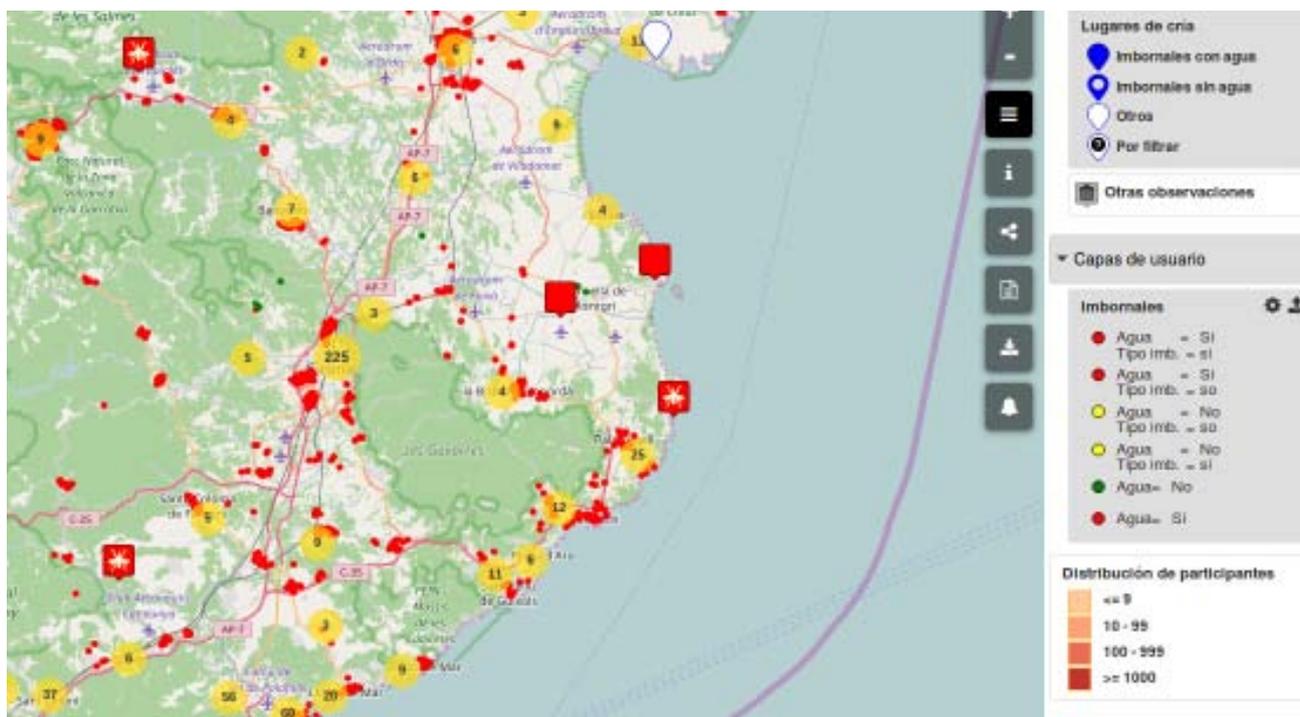
Examples of notifications



Example of an individual notification sent by ASPB in Barcelona.

Example of a notification sent to a group of users.

Example of a private portal use with territorial and management information



Cartography layers combined with the citizen reports in the Girona province.



## 2.5 Internationalisation and global collaboration agreements

### ■ Consolidation of the ECSA Task Force Group and creation of Global Mosquito Alert Consortium

During 2017, Mosquito Alert together with the European Citizen Science Association (ECSA) has been promoting citizen science as a research tool to fight against mosquito borne-diseases, with final aim to incorporate it in policy making, legislation and national strategies. Since April 2017, this group leads the creation of the Global Mosquito Alert Consortium with the support of UNEP and the Wilson Centre (USA) to find a global strategy that collects the interests from all the countries affected by mosquito borne-diseases. > [Read more](#)

### ■ New national program: NASA DEVELOP

It is a training program of the United States promoted by NASA to work globally with environmental data. The program uses Mosquito Alert data and data from other european citizen science projects to link satellite data with mosquito abundance and make global distribution maps.



■ **Hong Kong works with Mosquito Alert in education projects**

Thanks to the translation of the app to Chinese, the Hong Kong team uses easily this tool in their education activities and for the general public. In 2017 there were a total of 29 reports in this region.

■ **First steps to translate the app into Italian and Greek**

In a near future people from Greece will be able to use the app to control the tiger mosquito.

■ **Participation in the Medical Entomology del Instituto Pasteur MOOC**

Mosquito Alert gave some material to this online course to let students know about the app and involve them to participate.

■ **Pilot test in Barranquilla (Colombia)**

A new project starts in this region led by a group of trained volunteers that will use the app in the districts to control the tiger and yellow fever mosquitos.



## 2.6 Community building and outreach

### Divulcation articles in the blog

During 2017 we have published many divulgation articles related to the tiger mosquito and the yellow fever mosquito and other content related to the project.

> [Visit the blog](#)

### First museistic exhibition

The project opened a citizen science exhibition cycle at the Science and Technology Library from the Autonomous University of Barcelona (UAB).

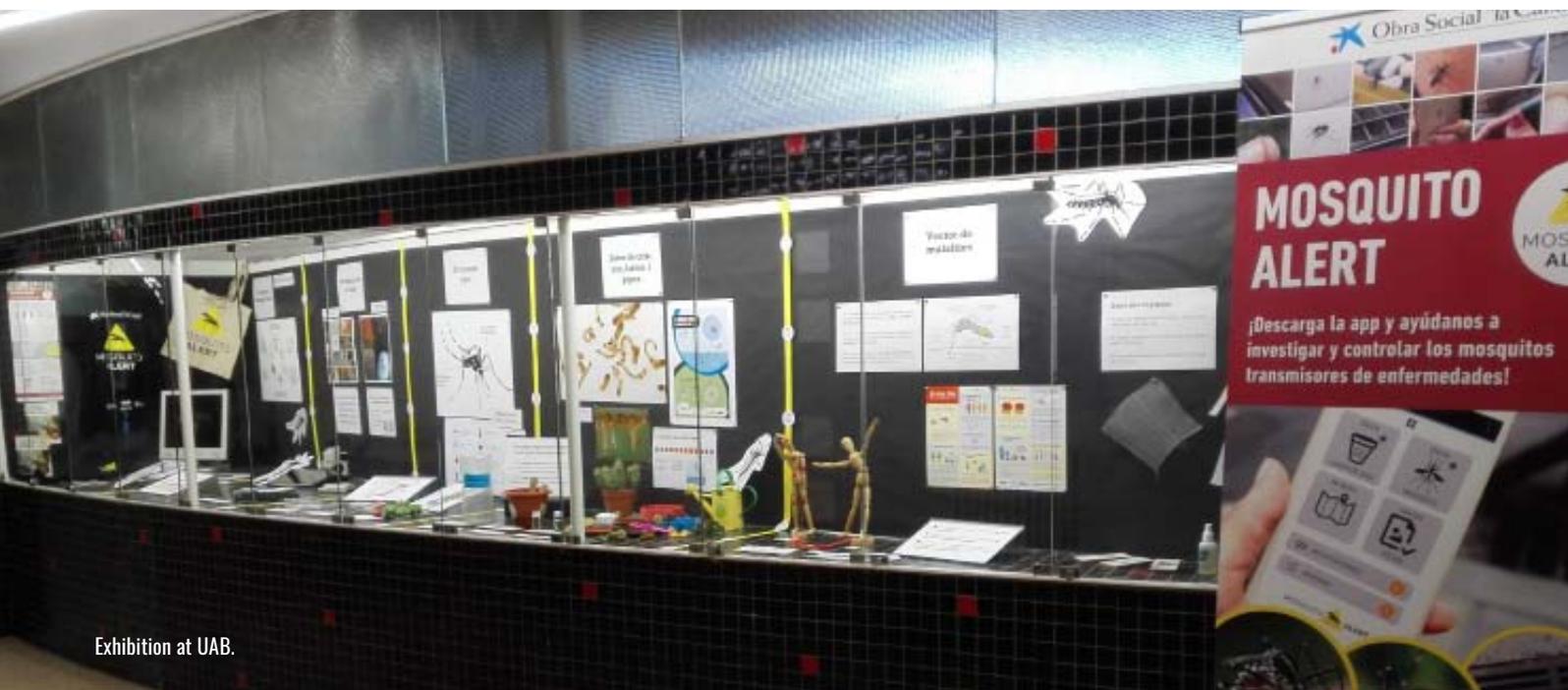
> [Visit the exhibition](#)

### Other specialized publications or divulgation works

- Bartumeus F. (2018). [Delatado el «comportamiento de autoestopista» del mosquito tigre](#). *Blog CaixaCiència*.
- Torres M., Bartumeus F. (2017). [Harnessing citizen science to tackle mosquito-borne diseases](#). *Infectious Diseases Hub*.
- Bartumeus F. (2017). [Mosquito Alert acerca aún más la ciudadanía a la ciencia y la gestión](#). *Blog CaixaCiència*.

### Communication indicators

- **Twitter:** 1,426
- **Facebook:** 4,341
- **Anual visits (website):** 25.675
- **Newsletter:** started in May, with 218 subscribers until december 2017.



Exhibition at UAB.

## Activities for scholarship and general public

- December 2017 - January 2018 Exposición en la Biblioteca de Ciencia y Tecnología de la UAB. Facultad de Biociencias.
- 21/12/2017. III Encuentro de Ciencia Ciudadana, Medialab-Prado. Madrid
- 13/6/2017. Scientist Dating Forum: ¿Cómo involucrar a la sociedad en la ciencia? CID-CSIC. Barcelona
- 27-28/5/2017. Festa de la Ciència al Parc de la Ciutadella. Barcelona
- 27/5/2017. Fira Ciència al Carrer. Lleida.
- 25/5/2017. 4t Dia de la Ciència Ciutadana. Barcelona
- 11-18/5/2017. Xerrada. St. Quirze V.
- 3-5/5/2017. Congreso HEALTHIO. Barcelona.
- 16-22/03/17. Centre Cívic Bon Pastor.
- 23/1/2017. Mesa redonda "Retos de futuro de los Dircom". Máster de Comunicación Científica UPF-BSM. Barcelona.



## Educational programme at schools

Mosquito Alert, together with the Xatrac Environmental Association and the Spanish Foundation for Science and Technology, launches an innovative project aimed at educational centers with the aim of bringing the Mosquito Alert citizen science platform to a youth audience to encourage experimentation and to awaken scientific vocations among the young.

In Spring 2017, a first pilot test was done with schols from Lleida and Barcelona with the collaboration of the ASPB and in October started **the educational project, under the name of “Mosquito Alert for young people: fostering scientific vocations based on citizen science”**. The goal is to

encourage participation in citizen science among young people and reach areas where there are few warnings of tiger mosquitoes or their breeding places through the Mosquito Alert app. The team visited **13 centres** of Castellón, Lleida, the Balearic Islands, Huesca, Teruel and Barcelona to launch the activities organized in different sessions following the methodology of works by projects in the schools. The best works were awarded. The programme also offered training courses for teachers in Huesca and Castellón. During the educational project in October the number of breeding sites reports increased up to 200 in comparison with the previous month.

[> Read more](#)



## Activity with the media

During 2017 we issued **6 press releases** and **1 press conference**, generating **127 mentions of the project in Spain's and international media** (radio, tv and press). Journalists reporting on tiger mosquitoes and related subjects have come to regard the project as a reliable, rigorous source of information.

> [Go to the press office](#)

## Selection of appearances in the media

### TELEVISION

**TV series "The Crowd and The Cloud" about citizen science** (April 2017)



Mosquito Alert project appears on the episode **"Viral vs Virus"** as an example of a citizen science project which involves society to the scientific and management progress to fight against the tiger mosquito problem. "The Crowd & The Cloud" is a 4-part public television series hosted by former NASA Chief Scientist Waleed Abdalati.



**REPOR RTVE.** "Guerra al mosquito" (July 2017)



**RTVE.** Informativos (May 2017)



**CATALUNYA DIRECTE 8TV** (October 2017)



**Telenotícies migdia TV3.** (November 2017)



**CATALUNYA DIRECTE 8TV** (December 2017)

PRESS (in paper)

Diario de Ibiza. (October 2017)

Una 'app' y la ciencia ciudadana accorralan al mosquito tigre en España

Mosquito Alert, una aplicación móvil desarrollada por varios centros de investigación españoles ha permitido rastrear estos insectos portadores de enfermedades mediante la colaboración ciudadana. El sistema se ha utilizado para monitorizar al mosquito tigre asiático, un vector de virus como el Zika, el dengue y el Chikungunya. Con los datos obtenidos, los científicos están ahora estudiando el riesgo de brotes epidémicos de estos virus en nuestro país.

Agenda ibic

El sábado 14 de octubre, Ibiza y Formentera se suman a la campaña de eliminación del mosquito tigre. El sábado 14 de octubre, Ibiza y Formentera se suman a la campaña de eliminación del mosquito tigre. El sábado 14 de octubre, Ibiza y Formentera se suman a la campaña de eliminación del mosquito tigre.



Un equipo de voluntarios en puerto de Mosquito Alert.

Voluntarios científicos de Mosquito Alert en un punto de recogida de mosquitos tigre en el puerto de Mosquito Alert.

Con los nuevos conocimientos de la biología del mosquito tigre, los científicos de Mosquito Alert han desarrollado una nueva metodología para la detección y control de este insecto. Esta metodología se basa en el uso de trampas de luz y cebos que atraen al mosquito tigre y lo eliminan.



Desde el 2014, el proyecto ha recibido más de 3.600 alertas confirmadas de estos insectos de toda España y algunas han sido excepcionales.

Desde el 2014, el proyecto ha recibido más de 3.600 alertas confirmadas de estos insectos de toda España y algunas han sido excepcionales. Esto se debe a la colaboración ciudadana y el uso de la aplicación móvil.

El mosquito tigre asiático es un vector de enfermedades como el dengue, el Zika y el Chikungunya. Su presencia en España es preocupante y requiere medidas de control urgentes.

El mosquito tigre asiático es un vector de enfermedades como el dengue, el Zika y el Chikungunya. Su presencia en España es preocupante y requiere medidas de control urgentes.

La Rioja. (Agost 2017)

Otro temible enemigo que llegará a La Rioja.. en coche

El Centro de Rickettsiosis del CIBIR, en alerta por la gran incidencia del mosquito tigre en la salud pública. Este mosquito es un vector de enfermedades y su llegada a La Rioja es preocupante.

Infographic titled 'Un nuevo inquilino' (A new tenant) about the Asian tiger mosquito. It includes a life cycle diagram showing stages from egg to adult, and a map of its distribution in Spain. Text explains its impact on human health and the need for control measures.

Infographic titled 'Como combatir' (How to fight) providing practical advice on how to prevent mosquito bites and control their population. It includes tips like using repellents, wearing long sleeves, and eliminating breeding sites.

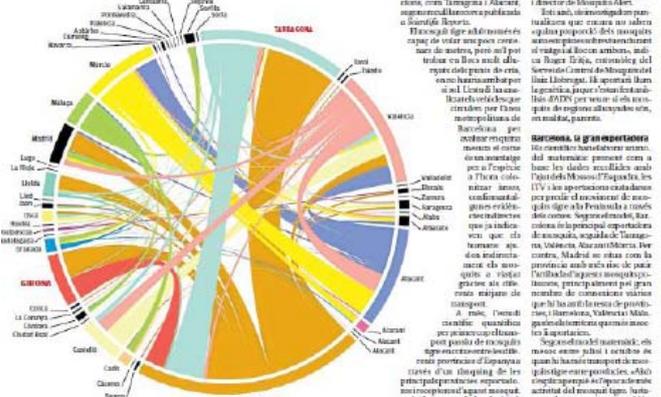
Diario de Girona. (November 2017)

Detecten intercanvi de mosquits tigre entre Girona i Barcelona pels cotxes

Un estudi alerta que el transport accidental a través dels vehicles és un mecanisme evident de la dispersió territorial d'aquest insecte

Predicció de flux de transport de mosquits tigre entre provincies a través de cotxes

Al Gironès, el flux de cotxes cap a Barcelona és el més alt, segons un estudi que ha fet el Departament de Salut de la Generalitat de Catalunya.



Mosquito Alert: un sistema de monitorització de mosquits tigre a través dels cotxes.

Infographic titled 'LA XIFRA' (The figure) showing that there are 5 tiger mosquitoes per person in Catalonia. It includes a small map of Catalonia and a list of cities.

El mosquito tigre asiático es un vector de enfermedades como el dengue, el Zika y el Chikungunya. Su presencia en España es preocupante y requiere medidas de control urgentes.

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¿A quién pica? (Who does it bite?)

¿Por qué pica? (Why does it bite?) This infographic explains the reasons why the mosquito tigre bites humans, including its search for a blood meal and the role of carbon dioxide in its host-seeking behavior.

Infographic titled '¿A quién pica?' (Who does it bite?) showing the mosquito's feeding process and the symptoms it causes. It includes a diagram of the mosquito's mouthparts and a list of symptoms like redness, itching, and allergic reactions.

Infographic titled '¿Cómo evitar que nos piquen?' (How to avoid being bitten?) providing practical advice on how to prevent mosquito bites. It includes tips like using repellents, wearing long sleeves, and avoiding outdoor activities at dusk and dawn.

El Segre. (June 2017)

**GUÍA**

38 **D**icrominació. L'amo del flitser accepta ser híbriditzat pel 'ca' i 'con'

46 **T**radicions. L'olla secca i 'ca' (amb mata) coincideix amb la celebració del Corpus

137

MEDI AMBIENT PLAGUES

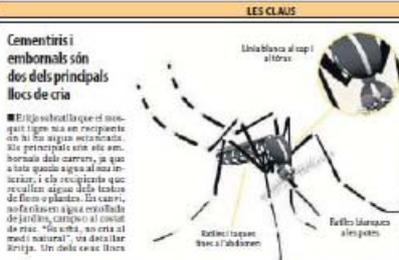
# E mosquit tigre, a mig Lleida

La seua presència ja ha estat confirmada a la capital, en cinc municipis més de quatre comarques del pla i també al Solsonès || Els científics lamenten la inacció de les administracions

**I. MORTÍL, BARCELONA**

La plaga de mosquits que afecta aquesta dies la ciutat de Lleida inclou amb tota probabilitat a més espècies del mosquit tigre, espècie invasora amb una picada molt més molesta que la dels autòctons i que pot transmetre malalties gravis i fins i tot mortals, com és el cas de la febre tifoide i la dengue.

Des d'aquí, se n'ha confirmat la presència a la capital i els municipis més de quatre comarques: l'Alfarrès (Urgell), Alcarria (Segrià), Joroca (Al·lana), Sant Llorenç de Morunys (Noya), i el municipi de Solsona. Així ho reflecteix el mapa del projecte Mosquito Alert, coordinat per tres centres d'investigació pública: el Centre de Recerca Biològica i Aplicacions Forestals (CREAF), l'Institut Català de Recerca i Innovació Tecnològica (ICT) i el Centre d'Estudis Avançats de Blanes (CEAB-CSIC), i dirigida pel ICREA Social La Guineu. Però és molt probable que hagi arribat a molts més localitats. De fet, és que, fins i tot, en aquest projecte es confirmen la presència a partir de les fotos que envien ciutadans a través de l'app Mosquito Alert, i el nombre de persones que consulten el projecte, es desdoblava després de la publicació, de fet, Roger Ertija, responsable d'investigació de Biologia i coordinador del servei de control de mosquits del CREAF, va explicar que el mosquit tigre s'importa a molts dels carrers perquè és de les principals vies de propagació i que el transport de materials utilitzats, com ara, la fusta, és el més utilitzat. "Els ciutadans que es queixen de picades a les zones de treball, va indicar Ertija, va lamentar que ni la Generalitat ni el Govern central, ni tampoc en marxa cap programa de regulació i control del mosquit tigre.



profeta són els cementiris, perquè sempre hi ha haver rams en garros amb aigua. Als cementiris, hi ha un vici que és la febre tifoide, i va apuntar: "Aquest espècie invasora que la seva eradicació és impossible i que la febre tifoide és una malaltia que la població d'aquesta varietat autòctona està acostumada a la para la qual cosa, tenim una gran dificultat per controlar la població de mosquits i a més, per dificultar que s'elimini, així com tractament regulat per part de ciutadans i professionals. "El servei de control de mosquits al llarg de Catalunya té un total de 28 municipis", va destacar.



Un tram de tramvia 'colgats' a la zona d'ombra d'una mosquetera sota el cel.

**TEMPERATURA MAXIMA**

Localitat	Temperatura
Oliva	39,0
Baldassar	37,0
Ongay	37,0
Trep	37,0
Arrener	37,0
Alfarrès	37,0
Alfons	36,7
Oliva	36,0
La Pobla de Segur	36,0
Sorta	36,0
Mellicena	36,0
Urdos i Bardes	36,0
Waldgrona	35,0
El Port de Sant	34,0
Sort	33,0

**La calor s'acarnissa amb Lleida i els docents demanen reduir hores de classe**

El fet és que la calor s'acarnissa amb Lleida i els docents demanen reduir hores de classe. Els docents van explicar a l'acte que, a més de la calor, també hi ha un problema de manca d'aigua potable a moltes zones de la ciutat, i que, a més, la calor s'acarnissa amb Lleida i els docents demanen reduir hores de classe.

En aquest sentit, els docents demanen reduir hores de classe el 27 d'agost perquè hi ha molts alumnes que no poden assistir a les classes a causa de la calor. A més, els serveis d'emergència van acompanyar el 27 d'agost de l'Institut de Recerca de València, de la qual qual cosa van ser ingressats per una crisi d'ansietat i un atac de cor.

El Periódico. (December 2017)

A L'ILLA DE FUERTEVENTURA

# Detectat a les Canàries el mosquit del dengue

És la primera vegada en les últimes dècades que s'observa 'Aedes aegypti' a Espanya

Les autoritats diuen que la presència no significa que hi hagi transmissió

**ANTONIO MADRILEJO BARCELONA**

El Govern canari va informar abans de la detecció a Fuerteventura d'exemplars del mosquit *Aedes aegypti*, l'insecte transmissor del dengue, la febre groga i el Zika, fet que suposa la primera confirmació de l'espècie a Espanya en les últimes sis dècades. Les autoritats van insistir, no obstant, que es tracta d'un cas «puntual» en un àmbit reduït d'una urbanització.

L'Executiu canari, a més, va precisar en un comunicat que «la mera presència del mosquit no suposa que s'estigui produint transmissió de les malalties en què actua com a



Un exemplar del mosquit 'Aedes aegypti', transmissor del dengue.

vector, ja que ni el dengue, ni la febre groga, ni el Zika són presents a les Canàries. Els únics i esporàdics casos documentats han sigut «importats», és a dir, viatgers que van arribar a l'illa després de ser picats en un altre país.

La detecció del mosquit es va efectuar en una urbanització de Puerto del Rosario, la capital de l'illa, on les autoritats han delimitat una àrea de 500 metres quadrats de períme-

DIFERÈNCIES ENTRE ESPÈCIES

Mosquit tigre 'Aedes albopictus'	Mosquit de la febre groga 'Aedes aegypti'
<b>Potes</b> Negres amb ratlles blanques	Negres amb ratlles blanques
<b>Abdomen</b> Negre amb línies blanques fines i taques blanques laterals triangulars	Marró fosc quasi negre amb línies blanques evidents i taques blanques laterals rodones
<b>Tòrax i cap</b> El tòrax i el cap són negres, amb una línia central blanca	Marró fosc. El tòrax té un dibuix blanc en forma de línia. El cap, una línia blanca central i línies laterals

## ONLINE PRESS

### La Razón (October 2017)

**LA RAZÓN**

# ATU SALVD

## Colaboración ciudadana contra el mosquito tigre

Mosquito Alert, una aplicación móvil desarrollada por varios centros de investigación españoles ha permitido rastrear mosquitos portadores de enfermedades mediante la colaboración ciudadana. Con los datos obtenidos, los científicos están ahora estudiando el riesgo de brotes epidémicos de estos virus en nuestro país

Fotos de mosquitos enviadas por los ciudadanos a Mosquito Alert

### El Mundo (May 2017)

**EM** España Cataluña Noticias Elecciones catalanas

CATALUÑA

## La ONU y plataformas científicas se unen contra mosquitos transmisores de enfermedades

La iniciativa se acordó en una reunión de trabajo celebrada en Ginebra viendo el éxito del proyecto Mosquito Alert, impulsado por la Obra Social 'la Caixa'. / EL MUNDO

### LA VANGUARDIA (July 2017)

**LA VANGUARDIA**

## Madrid se pone de nuevo en guardia por el virus Zika

Activa la red de vigilancia ambiental para controlar la posible llegada a la región del 'mosquito tigre'

Mosquito tigre, con detalles de su prothorax característicos. (Mosquito Alert)

Comparte en Facebook | Comparte en Twitter

REDACCIÓN Y AGENCIAS, Madrid  
15/07/2017 10:14 | Actualizado a 15/07/2017 12:38

La Comunidad de **Madrid** ha puesto en marcha por segundo año consecutivo la **red de vigilancia ambiental** para controlar la posible llegada a la región del conocido **'mosquito tigre'** (*Aedes albopictus*) con capacidad de transmitir enfermedades tropicales como el **virus del Zika**.

Así lo han indicado fuentes de la Consejería de Sanidad para detallar que durante el pasado año se colocaron 300 trampas y que tras los análisis en laboratorio no se detectó la presencia del insecto en nuestra región.

La red se enmarca en el Programa de Vigilancia Entomológica y Control Sanitario-Ambiental de Vectores Transmisores de Arbovirus, elaborado por la Dirección General de Salud Pública de la Consejería de Sanidad. Su objetivo es prevenir la instalación del mosquito en la región, así como contar con un protocolo de respuesta rápida ante su aparición.

La red cuenta con puntos de muestreo donde se colocan trampas para insectos, y se crea en coordinación con municipios madrileños y la Universidad Complutense de Madrid (que analiza en el laboratorio las muestras capturadas).

### El Periódico (December 2017)

**el Periódico** EDICIÓN CATALUNYA EDICIÓN GLOBAL

Ciudad > Ciencia > **MEDIO AMBIENTE** CASTELLERS CIENCIA TIEMPO SANIDAD SUCESOS PRIMERA PLAN >>>

## Detectado en Canarias el mosquito transmisor de la fiebre amarilla y el dengue

Es la primera vez en las últimas décadas que se descubren ejemplares de 'Aedes aegypti' en España

Las autoridades recuerdan que la presencia no significa que haya transmisión de enferma

Antonio Madríguez  
Barcelona - Miércoles, 13/12/2017 | Actualizado el 14/12/2017 a las 18:14 CET

Ejemplar de mosquito de la fiebre amarilla o Aedes aegypti. / MARK YOKOHAMA

La **Consejería de Sanidad del Gobierno canario** ha informado esta mañana de la detección en Fuerteventura de ejemplares del mosquito '**Aedes aegypti**', el insecto transmisor del **virus del dengue**, la **fiebre amarilla** y el **zika**, lo que supone la primera confirmación de la especie en España en las



# Coordination and acknowledgements

## 4

The Mosquito Alert project is coordinated by the institutions CREAM, CEAB-CSIC and ICREA, and promoted by the “La Caixa” Foundation. It is jointly funded by Spain’s Ministry of the Economy and Competitiveness and the Spanish Foundation for Science and Technology (FECYT).

We are particularly grateful to all the anonymous individuals who help us by providing data via the Mosquito Alert app. Also to Irene Lapuente, Rubén Duro and Santi Escartín for offering ideas and suggestions about how

it could progress, participating in activities and developing the educational programme. Likewise, we are grateful to the involvement of many public and private bodies and the support of numerous professionals. Without that help, the project would not be possible.

Finally, tanks to [all the Mosquito Alert team](#) for its effort and constant involvement in all the different areas of the project, making it bigger day after day.





MOSQUITO



ALERT



Obra Social "la Caixa"



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