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BUENAS PRÁCTICAS

Actuaciones Cofinanciadas

PROJECT "CITIZENS SCIENCE INSTRUMENTS FOR THE
DETECTION AND CONTROL OF THE INVASIVE WASP
(VESPA VELUTINA)"

General Directorate of Innovation and Research
of the Balearic Government

Programa Operativo de Illes Balears

Año 2018

Fondo Europeo de Desarrollo Regional

SPECIAL RESEARCH AND DEVELOPMENT ACTIONS IN THE FIELD OF THE ENVIRONMENT:

PROJECT "CITIZENS SCIENCE INSTRUMENTS FOR THE DETECTION AND CONTROL OF THE INVASIVE WASP (VESPA VELUTINA)"

Basic description of the project.

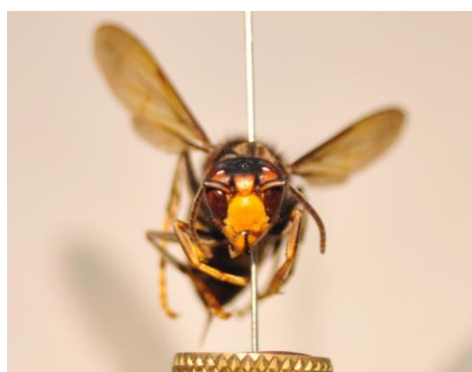
The General Directorate of Innovation and Research of the Balearic Government promotes the realization of **special research and development actions** aimed at covering the scientific objectives of special relevance for the research activity of the regional system of science, technology and innovation. This falls in line with the five strategic areas of the **Science, Technology, Innovation and Entrepreneurship Plan of the Balearic Islands 2013-2017 (CTIE Plan)**: environment, marine sciences, health sciences, tourism and digital content.

The call for the 2015-2016 period has allowed to subsidize 9 projects that have contributed to the objectives related to the environmental priority of the CTIE Plan. This aims at generating knowledge to maintain, manage and preserve the biodiversity of the ecosystems, find sustainable solutions to the needs that raises the territory and to create the suitable technologies for the optimization of the available natural resources (especially hydric and energetic).

The total investment made to consolidate excellence in this area of knowledge about the environment in this call has been **119.492€**, with a total eligible cost of **€109,492**, and an associated ERDF (European Regional Development Fund) aid of **€54,746**.

A total of 41 researchers have participated in these research projects, experts in disciplines related to the environment, such as Biology, Ecology and Marine Resources, Chemistry, Animal Science or Mathematics. A total of 5 participating researchers have a postdoctoral contract and 1 of them is a predoctoral fellow

One of the most relevant projects has been the development of a **system to prevent the expansion of the invasive species, the "Asian wasp" (Vespa velutina)**, in the Balearic Islands. This has been carried out through the creation of a mobile application ("Vespapp") and the use of the social networks for the identification and location of the specimens, the design and implementation of an on-line cartographic viewer for the monitoring of the species and the elaboration of a prediction model of its dispersion.



This has allowed the creation and the dynamic update of a database from which it has been possible to create a distribution map of the Asian wasp that has triggered the design of concrete actions for the management and eradication of this invasive species in the Islands.

The following are the arguments that make this action a Good Practice, according to the criteria defined for this purpose.

Criterion 1. High diffusion among the beneficiaries and the general public

This action has been widely disseminated through the different information and advertising measures developed. In particular, **all regulatory communication obligations have been met, such as:**

The publication of the call for grants to carry out special research and development actions 2015-2016 in the Official Gazette of the Balearic Islands on December 10, 2015, in which reference is made to the ERDF co-financing: *"the amount of the subsidy obtained by the projects submitted is co-financed 50% with ERDF funds "*.

The inclusion of the European Union logo and the reference to the ERDF, as well as the mention of co-financing under the ERDF Operational Program 2014-2020 of the Balearic Islands in all the documentation related to the administrative file of the action (proposal for resolution of approval of the subsidy, justification account and economic memory, in the descriptive report, among other documents).

The existence of a specific space on ERDF projects on the website of the General Directorate for Innovation and Research, which provides information on the different co-financed actions, among which is the aforementioned call for special actions for innovation and development.

The website of the co-financed project, where relevant information on the action is available, such as data, reports and cartography, including the corresponding logo of the European Union and the reference to the co-financing fund.



Image of the DG Innovation and Research website

Image of the Application website

In addition, **other information and publicity measures** have been carried out that have increased the dissemination of the project, as well as the visibility of the ERDF contribution to it. It is necessary to emphasize, in this sense, the following actions:

Several informative notes have been prepared on the implementation of the application. These have been published in the news section of the website of the Balearic Government.

Actualitat informativa del dia: 19/10/2016

N Nota Informativa

Conselleria de Medi Ambient, Agricultura i Pesca

Medi Ambient aconsegueix aturar la presència de la vespa carnissera asiàtica

Des de 2015 s'han capturat set nius de *Vespa velutina*, la major part dels quals ubicats a la vall de Sóller

Actualment cal planificar les actuacions per a la temporada vinent i investigar les possibles vies d'entrada

La UE contribueix al projecte d'investigació de la UIB amb el Fons Europeu de Desenvolupament Regional

Aquesta setmana la doctora Mar Leza, de la UIB, i el coordinador de la Unitat de Control de Fauna del COFIB, Víctor Colomar, han presentat les actuacions portades a terme a Mallorca a un seminari internacional sobre la vespa carnissera asiàtica que ha tingut lloc a Vigo. El cas de Mallorca, on la invasió està encara en un estadi molt inicial i s'ha aconseguit una resposta ràpida i contundent, ha generat molt d'interès entre els assistents al simposi. Els experts internacionals veuen amb esperança que es pugui eradicar la invasora a Mallorca, on, en comparació del continent, és molt més fàcil contenir l'aparició de nous exemplars.

Cal recordar que el desenvolupament del sistema de prevenció de l'expansió a Balears a través d'una aplicació mòbil realitzada per la UIB ha estat cofinançada amb Fons Europeus de Desenvolupament Regional, en el marc del PO FEDER 14-20 de les Illes Balears.

News has been published in various media of the Balearic Islands, as well as in specialized magazines to give information on the performance. All of them, in addition, have collected information on the implementation of the action, its progress and results.

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Un grupo de estudiantes de la UIB crean una app que permitirá detectar la avispa asiática

Han participado el área de Zoología, la Escuela Politécnica Superior y Habitissimo. La investigación de la UIB sobre la avispa asiática tiene el apoyo de la Unión Europea.

Dieciséis estudiantes de segundo, tercero y cuarto de la EPS han estado trabajando tres días de manera intensa para desarrollar una aplicación móvil que permitirá detectar la avispa asiática, una avispa que se alimenta de abejas, de manera que la entrada de esta especie exótica puede provocar un grave desequilibrio del ecosistema, dado que las abejas polinizan la mayor parte de plantas, tanto cultivadas como silvestres. Las avispas asiáticas han estado hibernando hasta ahora, y con la llegada de la primavera



Galería fotográfica

El diari de la UIB

Vespapp: una app diseñada en la UIB para detectar y controlar la avispa asiática en Mallorca

La investigación de la UIB sobre la avispa asiática tiene el apoyo de la Unión Europea.

Various explanatory videos have been edited on the performance that can be seen on the YouTube channel where the EU logos and emblems are included. These videos can be viewed at the following links:

<https://www.youtube.com/watch?v=M-kk5HwCNpc>

<https://www.youtube.com/watch?v=6ph-2L0HuF0>

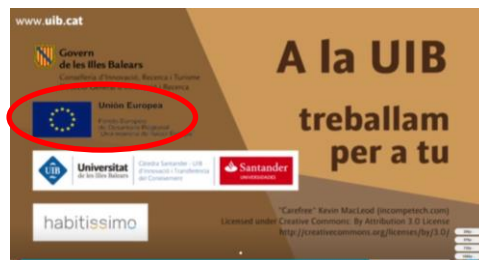
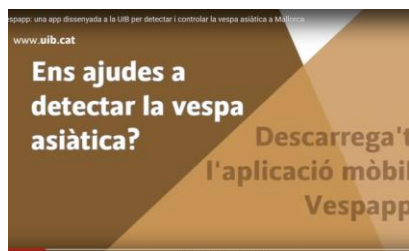


Image of the audiovisual project on Youtube



The fifth issue of the Bulletin of European Funds of the Balearic Islands also includes information on the project and the ERDF contribution in its execution, paying special attention to the results achieved thanks to this investment.

An information dossier has been prepared and is available to those interested in monitoring the project, which includes the logos of the European Union.

Finally, another means of dissemination is the mapping system of co-financed projects of the DG European Funds, located on its website (http://www.caib.es/sites/fonseuropeus/ca/portada_2016/?campa=yes). This online application, which is accessible to anyone, does not only allow you to view the geographical location of the investment, but also offers systematized data on the name, scope of intervention, co-financing fund, EU support, total eligible cost and even images of the investment made.



L'APLICACIÓ DISENYADA PER DETECTAR I CONTROLAR LA PRESENCIA DE LA VESPA ASIÀTICA AMB FINANÇAMENT DE LA UNIO EUROPEA, OBTÉ EL PREMI ONDA CERO MALLORCA 2019 DE CIÈNCIA I INVESTIGACIÓ



l'equip d'investigadors de la UIB que a impulsar la creació de l'aplicació Vespapp, dissenyada a la Universitat de les Illes Balears per detectar i controlar la presència de la vespa asiàtica, ha guanyat el Premi Onada Cero Mallorca 2019 de Ciència i Investigació.

La vespa asiàtica, Vespa velutina ignitorum, és una espècie catalogada com a exòtica invasora i provoca importants danys ecològics i econòmics a causa de la dependència que fa dels arbres fruiters i altres oliveres. Les abelles polliníferes, que són al 80 per cent tant d'espècies rares com de silvestres, per

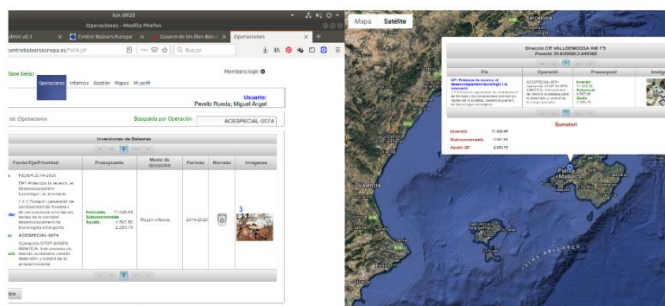
Mallorca.

Ara del primer abricament de la vespa asiàtica es va pensar que calia detectar-la amb la col·laboració ciutadana. Amb aquest objectiu es va posar en marxa el projecte Vespapp, que inclou una aplicació mòbil, una pàgina web i l'ús de les xarxes socials perquè tota la informació pugui arribar als ciutadans.

Vespapp no solament és una eina on es pot trobar informació sobre l'espècie invasora (com són la vespa i el nu, com poden diferenciar-la d'altres vespes, quina és la seva biologia, quina impacta té, quina és la importància de les seves abelles), sinó que, a més, el

El desenvolupament d'aquesta plataforma ha estat possible gràcies a la col·laboració de nombrosos actors: l'empresa Habitissimo, la Càtedra Santander-UIB d'Innovació i Transferència del Coneixement, la Conselleria d'Innovació, Recerca i Turisme del Govern de les Illes Balears i la Unió Europea, a través del Fons Europeu de Desenvolupament Regional (FEDER).

Aquesta aplicació ja va obtenir l'any 2017 el Premi a la Divulgació Científica de la Societat Catalana de Biologia.



Criterion 2. Incorporation of innovative elements

The implementation of this action has allowed for the first time to develop a system for primary detection and geolocation of the invading species in real time through a mobile application (VESPAPP) that facilitates the sending of images and the active use of networks social networks such as Twitter or Telegram and a web form to identify and locate the Asian wasp. In this way, it has been possible to confirm, manage and advance in the eradication of this invasive species.

In this sense, it is important to point out that since it is a generic system, it is easily adaptable to detect other invasive species and will allow to have an alert mechanism ready if necessary in the future.

The project has been carried out by a multidisciplinary team, made up of a total of **five researchers**: two from the Department of Biology, one from the Department of Mathematics and Computer Science and one from the GIS and Remote Sensing Service of the UIB.

This team of researchers from the University of the Balearic Islands that has promoted the creation of the application has recently been awarded with prizes that have valued the innovative nature and high scientific value of the action. Specifically, on July 11, 2017, they won the **Prize for the Dissemination of the Catalan Society of Biology**, awarded in Barcelona within the framework of Segona Nit de la Biologia. He has also obtained the **Onda Cero Mallorca 2019 Award for Science and Research** that recognizes the work of people, associations and projects that stand out for their work in different areas.

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L'equip creador de Vespapp obté el premi Onda Cero Mallorca 2019 de Ciència i Investigació

Nou reconeixement a l'aplicació dissenyada a la UIB per detectar i controlar la presència de la vespa asiàtica. Aquesta iniciativa té el suport de la Unió Europea.

L'equip d'investigadors de la UIB que va impulsar la creació de l'aplicació **Vespapp**, dissenyada a la Universitat de les Illes Balears per detectar i controlar la presència de la vespa asiàtica, ha obtingut el Premi Onda Cero Mallorca 2019 de Ciència i Investigació.

La vespa asiàtica, *Vespa velutina nigrithorax* (Hymenoptera: Vespidae), és una espècie catalogada com a exòtica invasora i provoca importants danys ecològics i econòmics a conseqüència de la depredació que fa sobre l'abella mel·lífera i altres pol·linitzadors. Les abelles pol·linitzen entorn al 80 per cent tant d'espècies vegetals cultivades com de silvestres, per la qual cosa una minva en la població d'aquests pol·linitzadors representa una greu amenaça ecològica. A més, controlar les menades invasores és essencial per



El diari de la UIB

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Vespapp guanya el Premi a la Divulgació de la Societat Catalana de Biologia

L'aplicació dissenyada a la UIB permet detectar i controlar la presència de la vespa asiàtica, una espècie exòtica invasora que s'alimenta d'abelles. Aquesta iniciativa té el suport de la Unió Europea a través de fons FEDER.

L'aplicació **Vespapp**, dissenyada a la Universitat de les Illes Balears per detectar i controlar la presència de la vespa asiàtica, ha obtingut el Premi a la Divulgació de la Societat Catalana de Biologia. El guardó s'ha lliurat l'11 de juliol a Barcelona en el marc de la Segona Nit de la Biologia, i l'ha recollit la doctora Mar Leza, professora del Departament de Biologia de la UIB i impulsora d'aquesta aplicació.



Criterion 3. Adaptation of the results obtained to the established objectives

In 2015 the invasion of this species was in a very early stage and a single nest was detected in Sóller (Mallorca). Since then, the species has been expanding through the Sierra de Tramuntana and affected a total of ten municipalities on the island.

The following year nine nests were detected in forest areas; while in 2017 20 nests were located. During the year 2018, no secondary nest was found.

The answer to this problem thanks to the development of the application has been fast and strong. International experts have recognized that the eradication of the invasive species in Mallorca has been easier to contain than in the continent.



Criterion 4. Contribution to the resolution of a regional problem or weakness

The Asian wasp is an invasive exotic species, which comes from Southeast Asia. It was detected for the first time in Europe in 2004, in France, and it was in 2010 when its arrival in Spain was confirmed. At the end of 2015, the Laboratory of Zoology of the Department of Biology of the UIB confirmed the presence of this invasive exotic species in Mallorca.

The Asian wasp feeds on insects, so the entry of this exotic species can cause a serious imbalance of the ecosystem, since bees pollinate most plants, both cultivated and wild.

In the Balearics there are 375 species of bees and wasps, of which 20 are endemic (only found in the Balearic Islands) and are potential prey of the Asian wasp, so they are at risk of extinction due to predation by the Asian wasp.



The eradication of this species is only possible during the first two years from the moment it enters, so the development of the application has been key in the process of eradication of this invasive species.

On the other hand, it should be noted that this species is included in the "List and Catalogue of invasive alien species in Spain" (Royal Decree 1628/2011, of November 14, BOE 298 of December 12). It stipulates that, in order to monitor the invasive behavior of these species in the natural environment and prevent their expansion, the competent public administrations shall adopt the necessary and appropriate measures for their management, control and possible eradication.

BOE BOLETÍN OFICIAL DEL ESTADO		
úm. 298	Lunes 12 de diciembre de 2011	Sec. I.
<i>Potamopyrgus antipodarum</i> (J.E.Gray, 1853).		
Caracol del cieno.		
ARTRÓPODOS NO CRUSTÁCEOS		
<i>Aedes albopictus</i> (Skuse, 1894).		Mosquito tigre.
<i>Harmonia axyridis</i> (Pallas, 1772).		Mariposa asiática.
<i>Lasius neglectus</i> (Van Loon, Boomsma & Andrásfalvy, 1990).		Hormiga invasora de jardines.
<i>Leptoglossus occidentalis</i> (Heidemann, 1910).		Chinche americana del pino.
<i>Monomachus</i> spp. (especies no europeas).		
<i>Paysandisia archon</i> (Burmeister, 1880).		Oruga perforadora de palmeras.
<i>Rhynchophorus ferrugineus</i> (Olivier, 1790).		Picudo rojo; gorgojo de las palmeras.
<i>Vespa velutina</i> (de Buysson, 1905).		Avispa asiática, avispa china.

Criterion 5. High degree of coverage of the target population

As a result of the first sightings of the Asian Wasp, the importance of citizen collaboration for its detection was verified. The citizenship has been an active part in the process of eradication and control of the species, since many of the nests have been detected thanks to notifications from beekeepers and individuals and their notification through the mobile application, the

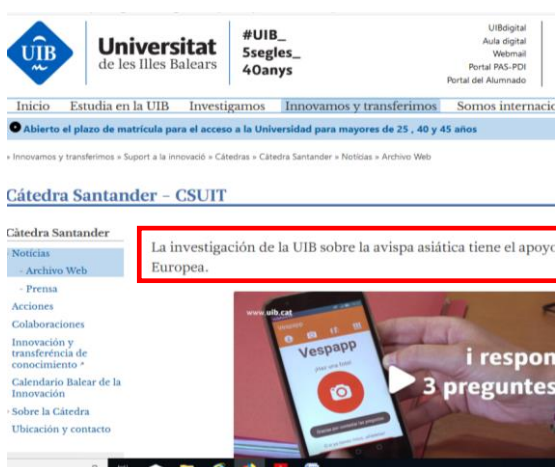
website and the social networks. The notifications are received by a group of expert entomologists who, in case of observing a positive case, notify the pertinent authority to activate the designed protocol.

Vespapp is not only a means to receive notifications, but allows the citizen to explore and know aspects related to bees and their importance, and with the problem of the Asian wasp, while allowing them to be trained in the knowledge of their morphology, biological cycle, etc.

To proceed with the design of the application, a solidarity marathon was organized at the University of the Balearic Islands (UIB), which made it possible to establish a first contact between the University and the professionals in the field. It allowed students to work in large development teams and this experience served as training in ICT and for students to discover other sectors with professional opportunities.



Being an interdisciplinary proposal that integrates areas of Biology, Information Technologies, Social Communication strategies and Geography, it has allowed promoting science among the citizens through a collaborative and transversal scenario between science and society, thus promoting the exchange and the dissemination of scientific knowledge.



Criterion 6. Consideration of the horizontal criteria of equal opportunities and environmental sustainability

The implementation of this application contributes to the balance of the ecosystem by preventing the loss of pollinators and hives.

In addition, the implementation of the application has a minimal environmental cost, since it has not been necessary to use specific traps of attraction and capture that can be highly impacting

for the environment, since in that case they could have captured a large number of other Native species.

Regarding the criterion of equal opportunities, the researcher who has led the action and the responsible for it has been a doctor of the Zoology laboratory of the University of the Balearic Islands.

In the University of the Balearic Islands, the percentage of women that make up the teaching and research staff (professors, full and contracted professors, researchers and postdocs) is 37.6%.



Criterion 7. Synergies with other policies or the instruments of public intervention



The Smart Specialization Strategy in Research and Innovation of the Balearic Islands (RIS3) defines the framework from which the Government of the Balearic Islands develops the actions and the R+D+I programmes for the 2014-2020 period and identifies the main sector-based areas for the Balearic Islands. This action is aligned and fits with the main areas and objectives of the Strategy.

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In addition, the co-financed action has special interest and relevance and contributes to the Science, Technology, Innovation and Entrepreneurship Plan of the Balearic Islands 2013-2017 (CTIE Plan) which is the programming tool that allows developing, financing and executing public policies in This matter of the Government of the Balearic Islands in matters of promotion and coordination of R+D+I.



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Actuaciones Cofinanciadas

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