

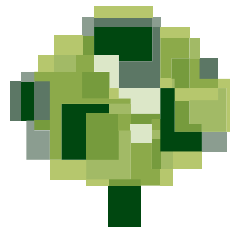


**CREAF**

ECOLOGY MOVES US

**ANNUAL REPORT 2019**





**CREAF**

ECOLOGY MOVES US

ANNUAL REPORT 2019



# FOREWORD

This is CREAM's Activity Report for 2019, a year of important events across the world and of milestones and changes in our centre. It will be remembered, first and foremost, as the year of the climate emergency. While scientists' warnings about the effects of human activity on Earth's climate date back much further, it was in 2019 that we witnessed the emergence of Fridays For Future, an unprecedented worldwide movement that, cultivated via social media, culminated in the Global Climate Strike and eventually led to the Spanish government declaring a climate emergency in January 2020. 2019 will also be remembered as a year in which we became much more aware of the worldwide biodiversity crisis, thanks in no small part to the IPBES's Global Assessment Report, which stressed that the rate of species extinction and habitat destruction all over the planet is accelerating, as well as to news concerning the speed of tropical deforestation and the proliferation of forest fires in different areas of the world. Species and habitat loss is an ever greater threat to Earth's ecological functioning and the provision of key ecosystem services, such as carbon fixation and pollination (as discussed at the conference CREAM, the ICHN and the SCB organized in 2019). It is therefore essential that we change our models of economic development in the ways the UN has established through its 2030 Agenda Sustainable Development Goals.

CREAM's directorship changed hands in 2019, when Dr. Javier Retana bowed out after almost 15 years at the helm, bringing down the curtain on a period of consolidation for the centre and of sustained growth in terms of its main indicators. I am especially grateful to Dr. Retana for all his work, his vision for the centre, and his leadership throughout so many years that were not without risks. 2019 also brought changes in CREAM's organization, including the appointment of Joaquim Escobar, a new general manager with a background in the biomedical industry. The Management Support Team was remodelled to obtain greater gender balance and a more technical profile, which was achieved by including the women in charge of the centre's main support units (Projects, International Projects, and Communication) so as to complement the more scientific advice provided by the Scientific Board.

As can be seen in the different sections of this report, CREAM's scientific activity continued apace in 2019, with a sustained rise in publications in SCI journals and in the centre's overall budget, and an increasingly diverse portfolio of projects with national and, in particular, international funding. In what was also a year of great institutional activity, the centre consolidated its status in various networks and platforms, both international (ALTER-NET, EKLIPSE, GEOS, IPCC, IPBES, NEMOR, etc.) and national (AEET, SOMMa), and strengthened its ties with different administrations within Spain. A number of CREAM researchers earned recognition for their work through a wide range of awards, including a Creu de Sant Jordi (one of Catalonia's highest civil distinctions) for Dr. Jaume Terradas and honorary membership of the Catalan Association of Biologists for Dr. Josep Peñuelas.



2019 also saw CREAM as a whole earn recognition in the form of the Severo Ochoa distinction, a very special accolade that will enable us to take a big step forward where research is concerned. We will be using the funding the distinction entails not only to recruit both junior and senior research staff, but also to improve our human resources and tools for the development of our researchers' scientific careers, to enhance the centre's impact and transfer activity, and for the purpose of gender mainstreaming in our day-to-day work. We will be supported in doing so by the Universitat Autònoma de Barcelona, whose campus hosts most of Spain's environmentally focused Severo Ochoa and Maria de Maeztu centres.

A new programme contract between CREAM and the Government of Catalonia came into effect in 2019. The agreement in question will allow us to continue to build up our competitiveness and leadership in the fields of terrestrial ecology, territorial analysis and global change, as part of the National Agreement for the Knowledge Society promoted by the Government of Catalonia. It will also enable us to optimize our transfer of knowledge and tools to the administration and society, so as to become a benchmark centre as regards policies for the conservation of biodiversity and adaptation to climate change in Catalonia, as well as in relation to fulfilment of the territory's 2030 Sustainable Development Goals. We will be further diversifying CREAM's sources of financing through a strategy designed to secure private funding, which will begin to be implemented in 2020 and will include a specific agreement with the former Terra Foundation. In addition, we will be working on our Equal Opportunities Plan and our current human resources strategy (HRS4R), the aim being to ensure that a series of best practices are followed in staff selection and recruitment processes and in the development of the scientific careers of all the centre's employees. All of this will come together in CREAM's future Strategic Plan, which is currently being drafted and will be unveiled in late 2020.

In conclusion, major challenges await in 2020, over and above COVID-19 and its economic and social effects. Nonetheless, we are looking to the year ahead with renewed optimism in relation to the opportunities it holds and, in particular, with confidence based on the work the exceptional team of people who make CREAM what it is have performed from day one. I would like to thank them all for their constant commitment and dedication, which are reflected in this report. Lastly, I would like to express my gratitude to the members of the consortium for supporting our work, often in complicated political and economic circumstances.

My thanks to one and all.

**Dr. Joan Pino**  
**Director of CREAM**

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Coordination: Anna Ramon.

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A photograph of a forest with several tree trunks covered in moss. The moss is a vibrant green color, contrasting with the brown bark of the trees. The background shows more trees and a glimpse of the sky. An orange rectangular box is overlaid on the right side of the image, containing the text "WHO WE ARE" in white, uppercase letters.

WHO WE ARE



## OUR APPROACH

---

We are a public research center dedicated to terrestrial ecology, territorial analysis and global change, pursuing excellence in the generation and transfer of knowledge, management tools and methodologies.

We strive to create new knowledge and innovative solutions on terrestrial ecology management and land-atmosphere interaction that helps society to mitigate Global Change effects, creating adaptation plans and boosting the resilience of nature.

“Through excellence in science we aim to be a Mediterranean and world-class research institution that pushes the frontiers of knowledge while addressing some of the biggest and more complex environmental challenges society faces this century.”

### Our aims

- Carry out innovative BASIC RESEARCH on ecology
- Promote APPLIED RESEARCH for the sustainable management of ecosystems
- Develop TOOLS to facilitate decision-making and environmental policies
- DISSEMINATE the science in ecology and its impact to society

## About us

- Founded in 1987 (Decret 300/1987)
- A leading research center in Mediterranean ecosystems research
- Close to 150 scientists and experts grouped in four research areas: biodiversity, global change, ecology and earth observation.
- CREAM headquarters are located at the campus of the Autonomous University of Barcelona, Spain.
- An independent center for governments, NGOs, scientists, business and local communities to find practical solutions for facing global change in the Mediterranean region
- 70 research projects with field studies and activities around the planet.
- Funded by governments, international and national research programs, private companies and foundations.
- Governed by a board of trustees formed by different public entities (administrations, universities, and research centers and institutes).

## Governing organizations

CREAF is a public research center which exists as a consortium between different public entities (administrations, universities, and research centers and institutes).

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### DISTINCTIONS



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### WITH SUPPORT FROM



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Mr. Lluís Rovira, Director of the Foundation I-CERCA

Mr. Jaume Terradas, CREAF

## BOARD OF DIRECTORS OF CREAM

---

The Board of Directors is named by the Board of Trustees and handles day-to-day issues of the Center. It is presided by the Director of CREAM and the Secretary is the Deputy Director of CREAM.

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**John Grace**  
Edinburg  
University, UK



**Rob Jackson**  
Duke's Center of  
Global Change, EUA

**Ivan Janssens**  
Antwerpen  
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**Ophélie Ronce**  
Institut des Sciences de l'Évo-  
lution de Montpellier, France



**Bridget Emmett**  
Centre for Ecology and  
Hydrology,  
United Kingdom



## Staff

### SCIENTIFIC DIRECTOR

Pino Vilalta, Joan

### MANAGING DIRECTOR

Escobar, Joaquim

### RESEARCHERS

#### CREAF Researchers

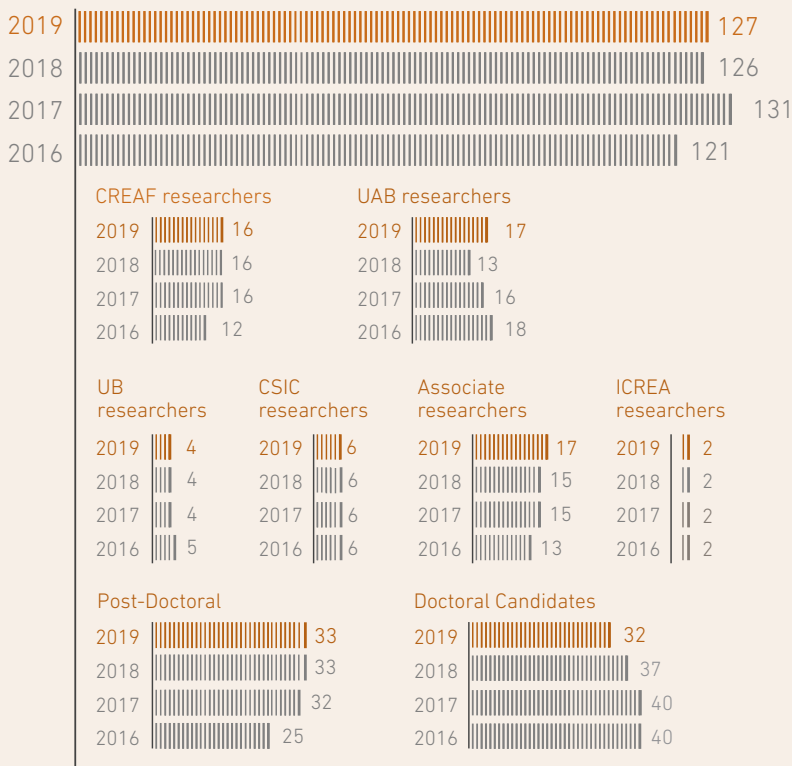
1. Andres Pastor, Pilar
2. Arnan Viadiu, Xavier
3. Avila Castells, Anna
4. Bosch Gras, Jordi
5. Doblàs Miranda, Enriquer
6. Espelta Morral, Jose Maria
7. Gracia Moya, Marc
8. Llusia Benet, Joan
9. Marcer Batlle, Arnald
10. Masó Pau, Joan
11. Mayol Martinez, Maria
12. Pesquer Mayos, Lluís
13. Pla Rabes, Sergi
14. Sardans Galobart, Jordi
15. Vayreda Duran, Jordi
16. Verger Ten, Alexandre

#### UAB Researchers

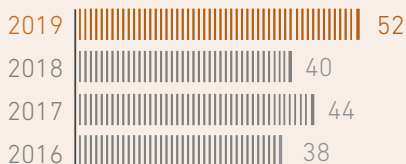
1. Alcañiz Baldellou, Josep M.
2. Claramunt López, Bernat
3. Domene Casadesús, Xavier
4. Ferrandíz Rovira, Mariona
5. García Valdés, Raúl
6. Lloret Maya, Francisco
7. Marañón Jiménez, Sara
8. Martínez Vilalta, Jordi
9. Pino Vilalta, Joan
10. Piñol Pascual, Josep
11. Retana Alumbrosos, Javier
12. Riba Rovira, Miquel

## STAFF

### Researchers



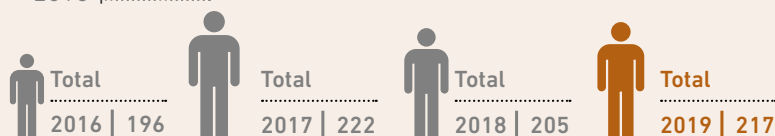
### Technicians



### Consultants



### Administration



13. Ribas Artola, Angela
14. Rodrigo Domínguez, Anselm
15. Saura Mas, Sandra
16. Terradas Serra, Jaume
17. Vidal, Andrea

#### **UB Researchers:**

1. Carnicer Cols, Jofre
2. Felip Benach, Marisol
3. Sabaté Jorba, Santiago
4. Sabater, Francesc

#### **CSIC Researchers:**

1. Brotons Alabau, Lluís
2. Catalan Aguilà, Jordi
3. Estiarte Garrofé, Marc
4. Filella Cubells, Iolanda
5. Peñuelas Reixach, Josep
6. Sol Rueda, Daniel

#### **Catalonian Institute for Research and Advanced Studies (ICREA) Researchers**

1. Bartumeus Ferré, Frederic
2. Mencuccini, Maurizio

#### **Associated Researchers**

1. Bonal Andrés, Raúl
2. de Cáceres Ainsa, Miquel
3. Calleja Alarcón, Juan Antonio
4. Castells, Eva
5. Coll Mir, Lluís
6. Eritja, Roger
7. González Martínez, Santiago C
8. Herrando Vila, Sergi
9. Jump, Alistar
10. Lefebvre, Louis
11. Montoya, José M
12. Muñoz, Alberto
13. Ojeda Castro, Gerardo
14. Piera Fernández, Jaume
15. Roman Cuesta, Rosa M.
16. Solé Ollé, Jordi
17. Stefanescu, Constantí

#### **Post-Doctoral Researchers**

1. Alfaro Sánchez, Raquel
2. Alvarez Nebot, Albert
3. Asensio Abella, M Dolores
4. Balzarolo, Manuela
5. Basnou, Corina
6. Batllori Presas, Enric
7. Cardador Bergua, Laura
8. Cristobal Rossello, Jordi
9. Cruz Alonso, Veronica
10. Descals Ferrando, Adrià
11. Domingo Marimon, Cristina
12. Duane Bernedo, Andrea
13. Ducatez, Simon Luc
14. Fernandez De Uña, Laura
15. Gargallo Garriga, Albert
16. Grau Fernandez, Oriol
17. Guerrieri, Rossella
18. Ladrón De Gueva Sáez De Eguilaz, Mónica
19. Lapiedra González, Oriol
20. Margalef Marrase, Olga
21. Melero Caverro, Yolanda
22. Morán Ordóñez, Alejandra
23. Ogaya Inurrigarro, Roma
24. Paniw, Maria
25. Peguero Gutiérrez, Guillermo
26. Poyatos Lopez, Rafael
27. Preece, Catherine
28. Robert, Elisabeth M.R.
29. Romero Sotoca, Estela
30. Stocker, Benjamin David
31. Valade, Aude
32. Yáñez Serrano, Ana María
33. Yin, Gaofei

#### **Doctoral Candidates**

1. Blanquer Valderas, Laura
2. Boet Escarceller, Olga
3. Bookwalter, Jamie
4. Bórnez Mejías, Kevin
5. Chin, Juan
6. Collado Aliaño, M Ángel
7. Da Sois, Luca

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10. Flo Sierra, Víctor
11. Garcia Raventós, Aina
12. Hernández Castellano, Carlos
13. Jaime González, Luciana Andrea
14. Jimenez Elvira, Nuria
15. Lecina I Díaz, Judit
16. Llovet Martín, Alba
17. Margalef Marrase, Jordi
18. Mu, Zhaobin
19. Otzu, Kaori
20. Palmero Iniesta, Marina
21. Pérez Navarro, M<sup>a</sup> Ángeles
22. Reverté Saiz, Sara
23. Riera Domínguez, Marc
24. Rodríguez Miret, Xènia
25. Roquer Beni, Laura
26. Rosas Torrent, M Teresa
27. Sandoya, Verónica
28. Unzeta Lloret, Mar
29. Urbina Barreto, Ifigenia
30. Vives Ingla, Maria
31. Yang, Kaijung
32. Zufiaurre Martínez, Aitziber

## TECHNICIANS

### CREAF Staff

1. Alvarez Dominguez, Enrique
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3. Banque Casanovas, Mireia
4. Batalla Mercade, Meritxell
5. Batlles Climent, Carles
6. Broekman, Anne E.E.
7. Broncano Atencia, Maria Jose
8. Calaf Ramirez, Xavier
9. Carabassa Closa, Vicenç
10. Carbonell Casadesús, Xavier
11. Casanovas Berenguer, Rosa
12. Comas Boronat, Lluís
13. Correia Cardoso Lopes, Marta Raquel
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15. Escobar Rubies, Agustin

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24. Gordillo Cerrada, Javier
25. Granda García, Víctor
26. Guardia Valle, Rosa Anna
27. Home Mas, Orellys
28. Jaumejoan Gil, Xènia
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45. Serrano Serrano, Tomàs
46. Solà-Morales Capdevila, Faustina
47. Toro Mejía, Felipe
48. Vallicrosa Pou, Helena
49. Valls Sánchez, Aleix
50. Verkaik Witteveen, Iraima
51. Ward, Matthew David
52. Zuccarini, Paolo

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1. Pacios, Carme

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6. Molina Fuentes, Francisco De Paula
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8. Terraza I Rovira, Cristina

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11. Garcia Lopez, Cristina
12. Guzmán Martín, Pau
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14. León Gil, Yolanda
15. Martín Fernández, M<sup>a</sup> Elena
16. Martínez Gómez, Daniel
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18. Mazón Cardona, Pilar
19. Molowny Horas, Roberto
20. Morales Duran, David
21. Moreno Herмосilla, María José
22. Ordoñez Garcia, Jose Luis
23. Pizarroso Velasco, Maite
24. Pujol Mardones, Magdalena
25. Ramon Revilla, Anna
26. Richter Boix, Alexander
27. Roig Herrera, Olga
28. Troyano Martínez, Olga
29. Vilar Navarro, Vanessa

### **VISITING RESEARCHERS FROM NATIONAL AND INTERNATIONAL INSTITUTIONS**

1. Sandra Nogué Bosch University of Southampton (UK)
2. Andreas Richter University of Vienna (Austria)
3. Arkadiusz Fröhlich Universitat de Cracovia
4. Agmieska Szczerba Faculty Oceanography & Geography Gdansk, Polònia
5. Natasa Kiorapostolou University of Padua (Itàlia)
6. Luisina Carbonell Silleta Instituto de Biociencias de la Patagonia (Argentina)
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9. Rosie Fisher NCAR Colorado
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11. Carles Ibàñez IRTA
12. Rodrigo Gabriel Pol ECODES Argentina
13. Angela Maria Zapata Universidad Pontificia Javeriana Colombia
14. Carlos A. Rivera Rondón Universidad Pontificia Javeriana Colombia
15. Roberto Silvestro University of Québec, Canada
16. Imma Oliveras University of Oxford.
17. Richard Peters Universitat de Gant Bèlgica
18. Josep Barba University of Birmingham, UK
19. Meriem Zouaoui Boutiti INRGREF Tunis
20. Kaouther Ben Yahia INRGREF Tunis
21. Hans Joosten University of Greifswald, Germany
22. Jonathan Coop Western Colorado University
23. Hoonyoung Park Seoul National University
24. Ana Luisa Pereira de Carvalho Universidad de Coimbra, Portugal
25. Nuria Garcia Forner Universidad de Coimbra, Portugal
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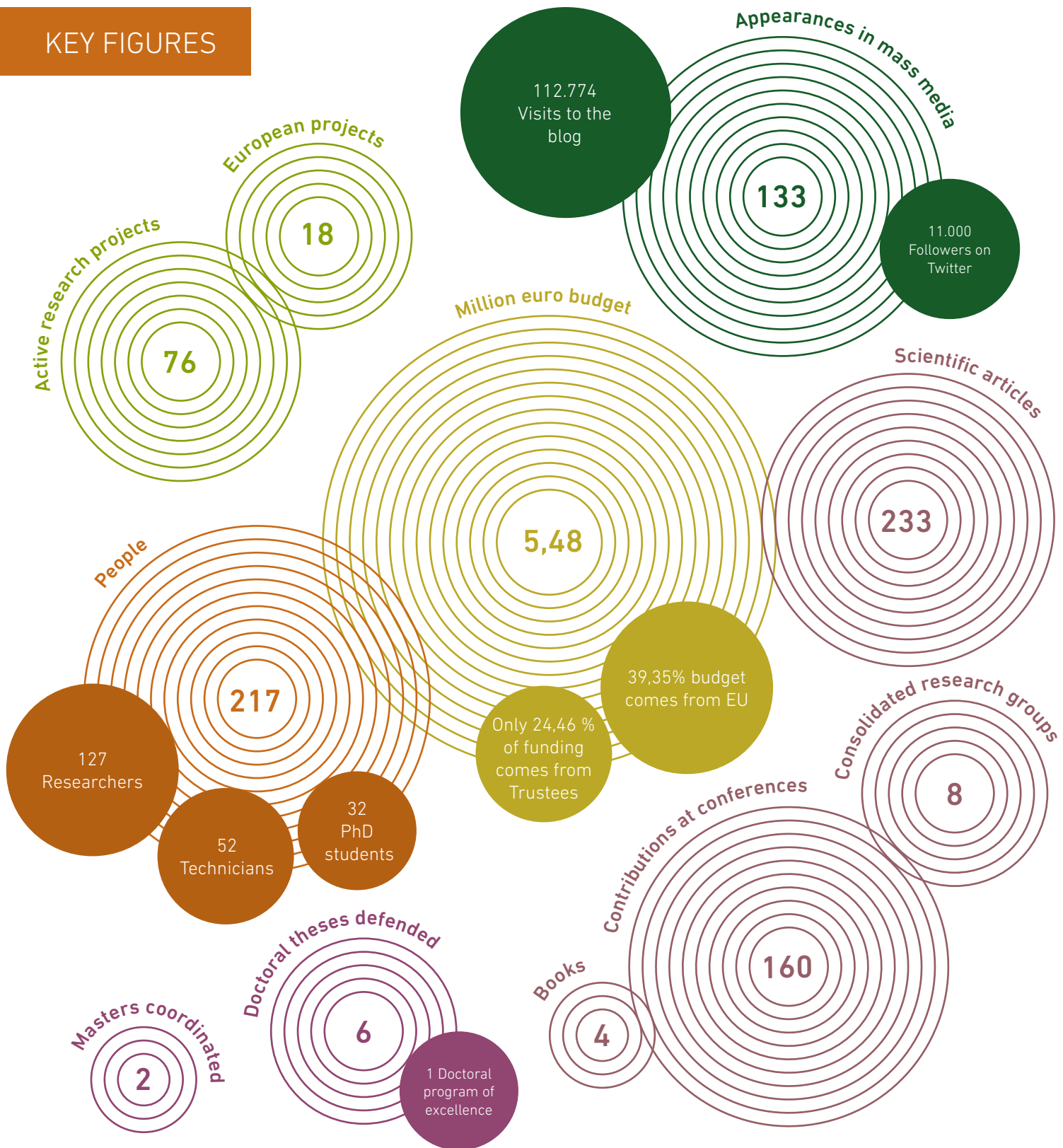
### **WITH FINALIZATION OF RELATION WITH CREAM DURING 2019**

#### **Personnel**

Rossella Guerrieri, Raquel Alfaro, Aitor Ameztegui, Manuela Balzarolo, Simon Ducatez, Joan García Porta, Lei Liu, Teresa Alfaro, Harold Arias, Antoine Cabon, Miguel Angel Collado Aliaño, Andrea Duane, Roger Lloret Cabot, Carlos Palacín Lizarbe, Larissa Rejalaga, Teresa Rosas Torrent, Mona Sadat Mobargha, Ifigenia Urbina Barrero, Miquel Ferrin Guardiola, Laura Force Seguí, Anna Guardia Valle, Iraima Verkaik, Jana Marco, Marc Español, Marc Crespo, Alba Lázaro, Matthew David Ward, Marta Correia, Virginia Garófano, Iraima Verlail, Núria Martínez, Youssef Bouchakri, María José Moreno Herмосilla, Olga Troyano Martínez, Anna Pallàs, Jaume Carro, Enrique Alvarez.



# KEY FIGURES

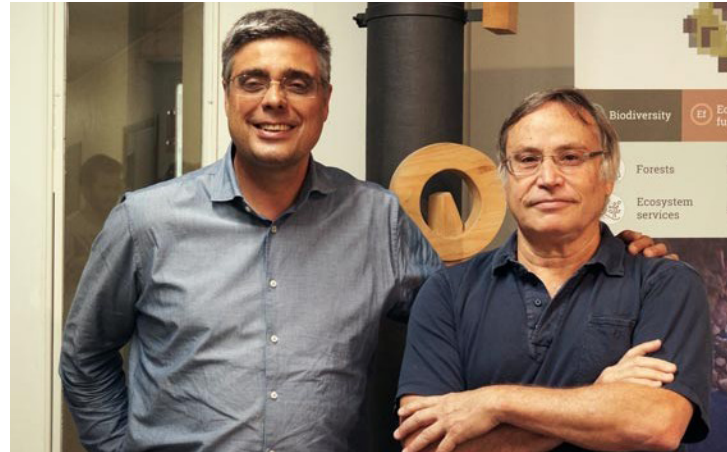




ANNUAL HIGHLIGHTS

## JOAN PINO REPLACES JAVIER RETANA AS NEW CREAM DIRECTOR

After a selection process coordinated by CERCA, the professor at the Autonomous University of Barcelona and former deputy director of CREAM has been chosen as the new director of the center. He takes over from Javier Retana, professor at the Autonomous University of Barcelona who came to the post in 2005.



## CREAF AWARDED WITH THE 'SEVERO OCHOA' ACCREDITATION

CREAF proposes a strategic research plan to contribute to the most important environmental challenges of the 21st century, including climate change and the loss of biodiversity. It has been selected for its scientific results and its strategic programs after a rigorous international evaluation.





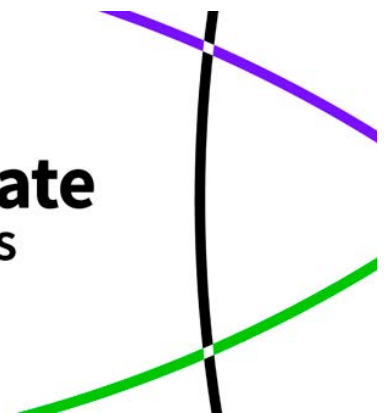
## JAUME TERRADAS AWARDED WITH CREU DE SANT JORDI 2019

The President of the Generalitat awarded the Creu de Sant Jordi to Jaume Terradas. The ideologist and founder of CREAM received the award along with 29 personalities and 15 entities, including the architect Benedetta Tagliabue and La Trinca.

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## 4 CREAM RESEARCHERS ON THE LIST OF THE MOST CITED IN THE WORLD

Jordi Martínez-Vilalta, Jordi Sardans, Maurizio Mencuccini and Josep Peñuelas appear on the list of the most cited researchers in the world published by Clarivate Analytics (leading company in the innovation sector) every year.



# INTERNATIONAL HIGHLIGHTS

#TeamJunckerEU

Europese  
Commissie

Commission  
européenne

European  
Commission



## CREAF INVOLVED IN THE MEDITERRANEAN EXPERTS ON CLIMATE AND ENVIRONMENTAL CHANGE (MedECC) NETWORK

Four researchers are involved in this network: Alejandra Moran, Lluís Brotons, Josep Peñuelas and Enrique Doblas. The network of Mediterranean Experts on Climate and Environmental Change (MedECC) has been created in 2015. MedECC is an open and independent international scientific expert network acting as a mechanism for decision-makers and the general public on the basis of available scientific information and on-going research.

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## CREAF STARTS A PROJECT TO PROMOTE THEIR INTERNATIONALIZATION

Thanks to the Europa Redes call, from the Ministry of Science and Innovation, CREAM has started a new project called Beyond MEDECO Hub. Along the project CREAM aims to increase international visibility and economic return from European Commission calls. With this support CREAM will be able to improve its internationalization, communication and project management department.





## NEW PUSH TO INCREASE CREAM'S PRESENCE IN THE EUROPEAN SPHERE OF THE FORESTRY SECTOR

CREAF has full confidence in scientific cooperation and, in this line, is becoming increasingly international. During 2019 Josep Maria Espelta, as CREAM ambassador, helped increasing the effort to raise representation at European networks of reference of the forestry sector such as the European Forest Institute (EFI) or the European Technology Platform (FTP). The efforts were focused at EU level, on in a proposal for Horizon 2020, the attendance to the EFI annual conference (Scotland) and the Sixth Mediterranean Forest Week (Lebanon) and at national level, on the reinforcement of the collaborations among the different stakeholders.

## CREAF BECOMES A GEO ASSOCIATE

With a view to improving access to and the availability and use of geospatial data, the intergovernmental partnership GEO (Group on Earth Observations) has this year established a GEO Associate membership category for organizations based anywhere in the world and related to such data. CREAM recently became one of the first six GEO Associates.





## CREAF ENGAGED WITH AN EUROPEAN WORKING GROUP TO BOOST ETHICS AND INTEGRITY IN RESEARCH

Olga Roig participated in the last ENRIO meeting, a European group to discuss the practical side of Research Ethics and Integrity.



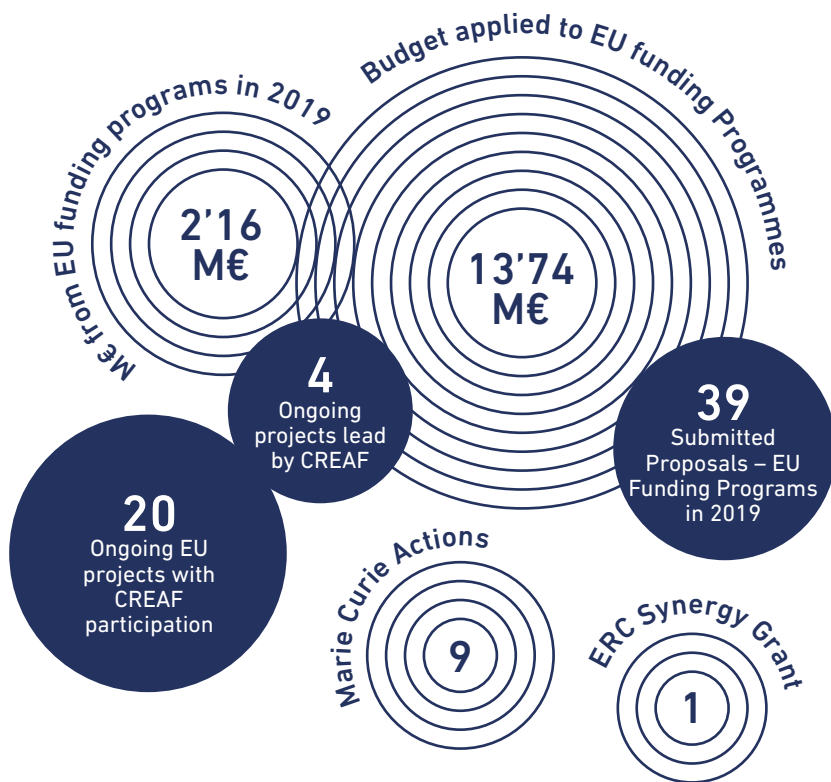
## FAO SELECTS PILAR ANDRÉS TO WRITE A GLOBAL REPORT ON THE STATE OF SOIL BIODIVERSITY

Pilar Andrés will be part of a working group formed by other experts from the scientific world, which will also include members of soil-related entities and representatives of public administrations, for example.

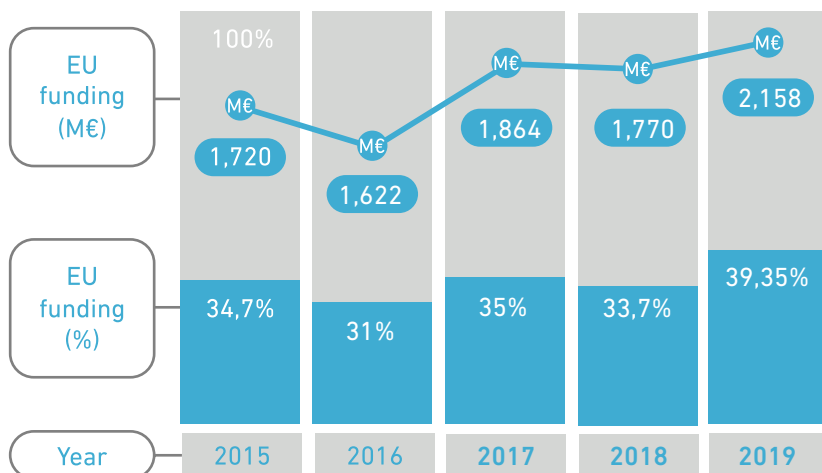




## KEY FIGURES



Total EU funding and % of EU funding related to the total incomes per year



Submitted proposals in 2019  
(2 coordinated by CREAM)

### HORIZON 2020

#### Excellent science

- 4 ERCs
- 1 ERC AdG
- 1 ERC CoG
- 2 ERC StG
- 7 MSCA
- 1 MSCA Cofund
- 3 MSCA ITN
- 3 MSCA IF-EF
- 1 INFRASTRUCTURES
- 2 SPACE
- 1 FET OPEN

#### 13 Societal Challenges (Collaborative projects)

- 7 Sc5
- 5 Sc2
- 1 SC6

#### By funding schemes

- 2 CSA
- 16 RIA
- 3 IA

#### Widening & Spreading excellence

- 1 Twinning
- 1 Science with and for Society

#### Transnational cooperation

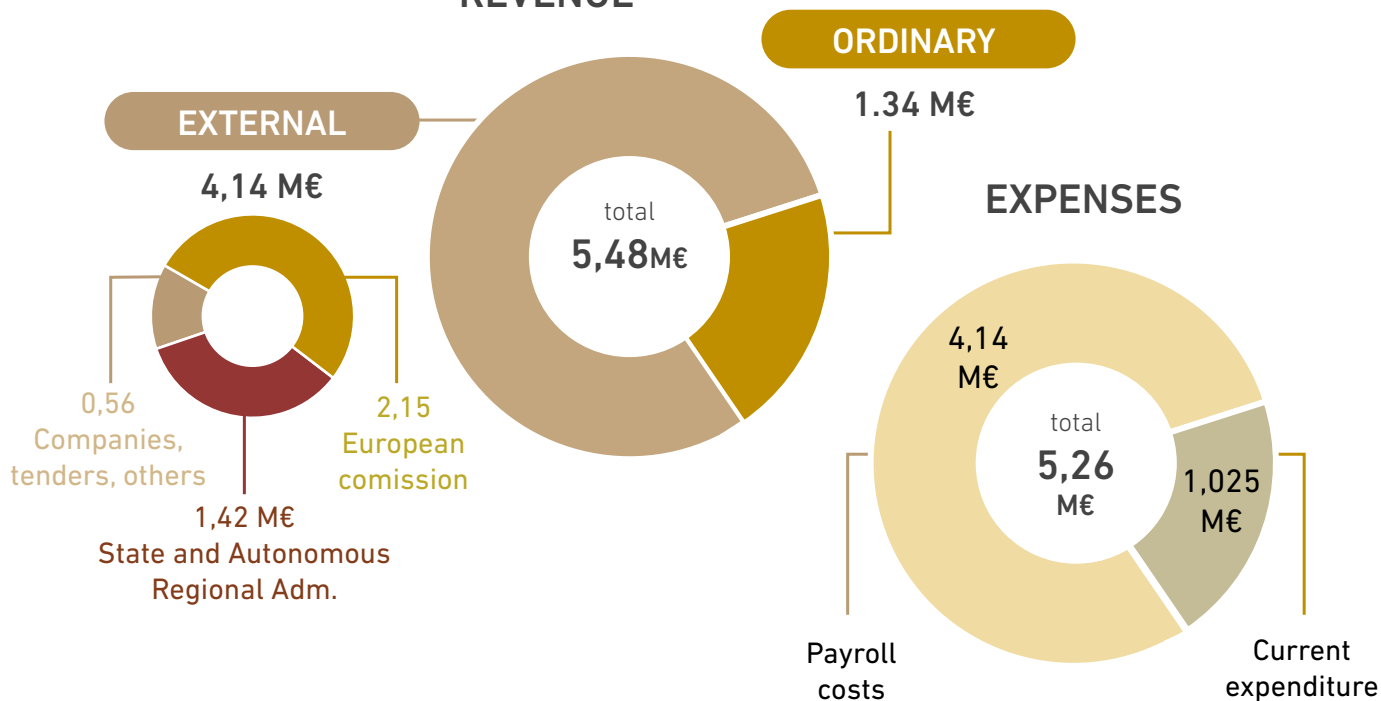
- 1 EUROPE

#### LIFE

- 1 LIFE Nature & Biodiversity
- 1 ERAnet

# FINANCIAL OVERVIEW

## REVENUE



Contributions from the Board of Trustees

**UAB**

Universitat Autònoma de Barcelona

Researchers and facilities  
(560.000 + 150.000)  
710.000

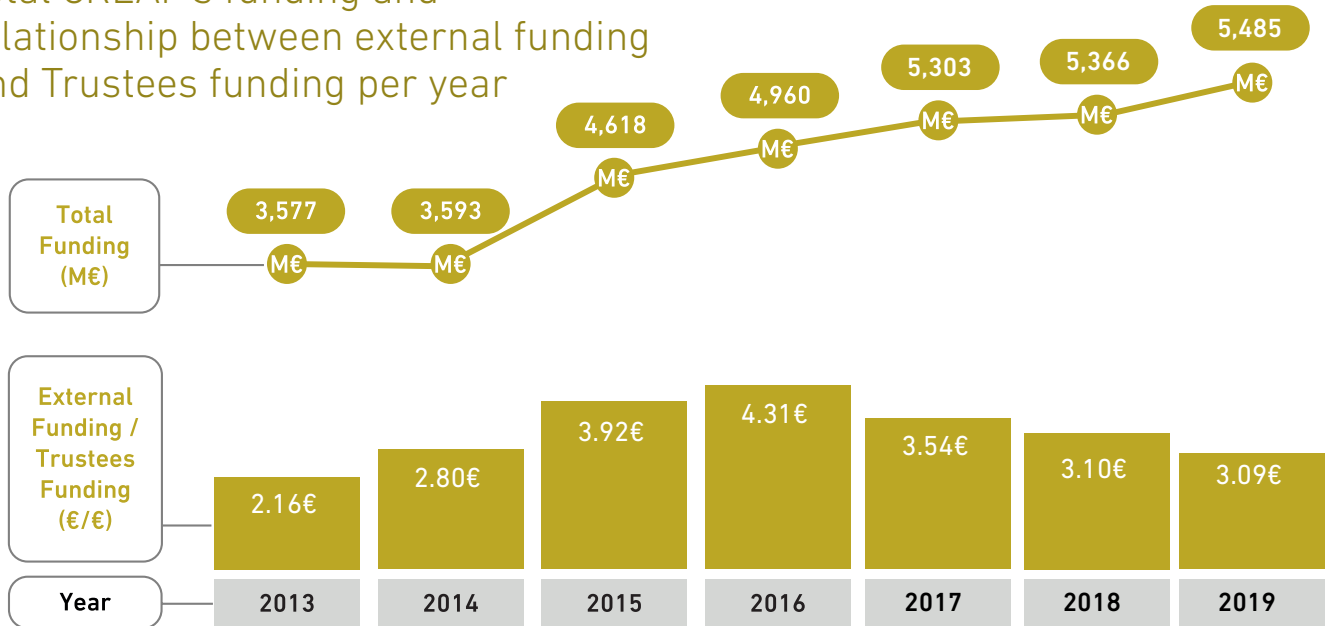
**CSIC**  
CONSEJO SUPERIOR DE INVESTIGACIONES CIENTÍFICAS

Researchers  
420.000

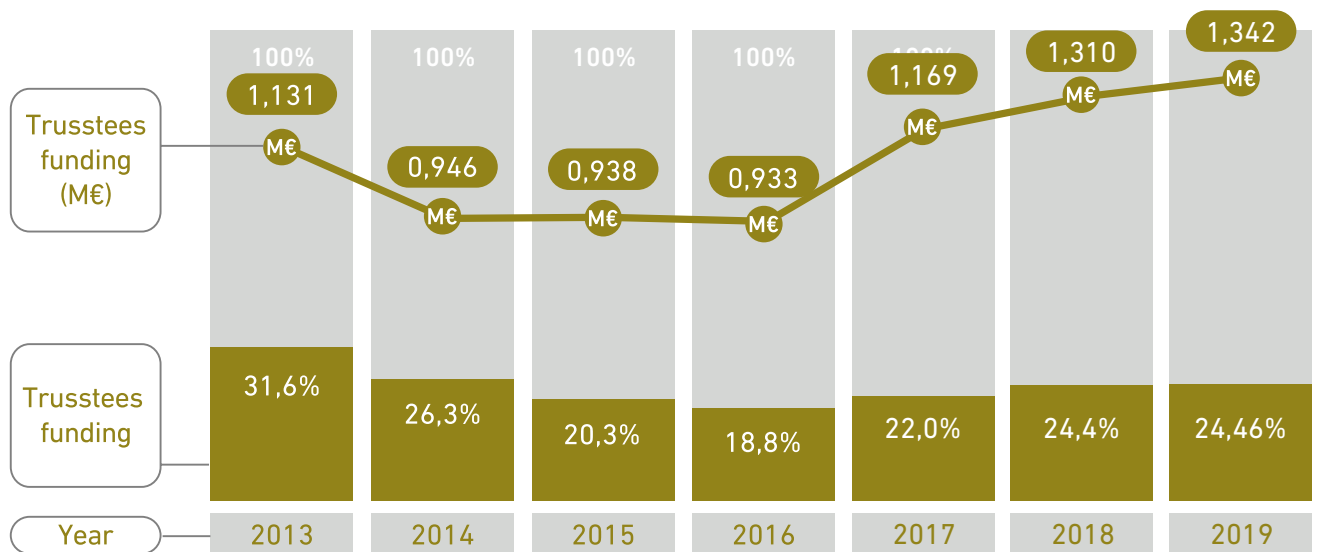
**UNIVERSITAT DE BARCELONA**

Researchers  
140.000

Total CREAM's funding and relationship between external funding and Trustees funding per year



Total contribution of Trustees to CREAM's budget and % of Trustees funding related to the total incomes per year

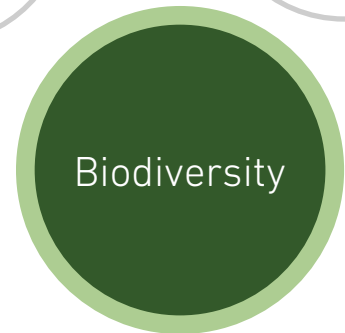


A close-up photograph of a bumblebee on a purple flower. The bee is positioned in the lower center, facing left, with its wings spread. The flower is a vibrant purple with six petals. The background is a soft-focus green, suggesting foliage. In the top right corner, there is a solid green square containing the text "RESEARCH HIGHLIGHTS" in white, uppercase letters.

RESEARCH  
HIGHLIGHTS

## Our research has a global impact.

We have a broad and multidisciplinary research portfolio, integrating fundamental research advances with important contributions in environmental issues of great socioeconomic impact. Our research focuses on four big areas and six cross-cutting topics.





# Biodiversity

The Mediterranean Basin is one of the principal points of biodiversity concentration on the planet. The loss of this biodiversity is one of the greatest environmental challenges which we have been obliged to face in the past few decades. Without biodiversity, it would be impossible to obtain the multitude of ecological goods and services which we need to live.

At CREAM we study the mechanisms which generate and maintain biodiversity in terrestrial ecosystems. We analyze territorial patterns of biodiversity and the factors which threaten it. We work with species and communities of plants and animals, with studies carried out from the molecular to ecosystem scale.

## Research lines

- Behavior, ecology and evolution
- Population and community dynamics
- Evolutionary ecology
- Species distribution and phenology
- Ecological networks and species interactions

# SCIENTIFIC ADVANCES

May, 28th 2019

## Drought is the main factor in falls in Mediterranean bird and butterfly populations

This is reflected in data from bird and butterfly monitoring programmes that have been running in Catalonia for 17 and 25 years respectively. Drought affects bird and butterfly populations differently, with butterfly species from arid areas and bird species from humid areas undergoing the greatest declines.



*Melanargia occitanica* (Adrià Miralles).

July, 24th 2019

## The climate is changing faster than animals can adapt

A study just published in the scientific journal **Nature Communications** presents worrying results on animals' adaptation to climate change. It concludes that while species are changing some aspects of their lives in response to global warming, they are not doing so quickly enough and do not always make the right changes.

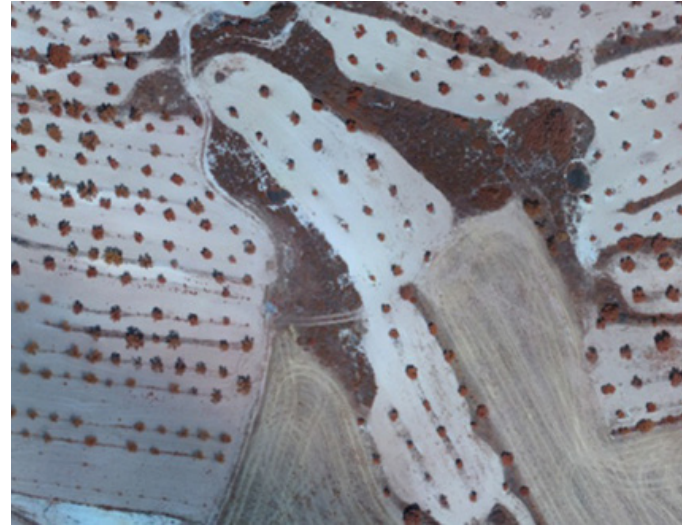


A male citril finch (*Carduelis citrinella*), one of the species included in the study. Photo: Antoni Borràs.

July, 29th 2019

## Farmland with small fields and varied crops is beneficial to biodiversity

Research published in *Proceedings of the National Academy of Sciences* shows that farmland comprising small fields sown with different types of crops is conducive to plant and animal diversity. Promoting such landscapes would help make up for the loss of natural and semi-natural habitats between crops.



Infrared image of a dryland tree and cereal crop mosaic on Lleida's plain. Photo: InForest drone (CTFC-CREAF).

# SCIENCE FOR ENVIRONMENTAL MANAGEMENT

November, 18th 2019

## Only 17% of endangered species protected by EU directives

The journals *Environmental Research Letters* and *Scientific Reports* have recently published two articles in which researchers from the Forest Science and Technology Centre of Catalonia (CTFC) and CREAF call for new policies to be oriented to improving the conservation of endangered species.



*Streptopelia turtur*, the European turtle dove. Credit: Iruka



## HIGHLIGHTED BIODIVERSITY RESEARCH PROJECTS

### LIFE-CALOTRITON ARNOLDI

Improving the conservation status of the Montseny newt (*Calotriton arnoldi*)




---

**Principal investigator:**  
Anna Àvila  
**Budget:** 42.000 €  
**Entity:** Generalitat de Catalunya  
**Period:** 2018-2019

---

### BIORGEST LIFE

Innovative Forest Management Strategies to Enhance Biodiversity in Mediterranean Forests




---

**Principal investigator:**  
Jordi Vayreda  
**Budget:** 1.576.374 €  
**Entity:** Life Program  
**Period:** 2018-2023

---

### UBMS

uBMS proposes to create Citizen Observatory of Urban Butterflies with volunteers who prospect butterflies in big cities




---

**Principal investigator:**  
Yolanda Melero  
**Budget:** 15.000 €  
**Entity:** Fundación Biodiversidad  
**Period:** 2018-2019

---

### TRANSFER

Keys to understanding the transfer of atmospheric fluctuations to the dynamics of lake plankton




---

**Principal investigator:**  
Jordi Catalan  
**Budget:** 166.980 €  
**Entity:** Ministerio de Economía y Competitividad  
**Period:** 2016-2019

---

### LIQUENCITY

LiquenCity find urban lichens and discover the quality of the air in your city




---

**Principal investigator:**  
Bernat Claramunt  
**Budget:** 27.872,75 €  
**Entity:** FECYT  
**Period:** 2018-2019

---

### WILDLIFE IN THE ANDORRAN PYRENEES

Long term survey of high elevation organisms and some of their interactions, to determine whether climate change and/or human pressure will lead to new communities




---

**Principal investigator:**  
Bernat Claramunt  
**Budget:** 314.246 €  
**Entity:** EarthWatch Institute  
**Period:** 2018-2020

---

### EXOCAT

Monitoring program of exotic species in Catalonia




---

**Principal investigator:** Joan Pino  
**Budget:** 40.000 €  
**Entity:** Generalitat de Catalunya  
**Period:** 2010-2020

---

### SISEBIO

Catalonian program for comprehensive biodiversity monitoring




---

**Principal investigator:** Javier Retana  
**Budget:** 90.000 €  
**Entity:** Generalitat de Catalunya  
**Period:** 2016-2020

---

Check **Annexes** to see other research projects in Biodiversity Area

# Global Change

Each organism, every community, and every ecosystem plays an important role in the regulation of cycles of energy and nutrients which keep the planet alive. Some of these roles have been modified due to atmospheric changes, climate change, increases in disturbances and changes in land use.

At CREAM we study the effects of **global change** (which includes all of the aforementioned changes) with an international and multidisciplinary focus. The methods of study require working at **diverse scales** (from the organism to the ecosystem), combining experimentation with modeling, and conducting **long-term** monitoring of different ecosystems.

Research lines:

- Biological invasions
- Land use change and landscape dynamics
- Climate change
- Fires
- Integrative and adaptive management of water and the territory
- Urbanization and biodiversity

# SCIENTIFIC ADVANCES

August, 14th 2019

## The treatment of urban wastewater causes changes in the rivers' flora and fauna

Since the mid 20th century, many industrialized countries have suffered from an excess of phosphorus in their continental waters, which causes an excessive growth of phytoplankton and a green aspect of the water. To deal with this organic contamination, in the last thirty years the urban wastewater management and the use of fertilizers have been improved, with positive results. However, this study published in ***Science*** warns that purifying waters so that they become clearer does not always involve a return to the healthy conditions of the river, but it can also lead to undesirable effects throughout the ecosystem due to a nutrient imbalance.



Ebre river in 2009, once transparency was recovered.  
Credit: Carles Ibáñez / IRTA.

December, 10th 2019

## Iceland: a natural laboratory for the study of climate change's effects on soil

Iceland's grasslands and living organisms react strongly to warming in an initial period of five to eight years, the ecosystem will have returned to a steady state closer to its original state when more than 50 years have elapsed. This is what shows a recent research published in ***Nature Ecology & Evolution***. This finding will help scientists work out how climate change is set to affect the planet's different ecosystems.



Sara Marañón in Iceland. Credit: Sara Marañón.

May, 10th 2019

## CREAF participates in a new COST ACTION to increase understanding of alien species through citizen science

Bernat Claramunt participates in the COST Action AlienCSI to address multidisciplinary research questions to develop and implement citizen science strategies to increase the scientific understanding of Invasive Alien Species (IAS) ecology and dynamics, specifically informing decision-makers to implement technical requirements of relevant legislation.



Alien CSI Logo.

## SCIENCE FOR ENVIRONMENTAL MANAGEMENT

February, 27th 2019

### Which new practices and tools can improve the climate mitigation and adaptation potential of EU forests?

A final report of the EIP-AGRI Focus Group on 'New forest practices and tools for adaptation and mitigation of climate change' was published last January. The report presents some suggestions on good practices and strategies for the future of our forests, as for example: improving forest management at stand level (specially at small scale), implementing early warning and innovative risk management, promoting good practices for forest fire prevention and the payment for ecosystem services, finding and using effective communication methods beyond forest community and bringing together views from science, policy and practice.



Cover of the final report published by EIP-AGRI.

## HIGHLIGHTED GLOBAL CHANGE RESEARCH PROJECTS

### LIFE MIDMACC

Mid-mountain adaptation to climate change



**Principal investigator:**  
Javier Retana  
**Budget:** 2.595.725 €  
**Entity:** Life EU  
**Period:** 2019-2024

### PHUSICOS

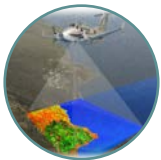
The project aims to test natural-based solutions to counteract the increasing risk of hydrogeological disasters in the EU mountain regions



**Principal investigator:**  
Pilar Andrés  
**Budget:** 158.121,60 €  
**Entity:** EU  
**Period:** 2018-2022

### IMBALANCE-P

Effects of phosphorus limitations on Life, Society and the Earth System



**Principal investigator:**  
Josep Peñuelas  
**Budget:** 13.600.579,00 €  
**Entity:** EU  
**Period:** 2014-2020

### ALIEN SCI

Increasing understanding of alien species through citizen science



**Principal investigator:**  
Bernat Claramunt  
**Entity:** EU  
**Period:** 2018-2022

### FERT-WARM

Investigating how warming, drought, and nutrient limitations and imbalances affect the C sink capacity of Earth terrestrial biosphere



**Principal investigator:**  
Josep Peñuelas  
**Budget:** 321.860,00 €  
**Entity:** Ministerio Economía y Competitividad  
**Period:** 2016-2019

### REGIME-SHIFTS

Quantifying, observationally and experimentally, the responses to extreme drought conditions in model tree, shrub, plant and insect species



**Principal investigator:**  
Jofre Carnicer  
**Budget:** 79.860,00 €  
**Entity:** EU  
**Period:** 2016-2019

### CLEARING HOUSE

Collaborative Learning in Research, Information-sharing and Governance on How Urban forest-based solutions support Sino-European urban futures



**Principal investigator:**  
Joan Pino and Corina Basnou  
**Budget:** 4.986.463 €  
**Entity:** EU  
**Period:** 2019-2023

Check **Annexes** to see other research projects in Global Change Area

## Ecosystem functioning

Each organism, every community, and every ecosystem plays an important role in the regulation of cycles of energy and nutrients which keep the planet alive. Some of these roles have been modified due to atmospheric changes, climate change, increases in disturbances and changes in land use.

At CREAM we study the effects of global change (which includes all of the aforementioned changes) with an international and multidisciplinary focus. The methods of study require working at diverse scales (from the organism to the ecosystem), combining experimentation with modeling, and conducting long-term monitoring of different ecosystems.

Research lines:

- Functional biogeography
- Chemical ecology, ecotoxicology, metagenomics, and metabolomics
- Soil function and restoration
- Atmosphere-biosphere interactions
- Stores and flows of water, carbon, and nutrients

# SCIENTIFIC ADVANCES

October, 9th 2019

## New forests grow faster but are more sensitive to climate change

A study led by CREAM has found good and bad news about new forests growing on abandoned rural lands in Catalonia. The good news: these new forests grow 32% faster than long-established forests. It means that they are able to capture more carbon dioxide (CO<sub>2</sub>) from the atmosphere and, as there is a lot of farmland abandoned in the 20th century, the new forests could thus help mitigate the global overheating. The bad news: the wood density of new trees is 3% lower due to their high growth rate, and it makes these trees more vulnerable to extreme climate events.

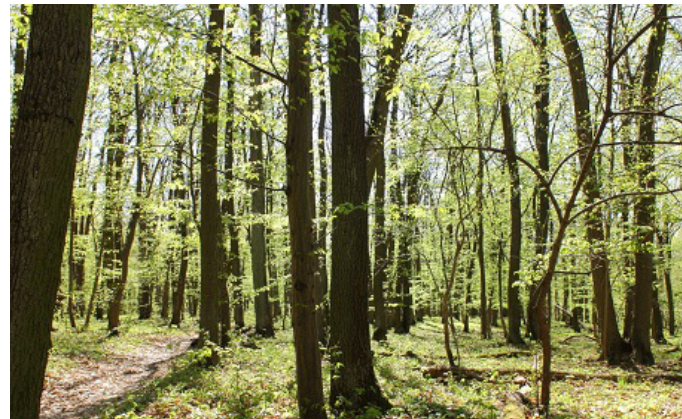


Extraction of a wood core. Credit: CREAM.

November, 27th 2019

## Local climate causes trees around Europe to leaf at different times

An article published in *Nature Communications* shows that local climate has a bearing on whether deciduous trees leaf earlier or later in the year. Climatic factors such as light, temperature and aridity play an important role in determining when the season turns, which explains why trees of the same species come into leaf at different times according to their location in Europe.



Moravian forest, Czech Republic. Credit: Adrià Descals.

June, 26th 2019

## Drought poses a threat to soil biodiversity and nutrient cycling across Europe

A European study led by CREAM and published in *Global Change Biology* warns that the drought associated with climate change could reduce soil fauna diversity and slow the decomposition of leaf litter. This could potentially hinder the recycling of nutrients for plants throughout Europe. The study involved an experiment carried out on 54 plots of natural shrubland in six European countries (UK, Netherlands, Denmark, Hungary, Spain and Italy), covering a wide range of mean annual temperatures and precipitation levels.



*Protaphorura fimata* springtails. Credit: courtesy of Aarhus University.

# SCIENCE FOR ENVIRONMENTAL MANAGEMENT

July, 24th 2019

## CREAF contributes to a European methodology to guide ecosystem restoration

Pilar Andrés is one of the eleven European restoration experts of the EKLIPSE expert working group to improve the effectiveness of existing approaches that aim to restore biodiversity and ecosystem function and services. This request was initially put to EKLIPSE following the second call for requests by BiodivERSA, a network of national and regional funding organizations promoting pan-European research on biodiversity and ecosystem services, and offering innovative opportunities for the conservation and sustainable management of biodiversity.



Pilar Andrés is one of the experts of the EKLIPSE EWG on restoration. Credit: CREAM.



## HIGHLIGHTED ECOSYSTEM FUNCTIONING RESEARCH PROJECTS

### CLISWELN

Climate Services for the Water-Energy-Land-Food Nexus



**Principal investigator:**

Jordi Martínez-Vilalta

**Budget:** 1,004,303.20 €

**Entity:** Joint Programming Initiative JPI Climate

**Period:** 2017-2020

### StoiCa

Resilience of stoichiometry in subarctic soils under temperature-induced Carbon losses: where does the Nitrogen go?



**Principal investigator:**

Sara Marañón

**Budget:** 170,121.60 €

**Entity:** European Commission (Marie Curie Actions)

**Period:** 2017-2019

### GREEN LINK

Restore desertified areas with an innovative tree growing method across the Mediterranean border to increase resilience



**Principal investigator:**

Josep Maria Alcañiz

**Budget:** 2,891,702.00 €

**Entity:** European Commission (Life+)

**Period:** 2016-2020

### INMODES

Integrated modeling and planning of forest biodiversity and ecosystem services in scenarios of global change



**Principal investigator:** Javier Retana

**Budget:** 145.200 €

**Entity:** Ministerio Economía y Competitividad

**Period:** 2018-2020

### NEWFORLAND

New Iberian Forests: ecological role and potential vulnerability under climate change



**Principal investigators:**

Josep Maria Espelta, Joan Pino

**Budget:** 160.930 €

**Entity:** Ministerio Ciencia Innovación y Universidades

**Period:** 2019-2021

### M-TRAIT

Modeling tree response to aridity increase with traits



**Principal investigators:**

Aude Valade, Josep Peñuelas

**Budget:** 158.121 €

**Entity:** Marie Curie Actions UE

**Period:** 2018-2020

### TIPMED

Tipping points en bosques Mediterráneos ante el cambio climático



**Principal investigator:**

Enric Batllori

**Budget:** 78.529 €

**Entity:** Ministerio de Ciencia, Innovación y Universidades

**Period:** 2018-2020

Check **Annexes** to see other research projects in Ecosystem functioning Area



## Earth Observation

Remote sensing and geographic information systems have permitted analysis of the territory at large scales, and which are at the same time increasingly detailed. These analyses become fundamental for making decisions about the sustainable management of natural resources, designing networks of protected areas, and facing the threats of global change.

Thanks to research carried out by CREAM in this area, we have been able to provide to the public a collection of digital maps of land use of various periods of time, design new formats for storing and distributing thematic cartography, and develop computing tools such as the MiraMon GIS, all of which permit the consultation and analysis of a large quantity of information about our natural heritage.

Research lines:

- Geospatial products and international standards
- Long term ecosystem monitoring
- GIS and remote sensing methodologies and applications
- Regional and global environmental information services

# SCIENTIFIC ADVANCES

October, 11th 2019

## Citizen science is a data source to fill sustainable development goals

Monitoring progress on the UN Sustainable Development Goals (SDGs) requires a huge amount of data. Citizen science could help fill important data gaps according to a new study published in ***Nature Sustainability***. The research, led by IIASA, has involved a large community of citizen science experts from around the world, including Joan Masó, a researcher at CREAM.



Citizen science holds major potential to contribute data for monitoring progress on the UN Sustainable Development Goals (SDGs).

May, 1st 2019

## Satellites are overestimating vegetation's ability to absorb atmospheric carbon dioxide

A team of scientists led by CREAM researcher Benjamin Stocker and CREAM-based CSIC researcher Josep Peñuelas has recently found that satellite data on plant activity underestimate the impact of drought on vegetation because they fail to take the direct effects of low soil moisture into account. As the researchers point out in an article published in the journal ***Nature Geoscience***, soil moisture is vital to calculating drought impact but is currently overlooked.



Soil moisture determines how greatly drought affects vegetation and alters its ability to capture CO<sub>2</sub>.

September, 3th 2019

## Are the tropical forests losing their carbon storage capacity?

Recently published in the journal *Nature Plants*, a pioneering international study led by CREAM-based CSIC researcher Josep Peñuelas has used L-band passive microwave observations to measure carbon stocks and fluxes in the planet's tropical forests more reliably than ever before.



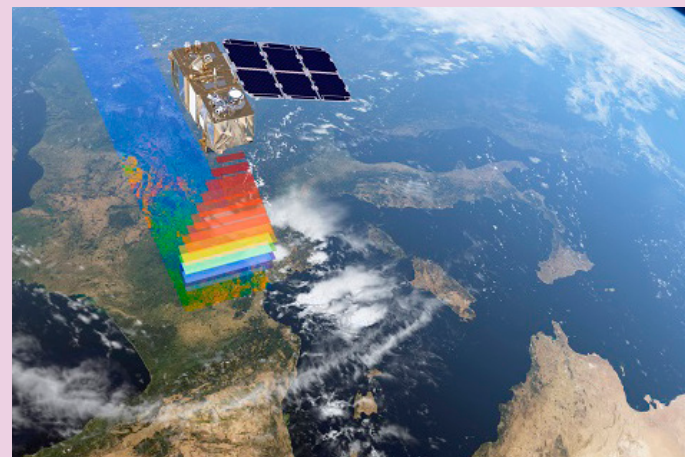
CREAF researcher Guille Peguero during experiments carried out by Josep Peñuelas's team in French Guiana. Photo: Valentine Alt.

## SCIENCE FOR ENVIRONMENTAL MANAGEMENT

March, 29th 2019

### Earth Observation and Essential Variables: useful for evaluating progress towards fulfilment of the Sustainable Development Goals

A CREAM research team comprising Joan Masó, Ivette Serral, Cristina Domingo and Alaitz Zabala has created a graphic that shows the links and gaps between Essential Variables, the Sustainable Development Goal indicators and the data available from Earth observation networks.



Representation of how the satellite Copernicus captures images of Earth. In Earth observation, data are obtained from both satellite images and in-situ measurements. Author: European Space Agency.

## HIGHLIGHTED EARTH OBSERVATION RESEARCH PROJECTS

### WEOSERVE

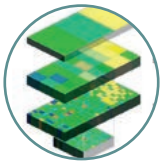
An Ecosystem of Citizen Observatories for Environmental Monitoring



**Principal investigator:** Joan Masó  
**Budget:** 1.069.507,50 €  
**Entity:** European Commission  
**Period:** 2017-2020

### ESACCI

ESA project that aims to study and investigate the role of the spatial resolution of Land Cover and its changes in supporting climate modelling research at regional scale



**Principal investigator:**  
 Alexandre Verger  
**Entity:** European Commission  
**Period:** 2018-2021

### SMURBS. ERA-PLANET

SMart URBan Solutions for air quality, disasters and city growth



**Principal investigator:** Lluís Pesquer  
**Budget:** ERA- Planet  
**Entity:** European Commission (Joint Transnational Call of ERA-PLANET)  
**Period:** 2017-2020

### MIRAMON

The geographic information system and remote sensing software MiraMon



**Principal investigator:** Xavier Pons, UAB  
**Budget:** 63.000,00 €  
**Entity:** Generalitat de Catalunya  
**Period:** 2019

### INDRO

Remote sensing INDicators for DRought monitoring



**Principal investigator:**  
 Manuela Balzarolo  
**Budget:** 170.121,60 €  
**Entity:** European Commission (Marie Curie Actions)  
**Period:** 2017-2019

### GEO-Essential. ERA-PLANET

Variables workflows for resource efficiency and environmental management



**Principal investigator:** Joan Masó  
**Budget:** ERA-Planet  
**Entity:** European Commission  
**Period:** 2017-2020

### ERA-PLANET

It will provide advanced decision support tools and technologies aimed to better monitor our global environment and share the information and knowledge in different domain of Earth Observation



**Principal investigator:** Nicola Pirrone (CNR – Istituto sull’Inquinamento Atmosferico)  
**CREAF:** Joan Masó  
**Budget:** 50.730.791,00 €  
**Entity:** European Commission  
**Period:** 2016-2021

### C-GLOPS1

Providing global biophysical variables and land surface phenology from Earth observation satellites



**Principal investigator:**  
 Alexandre Verger  
**Budget:** 216.000,00 €  
**Entity:** EU  
**Period:** 2015-2019

Check **Annexes** to see other research projects in Earth Observation Area



Forests



Citizen science



Sustainability



Big Data and  
data quality



Ecosystem  
services



Mediterranean  
Basin

# CROSS-CUTTING TOPICS



In this area, CREAM focuses its research on the structure, dynamics and functioning of forests. In particular, we study the decline, regeneration and global functioning of forests by studying nutrient and water cycles and uses. In addition, we develop mathematical models, carry out forest inventories, and create databases.



Mediterranean forest (CSIC/M.F. Via). In general, tree mortality has risen in all the climate zones studied

## Featured news

November, 9th 2019

### Forests are retaining carbon for less and less time

Published in the journal *Proceedings of the National Academy of Sciences*, a study to which the Spanish National Research Council (CSIC) and CREAM have contributed has revealed that the time for which forests retain carbon has fallen by between 0.2% and 0.3% every year in recent decades.

## Highlighted project

### DINFOREST

Ecological evaluation of the results of forestry practices to enhance forest recovery and resilience after extensive wildfires

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**Principal investigator:** Josep Maria Espelta

**Budget:** 44.150,00 €

**Entity:** Diputació de Barcelona

**Period:** 2019

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Despite the youth of this program at CREAM, we have already shown that citizen science can be used to set up early warning systems, environmental management systems, or even the collaborative drafting of climate change adaptation strategies.



*Papilio machaon*. Photo: Eloy Revilla



## Featured news

February, 22th 2019

### The first citizens' observatory for monitoring urban butterflies is up and running

The observatory is the first of its kind in Spain and CREAM is coordinating the team of scientists behind it. They will be working with volunteers to monitor the evolution of butterfly populations in 54 parks and gardens in Barcelona and Madrid.

## Highlighted project



### Big Mosquito Bytes

Community-Driven Big Data Intelligence to Fight Mosquito-Borne Disease.

**Principal investigator:** Frederic Bartumeus

**Budget:** 1.000.000 €

**Entity:** Obra Social La Caixa

**Period:** 2019 - 2023





Given the contemporary challenges of global change, a transition towards a sustainable economic system is more imperative than ever. The production of sufficient primary products must be assured with minimal environmental or social impacts and without altering ecosystem services. In this context, sustainable management of resources such as forests and water is key.



## Featured news

May, 15th 2019

### The key to halting climate change is reducing fossil fuel combustion, not planting trees

Josep Peñuelas, a CSIC researcher based at CREAM, says our priority should be reducing fossil fuel combustion to zero. The authors offer relevant scientific evidence to show that our capacity to emit CO<sub>2</sub> into the atmosphere far outstrips natural ecosystems' potential to sequester it and retain it in carbon sinks.

## Highlighted project



### Mid-mountain adaptation to climate change

The main objective is to promote adaptation through the implementation and testing of different landscape management measures to meet climate change related challenges in marginal mid-mountain areas of Spain, while improving their socioeconomic development.

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**Principal investigator:** Javier Retana

**Budget:** 2.595.725,00 €

**Entity:** Life Program

**Period:** 2019-2024

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Big data offers great opportunities for research but also requires new approaches for managing it efficiently, rigorously and accurately, all depending on the particularities of associated thematic information. On the other hand, the quality of the alphanumeric and spatial information of the available data must be analyzed. It is necessary to verify that access, maintenance and propagation of metadata is adequate and consistent.



Foto: Mosquito Alert app

## Featured news

October, 31th 2019

### New project proposes citizen science and big data as solution against epidemics caused by mosquitoes

The project will combine citizen science and other massive data sources to develop innovative models that allow predicting the risk of epidemics, as well as visualizing this risk in real time.



## Highlighted project

### Copernicus Climate Change Service (C3S)

Providing Terrestrial Essential Climate Variables from satellite data.

**Principal investigator:** Alexandre Verger

**Budget:** 68.025,00 €

**Entity:** EU

**Period:** 2016-2018



Ecosystem services are being moved to the center of national and European policies, and used as indicators of the quality of society's interaction with the environment. The next step is to place ecosystem services in the centre of decision-making and environmental policies. Once this is done we will have the tools to identify what management options can help mitigate the effects of global change, optimize the benefits, and avoid costs and potential risks to ecosystems and societies.



Temperate forest in Quebec. Credit: Judit Lecina.

## Featured news

October, 3rd 2019

### The forests that store the most carbon are also the richest in biodiversity

In Spain, according to a study led by CREAM researcher Judit Lecina Díaz and published in the journal *Ecological Applications*, the forests that store the most carbon are often also those that are home to the greatest variety of species of trees and birds. The relationship identified by the study is of great significance for forest management. The study has given rise to a map of Spanish forests that are both carbon and biodiversity hotspots.

## Highlighted project

### ECOPOTENTIAL

Improving future ecosystem benefits through Earth Observations

**Principal investigator:** Antonello Provenzale (CNR) / CREAM: Joan Masó

**Budget:** 14.874.340,00 €

**Entity:** EU

**Period:** 2014-2019





CREAF has studied these ecosystems due to their ecological value as well as physical proximity to the center. It is for these reasons that many of CREAM's research lines center on this geographic area. The main objectives of this research are to measure the impact of global change on Mediterranean ecosystems by assessing the multiple interactions that occur between climate, living beings, fires, and human activity, also taking into account the region's evolutionary history.



Scrublands of the Garraf Natural Park. Credit: Jorge Franganillo (CC BY 3.0)

## Featured news

October, 23th 2018

### Global change threatens the natural systems, health and safety of people in the Mediterranean.

Josep Peñuelas is one of the authors of the first-ever synthesis of multiple environmental changes and risks affecting the livelihoods of people in the entire Mediterranean region published in ***Nature Climate Change***. The paper reviews the various environmental changes and the risks posed by these changes in the five major interconnected domains, namely water resources, ecosystems, food safety and security, health, and human security.

## Highlighted project



### BIOCLIM

Bioclimatic niche and plant community dynamics in response to climate change

**Principal investigator:** Paco Lloret

**Budget:** 193.600,00 €

**Entity:** Ministerio de Economía y Competitividad

**Period:** 2016-2019

## CONSOLIDATED RESEARCH GROUPS

“CREAF coordinates seven Consolidated Research Groups recognized by the Government of Catalonia. This recognition is intended to support the research groups that work in the different scientific areas, in order to recognize and promote high-quality research, the transfer of knowledge and the internationalization of its scientific activities.”

### BEEMed Biodiversity and evolution of mediterranean ecosystems

Research Group focused on the study of the processes generating and maintaining biodiversity in the Mediterranean region at different spatial and temporal scales, while analyzing the effects of global change on biodiversity. Studies include all levels of variation, from genes to organisms, landscapes and communities.



### Forest dynamics and wildfires

Research Group focused on the study of the structure and functioning of forest ecosystems (forests, scrublands and natural grasslands) and the changes in forest ecosystems by different impacts of global change: fires, deforestation and climate change.



### GECA Environmental Change Ecology Group

Research Group that studies of the interdependence between the biogeodynamics of the biogeosphere (transport, storage and reactivity of materials and energy related to organisms) and the different ways that biodiversity manifests and distributes (genes, biological type, species, communities, biomes).





## Global Ecology Unit

Research Group that studies the global, climatic and anthropogenic local change effects on terrestrial ecosystems.



## Grumets

The aim of the Methods and Applications in Remote Sensing and Geographic Information Systems Research Group, GRUMETS, is the development of new algorithms, theory and methodologies in these fields as well as the integration of the fields of geographic information science, geoservices and interoperability, standardization, metadata, applied work and software development.



## PROTECSOLS Consolidated Research Group on Soil Protection

Research Group focused on the study of soil degradation associated with pollution, mining activities, infrastructures and wildfires.



## Response of terrestrial ecosystems to changing environmental gradients

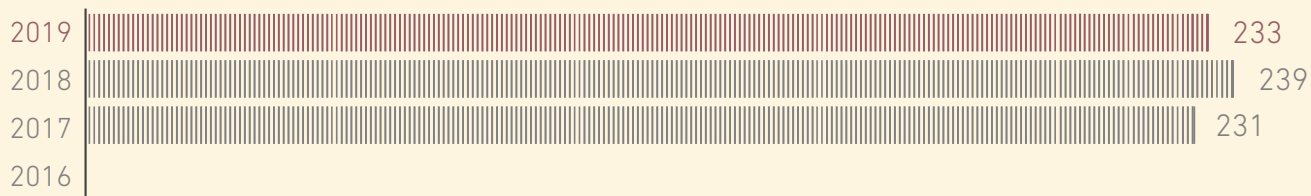
Research Group that includes researches devoted to study terrestrial ecosystems functioning. The group focuses on ecosystem responses to environmental changes that at large extent are determined by human activity and are often related to global change. These studies correspond to several topics and methodological approaches.

# SCIENTIFIC OUTPUT

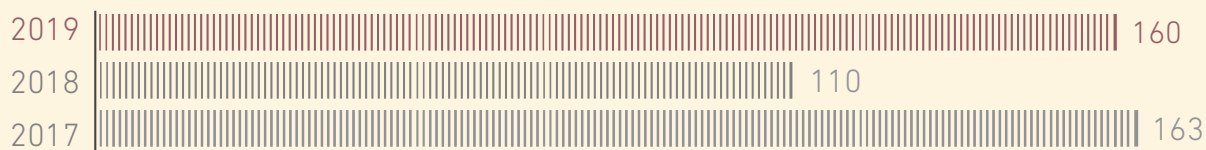


# KEY NUMBERS

## SCI publications



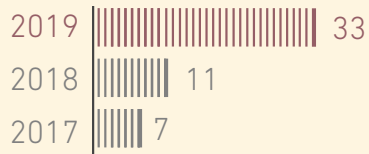
## Contribution in national and international scientific conferences



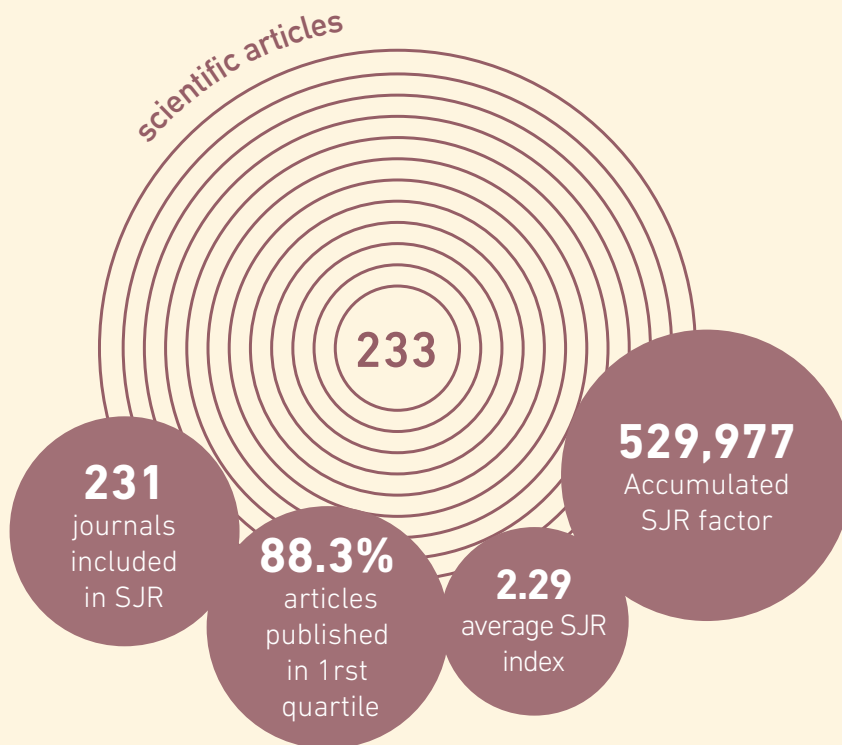
## Books



## Non SCI publications



## Book chapters





## Journals

JOURNAL	Article	Quartile	SJR index
Science	1	1	13,251
Nature Climate Change	2	1	8,612
Trends in Ecology and Evolution	1	1	7,816
Ecology Letters	1	1	7,323
Nature Geoscience	1	1	6,467
Science Advances	2	1	6,267
Nature Communications	5	1	5,992
Proceedings of the National Academy of Sciences of the United States of America	3	1	5,601
Nature Plants	2	1	5,217
Nature Ecology and Evolution	2	1	5,212
Ecological Monographs	1	1	4,699
Trends in plant science	1	1	4,65
Global Change Biology	13	1	4,316
Methods in Ecology and Evolution	2	1	4,028
New Phytologist	7	1	3,788
Molecular Ecology Resources	1	1	3,461
Global Ecology and Biogeography	4	1	3,458
Philosophical Transactions of the Royal Society B: Biological Sciences	1	1	3,387
Remote Sensing of Environment	1	1	3,208
Molecular ecology	1	1	3,057
Ecography	2	1	3,049
Atmospheric Chemistry and Physics	1	1	2,938
Journal of Ecology	2	1	2,764
Journal of Applied Ecology	4	1	2,731
Proceedings of the Royal Society B: Biological Sciences	1	1	2,722

JOURNAL	Article	Quartile	SJR index
Environmental Research Letters	2	1	2,71
Environment International	1	1	2,693
Functional Ecology	2	1	2,693
PLoS Neglected Tropical Diseases	1	1	2,669
Geophysical Research Letters	1	1	2,657
American Naturalist	1	1	2,531
Journal of Advances in Modeling Earth Systems	1	1	2,492
Plant, Cell and Environment	2	1	2,492
Soil Biology and Biochemistry	3	1	2,448
Ecology	2	1	2,409
Evolution; International Journal of Organic Evolution	1	1	2,344
Diversity and Distributions	2	1	2,278
Molecular phylogenetics and evolution	2	1	2,179
Biogeosciences	3	1	2,118
Ecosystems	5	1	2,04
Journal of Biogeography	1	1	2,009
Limnology and Oceanography	2	1	1,961
Journal of Geophysical Research: Biogeosciences	1	1	1,887
Landscape Ecology	1	1	1,821
Ecology and Society	2	1	1,807
Annals of Botany	1	1	1,705
Frontiers in Plant Science	3	1	1,687
Environmental Pollution	1	1	1,673
Freshwater Biology	1	1	1,671
Climatic Change	1	1	1,644
Frontiers in Microbiology	1	1	1,633
Journal of the Royal Society Interface	1	1	1,627

JOURNAL	Article	Quartile	SJR index
International Journal of Applied Earth Observation and Geoinformation	2	1	1,623
Geoderma	1	1	1,618
Agricultural and Forest Meteorology	5	1	1,578
Parasites and Vectors	1	1	1,565
Agriculture and Human Values	1	1	1,544
Agriculture, Ecosystems and Environment	1	1	1,544
Science of the Total Environment	16	1	1,536
Animal Behaviour	1	1	1,493
Current Forestry Reports	1	1	1,487
FEMS microbiology ecology	1	1	1,485
Ecosphere	1	1	1,474
Forest Ecology and Management	6	1	1,43
Remote Sensing	5	1	1,43
Atmospheric Environment	2	1	1,418
Scientific Reports	9	1	1,414
Journal of Vegetation Science	5	1	1,411
Land Use Policy	2	1	1,406
Tree physiology	4	1	1,396
Ecological Indicators	2	1	1,352
Catena	1	1	1,328
Palaeogeography, Palaeoclimatology, Palaeoecology	1	1	1,322
International Journal of Molecular Sciences	1	2	1,312
Global Ecology and Conservation	1	1	1,264
Ecology and Evolution	1	1	1,256

JOURNAL	Article	Quartile	SJR index
Biodiversity and Conservation	1	1	1,236
Environmental and experimental botany	1	1	1,235
Regional Environmental Change	2	2	1,22
Journal of environmental management	1	1	1,206
Ecotoxicology and Environmental Safety	1	1	1,174
Organisms Diversity and Evolution	2	1	1,156
PLoS ONE	6	1	1,1
Vegetation History and Archaeobotany	1	1	1,063
Ecohydrology	1	1	1,05
Ecological Modelling	1	2	1,04
Insect Conservation and Diversity	1	1	1,01
Organic Geochemistry	1	2	0,976
European Journal of Forest Research	1	1	0,965
Rangeland Ecology and Management	1	1	0,919
Annals of Forest Science	2	1	0,913
Forest Ecosystems	1	1	0,834
Dendrochronologia	1	1	0,761
Environmental Geochemistry and Health	1	1	0,759
Transactions in GIS	1	1	0,739
Ecological Complexity	1	2	0,708
Trees - Structure and Function	2	1	0,702
Acta Oecologica	2	2	0,682
Insectes Sociaux	1	2	0,679
Environmental Entomology	1	2	0,661
Mammal Research	1	1	0,644

JOURNAL	Article	Quartile	SJR index
Experimental Agriculture	1	2	0,624
Environmental monitoring and assessment	1	2	0,623
Agricultural and Forest Entomology	1	1	0,612
Journal of Tropical Ecology	1	2	0,556
Flora: Morphology, Distribution, Functional Ecology of Plants	1	2	0,551
Sustainability (Switzerland)	2	2	0,549
Bird Study	1	2	0,547
Clean - Soil, Air, Water	1	2	0,482
Journal of Bryology	2	3	0,476
Journal of Applied Remote Sensing	1	2	0,455
Polar Record	1	3	0,365
International Journal of Tropical Insect Science	1	3	0,299
Animal Biodiversity and Conservation	1	3	0,288
World Futures	1	2	0,235
Arxius de Miscellania Zoologica	1	4	0,179
Ecosistemas	1	4	0,162
Genome Announcements	1	3	0,553
Journal of virological methods	1	3	0,858
Phytocoenologia	2	3	0,395
Sensors	1	3	0,584
Sociobiology	2	3	0,396
Ecosistemas	3	4	0,158
Fragmenta Entomologica	1	4	0,165
Nature Ecology and Evolution	6	4	0,123
Tropicultura	1	4	0,1

## Scientific articles

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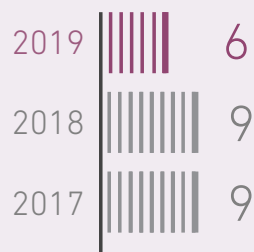
# TRAINING





## KEY NUMBERS

### PhD theses



## PHD IN TERRESTRIAL ECOLOGY

CREAF coordinates the PhD in Terrestrial Ecology which consists in writing, presenting and defending an original piece of research which, in this case, is framed within the ambit of the terrestrial ecology.

This PhD programme is aimed at students interested in understanding the processes involved in global environmental change and the loss of biodiversity, as well as possible actions to mitigate the damaging effects of environmental changes and the conservation of natural resources.

The PhD programme consists of 35 lecturers and associated researchers working on the following lines of research: Biodiversity, Functional ecology and global change; Forest ecology and fires; Soil protection and conservation; Remote sensing and GIS.

**Coordinator:** Anna Àvila

**Lecturers:** Josep Maria Alcañiz Balldellou, Pilar Andrés Pastor, Xavier Arnan, Anna Àvila Castells, Jordi Bosch Gras, Jofre Carnicer Cols, Jordi Catalan Aguilà, Bernat Claramunt López, Enriquer Doblas Miranda, Xavier Domene Casadesús, Xavier Espadaler Gelabert, Josep Maria Espelta Morral, Iolanda Filella Cubells, Marc Estiarte Garrofé, Marc Gràcia Moya, Francisco Lloret Maya, Joan Llusà Benet, Arnald Marcer Batlle, Jordi Marínez Vilalta, Maria Mayol Martínez, Maurizio Mencuccini, Romà Ogaya Inurrigarro, Oriol Ortiz Perpinyà, Josep Peñuelas Reixach, Joan Pino Vilalta, Josep Piñol Pascual, Eduard Pla Ferrer, Rafael Poyatos López, Javier Retana Alumbrosos, Miquel Riba Rovira, Angela Ribas Artola, Ferran Rodà de Llanza, Anselm Rodrigo Domínguez, Jordi Sardans Galobart, Sandra Saura Mas, Robert Savé Montserrat, Daniel Sol Rueda, David Tarrasón.

## PHD IN TERRESTRIAL ECOLOGY THESES

**CARLES CAYUELA LINARES** (20/3/2019)

*Ecoidrologia de conques mediterrànies de capçalera. El paper del bosc en la redistribució i modificació isotòpica dels fluxos d'aigua.*

Directors: Jerome Latron i Pilar Llorens. Tutora: Anna Avila.

**IFIGENIA URBINA BARRETO** (22/7/2019)

*Factors abiòtic i biòtics determinats de la estequiometria dels nutrients en diferents ecosistemes terrestres.*

Directors: Josep Peñuelas, Jordi Sardans i Oriol Grau.  
Tutor: Josep Peñuelas.

**MIGUEL ANGEL COLLADO ALIAÑO** (25/10/2019)

*La plasticitat del comportament de les abelles en un context de canvi global.*

Directors: Daniel Sol i Ignasi Bartomeus. Tutor: Daniel Sol.

**TERESA ALFARO REINA** (28/1/2109)

*Dinàmiques recents de fagaceae i pinaceae en boscos temperats a mèxic i arreu del món.*

Directors: Jordi Martínez Vilalta i Javier Retana. Tutor: Jordi Martínez Vilalta.

**TERESA ROSAS TORRENT** (24/4/2019)

*Integrant els atributs hidràulics en el marc dels trets funcionals per comprendre els ajustos de les plantes al llarg d'un gradient de disponibilitat d'aigua.*

Directors: Jordi Martínez Vilalta, Maurizio Mencuccini i Sandra Saura. Tutor: Jordi Martínez Vilalta.

## OTHER PHD THESES

**CARLOS PALACÍN-LIZARBE** (30/7/2019).

*Denitrification in mountain lakes.* Universitat de Barcelona. Director: Jordi Catalan.

## OFFICIAL MASTER IN TERRESTRIAL ECOLOGY AND BIODIVERSITY MANAGEMENT

This master's degree in Terrestrial Ecology and Biodiversity Management is addressed to students interested in the processes involved in the functioning of terrestrial ecosystems and the options for mitigating their future deterioration in a context of global environmental change, and also to students interested in the management and conservation of biological natural resources (flora and fauna). The master's degree takes up one academic year and is divided into 2 specialisations: Terrestrial Ecology and Management and Diversity of Fauna and Flora (marine and terrestrial). Master in Terrestrial Ecology and Biodiversity.

**Coordinator:** Francisco Lloret.

**Directors:** Francisco Lloret, Anna Morton.

**Lecturers:** Josep Maria Alcañiz, Pilar Andrés, Anna Àvila, Carme Biel, Jordi Bosch, Lluís Brotons, Juan Antonio Calleja, Eva Castells, Maite Carrasón, Jordi Catalan, Bernat Claramunt, Lluís Coll, Maria Constenla, Xavier Domene, Josep Maria Espelta, Marc Estiarte, Iolanda Filella, Mercè Galvany, Fernando García, Carles Gracia, Marc Gràcia, Iñigo Granzow, Laia Guàrdia, Santiago Lavin, Concepción de Linares, Francisco Lloret, Joan Llusà, Manel López Bejar, Javier López, Jordi López Olvera, Ignasi Marco, Jordi Martínez-Vilalta, Joan Masó, Maria Mayol, Maurizio Mencuccini, Ana Morton, Francesc Muñoz, Miquel Ninyerola, Romà Ogaya, Josep Peñuelas, Ramon Pérez, Joan Pino, Josep Piñol, Eduard Pla, Rafael Poyatos, Javier Retana, Miquel Riba, Àngela Ribas, Anselm Rodrigo, Santiago Sabaté, Llorenç Sáez, Sergi Santamaria, Jordi Sardans, Sandra Saura, Robert Savé, Emmanuel Serrano, Daniel Sol, Anna Soler, Constantí Stefanescu, Jaume Terradas, Emilio Valbuena, Jordi Vayreda.

## OFFICIAL MASTER IN REMOTE SENSING AND GIS

The aim of this Master is to provide sound scientific training in techniques for observing the Earth and for generating and analyzing information in order to be able to study a given territory and manage its resources using GIS. The program is divided into 7 modules: 4 modules of mandatory subjects and 2 modules of elective advanced subjects. In addition, the Master course is complemented by practical sessions with a tutor and a Final Project as the last mandatory module of the program.

**Coordinator:** Xavier Pons.

**Coordinator assistant:** Cristina Cea

**Lecturers:** Joan Bech, Antoni Broquetas, José Ángel Burriel, Jaume Calvet, Adriano Camps, Cristina Cea, Bernat Codina, Carles Dalmasas, Ricardo Díaz-Delgado, Josep A. Gili, Sergi Gumà, Jordi Isern, Agustín Lobo, Arnald Marcer, Joan Masó, Eduardo de Miguel, Maria Mira, Gerard Moré, Òscar Mora, Javier Muñoz, Miquel Ninyerola, Fernando Pérez, Lluís Pesquer, Joan Pino, Xavier Pons, Càrol Puig, Pere Serra, Jordi Vayreda, Alaitz Zabala.

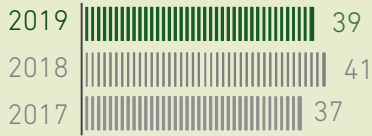
**Check Annexes to see all Training activity of CREAM**

A woman with dark hair tied back, wearing a yellow long-sleeved hoodie, red shorts, and a black backpack, is crouching in a dense forest of large, vibrant green ferns. She is looking intently at a dark, curled fern frond. The background is filled with more ferns, creating a lush, green environment. A dark green rectangular box is overlaid on the top left of the image, containing the text "COMMUNICATION AND OUTREACH" in white, uppercase letters.

COMMUNICATION  
AND OUTREACH

# KEY NUMBERS

## Press releases



Press releases

39

Impacts in mass media

133

5000  
subscribers  
to our monthly  
newsletter

2500 followers in LinkedIn

3100 likes in Facebook

1600 Instagram

Blog sessions 112.774

followers on Twitter

Total  
2019 | 11000 followers

Total  
2018 | 9817 followers

Total  
2017 | 8260 followers

## Blog sessions



+ 89.650  
unic visitors  
of our blog  
in 2019

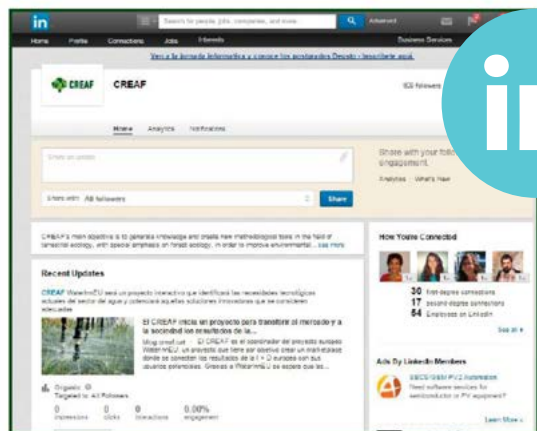
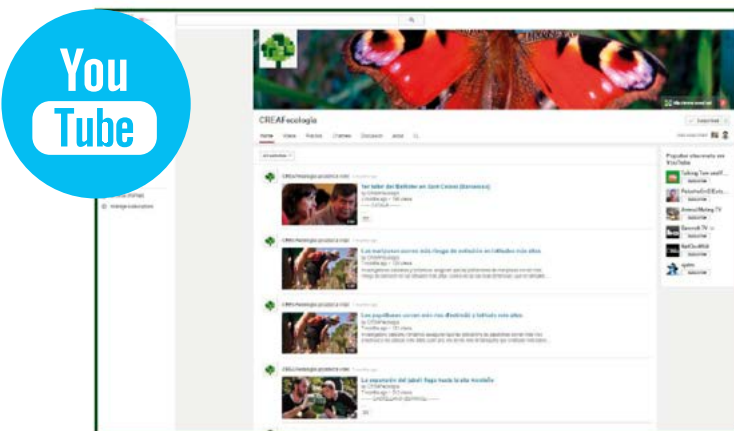
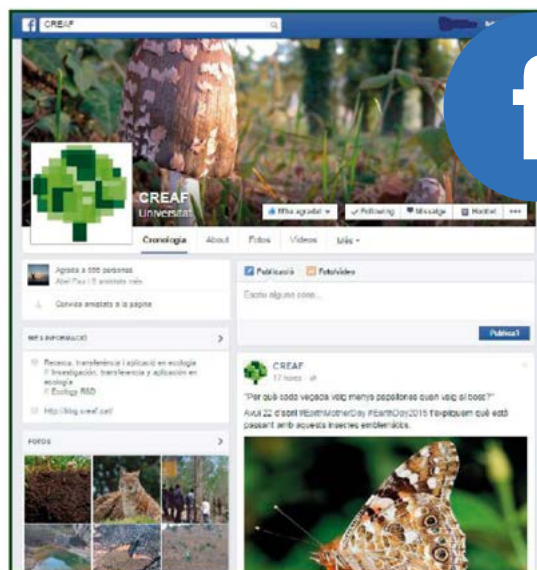
## JOIN OUR GROWING COMMUNITY

### EXPLORE

Our free and online resources provide objective, fact-based analysis of the latest environment and development data and information. CREAM's blog is a great introduction to our work and covers all our topics. Check it out at [www.creaf.cat](http://www.creaf.cat)

### Connect

Our social media sites let you join the conversation about important issues and share ideas and information with your network.



## KEY NUMBERS


Outreach conferences organized by CREAM



6

408 participants

Participation as organizer in other outreach conferences



6

Participation as invited speaker in outreach conferences



38

81 Outreach articles

## OUTREACH CONFERENCES OR TECHNICAL SEMINARS

### Organized by CREAM

#### **Jornada Anual CREAM-SCB-ICHN “La crisis dels pol·linitzadors”**

Venue: Institut d'Estudis Catalans

Date: 21st November

Numbers of attendees: 150

CREAF members involved in organizing: Bosch, J., Rodrigo, A., Ramon, A.

#### **Global Change and Mediterranean forests. Escolab.**

Venue: Can Balasc

Date March 13th and 14th

Numbers of attendees: 60

CREAF members involved in organizing: Pla E., Banqué M., Sanchez A., Claramunt B., Blanquer L., Ribas A., Vallicrosa H., Fagin E.

#### **CREAF-Peramàs School session. MAGNET**

Venue: Peramàs School, Mataró

Date: October 21st

Numbers of attendees: 60

CREAF members involved in organizing: Banqué M., Sanchez A., Blanquer L., Fagin E., Guzmán P., Ordoñez JL., Ramon A., Marañón S., Vidal A., Molowny R

#### **Jornada sobre fenologia: Segueix el ritme de la natura a casa, a l'escola o a la feina**

Venue: Institut d'Estudis Catalans, Barcelona

Date: September 30th

Numbers of attendees: 96

CREAF members involved in organizing: Masó J., Prat E., Guzmán P.

#### **Citizen Science Interoperability Experiment (OGC-WeObserve)**

Venue: Austria Center Vienna (ACV)

Date: April 11th

Number of attendees: 15

CREAF members involved in organizing: Masó J., Prat E.

### **WeObserve Communities of Practice Forum**

Venue: Casa de Convalescència (Barcelona)

Date: November 25-27th

Number of attendees: 27

CREAF members involved in organizing: Masó J., Prat E.

### **Presentació informe IPBES. Ens estem quedant sols?**

Venue: IEC

Date: June 21, 2020

Number of attendees: 150

CREAF members involved in organizing: Ramon A., Brotons L.

### **Catalunya i les polítiques europees de conservació de la biodiversitat**

Venue: Palau Robert

Date: 17th December, 2019

Number of attendees: 110

CREAF members involved in organizing: Ramon A., Brotons L.

### **Presentació del Portal de Boscos i Canvi Climàtic de Catalunya - Dia Internacional dels Boscos**

Venue: DTES

Date: 21th March, 2019

Number of attendees: 100

CREAF members involved in organizing: Ramon A., Vayreda J.

### **Presentació del VulneMap, el Mapa de la Vulnerabilitat dels Boscos de Catalunya**

Venue: Casa de la Cultura

Date: 6th March, 2019

Number of attendees: 60

CREAF members involved in organizing: Ramon A., Banqueé M. Vayreda J.



## OUTREACH NEWS

### UAB AND CREAM LAUNCH A MOOC ON WOMEN IN ENVIRONMENTAL BIOLOGY

The main theme of the course, which is 100% open and accessible, is to teach key concepts in environmental biology from a gender perspective. The training is available on the website Coursera specialized in MOOC (Massive Open Online Course). The gender perspective "has a fundamental role in how we understand the world and how science advances", in the words of Dr. Sandra Saura Mas, coordinator of the course.



### CREAF AND THE PERAMÀS SCHOOL IN MATARÓ START A RELATIONSHIP FULL OF MAGNETISM

Since 2019 CREAM and the Peramàs School in Mataró have been in a magnet alliance thanks to the Bofill Foundation, the Department of Education, the Barcelona Provincial Council and the UAB's ICE, with the support of town councils such as Mataró. The partnership should allow the school to develop an innovative, attractive and quality educational project, which has magnetism and becomes a reference in its territory, both for families and for the educational community.



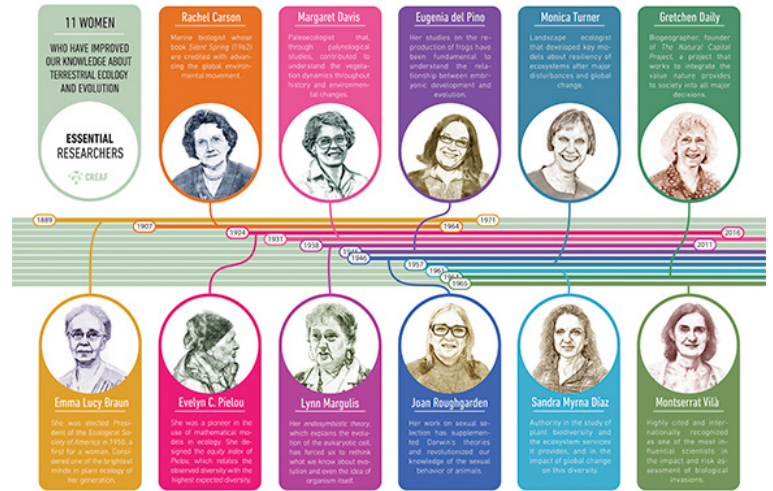
### TO TAKE CARE OF THE FOREST YOU HAVE TO CUT DOWN TREES.

CREAF and Barcelona Provincial Council are presenting an animated video aimed at schoolchildren to explain how forest management improves forest growth and reduces the impact of fires.



## 11 WOMEN WHO HAVE IMPROVED OUR KNOWLEDGE ABOUT TERRESTRIAL ECOLOGY AND EVOLUTION

Science history often doesn't visibilize all people equally. Some of them people who have inspired big changes, in this case in ecology and evolution. Many of them are women, and that is why we want to take advantage of the International Day of Women and Girls in Science to make them known.



## CREAF COLLABORATES WITH TV3 IN A NEW SECTION ON THE CLIMATE CRISIS

This 2019, the programme *Els Matins* on TV3 is premiering a new section on the climate crisis. Lidia Heredia, director of the program, wants to open this space to the most current knowledge on the subject, inviting experts from all areas that impact this global challenge. The section is coordinated and presented by Anna Ramon, CREAM's head of communications who will be there as a biologist and scientific communicator.



**Check Annexes to see more CREAM outreach activity**



# ANNEXES

## PUBLICATIONS

### No SCI publications

**ALONSO, M., S. NERGUI, A. GARCIA-MURCIA, AND S. PLARABES.** (2019) Contribution to the Lake Algal Flora and Microcrustacean Fauna of the Great Lakes Depression, Mongolia. *Mongolian Journal of Biological Sciences* 17:41-56.

**AVILA A.** (2019). La contaminació atmosfèrica al Montseny: el cas de la deposició de sofre. *Monografies del Montseny* 34: 1-8.

**BROTONS, L., & DUANE, A.** (2019). Correspondence: Uncertainty in climate-vegetation feedbacks on fire regimes challenges reliable long-term projections of burnt area from correlative models. *Fire*, 2(1), 8.

**CARABASSA, V., ACHOTEGUI-CASTELLS, A., DOMENE, X., ALCAÑIZ, J.M.** (2019) The Cocoon system: ecotechnology for ecological restoration and rainfed agriculture in the mediterranean basin. *Proceedings 2019*, 30, 33; doi:10.3390/proceedings2019030033

**CARABASSA, V., MONTERO, P., CRESPO, M., PADRÓ, J.C., BALAGUÉ, J., BROTONS, L., ALCAÑIZ J.M., PONS, X.** (2019) UAS remote sensing products for supporting extraction management and restoration monitoring in open-pit mines. *Proceedings 2019*, 30, 4; <https://doi.org/10.3390/proceedings2019030004>

**CARABASSA, V.; MONTERO, P.; CRESPO, M.; PADRÓ, J.C.; BALAGUÉ, J.; ALCAÑIZ, J.M.; BROTONS, L.; PONS, X.** UAS Remote Sensing Products for Supporting Extraction Management and Restoration Monitoring in Open-Pit Mines. *Proceedings 2019*, 30, 4.

**CLOSA, G., MASO, J., PESQUER, L., PONS, X. AUDITING REMOTE SENSING DATA USING GEOSPATIAL PROVENANCE** (2019) International Geoscience and Remote Sensing Symposium (IGARSS), art. no. 8898350, pp. 4253-4256 <https://doi.org/10.1109/IGARSS.2019.8898350>

**ESPELTA JM, ALFARO-SÁNCHEZ R, PINO J.** (2019) Do recent forests grow like long-established ones? A comparison of beech forests

established in Catalonia before and after 1950. *Catalunya Forestal* 142: 16-18.

**ESPELTA JM.** (2019) Woody debris decomposition and ecological effects in Aleppo pine thickets. *Catalunya Forestal*.140:5-8.

**FRITZ S., MASÓ J. ET AL.** (2019) Citizen science and the United Nations Sustainable Development Goals. *Nature Sustainability* 2: 922-930. DOI: 10.1038/s41893-019-0390-3. <https://doi.org/10.1038/s41893-019-0390-3>.

**GIULIANI G., MASÓ J., MAZZETTI P, NATIVI S., ZABALA A.** (2019) Paving the Way to Increased Interoperability of Earth Observations Data Cubes. *Data* 4(3):113. DOI:10.3390/data4030113. <https://doi.org/10.3390/data4030113>.

**HERNANDEZ A, SÁNCHEZ-LÓPEZ G, PLA-RABES S, COMAS-BRU L, PARNELL A4, CAHILL N, GEYER A, TRIGO R M, GIRALT 1.** Evaluating the decadal-to-centennial evolution of a new proxy-based NAO reconstruction during the Common Era. *EarthArXiv*. 2019

**LARRINAGA, A. R., & BROTONS, L.** (2019). Greenness Indices from a Low-Cost UAV Imagery as Tools for Monitoring Post-Fire Forest Recovery. *Drones*, 3(1), 6.

**MOREIRA, F., ALLSOPP, N., ESLER, K. J., WARDELL-JOHNSON, G., ANCILLOTTO, L., ARIANOUTSOU, M., CLARY, J., BROTONS, L ... & BEJA, P.** (2019). Priority questions for biodiversity conservation in the Mediterranean biome: Heterogeneous perspectives across continents and stakeholders. *Conservation Science and Practice*, 1(11), e118

**OTERO N., LLOVET A., CARREY R., RIBAS A., DOMENE X., MATTANA S., CHIN-PAMPILLO L.,**

- ALCAÑIZ J.M., SOLER A.** (2019), Chemical and isotopic characterization of nitrate retained and leached from soil after manure fertilization: Lysimeter experiments. E3S Web Conf. 98 (2019) 12016- 12021.
- OTSU, K., PLA, M., DUANE, A., CARDIL, A., & BROTONS, L.** (2019), Estimating the Threshold of Detection on Tree Crown Defoliation Using Vegetation Indices from UAS Multispectral Imagery. Drones, 3(4), 80.
- PEÑUELAS J.** (2019) Mestre de l'ecologia catalana, pare de l'ecologia global: afecte i fascinació pel professor Ramon Margalef. L'Atzavara 29: 93-96 (2019). doi: ISSN 0212-8993 eISSN 2339-9791
- PEÑUELAS, J.** (2019) La Vida i les lleis de la vida: aprenent a interpretar el canvi global i els límits per a la sostenibilitat. ISBN 9788499654386. Institut d'Estudis Catalans. Secció de Ciències Biològiques II. 58pp.
- PEÑUELAS, J., CASANOVAS, R.** (2019) QMEC: una eina quantitativa d'alt rendiment per a l'avaluació del potencial funcional microbià als cicles biogeoquímics del C, N, P i S. UABdivulga 12/04/2019
- PESQUER, L., DOMINGO-MARIMON, C., CRISTÓBAL, J., OTTLÉ, C., PEYLIN, P., BOVOLO, F., BRUZZONE, L.** Comparison of ecosystem functional type patterns at different spatial resolutions in relation with FLUXNET data (2019) Proceedings of SPIE - The International Society for Optical Engineering, 11149, art. no. 1114908, <https://doi.org/10.1117/12.2533049>
- PLA, M., BOTA, G., DUANE, A., BALAGUÉ, J., CURCÓ, A., GUTIÉRREZ, R., & BROTONS, L.** (2019), Calibrating Sentinel-2 Imagery with Multispectral UAV Derived Information to Quantify Damages in Mediterranean Rice Crops Caused by Western Swamphen (*Porphyrio porphyrio*). Drones, 3(2), 45.
- REGOS, A., IMBEAU, L., DESROCHERS, M., LEDUC, A., ROBERT, M., JOBIN, B., BROTONS, L. & DRAPEAU, P.** (2019). A Backward-looking perspective of land-use change impacts on bird communities in southern Quebec. Bulletin of the Ecological Society of America, 100(1), 1-3.
- RODRÍGUEZ-RODRÍGUEZ, D., ABDUL-MALAK, D., SCHRÖDER, C., MCGLADE, K., PASCUAL, D.** (2019) Bridging the research-management gap in environmental conservation: A case study from Andalusia, southern Spain. Journal of Earth Sciences & Environmental Studies (ISSN: 2472-6397). DOI: 10.25177/JESES.4.2.RA.489
- SAINZ DE LA MAZA, P., BACH, Q., PONT, S., BOTA G., BROTONS, L., HERRANDO, S. (COORD.)** (2019). L'ESTAT DE LA NATURA A CATALUNYA. Informes d'aplicació de la Directiva Ocells (art. 12) i la Directiva Hàbitats (art. 17) a Catalunya pel període 2013-2018. [http://mediambient.gencat.cat/ca/05\\_ambits\\_dactuacio/patrimoni\\_natural/senp\\_catalunya/el\\_sistema\\_xarxa\\_natura\\_2000/informes-aplicacio-2013-18-habitats-ocells/resultats-informes-directives/](http://mediambient.gencat.cat/ca/05_ambits_dactuacio/patrimoni_natural/senp_catalunya/el_sistema_xarxa_natura_2000/informes-aplicacio-2013-18-habitats-ocells/resultats-informes-directives/)
- SECO, I., V. RULL, E. MONTOYA, N. CAÑELLAS-BOLTÀ, S. GIRALT, O. MARGALEF, S. PLA-RABES, W. J. D'ANDREA, R. S. BRADLEY, AND A. SÁEZ.** (2019) A Continuous Palynological Record of Forest Clearing at Rano Kao (Easter Island, SE Pacific) During the Last Millennium: Preliminary Report. Quaternary 2.
- SMETS, B., VERGER, A., SÁNCHEZ-ZAPERO, J., VAN DER GOTEN, R.** (2019) Product user manual: leaf area index climatology (LAI), Fraction of absorbed PAR Climatology (FAPAR) and fraction of vegetation cover (FCOVER) Collection 1km, Version 2.1 Issue 2.10. pp. 1-76. Report for Framework Service Contract N° 199494 (JRC), Copernicus Global Land Operations "Vegetation and Energy", CGLOPS-1
- SMETS, B., VERGER, A., VAN DER GOTEN, R., SÁNCHEZ-ZAPERO, J.** (2019) Product user manual: leaf area

index climatology (LAI-Clim), Fraction of absorbed PAR Climatology (FAPAR-Clim) and fraction of vegetation cover (FCOVER-Clim) Collection 1km, Version 1. Issue 1.00. pp. 1-35. Report for Framework Service Contract N° 199494 (JRC), Copernicus Global Land Operations "Vegetation and Energy", CGLOPS-1

**SMETS, B., VERGER, A., VAN DER GOTEN, R., SÁNCHEZ-ZAPERO, J.** (2019) Product user manual: leaf area index climatology (LAI-Clim), Fraction of absorbed PAR Climatology (FAPAR-Clim) and fraction of vegetation cover (FCOVER-Clim) Collection 1km, Version 2. Issue 1.00. pp. 1-30. Report for Framework Service Contract N° 199494 (JRC), Copernicus Global Land Operations "Vegetation and Energy", CGLOPS-1

**STOY P.C., EL-MADANY T.S., FISHER J.B., GENTINE P., GERKEN T., GOOD S.P., KLOSTERHALFEN A., LIU S., MIRALLES D.G., PEREZ-PRIEGO O., RIGDEN A.J., SKAGGS T.H., WOHLFAHRT G., ANDERSON R.G., COENDERS-GERRITS A.M.J., JUNG M., MAES W.H., MAMMARELLA I., MAUDER M., MIGLIAVACCA M., NELSON J.A., POYATOS R., REICHSTEIN M., SCOTT R.L. & WOLF, S.** (2019). Reviews and syntheses: Turning the challenges of partitioning ecosystem evaporation and transpiration into opportunities. *Biogeosciences Discussions*, <https://doi.org/10.5194/bg-2019-85>.

**TERRADAS J** (2019) The planetary crisis of the Anthropocene: cultural evolution and environmental change. *Mètode*, 100: 83-89.

**VERGER, A.** (2019) Algorithm Theoretical Basis Document: CDR AVHRR-based LAI and fAPAR v1.0. pp. 1-29. Report for contract C3S\_312a\_Lot9\_VITO\_2016SC1, Copernicus Climate Change Service, C3S-Lot9

**VERGER, A., BARET, F., WEISS, M., DESCALS, A.** (2019) Algorithm Theoretical Basis Document: leaf area index climatology (LAI), Fraction of absorbed PAR Climatology (FAPAR) and fraction of vegetation cover (FCOVER) Collection 1km, Version 2.1. Issue 2.10. pp. 1-137. Report for Framework Service Contract N° 199494 (JRC), Copernicus Global Land Operations "Vegetation and Energy", CGLOPS-1

**VERGER, A., BENHADJ, I.** (2019) Product User Guide and Specification: CDR AVHRR-based LAI and fAPAR v1.0. pp. 1-25. Report for contract C3S\_312a\_Lot9\_VITO\_2016SC1, CopernicusClimateChangeService, C3S-Lot9.

## Books

**CASTELL C., TERRADAS J. EDS** (2019) *Som Natura: El repte de l'Antropocè*. Museu de Ciències Naturals & Generalitat de Catalunya, Barcelona, 184 pp.

**CATALAN J., BATALLA M. BONET T., BROTONS L. ET AL.** (2019) Análisis ecológico de la culturización del paisaje de alta montaña desde el neolítico: los parques nacionales de montaña como modelo. pp. 281-298. In *Proyectos de investigación en Parques Nacionales: 2013-2017 - Naturaleza y Parques Nacionales*, serie Investigación en la Red, P. Amengual (ed.) Organismo Autónomo de Parques Nacionales, Madrid. ISBN 978-84-8014-924-

**LING, M., DEROCHETTE, L. ITURRIBARRIA, M., HORLOCK, M., KARACSONYI, Z., MORI, M., ATXUTEGI, G., BERNAOLA, G., BOTA, G., BROTONS, L... ZABAGLIA, C.** (2019). Better data, better decisions: increasing the impact of biodiversity information. Technical report of phase 1 of the project BID-REX – from biodiversity data to decisions: enhancing natural value through improved regional development policies. Interreg Europe. ISBN: 978-84-09-10007-1.

**MASÓ J** (2019) OGC Two Dimensional Tile Matrix Set Standard. OGC 17-083r2. <http://docs.opengeospatial.org/is/17-083r2/17-083r2.html>.

## Book chapters

- ALBA-PATIÑO, D.; I. GUTIERREZ-BRICENO, M. GARCÍA-LLORENTE, M. EXPÓSITO-GRANADOS, B. MURILLO, L. VASQUEZ, H. CASTRO, V. CARABASA; A.J. CASTRO.** (2019) Cómo afectan los procesos de restauración con almendro ecológico, a los servicios ecosistémicos y el bienestar humano: caso de estudio sierra María-Los Vélez. In: (Fernández I., Cerón, M.C., Álvarez, M., de Amo, E.) Libro de resúmenes del VIII Simposio de Investigación en Ciencias Experimentales. Almería, España. I.S.B.N.:978-84-17261-95-5
- GARCÍA-GÓMEZ, H., IZQUIETA-ROJANO, S., GONZÁLEZ-FERNÁNDEZ, I., ÀVILA, A., ELUSTONDO, D., ALONSO, R.** (2019). Section 4. Modelling environmental stress in forest ecosystems. In: W. Seidling (ed.) Forest Conditions - ICP Forests 2018 Executive Report. ISSN 1020-587X, pp. 11-12.
- HERMOSO, V, MORÁN-ORDÓÑEZ A, BROTONS L** (2019) The Role of Natura 2000 at Maintaining Dynamic Landscapes in Europe Over the Last Two Decades: Implications for Conservation. In: Müller L & Eulenstein, F eds, Current Trends in Landscape Research. Springer, Cham, 2019. 665-680. I 978-3030300685.
- MASÓ J, ZABALA A, BAUMANN P** (2019) New Model for Geospatial Coverages in JSON: Coverage Implementation Schema and Its Implementation With JavaScript. In: (Ma Z, Yan L. eds.) Emerging Technologies and Applications in Data Processing and Management. DOI: 10.4018/978-1-5225-8446-9.ch015. <https://www.igi-global.com/chapter/new-model-for-geospatial-coverages-in-json/230695>.
- McKEE L, MASÓ J** (2019) How Standards Help the Geospatial Industry Keep Pace with Advancing Technology. In: (Döllner J, Jobst M, Schmitz P. eds.) Service-Oriented Mapping, pp.303-324. Springer International Publishing. DOI: 10.1007/978-3-319-72434-8. ISBN: 978-3-319-72434- <https://www.springer.com/gp/book/9783319724331>.
- ROSELL C, J TERRADAS** (2019) L'Antropocè, l'era en que els humans canviem el mon. In: C Castell i J Terradas eds Som Natura: El repte de l'Antropocè. Museu de Ciències Naturals & Generalitat de Catalunya, Barcelona, pp. 16-26.
- TERRADAS J** (2019) La qüestió ambiental: vivim en un planeta únic. In: C Castell & J Terradas eds Som Natura: El repte de l'Antropocè. Museu de Ciències Naturals i Generalitat de Catalunya, Barcelona, pp. 100-105.
- TERRADAS J** (2019) La xarxa de la vida: som un tot. In: C Castell & J Terradas eds Som Natura: El repte de l'Antropocè. Museu de Ciències Naturals & Generalitat de Catalunya, Barcelona, pp. 54-57.
- TERRADAS J** (2019) Les espècies humanes. In: C Castell & J Terradas eds Som Natura: El repte de l'Antropocè. Museu de Ciències Naturals & Generalitat de Catalunya, Barcelona, pp. 47-52.
- TERRADAS J, C ROSELL** (2019) La Biosfera, la seva evolució i funcionament. In: Som Natura: El repte de l'Antropocè. Museu de Ciències Naturals & Generalitat de Catalunya, Barcelona, pp. 28-36.
- TERRADAS, J. C. CASTELL.** (2019) La terra, casa nostra: recull de textos. In: C. Castell i J. Terradas (eds.) Som Natura: El repte de l'Antropocè. Museu de Ciències Naturals i Generalitat de Catalunya, Barcelona, pp. 118-125.

## Conferences:

### Member of the scientific committee of national and international conferences

#### Conference name: 9th Biennial Conference of the International Biogeography Society.

Place: Málaga, Spain.

Date: January 2019.

García-Valdés, R. and Morales-Castilla, I. organized the symposium "Towards a more applied biogeography: combining process-based and niche approaches to address practical questions".

#### Conference name: 1st Iberian Ecological Society Meeting

Place: Barcelona

Date: 4-7 February 2019

CREAF membres in the scientific committee: J. Martínez-Vilalta

#### Conference name: XI International Workshop on Sap Flow

Place: Hyytiälä, Finland

Dates: 7-11 October 2019

CREAF participants: Jordi Martínez-Vilalta. Rafael Poyatos

#### Biodiversity, biomass and function of Earth's primary producers in a global change scenario. Fundación Gadea.,

Place: Madrid

Date: 17-18 June 2019.

CREAF membres in the scientific committee: Peñuelas, J.

#### Ramon Margalef Summer Colloquia, A cross-system view of biogeochemical cycles: drivers and players.,

Place: Barcelona

Date: 15-20 February, 2019.

CREAF membres in the scientific committee: Peñuelas, J.

#### Imbalance-P. 5th IMBALANCE-P Annual Meeting.

Place: Sitges

Date: 11-15 February 2019.

CREAF membres in the scientific committee: Peñuelas, J.

#### Conference name: XXIV Simpósio de Mirmecologia, An International Ant Meeting.

Place: Belo Horizonte (Brazil)

Date: September 30 – October 4

CREAF membres in the scientific committee: Xavier Arnan

#### International Conference on Sustainable Natural Resources Management under Global Change – The 19th Scientific Days of INRGREF.

Place: Hammamet (Túnez)

Date: 10-12 Abril

CREAF membres in the scientific committee: E. Doblas-Miranda

#### SIBECOL 2019. 1st Meeting of the Iberian Ecological Society & XIV AEET Meeting.

"Ecology: an integrative science in the Anthropocene".

Date: 4th - 7th February

Place: Barcelona, Spain.

CREAF membres in the Scientific committee: J. Catalan

#### Palaeoecology: using long-term datasets to test ecological questions. Session in SIBECOL.

Place: Barcelona

Date: 4, 6 i 7 de febrer

CREAF membres in the scientific committee: Sergi Pla

#### X Simposio Nacional Incendios Forestales

Place: Alicante

Date: 24 i 25 Octubre

CREAF membres in the scientific committee: Lluís Brotons



## Contribution in national and international conferences.

**ALBA-PATIÑO, D.; I. GUTIERREZ-BRICEÑO, M. GARCÍA-LLORENTE, M. EXPÓSITO-GRANADOS, B. MURILLO, L. VASQUEZ, H. CASTRO, V. CARABASA; A.J. CASTRO.** (2019) Cómo afectan los procesos de restauración con almendro ecológico, a los servicios ecosistémicos y el bienestar humano: caso de estudio sierra maría-los vélez. VIII Simposio de Investigación en Ciencias Experimentales. Almería, 14-15 Noviembre (poster)

**ALBA-PATIÑO, DANIELA; GUTIÉRREZ-BRICEÑO, INÉS; EXPÓSITO LLORENTE, MARINA; MURILLO GRANADOS, MÓNICA; MURILLO-LÓPEZ, BEATRIZ; VÁSQUEZ, LINA; CASTRO, HERMELINDO; CARABASSA, VICENÇ; CASTRO, ANTONIO J.** (2019) Percepción social de los servicios ecosistémicos asociados a procesos de restauración: caso de estudio del levante almeriense. II Congreso de Jóvenes Investigadores en Ciencias Agroalimentarias. Almería, 17 octubre (oral presentation)

**ALFARO-SÁNCHEZ R, DíEZ O, PINO J, JUMP A, PALMERO-INIESTA M, ESPELTA JM.** (2019). Do newly established forests respond differently to extreme climatic events than pre-existing ones? 1st Meeting of the Iberian Ecological Society & XIV AEET Meeting, Universitat de Barcelona, Barcelona, Spain. 4-7 February 2019 (oral presentation).

**ALFARO-SÁNCHEZ R, DíEZ O, PINO J, JUMP A, PALMERO-INIESTA M, ESPELTA JM.** (2019). Do newly established forests respond differently to extreme climatic events than pre-existing ones? 1st Meeting of the Iberian Ecological Society & XIV AEET Meeting, Universitat de Barcelona, Barcelona, Spain. 4-7 February 2019 (oral presentation).

**ANDRÉS P, DOBLAS-MIRANDA E, PINO J, VAYREDA J, MOLOWNY-HORAS R.** (2019) Nature-based solutions for hydro-meteorological risk reduction in European mountain regions. SIBECOL 2019, Barcelona, 4-7 Febrero. (comunicación oral)

**ARNAN X.** (2019) Patterns, drivers and mechanisms of homogenization of multiple facets of ant diversity in the Brazilian Caatinga. XXIV Simpósio de Mirmecologia, An International Ant Meeting. Belo Horizonte (Brazil), September 30 - October 4 (oral communication, invited speaker)

**AVILA, A., MOLOWNY-HORAS, R., CAMARERO, L.** (2019) Streamwater response to changing atmospheric sulphur and nitrogen deposition in two mountain areas in the NE Iberian Peninsula. 1st Meeting of the Iberian Ecological Society & AEET Meeting. Ecology an integrative science in the Anthropocene. Barcelona 4-7, February 2019. (oral communication).

**AVILA, A., MOLOWNY-HORAS, R., CAMARERO, L.** Ecosystem response to atmospheric deposition in high mountain sites in Spain. REPLIM Meeting. Investigating lakes and wetland in the National Parks of the Pyrenees. Torla (Spain). 10 April 2019. (oral communication).

**BARBA J., POYATOS R., VARGAS R.** (2019). Automated measurements of greenhouse gases fluxes from tree stems and soils: magnitudes, patterns and drivers. 1st Meeting of the Iberian Ecological Society & XIV AEET Meeting. Ecology: an integrative science in the Anthropocene. Barcelona, Spain, 4-7 February (oral communication).

**BATLLORI, E, LLORET, F.** (2019) A global assessment of forest dynamics following drought-induced mortality events. 1st Meeting of the Iberian Ecological Society & XIV AEET Meeting. Barcelona, 4-7 February 2019. (oral communication).

**BOANARES, D. AND GLOBAL ECOLOGY UNIT CREA-F-CSIC.** (2019) Fog, mist and trees. 5th IMBALANCE-P Annual Meeting. 11-15 February 2019. Sitges, Barcelona, Catalonia.

**BRUZZONE L, BOVOLO F, DEFURNY P, GAMBA P, AGRIMANO L, AMODIO A, BROVELLI MA, CORSI M, LAMARCHE C, MOSER G, OTTLÉ C, PEYLIN**

**P, PISTILLO P, RIFFLER M, DOMINGO-MARIMON C, PESQUER L** (2019) CCI Essential Climate Variables: High Resolution Land Cover. ESA Living Planet Symposium, Milan (Italy), 13-17 May (oral presentation).

**CABON A., FERNÁNDEZ-DE-UÑA L., GEA-IZQUIERDO G., MARTÍNEZ-VILALTA J., MEINZER F.C., WOODRUFF D., DE CÁCERES M.** (2019) Hydric control of tracheid enlargement in *Pinus sylvestris* at its dry distribution edge. Oral presentation. 1st Iberian Ecological Society Meeting. Barcelona, Spain. February 4-7, 2019.

**CABON A., PETERS R., FONTI P., MARTÍNEZ-VILALTA J., DE CÁCERES M.** (2019) Mechanistic modelling of tree growth response to temperature and water availability: lessons from monitoring intra-annual wood formation along a subalpine elevational gradient. Oral presentation. V Reunión del Grupo de Trabajo de Modelización Forestal (SECEF). Solsona. 6 - 7 November, 2019.

**CAILLERET M., BIGLER C., BUGMANN H., DAKOS V., DESOTO L., GESSLER A., JANSEN S., ROBERT E.M.R., MARTINEZ-VILALTA J.** (2019) Towards a global network of tree-ring based information on tree mortality. Oral presentation. IUFRO World Congress. Curitiba, Brazil. September 29 - October 5, 2019.

**CALATAYUD J., ANDIVIA E., ESCUDERO A., BERNARDO-MADRID R., MELIÁN C.J., STOFFEL M., APONTE C., MOLINA-VEGAS R., ARNAN X., LUZURIAGA A., MEDINA N.G., NEUMAN M., ALVES-MARTINS F., ROSVALL M., NORIEGA J.A., PATARO L., BALLESTEROS-CÁNOVAS J.A., MORALES-MOLINO C., FERRANDIS P., DRAPER I., HERRERO A., JUAN L., CEA A., MADRIGAL-GONZÁLEZ, J.** (2019) Invariant patterns of spatial association networks

suggest general mechanisms of species coexistence. 1<sup>st</sup> Meeting of the Iberian Ecological Society & XIV AEET Meeting. Barcelona, February 4-7. (poster presentation).

**CARABASSA, V., ACHOTEGUI-CASTELLS, A., DOMENE, X., ALCAÑIZ, J.M.** (2019) The cocoon system: ecotechnology for ecological restoration and rainfed agriculture in the mediterranean basin. Terraenvision 2019. Barcelona, 2-6 September (oral presentation)

**CARABASSA, V., KALLEN, S., CAMPO, J., ANDREU, V., GIMENO, E., GONZÁLEZ, F.; VIERA, G.; CRESCENZO, V., BERTAINA, F.; CASTRO, A., GUTIÉRREZ, I., KORKOUMPAS, D., GRAMMELIS, P., ALCAÑIZ, J.M.** (2019) LIFE The green link: restoring degraded áreas with the Cocoon ecotechnology. SIBECOL – First Congress of the Iberian Society of Ecology, Barcelona, 4-7 February (oral presentation)

**CARABASSA, V., MONTERO, P., CRESPO, M., PADRÓ, J.C., BALAGUÉ, J., BROTONS, L., ALCAÑIZ J.M., PONS, X.** (2019) UAS remote sensing products for supporting extraction management and restoration monitoring in open-pit mines. Terraenvision 2019. Barcelona, 2-6 September (oral presentation)

**CARNICER, J. AND GLOBAL ECOLOGY UNIT CREAM-CSIC.** (2019) Stoichiometry and optimality models for body mass evolution. 5th IMBALANCE-P Annual Meeting. 11-15 February 2019. Sitges, Barcelona, Catalonia.

**CATALAN J, BATALLA M, NINYEROLA M, PÉREZ-OBÍOL R** (2019) Treeline and climate in the Pyrenees: current situation, past reconstruction and future projections. 1st SIBECOL 2019 & XIV AEET meeting, Barcelona (Spain), 4-7 Feb (oral presentation).

**CATALAN, J.; MERITXELL BATALLA; MIQUEL NINYEROLA; RAMON PÉREZ-OBÍOL.** Treeline and climate in the Pyrenees: current situation, past reconstruction and future projections. SIBECOL 2019. 1st Meeting of the Iberian Ecological Society & XIV AEET Meeting. "Ecology: an integrative science in the Anthropocene". 4th - 7th February 2019, Barcelona, Spain.

Catalogue of endangered and protected species as a tool for conservation management in a biodiversity hotspot of

the Mediterranean basin. 29th International congress for conservation biology

**CLOSA G, MASÓ J, PESQUER L, PONS X** (2019) Auditing remote sensing data using geospatial provenance. International Geoscience and Remote Sensing Symposium, IGARSS 2019, Yokohama (Japan), 22 July - 2 Aug (oral presentation).

**CLOSA G, MASÓ J, PESQUER L, PONS X** (2019) El linaje geoespacial como herramienta de evaluación del origen de los productos de teledetección. Ruiz LA, Estornell J, Calle A, Antuña-Sánchez JC (eds) Teledetección: hacia una visión global del cambio climático, pp. 315-318. ISBN: 978-84-1320-038-5. Libro de actas XVIII Congreso de la Asociación Española de Teledetección, Valladolid (Spain), 24 - 27 Sep (poster).

**CORREIA M, ESPELTA JM, PINO J, RODRÍGUEZ-ECHEVARRÍA S.** (2019). Differences in soil properties and mycorrhizal communities among old and new *Fagus sylvatica* forests. 1st Meeting of the Iberian Ecological Society & XIV AEET Meeting, Universitat de Barcelona, Barcelona, Spain. 4-7 February 2019 (poster).

**CORREIA M, ESPELTA JM, PINO J, RODRÍGUEZ-ECHEVARRÍA S.** (2019). Differences in soil properties and mycorrhizal communities among old and new *Fagus sylvatica* forests. 1st Meeting of the Iberian Ecological Society & XIV AEET Meeting, Universitat de Barcelona, Barcelona, Spain. 4-7 February 2019 (poster).

**CRISTÓBAL J, PRAKASH A, ANDERSON MC, KUSTAS WP, PESQUER L, PONS X** (2019) Surface energy fluxes retrieval in the Arctic tundra and the Boreal forest using a thermal remote sensing model. International Geoscience and Remote Sensing Symposium, IGARSS 2019, Yokohama (Japan), 22 July - 2 Aug (poster).

**DE PEDRO M., MAYOL M., GONZÁLEZ-MARTÍNEZ S.C., PANNELL J.R., REGALADO I., RIBA M.** (2019) Evolutionary dynamics of natural plant populations during range expansion: combining phenotypic and genomic approaches. 1st Meeting of the Iberian Ecological Society & XIV AEET Meeting "Ecology: an integrative science in the Anthropocene". Barcelona, 4-7 February. (oral presentation)

**DEBROUK H., LLURBA R., ALTIMIR N., RIBAS A., SEBASTIÀ MT.** (2019). Effects of plant functional types on greenhouse gas fluxes in grasslands along a climatic gradient. Improving sown grasslands through breeding and management. EGF-EUCARPIA-SYMPOSIUM-2019. Zurich, Switzerland. June 24 - 27th. (oral presentation).

**DOBLAS E., ESPELTA JM, PINO J.** (2019). The Interaction between current and past land use changes affect soil oribatid diversity in holm oak (*Quercus ilex*) forests. 1st Meeting of the Iberian Ecological Society & XIV AEET Meeting, Universitat de Barcelona, Barcelona, Spain. 4-7 February 2019 (oral presentation).

**DOBLAS-MIRANDA E.** (2019) From EU-Tunisia cooperation to CREAM-INGREF collaboration. International Conference on Sustainable Natural Resources Management under Global Change - The 19<sup>th</sup> Scientific Days of INRGREF, Hammamet (Túnez), 10-12 Abril. (discurso de apertura)

**DOBLAS-MIRANDA E., PINO J., ESPELTA J.M.** (2019) The Interaction between current and past land use changes affect soil oribatid diversity in holm oak (*Quercus ilex*) forests. 1<sup>st</sup> Meeting of the Iberian Ecological Society (SIBECOL 2019), Barcelona, 4-7 Febrero. (oral presentation).

**DOX, I., ET AL.** (2019) Cessation of woody growth and onset of leaf senescence in temperate deciduous trees over Europe. Eurodendro 2019, 9-13 Septiembre, Brno. (oral presentation).

**E.J DE BOER, V. RULL, J. FN VAN LEEUWEN, L. A AMARAL-ZETTLER, R. BAO, M. BENAVENTE-MARÍN, V. GONÇALVES, A. HERNÁNDEZ, H. MARQUES, C. PIMENTEL, S. PLA-RABES, P. M RAPOSEIRO, N.**

**RICHTER, C. RITTER, MA J. RUBIO-INGLÉS, A, SÁEZ, R. M TRIGO, D. VÁZQUEZ-LOUREIRO, J. VILAVERDE, S. GIRALT.** (2019). Ecosystem impacts of human arrival in the Azores: a comparative study of high-resolution multi-proxy lake sediment records. INQUA, Dublin, Irlanda. Juliol. (poster)

**ESTIARTE M, WILFAHRT P, JENTSCH A, BERAUBER B, PEÑUELAS J, KRÖEL-DULAY G, ORBÀN I, SSSCHMIDT IK, LARSEN KS, DJUKIC I, MÄND P, LÖHMUS K, RADUJKOVIC D, VICCA S, ABRANTES N, TIETEMA A, VAN DUSSELDORP M, STOJNIC S, ORLOVIC S, HOLUB P, URBAN O, KLEM K, BAHN M, REINTHALER D.**(2019)A phytometer of standardized herbaceous plant communities growing across Europe unravels climate and soil controls on biomass production. SIBECOL Meeting 2019, 4-7 February(2019)(poster)

**FAN, F., WIGNERON, J-P., CIAIS, P., CHAVE, J., BRANDT, M., FENSHOLT, R., SAATCHI, S., BASTOS, A., AL-YAARI, A., HUFKENS, K., XIAO, X., MYNENI, R.B., FERNANDEZ-MORAN, R., MIALON, A., PENUELAS, J.**(2019)Satellite-observed pantropical carbon dynamics. AGU Fall Meeting, 9-13 December 2019, San francisco. (oral presentation).

**FAN, L., ET AL.**(2019)Quantification of tropical carbon changes using SMOS-1C vegetation optical depth index during 2010-2017. EGU General Assembly 2019, Vienna (Austria), 7-12 April 2019. (oral presentation).

**FELIP, MARISOL; MIGUEL BALLEEN-SEGURA; JORDI CATALAN.** Cell size relevance on mixotrophic phytoflagellates vacuole content. SIBECOL 2019. 1st Meeting of the Iberian Ecological Society & XIV AEET Meeting. "Ecology: an integrative science in the Anthropocene". 4th - 7th February 2019, Barcelona, Spain. (oral presentation).

**FERNÁNDEZ-MARTÍNEZ, M. AND GLOBAL ECOLOGY UNIT CREA- CSIC.**(2019)Masting as an evolutionary strategy to cope with nutrient imbalances. 5th IMBALANCE-P Annual Meeting. 11-15 February 2019. Sitges, Barcelona, Catalonia. (oral presentation).

**FLO V., GRANDA V., MARTINEZ-VILALTA J., POYATOS R.** (2019) Disentangling the influence of evaporative demand and soil moisture supply on plant transpiration. Oral presentation. 1st Iberian Ecological Society Meeting. Barcelona, Spain. February 4-7, 2019. (oral presentation).

**FUCHSLUEGER, L., VAN LANGENHOVE, L., CANARINI, A., COSIO, E., MARGALEF, O., MENDOZA, SA., OBLITAS, E., PEÑUELAS, J., PROMMER, J., QUESADA, B.**(2019)Microbial growth and respiration are differently controlled by P availability in tropical forest soils across the Amazon Basin. AGU Fall Meeting, 9-13 December 2019, San francisco. (oral presentation).

**GARCÍA GÓMEZ, H., GONZÁLEZ-FERNÁNDEZ, I., ALONSO, R., ELUSTONDO, D., ÀVILA, A.** Dry deposition of nitrogen: expanding the methodology. Combined Expert Panel Meeting 2019, International Cooperative Programme on Assessment and Monitoring of Air Pollution Effects on Forests (ICP-Forests), 25-29 March 2019, Brussels (Bélgica). (oral presentation).

**GARCÍA VALDÉS R., FLORES RUIZ L., MARTÍNEZ-VILALTA J.** (2019) Are Mediterranean forest replacing tree species by more drought tolerant ones at the expense of growing less? Oral presentation. 1st Iberian Ecological Society Meeting. Barcelona, Spain. February 4-7, 2019. (oral presentation).

**GARCÍA-VALDÉS, R; ESTRADA, A; EARLY R; LEHSTEN, V; MORIN, X** (2019) Combining niche and process-based models to project climate change impacts on forest productivity. Modelización forestal en la era de la información: retos y soluciones ante un futuro incierto. Solsona, Spain. 2019. (oral presentation).

**GARCÍA-VALDÉS, R; ESTRADA, A; EARLY R; LEHSTEN, V; MORIN, X** (2019) Combining niche and process-based models to project climate change impacts on forest functioning. 9th Biennial Conference of the International Biogeography Society. Málaga, Spain. 2019. (oral presentation).

**GARCÍA-VALDÉS, R; VAYREDA, J; RETANA, J; MARTÍNEZ-VILALTA, J.** Are forests that are becoming more drought tolerant growing more slowly?. 1st Meeting of the Iberian Ecological Society & XIV AEET Meeting: Ecology an integrative science in the Anthropocene. Barcelona, Spain. 2019. (Oral presentation).

**GARGALLO, A. AND GLOBAL ECOLOGY UNIT CREAM-CSIC.** 2019. Ecometabolomics. 5th IMBALANCE-P Annual Meeting. 11-15 February 2019. Sitges, Barcelona, Catalonia. (oral presentation).

**GARGALLO-GARRIGA, A., PEGUERO, G., MASPONS, J., URBAN, O., KLEM, K., SARDANS, J., PEÑUELAS, J.** (2019) A phylogenetically controlled comparison of the metabolome of tropical and temperate tree species evidences a greater phenolic diversity in tropical species. BES Annual meeting 10 - 13 December 2019, Belfast ICC, Belfast, Northern Ireland. (oral presentation).

**GRANDA V., BANQUÉ M., DE CÁCERES M., MARTÍNEZ-VILALTA J., VAYREDA J.** (2019) A new tool to visualize and analyze National Forest Inventory data. Oral presentation. 1st Iberian Ecological Society Meeting. Barcelona, Spain. February 4-7, 2019. (oral presentation).

**GRANDA V., FLO V., MENCUCINI M, MARTÍNEZ-VILALTA J., POYATOS R.** (2019) Compiling a global database of sapflow measurements with R: Workflow and tools for the SAPFLUXNET database. Oral presentation. UseR! 2019 Conference. Toulouse, France. July 9 - 12, 2019 (oral presentation).

**GRAU, O. AND GLOBAL ECOLOGY UNIT CREAM-CSIC.** (2019) Nutrient storage in wood in trees growing on poor tropical soils. 5th IMBALANCE-P Annual Meeting. 11-15 February 2019. Sitges, Barcelona, Catalonia.

**GRAU, O., HÉRAULT, B., SARDANS, J., DOURDAIN, A., JANSSENS, I., PEÑUELAS, J.** 2018. How does disturbance, ontogeny and growth rate change nutrient storage in wood in trees growing in poor tropical soils?. SIBECOL Meeting 2019, 4-7 February 2019. (oral presentation).

**GRAU, O., MARGALEF, O., JOOSTEN, H., FERNÁNDEZ, P.R., DORREPAAL, E., KEUPER, F., RICHTER, A., SARDANS, J., PEÑUELAS,**

**J.** (2019) Impacts of fast vs. slow permafrost thaw on nitrogen and phosphorus availability in a subarctic tundra mire. EGU General Assembly 2019, Vienna (Austria), 7-12 April 2019. (oral presentation).

**GRAU, O., MARGALEF, O., JOOSTEN, H., FERNÁNDEZ, P.R., ELLEN DORREPAAL, FRIDA KEUPER, RICHTER, A., SARDANS, J., PEÑUELAS, J.** Impacts of permafrost thaw on soil biogeochemistry in subarctic Tundra Mire. VII Iberian conference of the International Permafrost Association. Jaca, 25-27 June, 2019. (oral presentation).

**GROOM Q., BESOMBES C., BROWN J., CHAGNOUX S., GEORGIEV T., KEARNEY N., MARCER A., NICOLSON N., PAGE R., PHILLIPS S., RAINER H., RICCARDI G., RÖPPERT D., SHORTHOUSE D., STOEVE P., HASTON E.** (2019) Progress in Authority Management of People Names for Collections. Biodiversity Next: Building a global infrastructure for biodiversity data. Together. Leiden, The Netherlands. 22-25 October, 2019. (oral presentation).

**GUERRIERI, R. AND GLOBAL ECOLOGY UNIT CREAM-CSIC.** (2019) Leaf microbes and nitrification in the canopies of European forests: evidence from stable isotopes, meta-barcoding and qPCR. 5th IMBALANCE-P Annual Meeting. 11-15 February 2019. Sitges, Barcelona, Catalonia. (oral presentation).

**GUERRIERI, R., BARCELÓ, A., MATTANA, S., CALÍZ, J., ELUSTONDO, D., HELLSTEIN, S., MATTEUCCI, G., MERILÄ, P., MICHALSKI, G., NICOLAS, M., VANGUELOVA, E., VERSTRAETEN, A., WALDNER, P., WATANABE, M., PEÑUELAS, J., MENCUCINI, M.** (2019) Leaf microbes and nitrification in the canopies of European forests: evidence from stable isotopes, meta-barcoding and QPCR. SIBECOL Meeting 2019, 4-7 February 2019. (oral presentation).

**HERNÁNDEZ, P. M., RAPOSEIRO, M., LEIRA, R., CARBALLEIRA, M., BENAVENTE-MARÍN, E. DE BOER, L., COMAS-BRU, R. M. TRIGO, V. GONÇALVES, S. PLA-RABES, A. SÁEZ, R. BAO, S. GIRALT.** (2019). Extreme climatic events in the North Atlantic-European sector and their link to modes of variability during the last two millennia. INQUA, Dublin, Irlanda. Juliol. (poster)

**KONINGS A.G., RAO K., ANDEREGG W.R.L., SALA A., MARTÍNEZ-VILALTA J.** (2019) Vegetation optical depth serves as an ecosystem-scale indicator of drought-driven tree mortality rates. Invited oral presentation. AGU Annual Meeting. San Francisco, USA. December 9 - 13, 2019. (oral presentation).

**LECINA-DIAZ J., ALVAREZ A., DE CÁCERES M., HERRANDO S., VAYREDA J., RETANA J.** (2019) Are protected areas preserving ecosystem services and biodiversity? Insights from Catalonia. Conference: 1 st Meeting of the Iberian Ecological Society & XIV AEET Meeting. Barcelona, 4-7 February. (Comunicació oral).

**LECINA-DIAZ J., ALVAREZ A., MARTÍNEZ-VILALTA J., BANQUÉ M., VAYREDA J., RETANA J.** (2019) Identifying wildfire forest vulnerability and ecosystem services at risk. Ecosystem Services Partnership (ESP) World Conference. Hannover, Germany, 21-25 October. (oral presentation).

**LLORET, F., BATLLORI, E.** (2019) Forest dynamics after drought-induced mortality worldwide. 15<sup>th</sup> EEFF-18<sup>th</sup> SPECO Congress. Lisboa, 29 July – 2 August, 2020 (oral communication).

**LLOVET A., MATTANA S., CHIN-PAMPILLO J., GASCÓ G., DOMENE X., RIBAS A., ALCAÑIZ J.M.** (2019). Long-term effects of a biochar application on soil microbial abundance, structure and function in a Mediterranean agroecosystem. SIBECOL. Barcelona, Spain. February 4-7th. (poster).

**LLOVET A., VIDAL-DURÀ A., DOMENE X., RIBAS A., ALCAÑIZ J.M.** (2019) Effects of biochar addition to organo-mineral fertilisers on nutrient release and barley growth. XXXII Reunión Nacional de Suelos (RENS) 2019. Sevilla, 10-13 setembre (poster)

**LLOVET A., VIDAL-DURA A., RIBAS A., DOMENE X., ALCAÑIZ J.M.** (2019). Effects of biochar-based fertilisers on nutrient release and crop productivity. RENS, September 10-13 th. Sevilla, Spain. ("poster").

**LLUSIÀ, J. AND GLOBAL ECOLOGY UNIT CREA-FCI.** (2019) Terpene emissions from tropical and Mediterranean soils and plants and their responses to changes in nutrient availability. 5th IMBALANCE-P Annual Meeting. 11-15 February 2019. Sitges, Barcelona, Catalonia. (oral presentation).

**M PALMERO-INIESTA, ESPELTA JM, ALFÁRO-SÁNCHEZ R, PINO J** (2019) Recent forest increase in Europe (1992-2015): implications for ecosystem functions. 1st Meeting of the Iberian Ecological Society & XIV AEET Meeting, Barcelona. Internacional. (poster)

**MARAÑÓN, S. AND GLOBAL ECOLOGY UNIT CREA-FCI.** (2019) Islandic studies. 5th IMBALANCE-P Annual Meeting. 11-15 February 2019. Sitges, Barcelona, Catalonia. (oral presentation).

**MARAÑÓN, S., PEÑUELAS, J.** (2019) Soilwarming triggers coupled carbon and nitrogen losses in subarctic soils. SIBECOL Meeting 2019, 4-7 February 2019. (oral presentation).

**MARCER A., ESCOBAR A., DÍAZ A., URIBE F.** (2019) Towards a Federated List of Versioned Georeferenced Site Names: A local experience. Biodiversity\_Next: Building a global infrastructure for biodiversity data. Together. Leiden, The Netherlands. 22-25 October, 2019. (oral presentation).

**MARCER A., HASTON E., GROOM Q., PICÓ F.X., URIBE F.** (2019) Uncertain geo-uncertainty: ecological research and public biodiversity data repositories. Biodiversity\_Next: Building a global infrastructure for biodiversity data. Together. Leiden, The Netherlands. 22-25 October, 2019. (oral presentation).

**MARGALEF, O. AND GLOBAL ECOLOGY UNIT CREAM-CSIC.**(2019) Changes on P cycling across a permafrost thawing gradient in subarctic peatlands (Abisko, Sweden, 68°N). 5th IMBALANCE-P Annual Meeting. 11-15 February 2019. Sitges, Barcelona, Catalonia. (oral presentation).

**MARGALEF, O., ET AL-** (2019) Permafrost and thaw driven geochemical changes in peatlands: a challenge to the palaeoenvironmental reconstruction of nutrient availability? INQUA 2019, 25-31 July 2019, Dublin, Ireland. (oral presentation).

**MARGALEF, O., GRAU, O., JOOSTEN, H., FERNÁNDEZ, P.R., DORREPAAL, E., RICHTER, A., CHECA, E., GIRBAU, M., LAGUNA, C., BOGDANOVIC, I., CANARINI, A., SARDANS, J., PEÑUELAS, J.**(2019) Irreversible changes in Phosphorus cycling driven by permafrost thaw in subarctic peatlands. EGU General Assembly 2019, Vienna (Austria), 7–12 April 2019. (poster)

**MARGALEF, O., GRAU, O., JOOSTEN, H., PÉREZ-HAASE, A., PLA, S., FERNÁNDEZ, P.R., GIRALT, S., SÀNCHEZ, M., PÈREZ, R., SORIANO, J.M., PÈLACHS, A., CAMPDERRÓS, S., FERNANDEZ, C., PEÑUELAS, J.**(2019) Late Holocene permafrost development triggers hydrological and geochemical changes in subarctic peatlands (Abisko, 68°N). VII Iberian conference of the International Permafrost Association. Jaca, 25-27 June, 2019. (oral presentation).

**MARTÍNEZ-VILALTA J.** (2019) Advances and challenges in predicting drought-induced forest mortality. Keynote oral presentation. XI Congress of the Italian Society of Plant Biology - 114th Congress of the Italian Botanical Society. Padova, Italy. September 2019. (oral presentation).

**MARTÍNEZ-VILALTA J.** (2019) Are we measuring the right traits to forecast vegetation responses to drought? Invited oral presentation. 1st Iberian Ecological Society Meeting. Barcelona, Spain. February 4-7, 2019. (oral presentation).

**MARTÍNEZ-VILALTA J.** (2019) Forest vulnerability to drought-induced mortality. Oral presentation. MISTRALS workshop on droughts. Montpellier, France. April 2019. (oral presentation).

**MARTÍNEZ-VILALTA J.** (2019) Predicting drought-induced forest mortality at tree to landscape scales. Keynote oral presentation. EGU General Assembly 2019. Vienna, Austria. April 2019. (oral presentation).

**MARTÍNEZ-VILALTA J.** (2019) Sequía y bosques: de los mecanismos fisiológicos a los impactos regionales. Keynote oral presentation. IV Reunión del grupo de Ecología, Ecofisiología y Suelos Forestales (SECEF). Alcalá de Henares. May 8 - 9, 2019. (oral presentation).

**MASÓ J** (2019) ISO 19165 Metadata model for preservation and Open Packaging Convention for data and metadata preservation example. CEF eArchivingBuilding Block Geopreservation Conference, Ljubljana (Slovenia), 6 May (oral presentation).

**MASÓ J** (2019) Retos en la cartografía oficial a medio plazo desde el punto de vista de los estándares geospaciales. Retos de la estadística y cartografía pública, Sevilla (Spain), 11 Dec (oral presentation).

**MASÓ J, JULIÀ N, ZABALA A** (2019) Data quality tools for increasing trust in citizen science projects. Geophysical Research Abstracts 21: EGU2019-18707. <https://meetingorganizer.copernicus.org/EGU2019/EGU2019-18707.pdf>. EGU General Assembly 2019, Vienna (Austria), 7-12 Apr (oral presentation).

**MASÓ J, JULIÀ N, ZABALA A** (2019) A data quality service for citizen observatories. International Symposium of Digital Earth, Florence (Italy), 27 Sep (oral presentation).

**MASÓ J, PRAT E, COBLEY A** (2019) Experiences

Using SOS for Citizen Science Interoperability. Geospatial Sensing Conference, Munster (Germany), 3 Sep (oral presentation).

**MASPONS, J. AND GLOBAL ECOLOGY UNIT CREAM-CSIC.** (2019) Overview of the Guiana database. 5th IMBALANCE-P Annual Meeting. 11-15 February 2019. Sitges, Barcelona, Catalonia. (oral presentation).

**MAYOL M., DE MIGUEL M., GRIVET D., VENDRAMIN G.G., ALÍA R., RIBA M., GONZÁLEZ-MARTÍNEZ S.C.** (2019) Gene networks and polygenic adaptation in two conifers with contrasted demography, maritime pine and English yew. Forests and Fields in Climate Change - Adaptation and Mitigation across Generations. Oulu, 18-19 March. (invited speaker)

**MENCUCCINI M., ROSAS T., MARTÍNEZ-VILALTA J.** (2019) Leaf economics and xylem hydraulics drive partitioning between leaves and wood. Oral presentation. 1st Iberian Ecological Society Meeting. Barcelona, Spain. February 4-7, 2019. (oral presentation).

**MOLOWNY-HORAS R., ANDRÉS P., DOBLAS-MIRANDA E., VAYREDA J., PINO J., CAROPPI G., PUGLIESE F., GIUGNI M., DEL SEPIA N.** (2019) Evaluation of a Nature-Based Solution to reduce water pollution in the Massaciucoli Lake. Multi-scale analysis of slopes under climate change. A cross-disciplinary workshop (MUSLOC 2019), Barcelona, 18-20 septiembere. (oral presentation).

**NELSON J., POYATOS R., ZHOU S., ZHANG Y., MIGLIAVACCA M., CARVALHAIS N., REICHSTEIN M., JUNG M.** (2019) Ecosystem scale estimates of transpiration: an overview of methods for

eddy covariance data. EGU General Assembly 2019, Vienna, Austria, 7-12 April (oral communication).

**OGAYA, R. AND GLOBAL ECOLOGY UNIT CREAM-CSIC.** (2019). Ecophysiological effects of 20-year climate change experiments in two Mediterranean ecosystems. 5th IMBALANCE-P Annual Meeting. 11-15 February 2019. Sitges, Barcelona, Catalonia. (oral presentation).

**OJEDA, G. ET AL.** 2019. Looking for the maximum soil organic matter decomposition in Colombian topsoils. EGU General Assembly 2019, Vienna (Austria), 7-12 April 2019.

**OLSSON S., BAGNOLI F., GIOVANNELLI G., SCOTTI-SANTAGNE C., ALÍA R., FADY B., GONZÁLEZ-MARTÍNEZ S.C., MAYOL M., VENDRAMIN G.G., GRIVET D.** (2019) Applications of genomic data in European conifers. XXV IUFRO World Congress 2019 "Forest Research and Cooperation for Sustainable Development". Curitiba, 29 September-5 October. (oral presentation).

**OTERO N., LLOVET A., CARREY R., RIBAS A., DOMENE X., MATTANA S., CHIN-PAMPILLO L., ALCAÑIZ J.M., SOLER A.** (2019), Chemical and isotopic characterization of nitrate retained and leached from soil after manure fertilization: Lysimeter experiments. 16th International Symposium on Water-Rock Interaction (WRI-16) and 13th International Symposium on Applied Isotope Geochemistry (1st IAGC International Conference). Tomsk, Russia. July 21-26th. (oral presentation).

**OTERO N., LLOVET A., CARREY R., RIBAS A., DOMENE X., MATTANA S., CHIN-PAMPILLO J., ALCAÑIZ J.M., SOLER A.** (2019). Effect of biochar addition on the chemical and isotopic evolution of nitrate retained and leached from soil after manure fertilization: Lysimeter experiments. Goldschmidt Congress, international conference on geochemistry, European Association of Geochemistry and Geochemical Society. Barcelona, Spain. August 18-23 th. (oral presentation).

**PALACIN-LIZARBE, CARLOS, LLUÍS CAMARERO, SARA HALLIN, CHRISTOPHER M. JONES, JORDI CATALAN.** N-transforming guilds



and denitrification rates in lakes of mountains affected by high atmospheric N deposition. 24th European Nitrogen Cycle Meeting. 21-23 September 2019. Lisbon, Portugal. (oral presentation).

**PALACIN-LIZARBE, CARLOS; LLUÍS CAMARERO; SARA HALLIN; CHRISTOPHER M. JONES; JOAN CALIZ; EMILIO O. CASAMAYOR; JORDI CATALAN.** Contrasting microbial N-transforming networks in mountain lake benthic habitats. SIBECOL 2019. 1st Meeting of the Iberian Ecological Society & XIV AEET Meeting. "Ecology: an integrative science in the Anthropocene". 4th - 7th February 2019, Barcelona, Spain. (oral presentation).

**PALMERO-INIESTA M, ESPELTA JM, ALFARO-SÁNCHEZ R, PINO J.** (2019). Recent forest increase in Europe (1992-2015): implications for ecosystem functions. 1st Meeting of the Iberian Ecological Society & XIV AEET Meeting, Universitat de Barcelona, Barcelona, Spain. 4-7 February 2019 (poster).

**PALMERO-INIESTA M, ESPELTA JM, ALFARO-SÁNCHEZ R, PINO J.** (2019). Recent forest increase in Europe (1992-2015): implications for ecosystem functions. 1st Meeting of the Iberian Ecological Society & XIV AEET Meeting, Universitat de Barcelona, Barcelona, Spain. 4-7 February 2019 (poster).

**PATTERNS OF BIOVOLUME IN COMMUNITIES ALONG AN ANDEAN ELEVATIONAL GRADIENT.** Congreso Latinoamericano de Biogeografía "Humboldt". – 250 de la IBIS- Quito, Ecuador . IBIS, la Universidad San Francisco de Quito, la Universidad Regional Amazónica IKIAM y la Red Latinoamericana para el estudio de la Biogeografía Neotropical. (oral presentation).

**PEGUERO, G. AND GLOBAL ECOLOGY UNIT CREAM-CSIC.**(2019) Deciphering the biogeochemical drivers of litter-dwelling insect communities in tropical rainforests from French Guiana. 5th IMBALANCE-P Annual Meeting. 11-15 February 2019. Sitges, Barcelona, Catalonia.

**PEÑUELAS J., RIBAS A.** (2019). Evaluating the role of Denitrification as a sink of Nr in soil ecosystems of European forests. IMBALANCE-P project congress. Sitges, Barcelona. February 11-15th. (oral presentation).

**PEÑUELAS, J.** (2019). Canvi climàtic i salut. Perspectives globals i catalanes. Jornada i debat sobre Canvi climàtic i Salut. 11 Abril 2019. Institut d'Estudis Catalans. (oral presentation).

**PEÑUELAS, J.** (2019) Carbon sequestration efficiency in terrestrial ecosystems. Ramon Margalef Summer Colloquia, A cross-system view of biogeochemical cycles: drivers and players. Barcelona (Spain), 15-20 February, 2019. (oral presentation).

**PEÑUELAS, J.** (2019) Chairman of the B11A: Carbon and Nutrient Cycle Interactions in Terrestrial Ecosystems: Integrating Theory, Observations, Experiments, and Models | Session Type: Oral. AGU Fall Meeting, 9-13 December 2019, San Francisco. (oral presentation).

**PEÑUELAS, J.** (2019) Chairman of the Biodiversity, biomass and function of Earth's primary producers in a global change scenario. Fundación Gadea. Madrid, May 2019. (oral presentation).

**PEÑUELAS, J.** (2019) Convenor de la sessió: B025. Carbon and Nutrient Cycle Interactions in Terrestrial Ecosystems: Integrating Theory, Observations, Experiments, and Models. AGU Fall Meeting, 9-13 December 2019, San Francisco. (oral presentation).

**PEÑUELAS, J.** (2019) On nutritional and other constraints on carbon cycling. Keynote speaker. SIBECOL Meeting 2019, 4-7 February 2019. (oral presentation).

**PEÑUELAS, J.** (2019) Welcome to Catalonia and Scientific state of the imbalance-P. 5th IMBALANCE-P Annual Meeting. 11-15 February 2019. Sitges, Barcelona, Catalonia. (oral presentation).

**PENUELAS, J.** Chairman of session "Ecometabolomics" Global linkages between plant metabolism, functioning and life history kick off meeting. 18-19 March 2019. Bellaterra, Barcelona, Catalonia.

**PENUELAS, J.** Chairman of session "FutureArtic meetsForHot!" FutureArtickickoffmeeting. 14-15 March 2019. Sitges, Barcelona, Catalonia.

**PENUELAS, J.** Chairman of session "More on data synthesis activities!" Forhot Annual Meeting. 12-13 March 2019. Sitges, Barcelona, Catalonia. (oral presentation).

**PENUELAS, J.** Chairman of session "Observations, experiments and syntheses" in 5th IMBALANCE-P Annual Meeting. 11-15 February 2019. Sitges, Barcelona, Catalonia.

**PENUELAS, J.** The biggest thing!. Forhot Annual Meeting. 12-13 March 2019. Sitges, Barcelona, Catalonia. (oral presentation).

**PENUELAS, J.** Welcome to Catalonia and research in Iceland grasslands. Forhot Annual Meeting. 12-13 March 2019. Sitges, Barcelona, Catalonia. (oral presentation).

**PESQUER L, DOMINGO-MARIMON C, CRISTÓBAL J, OTTLÉ C, PEYLIN P, BOVOLO F, BRUZZONE L** (2019) Comparison of ecosystem functional type patterns at different spatial resolutions in relation with FLUXNET data. SPIE Remote Sensing, Remote Sensing for Agriculture, Ecosystems, and Hydrology XXI, Strasbourg (France), 9-12 Sep (oral presentation).

**PESQUER L, PADRÓ JC, GARCÍA D, ARAGONÉS D, PONS X** (2019) A Contribution to the Radiometric Consistency of Sentinel-2

Through in-situ Spectroradiometry, Drone Imagery and the Landsat and MODIS Legacy. ESA Living Planet Symposium, Milan (Italy), 13-17 May (poster).

**PICÓ F. XAVIER, MARCER A., ALONSO-BLANCO C.** Genomic and phenotypic differentiation of *Arabidopsis thaliana* across the SW Mediterranean hotspot, 1st Meeting of the Iberian Ecological Society & XIV AEET Meeting, 'Ecology: an integrative science in the Anthropocene', Facultat de Biologia, Universitat de Barcelona, Barcelona, 4-7 February 2019 (oral presentation).

**PICÓ F.X., MARCER A., ALONSO-BLANCO C.** (2019) The value of regional collections of natural populations to unravel the ecological and genetic basis of adaptive variation in *Arabidopsis thaliana*. Brachypodim 2019 - 4th International Brachypodim Conference, Huesca Conventions Centre, Huesca, Spain, 25-29 June 2019 (oral presentation).

**PLA-RABES, S. & CATALAN, J.** (2019). Are communities unsaturated? A millennial scale palaeoecological approach. INQUA, Dublin, Irlanda. Juliol. (oral presentation).

**PLA-RABES, S. & CATALAN, J.** (2019). The productivity-diversity relationship at millennial scale. SIBECOL. Barcelona, Espanya, febrer (oral presentation).

**PLA-RABES, S., CATALAN, J.** Are communities unsaturated? A millennial scale palaeoecological approach., 20th Congress of the International Union for Quaternary Research. INQUA 2019 Dublin Ireland. (oral presentation).

**PLA-RABES, S.; CATALAN, J.** The productivity-diversity relationship at millennial scale. SIBECOL 2019. 1st Meeting of the Iberian Ecological Society & XIV AEET Meeting. "Ecology: an integrative science in the Anthropocene". 4th - 7th February 2019, Barcelona, Spain. (oral presentation).

**POYATOS R., FLO V., GRANDA V., MARTÍNEZ-VILALTA J.** (2019) Understanding the global patterns of tree and forest transpiration. Oral presentation. 1st Iberian Ecological Society Meeting. Barcelona, Spain. February 4-7, 2019. (oral presentation).

**POYATOS R., FLO V., GRANDA V., STEPPE K., MENCUCINI M., MARTÍNEZ-VILALTA J.** (2019) Using the SAPFLUXNET database to understand global patterns in transpiration of trees and stand. Keynote oral presentation. XI International Workshop on Sap Flow. Hyytiälä, Finland. 7 - 11 October, 2019 (oral presentation).

**PREECE, C. AND GLOBAL ECOLOGY UNIT CREAM-CSIC.** (2019) Effects of past and current drought on the composition and diversity of soil microbial communities. 5th IMBALANCE-P Annual Meeting. 11-15 February 2019. Sitges, Barcelona, Catalonia. (oral presentation).

**RAO K., ANDEREGG W.R.L., SALA A., MARTÍNEZ-VILALTA J., KONINGS A.G.** (2019) Satellite-Based Vegetation Optical Depth As An Indicator Of Drought-Driven Tree Mortality. Oral presentation. IGARSS 2019. Yokohama, Japan. July 28 - August 2, 2019. (oral presentation).

**RIBAS, A. AND GLOBAL ECOLOGY UNIT CREAM-CSIC.** (2019) Evaluating the role of Denitrification as a sink of Nr in soil ecosystems of European forests. 5th IMBALANCE-P Annual Meeting. 11-15 February 2019. Sitges, Barcelona, Catalonia. (oral presentation).

**RITTER C., RAPOSEIRO P.M., PLA-RABES S., BAO R., SÁEZ A., HERNÁNDEZ A., DE BOER E.J., GIRALT S.** Understanding Lake Funda evolution through diatom-based reconstruction. Spring Seminar Bio Isle. Ponta Delgada, Portugal. (poster)

**ROBERT E.M.R., FONTI M., KIORAPOSTOULOU N., VON ARX G., MENCUCINI M., ROSAS T., RAMÍREZ BOIXADERAS M., PETIT G., NABAIS C., MARTÍNEZ-VILALTA J.** (2019) Remarkable absence of within-species adjustments in conductive xylem, phloem and parenchyma structural traits along a water availability gradient. 4th Xylem International Meeting. Padua, Italy. 25 - 27 September, 2019. (oral presentation).

**ROBERT E.M.R., FONTI M., KIORAPOSTOULOU N., VON ARX G., MENCUCINI M., ROSAS T., RAMÍREZ BOIXADERAS M., PETIT G., NABAIS C., MARTÍNEZ-VILALTA J.** (2019) No wood and bark adjustment to water availability in the dominant trees of southern Europe. Plant Vascular Biology. Society for Experimental Biology. Pacific Grove, USA. 17 - 20 June, 2019. (poster).

**ROBERT E.M.R., FONTI M., KIORAPOSTOULOU N., VON ARX G., MENCUCINI M., ROSAS T., RAMÍREZ BOIXADERAS M., PETIT G., NABAIS C., MARTÍNEZ-VILALTA J.** (2019) No wood and bark adjustment to water availability in the dominant trees of southern Europe. TRACE Annual Meeting. San Leucio, Italy. 6 - 11 May, 2019. (poster).

**ROCES-DIAZ J., BANQUÉ-CASANOVAS M., DE CÁCERES M., DE-MIGUEL S., GARCIA-VALDES R., MORÁN-ORDÓÑEZ A., VAYREDA J., MARTÍNEZ-VILALTA J.** (2019) Temporal dynamics of Mediterranean forest ecosystem services and their relationships with climate and local biodiversity. 1st Iberian Ecological Society Meeting. Barcelona, Spain. February 4-7, 2019. (oral presentation)

**ROCES-DÍAZ J.V., CRISTINA SANTÍN-NUÑO C., MARTÍNEZ-VILALTA J., DOERR S.H.** (2019) Fire impacts on forest ecosystem services: a global synthesis. 10th Ecosystem Services Partnership conference. Hannover, Germany. 21 - 25 October, 2019 (oral presentation).

**ROMERO, E. AND GLOBAL ECOLOGY UNIT CREAM-CSIC.** (2019) Nitrogen and phosphorus fluxes in Mediterranean rivers. A complex game of (water) uses and (food) customs. 5th IMBALANCE-P Annual Meeting. 11-15 February 2019. Sitges, Barcelona, Catalonia. (oral presentation).

**ROMERO, E., PEÑUELAS, J.** (2019) Nutrient fluxes in the Mediterranean Basin: are river exports good tracers of what happens on land?. SIBECOL Meeting 2019, 4-7 February 2019. (oral presentation).

**ROSAS T., MENCUCINI M., SAURA-MAS S., STERCK F. MARTÍNEZ-VILALTA J.** (2019) Can hydraulic,

leaf and stems traits predict performance along a water availability gradient? 1st Iberian Ecological Society Meeting. Barcelona, Spain. February 4-7, 2019. (oral presentation).

**SABÁS, IBOR; ALEXANDRE MIRÓ; JAUME PIERA; JORDI CATALAN; MARC VENTURA.** Key environmental factors for modelling high mountain lake summer water temperatures: a future climate change prediction in Pyrenean water bodies. SIBECOL 2019. 1st Meeting of the Iberian Ecological Society & XIV AEET Meeting. "Ecology: an integrative science in the Anthropocene". 4th - 7th February 2019, Barcelona, Spain. (oral presentation).

**SARDANS, J. AND GLOBAL ECOLOGY UNIT CREAM-CSIC.** (2019) Advances in data mining, synthesis works and theory outputs. 5th IMBALANCE-P Annual Meeting. 11-15 February 2019. Sitges, Barcelona, Catalonia.

**SAURA-MAS S., MARTINEZ-VILALTA J., SHIPLEY B.** (2019) Contributions of functional traits and climatic variables shaping tree species distributions. 1st Iberian Ecological Society Meeting. Barcelona, Spain. February 4-7, 2019. (oral presentation).

**SCHMITZ, A. SANDERS, T.G.M., BOLTE, A., BUSSOTTI, F., DIRNBÖCK, T., JOHNSON, J., PEÑUELAS, J., POLLASTRINI, M., PRESCHER, A.K., SARDANS, J., VERSTRAETEN, A., DEVRIES, W.** 2019. Responses of forest ecosystems in Europe to decreasing nitrogen deposition. Session B4g Responses of forest ecosystems in Europe to decreasing nitrogen deposition. XXV IUFRO Congress in Curitiba, Brazil, 29 September to 5 October, 2019. (oral presentation).

**STOCKER, B. AND GLOBAL ECOLOGY UNIT CREAM-CSIC.** (2019) Soil moisture and ecosystem productivity. 5th IMBALANCE-P Annual Meeting. 11-15 February 2019. Sitges, Barcelona, Catalonia. (oral presentation).

**STOCKER, B.D., ET AL.** (2019) Does flexible carbon allocation relieve nitrogen limitation? - Theory and observations for a resource economics paradigm to model carbon-nitrogen cycle interactions in terrestrial ecosystems. EGU General Assembly 2019, Vienna (Austria), 7-12 April 2019. (oral presentation).

**TOLEDO B., MARCER A., PICÓ F. XAVIER.** Disentangling the current distribution of the relict genetic lineage of the annual plant *Arabidopsis thaliana* in its Mediterranean range. 1st Meeting of the Iberian Ecological Society & XIV AEET Meeting, 'Ecology: an integrative science in the Anthropocene', Facultat de Biologia, Universitat de Barcelona, Barcelona, 4-7 February 2019 (oral presentation).

**TOLEDO B., MARCER A., PICÓ F.X.** Biogeography of the relict lineage of *Arabidopsis thaliana* across the Iberian Peninsula and Morocco. XVI Ecoflor. Granada, Spain. March 14-16, 2019. (oral presentation).

**URBINA, I. AND GLOBAL ECOLOGY UNIT CREAM-CSIC.** (2019) Nutrient stoichiometry in tropical forests; where are the nutrients?. 5th IMBALANCE-P Annual Meeting. 11-15 February 2019. Sitges, Barcelona, Catalonia. (oral presentation).

**VALADE, A. AND GLOBAL ECOLOGY UNIT CREAM-CSIC.** (2019) Forest management: from carbon to climate mitigation. 5th IMBALANCE-P Annual Meeting. 11-15 February 2019. Sitges, Barcelona, Catalonia. (oral presentation).

**VALLICROSA, H. AND GLOBAL ECOLOGY UNIT CREAM-CSIC.** (2019) foliar stoichiometry. 5th IMBALANCE-P Annual Meeting. 11-15 February 2019. Sitges, Barcelona, Catalonia. (oral presentation).

**VAN LANGENHOVE, L., VERRYCKT, L., STAHL, C., URBINA, I., GRAU, O., PEÑUELAS, J., JANSSENS, I.** (2019) Rapid post-fertilisation

plant phosphorus uptake indicates phosphorus limitation in primary rainforest in French Guiana. British Ecological Society Tropical Ecology Group (BESTEG) and the Society for Tropical Ecology (gtö). 8 - 12 April 2019, McEwan Hall/Appleton Tower Edinburgh, UK. (poster)

**VERRYCKT, L., STAHL, C., COSTE, S, ELLSWORTH, D., COURTOIS, E., VICCA, S., PEÑUELAS, J., CHAVE, J., JANSSENS, I.** (2019) Spatial variation of photosynthesis in a lowland tropical forest in French Guiana: saplings vs. adults. BES/gtö symposium on Unifying Tropical Ecology 'Strengthening collaborative science'. Edinburgh (UK), 8-12 April 2019. (oral presentation).

**WALKER, T., ALLARD, P-M., BARNES, O., DEFOSSEZ, E., JASSEY, V., ALEXANDER, J., BALDY, V., BARDGETT, R., CAPDEVILLA, P., DAVID, B., ERNST, M., FERNANDEZ, C., GARGALLO, A., HARRINGTON, S., PELLISSIER, L., RASMANN, S., SALGUERO-GOMEZ, R., SARDANS, J., SCHRODT, F., SUN, X., VAN DAM, N., WECKWERTH, W., PEÑUELAS, J.** (2019) Large-scale patterns in metabolism and their links to plant and ecosystem functioning. BES Annual meeting 10 - 13 December 2019, Belfast ICC, Belfast, Northern Ireland. (oral presentation).

**WANG, S. ET AL.** (2019) Responses of vegetation photosynthetic phenology to elevated CO<sub>2</sub> and climate warming: evidence from natural "urban laboratories". EGU General Assembly 2019, Vienna (Austria), 7-12 April 2019.

**WELMOED OUT, ANDREAS MIETH, SERGI PLA-RABÉS, SVETLANA KHAMNUEVA, MARCO MADELLA, STEFAN DREIBRODT, CAROLIN LANGAN & HANS-RUDOLF BORK** (2019) Prehistoric pigment production at Rapa Nui (1200-1650 AD). 18th IWGP. Lecce, Italy. Juny. (pòster)

**WIGNERON, J., BRANDT, M., FAN, L., CIAIS, P., AL-YAARI, A., BASTOS, A., CHAVE, J., DOMEK, J., FRAPPART, F., HUFKENS, K., LI, X., MIALON, A., OGÉE, J., PENUELAS, J., SWENSON, J., TAGESSON, T., TIAN, F., TUCKER, C., WINGATE, L., FENSHOLT, R.** (2019) SmOS-IC L-VOD: a new index to monitor YEARLY changes in aboveground carbon stocks – an overview of recent results. ESA Living Planet Symposium. Milan, 13-79 May, 2019.

**ZHENG, B. AND GLOBAL ECOLOGY UNIT CREAFC-SIC.** (2019) Agriculturalization enhanced microbial functionality: a case in Chinese maize fields. 5th IMBALANCE-P Annual Meeting. 11-15 February 2019. Sitges, Barcelona, Catalonia. (oral presentation).

**ZUFIAURRE, AITZIBER; MARISOL FELIP; MARC SALA; LLUIS CAMARERO; JAANIS JUHANSON; GERMAN BONILLA ROSSO; SARA HALLIN; JORDI CATALAN.** Resistance and resilience of bacterial communities to extreme seasonal changes. SIBECOL 2019. 1st Meeting of the Iberian Ecological Society & XIV AEET Meeting. "Ecology: an integrative science in the Anthropocene". 4th - 7th February 2019, Barcelona, Spain. (oral presentation).

## Datasets and software

### DATASETS

**POYATOS R., GRANDA V., FLO V., MOLOWNY-HORAS R., STEPPE K., MENCUCINI, M. MARTÍNEZ-VILALTA J. & SAPFLUXNET CONTRIBUTORS** (2019). SAPFLUXNET: A global database of sap flow measurements (Version 0.1.3) [Data set]. Zenodo. <http://doi.org/10.5281/zenodo.2530798>.

### SOFTWARE

**GRANDA, V., POYATOS, R., FLO, V., NELSON, J. & SAPFLUXNET CORE TEAM** (2019) sapfluxnetr: Working with "Sapfluxnet" Project Data. <https://cran.r-project.org/web/packages/sapfluxnetr/index.html>

# OUTREACH ANNEXES

## Outreach conferences or seminars of knowledge transfer

### ORGANIZED BY CREAM

#### Jornada Anual CREAM-SCB-ICHN "La crisis dels pol·litzadors"

Venue: Institut d'Estudis Catalans

Date: 21st November

Numbers of attendees: 150

CREAF members involved in organizing:

Bosch, J., Rodrigo, A., Ramon, A.

#### Global Change and Mediterranean forests. Escolab.

Venue: Can Balasc

Date March 13th and 14th

Numbers of attendees: 60

CREAF members involved in organizing: Pla E.,

Banqué M., Sanchez A., Claramunt B., Blanquer L.,

Ribas A., Vallicrosa H., Fagin E.

#### CREAF-Peramàs School session. MAGNET

Venue: Peramàs School, Mataró

Date: October 21st

Numbers of attendees: 60

CREAF members involved in organizing:

Banqué M., Sanchez A., Blanquer L., Fagin E.,

Guzmán P., Ordoñez JL., Ramon A., Marañón S.,

Vidal A., Molowny R

#### Jornada sobre fenologia: Segueix el ritme de la natura a casa, a l'escola o a la feina

Venue: Institut d'Estudis Catalans, Barcelona

Date: September 30th

Numbers of attendees: 96

CREAF members involved in organizing: Masó

J., Prat E., Guzmán P.

#### Citizen Science Interoperability Experiment (OGC-WeObserve)

Venue: Austria Center Vienna (ACV)

Date: April 11th

Number of attendees: 15

CREAF members involved in organizing: Masó J., Prat E.

#### WeObserve Communities of Practice Forum

Venue: Casa de Convalescència (Barcelona)

Date: November 25-27th

Number of attendees: 27

CREAF members involved in organizing: Masó J., Prat E.

#### Presentació informe IPBES. Ens estem quedant sols?

Venue: IEC

Date: June 21, 2020

Number of attendees: 150

CREAF members involved in organizing: Ramon A., Brotons L.

#### Catalunya i les polítiques europees de conservació de la biodiversitat

Venue: Palau Robert

Date: 17th December, 2019

Number of attendees: 110

CREAF members involved in organizing: Ramon A., Brotons L.

#### Presentació del Portal de Boscos i Canvi Climàtic de Catalunya - Dia Internacional dels Boscos

Venue: DTES

Date: 21th March, 2019

Number of attendees: 100

CREAF members involved in organizing: Ramon A., Vayreda J.

#### Presentació del VulneMap, el Mapa de la Vulnerabilitat dels Boscos de Catalunya

Venue: Casa de la Cultura

Date: 6th March, 2019

Number of attendees: 60

CREAF members involved in organizing: Ramon A., Banqueé M.

Vayreda J.

### **Participation in outreach conferences or seminars of knowledge transfer**

#### **Mediterranean socio-ecological systems: Integration of methodological approaches to evaluate ecosystem services dynamics. Conference session organized at Ecosystem Services Partnership (ESP) World Conference**

Venue: Hannover, Germany

Date: 21-25 October

Numbers of attendees: 20

CREAF members involved as co-organizer: Lecina -Díaz, J.

#### **Face to Face Meeting #4 of Copernicus Climate Global Land Service (C-GLOPS1): Towards Integrated Land Management**

Venue: Lisboa

Date: April 3rd

CREAF members involved as co-organizer: Verger, A.

#### **Authority management of people names**

Venue: Sofia, Bulgaria

Date: March 12-13th

Number of participants: 17

CREAF members involved as co-organizer: Marcer A.

#### **El sistema "Cocoon": ecotecnologia al servei de la restauració ecològica i l'agricultura de secà**

Venue: Finca Can Moragues, Riudarenes

Date: June 20th

Numbers of attendees: 20

CREAF members involved as co-organisers: Carabassa, V., Alcañiz, J.M.

#### **El sistema "Cocoon": aplicació en plantacions agrícoles de secà**

Venue: Finca Can Moragues, Riudarenes

Date: December 13th

Numbers of attendees: 25

CREAF members involved as co-organisers: Carabassa, V.

#### **GEO Week 2019 Targeted Event on Citizen Science**

Venue: Canberra, Australia

Date: November 4th

Numbers of attendees: 50

CREAF members involved as co-organizers: Masó J., Prat E.

### **Participation as speaker in outreach conferences or knowledge transfer seminars**

**AVILA, A.**, (2019) La resposta de petites conques a canvis en la deposició atmosfèrica". Conferència en la Jornada sobre Margalef i l'actualitat del seu llegat. Any Ramón Margalef 1919-2919. Institut Ciències del Mar-CSIC. 21st May.

**CARABASSA, V.** (2019) Ús de drons en el seguiment de la restauració i l'explotació d'activitats extractives. Jornada GEOCOM, "El Món és 3D". Departament de Territori i Sostenibilitat, Barcelona. 25th October.

**CARABASSA, V., ACHOTEGUI-CASTELLS, A., DOMENE, X., ALCAÑIZ, J.M.** (2019) The cocoon system: ecotechnology for ecological restoration and rainfed agriculture in the mediterranean basin. Terraenvision 2019. Barcelona, 2-6th September.

**CARABASSA, V., KALLEN, S., CAMPO, J., ANDREU, V., GIMENO, E., GONZÁLEZ, F.; VIERA, G.; CRESCENZO, V., BERTAINA, F.; CASTRO, A., GUTIÉRREZ, I., KORKOUMPAS, D., GRAMMELIS, P., ALCAÑIZ, J.M.** (2019) LIFE The green link: restoring degraded áreas with the Cocoon ecotechnology. SIBECOL – First Congress of the Iberian Society of Ecology, Barcelona, 4-7th February.

**CARABASSA, V., MONTERO, P., CRESPO, M., PADRÓ, J.C., BALAGUÉ, J., BROTONS, L., ALCAÑIZ, J.M., PONS, X.** (2019) UAS remote sensing products for supporting extraction management and restoration monitoring in open-pit



mines. Terraenvision 2019. Barcelona, 2-6th September.

**CATALAN, J.** (2019) Biogeodynamics & Biodiversity. Institut Méditerranéen de Biodiversité et d'Écologie Marine et Continentale (IMBE). Aix Marseille Université, Marseille (France). 29th January.

**CATALAN, J.** (2019) La montaña nos mira. Coloquio OPCC 2019, 3er Coloquio Internacional sobre cambio climático en zonas de montaña OPCC2 2019. Palacio de Congresos de Jaca. Proyecto REPLIM. 22nd October.

**CATALAN, J.** (2019) Margalef i un centre per estudiar els estanys d'alta muntanya. Sessió sobre Ramon Margalef i la muntanya. Centre Excursionista de Catalunya. Barcelona. 21st March.

**CATALAN, J.** (2019) Presentació - Margalef en tres clics. Sala d'actes de la Facultat de Ciències i Biociències. Universitat Autònoma de Barcelona. 11th April.

Climàtic. Les proves pilot al projecte LIFE MEDACC. (Invited speech) L'adaptació local al canvi climàtic: Experiències en gestió forestal, litoral i turisme. ECTADAPT Project Event. Perpignan. 7th June.

**DOBLAS-MIRANDA, E.** (2019) Agricultural Investments – Prospects for International Cooperation. Panel del XII Europe-Ukraine Forum, Economic Forum. Rzeszów (Polonia). 24-25th January.

**DOBLAS-MIRANDA, E.** (2019) Industry 4.0 & Local Authorities – Opportunities and Support for Digital Societies. Panel del 5th European Congress of Local Governments, Economic Forum, Krakovia (Polonia). 8-9th April.

**GUZMAN, P. PRAT, E.** (2019). Segueix el ritme de la natura. BioBlitzBcn 2019. Barcelona, May 4th..

**LANGEMEYER J., PINO J.** (2019) La cartografia dels serveis ecosistèmics a Catalunya. (Ponència invitada). Jornada Els serveis ecosistèmics de Catalunya (DTES-CREAF). Barcelona, 5th de Desembre de 2019

**LLORET F** (2019) Règim d'incendis i actuacions post-incendi (Ponència por invitación). Jornades tècniques sobre l'Incendi Forestal de juny de 2019 a la Ribera d'Ebre. La Palma d'Ebre. July 27th.

**MARTÍNEZ-VILALTA J.** (2019) Los bosques en un mundo más seco. Seminarios del Instituto de Ecología, UNAM, México. 22th November,.

**MASÓ, J.** (2019) Portant el SIG al navegador de mapes. Experiències donant suport a àrees protegides europees. XVIII Fòrum TIG SIG. Barcelona, November 14th.

**PASCUAL, D.** (2019) La gestión forestal adaptativa como herramienta para reducir el riesgo de incendio en encinares de media montaña (Invited speech). SUDOE MONTCLIMA kick-off Meeting. Zaragoza, 10th December.

**PEÑUELAS, J.** (2019). Impactes de la central tèrmica d'Andorra sota els Ports, una dècada després, Universitat Jaume I. Castelló de la Plana. September 24th.

**PEÑUELAS, J.** (2019). Paraules de cloenda, Jornada sobre Canvi climàtic i salut, IEC (Barcelona). April 11.

**PEÑUELAS, J.** (2019). Saturación de los sumideros de Carbono, Agencia Estatal de Investigación, Ministerio de Ciencia, Investigación y Universidades, Madrid. October 15th.

**PESQUER, L.** (2019) Darreres innovacions i projectes del grup de recerca Grumets. XVIII Fòrum TIG SIG. Barcelona, November 14th.

**PINO J., PRAT E.** (2019) Fenomarató, la marató d'observacions naturalistes per recopilar dades sobre fenologia. Barcelona, September 29th.

**PLA, E.** (2019) Adaptació i resiliència. Aprenem de la natura per ajudar a les persones. (Invited Speech). IV Fòrum sobre Medi Ambient i Món Local. Diputació de Barcelona. Món Sant Benet 19th February 2019.

**PLA, E.** (2019) Adapting Mediterranean forests to climate change: The results of the LIFE MEDACC project in Catalonia (Invited speech). Symposium Adapting forests to climate change. Toulouse, France. 19-20th November.

**PLA, E.** (2019) Anàlisi recent i projecció futura dels impactes del canvi climàtic als boscos de les Gavarres (Invited Speech). Les Gavarres 2019 Event. Llambilles (Girona). 30th November.

**PLA, E.** (2019) Cambio global y bosques mediterráneos. (Invited speech). Design, science and diversity Summer School. BAU Centre Universitari de Disseny. Barcelona. 23th July.

**PLA, E.** (2019) Gestionant els boscos mediterranis per fer front al canvi

**PRAT E.** (2019) 8º Encuentro Animal: RitmeNatura, observem el canvi climàtic seguint el ritme de la natura. Barcelona, September 25th.

**PRAT E.** (2019) Segueix el ritme de la natura. 13ª Festa de la Ciència. Barcelona, October 26th.

**PRAT, E.** (2019) El projecte RitmeNatura. Jornada tècnica Ciència Ciutadana i Medi Ambient. Barcelona, November 8th.

**SANCHEZ, A.** (2019). Alerta Forestal project. (invited speaker) Jornada BiblioLab Ciència. Barcelona. June 12th.

**SANCHEZ, A.** (2019). Engaging and keeping a citizen science community. (Invited speaker) CITIES-HEALTH Kick-off Meeting. ISGlobal Campus Mar, PRBB. Barcelona 5th February.

**SANCHEZ, A.** (2019). Engaging citizens in detecting climate change related impacts on forests (invited speaker). Citizen Science and Climate Change. Experiences from academia. TeRRIFICA session. ICTA UAB. Bellaterra. 5th December.

**SANCHEZ, A.** (2019). Engaging citizens in water management and water governance for climate change adaptation (invited speaker). Citizen Science and Climate Change. Experiences from academia. TeRRIFICA session. ICTA UAB. Bellaterra. 5th December.

**SANCHEZ, A.** (2019). Missions in Horizon Europe: Design and Impact by and for Spanish society. Side event to COP25. IFEMA Green Area. Madrid 12th December.

**SANCHEZ, A., BROEKMAN A.** (2019) Reflection Café on Multi-Actor Approaches. European Forest Institute – Mediterranean Facility Barcelona. 16th October.

**SANCHEZ, A., PLA E.** (2019) Field activity on Mediterranean Forests and Biodiversity. MAGNET program CREAM-Peramàs. Mataró 26 November.

**TERRADAS, J.** (2019) Evolució, biologia i cultura. Cicle Visions de la Ciència, Ramon Margalef, Biblioteca Caterina Albert Camp de l'Arpa. October 14th

**TERRADAS, J.** (2019) La Biosfera i l'Antropocè. Cicle Visions de la Ciència, Ramon Margalef, Biblioteca Caterina Albert Camp de l'Arpa. November 11th.

**TERRADAS, J.** (2019) Ramon Margalef, l'ecologia al segle XX. Aula Magna, Universitat de Vic. November 13th

**TERRADAS, J.** (2019) Ramon Margalef, una visió de la Biosfera. Ateneu Barcelonés, Barcelona. October 2nd

## TRAINING ANNEXES

### Others

**AVILA, A.** Collaboration “Ramon Margalef, científic i ecòleg global”. Exposició al Palau Robert, Generalitat de Catalunya. 10 Desember 2019-2 Februrary 2020.

**AVILA, A.** Collaboration “Ramon Margalef, una vida d’Ecologia”. Biblioteca de Ciència i Tecnologia UAB. 1 desembre 2019 - 20 January 2020.

### Subjects in masters and postgraduate courses (only subjects in others masters outside CREAM sphere)

**PEÑUELAS, J.** (2019). Root architecture, exudates and symbioses in P limited conditions, National Institute of Plant Genome research (NIPGR), New Delhi India. May 20, 2019.

**PEÑUELAS, J.** (2019). The key role of phosphorus in carbon cycle, agriculture and global governance, National Institute of Plant Genome research (NIPGR), New Delhi India. May 21, 2019.

**PEÑUELAS, J.** (2019). Learning from milions of years of evolutionary adapotation to cope with P limitation in nature and agriculture, National Institute of Plant Genome research (NIPGR), New Delhi India. May 22, 2019.

**PEÑUELAS, J.** (2019). IMBALANCE-P an integrated project to quantify ecosystem and agriculture effects of human-induced N/P imbalances, Indian Institute of Technology Delhi. May 23, 2019.

**PEÑUELAS, J.** (2019). Tree line shifts and global change, Department of Botany, Tribhuvan University, Kathmandu, Nepal. May 28, 2019.

**PEÑUELAS, J.** (2019). Slowing pace of increasing carbon sinks and climate change taking over. Impacts and solutions, Tribhuvan University, Kathmandu, Nepal. May 29, 2019.

**PEÑUELAS, J.** (2019). Monday 29, Ecological laws and carbon cycling, Stanford University (Rob Jackson department), USA. July 29, 2019.

**PEÑUELAS, J.** (2019). Nutrients and water as valves of global carbon cycling, Berkeley University, USA. July 30, 2019.

**PEÑUELAS, J.** (2019). Remote sensing of GPP, Stanford University Department of Biology, USA. July 31.

**PEÑUELAS, J.** (2019). Coupling carbon, water and energy in terrestrial ecosystems, Biomet lab, Berkley, USA. August 2, 2019.

**PEÑUELAS, J.** (2019). Remote Sensing of phenology, Royal Meteorological Institute of Brussels. September 12, 2019.

**PEÑUELAS, J.** (2019). Impacts of nutrient imbalances in nature and agriculture, University of Oxford, UK. September 19.

**PEÑUELAS J** (2019). Decreasing CO2 fertilization of the biosphere. University of Nanjing, November 2019.

**ARNAN X.** (2019) Community ecology. Post-graduate program in Vegetal Biology. Universidade Federal de Pernambuco (UFPE, Brazil).

**ESPELTA JM.** (2019) Disturbance regimes and forest management in protected natural areas. Ecosystem Management, Master in protected natural areas, UCLM-UAM-Fundación González Bernáldez. Madrid Autonomous University 2018.

### **COURSES OR WORKSHOPS OR SEMINARS WITHIN MASTERS, SUMMER SCHOOLS, MEETINGS, ETC.**

**LLORET, P.** (2019) Ecología de los bosques en un mundo cambiante. Curso "Los desafíos del Antropoceno: de la investigación y la comunicación a una nueva gobernanza de los recursos del planeta". IV Escuela de Medio Ambiente "Tatiana Perez de Guzman El Bueno" Universidad Internacional Menendez Pelayo. Santander 15-19 July.

**PINO, J.** (2019) Anàlisi de la Vegetació i Ecologia del Paisatge. Màster d'Ecologia, Gestió i Restauració del Medi Natural. Universitat de Barcelona, Barcelona, October.

**SÁNCHEZ, A., BROEKMAN, A.** (2019) Inclusion of Adaptation to Climate Change in Farm Advisory Services (FAS) in Tunisia. FASTER workshop. Tunisia 2 April.

**SÁNCHEZ, A., BROEKMAN, A.** (2019) Drafting international proposals: EU research context and proposal development.

Drafting international proposals: networking and partnerships. Research Excellence training program FASTER. Tunisia 7-8 October.

**SÁNCHEZ, A., BROEKMAN, A.** (2019) FAS Living-Lab Launch workshop. FASTER workshop. Tunisia 10 October.

**CARABASSA, V.** (2019) Nuevas herramientas para la evaluación y seguimiento de los trabajos de restauración minera. Nuevas tecnologías en restauración minera. Universidad Complutense de Madrid. Madrid.

**CARABASSA, V.** (2019) eines de teledetecció en el seguiment de la restauració i l'explotació d'activitats Extractives. Curs fotointerpretació i teledetecció aplicades a les activitats Extractives. Departament de Territori i Sostenibilitat. Generalitat de Catalunya. Barcelona. 2019.

### **FINAL MASTER PROJECT (Diploma d'Estudis Avançats)**

**CASADEI, P.** (2019). Remote sensing of drought. Master, Universitat Autònoma de Barcelona. Director J. Peñuelas.

**FERNANDES RODRIGUES RITTER C.** (2019) Paleoenvironmental reconstruction of lake funda (flores island, azores): tracking climate fluctuations and human impacts during the last millennium. Màster en Biodiversitat e Biotecnologia. Universidade dos Açores, Portugal. Codirectors V. Goçálves, P. Raposeiro, S. Pla Rabés.

**FLORES L.** (2019) How is the increasing dominance of broadleaves at the expense of

conifers affecting the productivity of Catalan forests? Màster en Ecologia Terrestre i Gestió de la Biodiversitat. Universitat Autònoma de Barcelona. Codirectors: R. García-Valdés and J. Martínez-Vilalta.

**FOLCH, E.** (2019). Divergent effects of drought and nitrogen deposition on microbial and arthropod soil communities in a Mediterranean forest. Director: J. Peñuelas.

**GALINDO A.** (2019) Morphological variability of *Mercurialis annua* L. leaves in response to expansion load and environmental conditions. Màster en Ecologia Terrestre i Gestió de la Biodiversitat. Universitat Autònoma de Barcelona. Codirectors: M. Riba i M. Mayol.

**MAISONETTE E.** (2019) Oxidative stress in helpers: the case of the Alpine marmot. Université Claude Bernard Lyon 1. Codirectors: M. Ferrandiz-Rovira and A. Cohan.

**PLA-NARBONAC.** (2019). Butterflies as indicators for urban management: The role of urban landscape, garden condition and species traits in the butterflies' distribution in Barcelona. Màster en Ecologia Terrestre i Gestió de la Biodiversitat. Universitat Autònoma de Barcelona. Codirectors: Y. Melero and J. Pino.

**RIERA M.** (2019). Pathways meet hotspots: spatial patterns of biological invasions in the Mediterranean and its implications for management. Màster en Ecologia Terrestre i Gestió de la Biodiversitat. Universitat Autònoma de Barcelona. Codirectors: Y. Melero i J. Pino

**SÁNCHEZ P.** (2019) An ecoevolutionary insight on the global plant hydraulics spectrum: adaptation, phylogenetic conservatism

and evolutionary Integration. Màster en Ecologia Terrestre i Gestió de la Biodiversitat. Universitat Autònoma de Barcelona. Codirectors: M. Mencuccini and J. Martínez-Vilalta.

**VAUTHIER, R.** (2019). "Functional traits, drivers of temporal stability in Mediterranean forest?"

**VILELLA M.** (2019) The coexistence of predators in time: Effects of seasonality and prey availability on species activity within a Mediterranean carnivore guild. Universitat Autònoma de Barcelona. Codirectors: M. Ferrandiz-Rovira and F. Sayol

## **FINAL STUDENT WORK (projecte final de carrera)**

**ANDRADE-VASQUEZ E.L.** (2019) El rol de la resolución espacial en la generación de Tipos de Ecosistemas Funcionales (EFTs). Master Teledetecció i SIG Universitat Autònoma de Barcelona. Codirectors: C. Domingo-Marimon, L. Pesquer.

**AZCONA, B.** (2019) Efectes del canvi climàtic en l'àrea de distribució de *Pinus uncinata*. Grau de Biologia Ambiental, Universitat Autònoma de Barcelona. Director: J. Pino.

**CANOS.** (2019) Marmots in the European Pleistocene: distribution and climatic conditioning. Universitat Autònoma de Barcelona. Director: M. Ferrandiz-Rovira

**CATALÀ M.** (2019). Memoria i proposta del projecte de colònies "Investigació a l'abast dels joves". Universitat Autònoma de Barcelona. Director: A. Ribas.

**HOMEDES P.** (2019) Great fish and marine mammals satellite tagging as an environmental tool. Grau de Biologia Ambiental, Universitat Autònoma de Barcelona. Director: J. Pino.

**LOAIZA-ROSETO J.A.** (2019). Caracterización y comparación de los tipos de ecosistemas funcionales mediante series temporales de NDVI para los periodos de 1990, 2000 y 2018. Master Teledetecció i SIG Universitat Autònoma de Barcelona.

Codirectors: L. Pesquer., C. Domingo-Marimon.

**MÁRQUEZ G.** (2019) Applying ecological theory to understand the human gut microbiome. Universitat Autònoma de Barcelona. Director: M. Riba.

**PORRES L.** Taxonomical revision of the fossil marmots (Rodentia, Sciuridae) from the Cova d'Olopte locality: Palaeoclimatical implications. Universitat Autònoma de Barcelona. Director: M. Ferrandiz-Rovira

**SABIO P.** (2019) Compilation of the legislation and conservation status of cetaceans in Europe. Grau de Biologia Ambiental, Universitat Autònoma de Barcelona. Director: J Pino.

**SERRA L.** (2019) Ungulate grazing effects on bilberry (*Vaccinium myrtillus*) and implications for the conservation of the Pyrenean capercaillie (*Tetrao urogallus aquitanicus*). Grau de Biologia Ambiental, Universitat Autònoma de Barcelona. Director: J Pino.

## AWARDS

### Awards and distinctions received by members of CREAM

**PEÑUELAS J.** (2019) Member of the Scientific advisory council, Barcelona City Council.

**PEÑUELAS J.** (2019) Scientist with the highest h-index in Plant Sciences and Ecology in Spain, by <http://indice-h.webcindario.com/>

**PEÑUELAS J.** (2019) Elected Honorary member of the Catalan College of Biologists.

**PEÑUELAS J.** (2019) Nominated among the one thousand most influential scientists in all fields (Meta-Research Innovation Center at Stanford – METRICS)

**MASÓ J.** (2019-2021) International Society for Digital Earth, Council member.

**MASÓ J.** (2019) Institute of Electrical and Electronics Engineers IEEE, Senior Member.

**MARTÍNEZ-VILALTA J., PEÑUELAS J., MENCUCCINI M., SARDANS J.** (2019) Highly Cited Researcher 2019 in Plant and Animal Sciences (Clarivate analytics).

**TERRADAS J.** (2019) Luís Balaguer Distinction, from Asociación Española de Ecología Terrestre.

**TERRADAS J.** (2019) Sant Jordi's Cross, from Generalitat de Catalunya.

## ACTIVE PROJECTS IN 2019

PROJECT NAME	ACRONYM	PRINCIPAL INVESTIGATOR	BUDGET	ENTITY	PERIOD
Biogeografia funcional: resposta dels ecosistemes terrestres als canvis i gradients ambientals	2017-2019 SGR/1001 LLORET	Francisco Lloret	37.367,00 €	AGAUR	2017-2019
Unitat d'Ecologia Global - Grup de Recerca Consolidat	2017-2019 SGR/1005 PEÑUELAS	Josep Peñuelas	60.216,00 €	AGAUR	2017-2019
Biodiversitat i evolució en ecosistemes mediterranis	2017-2019 SGR/1006 MAYOL	Maria Mayol	20.000,00 €	AGAUR	2017-2019
Dinàmica forestal i incendis	2017-2019 SGR/857 RETANA	Javier Retana	59.463,30 €	AGAUR	2017-2019
GECA Grup d'Ecologia dels Canvis Ambientals	2017-2019 SGR/910 CATALAN	Jordi Catalán	60.216,00 €	AGAUR	2017-2019
Valorització dels recursos bovins i silvopastorals del massís transfronterer Pirineus Mediterrani	ALBERAPASTUR	Marc Gràcia	1.376.386,00 €	EU	2018-2020
Behavioural, Ecological and Socio-economic Tools for Modelling Agricultural Policy	BESTMAP	Joan Masó	3.995.811,25 €	EU	2019-2023
Bioclimatic niche and plant community dynamics in response to climate change	BIOCLIM	Francisco Lloret	193.600,00 €	Ministerio Economía y Competitividad	2016-2019
Estratègies de Gestió Forestal Innovadores per millorar la Biodiversitat dels Boscos Mediterranis. Incentius i Eines de Gestió	BIORGEST	Jordi Vayreda	1.576.374,00 €	EU	2018-2023
BOSSA - ICTA	BOSSA - ICTA	Josep Peñuelas	40.000,00 €	ICTA	2017-2019
Copernicus Climate Change Service (C3S): Production of Essential Climate Variable Datasets based on Earth Observations – Albedo, FAPAR & LAI	C3S	Aleixandre Verger	68.025,00 €	EU	2016-2019
Gestió i avaluació de la composició química i l'acidesa de la precipitació de Catalunya	CARACTERITZACIÓ PLUGES	Anna Àvila	30.000,00 €	Generalitat de Catalunya	2019
Conectivitat dels ecosistemes forestals i riparis de l'espai SUDOE	CERES	Jordi Vayreda	1.272.214,00 €	EU	2018-2021
Copernicus Global Land Service – Framework Contract for the operation, evaluation and evolution of the Global Land component of the Copernicus Land Service.	C-GLOPS1	Aleixandre Verger	222.312,00 €	EU	2015-2019

PROJECT NAME	ACRONYM	PRINCIPAL INVESTIGATOR	BUDGET	ENTITY	PERIOD
Collaborative Learning in Research, Information-sharing and Governance on How Urban tree-based solutions support Sino-European urban futures'	CLEARING HOUSE	Corina Basnou	4.986.463,75 €	EU	2019-2023
Serveis climàtic pel nexus Aigua-Energia-Sòl-Alimentació	CLISWELN	Jordi Martínez-Vilalta	1.004.303,20 €	ERANET (Ministerio Economía y Competitividad)	2017-2020
La protecció del patrimoni en zones de conflicte a través d'eines digitals: el paper de la societat civil	CULTURAPP	Bernat Claramunt	9.500,00 €	CSIC	2019-2021
Una evaluación basada en datos de las respuestas a la sequía de los árboles y del uso del agua de los bosques a nivel global	DATAFORUSE	Rafael Poyatos	142.780,00 €	Ministerio de Ciencia, Innovación y Universidades	2019-2022
Monitoring network for observing the status of Catalan forest	DEBOSCAT	Jordi Martínez-Vilalta / Jordi Vayreda	35.000,00 €	Generalitat de Catalunya	2019
Demostració de l'ús d'una abella solitària per millorar la pol·linització de fruiters	DEMO	Anselm Rodrigo / Jordi Bosch	29.961,15 €	Generalitat de Catalunya	2017-2019
Differential adaptation capacity of dryland grasses to directional changes in water availability	DIAGRASS	Josep Peñuelas (Marie Curie Fellowship granted to Mónica Ladrón de Guevara)	239.191,20 €	EU	2018-2021
Estudi, l'anàlisi i divulgació de resultats de treballs silvícoles i de la dinàmica forestal resultants dels programes de prevenció d'incendis, restauració i millora forestal de la Diputació de Barcelona	DINFORREST	Josep Maria Espelta	48.500,00 €	Oficina Tècnica de Prevenció Municipal d'Incendis Forestals - DIBA)	2019
Comprensió dels mecanismes subjacents a les respostes dels arbres a l'estrès per sequera en funció de la mida de l'arbre	DISTRESS	Jordi M. Vilalta (Marie Curie Fellowship granted to Laura Fernández de Uña)	245.732,16 €	EU	2019-2022
Uso del agua y estrategias de resistencia a la sequía a distintas escalas: desde los mecanismos homeostáticos a la dinámica regional de la vegetación	DRESS	Jordi Martínez-Vilalta	193.600,00 €	Ministerio de Ciencia, Innovación y Universidades	2018-2021
Wildlife in the Andorran Pyrenees (II)	EARTHWATCH PIRINEU (II)	Bernat Claramunt	314.246,28 €	EarthWatch Institute	2016-2019
Improving future ecosystem benefits through Earth Observations	ECOPOTENTIAL	Joan Masó	14.874.340,00 €	EU	2014-2019



PROJECT NAME	ACRONYM	PRINCIPAL INVESTIGATOR	BUDGET	ENTITY	PERIOD
The European network for observing our changing planet	ERA-PLANET	Joan Masó	50.730.791,00 €	EU	2016-2021
EuroGEOSS Showcases: Applications Powered by Europe	E-SHAPE	Joan Masó	15.876.336,75 €	EU	2019-2023
Spread to natural environment of the most planted alien plants in the green areas in Barcelona	EXO BCN 2	Joan Pino	91.704,69 €	Ajuntament de Barcelona	2017-2019
EXOCAT	EXOCAT	Joan Pino	40.000,00 €	Generalitat de Catalunya	2019
CANVIS AMBIENTALS	FACTORS DE CANVI	X.Pons / J.Pino / Ll.Brotons	40.000,00 €	Generalitat de Catalunya	2019
Farmers' Adaptation and Sustainability in Tunisia through Excellence in Research	FASTER	Javier Retana	998.250,00 €	EU	2018-2021
Saturation of carbon sinks: from a CO2 and N fertilization-dominated period to a warming-dominated period	FERT-WARM	Josep Peñuelas	321.860,00 €	Ministerio Economía y Competitividad	2016-2019
Understanding soil fertility impacts on terrestrial biomass production in a changing environment	FIBER	Josep Peñuelas (Marie Curie fellowship granted to Benjamin Stocker)	158.121,60 €	EU	2017-2019
Desenvolupament de mapes de risc d'incendi en base al Basin Characterization Model (BCM) i a tendències en la humitat del combustible.	FIREMOIST	Enric Battlori	17.774,55 €	University of California	2018-2019
Escenaris de Gestió Forestal per l'Adaptació i la Mitigació	FORMASAM	Santi Sabaté	3.600,00 €	EFI	2018-2020
Efectes comportamentals i poblacionals d'aplicacions autoritzades de fungicides sobre pol·linitzadors de fruiters: estudis de laboratori, semi-camp i camp	FUNKY	Anselm Rodrigo / Jordi Bosch	199.650,00 €	Ministerio de Ciencia, Innovación y Universidades	2019-2021
Una ullada al futur àrtic: equipar un experiment natural únic per a la recerca d'ecosistemes de pròxima generació	FUTURE ARTIC	Josep Peñuelas	3.965.109,84 €	EU	2019-2023
Ground Truth 2.0 - Environmental knowledge discovery of human sensed data	GROUND TRUTH 2.0	Joan Pino / Joan Masó	5.740.631,25 €	EU	2016-2019
Avaluació de la contaminació als horts urbans de Barcelona	HORTS4U	Corina Basnou	14.533,00 €	Barcelona Regional	2019-2020
Iniciativa de Canvi Climàtic de l'ESA. Variables Climàtiques Essencials: Cobertes del Sol d'elevada resolució espacial	HRLandCoverCCI	Lluís Pesquer	199.953,00 €	University of Trento	2018-2021

PROJECT NAME	ACRONYM	PRINCIPAL INVESTIGATOR	BUDGET	ENTITY	PERIOD
Effects of phosphorus limitations on Life, Society and the Earth System	IMBALANCE-P	Josep Peñuelas	13.600.579,00 €	EU	2014-2020
Remote sensing INDicators for DROught monitoring	INDRO	Josep Peñuelas (Marie Curie fellowship granted to Manuela Balzarolo)	170.121,60 €	EU	2017-2019
Modelització integrada i planificació de la biodiversitat i els serveis ecosistèmics dels boscos en escenaris de canvi global	INMODES	Javier Retana	145.200,00 €	Ministerio de Ciencia, Innovación y Universidades	2018-2020
PROMoting the Governance of Regional Ecosystem Services	INTERREG PROGRESS	Enrique Doblas	1.640.000,00 €	EU	2019-2023
Creació i desplegament del Laboratori Metropolità d'Ecologia i Territori de Barcelona (LET-BCN)	LET-BCN	Joan Pino	40.000,00 €	IERMB	2018-2021
Estratègies de Gestió Forestal Innovadores per millorar la Biodiversitat dels Boscos Mediterranis. Incentius i Eines de Gestió	LIFE BIORGEST	Jordi Vayreda	1.576.374,00 €	EU	2018-2023
Restore desertified areas with an innovative tree growing method across the Mediterranean border to increase resilience	LIFE GREEN LINK	Josep Maria Alcañiz	2.891.702,00 €	EU	2016-2020
Mid-mountain adaptation to climate change	LIFE MIDMACC	Javier Retana	2.595.725,00 €	EU	2019-2024
Demonstration of a new agro-silvo-pastoral land use to improve farm profitability in mountain areas	LIFE POLYFARMING	Marc Gràcia	1.135.787,00 €	EU	2016-2021
Networks of knowledge and training for the effective management of Mediterranean forest habitats of Nature 2000	LIFE REDCAPACITA	Jordi Vayreda	590.154,00 €	EU	2016-2019
Recerca del patrimoni natural dels hàbitats de ribera del montseny, en el marc del life tritó montseny i del seguiment, de la biodiversitat del parc natural i reserva de la biosfera del montseny	LIFE-TRITO	Anna Avila / Lluís Brotons / Jordi Vayreda / Anabel Sánchez / Annelies Broekman	42.000,00 €	Diputació de Barcelona	2018-2020
LiquenCity. Cerca líquens urbanites i coneix la qualitat de l'aire de la teva ciutat	LIQUENCITY	Bernat Claramunt	27.872,75 €	FECYT	2018-2019
Low-carbon society: an enhanced modelling tool for the transition to sustainability	LOCOMOTION	Santi Sabaté / Jordi Solé	6.315.865,00 €	EU	2019-2023

PROJECT NAME	ACRONYM	PRINCIPAL INVESTIGATOR	BUDGET	ENTITY	PERIOD
MIRAMON	MIRAMON	Xavier Pons	42.000,00 €	Generalitat de Catalunya	2019
Monitoratge i modelització integrats en un sistema d'alerta de la vulnerabilitat climàtica en boscos de muntanya	MODOSIN	Entic Batllori	48.773,80 €	Ministerio para la transición ecológica (Organismo Autónomo Parques Nacionales)	2019-2022
Montclima: clima y riesgos naturales en las montañas del sudoe	MONTCLIMA	Javier Retana	1.051.358,47 €	EU	2019-2021
MOnitoring VEgetation status and functioning at high spatio-temporal resolution from Sentinel-2	MOVES	Aleixandre Verger (Marie Curie Fellowship granted to Gaofei Yin)	172.932,48 €	EU	2019-2019
Modelització de la resposta dels arbres a un augment de l'aridesa emprant trets funcionals	M-TRAIT	Josep Peñuelas (Marie Curie Fellowship granted to Aude Valade)	158.121,60 €	EU	2018-2020
Accions per a la conservació d'aus nocturnes, amfibis i orquídies a l'espai natural de Cànoves-Montseny	MUSSORGRA	Sandra Saura	1.500,00 €	SEO/BirdLife - Sociedad Española de Ornitología	2018-2019
Els nous boscos ibèrics: paper ecològic i vulnerabilitat potencial al canvi climàtic	NEWFORLAND	Joan Pino / Josep M.Espelta	160.930,00 €	Ministerio de Ciencia, Innovación y Universidades	2019-2021
Observatori	OBSERVATORI	Lluís Brotons / Anna Ramon	42.000,00 €	Generalitat de Catalunya	2019
Canvi global i boscos - OCCC (Projecte Forestime)	OCCC	Jordi Vayreda	80.000,00 €	Generalitat de Catalunya	2019
Research and innovation in the control and restoration process of mining activities	PEDRERES	Josep Maria Alcañiz	40.000,00 €	Generalitat de Catalunya	2019
CSEOL Citizen Science Earth Observation Lab	PHENOTANDEM	Joan Masó	68.100,00 €	STICHTING IHE DELFT (UNESCO-IHE)	2019-2020
'According to nature' - solutions to reduce risk in mountain landscapes	PHUSICOS	Pilar Andrés	9.472.200,00 €	EU	2018-2022
Plataforma integral per al control d'arbovirosis a Catalunya	PICAT	Frederic Bartumeus	443.657,10 €	Generalitat de Catalunya	2017-2019
Pol.linització	POL.LINITZACIÓ	Anselm Rodrigo / Jordi Bosch	20.000,00 €	Generalitat de Catalunya	2019
Prismàtic, plataforma de coneixement per la gestió del patrimoni natural i de la biodiversitat	PRISMÀTIC	Anna Ramon	25.000,00 €	Generalitat de Catalunya	2019

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Aplicació del Pasturatge Racional Voisin per a la restauració i millora de la productivitat de pastures enzona de muntanya mediterrània	PRV	Marc Gràcia	10.000,00 €	Generalitat de Catalunya	2016-2019
PYMEDEAS (BBDD modelització)	PYMEDEAS	Jordi Solé	30.000,00 €	Generalitat de Catalunya	2019
Uso de espacios de gobernanza para la adaptación en tramos sensibles de ríos Mediterráneos.	REDAPTA	Javier Retana	56.640,00 €	Fundación Biodiversidad	2019-2020
Drought regime shifts and global warming: Impacts, mechanisms, forecasts and mitigation strategies	REGIME-SHIFTS	Jofre Carnicer	79.860,00 €	Ministerio Economía y Competitividad	2016-2019
A network of observatories of ecosystems (lakes and peatbogs) sensitive to the climate change in the Pyrenees	REPLIM	Marisol Felip	1.002.347,55 €	EU	2016-2019
El sistema "Cocoon": ecotecnologia al servei de la restauració ecològica i l'agricultura a la conca mediterrània.	RESTOEMYS	Josep M. Alcañiz	29.930,00 €	Generalitat de Catalunya	2019-2020
Desarrollo del modelo de funcionamiento ecológico del lago de Sanabria y su cuenca	SANABRIA	Jordi Catalán	63.650,00 €	ECOHYDROS	2018-2019
Serveis ecosistèmics	SERVEIS ECOSISTÈMICS	Joan Pino	50.000,00 €	Generalitat de Catalunya	2019
SISEBIO	SISEBIO	Javier Retana	90.000,00 €	Generalitat de Catalunya	2019
Unravelling the potential of spontaneous forest establishment for improving ecosystem functions and services in dynamic landscapes	SPONFOREST	Josep M. Espelta	1.190.453,00 €	ERANET (Ministerio Economía y Competitividad)	2017-2020
Resilience of Soil Stoichiometry in subarctic soils under Temperature-Induced Soil Carbon Losses: Where does the N go?	STOICA	Josep Peñuelas (Marie Curie fellowship granted to Sara Marañón)	170.121,60 €	EU	2017-2019

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Variación de historias vitales y pérdida de diversidad biológica en los hábitats alterados por actividades humanas	SURVIVE_CHANGES	Daniel Sol	166.980,00 €	Ministerio de Ciencia, Innovación y Universidades	2018-2020
Tipping points en bosques Mediterráneos ante el cambio climático	TIPMED	Entic Batllori	78.529,00 €	Ministerio de Ciencia, Innovación y Universidades	2018-2020
Keys to understanding the transfer of atmospheric fluctuations to the dynamics of lake plankton	TRANSFER	Jordi Catalán	166.980,00 €	Ministerio Economía y Competitividad	2016-2019
An Ecosystem of Citizen Observatories for Environmental Monitoring	WEOBSERVE	Joan Masó	1.069.507,50 €	EU	2017-2020
Gestió de poblacions d'Osmia cornuta per a la pol·linització de fruiters	WILD	Anselm Rodrigo / Jordi Bosch	139.730,10 €	WILDBIENE	2017-2019
Xarxa boscos dinàmica natural	XARXA BOSCOS	Jordi Vayreda	35.000,00 €	Generalitat de Catalunya	2019





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