award 1

1st Meeting of the Iberian Ecological Society & XIV AEET Meeting

"Ecology: an integrative science in the Anthropocene"

1st Meeting of the Iberian Ecological Society & XIV AEET Meeting
"Ecology: an integrative science in the Anthropocene"

TRANSMITTING SCIENCE poster award

category: "innovative methodology"

WINNER

Yaiza Mercedes Castillo

Elisabeth M.R. Robert
(coordinator)

Andreia Gonçalves Sousa
(coordinator assistant)

transmitting science

Transmitting Science

Eugènia Martí

Laura Prieto

Miguel Verdú

The award committee members

TS.22-P2

“How to visualize the interaction between a virus and its host in a marine environment”

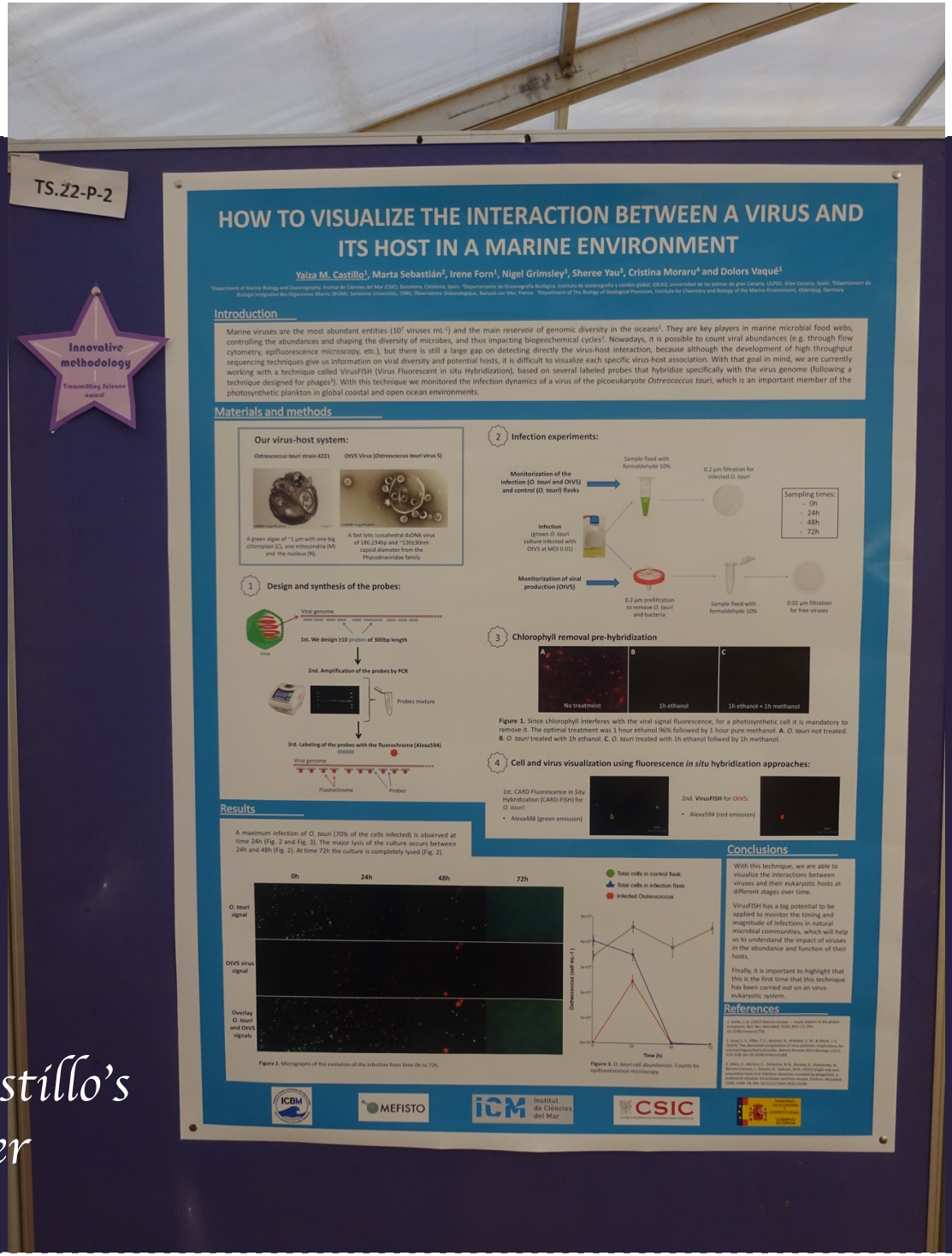
First author (winner): Yaiza M. Castillo

Department of Marine Biology and Oceanography, Institut de Ciències del Mar (CSIC), Barcelona, ES

Award: free course from the Transmitting Science course offer

Co-authors: Marta Sebastián, Irene Forn, Nigel Grimsley, Sheree Yau, Cristina Moraru and Dolors Vaqué

“This clear poster shows an innovative methodology in the spirit of the SIBECOL meeting, developed in the marine ecosystem but applicable in the terrestrial and limnologic fields.”



Yaiza Mercedes Castillo's presented poster

“How to visualize the interaction between a virus and its host in a marine environment”

Yaiza Mercedes Castillo et al.

Abstract: Marine viruses are the most abundant entities (107 viruses mL-1) and the main reservoir of genomic diversity in the oceans. They are key players in the marine microbial food webs, controlling the abundances and shaping the diversity of microbes, and thus impacting the biogeochemical cycles. Several questions have arisen since the discovery of the relevance of viruses in the marine environment: who are they? How many are there? and especially, who infects whom? Nowadays, it is possible to count the viral abundances (e.g. through flow cytometry, epifluorescence microscopy, etc.), but there is still a large gap on knowing who infects whom. Although the development of high throughput sequencing gives information on viral diversity and potential hosts, it is difficult to visualize each specific virus-host interaction. With that goal in mind, we are currently working with a technique called VirusFISH (Virus Fluorescent in situ Hybridization). With this technique, we are able to visualize, thanks to fluorescence microscopy, the interactions between viruses and their eukaryotic hosts at different stages over time. Also, we are able to detect and count a specific virus within the natural community. How does it work? We design and synthetize several fluorescently labeled probes (~10 DNA molecules of 300bp length each), that will specifically attach to the genome of our virus of interest. Thus, we can monitor the timing and magnitude of infections in natural microbial communities, and understand the impact of the virus in the abundance and function of its host.

award2

1st Meeting of the Iberian Ecological Society & XIV AEET Meeting

"Ecology: an integrative science in the Anthropocene"

1st Meeting of the Iberian Ecological Society & XIV AEET Meeting
"Ecology: an integrative science in the Anthropocene"

RAMON MARGALEF 1919 2019 ANY

EEF Ramon Margalef award

oral presentation - category: "theoretical ecology"

WINNER

Guillermo Bañares-de Dios

Elisabeth M.R. Robert
(coordinator)

Andreia Gonçalves Sousa
(coordinator assistant)

eef European Ecological Federation

Eugènia Martí

Laura Prieto

Miguel Verdú

European Ecological Federation

The award committee members

TS.04-03

“Ecological mechanisms shaping woody plant community structure in tropical montane forests: a multi-spatial functional approach”

First author (winner): Guillermo Bañares-de Dios

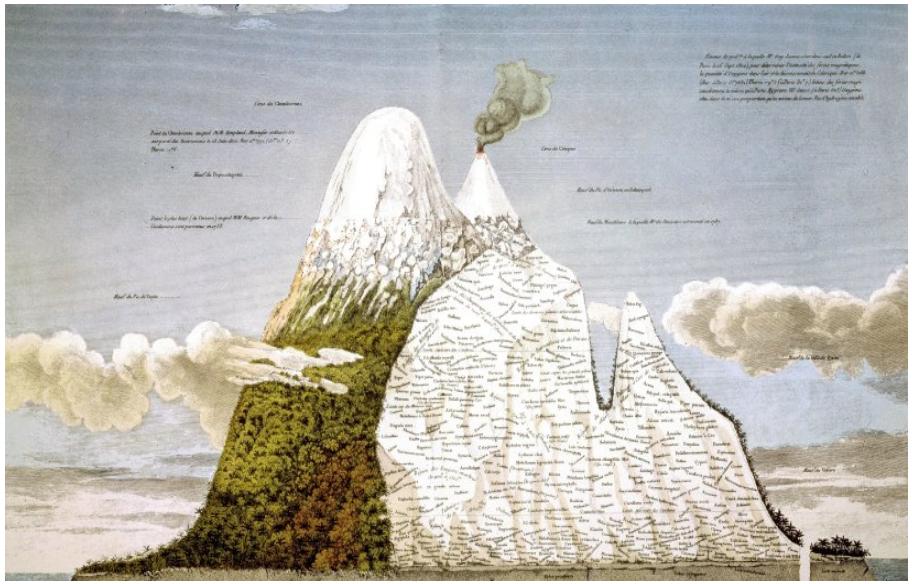
Universidad Rey Juan Carlos, Madrid, ES

Award: 2000 EUR credit for scientific travels

Co-authors: Manuel Juan Macía, Itziar Arnelas, Gabriel Martins Carvalho, Carlos Iván Espinosa, Iñigo Granzow-de la Cerda, Norma Salinas and Luis Cayuela

“A nicely designed presentation accompanied the speaker through a sound study in which clear explanations on theoretical ecology aspects are combined with data proof. The throughout knowledge of the presenter regarding his topic generated interesting scientific discussion.”

Ecological mechanisms shaping woody plant community structure in tropical montane forests: a multi spatial scale functional approach



Von Humboldt, 1807

G. Bañares

Guillermo Bañares de Dios

Macía MJ, Carvalho GM, Arnelas I,
Espinosa CI, Granzow I, Salinas N & Cayuela L

ÁREA DE BIODIVERSIDAD Y CONSERVACIÓN

SIBECOL

“Ecological mechanisms shaping woody plant community structure in tropical montane forests: a multi-spatial functional approach”

Guillermo Bañares-de Dios et al.

Abstract: Understanding the processes and factors shaping natural communities structure is fundamental for community ecology. Traditionally has been proposed that ecological mechanisms such as environmental filtering, biotic interactions or stochastic processes play a key role in community assembly, but important contradictions still exist regarding which ones are more relevant. In this sense, a hierarchical assembly model has been proposed, to analyse how these mechanisms and their relative importance vary at different spatial scales. Null models have become broadly used to detect if any of those mechanisms are operating. However, it is crucial that models incorporate certain restrictions related to spatial scale assumptions that guarantee its full ecological sense, although unfortunately this has been more often the exception rather than the norm. In this study we apply a multi- scale approach to investigate the effects of environmental filtering, biotic interactions or stochastic processes on community assembly in a very complex and highly diverse tropical montane forest. We measured woody plant functional diversity on different traits (leaf thickness, specific leaf area, wood density), which has probed to convey better ecological information than the classical indexes based on species composition and abundances, in 60 0.1 ha. plots and subdivided in 0.01 ha subplots, scattered along elevational gradients in two protected areas in Peru and Ecuador. Then, we compared functional diversity distribution and changes at different spatial scales: among subplots and among plots. Our preliminary results suggest that even at the smallest spatial scale, environmental filtering is the overruling mechanism for woody plant community assembly.

award 3

1st Meeting of the Iberian Ecological Society & XIV AEET Meeting

"Ecology: an integrative science in the Anthropocene"

1st Meeting of the Iberian Ecological Society & XIV AEET Meeting
"Ecology: an integrative science in the Anthropocene"

AoBP Evolutionary Ecology award

oral presentation in "evolutionary ecology in terrestrial, aquatic and marine environments" session

WINNER

Carla Vázquez-González

Xavier Picó

Mohamed Abdelaziz

Antonio Castilla

The Annals of Botany PLANTS Journal

The award committee members

TS.07-O15

“Climate and genetic structure contributes to explain intraspecific genetic variation in defensive anatomical traits of a Mediterranean pine”

First author (winner): Carla Vázquez-González

Misión Biológica de Galicia – CSIC, Pontevedra, Galicia, ES

Award: 500 USD

Co-authors: Xosé López-Goldar; Rafael Zas and Luis Sampedro

“This very well structured talk was based on solid theoretical foundations. Besides, the research exemplified the multidisciplinary nature of today's evolutionary ecology in a very clear manner. The presentation was detailed, clear and straightforward in giving the main outcomes and take-home messages.”

Climate and genetic structure contributes to explain intraspecific genetic variation in defensive anatomical traits of a Mediterranean pine

Carla Vázquez-González, Xosé López-Goldar, Rafael Zas, Luis Sampedro.

Misión Biológica de Galicia (MBG-CSIC)

MBG MISIÓN BIOLÓGICA DE GALICIA

CSIC CONSEJO SUPERIOR DE INVESTIGACIONES CIENTÍFICAS

SIBECOL

“Climate and genetic structure contributes to explain intraspecific genetic variation in defensive anatomical traits of a Mediterranean pine”

Carla Vázquez-González et al.

Abstract: The ability of trees to overcome the new environmental conditions will depend on the extant intraspecific variation in traits with adaptive value. Although genetic variation in life history traits related to productivity and abiotic stress has been better studied, little is still known about defensive traits. Resin ducts are the structures that store and produce the oleoresin in conifers, and because their role in resistance against biotic stress, they are a valuable proxy to study the defensive investment. In the current study, we explored the inducibility and the genetic variation of resin ducts among populations in *Pinus pinaster* and evaluated whether this variation is explained by the abiotic environment from the origin of populations. To meet our objectives, we used a clonal genetic collection of *P. pinaster* in a greenhouse experiment, including 79 clonally-replicated genotypes from 10 populations covering the species distribution range. We measured resin duct features in phloem and xylem in one clonal replicate and their inducibility in the other. Genetic variation among populations was explored by fitting mixed models, and correlation analysis were performed between resin duct features and climatic variables at the site of origin of populations after accounting for the population relatedness, which was quantified by genotyping 126 SNPs in the experimental material. We found that intraspecific genetic variation in the phenotypic expression of resin ducts was explained by the climate at origin. Moreover, we found that the differentiation of resin ducts in the xylem was inducible, although inducibility did not varied among populations.

award 4

1st Meeting of the Iberian Ecological Society & XIV AEET Meeting

"Ecology: an integrative science in the Anthropocene"

1st Meeting of the Iberian Ecological Society & XIV AEET Meeting
"Ecology: an integrative science in the Anthropocene"

AoBP Evolutionary Ecology award

poster presentation in "evolutionary ecology in terrestrial, aquatic and marine environments" session

WINNER

Lola Álvarez Ruiz

Xavier Picó Mohamed Abdelaziz Antonio Castilla

The Annals of Botany PLANTS Journal **The award committee members**

TS.07-P1

“How do lizards survive wildfires?”

First author (winner): Lola Álvarez Ruiz

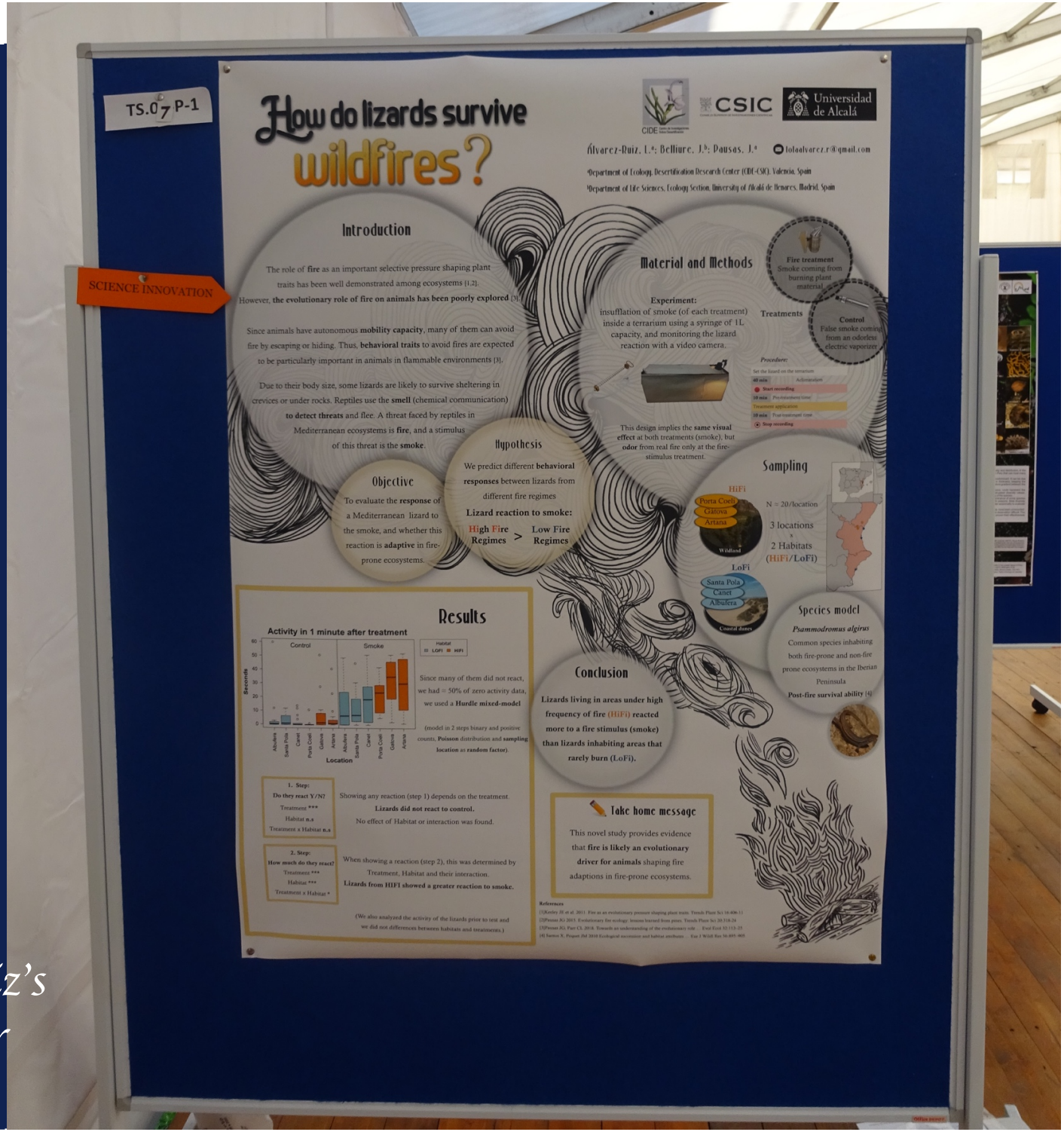
Centro de Investigaciones sobre Desertificación (CIDE-CSIC), Valencia, ES

Award: 250 USD

Co-authors: Josabel Belliure and Juli G. Pausas

“This poster has outstanding creativity. Overall, the poster is catchy for the audience with an attractive design, plenty of details to make the flow of ideas smooth and leave a clear take-home message. The part of the experimental design deserves special mention with very visual design, reducing the text to the maximum without losing clarity in the message. Furthermore, Lola introduced her research in a very concise and clear way during the interview.”

Lola Álvarez Ruiz's presented poster



“How do lizards survive wildfires?”

Lola Álvarez Ruiz et al.

Abstract: The role of fire as an important selective pressure shaping plant traits has been well demonstrated in many ecosystems, including Mediterranean ones. However, the evolutionary role of fire on animals has been poorly explored. Wildfires have strong effects on reptile communities. However, after a wildfire, no significant mortality has been found in lizards. Due to their body size, some lizards are likely to survive sheltering in crevices or under rocks. Reptiles use the smell (chemical communication) to detect threats and flee. A threat faced by reptiles in Mediterranean ecosystems is fire, and a stimulus of this threat is the smoke. We aimed to evaluate the response of the lizard *Psammodromus algirus* to the smoke, and whether this reaction is adaptive in fire-prone ecosystems. To test this, we evaluated the response to smoke of lizards from populations inhabiting fire-prone ecosystems, compared to those living in non-fire prone ecosystems. We predicted different behavioral responses between fire regimes, in such a way that populations living in fire-prone ecosystems will be more sensitive to fire stimulus than those living in an ecosystem that rarely burn. In agreement to this hypothesis, we found that lizards from high fire regimes showed a faster reaction to the smoke. This study provides evidence that fire is an important evolutionary driver for animals shaping fire adaptations. Understanding how animals respond to fire is important to fully comprehend ecological and evolutionary processes, as well as for species conservation in a changing fire regime world.

award 5

1st Meeting of the Iberian Ecological Society & XIV AEET Meeting

"Ecology: an integrative science in the Anthropocene"

1st Meeting of the Iberian Ecological Society & XIV AEET Meeting
"Ecology: an integrative science in the Anthropocene"

AoBP Evolutionary Ecology award

poster presentation in "evolutionary ecology in terrestrial, aquatic and marine environments" session

WINNER

Mercedes Sánchez Cabrera

AoBP PLANTS

The Annals of Botany PLANTS Journal

Xavier Picó

Mohamed Abdelaziz

Antonio Castilla

The award committee members

TS.07-P9

“Flower colour polymorphism and reproductive isolation in *Lysimachia monelli*”

First author (winner): Mercedes Sánchez Cabrera

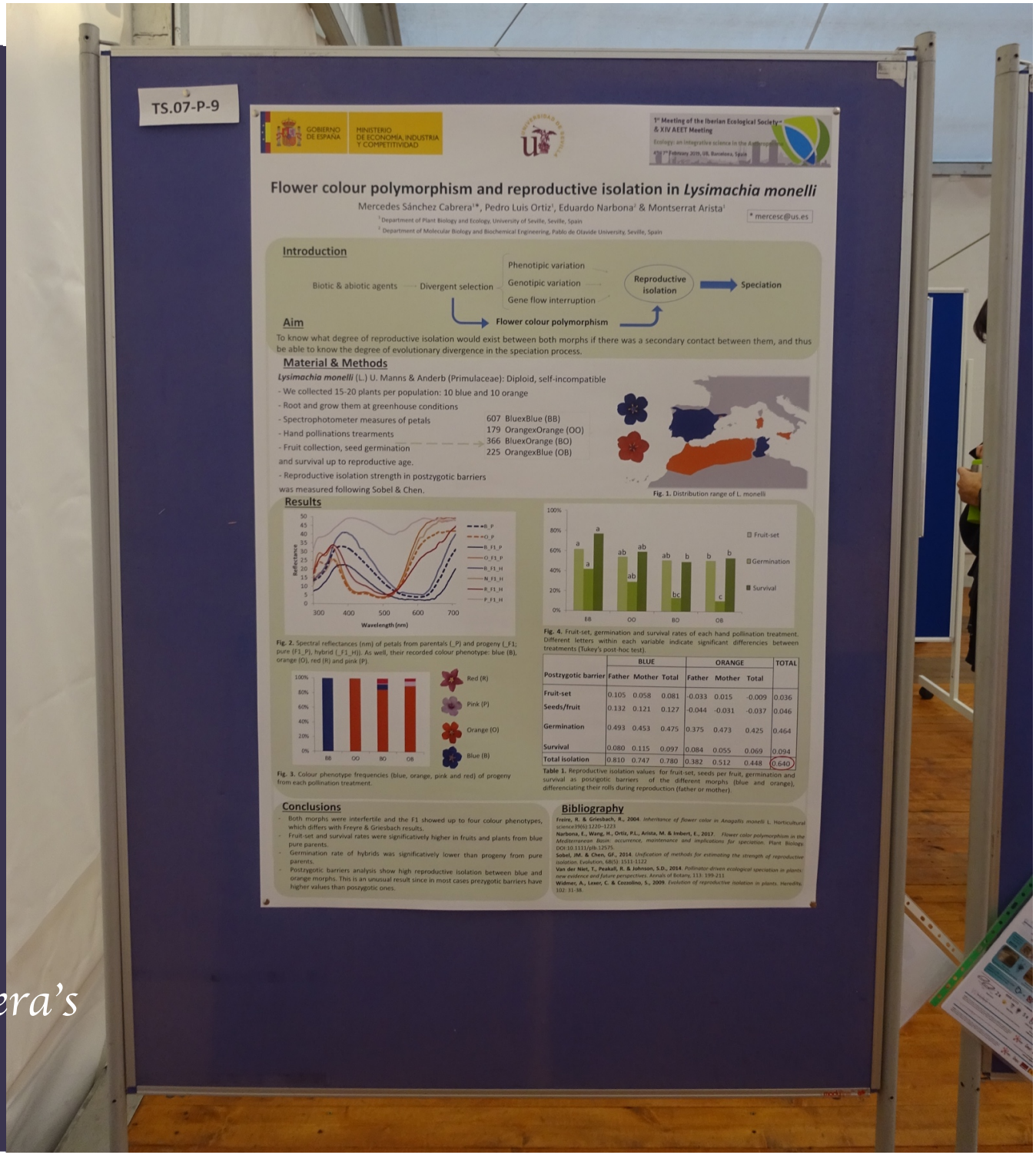
Universidad de Sevilla, Sevilla, ES

Award: 250 USD

Co-authors: Eduardo Narbona, Pedro Ortiz Ballesteros and Montserrat Arista

“The nice design of the poster quickly guides the audience to the main topic of the presented research. The description of the theoretical framework and the main hypothesis are effective, and the take-home messages are clear. Furthermore, Mercedes demonstrated a solid knowledge of the theoretical framework of her research during the interview.”

Mercedes Sánchez Cabrera's presented poster



“Flower colour polymorphism and reproductive isolation in *Lysimachia monelli*”

Mercedes Sánchez Cabrera et al.

Abstract: Flower colour plays an important role in pollinator attraction, but pigments accounting for that colour also provide protection against both biotic and abiotic stresses, thus affecting reproductive success and survival of plants. Some plant species have flower colour polymorphism, presenting two or more colour morphs, what could cause reproductive isolation and species divergence in long-term. Reproductive isolation evolution represents an essential component for species formation and maintenance, and it usually depends on numerous reproductive barriers. *Lysimachia monelli* (Primulaceae) is a flower-colour polymorphic species with two morphs (blue and orange) totally isolated by pre-zygotic geographic barriers. Our aim is to know what degree of reproductive isolation would exist between both morphs if there were a secondary contact, and thus to assess where they are in the process of evolutionary divergence. We collected plants of both morphs along their geographical ranges (Spain, Portugal, Morocco and Italy). In glasshouse, we made 1414 hand pollinations within and between morphs resulting in 776 fruits of which 427 were from crosses between morphs. We germinated seeds from these fruits and measured vigour of the resulting seedlings. We also measured flower colour of parents and F1 progeny with spectrophotometer. In the F1, orange was the predominant colour and blue only appeared when mother was blue. Our results suggest that post-zygotic barriers between blue and orange *L. monelli* seem to be very weak in the first generation. In order to be more conclusive, we will have to wait for the results provided by the second generation.

award 6

1st Meeting of the Iberian Ecological Society & XIV AEET Meeting

"Ecology: an integrative science in the Anthropocene"

1st Meeting of the Iberian Ecological Society & XIV AEET Meeting
"Ecology: an integrative science in the Anthropocene"

SIBECOL poster award

category: "original and clear science communication"

WINNER

Francisco Alejandro López Núñez

Elisabeth M.R. Robert
(coordinator)

Andreia Gonçalves Sousa
(coordinator assistant)

SIBECOL

The Iberian Ecological Society

Eugènia Martí

Laura Prieto

Miguel Verdú

The award committee members

GS.02-P5

“Charging biocontrol batteries: Circuit Theory based forecast of *Trichilogaster acaciaelongifoliae* expansion routes in Portugal”

First author (winner): Francisco Alejandro López Núñez

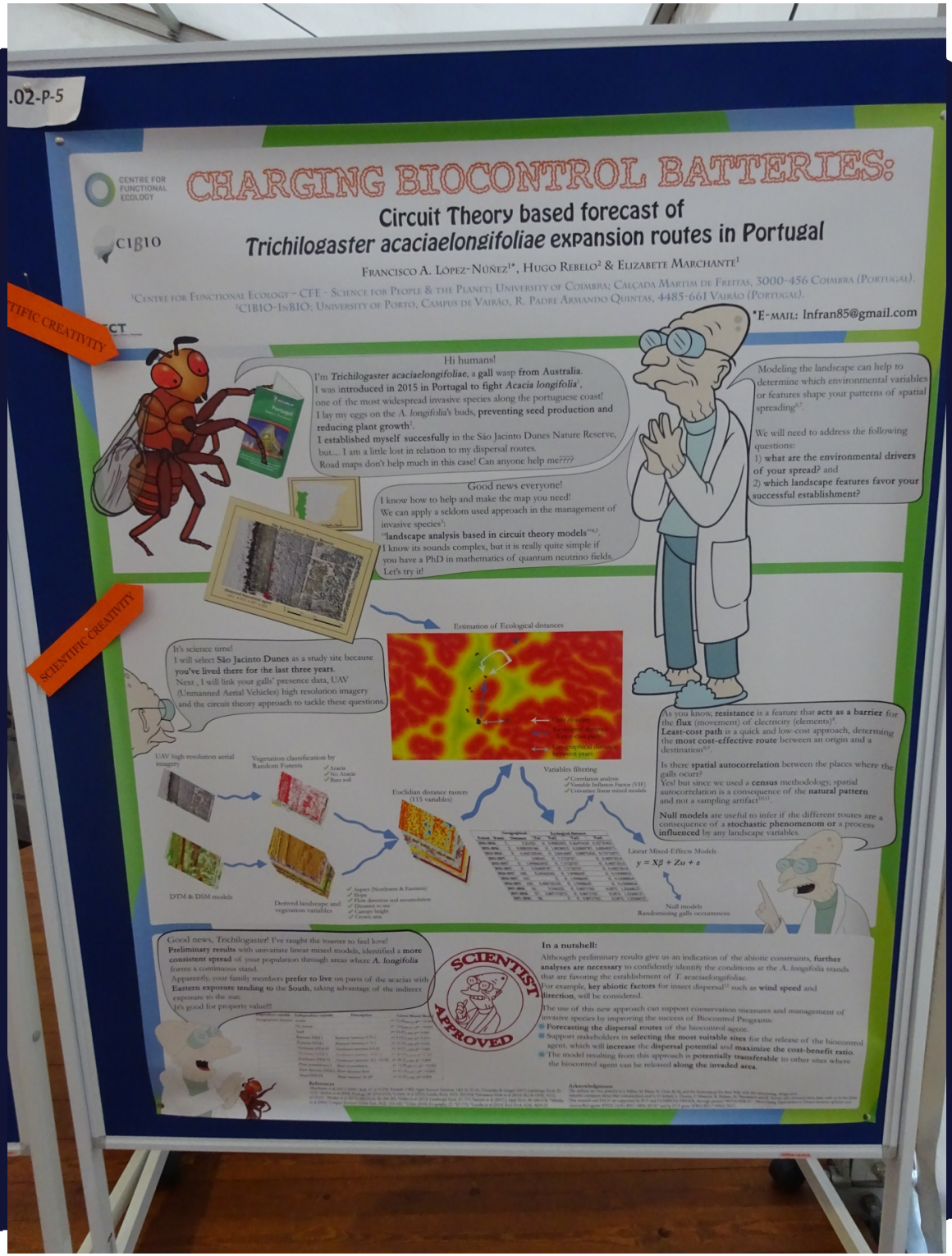
Centre for Functional Ecology – CFE - Science for People & the Planet, Coimbra, PT

Award: 400 EUR

Co-authors: Hugo Rebelo and Elizabete Marchante

“The original way of communicating the obtained research results is not only scientific but also funny and clear for a scientific public from different backgrounds. It is a true scientific story that definitely got the attention of many conference attendants.”

Francisco Alejandro López Núñez's presented poster



“Charging biocontrol batteries: Circuit Theory based forecast of *Trichilogaster acaciaelongifoliae* expansion routes in Portugal”

Francisco Alejandro López Núñez et al.

Abstract: Over the past decade biocontrol programs against invasive plants started to be implemented in Europe; in parallel, low cost Unmanned Aerial Vehicles (UAV, a.k.a. drones) technology has been applied to monitor invasive species. In Portugal, the univoltine biocontrol agent (BA) *Trichilogaster acaciaelongifoliae* was recently released against *Acacia longifolia* and has successfully established in several areas along the coast. This BA promotes galls in flower and vegetative buds, reducing seed production and growth of *A. longifolia*. Landscape analyses methods (e.g., circuit theory models) have been broadly used in conservation though little in invasive species management. Yet, modeling the landscape can help to determine which environmental variables or features shape the spatial patterns of the BA’s spread. In order to assist the BA dispersal, and to assure the success of the BA program, we addressed the following questions: 1) what are the environmental drivers of the BA spread?; and 2) which landscape features favor the success of the BA establishment? We selected one study site where the BA has established three years ago and linked presence data of the BA, UAV high resolution imagery and a circuit theory approach in order to tackle these questions. Preliminary results identified a more consistent spread of the BA through areas where *A. longifolia* forms a continuous stand. Further analyses are being used to identify which conditions within *A. longifolia* stands favor the establishment of the BA. The use of these results and approach to support conservation measures and management of invasive species is discussed.

award 7

1st Meeting of the Iberian Ecological Society & XIV AEET Meeting

"Ecology: an integrative science in the Anthropocene"

1st Meeting of the Iberian Ecological Society & XIV AEET Meeting
"Ecology: an integrative science in the Anthropocene"

SIBECOL poster award

category: "original and clear science communication"

SECOND PLACE

Verónica Cruz Alonso

Elisabeth M.R. Robert
(coordinator)

Andreia Gonçalves Sousa
(coordinator assistant)

SIBECOL

The Iberian Ecological Society

Eugènia Martí

Laura Prieto

Miguel Verdú

The award committee members

TS.06-P1

“A temporal perspective of facilitation dynamics during forest recovery in Mediterranean old fields”

First author (winner): Verónica Cruz Alonso

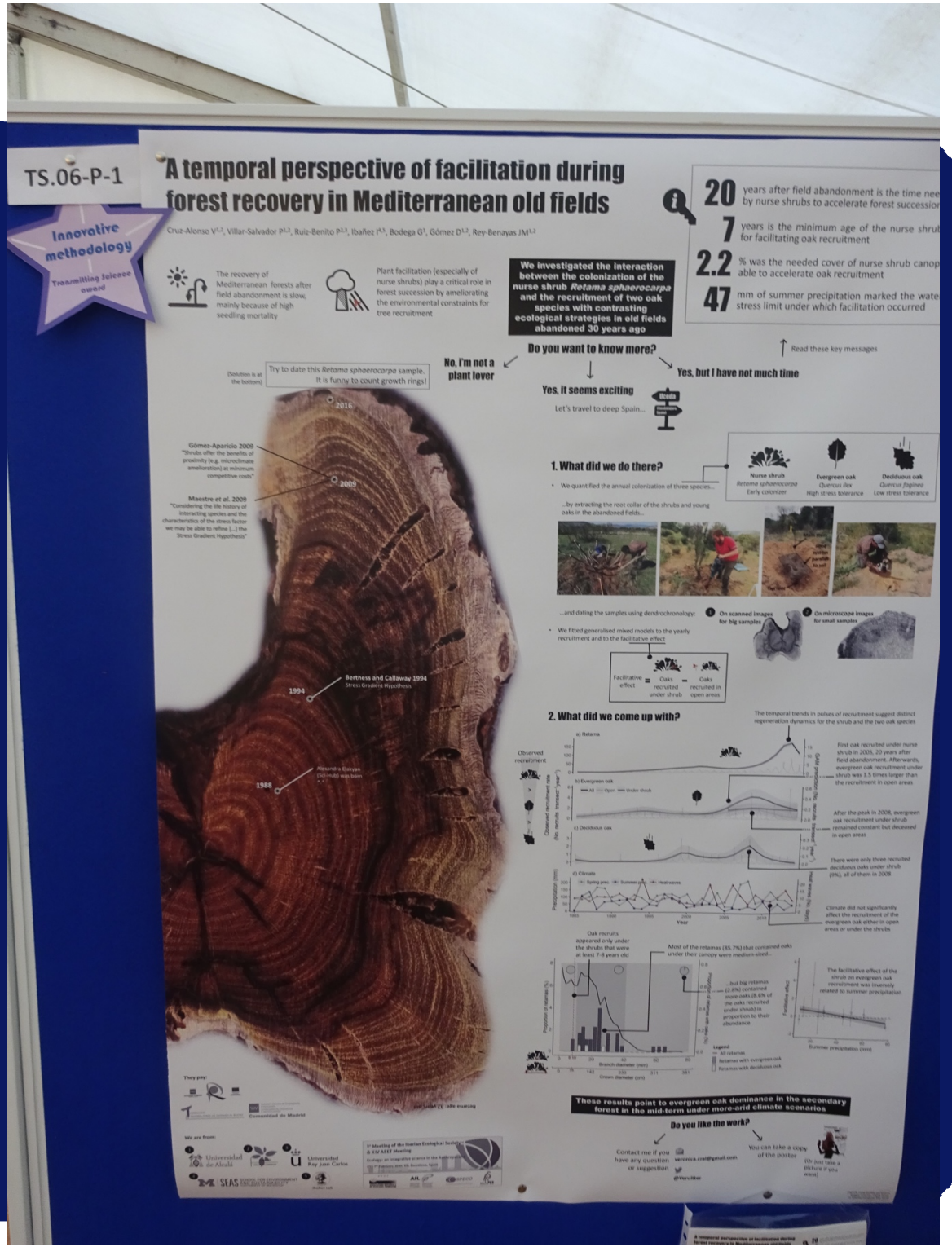
University of Alcalá, Madrid, ES

Award: 200 EUR

Co-authors: Pedro Villar-Salvador, Paloma Ruiz-Benito, Inés Ibánez, Guillermo Bodega, Daniel Gómez and José María Rey-Benayas

“The beautiful design of the poster brings together the main topic and the key messages of the conducted research in the compact and clear way. The reader is guided through the poster by excellent explanatory symbols and short text elements that lead to the take-home-message.”

Verónica Cruz Alonso's presented poster



“A temporal perspective of facilitation dynamics during forest recovery in Mediterranean old fields”

Verónica Cruz Alonso et al.

Abstract: Unlike other forest systems, the recovery of Mediterranean oak forests after field abandonment is very slow. This is mainly due to the stressful environmental conditions under which seedling establishment takes place. In these systems nurse shrubs play a critical role by ameliorating the environmental constraints that hinder tree recruitment. Thus, tree successional dynamics is highly dependent on shrub colonization, a temporal pattern that have not yet been quantified. In this study, we investigated the interaction between the colonization of the early-successional nurse shrub *Retama sphaerocarpa* and the recruitment of two late-successional oak species with different ecology (*Quercus ilex* and *Quercus faginea*) in old fields abandoned 30 years ago. We dated the recruitment year of the nurse shrubs and oak individuals and analyzed oak recruitment as a function of shrub colonization and of climatic records. Recruitment followed patterns of high-and-low pulses, with species-specific differences in the number of recruits (*R. sphaerocarpa* > *Q. ilex* > *Q. faginea*) with *Q. faginea* having more occasional recruitment events. Unlike in the open areas, Q. ilex recruitment under the shrubs remained stable after shrub population developed to a certain size. The climatic condition that negatively affected *Q. ilex* establishment had a lesser effect under the shrub than when recruitment took place in open spaces. Thus, we identified a measurable “nurse-shrub debt” (i.e. the increase in recruitment linked to the nurse shrub presence) across time, and we found that it took 20 years after field abandonment for the shrub population to start catalyzing oak forest recovery.

award

1st Meeting of the Iberian Ecological Society & XIV AEET Meeting

"Ecology: an integrative science in the Anthropocene"

1st Meeting of the Iberian Ecological Society & XIV AEET Meeting
"Ecology: an integrative science in the Anthropocene"

SIBECOL poster award

category: "original and clear science communication"

THIRD PLACE

Irene Jiménez Blasco

Elisabeth M.R. Robert
(coordinator)

Andreia Gonçalves Sousa
(coordinator assistant)

SIBECOL

The Iberian Ecological Society

Eugènia Martí

Laura Prieto

Miguel Verdú

The award committee members

GS.01-P5

"Assessing population connectivity among islands and continent through morphology in a migratory bird, the Common quail (*Coturnix coturnix*)"

First author (winner): Irene Jiménez Blasco

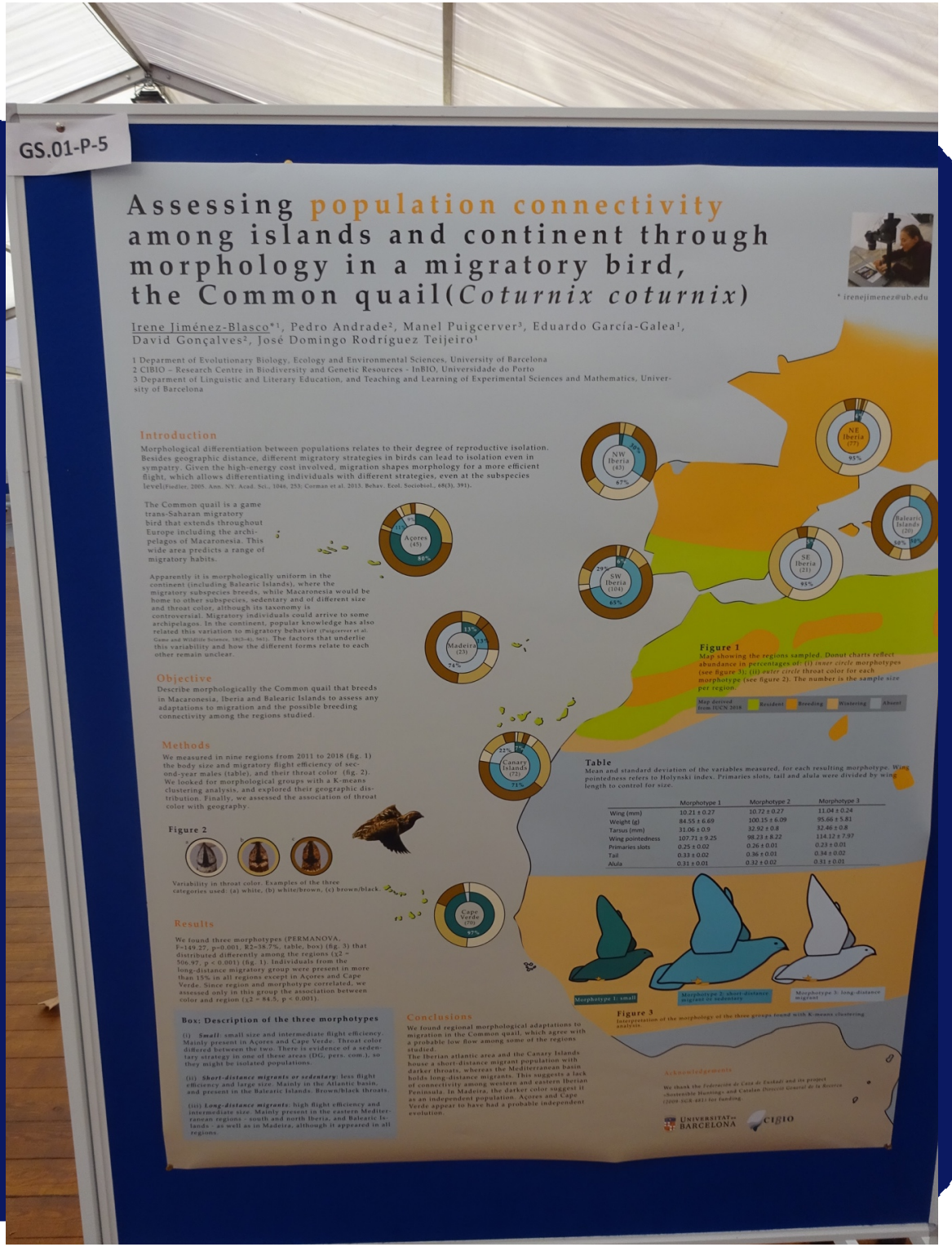
University of Barcelona, Barcelona, ES

Award: 100 EUR

Co-authors: Pedro Andrade, Manel Puigcerver, Eduardo García-Galea, David Gonçalves and José Domingo Rodríguez-Teijeiro

"The original position of the poster elements and it's well-chosen colours show the obtained research results in an attractive way. The short and well-written text elements give the reader a good guidance through the conducted work."

Irene Jiménez Blasco's presented poster



“Assessing population connectivity among islands and continent through morphology in a migratory bird, the Common quail (*Coturnix coturnix*)”

Irene Jiménez Blasco et al.

Abstract: Morphological variation resulting from geographic or ecological isolation can be used to infer connectivity in migratory species. The Common quail shows variation in size and male throat colour, which has been associated to migratory behaviour. Yet the movements in its atlantic distribution are not well understood. Here we assess through morphology the migration strategy and connectivity of quails breeding in Macaronesia, Iberian Peninsula (Iberia hereafter; four sites: SW, NW, SE and NE) and Menorca (Balearic Islands). We measured the weight, tarsus, wing length, wing pointedness (Holynski index), alula, tail and primary notches in 469 second-year males. Throat colour was categorised in three values, from white to rufous/black. K-means clustering analysis showed three groups, characterised as: (1) small and intermediate migrants; (2) big and less migratory; and (3) intermediate size and more migratory. Azores and Cape Verde were composed mainly by the small size group (80 and 97%, respectively) and might have evolved separately. The more migratory group was present in all the regions, being the 95% of SE and NE Iberia. In Canaries and SW Iberia it represented a third of the sample. The less migratory group was mainly present in these two regions, and represented between a third and a half of the sample in NW Iberia, Madeira and Menorca. This group had darker throats (Chisq= 98.4, d.f.=4, p.

award 9

1st Meeting of the Iberian Ecological Society & XIV AEET Meeting

"Ecology: an integrative science in the Anthropocene"

1st Meeting of the Iberian Ecological Society & XIV AEET Meeting
"Ecology: an integrative science in the Anthropocene"

SIBECOL poster award

category: "scientific creativity and science innovation"

WINNER

Lola Álvarez Ruiz

Elisabeth M.R. Robert
(coordinator)

Andreia Gonçalves Sousa
(coordinator assistant)

SIBECOL

The Iberian Ecological Society

Eugènia Martí

Laura Prieto

Miguel Verdú

The award committee members

TS.07-P1

“How do lizards survive wildfires?”

First author (winner): Lola Álvarez Ruiz

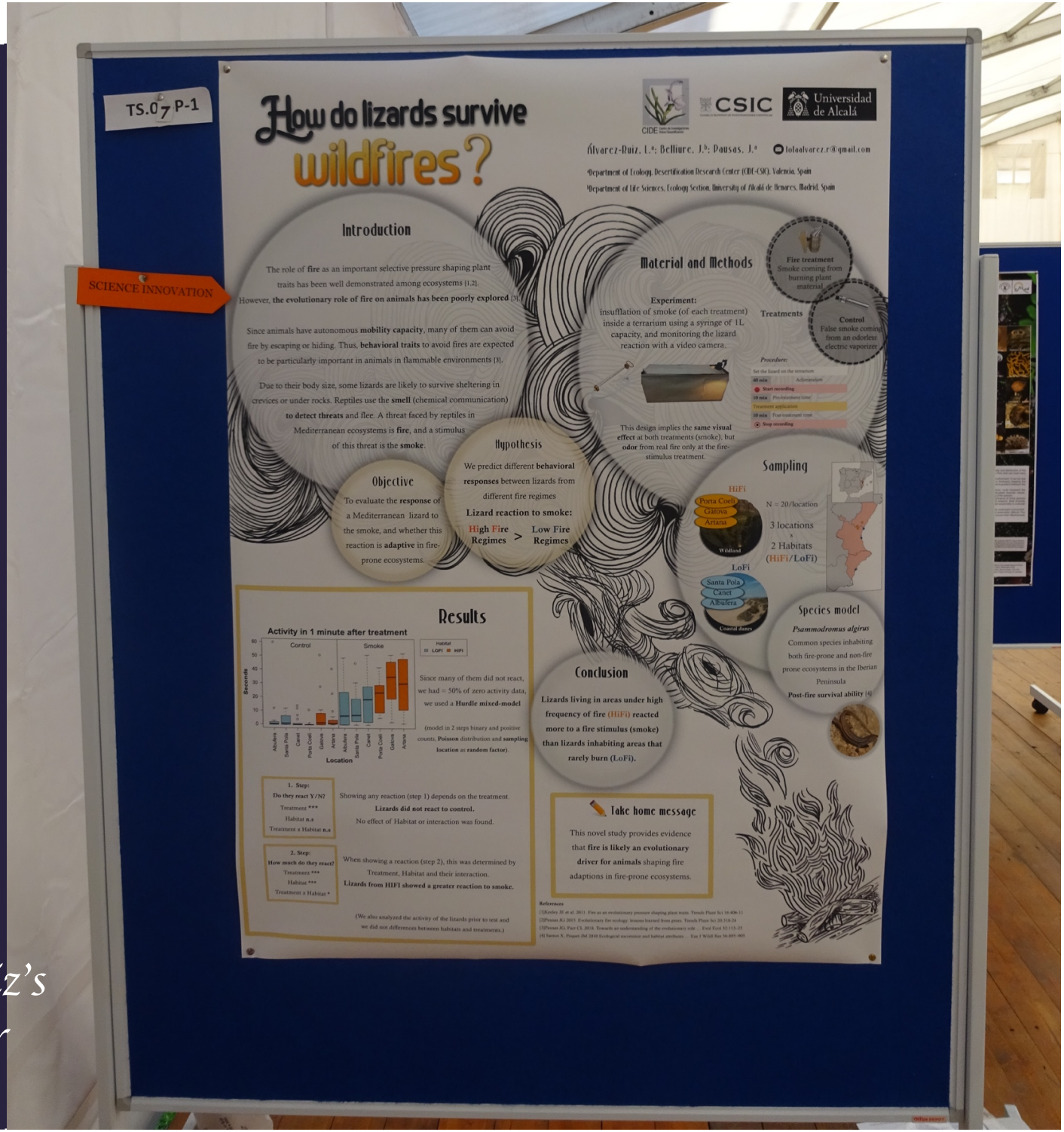
Centro de Investigaciones sobre Desertificación (CIDE-CSIC), Valencia, ES

Award: 400 EUR

Co-authors: Josabel Belliure, Juli G. Pausas

“The conference attendants clearly chose this poster as their favourite, indicting the amazing poster design, the conducted experiments and the clearness of the poster as top elements. The topic was mentioned as innovative.”

Lola Álvarez Ruiz's presented poster



“How do lizards survive wildfires?”

Lola Álvarez Ruiz et al.

Abstract: The role of fire as an important selective pressure shaping plant traits has been well demonstrated in many ecosystems, including Mediterranean ones. However, the evolutionary role of fire on animals has been poorly explored. Wildfires have strong effects on reptile communities. However, after a wildfire, no significant mortality has been found in lizards. Due to their body size, some lizards are likely to survive sheltering in crevices or under rocks. Reptiles use the smell (chemical communication) to detect threats and flee. A threat faced by reptiles in Mediterranean ecosystems is fire, and a stimulus of this threat is the smoke. We aimed to evaluate the response of the lizard *Psammodromus algirus* to the smoke, and whether this reaction is adaptive in fire-prone ecosystems. To test this, we evaluated the response to smoke of lizards from populations inhabiting fire-prone ecosystems, compared to those living in non-fire prone ecosystems. We predicted different behavioral responses between fire regimes, in such a way that populations living in fire-prone ecosystems will be more sensitive to fire stimulus than those living in an ecosystem that rarely burn. In agreement to this hypothesis, we found that lizards from high fire regimes showed a faster reaction to the smoke. This study provides evidence that fire is an important evolutionary driver for animals shaping fire adaptations. Understanding how animals respond to fire is important to fully comprehend ecological and evolutionary processes, as well as for species conservation in a changing fire regime world.

award 10

1st Meeting of the Iberian Ecological Society & XIV AEET Meeting

"Ecology: an integrative science in the Anthropocene"

1st Meeting of the Iberian Ecological Society & XIV AEET Meeting
"Ecology: an integrative science in the Anthropocene"

SIBECOL poster award

category: "scientific creativity and science innovation"

SECOND PLACE

Laura Roquer-Beni

Elisabeth M.R. Robert
(coordinator)

Andreia Gonçalves Sousa
(coordinator assistant)

SIBECOL

The Iberian Ecological Society

Eugènia Martí

Laura Prieto

Miguel Verdú

The award committee members

TS.10-P8

“Hairiness: an essential functional trait in pollinator ecology”

First author (winner): Laura Roquer-Beni

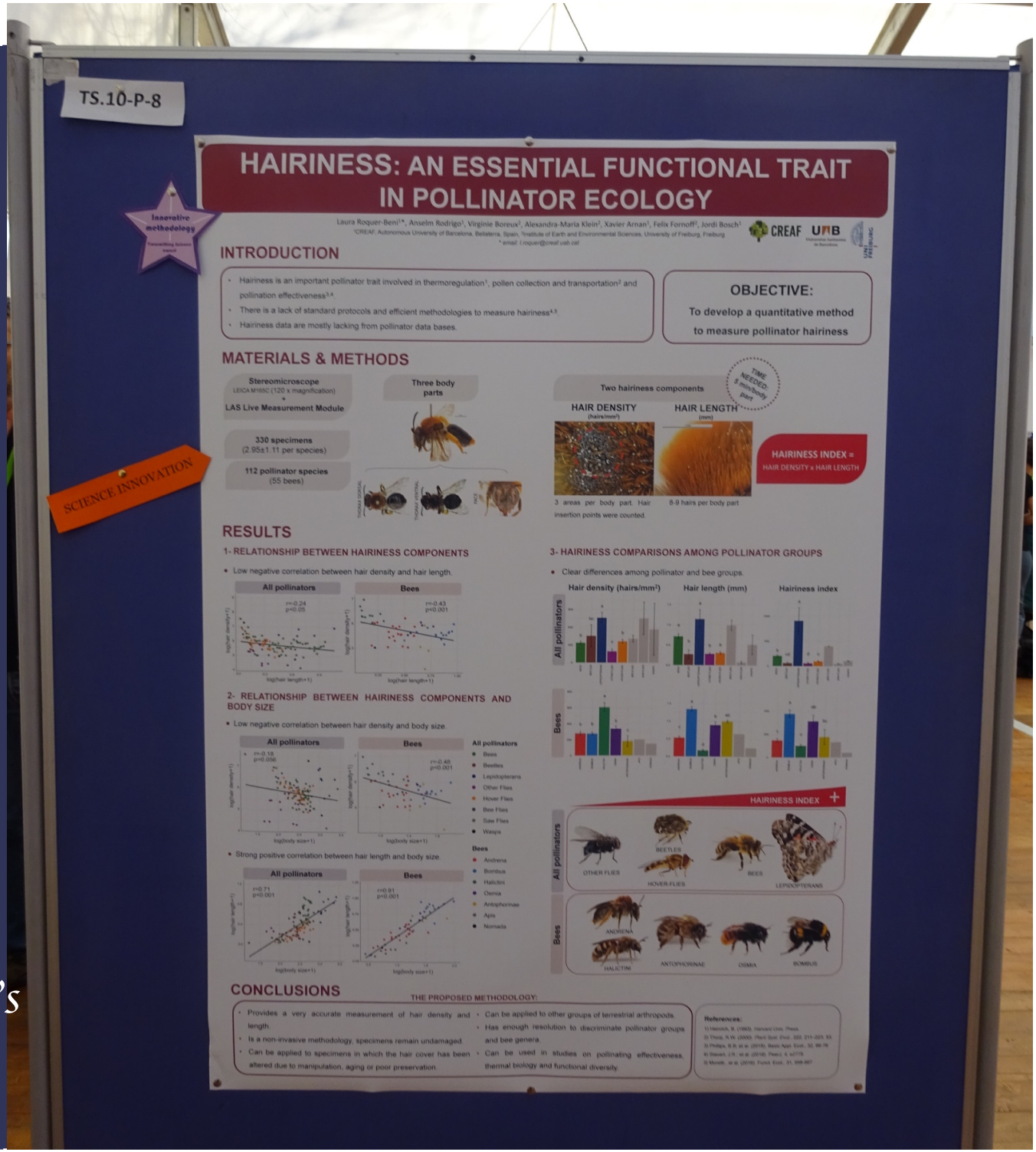
Centre for Ecological Research and Forestry Applications (CREAF), Barcelona, ES

Award: 200 EUR

Co-authors: Anselm Rodrigo, Virginie Boreux, Alexandra-Maria Klein, Xavier Arnan, Felix Fornoff and Jordi Bosch

“This poster shows an exiting new methodology that is very clearly explained. The reader can easily find the different elements of the study on the poster and the new trait, it’s importance and the method to measure it are presented very scientifically.”

Laura Roquer-Beni's presented poster



“Hairiness: an essential functional trait in pollinator ecology”

Laura Roquer-Beni et al.

Abstract: Pollinator functional diversity is increasingly being incorporated into pollination ecology studies. Commonly used pollinator functional traits include mouthparts length, body size, nesting habits, pollen specialization and sociality. Hairiness (pilosity) is another important pollinator trait, which has been shown to play an important role in thermoregulation, as well as pollen collection, transportation and pollination effectiveness. However, there are few studies using this trait, probably due to the lack of efficient methodologies. In this study we present a new method to quantitatively measure pollinator hairiness and propose an index of pilosity. We measured hair density and length in three body areas (face, dorsal surface of the mesothorax and ventral surface of the mesothorax) of different pollinator species from various taxonomic groups. Hair length was positively correlated to body size, but hair density and body size were not correlated. In bees, hair density and hair length were negatively correlated, suggesting a trade-off between these two components. We used this information to create an index of pilosity (product of hair density and hair length). According to this index, butterflies and bee-flies (Bombyliidae) are the hairiest pollinator groups, followed by bees, hover-flies (Syrphidae), beetles and other flies. Among bees, Bombus and Osmia were the hairiest genera, followed by Antophora, Andrena, Lasioglossum and Nomada.

award 11

1st Meeting of the Iberian Ecological Society & XIV AEET Meeting

"Ecology: an integrative science in the Anthropocene"

1st Meeting of the Iberian Ecological Society & XIV AEET Meeting
"Ecology: an integrative science in the Anthropocene"

SIBECOL poster award

category: "scientific creativity and science innovation"

THIRD PLACE

Carmen Guiote

Elisabeth M.R. Robert
(coordinator)

Andreia Gonçalves Sousa
(coordinator assistant)

SIBECOL

The Iberian Ecological Society

Eugènia Martí

Laura Prieto

Miguel Verdú

The award committee members

TS.07-P5

“Does fire select for sexual precocity in *Pinus halepensis*?”

First author (winner): Carmen Guiote

Desertification Research Centre (CIDE-CSIC), Valencia, ES

Award: 100 EUR

Co-authors: Juli G. Pausas

“This easy-to-understand poster has an original and beautiful design and was selected for it’s scientific relevance and originality.”

Carmen Guiote's presented poster

TS.07 P-5

Does fire select for sexual precocity in *Pinus halepensis*?

Guiote, C.; Pausas, J.
Department of Ecology. Desertification Research Center (CIDE-CSIC). Valencia, Spain
carmenguiote@gmail.com

Why to study Precocity?

A determining factor in **post-fire regeneration** of *P. halepensis* is the age at which saplings mature and begin to produce cones and seeds. If this age is greater than the fire interval, pine populations will not be able to regenerate.

Pinus halepensis as study species

P. halepensis is a very common species **inhabiting** both environments of high fire recurrence **(HiFi)** and areas that rarely burn **(LoFi)** in the Iberian Peninsula.
Unlike other pine species, ***P. halepensis*** can produce **serotinous cones** (remain closed but they open during a fire) from the **first year of sexual maturity** and in some cases there is evidence of a **very early maturity age**.
The combination of **serotiny and sexual precocity allows this species to live in environments with repeated fires.**

Predictions

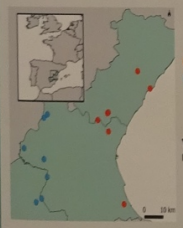
- **Earlier sexual maturity**
- **Larger canopy seed bank** in **Hi**gh **Fi**re than in **Low Fi**re **recurrence** ecosystems.

Objetive

To examine the **effect** of **fire regime** on **precocity** of *P.halepensis* in order to understand and predict the **potential of post-fire regeneration** of the populations in a climate change context.

Material and Methods

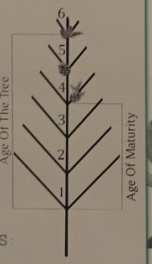
Sampling



14 plots:
- **7 HiFi** recurrence
- **7 LoFi** recurrence

N=**40 trees**/plot

Young trees
less than 18 years



Variables

- **Age of first reproduction**
  Couting whorls below the oldest cone in the tree.
- **Number of close cones**
- **Growth rate**
  Diameter of the trunk / age of the tree. Subrogated of environmental conditions.

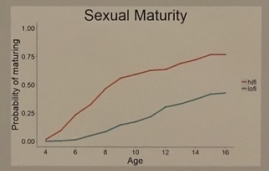
Statistic analysis

Sexual maturity → GLMM
- **Response**: probability of reproduction (binomial)
- **Fixed effects**: tree age, fire recurrence (HiFi vs LoFi) and growth rate (covariate)
- **Random effects**: plot and individual

Canopy seed bank → GLMM
- **Response**: number of accumulated cones (negative binomial)
- **Fixed effects**: tree age, fire recurrence (HiFi vs LoFi) and growth rate (covariate)
- **Random effects**: plot and individual

Results

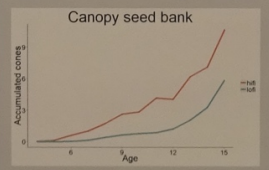
Sexual Maturity



Fire recurrence ***
Age***
Fire recurrence x age *
Growth rate ***

Population under high fire frequency (HiFi) mature earlier and faster.

Canopy seed bank



Fire recurrence *
Age***
Fire recurrence x age
Growth rate ***

The size of canopy seed bank (closed cones) is larger in population inhabiting in HiFi recurrence ecosystems.

Conclusions

- **Short fire intervals selects for precocious individuals and thus fire likely drives the evolution of precocity in *P. halepensis*.**
- **Fire history is important to predict the future of pine populations under climate and fire regime changes.**
- **Populations growing in ecosystems with low/no fire history are more vulnerable to increased fire frequency.**

Take home message

Precocity is a determinant factor in **postfire regeneration** of *P.halepensis* population and this study provides evidence that **fire drives the evolution of this character**.

Due to this, **populations vulnerability** could be predicted by **the history of fire** and this is very relevant in the context of the current **increase in fire activity**.

CIDE

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“Does fire select for sexual precocity in *Pinus halepensis*?”

Carmen Guiote et al.

Abstract: Due to the close and ancient relationship between plants and fire in Mediterranean ecosystems, forest fires have exerted a strong selective pressure on plants and, as a consequence, they have acquired a series of features that allow them to resist and regenerate in an environment with repeated fires. For post-fire regeneration, *Pinus halepensis* populations depend on the degree of serotiny (that is, the number of cones that are closed and have not dispersed their seeds previously) and the age at which they begin to produce seeds (if it is higher than the fire interval, pine populations will not be able to regenerate). The present study examines the factors that determine the variability in these traits associated with fire, in order to understand and predict the potential of post-fire regeneration of the populations of this species in a world with increasing fire activity. For this purpose, we have selected 14 plots with contrasted fire regimes on the Valencian Community and we evaluated for each population the age of first reproduction, the degree of serotiny (percentage of cones closed in relation to the total) and the amount of cones produced during the first years of life. Our results show a significant effect of fire regime in these traits, indicating a selective process towards early seed production (precocity) and an accumulation of a larger canopy seed bank with increasing fire recurrence.