The new Integrated platform for the control of arboviruses in Catalonia (PICAT) is launched to integrate epidemiological information into the management portal of Mosquito Alert.

Mosquito Alert detects for the first time Aedes japonicus in Spain, another invasive species and vector of diseases.

The scientific work of Mosquito Alert receives the award ‘City of Barcelona 2017’ within the section of Earth and Environmental Sciences.
Mosquito Alert Annual Report 2018 - Citizen science project results
Authors: Marina Torres, Aitana Oltra, Frederic Bartumeus, Roger Eritja.
Design: Marina Torres (Communication Department, CREA).
Photographs: Authors (under Creative Commons, where indicated).

Mosquito Alert
CEAB-CSIC, CREA, ICREA, MEC.

Date of publication: december 2018
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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 goes integrating in our health and research system.
The tiger mosquito and the yellow fever mosquito

Since 2004, the tiger mosquito has been spreading along the country's Mediterranean coast including interior areas of the Iberian Peninsula. In 2018, the tiger mosquito has been detected in the Extremadura and Madrid regions. In December 2017, the yellow fever mosquito was first detected in Spain (Fuerteventura Island). Afterwards, it was eradicated but since this finding a new surveillance stage was opened in order to avoid the expansion of the species in the rest of the Canary Islands and prevent its arrival to the Iberian Peninsula.
Breeding sites

In urban areas, tiger and yellow fever mosquitoes breed in small receptacles containing stagnant water, mainly in urban and periurban areas (urban gardens, parks, etc.). Thanks to Mosquito Alert, citizen help surveillance and control agents to detect breeding sites in the public roads such as gutters, drains and ornamental fountains.

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.
The tiger mosquito and the yellow fever mosquito can be vectors of dengue, chikungunya and Zika fevers. In Spain, these diseases are only imported cases from endemic areas. To the present there has no been autoctonous transmission until autumn 2018, when some cases of dengue were detected in the South of Spain and in Catalonia. The transmission risk of such diseases exists due to the human mobility and the presence of the mosquito during its most active period. To avoid the transmission of the viruses is crucial to know the presence of this species, minimize them in the areas where they are established and control its expansion. The tiger mosquito can currently be found in Asia and South America, and it is widespread along the Mediterranean coast and part of Europe. In Spain there are more than 540 affected municipalities, according to data spanning 2004 and 2015. On the other hand, the yellow fever mosquito can be found in Africa, in countries close to the tropics and subtropics. Also in the South-East of the United States, in the North of Australia, in the East coast of the Black Sea and in Madeira. In December 2017 it was found in the Canary Islands, where it was been erradicated.
Distribution of the tiger mosquito in Europe (2018)

Aedes albopictus - current known distribution: June 2018

Legend:
- Established
- Introduced
- Absent
- No data
- Unknown

Countries/Regions not viewable in the main map extent:
- Malta
- Monaco
- San Marino
- Gibraltar
- Liechtenstein
- Azores (PT)
- Canary Islands (ES)
- Madeira (PT)
- Jan Mayen (NO)

Source: European Centre for Disease Prevention and Control (ECDC)

Distribution of the yellow fever mosquito in Europe (2018)

Aedes aegypti - current known distribution: June 2018

Legend:
- Established
- Introduced
- Absent
- No data
- Unknown

Countries/Regions not viewable in the main map extent:
- Malta
- Monaco
- San Marino
- Gibraltar
- Liechtenstein
- Azores (PT)
- Canary Islands (ES)
- Madeira (PT)
- Jan Mayen (NO)

Source: European Centre for Disease Prevention and Control (ECDC)
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 mosquitoes in areas where it has been established and to detect it in new areas. We promote direct communication between managers and citizens 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 2018

2.1 Technological platforms

**Website and app**

We have updated the “Science” section including the research topics of the project.

**New features of the app**

1. **App guide:** we have included a tutorial with basic instructions that opens automatically when some uses the app for the first time. It can be checked anytime from the menu.

2. **Login system:** now anyone can participate as a registered user using external accounts saving the data and scoring. It allows to login from different devices and recuperate data if the app is installed again.

**The app in figures**

<table>
<thead>
<tr>
<th></th>
<th>2018</th>
<th>Accumulated 2014 - 2018</th>
</tr>
</thead>
<tbody>
<tr>
<td>Downloads (Android + iOS)</td>
<td>12,000</td>
<td>57,000</td>
</tr>
<tr>
<td>* Reported observations of tiger mosquito</td>
<td>2,262</td>
<td>12,300</td>
</tr>
<tr>
<td>* Reported observations of yellow fever mosquito</td>
<td>12</td>
<td>18</td>
</tr>
<tr>
<td>Reported observations of breeding sites</td>
<td>766</td>
<td>3,117</td>
</tr>
</tbody>
</table>

* total number of reported observations before expert validation
Results and achievements in 2018

1. App guide

2. Login

By continuing, you are indicating that you accept our Terms of Service and Privacy Policy.
Public observations map

Validated sightings are published on Mosquito Alert’s interactive map. This interface can be used to view, analyse and export all such reports since 2014.

In 2018, thanks to the collaboration of Dipsalut (Girona Provincial Council’s public health body) and the work of SIGTE (Geographical Information Systems and Remote Sensing Service from the University of Girona) has developed a model that calculates the probability of the presence of the tiger mosquito in those areas in Spain where there are participants with the app installed. The model updates weekly and produces monthly estimations of the probability to find tiger mosquitoes in a specific area. It has been developed using the observations reported by the participants with the app Mosquito Alert. In this first phase, the model does not include climate or environmental information, but only models a probability of alert eliminating biases inherent to the collection of citizen data. **The results of the model can be consulted by selecting the layer in the legend “Probability of Tiger Mosquito”**.

> Go to the map
Data visualization

In 2018 the project has developed a visualization data tool using real-time interactive graphics which allows to consult the participation rate in different areas and analyze data quality. Some of these graphics have been designed with Datawrapper portal (https://app.datawrapper.de/) and they can be consulted in the Participation statistics page. > Más información

Observations received at Mosquito Alert (2014-18)

In Summer there is the major amount of citizen observations in coincidence with the most active period of the tiger mosquito.

Species of mosquito received in Mosquito Alert (2014-18)

The observations validated as tiger mosquito represent nearly the 50% of the total observations received in Mosquito Alert.

<table>
<thead>
<tr>
<th>Year</th>
<th>Tiger mosquito</th>
<th>Other species</th>
<th>Unidentifiable</th>
</tr>
</thead>
<tbody>
<tr>
<td>2014</td>
<td>22%</td>
<td>76%</td>
<td>5%</td>
</tr>
<tr>
<td>2015</td>
<td>47%</td>
<td>4%</td>
<td>50%</td>
</tr>
<tr>
<td>2016</td>
<td>42%</td>
<td>21%</td>
<td>45%</td>
</tr>
<tr>
<td>2017</td>
<td>43%</td>
<td>13%</td>
<td>44%</td>
</tr>
<tr>
<td>2018</td>
<td>83%</td>
<td>20%</td>
<td>47%</td>
</tr>
</tbody>
</table>

Year 2018: only from January to June.
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, (=crowdcrafting), 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
Resultados y logros conseguidos en 2018
Informe Anual Mosquito Alert 2018

Photo Xatrac
2.2 Citizen observations

**Expert validation**

A team of entomologists analyzes only the observations that contain a photo. This year, Daniel Bravo from the University of Extremadura, has been incorporated in the validation team. For each observation, 3 experts identify the species of mosquito independently. Another expert check the result of these validations and if they are tiger mosquito or yellow fever mosquito the assignment is “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.

---

**Roger Eritja**
Expert validation supervisor
Entomologist of the Baix Llobregat Mosquito Control Service

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

**Sarah Delacour**
Coordinator of the National Plan of entomological surveillance at airports and ports against vectors of diseases

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

**Maria Ángeles Puig**
Expert in biology and ecology of aquatic insects. Researcher of CEAB-CSIC

**Rosario Melero-Alcíbar**
Expert in Medic and Veterinary Entomology. Coordinator of Fundación IO. Researcher at Entomological Surveillance National Plan of ports and airports

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

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**Daniel Bravo**
Results of expert validation

<table>
<thead>
<tr>
<th>Categories</th>
<th>Confirmed tiger mosquito</th>
<th>Possible tiger mosquito</th>
<th>Confirmed yellow fever mosquito</th>
<th>Possible yellow fever mosquito</th>
<th>Other species</th>
<th>Unidentifiable</th>
<th>Breeding sites</th>
<th>Without foto</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of reports</td>
<td>643</td>
<td>567</td>
<td>9 *</td>
<td>3 *</td>
<td>580</td>
<td>1336</td>
<td>813</td>
<td>877</td>
</tr>
</tbody>
</table>

Characteristics

- White line on head and thorax identify
- Other characteristics typical of the species identified
- Lyre-shaped lines in thorax identify
- 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

* Out of the Iberian Peninsula.

<table>
<thead>
<tr>
<th>Total</th>
<th>Daily average (from May to November)</th>
</tr>
</thead>
<tbody>
<tr>
<td>3,138</td>
<td>17</td>
</tr>
<tr>
<td>1,802</td>
<td>9</td>
</tr>
<tr>
<td>643</td>
<td>3</td>
</tr>
</tbody>
</table>

Results and achievements in 2018

In 2018, the 36% of all the validated reports were “confirmed tiger mosquito”. The number of confirmed observations continue growing up, being higher than the “possible” ones, although there are less confirmed observations than the year before.

<table>
<thead>
<tr>
<th>% of validated reports with the “confirmed” category</th>
</tr>
</thead>
<tbody>
<tr>
<td>2018</td>
</tr>
<tr>
<td>2017</td>
</tr>
<tr>
<td>2016</td>
</tr>
<tr>
<td>2015</td>
</tr>
<tr>
<td>2014</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>% of validated reports with the “confirmed” category in relation to those in the “possible”</th>
</tr>
</thead>
<tbody>
<tr>
<td>“possible” tiger mosquito</td>
</tr>
<tr>
<td>2017</td>
</tr>
<tr>
<td>2016</td>
</tr>
<tr>
<td>2015</td>
</tr>
<tr>
<td>2014</td>
</tr>
</tbody>
</table>
Selection of some of the best photos made by the participants during 2018 classified as “confirmed tiger mosquito”
Observations available in open access

Mosquito Alert has published a dataset containing more than 4,000 photo-based georeferenced observations of the Asian tiger mosquito (*Aedes albopictus*) gathered by citizen scientists through the Mosquito Alert app. This data is also available in the Data National Portal. In GBIF there are more than one billion observations of biodiversity from all over the world, which 30,605 are of tiger mosquito.

The 13% of this total are citizen science data given through Mosquito Alert. Being part of GBIF gives a higher value to the citizen participation with the Mosquito Alert app, since the quality of the data is evidenced and all the observations can be consulted and used through this global platform.

> More information
2.3 Science

First detection of *Aedes japonicus* in Spain thanks to citizen scientists

It is an invasive insect capable of transmitting diseases such as **West Nile virus**. The mosquito was found in Asturias (North Spain) when a person sent a photo of the insect with the Mosquito Alert app. This is the first time that such species has been detected in the Iberian Peninsula and the South of Europe. The finding was evaluated by entomologists of the Mosquito Alert platform, together with members of the University of Zaragoza responsible of the entomological surveillance project of the Ministry of Health. The Coordinated Health Alerts Centre sent a first **Rapid Risk Assessment Report**, including in the recommendations to use citizen science as a method to evaluate the extension of the affected area in the territory. It is known that in the laboratory conditions this species can infect with dengue and Chikungunya, a part of transmit the West Nile virus. However, currently the risk of autogenous transmission by this species is very low.

> Más información

Real photo of an individual captured in the area and analyzed in the laboratory.
Innovating in the management of mosquito-borne diseases

The traditional methods for the surveillance and control of the mosquito-borne diseases are being affected by economical restrictions as demands and the scale of the actuation are growing. In an article published in *Trends in Parasites*, Mosquito Alert suggest that citizen science can offer a solution to solve this problems, although many changes in the public health models and systems would be needed previously.

> More information

First cite of *Aedes vittatus* in Galicia (north of Spain)

In September 2017 a participant of Mosquito Alert sent a photo of a mosquito thinking that it would be a tiger mosquito. In March 2018, after receiving a real individual, the team of the validators confirmed in a publication in Anales de Biología that it was an *Aedes vittatus*, an autoctonous mosquito which already exists in several regions of Spain, but now it has been first detected in Galicia. Currently there is no risk in Spain for the human health because of this finding. On the other hand, in Africa this species is related to many yellow fever outbreaks and in the laboratory it can transmit other diseases.

> Más información

Photo: El desinsectador.com
Scientific articles published


Citations in other publications

- MOOC. “Concepts and Practice of Responsible Research and Innovation”. Módulo 3 “Inspiring case”. HEIRRI project. Centre d’Estudis de Ciència, Comunicació i Societat de la UPF.

Knowledge transfer


Presentations in conferences

- 14-16/11 Directors Forum 2018. Ecsite. Science enga-
gement organisations as citizen labs. Museu de Ciències Naturals de Barcelona.


• 20/9 Palmer, J. Envisioning the expertise of the future (European Food Safety Authority). EFSA Conference.

• 4-6/6 Eritja, R. Global Summit of Pest Management Services for Public Health and Food Safety. Lisboa.

• 12/6 Eritja, R. Community participation in the control of disease vectors: Old questions, new approaches. Oxford.

• 16-17/5 Bueno, R. Análisis del riesgo vinculado a la introducción del mosquito tigre en la ciudad de Madrid. IV Congreso Ciudades Inteligentes.

• 16-18/5 Bartumeus, F., Molina, I., F. Isheid (HIV, Hepatitis and Emerging Infectious Diseases). (Marseille, France) A Platform for the Integrated Control of Arbovirosis in CATalonia (PICAT).


• 17/5 Palmer, J. Vector-borne and water-related disease workshop. The Wilson Centre. Washington DC.

• 24/5 Bartumeus, F. Seminari DATA-SCIENCE: #BigData con ciencia ciudadana (estadística espacial). Universitat de Barcelona.

• 7-9/5 Compte M. 2018. The Mosquito Alert map implementation. A citizen science use case. GIS Service (SIGTE), University of Girona.

Acknowledgements and awards

• 1st Award Ex Aequo. Didactic Materials of Interactive and Non-Interactive Sciences, Science in Action Prize XIX. October 2018.

• Distinction of the Superior Council of Scientific Research to the Director of Mosquito Alert, Frederic Bartumeus, for his scientific merits in the academic period 2017-2018. June 2018.

• City of Barcelona Award 2017. Earth and Environmental Sciences. February 2018.
2.4 Management

Collaboration with administrations in the monitoring and control of the tiger mosquito in cities where it is already established or in those where the species begins to be a problem.

Collaboration agreements with the public administration

University of Extremadura

The University of Extremadura (UEX), the Ministry of Health of the Junta de Extremadura and the citizen science platform Mosquito Alert have initiated a collaboration agreement to detect the tiger mosquito in this Autonomous Community. Several dissemination actions have been carried out to promote participation. In June, tiger mosquitoes were detected in different parts of the region during the “Tiger Mosquito Vigilance Plan”.

> More information
Barcelona

Continued 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. This year there are 60 areas of surveillance in the city. During 2018, a total of 152 incidences were sent with the app and answered by the ASPB. 139 of them were inspectioned and in 16 tiger mosquito activity was detected, followed by treatment actions in the breeding sites.

Thanks to the ASPB the educational material has been developed together with the Environmental Association Xatrac. This year 271 students from 5 different centres have participated doing several sessions in the classrooms and outdoor activities with the technicians of the ASPB.

> More information
Convenio con ANECPLA

For the second year, the collaboration with the National Association of Environmental Health Companies (ANECPLA) has promoted the use of the app among its members, fostering the exchange of knowledge between professionals and the project. From Mosquito Alert several informative articles have been elaborated for the Infoplagas magazine, as well as to look for synergies in social networks and in both blogs.

> More information
Region of Girona

The collaboration agreement with Dipsalut (Public Health Agency of the Diputació de Girona) has made it possible to obtain useful tools for the territory in order to manage the health risk posed by mosquitoes that transmit diseases. During 2018, the team of the Geographic Information Systems and Space Remote Sensing Service (SIGTE) of the University of Girona has carried out the maintenance of the management portal and has incorporated the prediction model for the presence of the tiger mosquito. The model is based on citizen data and can be consulted freely.
Community of Madrid

Since the collaboration of 2016, the Community of Madrid maintains Mosquito Alert in the Program of Entomological Surveillance and Sanitary-Environmental Control of Transboundary Vectors of Arboviruses (Dengue, Chikungunya and Zika). On September 21, 2018 the General Directorate of Public Health of the Community of Madrid confirmed the presence of tiger mosquito in the Community. The samplings were made within the framework of the Regional Vector Surveillance and Control Plan with interest in Public Health of the Community of Madrid, with the collaboration of the Faculty of Biological Sciences of the Complutense University of Madrid.

City of Valencia

The Health Department of the City of Valencia has adopted another year the Mosquito Alert app as another tool for monitoring the tiger mosquito in the city. With the app, citizen can report incidents related to the tiger mosquito in a more agile and fast.

On the other hand, the Valencia City Council uses the Mosquito Alert management portal to complement the tiger mosquito surveillance program.

Comunidad de Madrid

Between 2014 and 2016 the Mosquito Alert platform has already received several suspicious photos of tiger mosquitoes near Madrid, which probably corresponded to tiger mosquitoes but they did not get to check on the ground. This situation highlights the importance of citizen science for monitoring the tiger mosquito and how it can help follow-up programs.

> More information
Generalitat de Catalunya

The Infectious Diseases Service of Vall d’Hebron is coordinating the development of a warning system for the risk of the appearance of autochthonous arboviruses such as Zika, dengue or chikungunya in Catalonia within the framework of a PERIS research project (Strategic Plan of Research and Innovation in Health). This warning system or prediction engine will be the final tool resulting from the Integral Platform for the Control of Arboviruses in Catalonia (PICAT), coordinated by Vall d’Hebron and that integrates the information of different organisms involved in the control of these diseases. The forecast is that this prediction engine will be operational in the summer of 2019.

On the other hand, the PICAT includes a calibration part for traps of adult mosquitoes of tiger mosquito with information campaign. This is to validate that it is just as effective the result that a trap can show with the notices that citizens make. To do this, an experiment has been designed together with the ASPB to make this comparison. The ASPB is placed in different strategic points of the city and some of them are inside the Zoo.
Zoo of Barcelona

During the fall of 2018, a campaign was held to ask visitors to the site and staff that if they see tiger mosquitoes during their visit, they will notify them by sending a photo with the Mosquito Alert app.

> More information
In 2018, the company Lokímica S.A. has been a “Gold” sponsor of Mosquito Alert. Lokímica S.A. is the leading company in Spain in environmental health and expert in pests, including the tiger mosquito. It is also the main provider of services in Environmental Health in many of the municipalities of the Spanish geography.

With this agreement, Lokímica S.A. has joined the Mosquito Alert project with the aim of disseminating the use of the application among the citizens of the municipalities where it works to get more information on the distribution of the tiger mosquito. On the other hand, the professionals use the Mosquito Alert management portal where they can consult all the observations sent by the citizens and be able to act faster with this incident system and be able to communicate in real time with the users of the app through the system of notifications.
2.5 Internationalisation and global collaboration agreements

- **AIM-COST Aedes Invasive Mosquitoes COST (European Cooperation in Science & Technology):** It is the first European network dedicated to invasive mosquitoes that transmit diseases in Europe. The project brings together a network of researchers from more than 29 European countries and neighboring regions. During 4 years it will allow to establish synergies between scientists, managers and other actors to improve the prevention of public health risks caused by *Aedes* mosquitoes. Frederic Bartumeus, director of Mosquito Alert, coordinates a task within the COST project, with the aim of promoting methodologies based on citizen science for the monitoring and control of these species on a European scale.

- **Global Mosquito Alert Consortium:** It is a global initiative that brings together all citizen science projects that aim to address the global problem of the transmission of diseases through mosquitoes. The objective is to integrate data and procedures of all of them to generate a global warning platform. The initiative comes from an international workshop led by the European Citizen Science Association (ECSA), the Woodrow Wilson International Center for Scholars, and the United Nations Environment Program (UNEP) in April 2017, at its headquarters in Geneva.
2.6 Community building and outreach

Divulgation articles in the blog

During 2018 we have published 9 divulgation articles related to the tiger mosquito and the yellow fever mosquito and other content related to the project.

> Go to the blog

Specialized publications or divulgation works


Communication indicators

• **Twitter**: 1.850
• **Facebook**: 4.337
• **Total of annual visits**: 27.700
• **Newsletter**: 301 subscriptions
Citizen science networks

Our community has grown and has consolidated in a local and european scale, thanks to the support of the Citizen Science Office of Barcelona, the European Citizen Science Association (ECSA) and the Spanish Observatory of Citizen Science.

Results and achievements in 2018

Rising awareness activities for the general public and scholarship

- 27/2-2/3. YOMO Festival del móvil. Ciencia y tecnología para jóvenes. Barcelona
- 16/3. Saló de l’ensenyament. Barcelona
- 9-10/6. Festival de la Ciència. Carpa con la Oficina de Ciencia Ciudadana de Barcelona. Parc de la Ciutadella. Barcelona
- 21/11. Reptes, idees i solucions per fer ciència ciutadana útil i amb impacte. XV Jornada CCREAF-SCB-ICHN. Barcelona.
Educational project in schools

In 2017, Mosquito Alert together with the Xatrac Environmental Association and the Spanish Foundation for Science and Technology (FECYT), launched an innovative project aimed at educational centers to bring the Mosquito Alert citizen science platform to a young audience, to promote experimentation and awakening scientific vocations.

During the 2017/2018 academic year, the educational project for the city of Barcelona was coordinated by the Urban Pest Surveillance and Control Service of the Public Health Agency of Barcelona (ASPB).

A total of 5 centers in Barcelona participated, with a total of 271 students participating.

Centres:

- INS Montserrat: 1º de Bachillerato.
- INS La Sedeta: 1º y 3º de ESO.
- INS Dr. Puigvert: 2º de ESO.
- INS Narcís Monturiol: 1º d’ESO.
- INS Pau Claris: 2º de ESO.

Other centres that have participated independently:

- Institut Escola Lloret de Mar: 4º de ESO (grupo adaptado).
- British College of Gavà: Year 7 (6º de Primaria), Year 8 (1º de ESO) y Year 9 (2º de ESO).
Activity with the media

During 2018 we have prepared 5 press releases with a total of 109 appearances in the media (radio, television and online and written press). The project is a reliable and rigorous source of information for journalists who want to deal with the topic of the tiger mosquito and other related topics.

> Press office

Selection of appearances in the media

TELEVISION

TV3 informatius (junio 2018)

Cugat.cat / La Xarxa (junio 2018)

Bettevé (febrero 2018)

Bettevé informativos (septiembre 2018)

TVE informativos (agosto 2018)

TV Región de Múrica (abril 2018)
Resultados y logros conseguidos en 2018
Informe Anual Mosquito Alert 2018
El Mundo (May 2018)

AVISTADO POR PRIMERA VEZ EN 20 MUNICIPIOS ESPAÑOLES

Los últimos datos confirman la presencia actual de un mosquito tigre en varias comunidades del sur de España. Según el Instituto Nacional de Salud Pública, el mosquito tigre, conocido por su apariencia característica y capacidad para transmitir enfermedades como el dengue, la Zika y el chikungunya, se ha extendido por diferentes regiones españolas en los últimos años.

La distribución geográfica del mosquito tigre ha crecido notablemente en España en los últimos años. El mosquito tigre, conocido por su apariencia característica y capacidad para transmitir enfermedades como el dengue, la Zika y el chikungunya, se ha extendido por diferentes regiones españolas en los últimos años. De hecho, en algunos casos, se ha observado una marcada expansión del mosquito tigre en áreas urbanas, lo que ha llevado a una serie de medidas preventivas y de control. En resumen, la presencia del mosquito tigre en España es un fenómeno preocupante que requiere una respuesta inmediata para mitigar el riesgo de propagación de enfermedades vectoriales.

En el artículo, se destacan medidas preventivas y de control que se están implementando para prevenir el crecimiento del mosquito tigre y evitar el posible contagio de enfermedades. Se mencionan programas de educación y concienciación, así como acciones de limpieza y desinsectación en áreas afectadas. Además, se resalta la importancia de la colaboración entre diferentes entidades y autoridades para abordar este problema de forma eficaz y sostenible.

En conclusión, la presencia del mosquito tigre en España debe ser considerada como una amenaza significativa para la salud pública y requiere una respuesta rápida y coordinada. Es fundamental adoptar medidas preventivas y de control adecuadas para prevenir el posible contagio de enfermedades y garantizar la salud y el bienestar de la población.

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La martes de investigación científica presenta el estudio de una nueva especie de mosquito identificada en diferentes regiones de España. Según el estudio, el mosquito tigre ha sido identificado en varios puntos del país, lo que ha llevado a una serie de medidas preventivas y de control. En resumen, la presencia del mosquito tigre en España es un fenómeno preocupante que requiere una respuesta inmediata para mitigar el riesgo de propagación de enfermedades vectoriales.

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El mosquito asiático, cerca de Galicia

El «Aedes japonicus», localizado en Asturias por primera vez en España, pone sobre aviso a las comunidades vecinas del norte. Se asienta en zonas húmedas

Austria, Bélgica, Francia, Suiza, Países Bajos, Alemania... y ahora también España. Y galicia Galicia. El mosquito Aedes japonicus, una especie invasora de origen asiático, fundamentalmente de Japón y Corea, y con capacidad de transmitir enfermedades como el virus del Ñilo Occidental, se ha identificado por primera vez en la Península. Su presencia se localizó en Asturias gracias al proyecto de ciencia ciudadana Mosquito Alert. Una plataforma impulsada por la Obra Social ‘la Caixa’ y coordinada por investigadores del Crea, el CEAM-CISC e Ibeas que incluye una aplicación móvil. A través de ella se pueden realizar fotografías de las especies de mosquito sospechosas para que sean analizadas por los entomólogos.

Fue lo que hizo un ciudadano de Siero (Asturias). Mandó una imagen y tras ser estudiada, se le notificó que ella era por correos electrónicos de adultos y larvas, sobre los cuales se confirmó la sospecha. Era el mosquito Aedes japonicus, una especie invasora capaz de adaptarse a nuevos ambientes y con una distribución natural en el norte de España. Galicia, Asturias, País Vasco, Cantabria son las zonas propensas. Las ganan las temperaturas frías y zonas boscosas de árboles caducifolios, explicaba Frederic Bartumeus, director de Mosquito Alert. Desde Asturias ya se extendieron dos o tres fotografías sospechosas de pertenecer a esta especie. Por ello, anímese a los morteros a descargar la aplicación y enviar imágenes de mosquitos sospechosos. Podrán estar en Galicia y no saberlo.

Esta especie puede transmitir el virus del Ñilo Occidental. Sin embargo, no es alarmante, ya que suele transferirse entre aves y mosquitos. Se da en zonas de paso de aves migratorias, como Gibraltar o Andalucía. A veces pasa a caballos, pero muy rara vez a huevos. Las larvas del mosquito Aedes japonicus ofrecen un lujo, es por eso que se deben evitar puntos de mulares de animales que sean sangrientos.

Las tres especies más peligrosas localizadas en España. De izquierda a derecha: el mosquito asiático (Aedes japonicus), el tigre (Aedes albopictus) y el de la fiebre amarilla (Aedes aegypti). Los tres fueron descubiertos en España. El último, el mosquito asiático, en Siero (Asturias).

Detecten un nou mosquit invasor gràcies a una app

L’Aedes japonicus’ trobat a Astúries pot transmetre diverses malalties

Xavi Aguilar
BARCELONA

Entomòlegs del programa Mosquito Alert, una aplicació que permet als ciutadans analitzar la presència de mosquits, han detectat la primera vegada a l’Estat i al sud d’Europa la presència del mosquito d’origen asiàtic Aedes japonicus, que és capaç de transmetre diverses malalties, entre elles el virus del Ñilo Occidental.

El mosquito se va localitzar a partir d’una fotografia que un ciutadà d’Astúries va perillar a l’app de ciència ciutadana impulsada per la Fundació Bancària La Caixa. La troballa va ser avaluada i confirmada per entomòlegs de Mosquito Alert, que en el centre de detecció en diferents localitzacions properes. De fet, Ertiga no descarta que l’Aedes japonicus estigui establert “en un àrea molt més ampla”, molt a prop del qual animen els ciutadans a usar l’aplicació.

Aparentment, el mosquito invasor pot recórrer el país, però és bastant més gran, de color marró i amb diverses línies de color dourat al tòxics. Pot volar llargs distàncies i és molt resistent al fred.
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La Razón (October 2018)

Dengue: Las lluvias favorecerán la expansión del mosquito tigre

El descenso de las temperaturas hace prever que no habrá más casos autóctonos de dengue, enfermedad que transmite este mosquito, pero la "tropicalización" del clima supone que este insecto seguirá colonizando la Península

La Nueva España (September 2018)

Los investigadores piden ayuda para acotar la presencia del mosquito asiático

El Periódico Extremadura (June 2018)

A la ‘caza’ del mosquito tigre

Una aplicación móvil permitirá alertar de su presencia con una fotografía
The project is coordinated by the CREAF, CEAB-CSIC and ICREA institutions, with the support of the Obra Social “la Caixa”, the co-financing of Dipsalut (Autonomous Body of Public Health of the Diputación de Girona) and the sponsorship of Lokímica SA. The PICAT platform is led by the Vall d’Hebrón Research Institute (VHIR), with funding from the Department of Health of the Generalitat de Catalunya. They are also members of the PICAT ISGlobal, the ASPB, Dipsalut and the Servei de Control de Mosquits del Baix Llobregat.

Special thanks to all the people who participate anonymously, collecting and sending data with the Mosquito Alert app and disseminating the project. Also the involvement of many public and private entities and the support of many professionals and collaborators.

Finally, thanks to the entire team of Mosquito Alert for the dedicated effort and constant work in all areas of the project, making it grow day after day.